Transforming Colorado Government for Today and the Future

ABSTRACT

State governments are becoming innovative in their approach to information management. Since 2007, The Governor's Office of Information Technology (OIT) in the state of Colorado has produced a ground-breaking and progressive agenda for information sharing and information technology management. OIT has focused on agile application and service delivery with a strong emphasis on data governance. The Colorado Data Strategy ensures that state government policy makers and knowledge workers have the data and information they need to do their work. The business-ization of government requires a disciplined approach to managing data and information resources. Outcomes gained include:

- dismantling data silos
- implementing the necessary infrastructure to enable collaborative information sharing across agencies, branches, and levels of government
- acquiring the necessary tools to build capacity for knowledge and performance management going forward

The State's former Chief Data Officer will present an overview of Colorado's Data Strategy and how the State is building a Data Governance Program from the ground up.

BIOGRAPHY

Micheline Casey
Former Chief Data Officer
Governor’s Office of Information Technology
State of Colorado

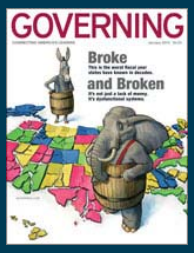
As the first state Chief Data Officer (CDO) in the country, Ms. Casey was responsible for developing and executing the State of Colorado’s enterprise data strategy and data governance and data management framework across the State’s Executive Branch agencies. She coordinated OIT legislative and policy actions as necessary for this strategic effort, and helped architect a series of four laws between 2008 and 2010 to further the State’s information sharing agenda. Ms. Casey was appointed to the Governor’s Early Childhood Leadership Commission and Behavioral Health Transformation Council to forward the state’s agenda for creating unified, interagency data systems. The State also worked closely with U.S. DOJ’s Office of Juvenile Justice and Delinquency Prevention (OJJDP) to develop the Youth and Family domain of the National Information Exchange Model.

Ms. Casey also lead the State’s efforts in developing Identity, Credential and Access Management (ICAM) as a common framework and shared service across the State, to enable trust

in information sharing efforts. She was part of NASCIO's Digital Identity working group subcommittee that authored a state identity, credential and access management framework and roadmap for state and local governments.

Ms. Casey has almost 20 years experience in the technology industry, working in strategy, marketing, and business development roles. Ms. Casey earned her M.B.A from the University of Georgia's Terry School of Business and a B.S. in Marketing from the Pennsylvania State University.

Traditional Government is No Longer Sustainable



"The coming year will be excruciating for state budget-makers not just because revenues continue to decline and new rounds of budget cutting are necessary, but because ***the realization has started to dawn*** — and not just in the hardest-hit places — ***that fundamental assumptions about how state government operates need rewiring.***"

(emphasis added)

Gurwitt, Rob. "Broke and Broken." *Governing* January 2010: 19

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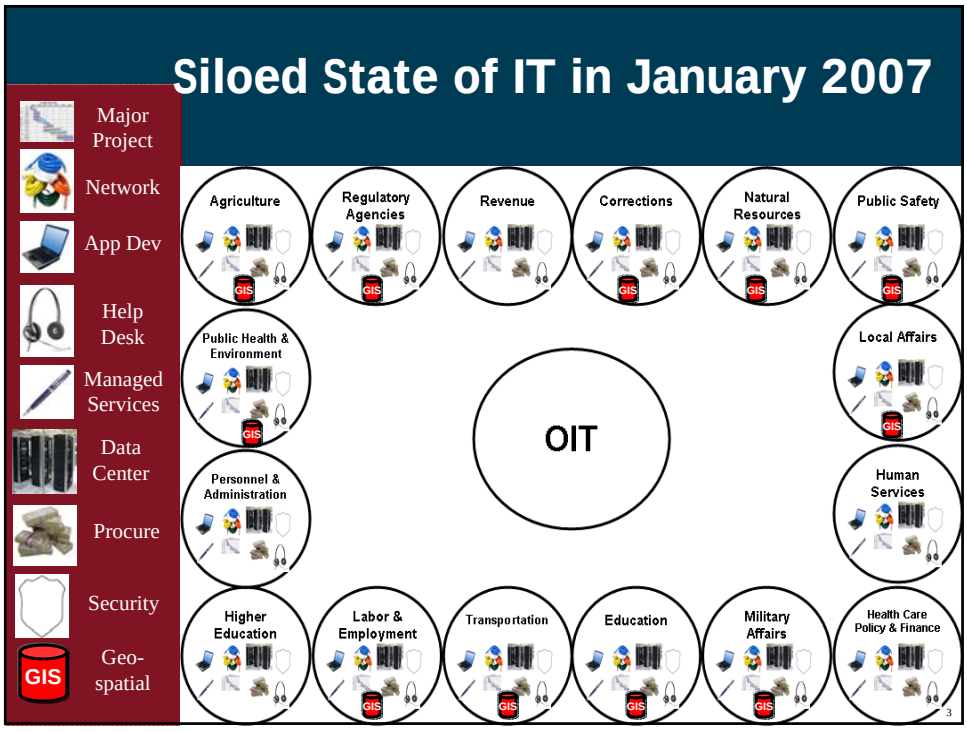
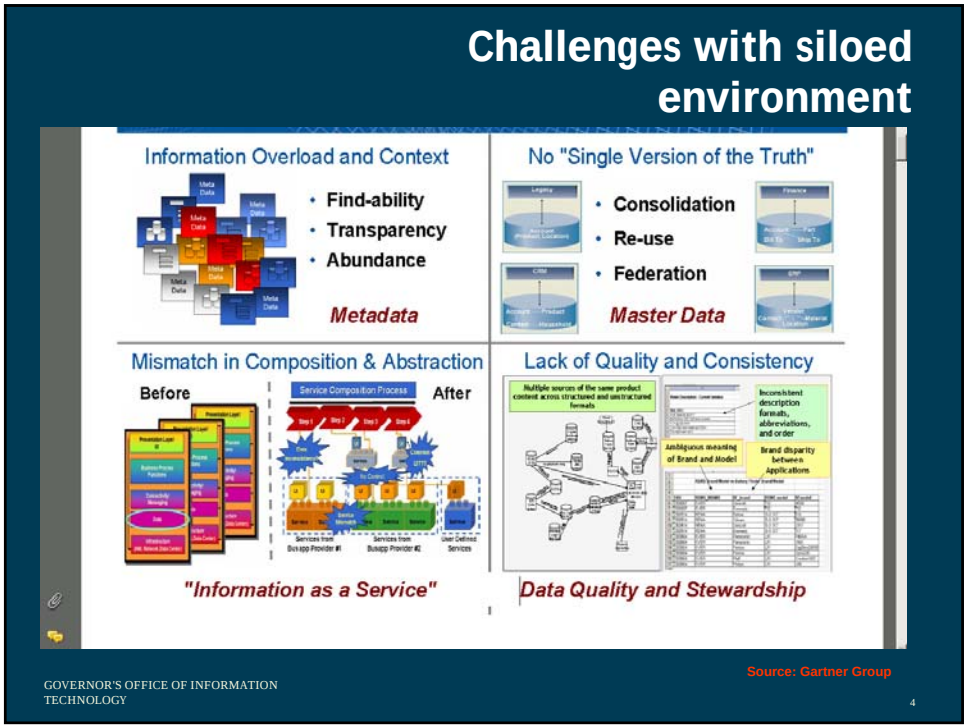

