Data Modernization Tactical Guide:

Identifying and Implementing Data Modernization Projects

May 2025

Contents

Introduction

The purpose of this document is to detail key strategies and tactics for **identifying and implementing data modernization projects** within a state, tribal, local, or territorial (STLT) public health agency. This document is intended for Data Modernization (DM) Directors and other agency leadership who will be implementing data modernization.

This Tactical Guide is part of a multi-part series on data modernization for STLT health agencies.

1. Data Modernization Primer: Guide for State and Territorial Health Officials
2. Data Modernization Tactical Guide: Planning Data Modernization Activities
3. **Data Modernization Tactical Guide: Identifying and Implementing Data Modernization Projects**
4. Data Modernization Tactical Guide: Building, Equipping, and Sustaining a Data Modernization Workforce
5. Data Modernization Tactical Guide: Strengthening Data Modernization through Collaboration and Partnerships
6. Data Modernization Tactical Guide: Ensuring Long-Term Sustainability for Data Modernization Efforts

Each agency is approaching data modernization with their own unique set of structures, resources, strengths, and challenges. These documents are not designed to prescribe a "one-size-fits-all" approach. They serve as a guide rather than a set of stringent instructions to follow. Each agency will follow different routes, but all are traveling to the same destination—a stronger public health ecosystem that allows for data-driven decision making to promote population health for all.

Overview

Once an agency has completed the initial planning phase of data modernization, the team can identify specific data modernization activities to pursue. For additional guidance on the planning phase, we recommend reviewing the Data Modernization Tactical Guide: Planning Your Data Modernization Activities before reading this guide.

Determining which data modernization activities to focus on can seem like a daunting task, as there are so many things that need to be done and only so much time, money, and resources. To make this process a little more focused, this guide provides sample data modernization activities grouped into three distinct categories or areas of work. Within these categories, each activity is further sorted by level of difficulty or readiness, including foundational level, intermediary level, or advanced level. This allows for agencies that are at different levels to get an idea of where they should focus their efforts.

The remainder of the guide covers strategies for prioritizing these activities and implementing a data modernization plan. The implementation section covers common challenges and keys to success, tips for project management and performance monitoring, tips for procurement, and technical assistance and onboarding mechanisms available to agencies.

Identifying Data Modernization Activities

DM Directors can consider an array of activities when developing or updating their agency's data modernization plan. This report includes activities related to data governance, IT governance, and technology. It is important to note that these categories do not encompass all possible data modernization activities. For example, agencies will also need to develop goals targeted towards improving and equipping their workforce for data modernization. The Data Modernization Tactical Guide: Building, Equipping, and Sustaining a Data Modernization Workforce goes into more detail on how agencies may achieve this.

Each section provides sample activities at the "foundational level," "intermediary level," and "advanced level," with each serving a specific purpose in the overall transformation process. Below is a description of each level.

- **Foundational level:** These activities can be thought of as the initial building blocks of data modernization efforts. They focus on addressing fundamental challenges and laying the groundwork needed to support more advanced activities in the future.
- **Intermediary level:** These activities represent the bridge between the foundational and advanced levels. They focus on improving and scaling foundational elements to bring the agency to the "next level" of modernization.
- **Advanced level:** These activities represent the more advanced stages of data modernization. They go beyond basics and focus on implementing innovative technologies and transformative solutions to public health data collection.

As DMI Directors and other staff review this section, it is helpful to reference any previous assessments or plans that have been completed to determine which level best reflects your agency's situation for each category. It is important to note that these activities build upon one another, so make sure the agency has completed all steps in the foundational level before moving on to the intermediate level and, subsequently, the advanced level.

Data Governance

Data governance can be defined as the internal standards, roles, processes, and policies that dictate data management, storage, integrity, security, sharing, and usage. Effective data governance leads to better data analytics, which in turn informs better decision-making. Key concepts in data governance include:

- **Data governance processes:** processes help manage the availability, usability, integrity, and security of the data, including defining who has authority and control over data assets and how those data assets may be used.
- **Data standards:** documented agreements on the representation, format, definition, structuring, tagging, transmission, manipulation, use, and management of data.
- **Data architecture:** the overall structure of an organization's data and how the data flow to serve the organization's objectives—particularly how data are managed from collection to transformation, distribution, and consumption.
- **Data quality:** characteristics and processes associated with measuring or improving the reliability and trustworthiness of data.
- **Data management:** the practice of collecting, keeping, and using data in a secure, efficient, and cost-effective manner.
- **Data sharing:** the process of making data resources available to multiple applications, users, or organizations.
- **Data privacy:** processes for protecting sensitive health and individual data.
- **Data analytics:** the discovery, interpretation, and communication of meaningful patterns in public health data to support effective decision-making.

