

State of Colorado
Office of the State Auditor

HB17-1361 Evaluation Report

Evaluation of State IT Resources



Submitted by:

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Report Transmittal Letter

October 19, 2018

Members of the Legislative Audit Committee:

This evaluation (assessment) was requested by the Colorado Legislature, through an enacted bill (House Bill [HB] 17-1361) during the 2017 Legislative Session, and signed by the Governor. Specifically, HB17-1361 asked for a qualified, independent third-party organization to evaluate Colorado (State) agency information technology (IT) resources, to gain sufficient and appropriate evidence necessary to conclude on the evaluation's objectives and to develop related findings and recommendations.

We conducted this project as a consulting engagement and although we did not attempt to strictly follow yellow book standards, we did obtain sufficient and appropriate evidence to provide a reasonable basis for our findings and recommendations based on the assessment objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our project objectives. During our assessment work, we received collaboration and support from OIT as well as representative agencies/departments that met with us.

Charles Leadbetter, Principal
BerryDunn

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1.0 Report Highlights

House Bill 17-1361 requires the OSA to evaluate and assess five major areas related to IT resource consolidation pursuant to Senate Bill 08-155 enacted in 2008.

KEY FINDINGS

- **IT Related Human Resource Consolidation** – Most of the transfer of IT HR to OIT occurred in 2010 – 2011. At that point, about 85.0% of employees from centralized agencies who were in clearly identifiable IT classifications had been transferred. The primary reason some full-time employees, classified as IT (e.g. 15.1%), remain in State agencies is because their defined job classification is not sufficient to determine if they are doing IT work that should be the responsibility of OIT.
- **IT Related Asset and Infrastructure Consolidation** – Over the past decade IT assets were moved from data centers that the agencies were responsible for maintaining into three consolidated OIT data centers. Also during this period, some services that historically have been provided through state managed data centers have been moved to cloud services, reducing the number of physical data centers from a high of 40 data centers for the State to just three as of FY17. Outside of data center consolidation, the complete transfer of information technology infrastructure to OIT has not occurred. State agencies have transferred the operations of IT infrastructure and assets to OIT; however, from a budget and accounting perspective, the funding and spending authority for IT assets continue to exist among the agencies, not OIT.
- **Savings and Efficiencies from IT Decisions** – OIT decisions to reduce data centers from 40 to 3 and the work OIT has done on server virtualization have provided savings and efficiencies. However, since pre-centralization, (baseline) measurements were not taken and cost and utilization data (such as utilities) were not separately tracked by agencies, these savings cannot be quantified. OIT has not gathered and communicated evidence that consolidation and implementation of newer technologies have represented actual cost savings for the State. The bulk of what OIT has documented as “savings” is actually cost avoidance due to the procurement process, as defined by OIT’s standard, rather than true savings due to consolidation or new technology implementations.
OIT Billing Practices – OIT’s practice of billing State agencies does not provide an effective measure to assess efficiencies or long-term cost savings, including employee costs, for the State resulting from the IT consolidation. Accounting practices are complex due to a variety of factors, including the reconciliation/true-up process, federal reporting requirements, OIT’s use of complex codes for bills.
- **Consumer Satisfaction with OIT** – Consumer satisfaction varies significantly among centralized agencies, as measured by several different survey questions. Customer satisfaction also varies based on OIT service. Customer satisfaction is lowest for project management services, procurement and vendor services, and infrastructure services. Customer satisfaction is highest for email services, phone services, Google apps services, OIT Service Desk, and desk-side support services.

BACKGROUND

- The Governor’s Office of Information Technology (OIT) is the State’s centralized Information Technology (IT) Service Provider, responsible for managing IT resources and service delivery for state agencies that were consolidated under Senate Bill 08-155.
- OIT oversees the state’s IT infrastructure, including data centers, servers, mainframe operations, storage, operating systems, voice and data networks, and the public safety network.
- OIT oversees IT projects for consolidated agencies and recommends strategies to maximize IT service delivery through enterprise technology solutions.
- OIT is also responsible for the IT security operations center and for protecting citizen data and the State’s IT assets from threats, as well as remediating related information security vulnerabilities.
- Certain state agencies, departments, offices, and institutions were not required to consolidate IT under Senate Bill 08-155, including the Legislative and Judicial Branches; the Departments of Law, State and Treasury; and the state-supported institutions of higher education.

KEY RECOMMENDATIONS

We made four recommendations to OIT focusing on improving IT Related Human Resource Consolidation, four recommendations focusing on improving IT Related Asset and Infrastructure Consolidation, four recommendations focusing on improving Savings and Efficiencies from IT Decisions, two recommendations focusing on improving OIT Billing Practices, and one recommendation (with eleven sub-parts) focusing on improving Consumer Satisfaction. OIT agreed or partially agreed with most of our recommendations, only disagreeing with two sub-parts (on two different recommendations).

2.0 Overview

2.1 Description of the Agency

With the passage of Senate Bill (SB) 08-155 during the 2008 Legislative Session, the State of Colorado (State) agency information technology (IT) resources, procurement, and the IT service delivery were consolidated under the management of the Office of Information Technology (OIT). On July 1, 2008, OIT became responsible for the operation and delivery of technology services across 16 Executive Branch agencies including the Departments of Agriculture, Corrections, Education¹, 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 Office of Economic Development and International Trade and Energy Office. The State agencies, departments, offices, and institutions that were not included in the centralization of the State's IT resources include the Legislative and Judicial Branches; the Departments of Law, State, and Treasury; and the State-supported institutions of higher education, which may rely on OIT to provide certain IT services or resources, such as data center services and resources, based on C.R.S. 24-37.5-602(1)(a).

OIT oversees technology initiatives for the Executive Branch agencies and recommends strategies to maximize service delivery efficiency in a cost-effective manner through the application of enterprise technology solutions. OIT provides services to State agencies on a cost reimbursement basis, acting as a vendor of IT services to State agencies. Services provided by OIT include enterprise application management and support, database management, network security and management, communication technology services, data center operations, information security, help desk services, public safety communications, procurement, project management, IT economic development, geographic information services, data management, and governance. OIT has assigned IT directors to State agencies, who are primarily responsible for maintaining agency relationships, leading application development, and overseeing the execution and management of IT projects and programs at their respective State agencies.

Additionally, OIT oversees the State's IT infrastructure including data centers, servers, mainframe operations, storage, operating systems, the voice and data network, and the public safety network. The State's IT infrastructure includes more than 171 critical and/or essential systems, which have been classified according to various agency missions and objectives. OIT is also responsible for the IT security operations center and for protecting citizen data and the State's IT assets from threats, as well as remediating related information security vulnerabilities.

