Transforming Colorado Government for Today and the Future

STATE OF COLORADO

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

March 2010

In accordance with C.R.S. §24-37.5-101 et. seq., I am pleased to present *"Transforming Colorado Government for Today and the Future: Governor's Office of Information Technology 2010 Report"* to the Governor, the President of the Senate and the Speaker of the House of Representatives.

The Chinese philosopher Lao Tzu said, "A journey of a thousand miles begins with a single step." Over the past 36 months (and in particular since July 1, 2008), Colorado's state government has taken many significant steps toward the transformative directives set forth in Senate Bill 08-155. The Governor's Office of Information Technology (OIT) has successfully developed a new enterprise approach to delivering technology, leveraging private sector business models and public-private partnerships to modernize the infrastructure. This approach enables the agile delivery of new applications and government services to state agencies and citizens as efficiently, effectively, and sustainably as possible. The impact of transformation in the following areas cannot be overstated:

• **Breaking down government silos.** This was singularly the most important first step in transforming information and communication technology in the State of Colorado. Changing the long ingrained culture of provisioning information technology in an agency and program-centric manner to an enterprise approach was essential to achieving many of the results you will read about in this Report and would not have been possible without the visionary legislation introduced by Senator Bill Cadman and Representative Andy Kerr.

• **Improving citizen access.** The groundwork has been laid to leverage effective shared services to transform traditional state government services, including unemployment, workforce, housing and health and human services. States are adopting systems and processes pioneered by local governments, such as the innovative, silo-busting shared services 3-1-1 delivery model implemented by the City and County of Denver, to improve citizen access to government services while increasing accountability and transparency. Colorado is no exception and is using technology to provide better access to public programs as was most recently made evident by the launch of the CBMS (Colorado Benefits Management System) Program Eligibility and Application Kit (PEAK) website which provide clients and community partners with a modern and easily accessible tool to apply for public assistance benefits.

• **State agencies and local governments working together.** Colorado's Digital Trunked Radio System (DTRS) represents a national best practice for intergovernmental teamwork and public-private partnerships. A standards-based communications platform, DTRS provides both 700 and 800 MHz wide area radio coverage across nearly 95% percent of state roadways in Colorado with 196 radio sites statewide. Colorado's DTRS leads other states by delivering interoperable communications capability to over 950 federal, state, local and tribal agencies responsible for providing mission critical public safety and other services to Colorado citizens.

• **Positioning Colorado for the future.** Consolidation has allowed OIT to explore partnership opportunities not previously available. Given current economic conditions and the need to address the state's budget deficit, new shared service models will give way to cost reduction measures for all of Colorado's public sector including state agencies, local governments, K-12 school districts and institutions of higher education. OIT is working in partnership with the Statewide Internet Portal Authority (SIPA) to explore the next generation of shared IT services and innovative service delivery models to determine how they may benefit the State of Colorado, the at-large public sector, and our citizens.

Colorado is being recognized on a national level and other governments are modeling their consolidation efforts after ours. As we build on the foundation that consolidation has established, I have every confidence that our improvements will have a positive impact in the delivery of education, health care, public safety and other government services.

Even with our successes, we will continue to face challenges as we move progressively closer to achieving a centralized, enterprise organization, not the least of which is supporting the myriad of aging systems that provide vital support to Colorado's citizens. I am confident, however, that OIT will continue to meet the important goals set before us.

It is an honor to serve as the State's Chief Information Officer. I remain committed to advancing our bold agenda and to examining innovative approaches to make IT more efficient and effective in both cost and service.
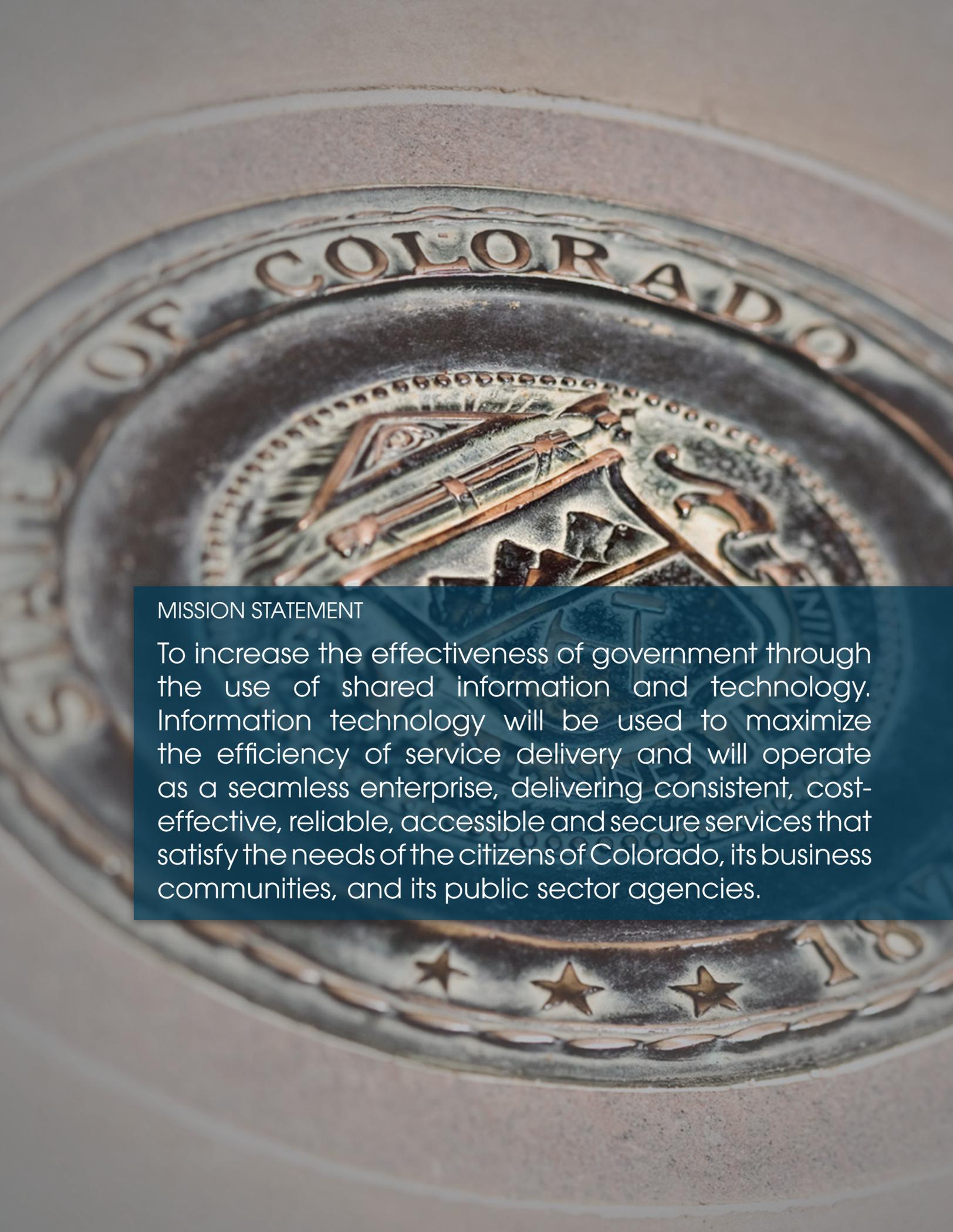
Sincerely,

Michael Locatis
State Chief Information Officer

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MISSION STATEMENT

To increase the effectiveness of government through the use of shared information and technology. Information technology will be used to maximize the efficiency of service delivery and will operate as a seamless enterprise, delivering consistent, cost-effective, reliable, accessible and secure services that satisfy the needs of the citizens of Colorado, its business communities, and its public sector agencies.

Introduction

State of Colorado government is a significant enterprise with $18.6B in annual operating funds and nearly 51,000 full time equivalent (FTE) employees in fiscal year (FY) 2008-09. (If the State were a Fortune 500 company, it would rank number 137, just behind Nike in 2009). The Governor's Office of Information Technology (OIT) is responsible for delivering a full range of information and communication technology (ICT) services primarily to the Executive Branch, which includes 17 agencies and approximately 26,000 FTE.

Information technology (IT) is a critical component without which it would be impossible for state agencies to deliver services to Colorado's 5 million citizens and its dynamic and diverse business community. Historically, IT services and procurement were provided on an agency-by-agency basis, resulting in a disparity of systems, duplication of functionality and lack of statewide IT standards which in turn has increased the overall cost of these services.

The vision to transform IT service delivery from a siloed agency model to an enterprise discipline was made a reality with the passage of Senate Bill 08-155. This landmark legislation folded all IT functions into OIT under the leadership of the State Chief Information Office (CIO) and on July 1, 2008, OIT became responsible for the operation and delivery of technology services and innovation across all Executive Branch agencies including the Departments of Agriculture, Corrections, Education, Health Care Policy & Financing, Higher Education (excluding institutions), Human Services, Labor & Employment, Local Affairs, Military & Veterans Affairs, Natural Resources, Personnel & Administration, Public Health and Environment, Public Safety, Regulatory Agencies, Revenue, Transportation, and the Governor's Offices of Economic Development and Energy.

Encompassed in OIT's operational domain is the state's infrastructure including data centers, servers, mainframe operations, storage, operating systems, the voice and data network[1], and the public safety network. The infrastructure includes more than 500 systems across the state, 34 of which were implemented prior to 2000 and which continue to run on older technology (hardware and software). OIT is also responsible for the IT security operations center and for protecting the State's IT assets from threats, remediation of vulnerabilities as well as for protecting citizen data. Additionally, OIT's operations include enterprise applications, agency-specific line of business applications and IT services, data, data management and governance, business intelligence, analytics, Geographic Information Services, and managing large managed-services contracts.

Over the past 36 months, OIT, using the *C²P: The Colorado Consolidation Plan* (C²P) as a roadmap, has made tremendous inroads in creating a consolidated enterprise that will enable the State to optimize spending for IT decisions, projects and technology, improve enterprise service delivery, and allow for the rapid deployment of innovative IT solutions.

This Report describes the efforts and achievements of OIT to date in transforming information and communication technology in Colorado's state government, including:

- pursuing innovative alternatives to delivering IT including shared services;

- executing a controls program to ensure IT budgets are being spent and managed in a strategic, coordinated fashion;

- implementing a governance program to provide oversight of IT projects to ensure they are implemented in the most successful manner possible;

- transforming OIT's organizational structure from one that is agency-centric to one that is functionally aligned; and

- creating successful partnerships with the public and private sectors.

This Report also discusses the challenges OIT has faced and will continue to encounter in the foreseeable future including:

- the inability to fully leverage the diverse skill sets of our employees or fully operationalize the organization until final budget authority goes into effect on July 1, 2010;

- supporting and maintaining aging legacy systems and modernizing these systems due to economic conditions and a declining workforce; and

- the lack of up-front funds to invest in projects that would provide substantial savings and/or cost avoidance in future years.

Governor Ritter Signing SB08-155
Pictured (l-r): State CIO Michael Locatis, former State CISO Mark Weatherford, current Secretary of State Bernie Buescher, Representative Andy Kerr, former Representative Gregg Rippy, and Senator Bill Cadman.

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[1] OIT operates the Multi-Use Network (MNT), an extensive statewide Frame Relay and ATM (asynchronous transfer mode) network with a footprint in all 64 counties spanning over 3,000 endpoints.

The National Association of State Chief Information Officers (NASCIO) released this list of the top 10 policy and technology issues and priorities identified by State CIOs in a recent national survey.

