



**COLORADO**

**Governor's Office of  
Information Technology**

Serving people serving Colorado

# Government Data Advisory Board (GDAB) Annual Report 2015

Governor's Office of Information Technology  
601 E. 18th Ave., Suite 250 | Denver, CO 80203



**COLORADO**  
Governor's Office of  
Information Technology  
601 East 18th East  
Denver, Colorado 80203

August 9, 2106

Dear Secretary Nallapati,

I am pleased to submit this Government Data Advisory Board (GDAB) Annual Report for 2015 in accordance with Colorado Revised Statutes §24-37.5-703.

This report represents strategic discussions by GDAB that identified benefits of improved data sharing and how interdepartmental data sharing supports OIT's strategic objectives of more efficient and effective information technology usage in the state. This year (2016) the Board is continuing to focus on specific efforts that can improve data sharing and interoperability across state agencies and to the public.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jon Gottsegen', is written over a light blue horizontal line.

Jon Gottsegen  
Chief Data Officer

## EXECUTIVE SUMMARY

The Government Data Advisory Board (the “Board”) was created through HB 09-1285. Its primary mission is to provide recommendations and advise the State Chief Information Officer (CIO) regarding:

- The ongoing development, maintenance, and implementation of the interdepartmental data protocol (IDP)
- Best practices in sharing and protecting data in state government
- Rules and procedures that a state agency shall follow in requesting, or responding to a request for, data from another state agency, an entity outside of state government - including fee schedules that cannot exceed actual costs
- Other data-sharing issues as requested by CIO
- Educational-related data policy recommendations from the education data subcommittee established in C.R.S. §24-37.5-703.5

The Board is tasked with presenting an Annual Report of its activities to the State CIO before January 15th of each calendar year. This report includes those activities, as well as the 2016 mission, vision, strategic plan goals and recommendations.

The success of the Board hinges on full and active membership as outlined in the House Bill. The Board seeks executive support to ensure full agency participation in this process across all branches of government. The Board also seeks executive support to fill existing board vacancies.

This Board is crucial as we move forward in an effort to create more transparent, effective and efficient government, service delivery to Coloradans, and policy-making by establishing an interdepartmental data protocol (IDP). Per C.R.S. §24-37.5-702(4), an IDP is:

- An interoperable, cross-departmental data management system and file sharing procedures **that permit the merging of unit records for the purposes of policy analysis and determination of program effectiveness.**

The Board is excited to see the momentum that 2016 brings and looks forward to its ongoing support of information sharing and information management. The Board believes it is one of the primary areas that can positively impact government service delivery to our citizens and policymakers.

## TABLE OF CONTENTS

### [EXECUTIVE SUMMARY](#)

### [BACKGROUND AND OVERVIEW](#)

#### [Mission](#)

#### [Vision](#)

#### [Board Roles](#)

#### [Board Alignment with OIT Operations](#)

#### [Program Scope](#)

#### [Program Deliverables](#)

#### [Issues](#)

#### [Sponsors and Stakeholders](#)

#### [Roles and Responsibilities](#)

### [2015 FINDINGS](#)

### [2016 GDAB MISSION AND VISION](#)

#### [Mission](#)

#### [Vision](#)

### [2016 STRATEGIC PLAN GOALS AND RECOMMENDATIONS](#)

#### [2016 Strategic Plan Goals](#)

##### [Agency Partnership & Project Leadership](#)

##### [Creation of “MyColorado”](#)

#### [2016 GDAB Recommendations](#)

##### [Why this matters...](#)

##### [Why this is needed...](#)

#### [Architecture, Models, and Guidelines](#)

##### [Current Architecture:](#)

##### [Proposed Architecture:](#)

##### [Sensitive Data and Personally Identifiable Information \(PII\)](#)

##### [Select/Control/Evaluate model](#)

### [APPENDIX 1 - BOARD MEMBERS](#)

### [APPENDIX 2 - DATA MANAGEMENT GLOSSARY OF TERMS AND ACRONYMS](#)

### [APPENDIX 3 - STATE AGENCY ACRONYMS](#)

## BACKGROUND AND OVERVIEW

The Colorado General Assembly approached the issue of enterprise data sharing with the passage of House Bills 08-1364 and 09-1285. HB 08-1364 directed the Governor’s Office of Information Technology (OIT) to convene the Data Protocol Development Council (“Council”) to assist in designing and implementing an interdepartmental data protocol. The goals of the cross-departmental data protocol are to facilitate information sharing across agencies and to assist in formulating and determining the effectiveness of state policies.

The mission of the Council was to provide guidance, policies and procedures for implementing a data sharing architecture across the state enterprise to achieve the stated goals and objectives of HB 08-1364. HB 08-1364 was driven by the need to:

- Analyze and determine the effectiveness of state policies and resources by examining an issue across multiple state agencies;
- Formulate informed strategic plans for the application and use of state resources based on strong, accurate, reliable, multi-dimensional data; and
- Enable more efficient collecting, storing, manipulating, sharing, retrieving, and releasing of data across state agencies.

The Council made a number of recommendations in its final report to the State Chief Information Officer (CIO) and Colorado General Assembly in February 2009. Number one was to establish a formal governing board to advise on enterprise policies, directions and priorities for data governance and management across agencies. This formal data governance process will describe the “rules of engagement” that all executive branch agencies will follow regarding data sharing and data management.

Based on the Council’s Recommendation, the General Assembly introduced and passed HB 09-1285, which created and defined the Government Data Advisory Board (the “Board”). The Board was specifically established to advise the State CIO on activities and policies necessary for developing the interdepartmental data protocol created in HB 08-1364 and to continue the work of the Council.

## Mission

The Board’s mission is to provide guidance and recommendations on how the state should govern and manage data and data management systems to improve the efficiency and effectiveness of state government, citizen service delivery and policy-making.