¹ While Education was listed in the original consolidation bill, there was general agreement between the legislature and the executive branch that Education would not be consolidated.

2.2 Evaluation Purpose

This evaluation was requested by the Legislature, through an enacted bill (House Bill [HB] 17-1361) during the 2017 Legislative Session, and signed by the Governor. Specifically, HB17-1361 asked for a qualified, independent third-party organization to evaluate the state agency IT resources, to gain sufficient and appropriate evidence necessary to conclude on the evaluation's objectives and to develop related findings and recommendations.

2.3 Evaluation Scope

As stated within HB17-1361, the Legislature requested an independent third-party vendor evaluate the following scope, in relation to State IT resources:

1. The centralization of the management of state agency IT resources in the Office of Information Technology (OIT) pursuant to Senate Bill 08-155, enacted in 2008, and whether the centralization has achieved the goals of the General Assembly regarding the management of daily IT operations, including but not limited to goals regarding:
 - a. IT human resources (HR), including but not limited to:
 - i. Whether State agencies have transferred IT HR to the OIT
 - ii. Whether State agencies have reduced the number of full-time employees providing IT services
 - iii. Why reductions and transfers of employees have or have not occurred and what measures may help State agencies achieve such reductions and transfers if they have not occurred
 - b. IT infrastructure, including but not limited to:
 - i. Whether State agencies have transferred IT infrastructure to OIT
 - ii. Why transfers of IT infrastructure have or have not occurred and what measures may help State agencies achieve such transfers if they have not occurred
 - iii. Whether software and hardware decisions made by OIT have provided savings and efficiencies to the State and whether those savings can be quantified
 - c. Whether OIT's practice of billing State agencies for IT services has resulted in efficiencies or long-term cost savings for the State and what effect such practice has on accounting processes and employee costs for State agencies
 - d. Whether OIT has a strategic plan, or its equivalent, to use consultants, vendors, or organizations such as the Statewide Internet Portal Authority (SIPA) to realize the original and ongoing objectives of centralizing the management of state agency IT resources

2. Whether the Executive Branch has a strategic plan, or its equivalent, in place to guide its process for evaluating, prioritizing, and selecting IT projects that require new or ongoing appropriations of State money, including but not limited to:
 - a. The efficiency and effectiveness of the State's current process for IT project evaluation, prioritization, and selection, including a cost-benefit analysis (CBA), and whether OIT, State agencies, the Office of the Governor, Joint Technology Committee (JTC), or Joint Budget Committee (JBC) could make any changes or improvements to the process
 - b. Whether OIT's existing legislative review and reporting processes in connection with the JBC and the JTC are adequate
3. The opportunities the State has to interface with the public through IT, including but not limited to whether the State can take advantage of new and emerging opportunities for future automation and online citizen interaction with government and, if so, how the State could proceed with such opportunities
4. OIT's working relationship with State agencies, departments, offices, and institutions that were not included in the centralization of state agency IT resources pursuant to Senate Bill 08-155, enacted in 2008, but rely on OIT to provide certain IT services or resources
5. Consumer satisfaction, to be determined through a consumer satisfaction survey among State agencies with the management of state agency IT resources and access to State government via IT resources

2.4 Evaluation Methodology

In order to successfully evaluate State IT resources, gain sufficient and appropriate evidence necessary to conclude on the evaluation's objectives, and to develop related findings and recommendations, BerryDunn conducted various fact-finding and analysis efforts from October 2017 through April 2018 and began report development in May 2018. Additional data and analysis continued during report development until a draft findings report was shared with OIT in September 2018.

2.4.1 Fact-Finding

Interviews – To comprehensively evaluate the current IT environment within the State, BerryDunn interviewed relevant stakeholders from the following:

- Colorado General Assembly
- Colorado Department of Agriculture (CDA)
- Department of Corrections (DOC)
- Colorado Department of Education (CDE)
- Department of Health Care Policy and Financing (HCPF)
- Colorado Department of Human Services (CDHS)
- Colorado Department of Labor and Employment (CDLE)

- Department of Law/Colorado Office of the Attorney General (COAG)
- Department of Natural Resources (DNR)
- Department of Personnel and Administration (DPA)
- Department of Revenue (DOR)
- History Colorado (HC)
- Joint Budget Committee (JBC)
- Joint Technology Committee (JTC)
- Judicial Branch
- Office of Economic Development and International Trade (OEDIT)
- Office of Information Technology (OIT)
- Office of State Planning and Budgeting (OSPB)
- Department of State/Secretary of State (SOS)
- Statewide Internet Portal Authority (SIPA)

Document Review – BerryDunn reviewed all documentation provided by the OSA and/or OIT and other agencies involved in the evaluation. BerryDunn reviewed documentation from OIT’s website, and all relevant websites of agencies/departments in-scope of the evaluation. Approximately 102 resources were reviewed to comprehensively evaluate the current IT environment within the State.

Survey Development and Analysis – As requested in HB17-1361, BerryDunn developed a consumer satisfaction survey relevant to the management of state agency IT resources and access to State government via IT resources. The online survey was developed in collaboration with OSA and OIT, and was distributed to over 30,000 State employees from centralized agencies in February 2018. Appendix C contains the complete survey questionnaire.

Overall, 6,194 surveys were completed, a response rate of 20.5%, well above the industry average online survey response rate of between 5.0% and 15.0%. Note that OIT staff responses were not included in this analysis. Additionally, the survey collected both quantitative and qualitative data (open-ended comments):

- *Quantitative:* The survey questions included categorical items for which the respondent chose the response (for example “very satisfied” or “strongly agree”)
- *Qualitative:* The survey allowed respondents to provide in-depth and constructive comments in order to clarify their views on services provided by OIT. Respondents provided over 10,000 open-ended comments to the questions included in the survey.

BerryDunn analyzed all survey responses to comprehensively evaluate the current IT environment within the State. However, it is important to note that the survey results presented throughout this report are of an unweighted sample. Given the nature of the survey questions and, in some cases, the small sample sizes for certain sub-groups, it is important to use caution

when interpreting and drawing conclusions from the results. They may represent the opinions of those who completed the survey and not the larger population of State employees.