1. Budget and Cost Control
2. Consolidation
3. Shared Services
4. Broadband and Connectivity
5. American Recovery and Reinvestment Act
6. Security
7. Transparency
8. Infrastructure
9. Health Information
10. Governance

Source: www.nascio.org/publications

Transforming State Government

Business Case for Consolidation

Information technology is a vital function that enables government programs to deliver critical services to Colorado citizens. For this reason, coordinated, optimized, and modernized information and communication technologies are essential to successfully meet the needs of Coloradans and execute state and federal legislative mandates. Further, fiscal and budgetary constraints demand that services are provided cost effectively. Unfortunately, many years of decentralized IT oversight, redundant IT software and hardware purchasing, a disjointed approach to infrastructure, and failed IT projects created an information technology patchwork that increased the cost of government, and put mission-critical systems at risk. Research conducted in 2007 found that IT in the State of Colorado had the following troubling characteristics:

- **No central authority or oversight.** Large numbers of state personnel were involved in technology decisions resulting in fragmented IT management and the inability to leverage volume or gain economies of scale.

- **Lack of a consolidated view of the enterprise.** In the Executive Branch alone, there were more than 16 siloed IT organizations operating independently of one another.

- **Duplicative infrastructures and uncoordinated procurement.** There were large numbers of redundant hardware and software across multiple departments essentially providing the same services.

- **Aging legacy systems.** Many of the state's mission-critical systems were beyond end-of-life and used outdated and difficult-to-support technologies like COBOL. (This might be equated to trying to conduct business today using and maintaining the old rotary phones and not being able to take advantage of cellular or Smartphone technology.)

- **High Cyber Security risk.** There was little ability to coordinate and execute Cyber Security, and disaster recovery efforts across the enterprise were compromised.

- **Failed and challenged modernization efforts.** Several large-scale IT projects had been terminated, and a few others faced daunting uphill battles to enable a successful implementation.

- **IT inequality across departments.** Funding disparities among agencies were creating a widening technology gap in state government.

These issues in combination created a high risk and highly unsustainable, ineffective, and inefficient IT environment in need of an overhaul.

Consolidation Overview

The Governor's Office of Innovation and Technology was created in 1999 to serve as an advisory organization to the Governor and state agencies. The Office employed approximately five non-classified employees and although the name was changed to the Governor's Office of Information Technology in July 2006, the mission remained relatively unchanged. IT services and support continued to be provided independently by each agency, lacking coordination and collaboration with other agencies. This resulted in, among other things, a disparate infrastructure, duplication of functions and services, increased security risks, failing projects, and the inability to leverage statewide procurement opportunities.

To address these problems, Governor Bill Ritter, Jr. appointed Michael Locatis as the State Chief Information Officer in January 2007 to study the state's challenges and to develop and implement a transformation plan. Together, the Governor and State CIO announced a multi-year information technology consolidation plan to fold state government's decentralized operations into OIT. The plan called for centralized IT management, planning, purchasing, and spending, and the creation of a statewide enterprise structure to eliminate IT silos, improve performance, and reduce cost and downtime. Further, in May 2007 the Governor issued Executive Order D 016 07 elevating the position of the State CIO to a cabinet level position and requiring executive departments to obtain OIT approval of all IT budget requests, IT project plans, and IT spending requests greater than $10,000. These events served as the catalyst for beginning substantial changes in OIT.

Beginning in June 2007, OIT engaged in a number of studies and assessments in collaboration with Executive Branch agencies to review the then-current state of IT in Colorado, statewide IT procurement practices, and how Colorado and other states delivered IT services. OIT also researched industry best practices and standards. All of this contributed to informing the C^2P, the roadmap for moving state government from a highly decentralized, siloed IT structure into a statewide enterprise organization. The consolidation framework as delineated in the C^2P is built on four distinct phases, portions of which may run concurrently.

Summary of C²P Phases			
C²P Phase	**Goal**	**Major Milestones**	**Timeframe**
Phase I	Enterprise Standards and Processes	• Create foundation and governance structure for consolidation • Conduct a statewide IT skills assessment • Initiate enterprise standards and processes • Establish teams to define policies and procedures in the areas of OIT administration, enterprise services, infrastructure, and line of business services	FY 2008-09
Phase II	Infrastructure Readiness	• Move to a functional organization and begin to "operationalize" the consolidation • Align all IT staff and assets with a functional area • Meet strategic goals for ongoing consolidation projects (e.g. infrastructure, application modernization, service desk) • Identify greater cost savings and cost avoidance opportunities through a more consolidated and aligned enterprise	FY 2009-10
Phase III	Services Consolidation	• Transfer all IT-related personal services and operating dollars to OIT • Complete the functional alignment and reporting structure • Significant progress made on all IT consolidation projects • OIT is a fully operational internal service organization	FY 2010-11
Phase IV	Business Function Consolidation	• Enterprise business function governance is established • Enterprise business functions are consolidated	FY 2011-12

In 2008, the Governor, State CIO, and the Colorado General Assembly determined that further operational efficiencies and improved business performance could be realized through the establishment of enterprise authority and governance over all information technology activities. Legislation was introduced in the 2008 legislative session to achieve these opportunities and benefits. Senate Bill 08-155 received unprecedented bipartisan support with a 92-2 vote and significantly transformed the management of technology in state government. This historic legislation created a single IT entity effective July 1, 2008 by transferring all Executive Branch agency CIOs to OIT and shifting the reporting structure of agency IT employees from the Executive Directors of Executive Branch agencies to the State CIO. Among other provisions, the Bill also moved responsibility and operations for the General Government Computer Center (GGCC) to OIT and the reporting structure of the Chief Information Security Officer from the Governor to the State CIO. The Bill was codified in C.R.S. §24-37.5-101 et seq.

Partnership with the State Legislature

Senate Bill 08-155 set the stage for a nationally recognized consolidation process. In addition to this bill, OIT partnered closely with the Colorado General Assembly to architect a suite of landmark reform legislation to (1) transform the way IT is managed and delivered; (2) increase government transparency; and (3) position Colorado to be a leader in data governance, health IT, broadband, and more. The table in Appendix B summarizes these legislative accomplishments from the 2007, 2008, and 2009 legislative sessions as well as three bills introduced to date in the 2010 session supported by OIT.

Turning Around a Legacy of Underperforming and Failing IT Projects

As previously described, in January 2007 the newly appointed State CIO inherited a series of failed and sputtering IT projects and a landscape of aging IT systems that were beyond end-of-life. Under its new leadership, OIT performed an assessment of troubled projects to determine the appropriate course of action and its potential impact on Colorado citizens. When appropriate and feasible, OIT and the affected agency concentrated efforts to turn the projects around. However, a few of these projects carried with them too great a risk for continuation and in those cases OIT worked with the affected agency to terminate the project and stabilize/improve the existing legacy system. Appendix C summarizes the successes achieved since addressing these challenged projects.

Shared Services

"Shared Services refers to the provision of a service by one part of an organization or group where that service had previously been found in more than one part of the organization or group. Thus the funding and resourcing of the service is shared and the providing department effectively becomes an internal service provider. The key is the idea of 'sharing' within an organization or group… One purpose of Shared Services is the convergence and streamlining of an organization's functions to ensure that they deliver to the organization the services required of them as effectively and efficiently as possible."
Wikipedia, Shared services, http://en.wikipedia.org/wiki/Shared_services (as of Feb. 6, 2010, 00:17 GMT)

In Colorado's Executive Branch, shared services will be procured and provisioned by OIT if used exclusively by state agencies or by SIPA when there is a broader aggregated demand from other public sector entities.

Shared Services

The downturn in the economy and the resultant reduction in budgets and staff have forced public sector entities to seek innovative alternatives to deliver services. OIT is no exception and has led Colorado's public sector (i.e. state and local government, K-12 school districts, and other entities) in seeking opportunities to leverage the burgeoning shared services world.

In 2009, OIT, with help from its public sector partners, issued an innovative Request for Information (RFI) soliciting approaches, methodologies, recommendations, and a roadmap from the private sector for incorporating the concepts of shared/common services into the state's IT consolidation program. In addition, the RFI sought strategies that could result in higher degrees of infrastructure sharing among and between all Colorado public sector entities. A considerable number of responses from small, medium and large private sector companies were received, evaluated and used to help craft the future technology plans for the State.

The RFI will result in developing Requests for Proposals (RFP) to implement some of the compelling strategies identified. Indeed, the Statewide Internet Portal Authority (SIPA)[3] issued an RFP in mid-January 2010 for web-based Collaboration, Office Productivity and Email (COPE) functionality offered through a Software as a Service (SaaS) model. This proof of concept initiative is intended to synchronize private sector capabilities with the needs of public sector entities for foundational IT services at a lower cost.

"OIT, under the visionary leadership of Michael Locatis, has made substantial inroads in consolidating and modernizing the state's fractured IT infrastructure. Changing the status quo has resulted in reduced costs, improved project delivery, and is bringing consistency to every aspect of IT service delivery. Emerging technologies will enhance OIT's ability to more quickly effect change and adapt to the needs of the business, which, in short, is to provide services and support to Colorado's citizens in an efficient and cost-effective manner."
Governor Bill Ritter, Jr.

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[3] SIPA was created in 2004 by an act of the Colorado State Legislature to provide e-Government services for eligible governmental entities and citizens. SIPA serves as the oversight body of the Colorado.gov portal.

> "Governments that make their data available for unlimited use by citizens also benefit by triggering a change in their own data culture. As Greg Elin, chief data architect at the Sunlight Foundation, told The Atlantic, '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."
>
> *Deloitte Research,*
> *"Unlocking Government: How Data Is Transforming Democracy," March 2010*

Data: The Key to Managing Government Like a Business

Since 2007, OIT has produced a groundbreaking and progressive agenda for information sharing and data management in Colorado. It is recognized by both the Governor and the Colorado General Assembly that to more effectively serve citizens, improve the efficiency and effectiveness of state government, and to inform policy making, a strong program of information sharing is required across all lines of business the state serves. To address these issues, the Colorado General Assembly passed a series of bills, including HB 08-1364 (Interdepartmental Data Protocol) and HB 09-1285 (Government Data Advisory Board).

A strong concentration and emphasis on data required for employees, agencies, legislators, and others to do their work must be a top priority and the "businessization" of government requires a disciplined approach to dismantling data silos and implementing infrastructure that enables sharing across agencies. The state's Data Management program was established within OIT and the nation's first State Chief Data Officer was named in 2009.

The Government Data Advisory Board (GDAB), one of very few such Boards in any state in the country to provide a central governing structure for enterprise data sharing initiatives, was seated in August 2009 and is chaired by the State Chief Data Officer. This multi-agency collaborative Board issued its first Annual Report in January 2010.

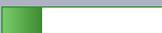Colorado is committed to a data management strategy that focuses on sharing and integrating data across agencies in state government and across jurisdictional boundaries using a vertical domain approach to include all agencies from local to federal levels. Several initiatives are currently well underway including:

- Education State Longitudinal Data System
- Colorado Children Youth Information Sharing Initiative
- Early Childhood Service Delivery

State of the State's Information and Communication Technologies

There are a number of complex activities required to achieve a fully consolidated IT structure and OIT is tracking its progress each step of the way. The following scorecard portrays the progress made on the major information and communication technology components within OIT's domain.