Siloed State of IT in January 2007
Major Project
Network
App Dev
Help Desk
Managed Services
Data Center
Procure
Security
Geo-spatial
GIS
Agriculture
Regulatory Agencies
Revenue
Corrections
Natural Resources
Public Safety
Public Health & Environment
Local Affairs
OIT
Personnel & Administration
Human Services
Higher Education
Labor & Employment
Transportation
Education
Military Affairs
Health Care Policy & Finance
3


Challenges with siloed environment
Information Overload and Context
Find-ability
Transparency
Abundance
Metadata
No "Single Version of the Truth"
Consolidation
Re-use
Federation
Master Data
Mismatch in Composition & Abstraction
Before
After
"Information as a Service"
Lack of Quality and Consistency
Data Quality and Stewardship
Source: Gartner Group
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Data: The Key to Managing Government Like a Business

"Data sharing is no longer an afterthought…You begin with the notion that you're going to share information and you're going to make it easy for people. When government officials start treating their data as a public resource, opportunities to empower and collaborate with citizen developers multiply."

-Greg Elin, Chief Data Architect, the Sunlight Foundation, Deloitte Research, "Unlocking Government: How Data is Transforming Democracy", March 2010

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Why Is Data Management Important?

- Enhances service delivery to citizens and constituents
- Enables agile application development
- Improves efficiency and effectiveness
- Informs policy making

Data is one of the most valuable assets of the State

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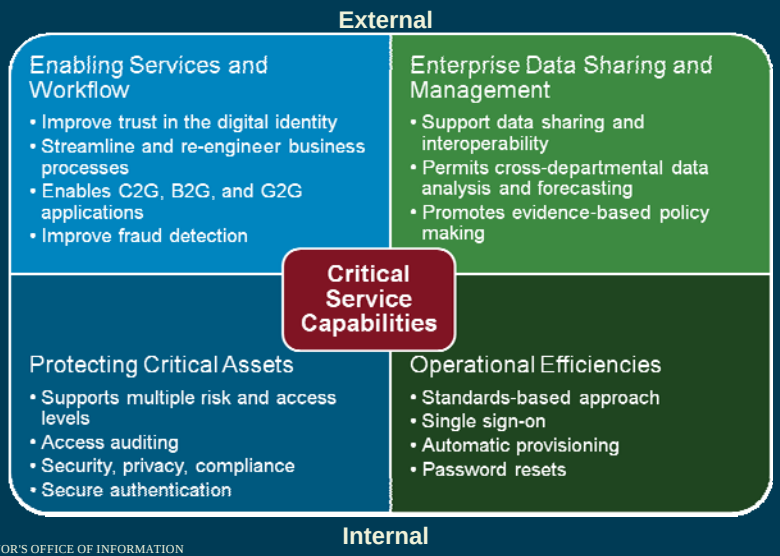
Colorado's Program Drivers



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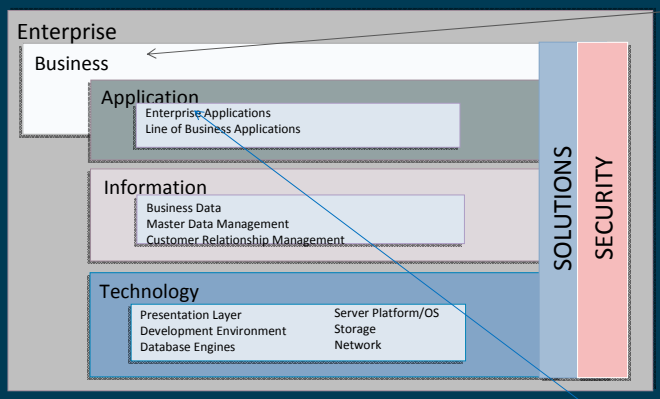
Colorado's Data Strategy

- Strong partnership with the General Assembly
  - SB 08-155, IT Consolidation
  - HB 08-1364, Data Sharing Protocol, EC Unique ID
  - HB 09-1285, Data Advisory Board, P-20 Education Subcommittee
  - HB 10-1028, Early Childhood Universal Application
  - HB 10-1392, Data Advisory Board Expansion
- Government Data Advisory Board
  - Multi-agency; state, local, and private sector partners
  - Education Data Subcommittee
  - Early Childhood Services Subcommittee
    - Partnership with the Early Childhood Leadership Commission
  - Privacy Subcommittee
- OIT's Data Management Program
  - Led by nation's only State Chief Data Officer
  - Sets strategy, policies and standards
  - Dismantling silos, implementing infrastructure to enable sharing, tools for knowledge and performance management

Governor's Office of Information Technology

Leveraging the CEAF

- Business-focused view of our systems and data
- CEAF is based on the Federal Enterprise Architecture Framework
- *Mission: To deliver agile business solutions enabling efficient government and citizen services.*



What is an EA tool?

