Vermont Enterprise Architecture Framework (VEAF)

Master Data Management (MDM)

Abridged Strategy

Level 0

EA APPROVALS

EA Approving Authority:

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Revision History

Version	Date	Organization/Point of Contact	Description of Changes
2.0	9/2/2015	Seamus Loftus, Cameron Bradley	Initial version, abridged from full MDM Strategy Document added Data Governance to create shortened high-level overview.

Review History

Version	Date	Organization/Point of Contact	Approval
2.0	9/21/2015	CTO, John P. Hunt	Draft Approval for discussion

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1 Executive Overview

Document Purpose - The purpose of this document is to present a high-level overview of the strategy for Master Data Management (MDM) within the State of Vermont (SoV) and how it fits within the current suite of applications purchased and being developed for SoV. MDM allows the business to create a single point of reference where critical enterprise master data may be managed and utilized.

MDM Purpose – "Master Data Management (MDM) comprises the processes, governance, policies, standards and tools that consistently define and manage the critical data of an organization to provide a single point of reference."[1] It provides the means to collect, aggregate, match, consolidate and distribute data throughout an organization ensuring consistency and control in the ongoing maintenance and use of information.

MDM is an important component of Vermont's enterprise architecture strategy. Applications in the SoV IT landscape act on the same set of master data. A single authoritative data source will be kept current and is shared between all relevant applications. MDM provides the capability to quickly integrate new data sources being brought online.

Audience – The intended audience for this document is State of Vermont Business Executives, IT and Business Architects, Business Analysts, and any other roles seeking to leverage the business, application, information, and technology framework being developed by the SoV enterprise architecture group for all to use.

State of Vermont Direction - The State of Vermont (SoV) is moving towards a new approach to IT. Matching DII Priorities to the Governor's Priorities is an important step towards allowing the business to drive the direction of IT. Figure 1 below depicts the alignment of the governor's and DII enterprise architecture priorities.

[1] "What is Master Data SearchDataManagement, TechTarget, 22 November 2010, http://searchdatamanagement.techtarget.com/definition/master-data-management