The table below highlights **foundational level**, **intermediary level**, and **advanced level** activities to consider when developing or improving data governance within your agency.

Table 1: Data Governance Activities by Level

Foundational Level	Intermediary Level	Advanced Level
Data Governance Processes • Designate an individual or group of people to oversee data governance (e.g., data governance committee, Chief Data Officer). • Establish and document data governance policies and frameworks to guide major data decisions (e.g., define rules for data ownership, data stewardship, data sharing).	**Data Governance Processes** • Expand the data governance committee to include representation from key program areas. • Implement established data governance policies and frameworks in 1-2 program areas. Gather feedback from staff, take note of what is working and what is not working, and update policies as needed.	**Data Governance Processes** • Elevate the data governance committee to a true, agency-wide committee that meets regularly and has power to enact large-scale data governance reforms. • Institute a standardized, enterprise-wide data governance framework that transcends departmental boundaries. Take a comprehensive approach to data assets to ensure uniform data quality and security.
Data Standards • Adopt nationally accepted data exchange standards, data classes, and elements (e.g., USCDI). • Note: Standards include message, content (e.g., LOINC, SNOMED, ICD, CPT, CVX, CDC PHIN VADS), and structure (e.g., HL7, FHIR).	**Data Standards** • Implement data exchange standards, data classes, and elements across different systems and program areas within the agency and begin exchanging data in real time using these standards.	**Data Standards** • Comprehensively exchange data both internally and externally only using nationally accepted data exchange standards. Stay up to date on evolving health standards through workgroups.

Table 1: Data Governance Activities by Level (Continued)

Foundational Level	Intermediary Level	Advanced Level
Data Architecture • Replace any ad hoc or one-off transformation services with more modern, interoperable services such as a message or data integration service to enable the electronic bidirectional exchange of data between internal public health data systems and external data providers.	**Data Architecture** • Leverage integration services across 1-2 program areas to minimize point-to-point connectivity. Begin developing a comprehensive plan to integrate various data sources, ensuring consistency and reliability in data exchange processes.	**Data Architecture** • Leverage an integration service that works across all program areas within the agency. Establish a central team that manages exchange across the entire agency. Monitor and report data feeds in real time to reduce redundancy and external partner burden, and increase timeliness.
Data Quality and Management • Establish a baseline of data quality and data management protocols. Reconcile data quality issues across data sources. • Establish policy or protocol to manage data quality (e.g., timeliness, completeness, accuracy, post-collection reconciliation) and the data lifecycle (e.g., data creation, data collection, data management, data usage, data sharing, retention policies and system backups, and disposition of records).	**Data Quality and Management** • Implement standardized quality checks and validation rules for data within 1-2 program areas. • Work with 1-2 program areas and external stakeholders to address data quality issues such as duplicate records or missing information. Perform reporting and analyses on collected data.	**Data Quality and Management** • Implement a comprehensive data quality framework for the entire agency. Conduct regular audits and assessments to ensure ongoing adherence to data quality standards. Deploy advanced data profiling tools to identify anomalies, outliers, or inconsistencies in data. • Link data between sources using a master patient index (MPI).

Table 1: Data Governance Activities by Level (Continued)

Foundational Level	Intermediary Level	Advanced Level
Data Sharing and Exchange • Establish and standardize policies and protocols governing data sharing and exchange internally and externally (e.g., MOUs, DUAs, and BAAs).	**Data Sharing and Exchange** • Implement secure data exchange mechanisms to share data internally and externally. Adopt standardized formats and implement authentication protocols to ensure data integrity and confidentiality. Onboard data partners to be able to send data in a standardized format.	**Data Sharing and Exchange** • Implement advanced interoperability standards and frameworks (e.g., FHIR, APIs) that enable the seamless exchange of data internally and externally with partners, federal reporting agencies, and other public health agencies.
Data Privacy • Establish policies and protocols governing the collection, use, and sharing of personal health information. Establish guidelines for obtaining consent, ensuring transparency, and safeguarding sensitive data.	**Data Privacy** • Implement access controls and authentication mechanisms to restrict unauthorized access to sensitive data. Train staff on secure data-handling practices and conduct regular audits to assess and reinforce compliance.	**Data Privacy** • Institute privacy-by-design principles within the agency by integrating privacy considerations into the development of systems, processes, and policies from the outset.
Data Analytics • Identify and leverage existing data analytics activities within the agency to accelerate new analytics and reporting opportunities. • Share aggregated data analytics, outputs, and reports with internal partners, external partners, and on public-facing channels (e.g., website, social media, etc.).	**Data Analytics** • Offer training sessions to staff to enhance analytical skills in data visualization and reporting.	**Data Analytics** • Deploy sophisticated analytical techniques and machine learning algorithms to draw insights from data.