## Vision

The vision for **enterprise data sharing** is to foster collaboration, innovation and agility in delivering government services to Coloradans through the seamless, efficient, strategic exchange of core data sets resulting in increased effectiveness of government operations.

“Enterprise” is defined as the State of Colorado executive branch agencies.

“Core data sets” are defined as one or more data elements strategic and/or critical to state agency operational or programmatic needs.

## Board Roles

The Board has two primary roles. The first is to assist the State CIO and Chief Technology Officer (CTO) in determining the state’s data strategy, policies, standards, and architecture and assisting with issue management.

The Board’s second role is that of advocate from within their communities to OIT regarding stakeholder needs and concerns as well as assisting in key communications back to their communities regarding the state’s progress, concerns and challenges.

## Board Alignment with OIT Operations

The Board operates as one part of a well-organized process that includes OIT’s Office of Enterprise Architecture and the Colorado Information Marketplace at [data.colorado.gov](http://data.colorado.gov). As part of Colorado’s strategic plan, OIT has adopted a set of guiding principles:

---

- Security and privacy are core missions.
- The Board will engage the State's highly skilled and dedicated workforce.
- Information is one of our most valuable assets and should be shared.
- State agencies will maintain data sovereignty.
- Our technology should be agile enough to meet the changing needs of agencies and citizens.
- The Board will strive to constantly improve cost effectiveness.
- Improve information availability and interoperability within the state:
  - A consistent view of information over time;
  - A catalog of information available to state agencies, including the governance and standards around the information;
  - Improved availability of data that cannot be shared in its raw form, but that could be made available in aggregate for analysis and reporting.
- Reduce costs and redundancy:
  - Standards and services for reuse;
  - Reduce capture of data when it already exists and is available;
  - Reduce training of analysts around information interpretation.
- Increase information agility:
  - Information is available for real time reporting;
  - Catalog outlines the interpretation of the data; and
  - Ability for users to access specific, custom sets of data through a self-service portal.
- Increase information security:
  - Governance models cover the data and are consistent across databases;
  - Information security policies and practices follow industry, federal and state standards (e.g., HIPAA, Family Educational Rights and Privacy Act (FERPA), 42 C.F.R. Part II dealing with confidentiality of certain health records);
  - Roles Based Access Control (RBAC) around who may access and use the data; and
  - Auditable information around access and reporting.

## Program Scope

The Board held its kick-off meeting on August 21, 2009, and sunsets in 2019. While the data sharing protocol outlined in HB 08-1364 specifically focused on unit records, the Board can and will provide recommendations on records of any type. Unit records are defined as records pertaining to individuals, and thus have specific privacy and security components related to the collection, storage, transfer, and maintenance of those records that must be recognized and adhered to. Unit records will continue to be a priority to the Board due to the privacy and compliance related issues surrounding them.

---

The Board has the following responsibilities:

- Advise on the development, maintenance, and implementation of the data sharing protocol;
- Advise on the best practices for sharing and protecting citizen data;
- Review, advise, and provide input into the strategic plan for improving data governance;
- Advise on compliance, privacy and security data requirements;
- Advise on internal and external data policies and procedures;
- Advise on financial and budgetary components required for implementation; and,
- Specifically recommend education data sharing and management strategies.

Finally, the Board will develop recommendations with timeframes and priorities for developing and implementing the cross-departmental data protocol. Procurement, development, and/or implementation of Board Recommendations are outside the Board's scope of work.

### Program Deliverables

The key deliverables for this program include:

Deliverable	Description
Annual priority document	The Board will develop an annual priority document that targets work the Board will focus on during its current year. The planning years for these priorities will generally run from July to June to conform with the timing of the creations and sunseting of the Board as well as the state's fiscal year. These documents may be modified and amended via Board procedures as the Board or stakeholders identify unforeseen or urgent needs.
Policy documents	Policy documents will be written by the Board for each identified enterprise policy need. These documents will be delivered to OIT's Chief Technology Officer.
Education Data Subcommittee report due to Board	These reports are due to the Board twice a year, per state statute, on the first of December and the first of June.
Board report due to State CIO	This report is due annually, per state statute, by January 15.
State CIO report due to Governor & Colorado General Assembly	This report is due annually, per state statute, by March 1.

## Issues

The Board will consider the following issues as its work progresses:

- Cultural and change management issues within state agencies.
- Funding to implement an enterprise program and system infrastructure to support the cross-departmental data protocol.
- Compliance standards set by federal and state statute and regulation.
- Management of recommended statutory or regulatory changes so they are met in a timely manner.
- Privacy and security concerns of citizens.

## Sponsors and Stakeholders

The following stakeholders have been identified as having a key interest in the program:

Stakeholder/Group	Stakeholder Interest
Executive Sponsorship <ul style="list-style-type: none"> <li>• OIT Executive Team</li> </ul>	OIT is responsible for implementing and delivering the capabilities envisioned with the cross-departmental data protocol and enterprise data sharing initiatives.
Governor's Office <ul style="list-style-type: none"> <li>• Policy advisors as identified</li> </ul>	The Governor's Office drafted HB 08-1364, the initial legislation, to help achieve its objectives on a number of policy fronts, including education improvement efforts. The legislation and the work of the Board are a high priority of the Governor's Office.
Colorado General Assembly	The Colorado General Assembly has seen bipartisan support for its legislation in challenging the state to develop more efficient and effective data management, exchange, and delivery capabilities. It knows that the state can be much more effective in its ability to capture, share, store, and analyze data. It also wants the state to do a better job in performance management and service delivery. The General Assembly is keenly interested in how the Board's work proceeds.
Colorado State Agencies	Almost all Colorado state agencies will be impacted by the work done by the Board. The areas impacted include policy, technology, financial, and business process. As a natural outcome of the Board's work, there will also be cultural changes and it's important to keep the agencies as informed as possible during these processes.
Office of the Attorney General	The Office of the Attorney General has a keen interest in ensuring strong policies in the areas of privacy and compliance.
Secretary of State	The Department of State is partnered with other state agencies and aims to continue those and other relationships by cooperating in this effort to ensure any future data exchanges meet compatibility, security and