- The primary purpose is to store, integrate, and structure information about EA.
- Supports the creation, collection, analysis, and presentation of this information.
- *Provides organizations visibility into their businesses.*
- Provides a common repository for this information, including metadata.

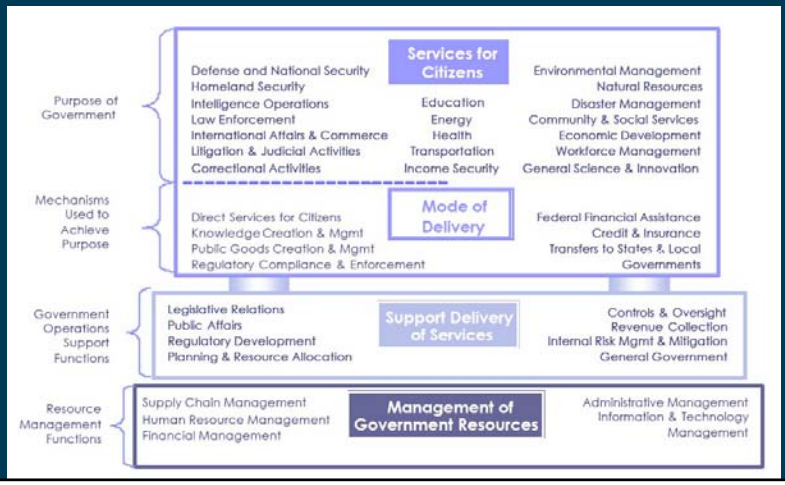
Source: Gartner Group

Why do we have an EA tool?

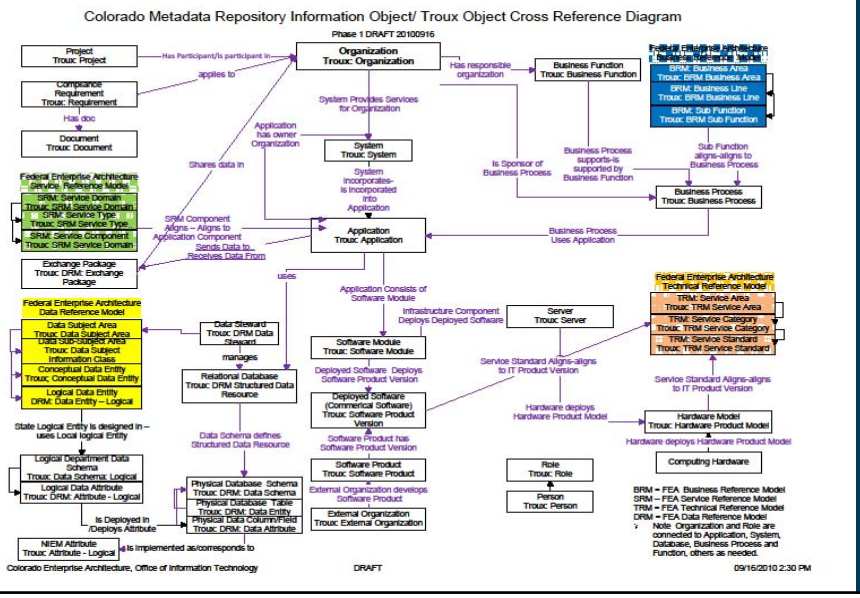
- Inventory of all state information technology assets
- Assist with long-term strategic planning and enterprise standards setting
- Facilitate information sharing and information optimization
  - Collaborative information modeling environment and decision-making
  - Visual modeling of as-is and to-be environments for business process analysis and scenario decision-making
- Assist enterprise procurement strategies
- Model-driven management of enterprise metadata
- Role-specific reporting, analytics, workflow and compliance controls to present accurate and relevant information where and when needed

Supports the CEAF

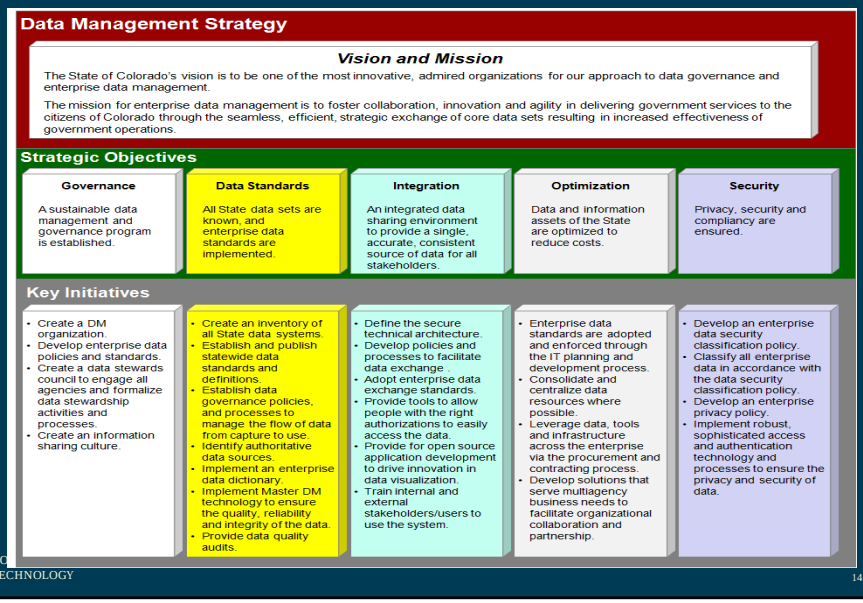
"The Business Reference Model provides a framework that facilitates a functional (as opposed to organizational) view of the federal government's LoBs, including its internal operations and its services for the citizens, independent of the agencies, bureaus and offices that perform them…the BRM promotes agency collaboration and serves as the underlying foundation for the FEA and E-Gov strategies." – from the Federal Enterprise Architecture Framework



Linking Technology to Business



CO Data Management Strategic Objectives



Data Principles

- All data and information are valuable assets owned by the State.
- *Smart data management requires enterprise standards to enable information sharing and reuse.*
- Enterprise data and information emanates from identified authoritative data sources.
- *Data is of the highest quality, reliability, and integrity.*
- Data and information must be secured and accessible.
- *The process of data governance will be open, transparent, timely, and incentivize cooperation and trust.*
- People have timely access to data to improve their business.