Information Technology (IT) Governance

IT governance is defined as the internal standards, roles, processes, and policies that dictate IT management, strategy, operations, and security. Key concepts in IT governance include:

- **IT governance processes:** processes and decision-making mechanisms to direct and control the use of IT within an organization.
- **IT standards:** specific, minimum requirements for the acquisition, use, or provision of IT, typically designed to facilitate the uniform application or implementation of one or more IT policies.
- **IT management:** the monitoring and administration of an organization's IT, including hardware, software, and networks.
- **Cybersecurity:** the practice of protecting electronic information systems and the information they contain from cyber-attacks—such as preventing damage, unauthorized use, and exploitation of electronic information systems, as well as the restoration of these systems in the event of an attack.

The table below highlights **foundational level**, **intermediary level**, and **advanced level** activities to consider when developing or improving IT governance within your agency.

Table 2: IT Governance Activities by Level

Foundational Level	Intermediary Level	Advanced Level
IT Governance Processes • Designate an individual or committee to oversee IT governance. Establish an IT governance process to guide major information and system decisions. • Establish and document data governance policies and frameworks to guide major data decisions (e.g., define rules for data ownership, data stewardship, data sharing).	**IT Governance Processes** • Expand the data governance committee to include representation from key program areas. • Implement established data governance policies and frameworks in 1-2 program areas. Gather feedback from staff, take note of what is working and what is not working, and update policies as needed.	**IT Governance Processes** • Elevate the data governance committee to a true, agency-wide committee that meets regularly and has power to enact large-scale data governance reforms. • Institute a standardized, enterprise-wide data governance framework that transcends departmental boundaries. Take a comprehensive approach to data assets to ensure uniform data quality and security.

Table 2: IT Governance Activities by Level (Continued)

Foundational Level	Intermediary Level	Advanced Level
IT Standards • Establish processes to identify, adopt, and use IT standards across the agency. • Collaborate with program area leads and staff to identify ways to implement IT standards with minimal disruption to activities.	**IT Standards** • Identify, prioritize, and implement additional IT standards to complement those currently in place. • Begin automating tasks to minimize down time and disruption. Implement continuous monitoring and validation for IT standards and cybersecurity.	**IT Standards** • Implement IT standards in a consistent way across all systems within the agency. Ensure relevant staff groups are involved and know when disruptions are taking place. • Integrate IT standards implementation and as part of day-to-day practice. Create a schedule that clearly delineates when updates and standards will be implemented.
IT Management • Establish processes, in collaboration with all programs areas, for granting and managing user accounts and access to systems. • Monitor and manage IT systems and resources by adopting Information Technology Infrastructure Library (ITIL) practices and implementing an IT Service Management Support desk.	**IT Management** • Assign responsibility for granting access and permutated access to systems for internal and external partners to the IT Service Management Support desk. • Create a ticketing system to manage IT Service Management Support desk requests. Create infrastructure needed for the IT Service Management Support desk to be able to complete Tier 1 and Tier 2 level requests from staff.	**IT Management** • Establish a single sign-on or federated service for logins across systems. • Establish an enterprise-wide IT Service Management Support desk system that can collate tickets for IT issues. Automate Tier 1 level requests and create the infrastructure needed to be able to support Tier 3 level requests from staff.

