DATA MODERNIZATION PLAN USER GUIDE

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1   EXECUTIVE SUMMARY

1.1   DATA MODERNIZATION INITIATIVE BACKGROUND

Public health depends on widespread and rapid access to data to drive decisions, as such data is the foundation of public health. The goal of the Data Modernization Initiative (DMI) is to move from siloed and brittle public health data systems to a connected, resilient, adaptable, and sustainable "response ready" data ecosystem that can help us solve problems before they happen and reduce the harm caused by the problems that do happen. CDC supports the following DMI efforts:

- Creating scalable and sustainable surveillance systems that provide faster, more complete data.
- Enhancing rapid and accurate transmission of critical laboratory data between public health agencies and public and private laboratories.
- Developing a public health workforce with the latest skills in data science and informatics to build world-class data systems.
- Providing resources and technical expertise to accelerate state, local, tribal, and territorial health department data modernization efforts in the above three areas.

1.2   DATA MODERNIZATION PLAN LIFECYCLE

This user guide has been developed to assist jurisdictions with developing their data modernization plans. Your DMI journey is an ongoing effort that relies on sustained support from various working collaborators throughout public health. As such, it is recommended that jurisdictions continuously monitor and update DMI Plans as they progress through their DMI goals and milestones.

The DMI Plan life cycle represents the stages that jurisdictions undergo as they work towards strengthening core data and surveillance infrastructure. The four stages of the DMI Plan life cycle are outlined in the diagram below.
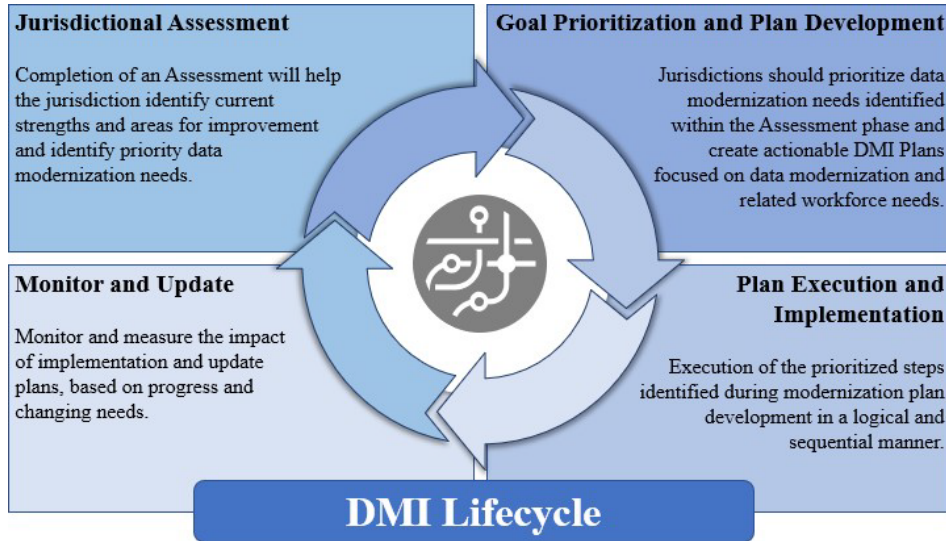
1.3   DMI PLAN GUIDING PRINCIPLES

Jurisdictions should develop DMI Plans in alignment with the following guiding principles:

- Initiate Data Driven and Actionable Planning
- Maintain Alignment to Assessment and its Updates
- Leverage Available and Sustainable Resources
- Ensure Impact Development Through Implementation
- Commit to Periodic Monitoring and Updates

2   DMI PLAN COMPONENTS

DMI Plans should outline a high-level strategy, or direction, for recipients to create a modern, integrated, and real-time public health data ecosystem. This includes identifying DMI goals and strategic milestones, as well as establishing a governance framework, risk management processes, communications procedures, and a DMI Plan monitoring/review schedule.

A DMI Plan Tool was developed to support jurisdictions with identifying and documenting each component of their high-level strategy. Each component of the tool, listed below, is explained in greater detail in the following sections.

- DMI Plan Overview
- DMI Plan Details
- Governance Framework
- Communication Plan
- Enterprise Risks and Issues
- DMI Plan Monitoring and Review

2.1   DMI PLAN OVERVIEW

Identifying DMI goals is the first step towards developing a strong DMI Plan. DMI goals should either be based on findings from the [Public Health Data Modernization Assessment](#) or reflect previously set DMI goals that have been identified. All DMI goals should track towards public health outcomes that align with CDC's DMI priorities.