2.4.2 Analysis

Identification of Standards and Best Practices – To determine comprehensive benchmarks for comparison against the current IT environment within the State, BerryDunn extensively reviewed industry standards and best practices. These standards were obtained from verified resources, including, but not limited to:

- Center for Digital Government
- Deloitte
- Enterprise Management Associates
- Gartner
- Government Finance Officers Association (GFOA)
- Govtech
- Harvard Business Review
- IBM Watson
- Information Systems Audit and Control Association (ISACA)
- IT Governance Institute
- McKinsey & Company
- National Association of State Procurement Officers (NASPO)
- National Association of State Chief Information Officers (NASCIO)
- National Computing Centre
- National Institute for Standards in Technology (NIST)
- Peer Agencies
- Project Management Institute's (PMI®) Project Management Book of Knowledge (PMBOK®)
- Prosci®
- Public Technology Institute
- World Academy of Science, Engineering and Technology, International Journal of Economics and Management Engineering

These standards were used to effectively analyze the State's current IT environment, and are leveraged throughout relevant sections of this report.

3.0 Transfer of IT HR and Related Position Classifications

In 2008, when the State passed SB08-155 into law, the bulk of IT employees were distributed throughout the Executive Branch agencies and were classified. Most classified staff fell into the following general categories:

- IT Professional
- General Professional
- Customer Service Coordinator
- IT Technician
- App Programmer
- Various Administrative Positions

Since that time, OIT has gradually shifted away from classified IT positions to a mixture of classified and non-classified IT positions. During this period, OIT has also increased the number of analysts, business analysts, and project management positions.

3.1 Evaluation Question: Transfer of IT HR

HB17-1361 adds Section 24-37.5-803 (2)(a)(I), C.R.S. and requires the evaluation of:

“Information technology human resources, including but not limited to:

- A. Whether state agencies have transferred information technology human resources to the Office of Information Technology (OIT).*
- B. Whether state agencies have reduced the number of full-time employees providing information technology services.*
- C. Why reductions and transfers of employees have or have not occurred and what measures may help state agencies achieve such reductions and transfers if they have not occurred.”*

3.1.1 Answer to Question A

Most of the transfer of IT HR to OIT occurred in 2010 – 2011. At that point, about 85.0% of employees from centralized agencies who were in clearly identifiable IT classifications had been transferred. Since 2011, consolidation of IT positions has continued but at a much slower rate, largely offset by a slow growth of IT positions in agencies that retained minimal IT staff. As of June 2017, 84.9% of IT positions exist in OIT, with 15.1% distributed between several agencies (based solely on job classification).

3.1.2 Answer to Question B

State agencies have reduced the number of full-time employees providing IT services since 2008. Of the remaining agency IT positions, the Departments of Transportation, Public Safety, and Corrections have the greatest share.

3.1.3 Answer to Question C

The primary reason full-time employees, classified as IT (i.e., 15.1%), remain instate agencies is because their defined job classification is not sufficient to determine if they are doing IT work. These employees do not necessarily represent IT resources that should be transferred to OIT. The vast majority (98.3%) of these remaining positions fall in three categories: 55.7% are Electronic Specialists, 23.5% are IT Professionals, and 19.1% are Customer Support Coordinators. Of the employees in these positions, only small portions are candidates for further consolidation. Job classifications require business staff to have a greater level of IT skills, and this can sometimes cause job classifications to be misleading.

3.2 Related Findings and Recommendations

3.2.1 What Work Was Performed?

The work performed included the following:

- Identified job classifications as a significant factor in determining what employees were consolidated
- Requested and analyzed historical HR data from the Department of Personnel and Administration (DPA) for those classifications that exist in OIT, as of January 2018
- Requested and analyzed historical HR data from DPA for all classifications within general government
- Determined which employees moved from agencies to OIT over time and what their classifications were
- Determined clearly identifiable IT classifications² and mapped them over time
- Created heat maps and identified significant changes
- Examined non-classified position mapping from OIT
- Examined a sample of non-classified position descriptions
- Conducted telephone interviews with OIT HR management and staff

3.2.2 How Were the Results of the Work Measured?

State statute requires that, “On July 1, 2008, the chief information officer of each state agency and on or after July 1, 2008, but on or before July 1, 2012, the employees of such state agencies designated pursuant to subsection (2) of this section shall be transferred to the office and shall become employees of the office.” Section 24-37.5-110(1)(a), CRS.

² For classified positions, IT positions were identified through class descriptions. For non-classified positions, IT positions were identified by class title.

Additionally, the table below describes the criteria against which the current state of IT HR consolidation was measured. The criteria selected are best practices, based on BerryDunn’s expert opinion.

Table 3.2.1: Best Practices for Evaluating OIT's Consolidation of IT HR

ID	Best Practice	Source
1	The IT HR processes support the generation of HR metrics to support strategic decision-making	World Academy of Science, Engineering and Technology, International Journal of Economics and Management Engineering “Information Technologies in Human Resources Management - Selected Examples.” Vol:9, No:6, 2015
2	The HR processes support automation of routine HR tasks and replacing “filing cabinets”; also helps to free HR staff from administrative burdens, allowing them to undertake strategic people-management activities	World Academy of Science, Engineering and Technology, International Journal of Economics and Management Engineering “Information Technologies in Human Resources Management - Selected Examples.” Vol:9, No:6, 2015
3	Align and adapt HR workforce strategies to be more competitive through aligning strategies to the needs of the millennial and digital native generations	NASCIO Human Resources/Talent Management, Video, 2016
4	Have data to support how much of an employee’s job function is managing technology vs. using technology	Unwritten policies and objectives explained by OIT personnel
5	Clearly identifying job functions for employees and what job responsibilities are necessary for promotion, helping staff work more effectively, and increasing morale	Expert opinion from New England States Chief Information Officer (CIO) gathering

Based on industry best practice and our experience, in the past it was easier to look at job classifications and distinguish between IT and business. Today, technology has become such an integral part of daily work life that clarity between job classifications is more difficult to achieve. For example, in today’s terms is a data analyst, whose job it is to answer business problems by turning data into information, an IT classification or a business classification? Discrepancies in how this is being done today impact the accurate percentage of what is left to consolidate.

3.2.3 What Findings Did the Evaluation Identify?

We identified four finding areas regarding centralization of HR, as detailed below:

1. The centralization required by SB 08-155 has not been fully completed. Further, as noted above, it is difficult to determine if the 15.1% of IT staff remaining in agencies

should be moved to OIT without changing job classifications to enable this type of analysis. The heat map on the following page, based on data provided by DPA, shows how centralization has occurred over time and how that work has continued at a slower pace in recent years.