Table 2: IT Governance Activities by Level (Continued)

Foundational Level	Intermediary Level	Advanced Level
Information Security and Cybersecurity • Establish processes to identify vulnerabilities, evaluate threats, and implement key security controls in software applications to improve the security and resiliency of IT infrastructure. • Establish reporting mechanisms in the event of a suspected ransomware attack or data breach to initiate a response in order to limit damage.	**Information Security and Cybersecurity** • Implement security processes that allow the team to respond to any information security or cybersecurity issues in a timely manner. Develop a schedule for preventative measures, begin developing reconciliation processes and backing up data. • Perform preventative processes to detect and mitigate security threats, performance issues, or non-compliance problems, such as Continuous Monitoring (CM), security tabletop exercises, etc.	**Information Security and Cybersecurity** • Develop an automated monitoring and recording system. Be able to respond to information security or cybersecurity threats in a timely manner. Implement an enterprise-wide monitoring system that allows for 24/7 monitoring across the entire IT system. • Develop standardized reconciliation processes in the event of any issues or challenges.

Technology and Systems

Technology and Systems are the platforms and mechanisms used to store, exchange, and analyze data. Key concepts covered in this section include:

- **Enterprise Systems infrastructure:** components required to operate and manage enterprise IT services and environments, including hardware, software, and service components that support the delivery of IT-enabled processes.
- **System development and improvement:** processes to define, design, test, and implement a new software application or program, or make enhancements to an existing one. This may include the internal development of customized systems, the creation of database systems, or the acquisition of third party-developed software.
  - » **User interface (UI):** a user's interaction with computer systems, software, and applications.
  - » **User Experience (UX):** a user's overall experience with a brand, product, or service.
- **System interoperability:** real-time data exchange between disparate systems.
- **Data Infrastructure:** infrastructure for collecting, managing, and storing datasets for data analysis, sharing, and reporting (e.g., databases, data warehouses, data lakes, data marts).

The table below highlights **foundational level**, **intermediary level**, and **advanced level** activities to consider when developing or improving technology within your agency.

Table 3: Technology and Systems Activities by Level

Foundational Level	Intermediary Level	Advanced Level
Enterprise System Infrastructure • Collaborate across program areas to evaluate the pros and cons of migrating datasets, applications, and information systems to a cloud-based computing platform (e.g., cost-effectiveness, improved processing and performance efficiency, scalability, sustainability, and stability).	**Enterprise System Infrastructure** • Develop and implement a cloud strategy and/or a cloud-first IT implementation roadmap [e.g., Infrastructure as a Service (IaaS); Platform as a Service (PaaS), or Software as a Service (SaaS)].	**Enterprise System Infrastructure** • Establish a complete, enterprise-wide, cloud infrastructure by moving all backups, routes, and pipelines, to the cloud. Implement data backups and put all necessary continuous monitoring mechanisms in place.
System Development and Improvement • Conduct an analysis of alternatives to determine a path forward for each system that needs to be improved (e.g., buy versus build). Develop an enterprise-wide system development and improvement strategy for new and antiquated systems that incorporates user needs and requirements. • Work with staff to prioritize UI/UX and human-centered design in the improvement of systems.	**System Development and Improvement** • Identify system development lifecycle (SDLC) roles, responsibilities, and processes in which IT and program staff should be involved. • Begin executing the strategy (in conjunction with infrastructure improvement). Work with program area staff to test and gather feedback on new systems.	**System Development and Improvement** • Maintain an enterprise-wide strategy for all system implementations. • Develop a maintenance and sustainability plan for keeping systems up to date. Continue to collect user feedback and use it to refine and improve systems.