	privacy interests.
Local Government Agencies and Entities	The State is a strong business partner with local governments across the state for many government service program delivery efforts. These include education, health care, social service, environmental, public safety, and other vertical markets. All of the major data sharing initiatives that currently fall under the purview of OIT and HB 08-1364 include both state and local agency efforts, and thus, these local governments will be directly impacted by Board directives. Additionally, it is known that there are any number of other data sharing efforts underway at the local level that will ultimately be impacted by Board policy decisions. Crisp, timely communication to local government agencies is essential so that human and financial resources expended on these projects are aligned with the state's efforts.
State Agency Data Sharing Projects <ul style="list-style-type: none"> <li>• Colorado Children's Youth Information Sharing Project (CCYIS)</li> <li>• State Longitudinal Data System Project (SLDS)</li> <li>• State Traffic Records Advisory Committee (STRAC)</li> <li>• Others as identified</li> </ul>	These projects will be directly impacted by the Board's policy development efforts and technology architecture recommendations. These projects will also have urgent multi-agency, multi-governmental level needs that will need to be addressed in a timely manner by the Board so that these projects stay appropriately synchronized with state-level efforts.
Non-governmental and Research Organizations	These organizations will be impacted by the Board's infrastructure recommendations for access to state data. Additionally, these organizations will be impacted by the fee structure recommended by the Board for access to state data.
General Public	The general public includes, but is not limited to, residents, businesses, organizations, and media that all have a stake in how the state manages the data entrusted to it.

## Roles and Responsibilities

The Board responsibilities are outlined in the Board Procedures. This section outlines the roles and responsibilities of key stakeholders that the Board will need to fulfill its mission.

Role	Resource Name	Responsibility
Executive Sponsorship	State CIO and members of OIT's Executive Leadership Team	Champion the project amongst the Governor's Office, Cabinet members, and General Assembly. Explore and develop funding sources. Develop high-level program objectives. Provide program-related staff as needed, including project management, financial, administrative, and technical advisory support.
Governor's Office	Senior Policy Advisors	Champion the project amongst the Governor's Office, Cabinet members, and General Assembly. Explore and develop funding sources. Develop high-level program objectives.
Colorado State Agencies	Executive Directors	Provide subject matter experts to the Board for subcommittee or policy work. Communicate with the Board on agency needs and priorities. Champion the project throughout their agency.
Office of the Attorney General	Assistant Attorney Generals as required	Provide review and counsel on Board-related legal issues. Provide review and counsel on compliance, legal, and privacy policies created by the Board.
State Agency Data Sharing Projects	Directors and Boards of each initiative	Provide updates on initiative progress as required. Provide communication via email or presentations to the Board regarding priority issues on which they need guidance.

## 2015 FINDINGS

A considerable amount of time was spent in 2013 and 2014 identifying roadblocks around enterprise data sharing. This allowed the board to focus efforts on moving forward during 2015.

The major GDAB endeavor for calendar year 2015 was to research, understand, define, design, and recommend an architecture that will enable data sharing across agencies. The recommendation presented here is to:

- Establish and implement an enterprise data sharing system that can ingest data from any format and provide data in any format utilizing re-usable security and business logic as required per state and federal laws or other funding requirements.

## 2016 GDAB MISSION AND VISION

The GDAB's mission and vision will be consistent with and support OIT's overall mission and vision:

### Mission

- To securely enable the effective, efficient delivery of government services through trusted partnerships and technology

### Vision

- To enrich the citizen experience at every digital touchpoint
- To empower the state with flexible technology, driving sustainable and intelligent business decisions. We envision a future where the end-user experience shapes design, and data analytics transform how the state responds to the needs of citizens.
- To instill a sense of trust in Colorado citizens that their data is being protected and used appropriately

## 2016 STRATEGIC PLAN GOALS AND RECOMMENDATIONS

The major GDAB endeavors for calendar year 2015 were focused on utilizing information gathered in the last three (3) years to develop a design for sharing data across the enterprise. This effort strives to fulfill the Vision for Enterprise Data Sharing as stated above. The strategic goals identified below also are supportive of OIT's strategic goals, but from the perspective of enhancing cooperation in data related efforts.

### 2016 Strategic Plan Goals

#### Agency Partnership & Project Leadership

- Implement DRIVES, a single state-of-the-art IT system for all driver and vehicle services. This modernized system will match driver to vehicle and minimize wait times to provide a consistent and positive user experience.
- Move toward a statewide Human Resources Information System (HRIS), a comprehensive enterprise standard system for personnel and human capital management.
- Create a single Offender Management System for the state prisons to manage inmate information.
- Develop an enterprise identity management system, allowing automatic provisioning of employee access, maximizing organizational security, and eliminating excessive processes and inefficiencies. Not only will new employees be productive sooner, access will be removed timely and thoroughly for departing employees or employees changing jobs within the state.

#### Creation of "MyColorado"

- Work toward developing a state government service portal for all to simplify how Coloradans interact with their government. OIT is currently exploring the creation of a single online point of access for state government services. This portal will streamline the public's experience, saving time and confusion, as well as reduce costs related to infrastructure, duplicative information, and mailing.

### 2016 GDAB Recommendations

#### Recommendation: Continue working to develop "MyColorado"

The creation of this service portal will enable users to answer the question, "How do I BEST help THIS person RIGHT now for the greatest LONG-TERM result?"