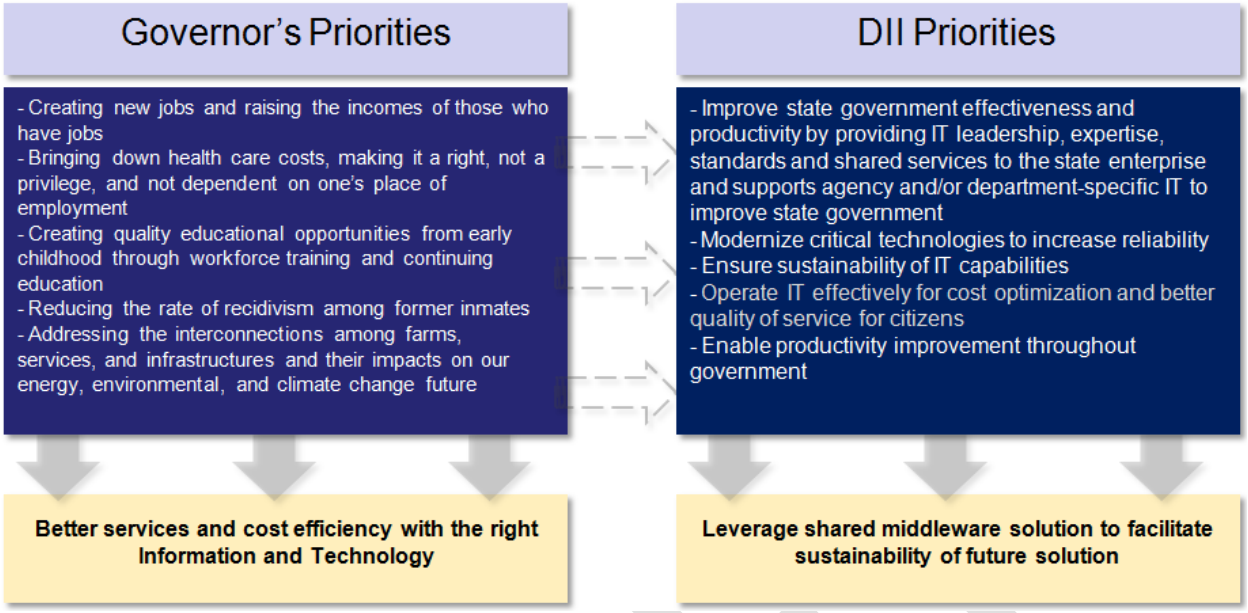

Figure 1 - State of Vermont IT Vision

Figure 2 below explains the high-level business strategic vision is enabled by different business capabilities and how those capabilities are aligned with IT Strategy.

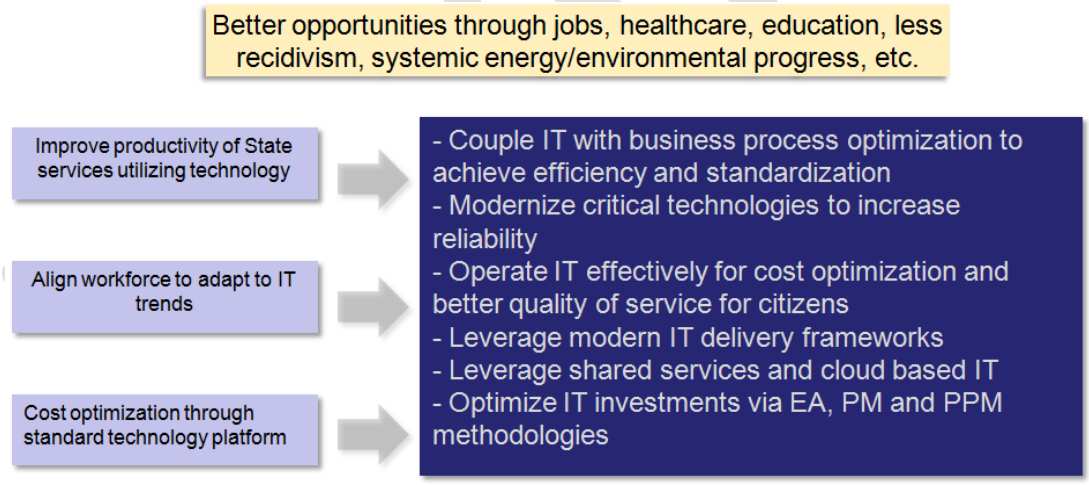

Figure 2 - State of Vermont Business Vision

The first step in achieving alignment between IT and the business is to implement the cloud model, which better utilizes IT infrastructure dollars and allows it to become more agile to fulfill SoV business needs. By Consolidating the management of IT infrastructure and resources allows departments to share resources and reduce the SoV IT cost. The State wants to implement a shared service environment that enables self-service, consolidates current systems and environments, reduces the total cost of ownership, and ensures that solutions are sustainable, virtual, secure, and in compliance with organizations and standards.

2 Enterprise Architecture Initiative

The Enterprise Architecture Initiative was expanded with the business in mind. Enterprise Architects (EAs) work closely with program leadership, business analysts, and technical professionals to ensure good decision making around technology selection, standardization, economies of scale, and to establish and implement governance structures to guide this collaborative work.

EAs consult with all Agencies to ensure system upgrades leverage common solutions where ver possible and are managed in accordance with industry standards and best practices.

2.1 IT System landscape and Need for MDM

SoV hosts the following applications to address business processes and capabilities that are needed to service the citizens.