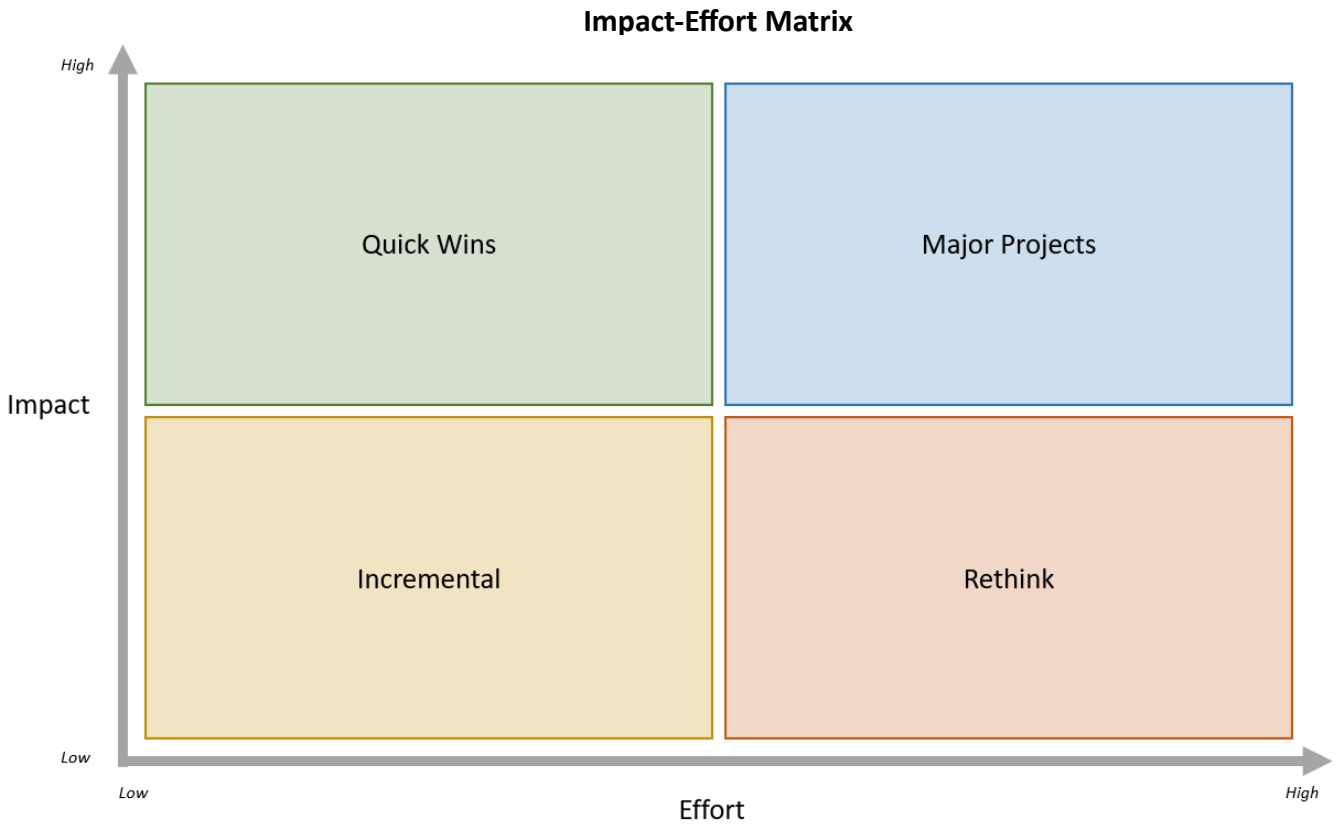
Table 3: Technology and Systems Activities by Level (Continued)

Foundational Level	Intermediary Level	Advanced Level
System Interoperability • Identify standalone data systems that do not or cannot interoperate with other health or public health information systems (either internal or external). • Identify barriers, opportunities, and technical strategies needed to electronically send, receive, and process data internally and externally.	**System Interoperability** • Collaborate across program areas to identify external partners. Coordinate with external partners to develop processes for electronically sending, receiving, and processing data with their systems. • Develop an Application Programming Interface (API) Strategy/API Management Plan to manage interface development and maintenance.	**System Interoperability** • Ensure that all systems are interoperable both internally and externally. Develop an onboarding process for new partners. • Develop standards in line with consensus IT and health standards for data exchange. Continuously monitor data feeds from systems in real time through APIs.
Data Infrastructure • Collaborate with programs to identify enterprise-wide and program-specific use cases for implementing a centralized data repository. Identify limitations of existing data repositories.	**Data Infrastructure** • Establish a data lake (a centralized repository that allows storage of all structured and unstructured data at any scale) or a data warehouse (a centralized repository of data from one or more discrete sources).	**Data Infrastructure** • Fully automate all data pipelines and ensure they align with the agency's data governance principles. Establish a link between datasets using an MPI and leverage data across program areas for outputs and analyses.