#### Why this *matters*...

- Without this system, the state cannot fulfill its strategic vision to provide government services to Colorado's residents in the most efficient and effective manner.
  - Without it, the state cannot make the most informed decisions based on consistent, timely, secure, and accurate data.
  - If the state does not move forward, it will continue to waste precious resources in "hunting" for disparate data.
-

## Why this is *needed*...

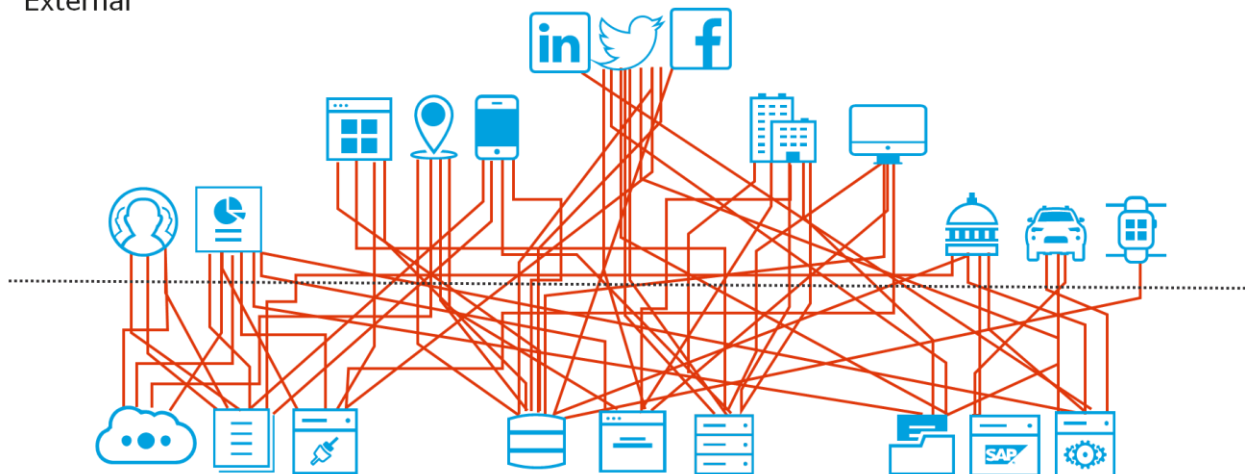
- Finding efficiencies and effectiveness of data assets and how they can be used to enhance state agency missions is of critical importance.
- The state must meet all political subdivisions (agencies, cities and counties, towns, school districts, counties, municipalities) where they are technologically and provide inputs in a format they are able to ingest. For example, encompass paper-based workflows, flat files, spreadsheets, mainframes, cloud, mobile, sensors, body cameras, biometrics and yet-unknown-technologies of the future.
- The state needs a system that is elastic, scalable, agile, and SECURE.
- The state must be able to integrate state assets with appropriate business rules, frequency, security, and federal and state legal requirements.

## Architecture, Models, and Guidelines

The following section describes a high level picture of Colorado's current and future state, intended to explain and illustrate the challenges, purpose, and benefits of each. In addition, some of the guidelines, regulations, and models serving as a basis for this design are included below.

### Current Architecture:

External



Internal

This picture represents a high-level view of the state's current system. This presents several challenges in both making informed decisions to assist the public and efficient inter-agency interaction.

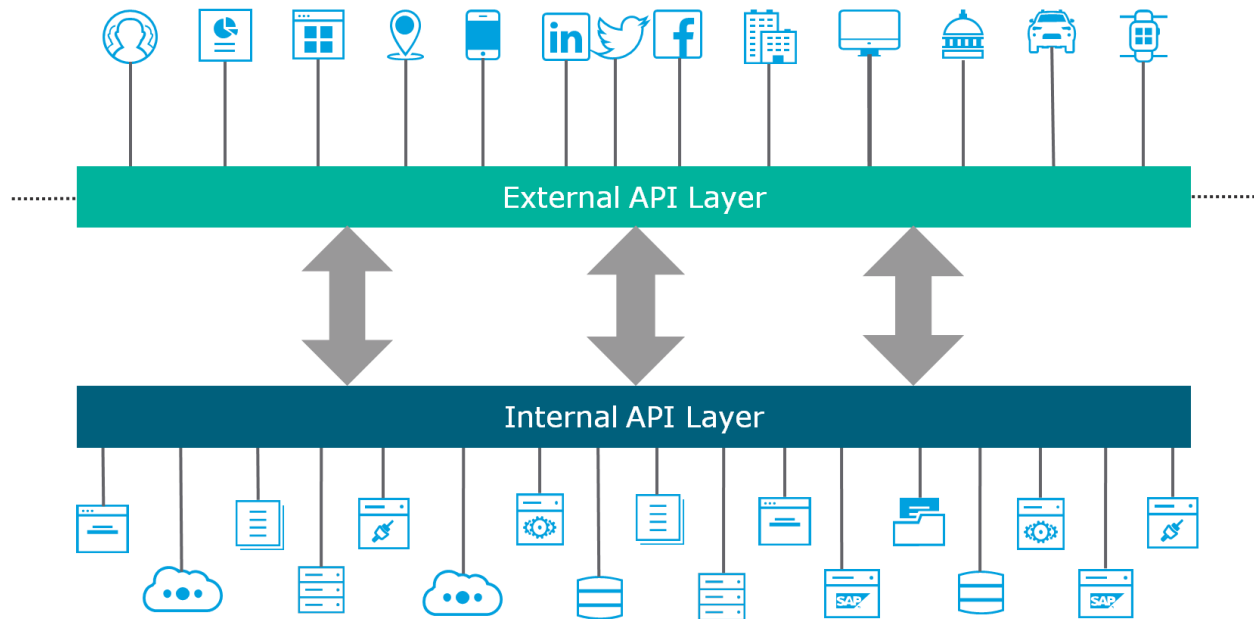
The challenges include:

1. The inability to view a complete picture in order to provide the best possible assistance to the public in any given situation.
2. The inability to proactively assist using this complete picture, thereby increasing time, resources, and expense in reacting to a situation.