Table 3.2.2: Heat Map Depicting Centralization of IT HR Changes Over Time

Organization	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
OIT	0.3%	17.4%	15.8%	86.2%	85.9%	84.9%	85.3%	85.8%	85.3%	84.9%
Transportation	10.4%	10.6%	11.4%	4.0%	4.2%	4.9%	5.0%	4.8%	5.0%	4.6%
Public Safety	5.6%	5.8%	5.8%	2.4%	2.4%	2.4%	2.6%	2.5%	2.7%	3.0%
Corrections	7.9%	7.4%	9.1%	1.9%	1.9%	2.1%	2.1%	2.2%	2.0%	2.5%
Human Services	17.3%	18.0%	18.1%	1.0%	1.1%	1.2%	1.1%	1.1%	1.4%	1.3%
Military and Veterans Affairs	0.7%	0.4%	0.7%	0.5%	0.5%	0.5%	0.8%	1.0%	1.1%	1.2%
Public Health and Environment	8.3%	8.2%	7.8%	1.1%	1.1%	1.1%	1.1%	1.0%	0.9%	1.1%
Natural Resources	7.3%	7.6%	6.6%	0.4%	0.6%	0.7%	0.6%	0.5%	0.5%	0.5%
Health Care Policy and Financing	2.6%	2.4%	2.5%	1.7%	1.5%	1.3%	0.6%	0.5%	0.4%	0.4%
Agriculture	0.7%	0.8%	0.9%	0.5%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%
Labor & Employment	7.3%	6.7%	7.4%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.1%
State Historical Society	0.1%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Revenue	10.5%	10.5%	9.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Local Affairs	1.1%	1.1%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Personnel & Administration	16.8%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%
Regulatory Agencies	3.1%	2.6%	2.6%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Data Source: DPA State_of_Colorado_Annual_Snapshots_of_Workforce.xlsx

- The green, yellow, and red color variation indicates where there are no longer IT positions (green) to where there are a few IT positions remaining (yellow), and to where the IT positions have moved to OIT (red).

- The use of non-classified positions does not align with the same standard for clearly identifying in-depth IT knowledge, compared to positions that are classified. OIT has increased the use of non-classified positions steadily since 2011 (the first full year consolidation of agency IT staff to OIT was implemented), from 2.0% to 44.0%. The increased use of non-classified positions increases the complexity of being able to determine individuals who have IT-based roles from those who do not.

Table 3.2.3: OIT’s Use of Classified and Non-Classified Positions Over Time

Staff Category	2011	2012	2013	2014	2015	2016	2017
Non-Classified (Includes Temp)	2.0%	9.0%	26.0%	43.0%	42.0%	42.0%	44.0%
Classified	98.0%	91.0%	74.0%	57.0%	58.0%	58.0%	56.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Data Source: DPA State_of_Colorado_Annual_Snapshots_of_Workforce.xlsx

- The Electronic Specialist, IT Professional, Electronic Engineer, and Customer Support Coordinator series of classifications were identified as common classifications existing in both centralized IT and in the agencies.

Table 3.2.4: Classifications Existing in Both Centralized IT and in Agencies

Classification/Agency	Percentage of Non-OIT Positions	Number of Positions
Electronic Specialist	55.7%	64
Colorado Department of Transportation	21.7%	25
Department of Corrections	16.5%	19
Colorado Department of Human Services	8.7%	10
Department of Military and Veteran Affairs	3.5%	4
Department of Public Health & Environment	3.5%	4
Division of Natural Resources	0.9%	1
Colorado Department of Agriculture	0.9%	1
IT Professional	23.5%	27
Colorado Department of Public Safety	7.8%	9
Colorado Department of Transportation	7.8%	9
Department of Military and Veteran Affairs	2.8%	4
Department of Natural Resources	2.6%	3
Colorado Department of Labor & Employment	0.9%	1

Classification/Agency	Percentage of Non-OIT Positions	Number of Positions
Office of the Governor	0.9%	1
Customer Support Coordinator	19.1%	22
Colorado Department of Public Safety	12.2%	14
Department of Public Health & Environment	3.5%	4
Department of Health Care Policy & Financing	2.6%	3
Colorado Department of Agriculture	0.9%	1
Electronic Engineer	1.7%	2
Department of Military and Veteran Affairs	0.9%	1
Department of Transportation	0.9%	1
Grand Total	100.0%	115

Data Source: *DPA State_of_Colorado_Annual_Snapshots_of_Workforce.xlsx*

- State agencies (including OIT) have not requested DPA to update the Customer Support Coordinator classification to reflect how technology change impacted the type of work or the environment in which the work is conducted, including a determination of whether some customer support roles should not be technology roles.

3.2.4 Why Did the Findings Occur?

The causes for the findings identified above include:

- A lack of standards in non-classified positions. Non-classified roles have historically been used for management positions or positions where the work expectations could not be clearly defined, as opposed to technical positions.
- The use of classifications that are commonly considered IT by agencies occurs when the classifications have job functions that are an integral part of the work done in the agencies, especially those positions classified as Electronic Specialist, Customer Support Coordinator, and Electronic Engineer. These classifications are too broad and encompass skillsets that are integral to the work of agencies like the Departments of Public Safety, Transportation, and Corrections.
- As technology changes, classifications that are specific in their description of the work done or the environment in which the work is done will become outdated. This is the case with the Customer Support Coordinator class. Thirty years ago, data processing work was largely set up around data centers housing mainframes that ran scheduled jobs to perform specific functions in support of providing customers with services. Today, only a few of these mainframe-oriented data centers remain in operation and most have

shifted in function so less of the work is associated with scheduled batch processes, and more of the work is associated with real-time, or near real-time, applications.

Some of these applications have web frontends that present a modern look and feel to the customer but still use the older mainframe technology on the backend. Additionally, the work of customer support has also evolved to the point that many customer support staff are more focused on managing the relationship with the customer than the underlying technology.

Today's Customer Support Coordinator is no longer just the person who addresses a service request or resolves a problem with data processing, but may handle multiple business requests. For example, Medicaid application customer support personnel might answer questions ranging from paychecks to password resets.

3.2.5 Why Do These Findings Matter?

These findings matter for a number of reasons:

1. It is difficult to track the State's investment in IT knowledge workers and where those knowledge workers exist within an organization, which could increase the likelihood of duplication of effort and/or shadow organizations, which could in turn increase costs.
2. OIT management does not have the information to accurately estimate the HR involved in programmatic pursuits.
3. The number of IT workers at the State cannot be determined without subjective evaluations to determine if positions require in-depth knowledge of IT. This includes evaluations of programmatic resources such as project managers, business analysts, or network engineers.
4. OIT maintains a "comp plan" that aligns non-classified IT positions that provide similar job roles. OIT HR has to maintain and update the "comp plan" every time a non-classified role changes (is updated, added, or removed). Filling vacancies may require more HR involvement for positions that have been customized for the previous occupant.
5. Making comparisons with peers and industry norms is more difficult than organizations that use fewer non-classified positions.
6. Career ladders (progression to higher levels of pay, skill, responsibility, or authority) for IT workers could be clearer.
7. There could be less transparency and accountability if job expectations are not defined accurately and clearly.
8. Customer support excellence is a key role described in the OIT strategic plan, yet outdated descriptions of work pose a risk to operational effectiveness.
9. If standards and consistent skillsets are not specified, management has less data to make strategic choices regarding staff training and succession planning, and to see historical trends.