Prioritizing Data Modernization Activities

Given limited time and resources, DM directors must make informed decisions about which opportunities to pursue, in order for their data modernization initiative to succeed. Additionally, DM directors should consider the sequencing of opportunities to optimize resource allocation and support the completion of larger initiatives with interdependencies. One helpful priority-setting and decision-making tool is an impact-effort matrix, pictured below. Agencies can use this tool to prioritize activities based on their potential impact and the amount of effort required to implement them. The **impact** of an activity is typically measured in terms of its ability to achieve outlined objectives. The **effort** required to implement an activity is measured in terms of time, money, or other resources. Based on impact and effort, activities can be mapped to one of the following quadrants:

- **Quick Wins (high impact/low effort):** These represent the leading activities agencies should focus on as they are low effort and high reward.
- **Incremental (low impact/low effort):** While these activities take little effort, agencies should consider sequencing these after more rewarding activities are addressed.
- **Rethink (low impact/high effort):** Activities that fall in this grid quadrant may not become priorities. Agencies may want to determine whether they are worth doing at all.
- **Major Projects (high impact/high effort):** These are prime activities for the agency, but they require a higher level of effort. Agencies may wish to consider these activities if the team is fully committed to putting in the time and effort needed to achieve them.



Sample questions to ask when determining which activities to prioritize:

- To what extent do activities in this area align with our organization's goals and objectives?
- What positive outcomes will result from implementing activities in this area?
- Who are the primary beneficiaries of activities in this area?
- Could activities in this area be coordinated across multiple program areas or public health activities?
- Would activities in this area align with our organization's existing strengths and capabilities?
- What resources are required to implement activities in this area?
- Do we have the necessary skills and capabilities to execute activities in this area effectively?
- What are the potential obstacles or risks associated with activities in this area?
- To what extent are activities in the area prerequisites for other priority efforts?

Implementing a Data Modernization Plan

Common Challenges and Keys to Success

Several challenges can impede the successful implementation of a data modernization plan. For example, inadequate communication about the plan's goals, progress, and changes may result in confusion, frustration, and decreased buy-in from staff. To mitigate this, develop a communication strategy for data modernization efforts that includes a communication lead and a **communication plan** that outlines key messages, key audiences, and key methods for the dissemination of messages. Providing staff with accurate and timely updates regarding data modernization efforts will help to increase awareness and buy-in. Additionally, the communication team should encourage bidirectional communication between staff and leadership. Doing so helps to build trust and foster a sense of shared ownership of the initiative.

Another key area to focus on is the management of change and transformation. **Change management** describes the disciplined process an organization undertakes to promote the adoption of transformational efforts. It is often referred to as managing the "people side" of change. As an agency begins implementing data modernization projects, it will undergo many transformations such as technical changes to systems and applications, and operational changes to processes. During these transformations, it is normal for staff affected by the change to feel confusion, uncertainty, or frustration. To address this, leadership must take steps to ensure that staff are on board with the change, feel supported during the transition phase, and feel confident that they can adjust to the change. This can be achieved by hosting training sessions on using the new application or system, maintaining an open dialogue with staff to understand any apprehensions they may have or challenges they may be facing, and creating knowledge transfer plans to assist in the learning and onboarding process, to name a few examples.

Keep in mind that the need to manage change and transformation is not limited to the transition period when switching to a new technology or process. Agencies should prioritize **human-centered design** when making decisions about which technologies to purchase or processes to implement, and how to improve these moving forward. User feedback should be continuously incorporated to refine technologies and processes, ensuring that the technologies and processes align with the practical needs and workflows of those who interact with them. In short, neglecting to manage the change can have detrimental effects on the success of your transformations, as it can result in low adoption and cause staff to backslide into using antiquated systems or processes. To avoid this, be sure to carefully consider the people side of change, before, during, and after implementing any new technologies or processes within the agency.

Human Centered Design

Human-centered design is a problem-solving approach that puts people at the center of the development process. This enables leaders to create products and services that resonate with and are tailored to the needs of users.

For public health data modernization, many agencies may be going through the process of replacing systems. When selecting a new system, leadership should speak with the end users of the system and prioritize their needs in the selection process.

Source: Harvard Business School

Project Management and Performance Monitoring

Effective project management is crucial for the successful implementation of a data modernization plan. After finalizing your DMI plan and identifying priority activities, develop separate implementation plans (or project plans) for each activity, to allow more granular tracking of tasks. Adopting agile methodologies during the implementation phase will improve the team's ability to adapt to any changes or challenges that arise. Break down activities into manageable phases or sprints, allowing for iterative changes as needed. Additionally, remember to communicate early and often with project teams to ensure that they have the resources needed to succeed and help them to address any obstacles they may be facing. It may be helpful to develop a centralized risk and issue log to track, monitor, and address any risks or issues that project teams may be facing during the implementation process. Finally, be sure to monitor performance and measure the impact of processes to track progress on goals and milestones identified in the plan. Tracking progress will also help to encourage a culture of continuous improvement. By consistently monitoring progress and making note of what is not working well, the team will be better equipped to make further improvements and come closer to the agency's "ideal state" of data modernization.