3. The inability to readily exchange information between agency personnel, causing frustration, inconsistent answers, and ultimately extra time and money.
4. The inconsistency and inaccuracy of data for a single entity that results when utilizing data from different systems.

### Proposed Architecture:

#### External



#### Internal

This picture illustrates the enterprise-wide architecture that we recommend to centralize and make available many disparate sources of data from various agencies. The system will ultimately provide data transformation, routing, and workflow to deliver real-time accurate data to the user.

At the heart of the design is the enterprise service bus (ESB), which is necessary for connecting the many different agency systems to a centralized data pool. The goal is to move from an agency-centric ESB to a government-wide ESB.

It is imperative to put data sharing policies and procedures in place. The creation of a common data dictionary will be necessary. Security and privacy issues must be addressed. Data retention and archiving procedures as well as disaster recovery plans need to be in place. These are all foundational items that must be defined prior to implementing a government-wide ESB.

The benefits of this design are:

1. The ability to view a complete picture in order to provide the best possible assistance to the public in any given situation.

2. The ability to proactively assist the public using this complete picture, therefore saving time and money in addition to positively affecting outcomes.
3. The ability to readily exchange information between agency personnel to diminish the frustration and time involved in extra communications.
4. More accurate data, resulting in one consistent answer across the enterprise.

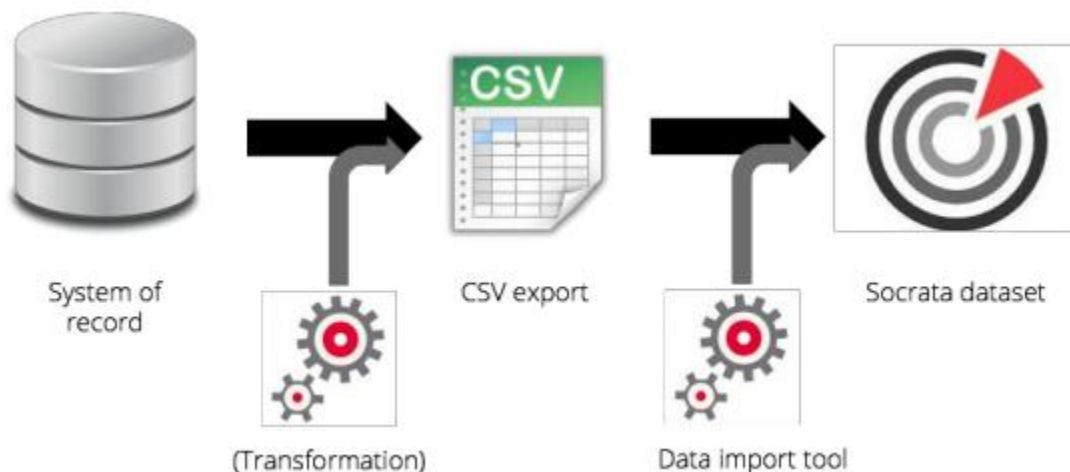
### Data Automation

The benefits of this solution will be realized through data automation. Data automation is the process of updating data on an open data portal programmatically rather than manually. Automating the process of data uploading is important for the long term sustainability of the open data program. Any data that is updated manually risks being delayed because it is one more task an individual has to do as part of the rest of their workload.

There are three common elements to data automation: Extract, Transform, and Load - or ETL.

- Extract: the process of extracting your data from one or many sources systems.
- Transform: the process of transforming your data into the necessary structure, such as a flat file format like a CSV, changing all state abbreviations to the full state name, etc.
- Load: the process of loading the data into the final system, in this case the open data portal.

Each one of these processes is critical to fully automating data uploads and doing it successfully. Below is an example diagram of a standard ETL process:



### Sensitive Data and Personally Identifiable Information (PII)

In developing the proposed solution, serious consideration is being given to sensitive data and personally identifiable information (PII). While opening up more data online has great benefits and returns on investment, it must be done with caution when that data does or could contain private or sensitive information. Health data is most typically associated with privacy regulations, but many other types of data can fall under regulations that must be strictly followed.

