CHANGING
Maryland
FOR THE BETTER

STATE DATA STRATEGIC PLAN

2022

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INTRODUCTION

Data plays an increasingly prominent role in daily life. Whether through news and information, social media, entertainment, or shopping, there are considerable amounts of data being created and consumed every minute. In fact, on average 2.5 quintillion data bytes of data are currently created each day. This number is expected to grow to 463 exabytes each day by 2025[1]. There has become an expectation that the information needed to make decisions will be available, timely, and correct.

The exponential growth in data is not limited to social media or multimedia organizations. Governments generate massive amounts of data that are critical in supporting the services they provide to citizens. Data is, and should be treated as, a strategic asset. When used effectively, data can provide operational efficiencies, streamlining how government services are delivered. Critical to delivering increased value with data is the development of a program to ensure that the organization's data is managed and governed effectively; that data privacy, protection, and security are of the utmost importance and controlled; and that data analytics are leveraged effectively in support of decision making and operations.

2.5 quintillion data bytes of data are currently created each day. This number is expected to grow to 463 exabytes each day by 2025[1]

To successfully develop a program to meet this need, a roadmap must be established that builds a strong foundation. Governor Larry Hogan not only understood the need to prioritize Maryland's management of data, but also acted on this understanding by signing an Executive Order focused on standardizing the State's data management practices. Executive Order 01.01.2021.09 State Chief Data Officer, requires a Statewide Data Strategic Plan be created, and updated every two years, to establish and standardize data use, management, and analysis practices, policies, and standards for the State, as well as recommendations for actions to standardize and integration State data systems and management practices.

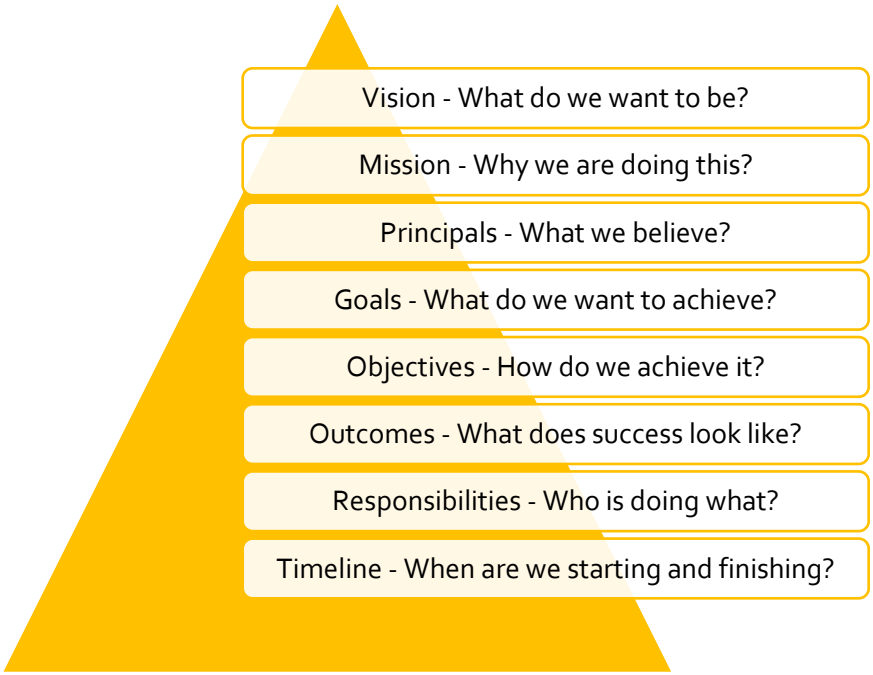
The strategic plan will serve as the roadmap for enhancing statewide data management practices, with consideration of the diversity of current data management practices within each agency. The goal of the strategic plan is to set programmatic objectives, with subsequent coordination between the Chief Data Office and the Agencies to establish plans for meeting those objectives. All activities will be pursued through thorough collaboration between the Chief Data Office, Agency Data Officers, Agency Data Teams, and associated leadership.

Building the foundation for statewide data governance will focus on four building blocks.

[1] https://www.raconteur.net/infographics/a-day-in-data/

Organization	People and Culture	Collaboration	Innovation
To effectively manage data, as a strategic asset, through all phases of its lifecycle, a data governance framework must be established	Establishing and sustaining an environment within State Government where the skills and knowledge are effectively distributed across organizational levels	Standardized approach and procedures for accessing and sharing data across Agencies and with external partners	Innovative Technologies for Data-centric Organization

The Strategic Plan includes the following components that not only identify what is needed to build the foundation, but how it will be built and who will help to build it.