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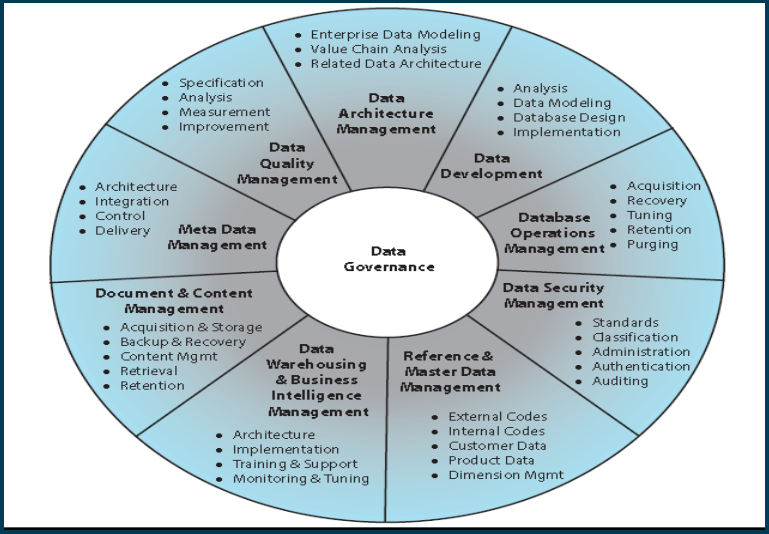
DM Functional Framework



Source: Data Management Association

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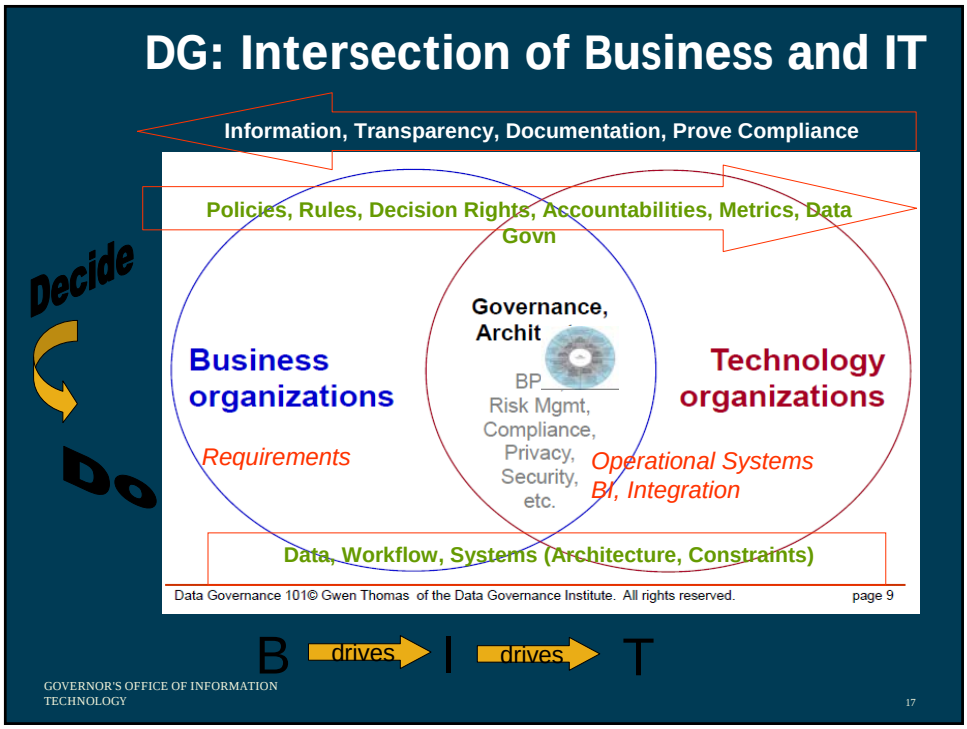
DG: Intersection of Business and IT
Information, Transparency, Documentation, Prove Compliance
Policies, Rules, Decision Rights, Accountabilities, Metrics, Data Govn
Decide
Do
Business organizations
Requirements
Governance, Archit
BP
Risk Mgmt, Compliance, Privacy, Security, etc.
Technology organizations
Operational Systems
BI, Integration
Data, Workflow, Systems (Architecture, Constraints)
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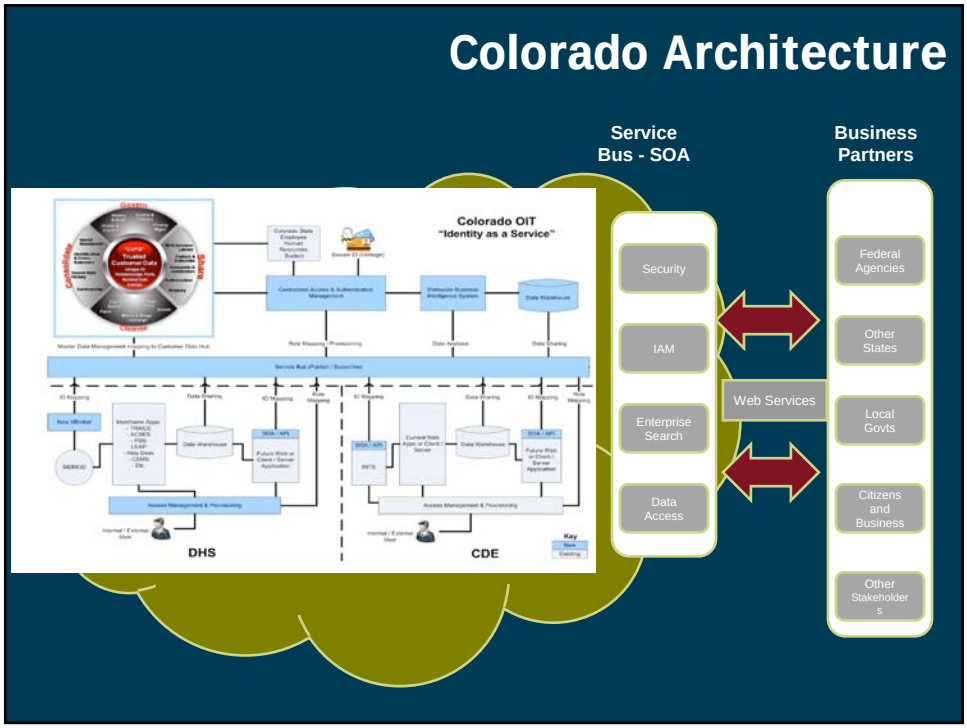
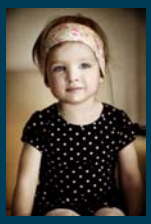
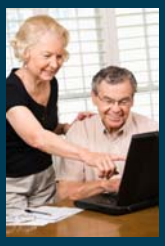