Tips for the Procurement Process

Many agencies have a procurement department that staff must work with when purchasing any new technologies. While agency procurement professionals are well versed in the procurement process, they may not always have a clear understanding of the technical requirements needed to ensure newly acquired products and services meet the day-to-day needs of end users. To address this, be sure to write requests for proposals (RFPs) with a clear understanding of technical requirements and systems and operational considerations.

Before exploring potential products or services, consider developing a comprehensive, prioritized list of features that are "must have," "nice to have," and "not needed," to develop a better understanding of what might best fit your needs. Another important aspect to consider is the Total Cost of Ownership (TCO) of a product or service. TCO refers to the overall cost of a product or service over the course of its useful life. This may include the cost of any implementation services, upgrades, extensions, integrations, support services, training, or service contracts. When examining options for cloud data storage, consider your data retention requirements and data storage requirements, as well as what the vendor offers in terms of security and compliance, incident management, and disaster recovery. For any hardware or software purchases, consider the customization (ability to modify the system outside of its original functionality, often requiring custom coding) and configuration (ability to adjust the functionality of a system to best suit your needs) that systems offer and how this may impact the agency's overall interoperability needs. Moreover, be aware of any technical support that vendors may offer to fix any bugs that may arise as well as any warranties or return policies. See the appendix for a checklist summarizing these and additional key considerations to keep in mind when engaging in any procurement process.

Technical Assistance and Onboarding Mechanisms

There are multiple technical assistance and onboarding mechanisms available to STLT agencies engaging in data modernization efforts. These mechanisms can provide agencies with valuable expertise, guidance, and support on projects. The table below summarizes a few available resources.

Table 4: Technical Assistance Mechanisms

Topic	Description
Public Health Infrastructure Grant (PHIG)	PHIG national partners offer on-demand technical assistance to all grantees. This includes the development of tools and resources, facilitation of peer-to-peer conversations, design and delivery of assessments, verbal or written guidance, provision of trainings, site visits, and policy analyses. Grantees can request technical assistance via the PHIVE portal.
Electronic Lab Reporting (ELR)	The Association of Public Health Laboratories (APHL) is collaborating with CDC to offer technical assistance to public health agencies and laboratories to implement and advance electronic laboratory reporting with diverse messaging partners. ELR allows laboratories and public health agencies to exchange data using a fast and potentially more streamlined process. Electronic Lab Reporting Technical Assistance (ELRTA) enables ELR capability on a larger scale, supporting the exchange of HL7 lab results messages between commercial labs, public health laboratories, and public health agencies. STLT agencies can request technical assistance by completing this request form.
Cross Jurisdictional/Inter Partner Data Exchange	APHL is collaborating with CDC to offer technical assistance to public health agencies and laboratories for InterPartner Data Exchange. InterPartner Data Exchange is an interstate-style message file naming format that allows for sending and receiving messages between any two trading partners on the AIMS platform, not just states. STLT agencies can request technical assistance by completing this request form.
Case Notification and Message Mapping Guides (NNDSS)	APHL is collaborating with CDC to offer technical assistance to public health agencies and laboratories for HL7 message mapping guide implementation and onboarding. HL7 refers to "Health Level Seven"—a set of international standards for the exchange of electronic health information. STLT agencies can request technical assistance by completing this request form.
Electronic Case Reporting (eCR)	APHL is collaborating with CDC to offer technical assistance to public health agencies and laboratories for electronic case reporting (eCR). eCR is the automated generation and transmission of case reports from electronic health records to public health agencies for review and action. STLT agencies can request technical assistance by completing this request form.
Data Modernization	APHL is collaborating with CDC to offer technical assistance to public health agencies and laboratories for data modernization activities. STLT agencies can request technical assistance by completing this request form.

Table 4: Technical Assistance Mechanisms (Continued)

Electronic Test Orders and Results (ETOR)	APHL is collaborating with CDC to offer technical assistance to public health agencies and laboratories for ETOR. STLT agencies can request technical assistance by completing this request form.
Public Health Laboratory Interoperability Project (PHLIP)	APHL is collaborating with CDC to offer technical assistance to public health agencies and laboratories for PHLIP. It was launched in 2006 to improve information sharing between public health laboratories and the CDC. STLT agencies can request technical assistance by completing this request form.
Reportable Conditions Knowledge Management System (RCKMS)	RCKMS is an authoritative, real-time portal to improve disease surveillance. RCKMS stores comprehensive information on public health reporting requirements and acts as a decision support service (DSS) to determine if a potential case is reportable and to which STLT agencies. Users are able to submit tickets for content feedback, training, and authoring support and any general inquiry, request, comment, or feedback related to RCKMS.