VISION

To use trustworthy, reliable data to maximize the delivery of government services

MISSION

To empower the State of Maryland with trusted data that is easy to use, understand, and is integrated in services across Agencies and Coordinating Offices in the Executive Branch

PRINCIPLES

As the State of Maryland continues to grow its statewide data governance initiatives,

four key principles must be acknowledged:

- ☑ Data must be treated as a strategic asset
- ☑ Data strategies must align with the business strategies of the organization
- ☑ Data must be managed consistently
- ☑ Data management roles must be defined

KEY CONCEPTS

While developing the strategic plan, there are key concepts that need to be addressed to establish a clear understanding on the content within. Data privacy and data security are of utmost importance to the State. All data management by the State must comply with the privacy and security policies and controls that have been established by the State Chief Privacy Officer and the State Chief Information Security Officer.

Security

Data security includes the planning, development, and execution of security policies and procedures to provide proper authentication, authorization, access, and auditing of data and information assets. The goal of data security is to protect information assets in alignment with privacy and confidentiality regulations, contractual agreements, and business requirements stakeholders, government regulations, proprietary business concerns, legitimate access needs, and contractual obligations. Having an effective data security plan is critical to reducing the overall state's risk of data loss or misuse, when collecting and managing public data.

The State data security measures will be driven by the State's Office of Security Management and those policies and standards detailed in the IT Security Manual.

Privacy

Various states and countries around the world have enacted privacy laws that govern the collection, maintenance, and sharing of personally identifiable information (PII). Many of these laws use the Fair Information Privacy Principles (FIPPS)1 as their guiding tenants. The Maryland Privacy Strategy has adopted these FIPPS and associated practices.

Integrating these principles and associated practices reduces the risk of unauthorized disclosure, guides proper collection, maintenance, and sharing of information.

- Transparency: The organization should be transparent and provide notice to the individual regarding its collection, use, dissemination, and maintenance of personally identifiable information (PII).
- Individual Participation: Consent should be sought from the individual for the collection, use, dissemination, and maintenance of PII. A mechanism should also be provided for appropriate access, correction, and redress regarding the organization's use of PII.
- Purpose Specification: The organization should specifically articulate the authority that permits the collection of PII and the purpose(s) for which the PII is intended to be used.
- Data Minimization: The organization should only collect PII that is directly relevant and necessary to accomplish the specified purpose(s) and only retain PII for as long as it is necessary to fulfill those purpose(s).

- Use Limitation: The organization should use PII solely for the purpose(s) specified in the notice. Sharing PII outside of the organization should be for a purpose compatible with the purpose(s) for which the PII was collected.
- Data Quality and Integrity: The organization, to the extent practicable, should ensure that PII is accurate, relevant, timely and complete.
- Security: The organization should protect PII (in all media) through appropriate security safeguards against risks such as loss, unauthorized access or use, destruction, modification, or unintended or inappropriate disclosure.
- Accountability and Auditing: The organization should be accountable for complying with these principles, providing training to all employees and contractors who use PII, and auditing the actual use of PII to demonstrate compliance with these principles and all applicable privacy protection requirements.

The State data privacy measures will be driven by the policies and standards created by State's Chief Privacy Office.

Data Management

The development, execution, and supervision of plans, policies, programs, and practices that deliver, control, protect, and enhance the value of data and information assets throughout their life cycles.[2]

Data Governance

The exercise of authority and control (planning, monitoring, and enforcement) over the management of data assets with the purpose of ensuring that data is managed properly, according to policies and best practices.[2]

The State's data governance and data management initiatives are structured around the people, processes, and technology required to maximize its return.

> **People |** Data governance is the most effective tactic to formalize accountability because people define, produce, and use data to perform their job function
>
> **Process |** Data governance applies formality to process to assure consistent execution and enforcement of authority over the definition, production, and use of data
>
> **Technology |** The use of data governance technology (primarily business glossaries, data dictionaries, and data catalogs) will enable the organization to maximize the value of the organization's people and processes that define, produce, and use data[2]

[2] DAMA-DMBOK: Data Management Body of Knowledge, 2nd ed. (Basking Ridge, NJ: Technics Publications, 2017)

CURRENT STATE OF DATA MANAGEMENT

Management of data throughout the executive branch is occurring to varying degrees, though no standardized approach has been established. That said, there continues to be a demonstrated evolution in the overall commitment to data management across the executive branch. This is exemplified by agencies who have established data programs and are maturing on their data management journey. Likewise, there are many examples of commitment from agencies through resource development, bourgeoning their data management practices. Similarly, with the signing of Executive Orders 01.01.2021.09 State Chief Data Officer and 01.01.2021.10 Maryland Data Privacy, a clear commitment and sponsorship from data management prioritization from Executive Leadership exists.