Colorado Architecture
Service Bus - SOA
Business Partners
Colorado OIT "Identity as a Service"
DHS
CDE
Security
IAM
Enterprise Search
Data Access
Web Services
Federal Agencies
Other States
Local Govts
Citizens and Business
Other Stakeholders



Identity as Service: Shift in how we view Identities



ICAM is a foundation technology for multiple business facets, including data sharing

Driver Licenses

Medicaid

Voter Registration

Health IT

Professional Licenses

Health Insurance Exchange

Business Permits

First Responder Credentialing

Hunting Licenses

Birth Certificates

State Longitudinal Data system (SLDS)

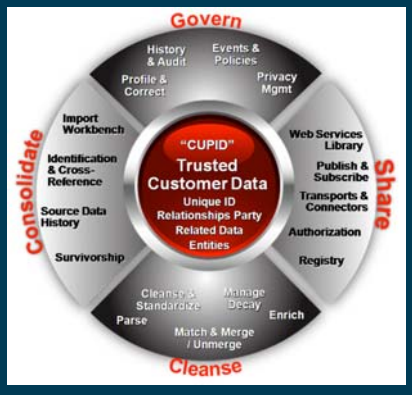
Tax Collection

Child Welfare

Early Childhood Learning Commission

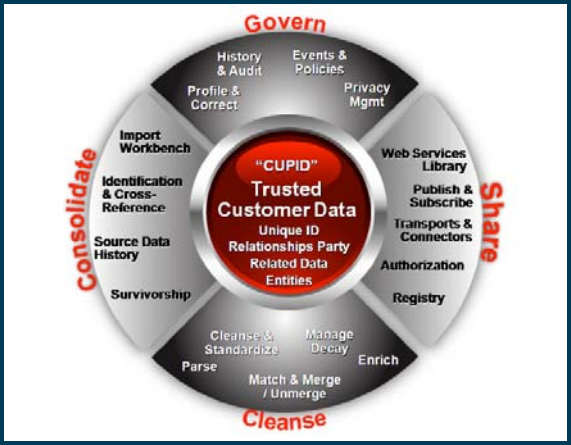
Social Services
(Food and Financial Assistance)

State Employee Services
(payroll, benefits, email access
On/off boarding)

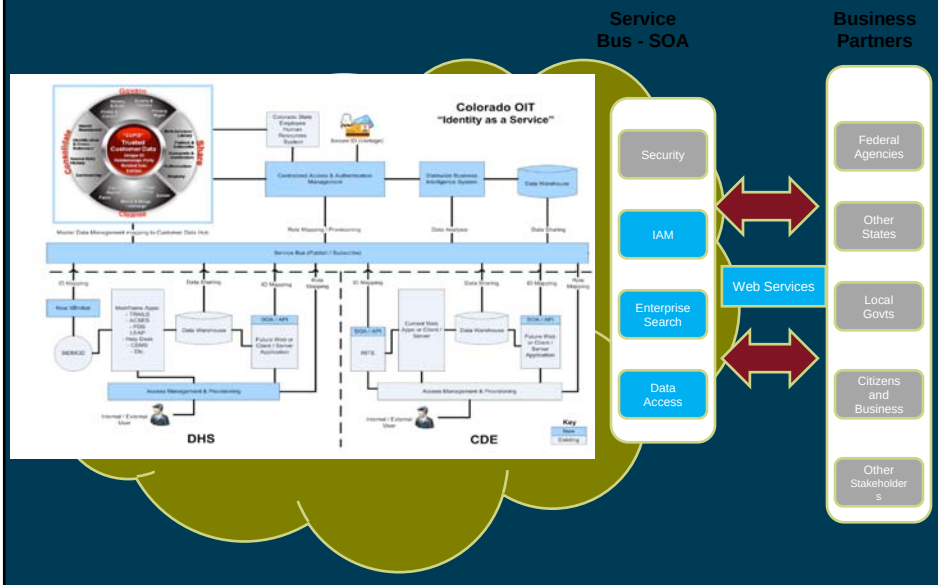


Colorado Unique Personal Identifier (CUPID)

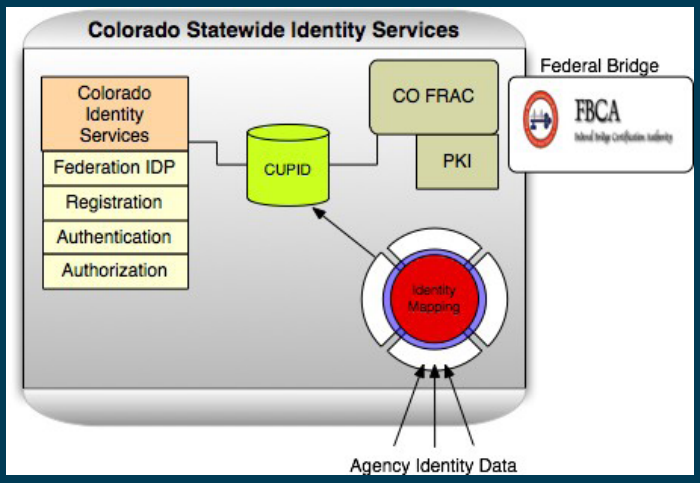
- Separate identity from attributes and privileges (e.g., driver, voter, receiver of benefits, employee, first responder, patient)
- Identity verification and fraud management
- Attributes assigned by agencies/programs
- Federated model
- Basis for providing services and sharing data across agencies
- Master data management