10. If agency IT HR are not fully transferred to OIT, this does not comply with State statute and conflicts with legislative intent to maximize efficiencies and cost-savings related to IT resources across the State, including those related to IT HR (i.e., by reducing unnecessary or duplicative IT HR).
11. It is impossible to determine which positions are IT and which are not (e.g., administrative) without reviewing each specific non-classified role within OIT.

3.2.6 Recommendation No. 1

The Governor's Office of Information Technology (OIT) should improve its management of IT HR by:

- A. Improving the standards for non-classified positions and creating policy that states position titles tied to these classes must meet these standards. One of the standards enforced should be that positions requiring in-depth IT knowledge must meet a common standard (e.g., at least 25.0% of the job must be spent using technical skills). Non-classified positions should be organized in such a way as to clearly identify those positions that require in-depth IT knowledge and collectively group similar job functions.
- B. Working with the Department of Personnel and Administration (DPA) to create two new classification series: Network/Telecommunications Specialist and Network/Telecommunications Engineer; and redefining the existing electronic specialist and electronic engineer classifications to remove the specialized job skills required for network and telecommunications roles.
- C. Working with DPA to update the Customer Support Coordinator classification, separating functions that are customer-support functions from functions that require in-depth technical knowledge. This may result in a new classification for a non-technical customer support agent. If so, OIT should work with stakeholder agencies to agree on a common standard and work with DPA to create it.
- D. Ensuring that key performance indicators (KPIs) exist for all OIT positions, classified and non-classified, and are used to demonstrate or evaluate how human resources are achieving key business objectives and goals.

3.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

- A. Agree. Implementation Date: June 2019
OIT is currently in the middle of a position description project that will incorporate this recommendation. We anticipate this project to be completed by the end of FY19.
- B. Agree. Implementation Date: June 2019
OIT will reach out to DPA in Q3 FY19 to begin discussions on this recommendation.

Auditor's Addendum:

It is unclear what OIT plans to do beyond beginning the discussion with DPA. The recommendation includes following up with DPA until the recommendation has been completed or until DPA formally rejects it.

C. Agree. Implementation Date: June 2019

OIT will reach out to DPA in Q3 FY19 to begin discussions on this recommendation.

Auditor's Addendum:

It is unclear what OIT plans to do beyond beginning the discussion with DPA. The recommendation includes following up with DPA until the recommendation has been completed or until DPA formally rejects it.

D. Disagree.

OIT HR currently provides annual training to managers on the completion of performance plans for both classified and non-classified employees to include KPI's that tie to key business objectives as well as responsibilities covered in the position descriptions. In addition, position descriptions for both classified and non-classified employees include essential and non-essential duties of the position which employees are measured on along with other areas outlined in the annual performance plan. OIT HR tracks and reports on completion of annual performance plan ensuring completion for all employees. No further action is needed as this is already being done and OIT HR will continue to ensure this process continues.

Auditor's Addendum:

OIT HR relies primarily on subjective measures of employee performance and lacks consistently measured quantitative metrics. Without quantitative metrics that are combined with existing qualitative measures, measures of employee performance are incomplete. This increases the likelihood of misunderstandings between employees and management that could lead to decreased employee effectiveness and decreased employee morale.

4.0 Transfer of IT Infrastructure

Tracking, managing, and operating technology assets throughout their life cycle represents a considerable portion of what OIT does. To do so, OIT has standardized a suite of tools for asset tracking, management, and consolidation, including Microsoft's System Center Configuration Manager (SCCM); SolarWinds for routers/switches; Troux Application Portfolio Management; VMware Management Suite for servers; and McAfee for endpoint security. In addition, OIT uses CA Technologies' Configuration Management DataBase (CMDB), which is used for storing configuration, inventory, and relationships between technology assets. There is some overlap between tools and tool purposes.

4.1 Evaluation Question: Transfer of IT Infrastructure

HB17-1361 adds Section 24-37.5-803 (2)(a)(II), C.R.S. and requires the evaluation of:

“Information technology infrastructure, including but not limited to:

- A. *Whether state agencies have transferred information technology infrastructure to OIT.*
- B. *Why transfers of information technology infrastructure have or have not occurred and what measures may help state agencies achieve such transfers if they have not occurred.”*

4.1.1 Answer to Questions A and B

Complete transfer of IT infrastructure to OIT has not occurred. State agencies have transferred the operations of IT infrastructure and assets to OIT; however, from a budget and accounting perspective, the funding and spending authority for IT assets continue to exist among the agencies, not OIT. Therefore, OIT carries the responsibility of maintaining and operating the equipment, but all the funding and decision-making are retained with the agencies.

Over the past decade, assets were moved from data centers that the agencies were responsible for maintaining into three consolidated OIT data centers. Also during this period, some services that historically have been provided through state managed data center have been moved to Amazon Web Services (AWS) and the Google Cloud Platform (GCP). This has reduced the number of physical data centers from a high of 40 data centers for the State to 3 as of FY17.

The sections below provide additional details regarding the transfer of IT infrastructure and assets, and recommendations for improvement.

4.2 Related Findings and Recommendations

4.2.1 What Work Was Performed?

Specific work performed included the following:

- Reviewed asset information provided by OIT from the Colorado Operations Resource Engine (CORE) financial system
- Reviewed the structure OIT uses to track technology assets in the various systems in which asset information resides. These include:
 - CMDB
 - Troux Application Portfolio Management
 - SCCM
 - SolarWinds
 - VMware Management Suite for servers
 - McAfee for security and endpoint security
- Interviews with OIT personnel
- Interviews with selected agencies
- Review of OIT user survey results
- Review of OIT annual reports and OIT Playbook strategy documents
- Review and analysis of hardware, software, and infrastructure data provided by OIT
- Review of long bills for capital appropriations
- Review of public data on OIT submissions to the legislature for decision items (DIs)
- Review and analysis of OIT provided financial analysis for billing of technology assets and infrastructure

4.2.2 How Were the Results of the Work Measured?

The table below describes the criteria against which the current state of IT infrastructure was measured. The criteria are best practices selected based on BerryDunn’s expert opinion.