All government entities will experience challenges in its evolution through data management, with opportunities to overcome. While the advancements previously mentioned should be celebrated, challenges such as inconsistent governance, varying degrees of leadership, varying standards, lack of standard governance framework, decentralization, and complex data sharing processes exist. The opportunities are apparent to approach these challenges by establishing a standardized approach. To support statewide data maturity, a plan must be broad enough to accommodate the varying degrees of support that each agency has and align with their business strategies. Conversely, it must set a path that is clear, achievable, and timely.

Without establishing a program to build standardization and a common understanding of the value of data as a strategic asset, the governance required to manage data effectively, and the role data plays in advancing the services provided to the citizens of Maryland, the threats of data inaccuracies, data inaccessibility, poor security, and minimal interoperability will exist.

The goals, objectives, and outcomes provided in the strategic plan look to mitigate these threats and capitalize on the opportunities available. The goals are established to account for general foundation building for the state, while acknowledging that each agency's journey to meet those goals will differ due to their organizational mission, goals, and strategic direction.

GOALS AND OBJECTIVES

ORGANIZATION

Goal 1: Develop and document a standard approach to data management and governance practices across the State by 2024

Data is being governed, to varying degrees, at the Agency level already, typically as a byproduct of their business activities. The goal of improving data management and governance involves defining processes for managing data effectively through its lifecycle, while accounting for security, privacy, and risk management. Strong data governance will also define and clarify roles, responsibilities, and processes for data use. To improve data management and governance practices, in alignment with Executive Order 01.01.2021.09, assessments, evaluations, and roadmaps for achieving improvement must be developed.

Objectives

- Establish statewide data governance organizational structure with clearly defined roles and responsibilities
- Chief Data Office will develop standardized approach to data governance framework and communicate to Agency leadership
- Chief Data Office will perform assessments of Data Management Maturity with each Agency, using an industry specific model, and identify areas of improvement
- Maintain and sustain discoverable statewide data inventory, including classification of data assets, complying with state privacy and security policies
- Chief Data Office will assist Agencies develop data governance plans, in alignment with the data governance framework

Outcomes

- Completed Inventory by Executive Branch Agencies by December 31, 2022
- Established Data Management Organizational Model with defined Councils, Meeting Cadences, and Mission by May 1, 2022
- State Data Management Framework has been developed and released to all Agencies by June 1, 2022
- Completed Data Management Maturity Assessment with Roadmap for Improvement by July 1, 2023
- State Agencies have developed data governance plans aligning existing practices, organizational strategies, and the data governance framework by December 31, 2023

Participants and Responsibilities
Chief Data Office, State Agencies

PEOPLE AND CULTURE

Goal 2: Enrich the data culture across the State of Maryland, by more effectively communicating the value of data, data sharing, and data governance

Effective and efficient governance, management, and sharing of data requires the ability for resources across the state to have a firm understanding of the value of data and the communication, collaboration, and skills needed to maximize that value. To support this, there is a need to develop programmatic support to inform and educate the broad organization to develop the skills needed to work with, analyze, communicate, and make decisions using data.

Objectives

- Assess current State of Data Literacy throughout Maryland agencies to understand current ability to understand data, communicate using data, and support decision making processes using data
- Develop a Statewide Data Literacy Program, providing training to novice, experienced, and executive teams, including certification
- Provide training for effective Data Storytelling, communicating actionable information using an effective narrative to help deliver clear messaging with the data
- Develop Statewide, searchable, and available Data Terminology/Glossary

Outcomes

- Statewide, searchable, Data Terminology/Glossary is available to all state employees by April 1, 2022
- Data Literacy Program is developed with training programs established for novice, experienced, and executive teams, including certification by April 1, 2023

Participants and Responsibilities

Chief Data Office, State Agencies

COLLABORATION

Goal 3: Develop a standardized approach and procedures for accessing and sharing data across Agencies and with external partners by 2024

Procedures for requesting and sharing data, and responses to data sharing requests, including data sharing agreements, vary across State Agencies. Considerable time is spent responding to data sharing requests, making data sharing more difficult. Through direct collaboration and coordination with State Chief Privacy Office, establishing protocols for data sharing between State Agencies that standardizes the exchange of data, in compliance with legal and security measures, will create a streamlined approach, lowering the barriers to collaboration with data to solve problems.