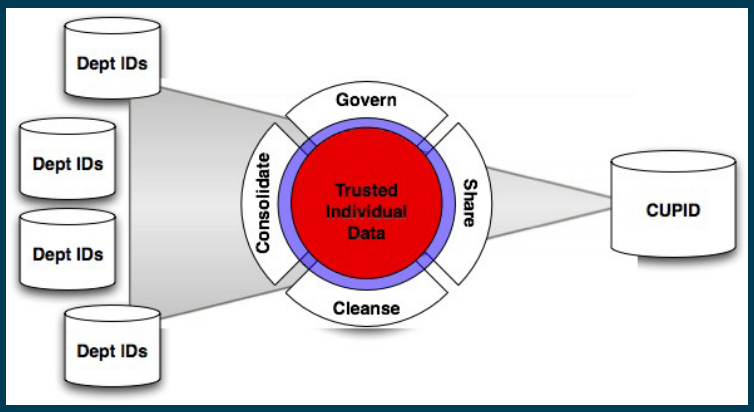
Identity as a Service Architecture



Statewide Identity Services



CUPID Master Data Management



Vertical Domain Examples:
Education, Juvenile Justice, Early Childhood & Social Services
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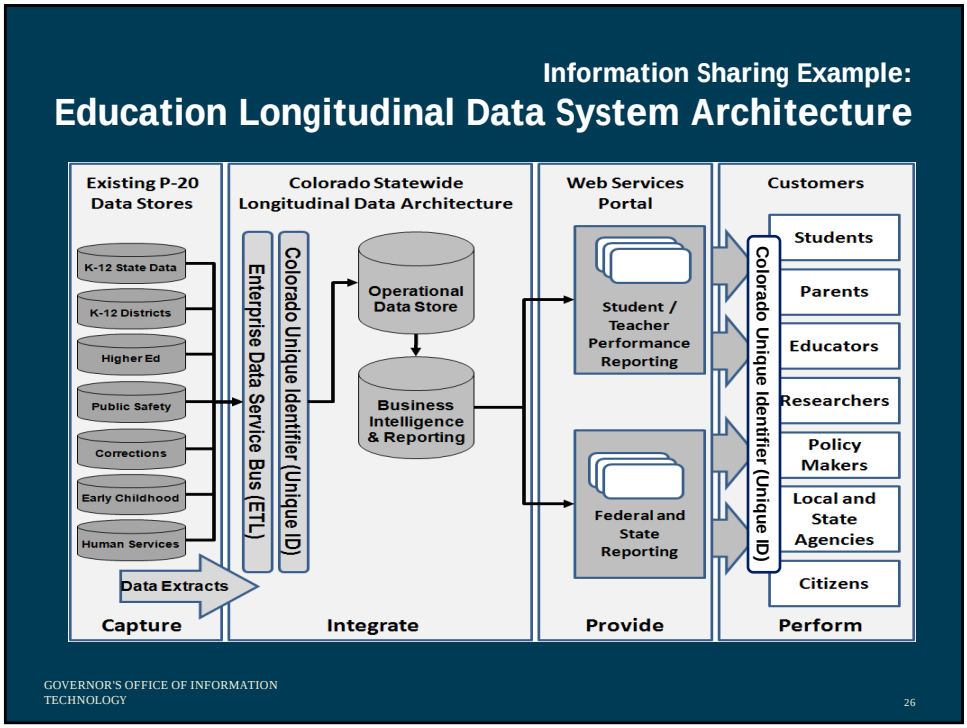
Information Sharing Example:
Education Longitudinal Data System Architecture
Existing P-20 Data Stores
Colorado Statewide Longitudinal Data Architecture
Web Services Portal
Customers
K-12 State Data
K-12 Districts
Higher Ed
Public Safety
Corrections
Early Childhood
Human Services
Data Extracts
Enterprise Data Service Bus (ETL)
Colorado Unique Identifier (Unique ID)
Operational Data Store
Business Intelligence & Reporting
Student / Teacher Performance Reporting
Federal and State Reporting
Colorado Unique Identifier (Unique ID)
Students
Parents
Educators
Researchers
Policy Makers
Local and State Agencies
Citizens
Capture
Integrate
Provide
Perform
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Example: SLDS Benefits

- Improves:
  - Academic Reporting
  - Ability to Manage "At Risk" Students
  - *Policy Making in Education*
  - *Resource Allocation Decisions*
  - *Overall Performance Management*
- Produces:
  - Enterprise Reports of Student Profiles
  - "Life of Student" Performance Summaries
- Standardizes
  - Student Identification
  - Analytical Reporting Tools and Capabilities
- Eliminates:
  - Redundant Data Entry
- Satisfies:
  - Federal Standards
  - State Standards

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Juvenile Information Sharing National Guidelines & Standards

National JIS Guidelines

- Providing national standards for juvenile and at risk youth agencies for information sharing
- Common ground for procedures and policies
- Understanding of tasks and responsibilities
- Encourages collaboration between **agencies, local efforts and statewide planning**
- Unifies efforts for improving services for children, youth and families
- Shares information across the country of state experiences
- Builds on successes of jurisdictions by sharing methodologies; MOU's; privacy and confidentiality strategies