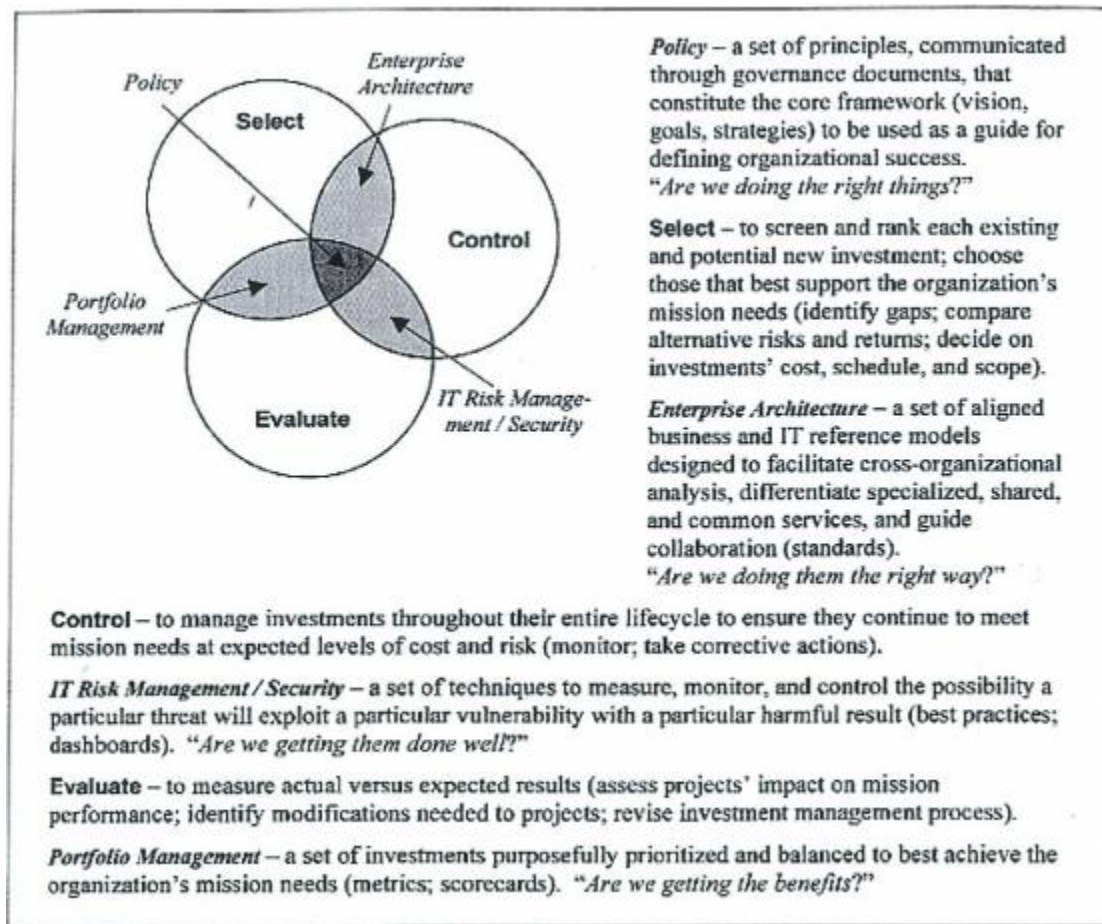
These regulations include all of the following:

- Family Educational Rights and Privacy Act (FERPA):
- Health Insurance Portability and Accountability Act (HIPAA)
- Patient Safety and Quality Improvement Act of 2005 (PSQIA) Patient Safety Rule
- C.R.S. §24-37.5-702(5), Definition of PII
- 42 C.F.R. Part II
- Law enforcement data

#### Select/Control/Evaluate model

This effort adheres to 8 CCR 1501-4 Information and Technology Management Code. An excerpt is below:

A central tenet of the State's e-Government Framework – an approach selected by both the Governor's Office of Innovation and Technology (OIT) and the Commission on Information Management (IMC) to coordinate and direct the use of communication and information resources and technologies by state agencies – is the universally accepted select/control/ evaluate model. It provides a systematic method for agencies to minimize risks while maximizing the returns of investments in communication and information resources technologies.



## APPENDIX 1 - BOARD MEMBERS

Board Member Name	Organization
Steve Holland	Department of Public Safety
Parrish Steinbrecher	Department of Health Care Policy and Financing
Michael W. Brown	Governor's Office of Information Technology
Richard Coolidge	Secretary of State
Marcia Bohannon	Department of Education
Paul Engstrom	Department of Corrections
Josh Allen, Denver Public Schools	Rep. of Employee of School Districts
Vacant	Rep. of Person serving on School Boards
Patrick Burns	Rep. of Person from an institution of higher education or nongovernmental organization
Chris Markuson, Pueblo County	Rep. of Employee of City, County, or City and County
Vacant	Department of Transportation
Dr. Chris Wells, Phd	Department of Public Health and Environment
Herb Wilson, Marty Esquibel	Department of Human Services
Neil Hagenbrok	Department of Labor and Employment
Dr. Beth Bean	Department of Higher Education
Vacant	Department of Revenue
Vacant	Department of Personnel & Administration
Chad Cornelius	Judicial Branch

## APPENDIX 2 - DATA MANAGEMENT GLOSSARY OF TERMS AND ACRONYMS

AFIS - Fingerprint identification system at the Colorado Department of Public Safety.

ASCII - Acronym for the American Standard Code for Information Interchange, which is a code for information exchange between computers.

AUP - Acronym for Acceptable Use Policy, which is a set of regulations that govern how a service may be used.

Authentication - A process for verifying that a person or computer is authentic.

Business Data Steward - A recognized subject matter expert working with data management professionals on an ongoing basis to define and control data. This person will be more simply referred to as the data steward.

Business Domains - Business domains are the natural divisions of the business architecture and are based on either functional or topical scope. Business domains represent the highest level of the state's business architecture blueprint.

Business Reference Model - The Business Reference Model (BRM) provides a framework facilitating a functional (rather than organizational) view of the federal government's lines of business (LoBs), including its internal operations and its services for citizens, independent of the agencies, bureaus and offices performing them. The BRM describes the federal government around common business areas instead of through an agency-by-agency view. Thus, it promotes agency collaboration and serves as the underlying foundation for the Federal Enterprise Architecture (FEA) and e-Gov strategies.

CIO - Acronym for Chief Information Officer.

CISO - Acronym for Chief Information Security Officer.

CMP-SSC - Acronym for the Collaborative Management Program State Steering Committee.

Conceptual Model - A layer of modeling that defines business entities and the relationships between these business entities. Business entities are the concepts and classes of things, people, and places that are familiar and of interest to the State.

Consolidated Reference Model - The FEA Consolidated Reference Model Document Version 2. Published in October Of 2007, contains four of the five models (Performance Reference Model (PRM), Business Reference Model (BRM), Service Component Reference Model (SRM), Technical Reference Model (TRM), that make up the Federal Enterprise Architecture. The Data Reference Model (DRM) is referenced but not repeated in this document due to its complexity and volume. Abbreviated as CRM.