In this section, recipients will list all of their DMI goals, including a short description, anticipated impact, and primary point of contact for each. Jurisdictions should prioritize goals based on public health value, dependencies, sustainability, resourcing, and overall readiness.

Priority Level Definitions:

Prioritization levels in the DMI Plan are used to determine the length of time needed to achieve a particular DMI Goal relative to other identified DMI Goals. Identifying the priority level of each of your DMI Goals will give jurisdictions a better idea of how your energy and resources will be distributed from the beginning to the end of your DMI journey.

- **Short Term:** Goals identified as Short Term will take between one (1) year and eighteen (18) months to achieve.
- **Intermediate Term:** Goals identified as Intermediate Term will take between eighteen (18) months and three (3) years to achieve.
- **Long Term:** Goals identified as Long Term will be take greater than three (3) years to achieve.

2.2   DMI PLAN DETAILS

Strategic milestones further break down DMI goals into actionable steps. This will help jurisdictions to find practical ways to accomplish DMI goals and focus on the details necessary to succeed.

In this section, jurisdictions will identify a list of strategic milestones for each DMI goal, including a primary point of contact, any resource considerations (e.g., staff, funding, technical assistance needs), barriers/constraints, and dependencies.

2.3   DMI GOVERNANCE FRAMEWORK

Throughout the course of any large initiative, various conflicts and competing priorities may arise. These challenges are normal, inevitable, and come in many forms, including:

- Technical challenges such as competing priorities or debates surrounding software selections.
- Operational barriers related to outdated or missing policies and operational procedures.
- Organizational constraints related to staff availability or funding sources.
- Change management requirements, including but not limited to communications and organizational resistance.

The importance of defining a DMI governance framework cannot be underestimated. The foundation of governance consists of the following defining characteristics:

- Determines the nature of key relationships within an organization as related to DMI. Ideally, governance will be multi-disciplinary (epidemiologists, end users, system managers, organizational leadership).
- Determines the relationships with constituencies outside of the organization if any.
- Determines how attributes such as control, accountability, responsibility, and authority relate to one another and how issues are resolved and rationalized.
- Guides the documentation and approval of DMI Plan change requests and communication of DMI Plan changes.
- Promotes consensus surrounding prioritizing goals and strategic milestones.
- Determines risk and issue escalation, including resolution procedures and timeline expectations.
- Assigns clear accountability throughout critical points in decision-making process.

A thoughtful DMI governance framework will help set expectations for working collaborator interactions and will promote clear responsibility and accountability for DMI working collaborator groups at various levels. The reliability of the governance framework should be verified and refined periodically to enable effective communications, risk mitigation, issue resolution, and timely decision-making.

Jurisdictions may identify contributors, reviewers, and approvers for each component of their DMI Plan, including the assignment of a governance tier. These assignments will help define the escalation process necessary to guide jurisdictions through the management of risks, issues, and other challenges, and support firm decision-making throughout the DMI life cycle. Governance tiers can be tailored to specific processes and procedures but may look similar to the examples provided below.

Example Governance Tier Definitions:
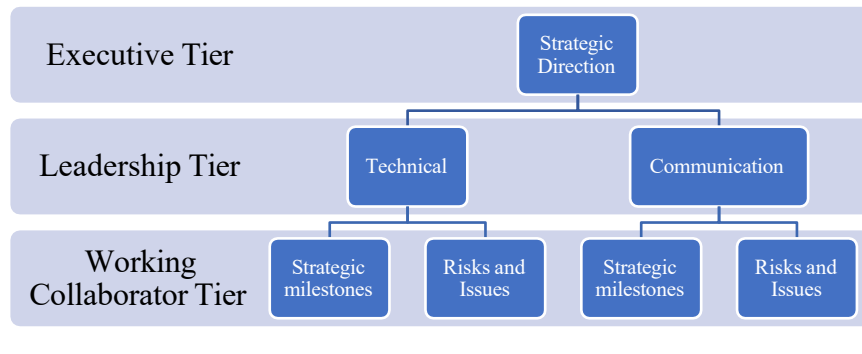
Example Governance Team Organization Chart