IT Component	Description	Current State	Desired State	Progress Meter
Workforce Transformation	State employees performing IT or related support functions	• Decentralized locations, budgets, and management structures	• Single chain of command organized by functions • FTE budgetarily transferred to OIT	90%
Network *(Infrastructure)*	The connection of IT devices between agencies and the Internet	• Extremely fragmented • Does not meet modern bandwidth needs • Built on old technology • Multiple networks (>10) • Difficult to manage • Differing topologies and non-standard components make it costly to maintain and difficult to secure	• Secure modern, integrated, single Colorado state network	60%
Data Centers *(Infrastructure)*	Facility specialized in housing computer equipment (e.g. servers, mainframe, etc.)	• 39 data centers in 23 departments/agencies • Insufficient environment controls in all but 4 locations • Redundant support and maintenance costs	• 3 enterprise-class facilities that provide a secure and trusted environment for the state's data and business systems *Note: completion of this project is dependent on network modernization*	25%
Storage *(Infrastructure)*	Devices used to store data and documents (e.g. email, digitized documents and records, voice, video, pictures, etc.)	• Exponentially exploding storage requirements • Difficult and expensive to manage • Siloed - multiple manufacturers and non-standard structures • Lack of standardized information life cycle management • Not e-Discovery compliant	• Combination of consolidated and cloud based storage solutions	40%
Servers *(Infrastructure)*	Processors and operating systems that manage software applications and data	• Approximately 1,700 servers of varying ages on multiple platforms and operating systems • Expensive to replace and maintain	• Reduced number of servers through a combination of virtualization, cloud offerings and managed services • Ability to effectively utilize available processing power	20%
Mainframe *(Infrastructure)*	Large computing platform housing many of the state's line of business applications	• Outdated operating system • Skills gap • Aging applications requiring modernization	• A managed service partner • Up-to-date operating system and hardware • Modernization roadmap	25%

IT Component	Description	Current State	Desired State	Progress Meter
DTRS *(Infrastructure)*	A component of OIT's public safety network providing interoperability between public safety agencies and emergency responders across Colorado	• 90% coverage of statewide roadways in Colorado • Not enough radios deployed • Lack of sustainable funding	• 95% coverage • All state agencies outfitted with radios • Sustainable funding model • Legislatively-recognized governance through a Special Authority	75%
Cyber Security	Protection of all IT assets (e.g. data, hardware, software, network)	• Siloed, lacking enterprise standards and integration	• Standard, consolidated enterprise cyber security capabilities *Note: completion is dependent on infrastructure consolidation*	50%
Service/Help Desk	The central point for users to obtain IT support	• Siloed with varying levels of support • Expensive, duplicative • Non standard services and support processes	• Single enterprise-class service and support delivery system	40%
Enterprise Applications	Applications spanning more than one agency (e.g. COFRS)	• Enterprise applications that are older than 10 years • Very few shared resources	• Combination of modern state-hosted and cloud based shared services	20%
Agency Applications	Applications specific to an agency's business need (e.g. unemployment insurance)	• Multiple programming languages • Mix of modern and legacy systems • Little discipline around project management • Often not in alignment with business needs	• Modernized • Reduced number of programming languages and systems • Data and systems shared more efficiently	20%
GIS (Geographic Information Systems)	Digital mapping	• Agency-siloed GIS platforms • Difficult to share and disseminate data • Lack of formal data stewardship • Insufficient interoperability with local and federal partners	• Cloud data sharing and dissemination of services • Interoperability with partners • Consolidation of base GIS • Data captured once, used many • Authoritative data sources • Standards based	35%
Data Management	Collecting, storing, maintaining, and protecting the state's data assets	• Replicated, duplicated, and fractured • Lack of enterprise standards • Poor quality and consistency of data • No single version of the truth	• Data captured once, used many • Authoritative data sources • Standards based • High quality, high integrity data	10%
Document and Content Management	The structured storage and retrieval of documents (e.g. tax returns)	• Approximately 5 siloed systems on different platforms • Lack of standards • Multiple platforms • Few agencies have document management; many need it but don't have it	• Single, secure platform with robust capture capabilities • Available to all agencies	20%
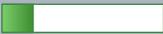
Future Challenges and Risks

Overall, there is a high demand for expanded or new technology solutions that help government operate more efficiently. OIT is building a dynamic and flexible organization that will be better equipped to meet new and evolving challenges and demands while maintaining its current services and realizing enterprise efficiencies. Ultimately, the maximum benefits of consolidation and centrally managed services will only be realized if Colorado's state government continues its leadership and commitment to sharing and consolidating its IT resources, including data, staff, and funding. OIT faces many challenges and issues that must be addressed; some of the most significant ones are highlighted below.

- Although OIT has moved its employees into a functional structure on paper, final budgetary authority does not go into effect until July 1, 2010. Until then, OIT is unable to fully leverage the diverse skill sets of our employees and fully operationalize the organization.

- It has been said that changing technology is easy; changing people is not. One of the most intriguing and difficult challenges is creating a unified employee culture within OIT that can be replicated across our multiple and diverse physical work locations.

- OIT supports a number of systems whose hardware and/or software are at end-of-life and/or end-of support which must be maintained. The current economic climate adds to the challenge of how to reduce the risk of failure in critical systems when funding to modernize or replace those systems is not available.

- OIT faces a declining workforce, and budget cuts have prevented it from filling several vacant positions. Related to this is the state's aging workforce. According to the *State of Colorado Workforce Demographic Report – FY 2007-2008* published by the Division of Human Resources, the average age of the state workforce is 45.9 years, and almost 40% of the state workforce is due to retire in the next five years. Similarly, OIT expects to lose many employees to retirement and with that comes the loss of institutional knowledge and key skills in maintaining legacy systems.

- One of the single largest issues is the lack of upfront funds to help further consolidation activities. There are several projects that, if undertaken, could provide substantial savings and/or cost avoidance in future years; however, the lack of funds to invest in these projects has slowed them down or delayed them indefinitely.

Section II:
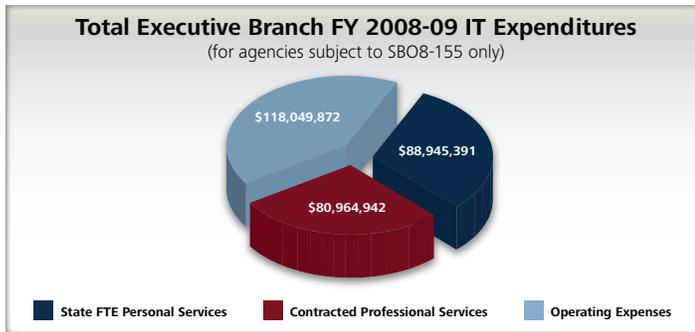# Operations Review

Executive Branch IT Financial Report

Information technology expenditures within the Executive Branch have been $261M, $285M, and $288M for fiscal years 2006-07, 2007-08, and 2008-09, respectively. As consolidation proceeds, OIT will continue to maximize available resources and achieve economies of scale in IT expenditures as well as financial and operational efficiencies. The table below displays the state's Executive Branch IT expenditures for fiscal year 2008-09 by department and expenditure type.

Executive Branch Information Technology Expenditures Fiscal Year 2008-09 (for agencies subject to SB08-155)							
Department		**State FTE Personal Services**		**Contracted Professional Services**	**Operating Expenses**		**Total Expenditures**
Human Services	$	17,186,161	$	25,646,300	$	19,902,911	$ 62,735,372
Governor (OIT)		19,255,225		1,037,183		23,987,679	44,280,087
Revenue		8,721,782		9,465,472		15,504,767	33,692,021
Transportation		8,143,917		11,073,335		14,206,565	33,423,817
Health Care Policy and Financing		1,961,697		17,694,287		633,987	20,289,972
Natural Resources		5,859,561		2,916,627		7,669,431	16,445,619
Labor		6,060,574		2,887,831		6,333,259	15,281,665
Corrections		5,936,150		641,993		8,179,829	14,757,972
Public Safety		2,995,630		3,547,366		8,029,479	14,572,475
Public Health and Environment		6,192,748		1,142,314		3,955,112	11,290,174
Regulatory Agencies		2,076,472		2,022,032		2,005,218	6,103,721
Personnel and Administration		792,317		1,579,465		3,239,554	5,611,336
Education		1,859,515		999,050		2,321,368	5,179,933
Local Affairs		890,997		18,519		762,022	1,671,539
Agriculture		587,495		204,428		566,890	1,358,813
Higher Education*		226,008		28,618		475,802	730,427
Military Affairs		199,141		60,121		276,000	535,262
TOTALS	$	**88,945,391**	$	**80,964,942**	$	**118,049,872**	$ **287,960,204****

* Higher Education includes only the Historical Society and CCHE and does not include institutions of higher education.

** It is worth noting that these expenditures include the $140M spent to maintain the more than 400 existing systems identified in a survey OIT conducted in 2009.
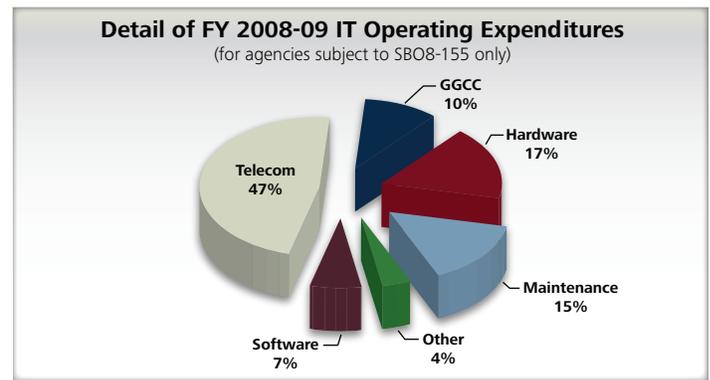
The following pie chart displays the total combined expenditures from the previous table:

Total Executive Branch FY 2008-09 IT Expenditures
(for agencies subject to SBO8-155 only)

$118,049,872

$88,945,391

$80,964,942

- ■ State FTE Personal Services
- ■ Contracted Professional Services
- ■ Operating Expenses

The Personal Services expenditures ($89M) represent the salaries of 994 IT employees out of the approximately 26,000 employees across 17 Executive Branch departments. The majority of IT employees will be budgetarily transferred to OIT by July 1, 2010.

The Professional Services expenditures ($81M) include contracts for services provided by third parties in instances where the state does not have either the existing resources or skills necessary to perform a particular function.

The Operating expenditures ($118M) are a combination of commodity hardware/software purchases, hardware/software maintenance, telecommunications charges, and charges for services provided by the GGCC such as mainframe services, server housing/hosting, etc. These FY 2008-09 Operating expenditures are detailed in the chart below.

Detail of FY 2008-09 IT Operating Expenditures
(for agencies subject to SBO8-155 only)

- GGCC 10%
- Hardware 17%
- Telecom 47%
- Maintenance 15%
- Software 7%
- Other 4%

Colorado's IT Expenditures Compared to Other Governments

According to a study completed by Gartner, a leading information technology research and advisory company, the national average for state and local IT expenditures were 4.6% of total operational expenses over the past two years. Colorado was well below that figure, investing approximately 2% in IT activities annually.