Table 4.2.1: Best Practices for Evaluating OIT’s Consolidation of IT Infrastructure

ID	Best Practice	Source
1	Every government should undertake a systematic effort to identify all of its controlled capital-type items.	Government Finance Officers Association (GFOA) Best Practices, 2001 & 2004 Governmental Accounting Standards Board (GASB) Statement No. 34, Basic Financial Statements and Management’s Discussion and

ID	Best Practice	Source
		Analysis for State and Local Governments, paragraph 19.
2	Use an integrated CMDB, which should: hold the relationships between all system components, including incidents, problems, known errors, changes, and releases. The CMDB also contains information about incidents, known errors and problems, and corporate data about employees, locations, and business units. In addition, the CMDB is often used to hold details of services, relate them to the underlying IT components, and store inventory details such as supplier, cost, purchase date, and renewal date for a license.	ITIL ³ Version 3, IT Service Management, 2007 Enterprise Management Associates, 2007
3	Policies should be established to address maintenance, replacement, and proper fixed asset accounting over the full life of the capital assets.	GFOA, Best Practice, Capital Planning Policies, No date (N.d.) GFOA, Best Practice, Asset Maintenance and Replacement, 2010 GFOA Best Practice, Multi-Year Capital Planning, 2010 GFOA Best Practice, Establishing Appropriate Capitalization Thresholds for Capital Assets, 2006
4	Allocate sufficient funds in the multi-year capital plan for preventative maintenance, repair, renewal, and replacement of capital assets in order to continue the provision of services that contribute to public health, safety, and quality of life of the public.	GFOA, Best Practice, Capital Asset Management, N.d. GFOA, Best Practice, Multi-Year Capital Planning, 2015 revised Nicole Westerman, "Managing the Capital Planning Cycle: Best Practice Examples of Capital Program Management," Government Finance Review, 2004
5	Depreciation is an essential part of measuring the costs of services provided during a period. Omitting depreciation produces results that do not reflect all costs of services provided. That omission can result in a misunderstanding of the economics of providing services and may contribute to inefficiencies.	Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standards No. 99, N.d.

³ ITIL used to be an acronym for Information Technology Infrastructure Library but as of Version 3, has grown beyond infrastructure and was redefined as a formal term rather than an acronym.

ID	Best Practice	Source
6	Capital Replacement Funding principle is that the money is collected and segregated, over a period of time, to cover the repair or replacement cost of existing common elements; that is, capital assets already in existence. Capital Replacement Funds are part of any long-term financial plan.	Wilkin & Guttentplan, PC, CPA, “Capital Replacement Fund: When to use it?” Gary B. Rosen, CPA, CFE, 2003
7	Ensuring the maximum useful life for public assets is a primary agency responsibility. Establishing clear policies and procedures for monitoring, maintaining, repairing, and replacing essential components of facilities is central to good management practices.	GFOA Financial Policies, Capital Management Policies, N.d.
8	Guidelines for Asset Identification are provided that clearly underscore the importance along with the specifications for identifying assets.	National Institute for Standards in Technology (NIST), Publication NISTIR 7693, June 2011
9	<p>The standards of TIA-942 identify four tiers of reliability of data centers.</p> <ul style="list-style-type: none"> – Tier I: 99.671% availability (uptime) – Tier II: 99:741% availability – Tier III: 99.982% availability – Tier IV: 99.995% availability 	<p>The Telecommunications Industry Association (TIA) is accredited by the American National Standards Institute (ANSI) as a standards developing organization (SDO). The standards have been developed in conjunction with information from the Uptime Institute. TIA's standards can be found at: https://tiaonline.org/standards, N.d.</p>
10	<p>Align the facility management program with the specific tier of installed site infrastructure in order to achieve the organization's business objectives or mission imperatives.</p> <p>Tier Standard: Operational Sustainability establishes the behaviors and risks beyond the Tier Classification System (I, II, III, and IV) that impact long-term data center performance.</p> <p>Tier Standard: Operational Sustainability unifies site management behaviors with the tier functionality of the site infrastructure.</p>	Uptime Institute, Tier Standard: Operational Sustainability, April 2013

4.2.3 What Findings Did the Evaluation Identify?

We identified the following findings with OIT's management and tracking of technology assets:

1. Financial responsibility for purchasing and replacing IT assets remains with the agency even though OIT has responsibility for operational support.
2. Technology hardware assets do not have a dedicated asset type in CORE.

3. No documented evidence was presented showing OIT's three data centers having been evaluated for appropriate Tier Classification to maintain service levels in the event of a primary data center failure.
4. While some services have been transitioned to Google Cloud Platform (GCP) or Amazon web services (AWS) (Tier IV), OIT manages one data center (of three) that might pass Tier III certification (based upon the Uptime Institute's guidelines with appropriate redundancies of power, generator, communications, and air conditioning) and be appropriate for maintaining OIT's expressed service levels. The other two data centers managed by OIT fail to meet the minimum standards of a Tier III data center. These two data centers (the backup data center and the disaster data center) do not have appropriate redundancy in power, generator, communications, and air conditioning to meet Tier III requirements and may not fully support expressed service levels.
5. IT asset tracking is fragmented among multiple systems. Best practice from ITIL is to have all assets consolidated into a single repository, but OIT's is fragmented among at least five different systems, not all of which are integrated with OIT's helpdesk.

4.2.4 Why Did the Findings Occur?

1. Budget lines for technology assets that are dedicated to an agency have remained with agencies because the JBC continues to appropriate funding for new systems and ongoing costs directly to the agencies.
2. CORE was never configured to have a dedicated asset type for technology assets, so the closest equivalent, "furniture and equipment," was used.
3. OIT has reduced the number of data centers from roughly 40 to the 3 best, but has not yet evaluated the tier ratings, identified deficiencies, and brought all 3 up to the required service-level standard.
4. Initially, the large number of disparate systems made OIT efforts to consolidate all resources into one system very difficult. Additionally, the lack of financial control has made ongoing consolidation more difficult.

4.2.5 Why Do These Findings Matter?

1. Effects of technology asset budget lines remaining with agencies include:
 - a. The burden of responsibility shifts without any corresponding ability to effectively manage the assets.
 - b. Equipment may not get refreshed at optimal times, leading to a decrease in efficiency and effectiveness; for example, equipment support costs increase when refreshes are not aligned with expected equipment lifespans.
 - c. Funds may not be available for refresh when needed.
 - d. A portion of the management and reduction of IT spending is outside the purview of OIT, potentially leading to less efficient or effective operations.