Objectives

- Establish working group to Support Agreement Development
- Review and identify Agency Use Agreements
- Evaluate existing approaches and standards for sharing data across government
- Develop standards for Agreements
- Communicate and review standards with key stakeholders including Executive Leadership, Assistant Attorney Generals

Outcomes

- Establish working group to Support Agreement Development by April 1, 2022
- Review and identify sample of Agency Use Agreements by July 1, 2022
- Evaluate existing approaches and standards for sharing data across government by August 1, 2022
- Develop a draft standard template for Agreements, by November 1, 2022
- Communicate and review standards with key stakeholders including Executive Leadership, Assistant Attorney Generals by December 31, 2022

Participants and Responsibilities

Chief Data Office, State Agencies

INNOVATION

Goal 4: Establish a roadmap for adopting innovative technologies in support of data management by 2024

Innovative technologies, including Artificial Intelligence (AI), play an important role in a data-centric organization. These technologies can support data governance, data management, data quality, and analytics through automation and optimization. While some Agencies and programs may be leveraging innovative technologies, there is a need to broaden the collective awareness of the capabilities, assess current skills and ability to adopt, and share success stories for expanded use across the State.

Objectives

- Identify trends and technologies, in alignment with the States IT Master Plan, that provide opportunities for technology transformation in Maryland
- Evaluate current state of Innovative Technologies used, and skill sets to support those technologies, within the agencies
- Based on evaluation, develop introduction training courses for innovative technologies supported by the State of Maryland
- Collaborate with unit business and IT leadership in the development and implementation of technology transformation initiatives

Outcomes

- Assessment and evaluation of current state of Innovative Technologies used for data management, and skill sets to support those technologies, within the agencies by November 1, 2022
- Development of training courses (based on assessment) for innovative technologies supported by the State of Maryland by December 31, 2022

Participants and Responsibilities

Chief Data Office, State Agencies

RESPONSIBILITIES

It is important to establish clear expectations, so that those involved in carrying out the goals and objectives can do so efficiently. This supports decisions being made and establishes clear accountability. The Responsible, Accountable, Consulted, and Informed (RACI) Matrix provides assignments for roles on given initiatives. The roles indicate who are:

- Responsible | Who is/are completing the task
- Accountable | Who is/are making decisions and taking actions on the task(s)
- Consulted | Who will be communicated with for decision-making
- Informed | Who will be updated on decisions and actions during the project

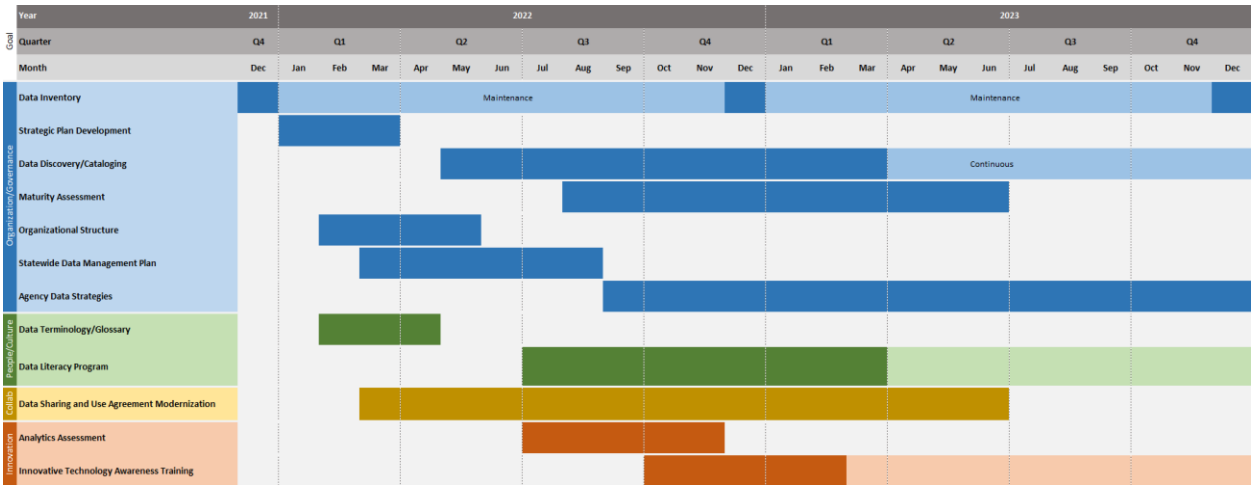
The following RACI matrix indicates the high-level roles for Executive Branch Agencies and the Chief Data Office:

		Chief Data Officer	Chief Data Office	Data Governance Council	Agencies
Organization/Governance	Data Inventory	A	C	I	R
	Strategic Plan Development	A	R	I	C
	Data Discovery/Cataloging	A	R	C	C
	Maturity Assessment	A	R	C	C
	Statewide Organizational Structure	R	I	C	C
	Statewide Data Management Plan	A	R	C	C
	Agency Data Strategy	A	R	C	R
People/Culture	Data Terminology/Glossary	A	R	C	C
	Data Literacy Program	A	R	C	C
Collab	Data Sharing and Use Agreement Modernization	A	R	C	C
Innovation	Analytics Assessment	A	R	I	R
	Innovative Technology Awareness Training	A	R	I	C

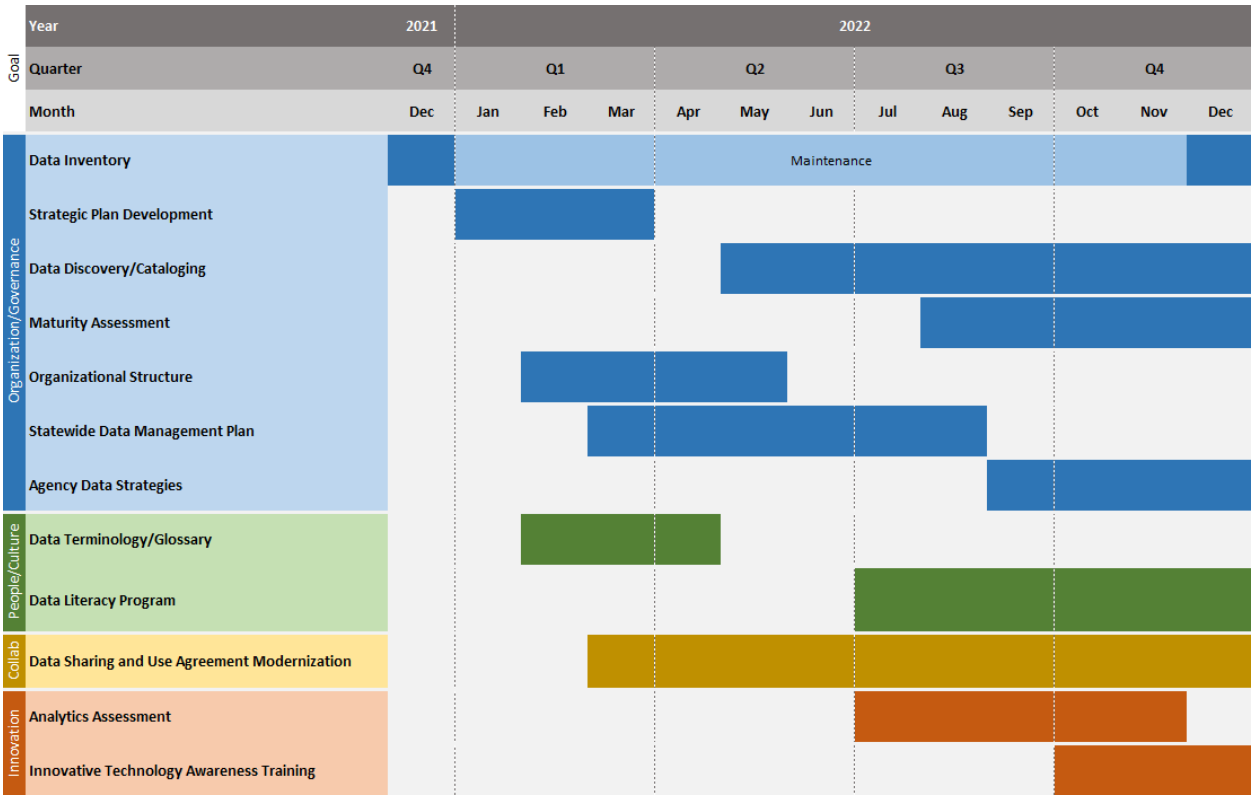
ROADMAP

The goals and objectives to be achieved over the two years reflected in the strategic plan can be performed in parallel to each other. Through a deliberate approach, and based on prioritization and resources availability, the following timeline indicates the estimates for implementation and completion. Some of the initiatives will not include an end-date, as continuous maintenance and curation are required to sustain the overall governance program. The timeline depicts the two-year window, covered in the Strategic Plan, as well as a one-year view into the estimates for the next calendar year.

2-YEAR TIMELINE



1-YEAR TIMELINE



CONCLUSION

It is an exciting time for data management in the State of Maryland. This Strategic Plan creates the framework for meeting the State's broad data governance goals, ultimately resulting in more mature and effective management and use of data to deliver services to the citizens of Maryland. The approach to carry out the goals and objectives will be iterative, allowing for adjustments throughout the effort to reflect real-world changes occurring.

If there are any questions about this plan, please contact:

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