Government IT Spend as % of Operational Expenses
Source: Gartner IT Key Metrics Data 2009 (excluding State of Colorado data)

	2004	2005	2006	2007	2008	2009
Government	8.5%	4.1%	5.3%	7.2%	6.8%	6.7%
State/Local	8.3%	3.0%	3.5%	6.2%	4.6%	4.6%
Federal/National	11.0%	5.1%	8.6%	8.5%	9.3%	9.1%
State of Colorado (3 yrs of data available)				2.2%	2.2%	2.0%

- ■ Government
- ■ State/Local
- ■ Federal/National
- ■ State of Colorado (3 yrs of data available)
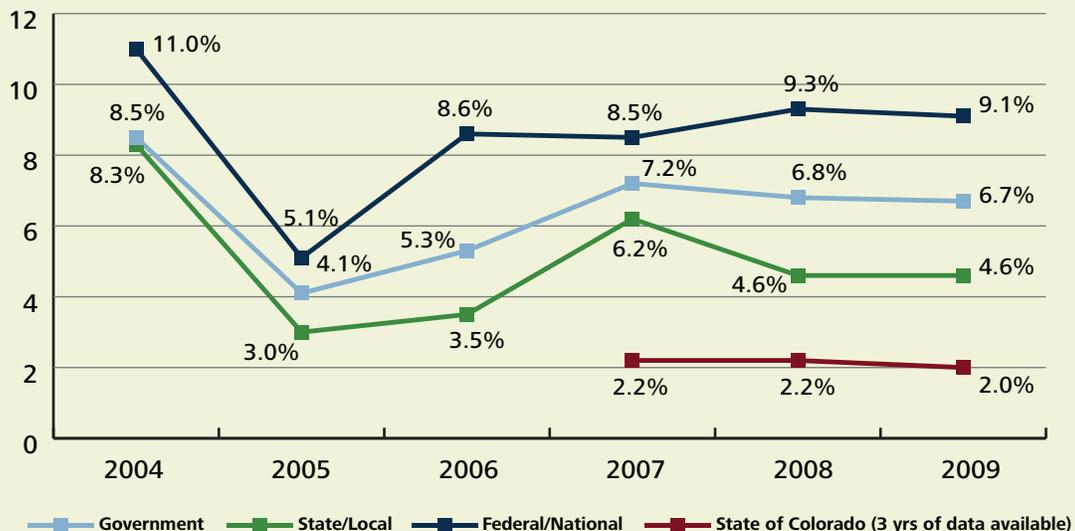
Need for Legacy System Modernization

Gartner's data (previous page) clearly illustrates that Colorado spends significantly less on IT than other states, which may be an indication of why Colorado has such a high proportion of critical systems in need of replacement. Colorado remains hindered by aging legacy IT systems that provide mission-critical functions and often serve the state's most vulnerable populations. Furthermore, these outdated systems limit OIT's ability to work with new technologies, to quickly implement state and federal legislative mandates, and to keep pace with changing policies and best practices to better serve citizens.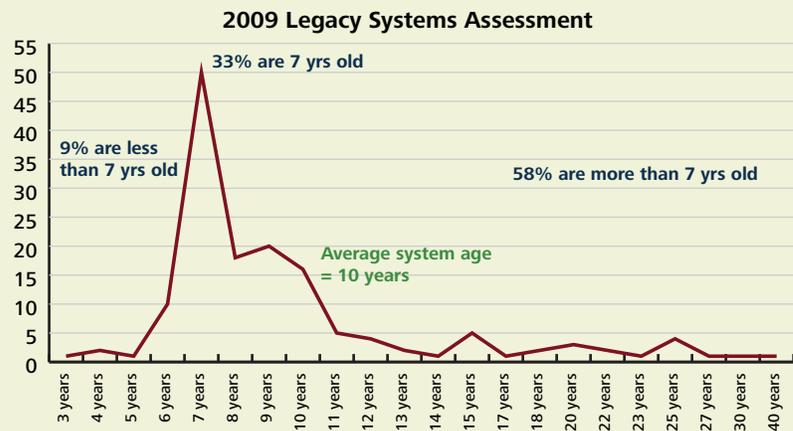 As a result, many state agencies struggle to effectively and efficiently deliver public services due to cumbersome outdated and inflexible systems that are at risk of failure and are extremely difficult to maintain, support, modify, and enhance. In 2009, OIT conducted an analysis of a number of legacy systems across the Executive Branch where it was ascertained:

- the average system age is 10 years old

- 58% of the systems are at least 7 years old

- 77 systems are more than 15 years old

- 1 system is more than 40 years old

The following chart illustrates the problem:

2009 Legacy Systems Assessment

9% are less than 7 yrs old

33% are 7 yrs old

58% are more than 7 yrs old

Average system age = 10 years

Although the industry norm is to replace a system after every five years, budgetary constraints and other factors have prevented timely modernization efforts. While aging systems are prevalent throughout state government, the projects described in Appendix C serve as an example of progress made since 2007 to address what is arguably the most critical IT issue in the State of Colorado – legacy system modernization – and further demonstrates OIT's success in adopting an enterprise approach to large-scale system implementations.

Even so, a number of factors will make it challenging for OIT to continue to support these systems in their current state, including aging hardware, software for which vendor technical support is no longer available, outdated hardware and/or software for which training can no longer be obtained, and the upcoming retirement of employees who possess the skills necessary to maintain these systems. Further, budgetary constraints, economic conditions, and other factors make it difficult to obtain funding and have prevented timely modernization efforts of these critical systems. Even with all of these factors, the State must begin planning for the cost of replacing aging, critical systems. A sample of 34 aging legacy systems needing modernization are listed in Appendix D.

"Government can and does innovate. But attention to innovation tends to be piecemeal, short-term, and narrow — focused almost exclusively on trying to figure out a way to generate more good ideas, address a crisis, or leave a legacy around a specific policy position. Public-sector organizations will need to move from a culture of "innovation by accident" to one in which innovation is part of the organization's DNA. To do that, they need to take a methodical view of the innovation process and create a roadmap for converting ideas into effective solutions that earn the support of stakeholders."

OIT Financial Report

State IT expenditures were partially consolidated into OIT for FY 2008-09 totaling approximately $44M and are detailed as follows:

OIT Expenditures Detail
Fiscal Year 2008-2009

- Hardware $2,778,105
- Software $714,476
- Maintenance $3,832,317
- Telecom $13,868,320
- GGCC $2,081,630
- Other $712,830
- Professional Services $1,037,183
- Salaries and Wages $19,255,225
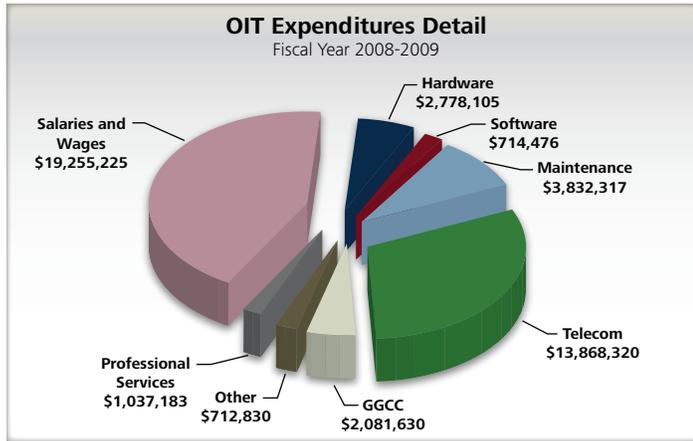
This $44m in expenditures supported a number of enterprise-level services OIT offers to state governmental agencies including:

Hosting/Housing Services

Many state agencies house or host their IT equipment at the OIT's enterprise data center. The 9,075 square foot data center operates 24 x 7 x 365 and currently contains approximately 600 servers, one mainframe and the related supporting infrastructure.

Network Services

The State's wide area network currently known as the Multi-Use Network (MNT) provides connectivity to every county in the state and in some cases, between and within departments.

Public Safety Radio Network

The state microwave radio infrastructure and the Digital Trunked Radio System (DTRS) provides interoperability between public safety agencies and emergency responders to over 196 sites on nearly 95% of the state's roadways, and serves more than 950 state, local, federal, and tribal agencies.

Security

OIT, through its Office of Cyber Security (OCS), is the state's source for cyber security readiness and awareness and is responsible for enterprise-wide cyber security governance and management as well as the day-to-day operations of the enterprise security infrastructure. Working closely with federal, state, local, and private sector partners, OCS actively gathers and analyzes information on cyber threats and vulnerabilities that present risk to the state's information systems and the critical information managed within these systems.
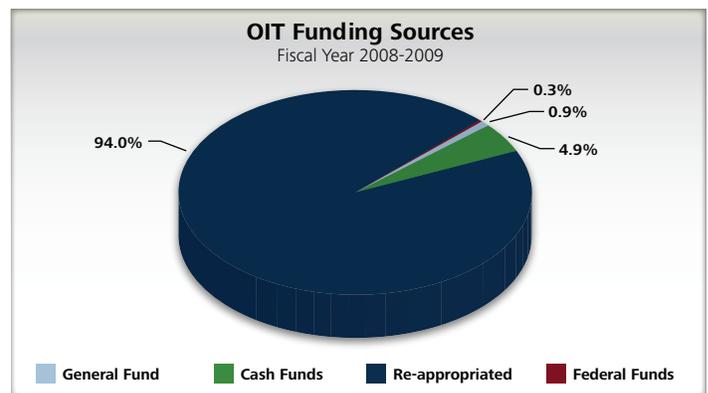
Statewide Applications Services

A number of statewide software applications are used in support of core business functions in state agencies and provide a common backbone of services throughout the state. These applications include the Applicant Data System (ADS) providing statewide job announcements; the Colorado Financial Reporting System (COFRS), the statewide accounting system; the Colorado Payroll and Personnel System (CPPS), the statewide payroll system; and the Financial Data Warehouse (FDW), the web-based financial reporting system.

Voice Services

Voice Services provides telephony services to state agencies using digital, analog and Voice over IP (VoIP) transmissions. Voice Services also provides provisioning, inventory maintenance and billing of all other statewide voice services including but not limited to audio and web conferencing services, domestic and international calling cards, cellular equipment and service, Interactive Voice Response, long distance products, toll free numbers, and video conferencing consulting services.

OIT Funding Sources

Services currently provided by OIT are done so on a cost reimbursement basis with OIT acting as a vendor for all state agencies. Primarily funded through re-appropriated funding (charges to other departments), only a small fraction of funding comes directly to OIT from cash or federal sources as represented in the following chart.

OIT Funding Sources
Fiscal Year 2008-2009

- 94.0%
- 0.3%
- 0.9%
- 4.9%

Legend: General Fund | Cash Funds | Re-appropriated | Federal Funds

OIT Budget Appropriations and Transfers

In 2007, prior to consolidation, OIT consisted of 13 FTE and had an appropriation of approximately $1.3M. Pursuant to SB08-155, 214.3 FTE and approximately $44.3M were transferred to OIT in July 2008 from other departments, which had a net-neutral budgetary impact to the state.

Workforce Transformation

SB08-155 instantly changed the reporting structure creating a single chain of command under the State CIO, and provided the statutory authority to transfer all IT employees (FTE) and related budget to OIT.

OIT's operational and consolidation efforts have been driven by its Strategic Plan, Executive Order D 016 07, Senate Bill 08-155, and in particular, by the Phase I and II activities defined in the C²P. These efforts include developing an organizational structure to reflect OIT's service provider role. To develop the structure, in 2008 OIT focused on defining business requirements, identifying existing state information technology resources, conducting skills assessments of IT staff, assessing resources and key issues, performing environmental scans, and analysis of historical, current, and projected IT obligations, commitments and needs on an agency-by-agency basis.