- e. May cause OIT to support outdated equipment.
 - f. Must “negotiate” dollars for fundamental and basic technology refreshes, which places undue burden on time and relationships.
2. Effects of not having a dedicated technology asset type in CORE’s charge of accounts include:
- a. Makes comparison with peers and industry norms more difficult.
 - b. Raises the potential for misclassification of spending.
 - c. Not transparent; current financial reporting and benchmarking inflates the amounts for “furniture and equipment” due to many technology costs being included. Also, the increase of technology costs has inflated “furniture and equipment” further.
 - d. Raises the likelihood of introduction of “shadow IT” efforts and duplication of effort.
 - e. Makes tracking of assets more difficult.
3. The effect of not having all data centers meet the service levels for all applications and technologies hosted at the data centers is that the State is inadequately prepared to effectively handle a failure at one site requiring the backup site to absorb operations.
4. Effects of technology assets management being fragmented across multiple systems include:
- a. No single source of truth⁴
 - i. Makes reporting more difficult
 - ii. Helpdesk problem tracking cannot be linked with all assets
 - iii. Increases the likelihood of duplication

4.2.6 Recommendation No. 2

The Governor’s Office of Information Technology (OIT) should improve its management and tracking of IT assets by:

- A. Completing the transfer of full financial control to OIT (which may involve working with the Governor’s Office of State Planning and Budgeting (OSPB) and the Joint Budget Committee (JBC) including purchase, maintenance and support, refresh, and depreciation. To improve the likelihood of successful implementation of this recommendation, OIT should:

⁴ The source of truth is a trusted data source that gives a complete picture of the data object or asset as a whole; System of Record (SOR) is the authoritative data source for a given data element or piece of information. <https://www.linkedin.com/pulse/difference-between-system-record-source-truth-santosh-kudva/>

1. Modify its process such that governance approval is only required for new technology or for significant architectural changes once technology assets are fully owned by OIT (financial control with spending authority and operational control).
 - a) OIT and State agencies should collaborate to create a mutually agreed definition of what technology refresh is, versus new technology changes
 - b) Agency/business needs should drive the new technology acquisition; continued support and maintenance of these environments should be OIT's responsibility
 - c) Champion discussions for ensuring technology refresh decisions are funded in a way that does not require legislative approval
 2. If full control of asset budgets is transferred to OIT, OIT should communicate to customers in advance, including expected impacts on agencies, when OIT is not planning to refresh a technology. A three-year notice should be provided for minor technology changes, and a five-year notice for major technology changes.
- B. Prioritizing and leveraging the integration capabilities of the existing CMDB to create a single source of truth for all technology assets.
- C. Working with the Department of Personnel and Administration's (DPA) Office of the State Controller to create a dedicated fixed asset type for "IT equipment," to be used to record IT fixed assets in CORE.
- D. Evaluating the three primary data centers for tier ratings and investing appropriate resources to fix any deficiencies that do not align with the service levels of the services that could be provided (in the event of a failure of another data center), which should include continuing to improve the State's ability to meet requirements of Tier III or higher data centers with the appropriate data center upgrade funding (for which the budget has been requested in OIT CC-03) or additional use of cloud-based Tier IV data centers (i.e., Amazon Web Services, Google Cloud Platform, etc.).
1. Reviewing "Operational Sustainability," as described in the Uptime Institute at all data centers and consider modifying data center processes to enhance sustainability
 2. Completing fail-over testing as a routine part of sustainability planning

4.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

A. Agree. Implementation Date: March 2019

OIT will work with the Governor's Office of State Planning and Budgeting and the Joint Budget Committee, as appropriate, to move full financial control over IT assets to OIT. If financial control of assets is transferred to OIT, OIT will review its governance process and require approval only for new technology or significant architectural change projects. As part of its 5-year IT Roadmap planning process, OIT will work with agencies to ensure agency needs drive new technology acquisitions, develop a definition of technology refresh and will communicate plans for asset refresh to agencies so that such plans are included the Roadmaps. OIT will initiate conversations with OSPB regarding the possibility of funding of asset refreshes without legislative approval and transferring IT asset financial control to OIT by March 2019.

Auditor's Addendum:

It is unclear what OIT plans to do to address championing discussions for ensuring technology refresh decisions are funded in a way that does not require legislative approval.

B. Agree. Implementation Date: January 2019

OIT will prioritize and leverage the integration capabilities of the existing CMDB and/or acquire the necessary technologies to create a single source of truth for all technology assets. OIT will initiate the project by January 2019.

C. Agree. Implementation Date: January 2019

OIT will work with the Office of the State Controller on adding a new asset account type to the financial system for IT assets. OIT will initiate the discussion by January 31, 2019.

D. Agree. Implementation Date: April 2019

OIT agrees to evaluating the three primary data centers for tier ratings and invest appropriate resources to fix any deficiencies that do not align with the service levels of the services that could be provided. OIT asked for and received necessary funds to remediate data center deficiencies, July of 2018. That being said, none of the current state data centers will ever achieve a Tier 3+ rating. The state strategy has been to move certain workloads into best in class public cloud data centers going forward and/or to make workloads highly available across at least two of the in state data centers. OIT in FY17 reviewed the possibility of building or acquiring a new state data center but determined this course to be overly expensive and not in line with current cloud data center technology trends.

1. OIT agrees to review the "Operational Sustainability," as described in the Uptime Institute for all data centers by April 2019.

-
2. OIT agrees to completing fail-over testing as a routine part of sustainability planning. OIT will start a review by April 2019 of what critical systems and underlying technologies have gaps in sustainability planning. OIT will work with customers to build a timeline and document any deficiencies and costs. OIT will communicate annually the results from sustainability planning and testing to JTC.

5.0 Savings and Efficiencies from IT Decisions

Cost savings and increased efficiencies were key drivers behind the effort to consolidate IT resources. Other states have documented significant cost savings through consolidation with examples of:

- Michigan – documented \$9.5 million saved at the time of its report with an estimated five-year return on investment (ROI) of \$19.1 million⁵
- Illinois – documented \$10.8 million ROI over a four-year period from data center consolidation⁶
- NASCIO put together a Playbook for enterprise consolidation⁷ that showed:
 - Utah is saving \$4 million each year on its annual budget. That savings goes directly back to the agencies. A staff reduction from 1,000 to 704 via attrition has saved \$136 million alone since 2007.
 - Indiana is saving over \$13 million a year after consolidation.
 - Oklahoma has saved \$98 million since budget year 2012.
 - Ohio has saved over \$100 million since 2016.
 - Louisiana reported a savings of \$75 million in its first year of consolidation.