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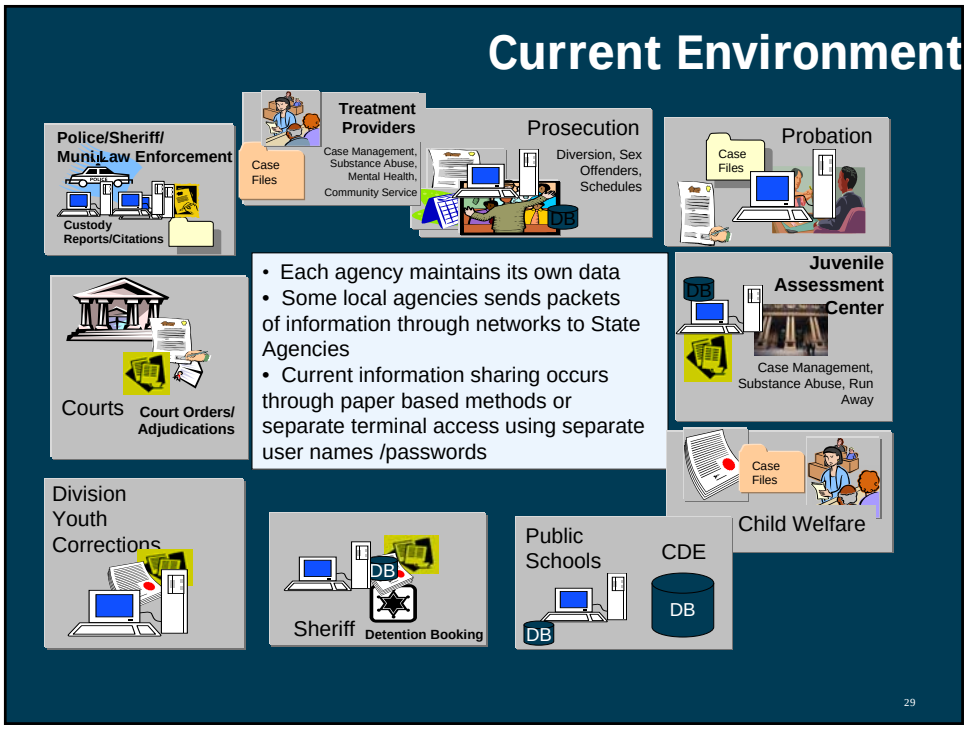
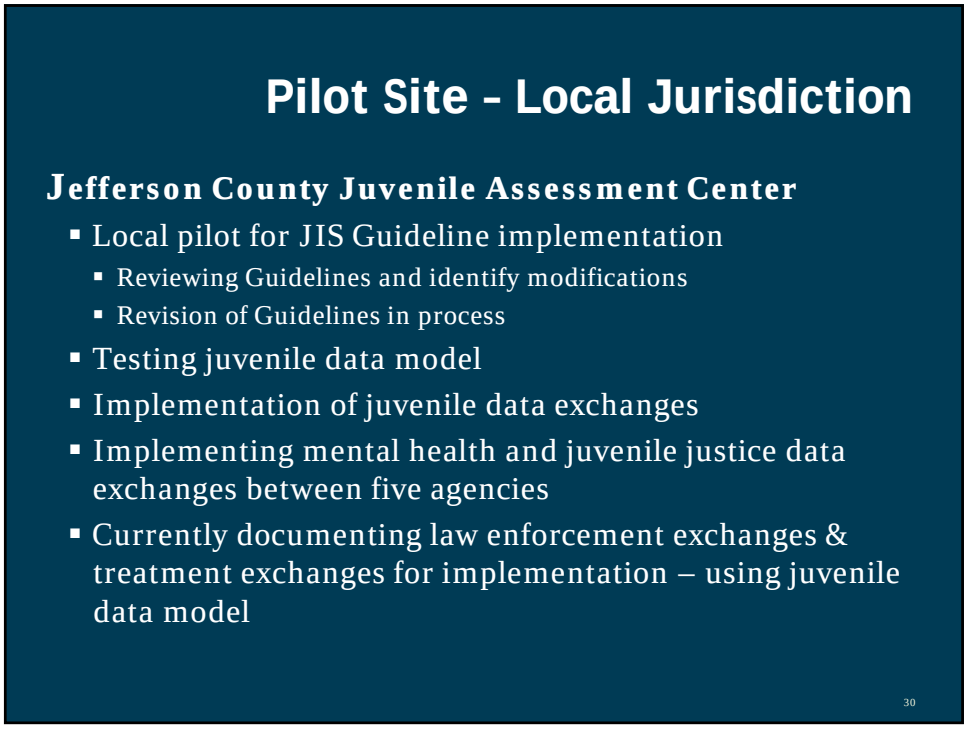

Current Environment
Police/Sheriff/ Muni Law Enforcement
Custody Reports/Citations
Treatment Providers
Case Files
Case Management, Substance Abuse, Mental Health, Community Service
Prosecution
Diversion, Sex Offenders, Schedules
DB
Probation
Case Files
Courts
Court Orders/ Adjudications
• Each agency maintains its own data
• Some local agencies sends packets of information through networks to State Agencies
• Current information sharing occurs through paper based methods or separate terminal access using separate user names /passwords
Juvenile Assessment Center
DB
Case Management, Substance Abuse, Run Away
Case Files
Child Welfare
Division Youth Corrections
DB
Sheriff
Detention Booking
Public Schools
CDE
DB
DB
29


Pilot Site – Local Jurisdiction
Jefferson County Juvenile Assessment Center
Local pilot for JIS Guideline implementation
Reviewing Guidelines and identify modifications
Revision of Guidelines in process
Testing juvenile data model
Implementation of juvenile data exchanges
Implementing mental health and juvenile justice data exchanges between five agencies
Currently documenting law enforcement exchanges & treatment exchanges for implementation – using juvenile data model
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Pilot Site - State Jurisdiction

Colorado Children Youth Information Sharing Initiative – CCYIS

- State pilot for JIS Guideline implementation
- Developing state standards on policy and procedures for JIS
- Partnering with Governor's Office of Information Technology
- CCYIS & JIS are now part of CRS
- CND must coordinate all efforts with Governor's office and partnering agencies:
  - Human Services
  - Department of Public Safety
  - Judicial
  - Department of Education
  - Department of Labor
  - Department of Public Health & Environment