Within this scope, a significant amount of time was spent working with Executive Branch agencies to inventory current state assets, services, networks, and staff resources, identifying gaps, and developing an organizational change plan.

A number of foundational activities were also taking place to support the organizational and process changes required to manage IT from an enterprise perspective throughout this multi-phased consolidation. These activities included establishing the appropriate governance structure, defining funding strategies and technology standards, aligning procurement strategies, and developing agency service level agreements.

In July 2009, OIT implemented an organizational structure aligned with its core business and service provider functions. The following chart depicts this functional alignment.

Leadership Team

State Chief Information Officer
Michael Locatis

Chief of Staff Dara Hessee	**Chief Financial Officer** Todd Olson
Project Management Office Director Ron Huston	**Human Resources Director** Heather Perdue

Agency Services Director Jim Lynn	Chief Information Security Officer Seth Kulakow	Chief Technical Officer Kelley Eich	Enterprise Architect Leah Lewis	Enterprise Services Director Kim Heldman

CBMS Director

Agency IT Directors

OIT employees were aligned within this functional structure according to their current job responsibilities. The following chart depicts the percentage of employees in each function and clearly illustrates OIT's commitment to supporting the agencies' lines of business while also ensuring the delivery of enterprise services.

Distribution of Employees Within Functional Structure
Effective July 1, 2009

- 2%
- 5%
- 1%
- 22%
- 3%
- 5%
- 2%
- 60%

- Agency Services
- Enterprise Architect
- Enterprise Services
- Information Security
- IT Infrastructure
- Human Resources
- Project Management
- Finance, Budget, Procurement & Contracting
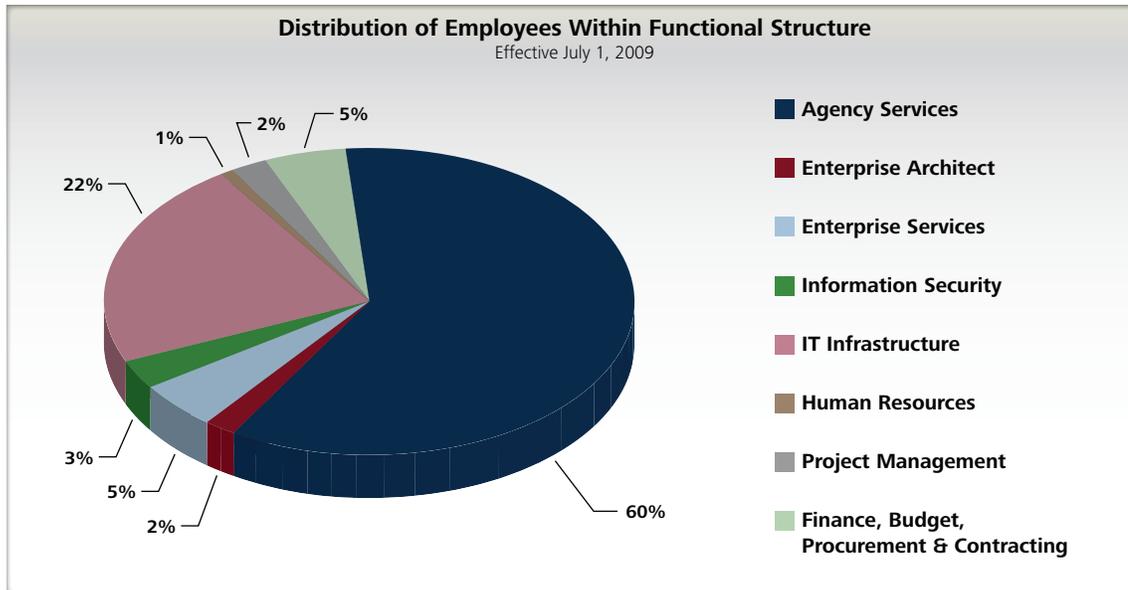
The alignment of employees into functional groups was also a critical step in developing the FY 2010-11 Decision Item (budget amendment) to complete the transfer of personal services appropriations to OIT. The Decision Item was submitted to the Office of State Planning and Budgeting (OSPB) in December 2009 and will take effect July 1, 2010, completing the final budgetary step to consolidate IT staff resources in OIT, a key component of realizing completion of Phases II and III C^{2}P activities.

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

Controls and Governance Programs

The nearly $288M in annual IT expenditures (FY 2008-09) is currently decentralized across 17 departments and dozens of divisions with a variety of funding streams (i.e. general, cash, and federal). OIT is charged with gaining efficiencies out of this subset of the state's budget and has developed and implemented an internal controls program that will help ensure that the state spends this budget efficiently and effectively. The components of controls program are detailed below.

Controls Program Components

Planning
Budget
Procurement
Contracting
Accounting
Reporting
Audit

Project Management

Communication

Standards Setting

Planning

Information technology enables state departments to accomplish their specific, respective missions. Each department historically planned and budgeted for information technology in division and program level silos often without the benefit of cross-agency collaboration and shared services.

To address this problem, OIT implemented an annual planning process to identify ongoing support requirements and future IT needs of the departments, divisions and programs. Prior to the annual budget cycle, OIT now works with departments to compile their annual department IT plans (DITP). These plans include information ranging from the preliminary justification of IT expenditures for the upcoming budget year to mission critical needs to be addressed.

This improved planning process is intended to provide an enterprise overview that ensures initiatives do not overlap, neutralize, or impede each other. This annual process also:

• affords OIT the opportunity to understand the business needs of departments and to initiate a collaborative plan to help achieve those needs, while ensuring IT budgets are spent in the most economical, collaborative, and efficient manner possible; and

• allows for the identification of aggregated demand, multi-agency collaboration opportunities, and new avenues for leveraging resources that may not have been previously identified.

Budget

OIT reviews all IT-related budget change requests prior to submitting those requests to OSPB for consideration. This review allows OIT to determine if there are consolidation/collaboration opportunities and to validate that requests support the State's strategic IT direction while also supporting the business needs of the department. Once reviewed with the department and if approved, OIT forwards the request to OSPB.

Procurement

Each department's procurement office is responsible for submitting all proposed IT expenditures of $10,000 or more to OIT for review and approval. Before a request is approved or denied, OIT determines whether the expenditure is part of an approved budget, adheres to existing standards, and uses the enterprise infrastructure effectively.

With approximately 24 months of data available, OIT has started analyzing the purchasing trends and target expenditure categories leading to the creation of more cost-effective enterprise level agreements with vendors. Further, in July 2009, OIT suspended all expenditures related to IT hardware and software maintenance until these agreements can be consolidated into enterprise level agreements, which will provide the state cost savings and cost avoidance for these commodities and services.

Contracting

All contracts with an IT component require the signature of the State CIO. This is another means for OIT to ensure appropriate controls on IT expenditures and that contracts have been reviewed by OIT prior to execution.

The State's historical silo approach to IT contracting resulted in nearly 500 active IT related contracts across the Executive Branch, many for the same service or commodity at different price points. As IT consolidation proceeds, OIT will consolidate existing contracts becoming the primary contract point for IT products and services. Significant financial savings have already been realized since the inception of this process.

Accounting and Reporting

Historically, IT expenditures have not been consistently coded resulting in an inability to make informed management decisions. OIT and the Office of the State Controller (OSC) worked diligently in the past year to improve the reporting structure to better identify these expenditures. Through better reporting processes, agencies and OIT will have a better understanding of actual IT expenditures.

Furthermore, agencies have lacked a mechanism to consider IT spending from an enterprise perspective and therefore miss opportunities to collaborate on purchasing activities and resources. OIT will continue to work with agency budget and financial officers to ensure that critical data is available to enable better management of state IT funds.

Audit

As with any program, audits are performed to ascertain the validity and reliability of information and to provide an assessment of a program's internal control structure. OIT will utilize both internal audits and those performed by the State Auditor to identify weaknesses and make corrections to the control structure.

Standards Setting

The establishment of enterprise standards is central to implementing the controls program. Currently, one version of nearly every available hardware and software platform exists in the state due to the absence of hardware and software standards. The proliferation of multiple platforms serving the same needs in multiple departments increases costs, reduces purchasing power, creates training challenges, and makes it difficult to assure there are adequate staffing levels to service all hardware and software platforms. OIT is actively working to establish enterprise standards to ensure the State gets the most from its buying power and staffing resources.

Project Management

To ensure IT products and services are successfully implemented, OIT established project management review procedures based on levels of expenditure and risk. Operational projects are tracked by OIT's Project Management Office (PMO) using monitoring procedures to track all IT projects to ensure a proper level of governance and quality control.

Large scale projects or those with a high degree of risk are assigned to one of seven Executive Governance Committees[4] (EGCs). The EGC model, created by OIT in 2007,[5] is designed to improve cross-departmental collaboration and to better manage the existing project portfolio. IT projects meeting any of the criteria below must be certified by OIT.

- **Budget.** The project cost is $5 million or greater, regardless of funding source.

- **Multi-Year.** The project development or acquisition timeline spans multiple fiscal years.

- **Multi-Jurisdictional.** The project spans state agencies or government jurisdictions or is considered an enterprise level project.

- **High Visibility.** The project has high public visibility.

- **Special Project.** The project has been designated by the Governor, the State Chief Information Officer, the State Chief Information Security Officer, or the PMO Director.

- **High Risk.** OIT may apply a standard risk assessment to determine if the project represents a risk not fully identified in the assessment process. Any project with a sufficiently high risk profile may also be certified.

Each EGC is chaired by the PMO Director and includes business representatives from Executive Branch agencies. The EGCs serve as advisory boards for making recommendations to OIT regarding changes with project funding, scheduling, release plans, staffing, and other issues that could affect a project.

Communication

Communication is a critical element during "normal" times and is even more essential during times of change. Throughout the consolidation process, OIT has strived to maintain a high level of timely and accurate communication with its employees and key stakeholders. OIT will continue with a robust communication plan using all of the tools available to it, including OIT's Internet and Intranet sites, town hall forums, presentations, email and more.

In conclusion, OIT is in various stages of implementing these controls and governance programs. Much work remains but this framework is already allowing OIT to effectively plan and execute IT expenditures and project management across the enterprise.

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[4] The EGCs are logically grouped by department as follows: 1) Agriculture and Natural Resources EGC, 2) Education EGC, 3) Finance EGC, 4) Health Care and Human Services EGC, 5) Personnel and Labor EGC, 6) Public Safety EGC, and 7) Transportation EGC.

[5] Prior to the EGCs, the Commission on Information Management presided over the state's IT projects; this group was dissolved per Senate Bill 07-254.

Summary

OIT is responsible for advancing new ideas, aggressively pursuing collaborative partnerships, and advocating for and implementing innovative solutions that link IT investments to the state's goals while meeting agencies priorities and business needs in a cost effective manner that proactively captures economy-of-scale opportunities whenever and wherever possible.

Over the upcoming months, the OIT Leadership Team will continue developing the structure, roles and responsibilities for the respective functional groups. When the personal services appropriations are transferred on July 1, 2010, OIT will be ready to "hit the ground running" thus allowing OIT to move projects such as the Service/Help Desk Consolidation from the study and recommendations phase to implementation.

The Leadership Team remains focused on setting the strategic direction to support the enterprise delivery of IT services and applications and establishing statewide policies and standards. OIT will continue to examine how emerging technologies can enable government streamline and improve business processes, and improve services to citizens wherever possible. OIT will also continue to explore innovative ways to resolve our most pressing problem – modernizing critical legacy systems. We strive to not only remain a leader in consolidation and transforming IT in state government but to continue to be an invaluable business partner with state agencies enabling them to better serve Colorado's citizens.