Coordinating Data Steward - The data steward responsible for coordination of data stewardship activities across an information subject area. This person is responsible for ensuring the integrity, quality, security, and coordination of associated metadata across the subject area and will lead a data stewardship team.

COPPA - Acronym for the Children's Online Privacy Protection Act.

**COTS** - Acronym for Commercial Off-The-Shelf. Refers to standard commercial products, such as hardware, software, etc. that can be purchased and implemented without customization.

**CPO** - Acronym for Chief Privacy Officer.

**CRM** - See Consolidated Reference Model.

**Cybersecurity** - A branch of security dealing with digital or information technology.

**Data Context** - Data context refers to any information that provides additional meaning to data. Data context typically specifies a designation or description of the application environment or discipline in which data is applied or from which it originates. It provides perspective, significance, and connotation to data, and is vital to the discovery, use and comprehension of data.

**Data Dictionary** - As defined in the IBM Dictionary of Computing, is a "centralized repository of information about data such as meaning, relationships to other data, origin, usage, and format."

**Data Element** - A precise and concise phrase or sentence associated with a data element within a data dictionary (or metadata registry) that describes the meaning or semantics of a data element.

**Data Governance** - Data governance refers to the discipline of administering data and information assets across an organization through formal oversight of the people, processes, technologies, and lines of business that influence data and informational outcomes to drive business performance.

**Data Management** - Data management is the development, execution and supervision of plans, policies, programs and practices that control, protect, deliver, and enhance the value of data and information assets.

**Data Mining** - The process of extracting hidden patterns from data. Data mining identifies trends within data that go beyond simple data analysis. Through the use of sophisticated algorithms, non-statistician users have the opportunity to identify key attributes of processes and target opportunities.

**Data Modeling** - A structured method for representing and describing the data used in an automated system. Data modeling is often used in combination with two other structured methods, data flow analysis and functional decomposition, to define the high-level structure of business and information systems.

**Data Reference Model** - The Data Reference Model (DRM) is a flexible and standards-based framework to enable information sharing and reuse across the federal government via the standard description and discovery of common data and the promotion of uniform data management practices. The DRM provides a standard means by which data may be described, categorized, and shared. These are reflected within each of the DRM's three standardization areas of data description, data context, and data sharing.

**Data Stewardship** - This is the formal accountability for state business responsibilities through ensuring effective definition, coordination, control and use of data assets.

**Data Stewardship Teams** - One or more temporary or permanent focused groups of business data stewards collaborating on data modeling, data definitions, data quality requirement specification, and data quality improvement, reference and master data management, and

---

meta-data management, typically within an assigned subject area, lead by a coordinating data steward in partnership with a data architect.

**Data Warehouse** - A central repository for significant parts of the data that an enterprise's various business systems collect specifically designed for reporting. It is a subject-oriented, integrated, time-variant and non-volatile collection of data in support of management's decision making process, specifically providing data for Online Analytical Processing (OLAP) efforts.

**DBA** - Acronym for database administrator.

**DQA** - Acronym for Data Quality Assurance, which is a process of examining the data to discover inconsistencies and other anomalies. Data cleansing activities may be performed to improve the data quality.

**EDE** - Acronym for Electronic Data Exchange.

**Enterprise** - The State of Colorado Executive Branch Agencies.

**ESID** - Acronym for the Encrypted State ID at the Colorado Department of Education.

**ETL** - Acronym for Extract, Transform, and Load, which is a process to extract data from one source, transform (or cleanse) it, and load the result into another source. This is frequently part of populating a Data Warehouse.

**Extensible Markup Language** - Extensible Markup Language (XML) describes a class of data objects called XML documents and partially describes the behavior of computer programs which process them. XML is a subset of SGML, the Standard Generalized Markup Language. Among its uses, XML is intended to meet the requirements of vendor-neutral data exchange, the processing of Web documents by intelligent clients, and certain metadata applications. XML is fully internationalized and is designed for the quickest possible client-side processing consistent with its primary purpose as an electronic publishing and data interchange format.

**Federal Enterprise Architecture** - The Federal Enterprise Architecture (FEA) consists of a set of interrelated "reference models" designed to facilitate cross-agency analysis and the identification of duplicative investments, gaps and opportunities for collaboration within and across agencies. Collectively, the reference models comprise a framework for describing important elements of the FEA in a common and consistent way. Through the use of this common framework and vocabulary, IT portfolios can be better managed and leveraged across the federal government.

**FERPA** - Acronym for the Family Educational Rights and Privacy Act.

**FIPS** - Acronym for the Federal Information Processing Standard (FIPS), one of many standards set by the federal government for exchanging or processing data.

**Government Data Advisory Board (GDAB)** - Advisory Board created by HB 09-1285 for the purpose of advising the State CIO on matters relating to data sharing.

**HIPAA** - Acronym for the Health Insurance Portability and Accountability Act.

**Identity Management** - Identity Management (IdM) means the combination of technical systems, rules, and procedures that define the ownership, utilization, and safeguarding of personal identity information. The primary goal of the IdM process is to assign attributes to a digital identity and to connect that identity to an individual.

---

**Information Architecture** - The compilation of the business requirements of the enterprise, the information, process entities and integration that drive the business, and rules for selecting, building and maintaining that information.

**Information Exchange Package Documentation** - An Information Exchange Package Documentation (IEPD), is a specification for a data exchange and defines a particular data exchange. It is a set of artifacts consisting of normative exchange specifications, examples, metadata, and documentation encapsulated by a catalog that describes each artifact. The entire package is archived as a single compressed file.