- Siebel CRM for health care case management
- OneGate Portal for the enrollment process
- Medicaid Management Information System (MMIS) for Medicaid and Medicare
- Catamaran for Pharmacy benefit systems
- Other agency spoke applications like DMV, Tax systems

All of these applications touch the citizens directly and capture information during the course of processing. This information needs to be shared across applications to ensure timely decision making, but this it also must be governed across these multiple systems.

When such information is centralized, managed, and distributed it is called master data. Master Data Management (MDM) software provides platform, process, and rules for effectively managing the master data. The SoV cloud strategy makes the business capability for standardizing core information even more important.

MDM as a business capability enables

- Identification of trusted master data: MDM defines and/or derives the most trusted and unique "version" of important enterprise data (e.g., customer, employee, case, organization etc.). This data is captured, maintained and used across disparate systems and business processes of the organization.
- Leveraging master data to improve business processes and decisions: MDM incorporates this master version of the data within functional business processes (sales, marketing, finance, support, etc.) that will to provide direct benefit to employees, customers, partners, or other relevant stakeholders within an organization.

2.1.1 MDM High-Level Overview

MDM is a set of technologies and processes organized into a discipline that allows organizations to actively manage data across the enterprise, rather than “maintaining” it in each transactional system. The MDM initiative will create a single source of truth by linking transactional and legacy systems.

MDM Capabilities that will benefit SoV.

- Support the global identification, linking, and synchronization of reference data information across heterogeneous data sources through semantic reconciliation of master data.
- Create and manage a central database-based system or index of record for master data.
- Enable the delivery of a single view (for all stakeholders)
- Support ongoing master data stewardship and governance requirements through monitoring and corrective action techniques.

3 Strategy

The success of an MDM program is not just about having the right technology. It also requires the creation of a Master Data Hub of customer data, along with a vision and strategy that focuses on key business problems. It is important to keep the long-term MDM vision in mind when approaching individual projects concerning a customer data program based on business priorities.

A customer data strategy should be part of a wider multi-factor MDM strategy; a multi-domain approach may grant the ability to meet requirements that span multiple use cases, implementation styles, industries, and the governance and organization models that support MDM.

This may be achieved by using a single-domain offering, or a generalist multi-domain MDM offering. An MDM program is a key part of enterprise information management, enabling greater enterprise agility and simplifying integration activities.

MDM solutions should be considered based on a set of objective, balanced criteria, including facilities for data modeling, data quality, integration, data stewardship and governance, business services and workflow, measurement, and manageability. Additionally, consider any multi-factor MDM, cloud and social data interface capabilities that may be important now or in the future. [2]

The data quality achieved with the right MDM solution can address key challenges.

- Deliver a single view of citizens/beneficiaries across different programs to increase compliance and reduce fraud
- Allow citizens to make address changes once and have the updates flow to all systems/programs
- Consolidate items, parts, assets, and vendors to achieve procurement and financial management savings
- Produce a unified view of employees
- Align data from multiple planning, budgeting, and performance management systems to enable real-time visibility into organizational efficiency and effectiveness
- Deploy IT capabilities that benefit a broad set of functions and programs without requiring replacement of existing systems

[2] Gartner. MDM of Customer Data
Analysis By: Bill O'Kane; Saul Judah

3.1 Data Governance

A key factor of an MDM solution is Data Governance. Data Governance is the specification of permissions and accountability used to encourage desirable behavior in the creation, valuation, storage, use, archival, and deletion of data. Data Governance entities exist at two levels.

- Agency Data Governance Teams – Responsible for the governance of Data within their agency.
- State of Vermont Data Governance Council – A group that meets quarterly to review policies, standards, and accepted data models used throughout the State of Vermont.

In general, Data Governance adheres to the following guiding principles to ensure the right people have the right information at the right time:

1. Integrity – The Agency Data Governance Team focuses on the drivers, constraints, options, and impacts of data related decisions.

2. Transparency – Both the Agency and State Data Governance Teams document how and when data related decisions and controls were introduced into the processes.