"Clearly, proposing and implementing meaningful changes carry significant risk, and it demands courage. Be confident. Think big. Much of this nation's history was written by state leaders."

The Honorable Tom Ridge

Former Governor, Commonwealth of Pennsylvania

First Secretary, U.S. Department of Homeland Security2010 Election State Issues Briefing Guide

In addition to the accomplishments addressed in this Report, OIT had a number of other notable achievements, including the following.

Citizen Service Delivery and Transparency

- The first phase of PEAK, a CBMS self-service website to check eligibility for food assistance, cash assistance, Colorado Works, Medicaid or the Child Health Plan Plus program, was launched in November 2009. The tool also enables existing clients to check the status of their benefits and view the status of future benefits. PEAK is part of the overall strategy to improve CBMS and provide better access to public programs for the most vulnerable Coloradans.

- The Unemployment Insurance Internet Self Service was launched to enable unemployed workers to manage their unemployment benefits online.

- Innovative IT programming enhancements to the aging unemployment insurance system enabled the delivery of state extended benefits (SEB) to eligible claimants.

- The Transparency Online Project (TOP) System was launched in beta version in September 2009. This robust on-line checkbook provides citizens access to information regarding the state's expenditures and revenues by agency, type, and vendor.

- OIT successfully wrapped modern technology around the state's 15-year-old financial system to produce an OMB-compliant ARRA reporting and tracking tool; an effort that increased government transparency.

- Additional OIT-Agency projects having an impact on state agencies and/or Colorado citizens can be found in Appendix E.

Grants

- OIT was awarded a $2.1M ARRA grant from the Department of Commerce's National Telecommunications and Information Administration. Approximately $1.6M of this grant is for Broadband Mapping and $500,000 for Broadband Planning. This funding will enable OIT to continue its broadband data collection and mapping efforts and to help identify priority areas for activities to promote the deployment and use of broadband service.

- OIT has been actively involved in health information technology through the Colorado Regional Health Information Organization (CORHIO), the state's designated entity to receive ARRA Health Information Technology funds as part of its role to facilitate health information exchange (HIE) to improve care for all Coloradans. CORHIO, in partnership with the state, was successful in receiving two such grants. $9.175 million was awarded to CORHIO to facilitate HIE at the state level. In addition, $12.475 million was allocated to the Colorado Regional Extension Center where CORHIO provided the lead assistance.

- $125,467 was awarded by The Colorado Health Foundation to fund the Statewide Health IT Program Coordinator position.

Cost Savings / Cost Avoidance

- In a period of financial crisis, OIT was able to quickly respond to the Governor's request for budget reductions and drive efficiencies in both personal services and operating expenditures and as a result, realized an annualized reduction of $2,013,000 in Personal Services.

- The renegotiation and/or discontinuation of statewide contracts and maintenance agreements with several IT vendors saved $1,605,000 thus far in FY 2009-10. OIT is currently negotiating statewide contracts with several IT vendors and expects to save an additional $400,000 before the end of the fiscal year.

- OIT commenced an initiative to reduce statewide long distance, audio conferencing and other telecommunications savings that are projected to provide approximately $800,000 in annual savings statewide.

- OIT implemented new enterprise cell phone agreements; consolidated cell phone services are saving the state approximately $600,000 annually.

- OIT has issued an innovative RFP to secure a new agreement for the state's wide-area network.

- On-line enhancements to CBMS will result in avoiding $400,000 in printing, paper and postage costs from January 2010 through June 2010 and avoids such costs in the future.

- Through renegotiations of the CBMS contract, the state will save more than $300,000 annually.

- Data Center consolidation is underway with six data centers eliminated to date. The recent consolidation of the Department of Health Care Policy and Financing (HCPF) is estimated to save the state $40,000 annually in reduced hardware, software, and operating costs such as cooling and power.

- OIT-DOC implemented a new long distance phone system in coordination with OIT-CDOT, which is expected to result in saving $100,000 annually.

Cross-Agency Partnerships

- OIT has taken a leadership role in enhancing statewide broadband capabilities and promoting the importance of broadband adoption. In partnership with a private sector vendor, the state's first comprehensive maps depicting broadband availability across Colorado were completed in December 2009. Using an interactive web service available on www.connectcolorado.org, citizens can check broadband availability and locate providers in their area. OIT will round out the work with the $2.1 million ARRA grant referenced above.

- The Colorado Public Sector CIO Roundtable was established to facilitate the exchange of real world public sector experiences between State of Colorado Executive Branch Agencies, Elected Official's Agencies, State Colleges and Universities, School Districts, City, County and Municipalities.

- The State CIO chaired the Health Information Technology Advisory Committee established under Senate Bill 07-196 to develop a long-term comprehensive plan for health IT (HIT) in Colorado. The Committee, comprised of Governor appointees from a variety of public and private sector interests, including CORHIO, issued its Report and Recommendations in April 2009. OIT continues to be actively involved with HIT activities.

- OIT-CDPS and OIT-DOLA collaborated with federal, state and local stakeholders to facilitate information sharing and analysis in support of the Colorado Information and Analysis Center's (CIAC) mission. CIAC is recognized by the U.S. Department of Homeland Security as one of the best organizations of its kind in the country.

- OIT-DOC, OIT-CDHS, and OIT-CDPS collaborated with Judicial, the District Attorney Council, and the Colorado Integrated Criminal Justice Information System (CICJIS) to modernize the way criminal justice data is shared and exchanged. CICJIS has received national recognition and was a 2009 "Best of NIEM" honoree.

- OIT's Human Resources team partnered with the Department of Regulatory Affairs to modify its Performance Planning and Management System for use within OIT. This will streamline and enhance performance planning and performance review processes.

- OIT, in partnership with the Colorado Department of Education, conducted a study of the organization's architecture and produced tangible recommendations that have positioned Colorado to take advantage of federally-funded grant opportunities for the "Race to the Top" and State Longitudinal Data System.

- OIT worked with the Colorado Department of Corrections to streamline, digitize, and modernize the Parole Board Application Hearing process, reducing printing and mailing costs while improving program efficiency.

- A technology partnership between OIT, Metropolitan State College of Denver, and the Colorado Department of State to assist with the 2008 elections resulted in the avoidance of nearly $200,000 in licensing costs.

- OIT-CDPHE supported the 2008 Democratic National Convention (DNC) via the Public Health Emergency Operations Center. The Center was operational on a 24 x 7 basis and supported local, state, and federal personnel with major communications and command activities including real-time video monitoring. The Center was continually staffed by public health professionals, with approximately 100 people on-site at any given time.

- DTRS was a crucial component that made it possible for the various local, state and federal security providers to communicate with one another during the 2008 Democratic National Convention held in Denver. The DTRS team ensured radio system coverage at all convention locations and partnered with the City and County of Denver, state agencies, and the federal government to install radio equipment for the Multi-Agency Dispatch, the center supporting primary communications and security for the DNC.

Infrastructure

- COSIGHT (Colorado Security Intelligence Geolocation and Heuristics Tool) was developed by OIT for monitoring live network traffic to increase Intrusion Awareness. OIT further enhanced statewide security and enterprise compliance through adding new functionality to existing tools and implementing new tools to monitor system health and alerts.

- OIT released the final version of the Colorado First Responder Authentication Credential (COFRAC) standard, an enterprise approach that will enable Colorado to provide a more seamless response to natural or manmade disasters.

- A GIS Inventory project was initiated in October 2009. To date, over 200 data layers have been identified and for each data layer, OIT has defined the primary owner, steward/provider, and consumers in state agencies who use the information.

- OIT implemented an enterprise email filtering solution in 15 agencies in December 2009.

- OIT has begun moving to an updated MPLS (Multiprotocol Label Switching) network as a method to provide increased security and traffic flow and to reduce overall operating costs.

- OIT's CICN (Colorado Integrated Communications Network) project to replace the legacy telephone system with a VoIP solution successfully completed implementations in eight major locations including the Colorado Department of Human Services' new High Security Forensics Unit in Pueblo.

- OIT completed the consolidation of five of its OIT-HQ offices into one location to reduce overall costs and foster increased collaboration among employees. The new location includes a Network Operation Center (NOC) that is used to monitor the network, security, and other systems across the state.

Recognition and Sponsorships

- In October 2009 Governor Ritter received the first-ever State Technology Champion Award from NASCIO for his outstanding leadership in promoting excellence in government through information technology.

- State CIO Michael Locatis and Colorado's consolidation initiatives have been the subject of numerous articles including the August 2008 edition of Public CIO in which "Colorado Gov. Bill Ritter and CIO Mike Locatis Launch IT Consolidation" was the cover story and featured article .

- Computer World recognized OIT's Ron Huston as one of the top information technology leaders in 2009.
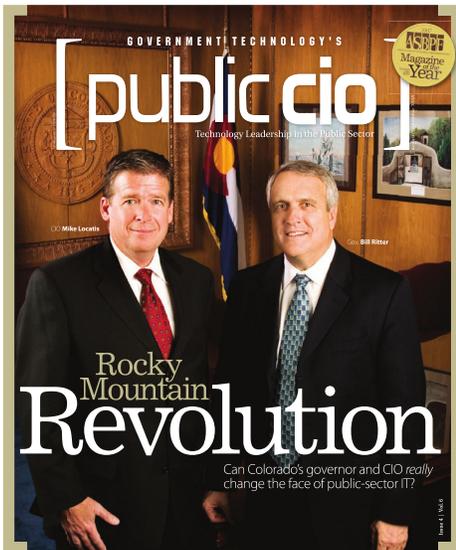
- State GIS Coordinator, Jon Gottsegen, was elected President of the National States Geographic Information Council (NSGIC) in October 2009.

- The OIT-CDHS AFCARS tracking project was selected as a 2009 laureate by Computerworld Honors Program.

- OIT-CDHS received national recognition for TRAILS at the 10th National Child Welfare Data and Technology Conference. Colorado was one of only six states showcased at the National Data Conference and was the only state to receive two 'Gold Stars' for its Statewide Automated Child Welfare Information System (SACWIS) initiatives: the court data exchange and Colorado Trails User Group (CTUG).

- To foster cross-boundary collaboration, OIT co-sponsored Government Technology's "2008 Colorado Digital Government Summit" in November 2008 and "Colorado - Governing in the 21st Century" in November 2009.

- In February 2008, the "1st Annual State FRAC Symposium" was sponsored by OIT. OIT's "2nd Annual State FRAC Symposium" was held in August 2009. Both events were co-sponsored with CSIA and attended by federal, state and local response agencies.

- OIT co-sponsored the "Health Information Exchange Planning Conference" in July 2009 with CORHIO and CSIA.

- OIT co-sponsored three statewide summits (one each in 2007, 2008, and 2009) intended to bring together the disparate groups from around the state engaged in broadband activities and to help forge the partnerships needed to make statewide broadband connectivity a reality.

- An "EPA ENERGY STAR Computer Power Management" webinar in July 2009 was co-sponsored by OIT which was open to any interested party (state employee or otherwise).

- OIT formed and facilitated a number of users groups to increase awareness of projects and to share knowledge with peers and customers. These groups included the CICN Users Group, Colorado Cybersecurity Council, KRONOS Users Group, Mainframe Users Group, Project Management Users Group (PMUG), and the Statewide Citrix Users Group.