**Information Subject Area** - Topical or functional categories of the business processes that are integral to the operations of the State and that span agencies statewide, such as Financial, Person, Geography, Organization, and Service.

**Information Subject Sub-Areas** - A logical subset of an information subject area containing enough unique information to be addressed separately, such as within the subject area of person could be Customer (client/citizen) or Employee.

**K-20** - Education from kindergarten through post-graduate college.

**Logical Model** - The logical data model diagrams add a level of detail for each subject area below the conceptual data model by depicting the essential data attributes for each entity. The enterprise logical data model identifies the data needed about each instance of a business entity. The essential data attributes included represent common data requirement and standardized definitions for shared data attributes.

**Master Data** - Data that is, for the most part, static, and changes infrequently.

**Metadata** - Metadata is "data about data." Metadata includes data associated with either an information system or an information object, for purposes of description, administration, legal and confidentiality requirements, technical functionality and security, use and usage, and preservation. Metadata gives us detail about both what the data means and how it's stated. Metadata is one of the greatest critical success factors to sharing information because it provides business users, developers and data administrators with consistent descriptions of the enterprise's information assets.

**Metadata Registry** - A metadata registry/repository is a central location in an organization where metadata definitions are stored and maintained in a controlled method. Included in the registry are approved enterprise data definitions, representations (models, XML structures), and links to physical constructs, values, exceptions, and data steward information.

**National Information Exchange Model** - The National Information Exchange Model (NIEM) is a federal, state, local and tribal interagency initiative providing a foundation for seamless information exchange. NIEM is a framework to bring stakeholders and Communities of Interest together to identify information sharing requirements, develop standards, a common lexicon and an online repository of information exchange package documents to support information sharing, provide technical tools to support development, discovery, dissemination and re-use of exchange documents; and provide training, technical assistance and implementation support services for enterprise-wide information exchange.

**OMB** - Acronym for the federal Office of Management and Budget.

---

**Online Analytical Processing** - Online Analytical Processing (OLAP) is a reporting and data design approach intended to quickly answer analytical queries. Data to satisfy OLAP reporting and analysis needs are designed differently than data used for traditional operational use. Although OLAP can be achieved with standard relational databases, multidimensional data models are often used, allowing for complex analytical and ad-hoc queries with a rapid execution time.

**Online Transaction Processing** - Online Transaction Processing (OLTP) is a class of systems that facilitate and manage transaction-oriented applications, typically for data entry and retrieval.

**P-20** - Education from pre-kindergarten through post-graduate college.

**Performance Reference Model** - Acronym PRM, is part of the FEA.

**Personally Identifiable Information (PII)** - Refers to all information associated with an individual and includes both identifying and non-identifying information. Examples of identifying information which can be used to locate or identify an individual include an individual's name, aliases, Social Security Number, email address, driver's license number, and agency-assigned unique identifier. Non-identifying personal information includes an individual's age, education, finances, criminal history, physical attributes, and gender.

**PLC** - Acronym for the Prevention Leadership Council.

**Repository** - An information system used to store and access architectural information, relationships among the information elements, and work products.

**SASID** - Acronym for the State Assigned Student ID at the Colorado Department of Education.

**SCRM** - Acronym for the Service Component Reference Model; part of the FEA.

**SIDMOD** - Acronym for the State Identification Module at the Colorado Department of Human Services.

**SIMU** - Acronym for the Student Identifier Management Unit at the Colorado Department of Education.

**State Enterprise Data Model** - An integrated, subject-oriented data model defining the essential data produced and consumed across the state. The purpose of a data model is to 1) facilitate communications as a bridge to understand data between people with different levels and type of experience and help us understand the business area, 2) to formally document a single and precise definition of data and data related rules, and 3) to help explain the data context and scope of third-party software. The data model is composed of three layers for communication and best utilization: the subject area model, the conceptual model, and the logical model.

**Technical Data Steward** - The information systems professional responsible for assuring integrity of the information captured, for proper handling of the information (not the content) and for assuring the information is available when needed. They are the custodians of the data assets and perform technical functions to safeguard and enable effective use of state data assets.

**Transaction Data** - Transaction data is data describing an event (the change as a result of a transaction) and is usually described with verbs. Transaction data always has a time dimension, a numerical value and refers to one or more objects (i.e., the reference data).

---

Typical transactions are: financial: orders, invoices, payments; work: plans, activity records; logistics: deliveries, storage records, travel records, etc.

Unit Records - Records containing data that pertain directly to an individual.

XML - See Extensible Markup Language.

## APPENDIX 3 - STATE AGENCY ACRONYMS

Colorado Bureau of Investigations (CBI)  
Colorado Children and Youth Information Sharing (CCYIS)  
Colorado Data Sharing and Utilization Group (CDSUG)  
Colorado District Attorneys Council (CDAC)  
Colorado Integrated Criminal Justice Information System (CICJIS)  
Data Governance Working Group (DGWG)  
Department of Agriculture (CDA)  
Department of Corrections (DOC)  
Department of Education (CDE)  
Department of Health Care Policy and Financing (HCPF)  
Department of Higher Education (DHE)  
Department of Human Services (CDHS)  
Department of Labor and Employment (CDLE)  
Department of Local Affairs (DOLA)  
Department of Natural Resources (DNR)  
Department of Personnel & Administration (DPA)  
Department of Public Health and Environment (CDPHE)  
Department of Public Safety (CDPS)  
Department of Regulatory Agencies (DORA)  
Department of Revenue (DOR)  
Department of Transportation (CDOT)  
Division of Youth Services (DYS)  
Governor's Office of Information Technology (OIT)  
Office of the Attorney General - Department of Law's Office (DOL)  
Office of Information Security (OIS)  
Secretary of State's Office / Department of State (SOS)  
Statewide Traffic Records Advisory Council (STRAC)