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Key Takeaways

- Many data modernization projects fall into the categories of data governance, IT governance, or technology.
  - » Data governance can be defined as the internal standards, roles, processes, and policies that dictate data management, storage, integrity, security, sharing, and usage.
  - » IT governance can be defined as the internal standards, roles, processes, and policy that dictate IT management, strategy, operations, and security.
  - » Technology and systems can be defined as the platforms and mechanisms used to store, exchange, and analyze data.
- Plotting activities on an Impact-Effort Matrix can help agencies determine which activities to prioritize.
- Developing a communication plan for data modernization and providing staff with accurate and timely updates regarding efforts will help to increase awareness and buy-in for the initiative.
- Leadership must take steps to ensure that staff are on board with changes related to data modernization efforts, feel supported during the transitionary phase, and feel confident that they can adjust to the change.
- Agencies should prioritize human-centered design when making decisions about which technologies to purchase or processes to implement, and how to improve these moving forward.
- Adopting agile project management methodologies during the implementation phase of data modernization will improve an agencies' ability to adapt to any changes or challenges that arise.
- To help streamline the internal procurement process, requests for proposals (RFPs) should be written with a clear understanding of technical requirements and systems and operational considerations.
- There are multiple technical assistance and onboarding mechanisms available to STLT agencies engaging in data modernization efforts. These mechanisms can provide agencies with valuable expertise, guidance, and support on projects.

Additional Resources

Topic	Resources
Data Modernization	• CDC's Data Modernization Initiative • CDC Public Health Data Interoperability • CDC LDX Strategy • CDC Public Health Data Strategy • Federal Data Strategy • PHII Data Modernization Planning Toolkit • Stories: Surveillance and Data in Action • Trusted Exchange Framework and Common Agreement (TEFCA) • ASTHO DMI 101 for Health Agency Leaders
Leading Transformation and Managing Change	• ASTHO Change Management Training • Building Strategic Skills for Better Health • PHII Change Management Toolset

Appendix

Procurement Process Checklist

Consideration	Yes	No	Notes
Have we confirmed the type of solicitation (e.g., competitive or a sole or single source-based acquisition)?	❑	❑	
Have we developed a sole or single source justification (if applicable)?	❑	❑	
Have we determined if the vendor we are working with is a new supplier?	❑	❑	
Have we identified all delegated purchasing authorities?	❑	❑	
Have we engaged all necessary collaborators (e.g., Procurement, Legal, IT, DM Director)?	❑	❑	
Have we looked for opportunities for shared services within the agency?	❑	❑	
Do we have a solid understanding of the Total Cost of Ownership (TCO) of the product or system we are procuring?	❑	❑	
Have we considered the readiness of our workforce for this change?	❑	❑	
Have we taken into account all considerations related to IT governance (e.g., role-based access, compliance, integration requirements)?	❑	❑	
Have we defined our data retention needs and created a data retention policy?	❑	❑	
Have we determined which requirements are the most important for our cloud data storage infrastructure?	❑	❑	
Is the system or product we are procuring compliant with all industry and government standards?	❑	❑	
Have we developed a detailed management approach and methodology for incident classification?	❑	❑	
Are we aware of the vendors' disaster recovery policies?	❑	❑	
Have we created a list of features that are "must have," "nice to have," and "not needed"?	❑	❑	
Have we determined if we need cloud storage or on-premises storage?	❑	❑	
Have we considered how the product or system we are procuring fits with other applications in the agency?	❑	❑	
Is the product or system we are procuring customizable?	❑	❑	
Is the product or system we are procuring configurable in a way that meets our needs?	❑	❑	
Does the vendor offer implementation support or training and onboarding?	❑	❑	
Are we aware of the process for receiving updates to the system?	❑	❑	
Are we familiar with the type of technical support or procedures the vendor provides to fix bugs?	❑	❑	
Are we aware of all warranties and return policies that apply to the product/system we are procuring?	❑	❑	