3. Auditability – Data Governance decisions, processes, and controls will be auditable and accompanied by documentation supporting compliance-based and operational auditing requirements per the State of Vermont Data Governance Council.

4. Accountability – There will be accountability for cross-functional data-related decisions, processes, and controls.

5. Stewardship – Individual contributors will be held accountable for data under their stewardship. In general, Data Stewards function within the Agency Data Governance.

7. Standardization – The SoV Data Governance Council is responsible for the repository of data in the form of logical data models, meta-data models, shared XML registries, and the enterprise data dictionary that can be shared among State Agencies.

8. Change Management - Change Management activities must be performed for reference data values and the structure/use of master data and metadata.

3.1.1 Key Functions of Data Governance

The functions of data governance provide strategic planning opportunities, ongoing control, and key metrics surrounding data within the enterprise. The Key functions of each of these areas are listed in the Table below.

Table 1 Functions of Data Governance

Strategic Planning	Ongoing Control	Key Metrics
• Determine enterprise data needs and data strategy • Understand and assess current state data management maturity level • Establish future state data management capability • Establish data professional roles and organizations • Develop and approve data policies, standards, and procedures • Plan and sponsor data management projects and services • Establish data asset value and associated costs	• Coordinate data governance activities • Manage and resolve data related issues • Monitor and enforce conformance with data policies, standards, and architecture • Communicate and promote the value of data assets	• Data value • Data management cost • Achievement of objectives • Number of decisions made • Steward representation and coverage • Data professional headcount • Data management process maturity

3.2 Data Governance Best Practices

Not all data governance efforts yield expected results. Major obstacles exist that can affect the value and success of the program. They include cultural, political, and organizational challenges that can lead to resistance to the changes that are required to move forward with the governance initiatives.

Below are several best practices that help bring success to a Data Governance plan.

3.2.1 Take a holistic approach but start small

Data governance is an iterative process. Start with the people, politics and culture, and then move on to the data governance, stewardship processes, and technology. It takes a number of steps to move up the maturity scale. Balance out strategic objectives and tactical compromises to ensure the overall program is moving towards the desired direction at reasonable pace.

3.2.2 Define data stewardship early

The main responsibility of data stewards is to ensure effective control and use of data assets. The best data stewards are found, not made. Take the time to identify and build a data steward team that includes subject matter experts from all business areas.

A difference of opinion exists with regards to whether or not to establish an official position and title for this role and it depends on the political and cultural environment of the organization. What's most important is that the definition of this role is included in the job descriptions of these individuals and proper time allocation is applied to the stewardship work.

3.2.3 Establish quantifiable benefits

An effective data governance program brings tremendous benefits to an organization in a long run. However, some of the effects might or might not be visible immediately. As a result, it is not always easy to obtain and justify funding for the program cost. Focus on the relationship of the key data elements and the business processes they support. Calculate the cost of managing these data elements through repeated and duplicated manual integration and validation. Quantify the business risk of such data elements becoming unavailable or incorrect such as missing transaction or loss of customer. Identify clearly the opportunities quality data brings in terms of generating and improving revenue through better customer service and insight, through up-sale and cross-sale.

In short, build a business case to articulate and highlight quantifiable benefits is essential to get buy-ins and support towards the program.

3.2.4 Establish, collect, and report on metrics

Choose a combination of tactical quick wins and longer-term strategic improvements. Measure the immediate returns of the quick wins to gain positive feedback, sustain engagement, and obtain more support. Measures should be determined at the beginning of the project and focus on quantitative metrics that support the objectives of the project as well as the overall program. Metrics need to covey business values and some sample metrics include data value, data management cost (before and after), number of decisions made, and data management process maturity. A data governance KPI dashboard is a good way to automate the reporting of the progress.[3]

[3] "Enterprise Information Management: Best Practices in Data Governance" Oracle. May 2011. http://www.oracle.com/technetwork/articles/entarch/oea-best-practices-data-gov-400760.pdf