Legislative Accomplishments

The following table is a summary of the legislative policy innovations referenced in the "Partnership with the State Legislature" section of this Report.

Bill Number	Short Title	Sponsors	Legislative Achievement
Senate Bill 07-196	Health Information Technology	Senator Hagedorn and Representative Massey	Created the Health IT Advisory Committee to develop a comprehensive, long-term plan for HIT in Colorado in order to reduce health care costs and improve patient outcomes.
Senate Bill 07-228	Vendor Perform State Contracts	Senator Groff and Representative Garcia	Funded a statewide contract management system to better track and manage vendor performance and to make contract data publically available.
Senate Bill 07-254	State Info Technology Reorganization	Senator May and Representative Buescher	Paved the way for an innovative new governance model for large-scale IT projects.
House Bill 07-1270	Education Data Systems Review And Study	Representative Stephens and Senator Shaffer	Called for a comprehensive review of the state's educational data infrastructure to improve data-based decision making and improve educational outcomes.
Senate Bill 08-155	Centralize IT Management In OIT	Senator Kerr and Representative Cadman	Laid the foundation for significant IT reform by statutorily authorizing a statewide, four-year information technology consolidation effort.
Senate Bill 08-215	OIT Broadband Telecom Map	Senator Schwartz and Representative Riesberg	Directed OIT to produce a geographically based statewide inventory of broadband availability in order to spur broadband deployment and address un-served areas.
House Bill 08-1364	Interdepartmental Data Protocol	Representative Benefield and Senator Windels	Created the Data Protocol Development Council to assist in designing an interdepartmental data protocol to facilitate information sharing across agencies and to assist in determining the effectiveness of state policies.
Senate Bill 09-076	Employment And Training Technology	Senator Heath and Representative Court	Established a reserve for the modernization of aging Unemployment Insurance IT systems.
House Bill 09-1285	Government Data Sharing	Representative Benefield and Senator King	Established a formal board governed by OIT to develop the policies and procedures for implementing the HB08-1364 data sharing protocol.
House Bill 09-1288	Colorado Taxpayer Transparency Act	Representative Nikkel and Senator Kopp	Increased government transparency by enhancing the state's searchable budget database website.
Senate Bill 10-032	Allow Amendment to Existing IT Contracts	Senator Tapia and Representative Lambert	Will allow OIT to amend certain IT related contracts for extension to other state agencies and thus fully realize the benefits of centralization and standardization intended by SB08-155.
Senate Bill 10-148	Transfer of Enterprise Facility to OIT	Senator White and Representative Lambert	Will transfer management responsibilities and funding of the enterprise disaster recovery facility from the Department of State to OIT through a phased approach.
House Bill 10-1028	Early Childhood Universal Application	Representative Benefield and Senator Hodge	Will establish an early childhood universal application subcommittee to the government data advisory board created in the Office of Information Technology under SB09-1285.

Turning Around Troubled Projects

The table below lists projects identified in 2007 as troubled or underperforming. These projects serve as an example of OIT's progress since 2007 in addressing what is arguably the most critical IT issue in the State of Colorado – legacy system modernization.

IT System Name	Department	Age of System	Status as of January 2007	Current Status
Tax Administration IT System	Dept. of Revenue	Over 40 years old	Initial project to replace aging system failed and was terminated.	A five-year modernization effort to implement the Colorado Integrated Tax Architecture system (CITA) is underway. Phase I (Severance & Estate Taxes and Property Tax Credit) delivered on schedule and on budget in November 2008. Phase II (Individual & Corporate Income Taxes) was successfully delivered in November 2009. Phase III (sales tax) work has commenced.
State of Colorado Registration and Election System (SCORE)	Dept. of State	N/A – new system mandated by Help America Vote Act (HAVA)	SCORE I was terminated by the previous administration.	SCORE II resulted in the successful implementation of a statewide registration and election system. SCORE provided critical election functionality for the 2008 General Election and was successful in achieving a statewide HAVA-compliant system.
Colorado State Titling & Registration System (CSTARS)	Dept. of Revenue	Over 30 years old	The project was showing signs of failure.	After performing a comprehensive third-party assessment, the project was discontinued and the state reverted back to the legacy system, which has since been stabilized. The infrastructure in all 108 county motor vehicle offices has been modernized to further bolster the IT environment.
Colorado Unemployment Benefits & Tax Systems (CUBS/ CATS)	Dept. of Labor & Employment	Over 22 years old	"Genesis" project initiated to replace the antiquated systems. The project failed and was terminated.	The legacy systems are back in operation and have been enhanced and adapted to meet business needs. An iterative approach is being taken to modernize the IT systems and business processes, starting with an upgrade and expansion of customer-facing Unemployment Insurance Internet applications.
Colorado Benefits Management System (CBMS)	Depts. of Human Services & Health Care Policy and Financing	N/A – new system to replace several antiquated systems and to automate manual processes	System has been hampered by many problems since inception in 2004.	This is a turn-around project. Immediate issues have been resolved and the system is fully operational. CBMS transitioned to a new vendor to maintain and improve the system in coordination with the counties. These improvements include the Web Portal (online public access) and Intelligent Data Entry (streamlining data entry).
Enterprise Resource Planning System	Dept. of Transportation	N/A – new system to replace antiquated systems and processes	Functionality and configuration issues.	This project addressed functionality concerns and the system currently provides a unified solution to bring better services to taxpayers and users of Colorado's highway systems. The system's ability to quickly gather data and produce reports enabled the State of Colorado to be a front-runner for receiving ARRA funds.
Back Office Gaming System	Colorado Lottery – Dept. of Revenue	System of record over 25 years old	Third attempt to migrate from the system failed.	OIT, working with the Department of Revenue, contracted a third-party to produce a transition plan that was adopted by new Colorado Lottery leadership. The transition was completed in July 2009 and replaced with a new back office system.

Aging Legacy Systems

OIT supports and maintains hundreds of systems across the enterprise. This table is a sample of just a few of the aging legacy systems needing modernization. While dynamic private sector companies generally consider the average life span of a robust management information system to be 5 to 7 years, the public sector might consider a system to be reaching its useful life in 10 to 12 years. More than half of the 34 systems in this table were implemented before 1993 with the median age being 17 years.

To put this in perspective, notable events from 1993 include:

- Bill Clinton sworn in as 42nd President
- A first-class postage stamp cost $.29
- The first bombing of the World Trade Center occurred
- Jurassic Park was the top grossing movie
- Cheers ended its 11 year TV run

- The European Community became a single market
- The Late Show with David Letterman debuted
- Microsoft unveils Windows NT
- NAFTA was signed into law
- The first Pentium chip (80586) was introduced by Intel

System or Application Name	Year Implemented	Description of the Service Provided	# of Customers Served by This System	Agency Supported
Tax Administration IT System	1969	Colorado's legacy state tax system	Statewide	Dept. of Revenue
Colorado Crime Information Center (CCIC)	1979	The system collects and manages criminal history information such as fingerprint cards and identification, and integrates that information with databases in other federal, state, and local law enforcement agencies.	1,460 agencies; 17,500 users	Dept. of Public Safety
CUBS (Colorado Unemployment Benefits Systems)	1984	Processes claimant information for payment of unemployment claims.	500 (internal)	Dept. of Labor & Employment
AFIS - Livescan/ Automated Fingerprints Information System	1985	System that digitally scans a fingerprint to transfer it back to CBI/FBI. Livescan is involved in booking and processing, collecting and processes fingerprint transactions.	100 agencies	Dept. of Public Safety
ARGUS	1985	Collections Management system for museum artifacts. Information about the approximately 250,000 3D artifacts along with photographs, accession information as well as historical perspectives are included in the repository.	25	Colorado Historical Society
EOSI (also known as Express)	1985	A library cataloging system used by the Stephen H. Hart Research Library.	10 internal; Accessible statewide	Colorado Historical Society
Sites (Also known as Sites Files and Argus Classic)	1985	A repository used by the Office of Archaeological and Historic Preservation for archaeological information found on federal lands within Colorado. There are about 180,000 locations within Colorado recorded in the database.	20	Colorado Historical Society

System or Application Name	Year Implemented	Description of the Service Provided	# of Customers Served by This System	Agency Supported
ACSES (Automated Child Support Enforcement System)	1987	Provides automated case management support for case enforcement and financial management of child support collections. ACSES supports child support workers in the 64 county child support units with establishment, enforcement, location, monitoring and other duties necessary for them to perform their jobs.	2,000	Dept. of Human Services
Air Quality Reporting System	1989	System used to ensure citizens have clean, safe air quality.	Statewide	Dept. of Public Health & Environment
CATS (Colorado Automated Tax System)	1989	Processes information from employers and businesses to collect employment taxes.	200 (internal)	Dept. of Labor & Employment
Trns*Port	1989	A suite of applications used by CDOT and its contractors to manage the transportation constructions program at the line item of detail. It is used for all phases of construction projects including cost estimation, proposal preparation, advertisement, bid submission and review, contract award and administration, contractor payment, decision support, and reporting.	950	Dept. of Transportation
Workers' Compensation	1989	Processes workers' compensation claims.	100 (internal)	Dept. of Labor & Employment
Colorado Financial Reporting System (COFRS)	1990	A financial information system that maintains the official accounting records for the State of Colorado government.	3,000 (internal)	Dept. of Personnel & Administration
Records Management System (RMS)	1990	Collects trooper activity for summarization and reporting to patrol supervisors and patrol administrators.	15 users	Dept. of Public Safety
ADS	1992	Statewide job applicant system that tracks job applicants, employment tests and test schedules and monitors the applicant selection process for the state.	Statewide	Dept. of Personnel & Administration
CHATS (Child Care Automated Tracking System)	1992	Tracks eligibility determinations for low-income child care program, maintenance of child care authorization, and payments to providers by county departments of social services.	1,200	Dept. of Human Services
DCIS - Inmate Banking	1992	Tracks and maintains an offender monetary database to include available balances, offender pay, electronic funds transfers from outside sources, offender garnishments and restitution payments.	400	Dept. of Corrections

System or Application Name	Year Implemented	Description of the Service Provided	# of Customers Served by This System	Agency Supported
DCIS - Canteen	1992	Tracks and reports purchasing, sales/vendor/inventory to accommodate food and item sales to offenders as well as purchases of phone time. Canteen is tied to the Inmate Banking system to electronically withdraw funds from the offender's bank account for their purchases.	4,200	Dept. of Corrections
State Asset Management System (SAMS)	1993	Stores data on State Land Board surface and minerals land ownership and leases on that land and is used for the cash receipts of the agency and trust accounting functions for rents and royalties.	Statewide	Dept. of Natural Resources
Brass Cap	1994	System used to permit mines and ensure that abandoned mines are capped.	Statewide	Dept. of Natural Resources
Colorado Oil and Gas Information System (COGIS)	1994	Stores all of the data on all of the wells drilled in the state. It consists of a GIS online map system, a dynamic data warehouse system available on the Internet and a forms processor system used by staff and the permit evaluating system for drilling new wells.	Nationwide	Dept. of Natural Resources
InstaCheck	1994	System used by the Colorado Bureau of Investigation (CBI) to conduct CBI's background checks for firearm purchases. InstaCheck integrates responses from courts and other systems.	30 agents providing service to 1,270 gun dealers	Dept. of Public Safety
Colorado Outdoor Recreation Information System (CORIS)	1995	Mission-critical licensing system used by the Division to manage customer data and license (fishing, hunting) draws.	Nationwide	Dept. of Natural Resources
Combined DNA Index System (CODIS-STACS System)	1995	Provides for the storage of collected DNA samples for comparison of known DNA to unknown specimens. STACS is the system that provides for casework where DNA profiles and names are matched.	50 users	Dept. of Public Safety
Mobile Data Computer System (MDC)	1996	Provides the CSP with mobile data computers in vehicles used by State troopers and is used to run plates in traffic stops and accident reporting.	700 users	Dept. of Public Safety