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At Risk Youth and Juvenile Data Model Development

At Risk Youth and Juvenile Data Model includes:

- Mental Health
- Health
- Human Services / Child Welfare
- Treatment Services
- Foster Care
- Parent / Guardian
- Education
  - Includes Special Education
- Juvenile Gang Information and indicators
- Law Enforcement
- Dependency / Neglect
- Child in Need of Care
- Diversion
- Detention/Corrections
- Probation

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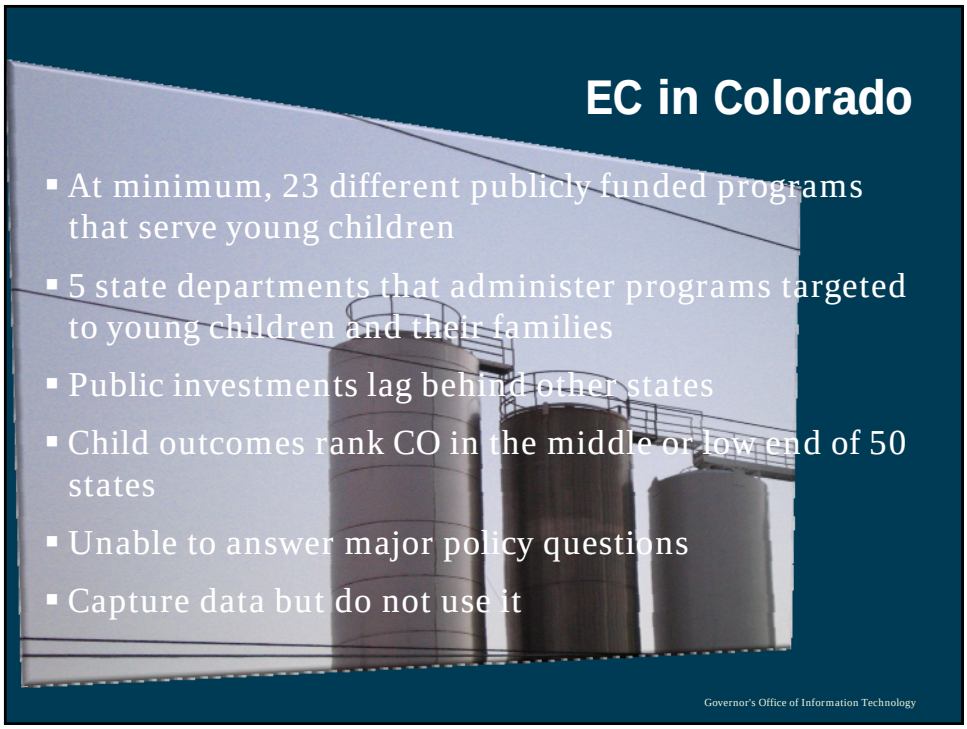
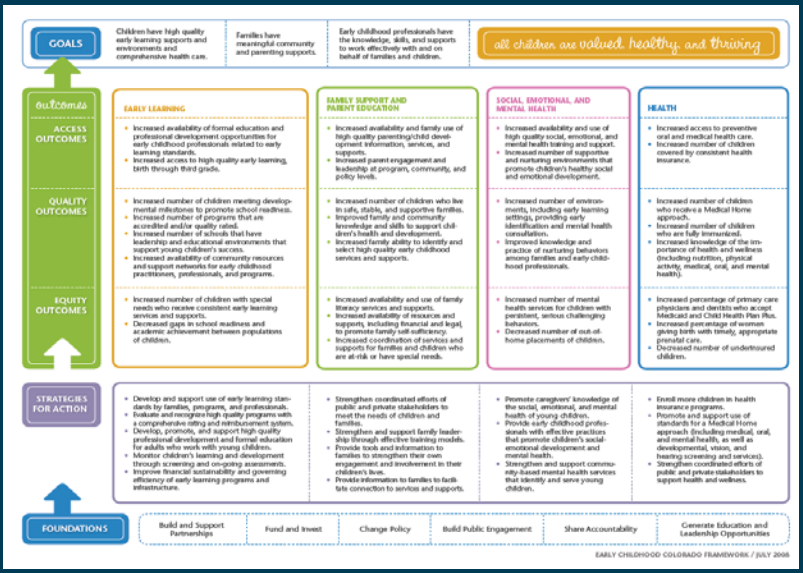


Early Childhood Leadership Commission

- *Mission*: Advance a comprehensive, quality, sustainable early childhood system
  - Multi-agency state, local and private sector
- *Overarching Goals:*
  - Create a **unified, interagency early childhood data system** that measures progress and informs planning, policy development, and funding of early childhood supports, services and infrastructure.
  - Increase **public-private and federal-state-local coordination and alignment** of early childhood services, supports and infrastructure to improve outcomes for young children.
  - Improve the **quality of and access to early childhood services** across all child-serving sectors.
- U.S. HHS funding of $1.5M to jump start efforts

Governor's Office of Information Technology

Early Childhood Colorado Framework



Governor's Office of Information Technology

Framework in Action: Using Data to Ensure Accountability

Result: Decreased gaps in school readiness and academic achievement between populations of children.

Indicators:

- Percentage of children in Part C/early intervention who were functioning within age expectations
- Percentage of children in the Colorado Preschool Program whose growth rates increased in one or more of the targeted outcome areas.
- Percentage of preschoolers receiving Part B special education whose growth rates increased in one or more of the targeted areas.
- Achievement and growth gaps for 4th and 5th grade students by population scoring proficient or advanced on reading and math CSAP

Governor's Office of Information Technology

Challenges to Enterprise Data Governance

- Culture
  - The problem is, every agency has one
  - It's an "IT" initiative
- Trust
  - Real issues – compliance, liability
- Data "Mining"
  - Data and data based tied to budget dollars
  - Artificial barriers created
- Communication
  - No trickle-down effect
- Resources
  - Time
  - Knowledge
  - Money – lack of capital, color of money, OMB A-87

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