- **Executive Tier:** Individuals in the Executive Tier are responsible for confirming project funding, policy decisions, and resolution of escalated or executive level risks and issues impacting DMI efforts. The Executive Tier is also responsible for defining direction based on prioritized goals/objectives and tolerance for change. The Executive Tier will help promote a collaborative process and will reinforce the executive sponsorship critical to success.
- **Leadership Tier:** Individuals in the Leadership Tier work closely with executives, task team members, change management advocates, and other working collaborators to plan and execute DMI Strategic milestones. The Leadership Tier typically allocates and directs staff and other resources to accomplish DMI Strategic milestones while maintaining control over the DMI Plan. The Leadership Tier will actively participate in the resolution of operational barriers and maintain responsibility for overseeing progress of the DMI Strategic milestones. This Tier will typically approve changes to the DMI Plan and will escalate to the Executive Tier when consensus on a particular change cannot be met.
- **Working Collaborator Tier:** Individuals in the Working Collaborator Tier are key contributors to the development of the DMI Plan and its execution. They may be responsible for monitoring the progress and status of the DMI Plan and its activities. Working collaborators will offer their subject matter expertise and act as key contributors in the prioritization and sequencing of the DMI activities. Working collaborators may also be responsible for confirming the technical validity of any proposed solution or activity supporting the DMI Plan. Technical validity may include technology, human resources, change management, communications as well as overall project management.

2.4   COMMUNICATION PLAN

The DMI Communication Plan provides a framework and timeline for delivering key DMI messages throughout the DMI journey. Determining how and when key DMI messaging is communicated remains key to the adoption of DMI goals. The Communication Plan tab in the Data Modernization Planning Template serves as a guide for recipients that may not have a DMI

communications plan already in place. Please consider the information below as you plan your Data Modernization communications.

The purpose of the Communication Plan is to define the forms of communication that will take place during your DMI lifecycle. Components of your Communication Plan may include:

- Crafting of key messages required at each stage of your data modernization efforts
- Identification of appropriate delivery method(s) based on audience
- Determination of frequency for key messages and working collaborator communications
- Development of a process/forum to answer questions and communicate feedback from working collaborators
- Identification of a key point of contact for each proposed communication

2.5   ENTERPRISE RISKS AND ISSUES

A structured and well-publicized approach to risk and issue management is critical to overall DMI success. While risks and issues impacting individual DMI initiatives will mostly be managed at the project level, recipients are encouraged to also capture and manage 'enterprise' risks that may impact their DMI journey across multiple initiatives. We urge the DMI Lead or a representative to leverage the governance framework when managing enterprise risks.

Enterprise Risk Categories
- Strategic
- Operational
- Compliance
- Financial

Risk Characteristics:
- An event that has not yet occurred but has the potential of impacting DMI progress generally.
- A risk may become an issue, requiring immediate action if left unattended.
- Risks require a monitored mitigation plan.

Issue Characteristics:
- An event that has happened and requires immediate attention.
- Typically, an issue is escalated to the Executive and Leadership Tiers for awareness and assistance in resolution.
- Issues require a monitored resolution plan.

2.6   DMI PLAN MONITORING AND REVIEW

The final step in any planning process is to monitor and evaluate progress. Developing a formalized review procedure in support of DMI planning efforts will help recipients to stay on track and consistently monitor the value and impact you set out to achieve.

There are three (3) major considerations you may leverage when defining your monitoring and review approach, including:

- Monitor Progress and Status: High level management of DMI Goals and associated Strategic milestones
- Gain Approvals for Potential Modifications**:** Priorities, Working Collaborators, Staffing Assignments, etc.
- Formalize Schedule: Review schedule for the Plan and the purpose of each review

Formal reviews and modifications of your DMI Plan are critical to your success. The review indicators you choose to measure serve as a representation of the progress you are making on your DMI Plan. Examples of planned review cycles and potential review indicators you may consider when defining your monitoring schedule can be found within the Data Modernization Planning Template.

3   DMI RESOURCES

The Data Modernization Planning Template is a spreadsheet that can assist jurisdictions in developing their data modernization roadmap. For more resources related to DMI assessment and planning, visit CDC's Data Modernization Implementation Guidance Portal for Public Health Departments

APPENDIX A: ACRONYM LIST

Acronym	Definition
APHL	APHL Informatics Message Services
DMI	Data Modernization Initiative
eCR	Electronic Case Reporting
EHR	Electronic Health Records
eICR	Electronic Initial Case Reports
ELR	Enterprise Laboratory Reporting
ETOR	Electronic Test Order and Results
HL7	Health Level Seven International
LIMS	Laboratory Information Management System
NBS	Newborn Screening
NCHS	National Center for Health Statistics
NNDSS	National Notifiable Diseases Surveillance System
NVSS	National Vital Statistics System
PHL	Public Health Laboratory
RR	Reportability Responses
REDCap	Research Electronic Data Capture
SMART	Specific, Measurable, Achievable, Relevant, and Time-bound
TA	Technical Assistance