System or Application Name	Year Implemented	Description of the Service Provided	# of Customers Served by This System	Agency Supported
WIC (Women, Infants, and Children)	1996	Tracks data on families who qualify for vouchers to receive nutritional supplements.	35,000 mothers and children per year	Dept. of Public Health & Environment
Bid Information and Distribution System (BIDS)	1997	A web site designed to notify interested vendors of the state's intent to purchase goods or services competitively.	Statewide	Dept. of Personnel & Administration
Colorado Decision Support System (CDSS)	1997	A water management system used to assist in making informed decisions regarding historic and future use of water.	Statewide	Dept. of Natural Resources
Housing Assistance Program (HAP)	1997	Tracks, calculates and reports on low income rental assistance payments.	2,763	Dept. of Local Affairs
CAD – Computer Aided Dispatch	1998	Provides the Colorado State Patrol (CSP) with automated and integrated services to regional communication centers so that records, such as vehicle registration, are available to troopers and other agencies. The system is also used for resource and response management of CSP.	64 agencies (over 1 million calls for service handled)	Dept. of Public Safety
CFMS (County Financial Management System)	1999	A welfare payment financial tracking system that processes 4.5 million transactions annually to assistance recipients, service providers and counties.	510,000	Dept. of Human Services
DOLA Grants Database System	1999	Central location of data related to program areas. Provides tracking and reporting functionality. Supports all of DOLA grants tracking and administrative systems.	Department-wide	Dept. of Local Affairs
GIFTS	1999	A grant management application used by the State Historical Fund to track information regarding grants for the rehabilitation of historical sites throughout Colorado.	25	Colorado Historical Society
Parks Campground Reservations and Vehicle Registration Web Sites	1999	The Parks Web Site has two applications: 1) for registration of boats, snowmobiles, and off highway vehicles and 2) to make campground reservations.	Nationwide	Dept. of Natural Resources

Appendix E:
Improving Citizen Services

With its agency partners, OIT engaged in a multitude of projects, a number of which were completed under the oversight and governance of an EGC. The table below is a representative sample of projects having a substantive impact on state agencies and their customers.
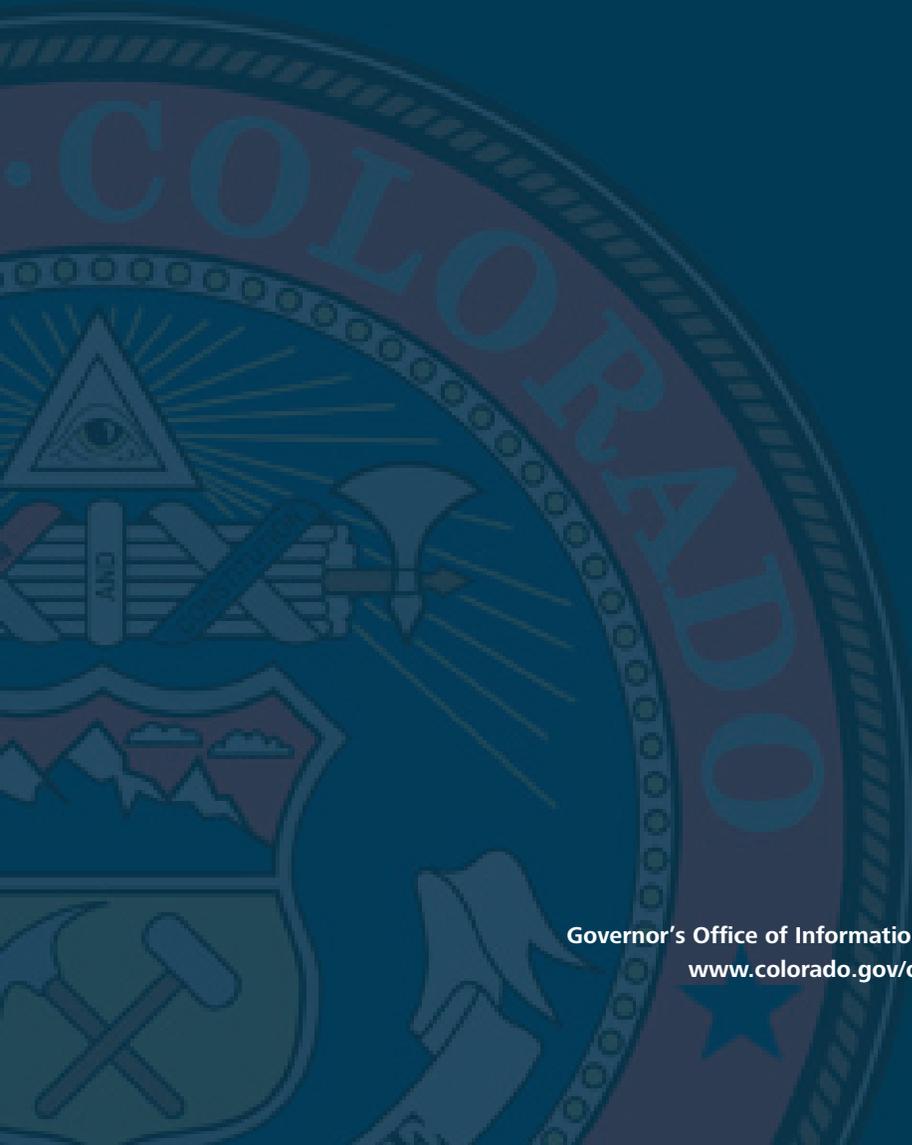
OIT-Agency	Project or System Name	Description
OIT-CDA (Agriculture)	Colorado Livestock Security System (CLSS)	CLSS will be used to track livestock movements and locations for epidemiological purposes and to help protect livestock in the event of an emergency. This first module of this system will be ready for release in FY 2009-10.
OIT-DOC (Corrections)	Human Resources Management E-System (HRMES)	HRMES is a new life cycle management system for all human resources related activities from position requisition through termination.
OIT-CDHS (Human Services)	Child Care Licensing, Phase I	This is a collaborative project with SIPA to provide public access to general information regarding licensed day care facilities: information which was previously available only in physical offices.
OIT-CDHS & OIT-HCPF (Health Care Policy & Financing)	Re-procurement and Transfer Management of CBMS (Colorado Benefits Management System)	The contract to host and manage CBMS expired in April 2009 and a new contract was awarded to support the host environment. Transition activities are complete including the physical move to a new program management and hosting site.
OIT-CDLE (Labor and Employment)	Unemployment Insurance System Internet Self Service (ISS)	This is a project to modernize unemployment systems using an iterative approach to upgrade, expand and integrate customer-facing ISS applications into an Internet Self-Service suite. Functionality allowing unemployed workers to manage their unemployment benefits online was implemented in November 2009.
OIT-DOLA (Local Affairs)	HUD Housing Economic Recovery Act (HERA)	DOLA received a multi-million grant from HUD to improve the foreclosure situation in Colorado through the Neighborhood Stabilization Program (NSP). OIT-DOLA developed a database to help manage HERA.
OIT-DMVA (Military & Veterans Affairs)	VetSpec	VetSpec, developed to replace VIMS, is a web-based case management for the Division of Veterans Affairs that tracks current and past veterans' claims system and supports coordination and management between DMVA, the county veteran service offices, and federal Veterans Affairs.

OIT-Agency	Project or System Name	Description
OIT-DNR (Natural Resources)	Colorado Oil & Gas Information System (COGIS)	COGIS was enhanced in 2009 to incorporate e-forms processing, allowing companies to apply for permits on-line and for the documents to be electronically routed through the complex permitting process.
OIT-CDPHE (Public Health & Environment)	Mountain Plains States Consortium (MPSC) Women, Infants, and Children (WIC)	This multi-year project encompasses the development of a new WIC system for case management and payment control in Colorado, Utah and Wyoming.
OIT-CDPS (Public Safety)	Colorado Crime Information System (CCIS)	CCIS is a criminal history repository and it is one of Colorado's top 10 mission-critical IT systems. This multi-year project will replace the end-of-life hardware and software with a modern system and is scheduled for deployment in late FY 2009-10.
OIT-DORA (Regulatory Agencies)	Professional Licensing System	The legacy system was replaced with an enterprise software solution that provides a licensing capability to all state agencies via the State Portal.
OIT-DOR (Revenue)	Drivers Licensing System	The hardware supporting the Drivers Licensing System was replaced to meet ever-increasing storage demands. New equipment to support the system was deployed in all 56 Drivers' Licenses offices across the state and new software will be implemented to enhance license production, imaging, and facial recognition.
OIT-CDOT (Transportation)	ERP Transition	The support of CDOT's ERP system (financial, human resources, payroll, and procurement) was transitioned to a new vendor. The transition phase was an extensive effort and required the new vendor to complete 15 deliverables that show satisfactory knowledge transfer. The project has moved into the operations phase.

Acronym	Description
ADS	Applicant Data System
ARRA	American Recovery and Reinvestment Act
C.R.S.	Colorado Revised Statutes
C²P	Colorado Consolidation Plan
CBI	Colorado Bureau of Investigations
CBMS	Colorado Benefits Management System
CDA	Colorado Department of Agriculture
CDHS	Colorado Department of Human Services
CDLE	Colorado Department of Labor & Employment
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Department of Public Safety
CHATS	Child Care Automated Tracking System
CHS	Colorado Historical Society
CICN	Colorado Integrated Communications Network
CIO	Chief Information Officer
CITA	Colorado Integrated Tax Architecture
COFRS	Colorado Financial Reporting System
CPPS	Colorado Personnel and Payroll System
CSP	Colorado State Patrol
DITP	Department IT Plans
DMVA	Department of Military & Veterans Affairs
DNA	Department of Natural Resources
DOC	Department of Corrections
DOLA	Department of Local Affairs
DOR	Department of Revenue
DORA	Department of Regulatory Agencies
DPA	Department of Personnel & Administration
DTRS	Digital Trunked Radio System
EGC	Executive Governance Committees

Acronym	Description
ERP	Enterprise Resource Planning
FDW	Financial Data Warehouse
FTE	Full Time Equivalent
FY	Fiscal Year
GDAB	Government Data Advisory Board
GGCC	General Government Computer Center
GIS	Geographic Information Systems
HB	House Bill
HCPF	Health Care Policy and Financing
HQ	Headquarters
ICT	Information and communication technology
IT	Information Technology
MNT	Multi-Use Network
MPLS	Multiprocotol Label Switching
NASCIO	National Association for State Chief Information Officers
OCS	Office of Cyber Security
OIT	(Governor's) Office of Information Technology
OMB	Office of Management and Budget (Federal)
OSC	Office of the State Controller
OSPB	Office of State Planning and Budgeting
PEAK	Program Eligibility and Application Kit
PMO	Project Management Office
PMUG	Project Management User Group
PPMS	Performance Planning and Management System
RFI	Request for Information
RFP	Request for Proposal
SB	Senate Bill
SIPA	Statewide Internet Portal Authority
TOP	Transparency Online Project
VoIP	Voice over Internet Protocol