Where costs savings are concerned, data center consolidation has been shown to be a significant driver of cost savings.

5.1 Evaluation Question: Savings and Efficiencies from IT Decisions

HB17-1361 adds Section 24-37.5-803 (2)(a)(II)(C), C.R.S. and requires the evaluation of:

“Information technology infrastructure, including but not limited to:

- C. Whether software and hardware decisions made by OIT have provided savings and efficiencies to the state and whether those savings can be quantified.”*

5.1.1 Answer to Question C

OIT decisions to reduce data centers from 40 to 3 and the work OIT has done on server virtualization have provided savings and efficiencies. However, since pre-centralization (baseline) measurements were not taken, and cost and utilization data (such as utilities) was not separately tracked by agencies, those savings cannot be quantified. Significant savings found in

⁵ https://www.michigan.gov/documents/dmb/Michiga0DataCenterConsolidation_325952_7.pdf

⁶ <https://www2.illinois.gov/sites/doit/About/Pages/NASCIO.aspx>

⁷ https://www.nascio.org/Portals/0/Publications/Documents/2017/NASCIO_ShrinkingDataCenters.pdf

other states, which we would expect to see in the State, include: data center power and cooling, server maintenance, software, and security (both physical and virtual).

Although OIT has communicated that its cloud-first strategy and implementation of enterprise software such as Amazon and Google have provided cost savings, OIT has not reported the amount of the savings associated with these activities. The sections below provide our findings and recommendations for improvements related to this area.

5.2 Related Findings and Recommendations

5.2.1 What Work Was Performed?

We performed the following tasks:

- Detailed review of the common policies billing data, focusing on FY15 through FY18 true-up data
- Review of overall billing data from FY15 to FY17 including common policy, Interagency, and Telecom billing
- Review of annual reports
- Interviews with key OIT personnel
- Interviews with selected agencies
- Review of OIT user survey results
- Review of historical long bills
- Review of OIT financial office websites
- Review of cost savings and cost avoidance materials provided by OIT
- Review of sample common policy presentations for agencies
- Review of purchase catalogs
- Review of OIT Playbooks
- Cost savings and cost avoidance materials, provided by OIT as the basis for their annual report numbers, compared with the NASPO document on benchmarking, which OIT provided as its adopted methodology

5.2.2 How Were the Results of the Work Measured?

The table on the following page describes the criteria against which the current state was measured. The criteria are best practices selected based on BerryDunn's expert opinion.

Table 5.2.1: Best Practices for Evaluating Cost Savings and Efficiencies

ID	Best Practice	Source
1	<p>The following categories represent a generally accepted, menu of cost savings and cost avoidance categories that may easily be used by NASPO for benchmarking purposes:</p> <p><u>Cost Savings:</u></p> <ul style="list-style-type: none"> • Reduced Baseline Appropriation – A reduction in available resources based on legislative actions or targeted cuts in certain areas • Reduction from Budgeted Spend – A reduction in the projected/budgeted resources (e.g., staff time, materials, and equipment) used for an activity or business process, as a result of a Savings Project • Volume Reductions – Reducing the amount of a good or service used. Savings captured in this category include projects that intentionally seek volume reductions through direct action (e.g., demand management) • Refunds/Credits/Rebates – Payments made to the State by vendors as a result of a Savings Project • New Revenue – New streams of revenue instituted by the State • Enhanced Reimbursement – Improvements in the accuracy or completeness of a business process that generates a higher rate of recovery of funds from external organizations. This activity may be generally associated with business process re-engineering <p><u>Cost Avoidance:</u></p> <ul style="list-style-type: none"> • Cost Avoidance – A cost-reduction opportunity that results from an intentional action, negotiation, or intervention. <ul style="list-style-type: none"> ○ Procurement Cost Avoidance – A cost-reduction opportunity that is generated from the competitive bidding process ○ Negotiated Cost Avoidance – An avoided cost as a result of the issuance of Best and Final Offers, Sole-Source negotiations, or post-procurement/post-award negotiations ○ In-Contract Cost Avoidance – A cost-reduction opportunity produced as a result of the intervention of a purchasing official in responding to contractor requests for increases in prices, market fluctuations, indices' upward alterations, etc. ○ Rate Reductions – Obtaining lower rates or prices for goods, services, and construction purchased by a State 	<p>OIT Cost Savings standard is NASPO's "Benchmarking Cost Savings & Cost Avoidance," NASPO Benchmarking Workgroup Research Brief, September 2007</p>

ID	Best Practice	Source
2	<p>The “Playbook for Enterprise Data Center Consolidation” calls for:</p> <ul style="list-style-type: none"> • Understanding what is needed • Engaging agency stakeholders early and continuously • Creating a roadmap with reasonable milestones set in waves • Documenting the baseline of assets • Conducting a spend analysis • Addressing cost allocation and funding issues • Implementing standards where they exist (ITIL and ITSM) • Managing expectations and expecting surprises • Making it sustainable • Capturing and report cost savings 	<p>NASCIO: Shrinking State Data Centers – A Playbook for Enterprise Data Center Consolidation, November 2017</p>

5.2.3 What Findings Did the Evaluation Identify?

We identified the following findings with whether software and hardware decisions made by OIT have provided savings and efficiencies to the state and whether those savings can be quantified:

1. OIT’s annual reports incorrectly calculate cost savings and misrepresent the cause of cost avoidance by stating, “*Consolidation and implementation of newer technologies has afforded OIT the opportunity to attain substantial cost savings through such activities as ...*” yet OIT has not gathered and communicated evidence that consolidation and implementation of newer technologies have represented actual cost savings for the State. The bulk of what OIT has documented as “savings” is actually cost avoidance due to the procurement process, as defined by OIT’s standard, rather than true savings due to consolidation or new technology implementations. Interviews with OIT staff confirmed that a primary purpose for including cost savings and cost avoidance data in the annual report was to communicate “savings achieved through consolidation.”
2. OIT does not consistently capture baseline data about technology costs prior to significant changes. Specifically, OIT did not quantify cost savings for data center consolidation.
3. BerryDunn’s customer satisfaction survey included a question that allowed participants to self-identify as a decision-maker for the IT services used by their agency. Two hundred thirty-one respondents self-identified and 216 of those answered the question about benefits of consolidation. Among this group, 7.9% (17 respondents) agree that consolidation has been beneficial to the State.
4. Agencies have seen an average increase in annual IT billing from OIT that is in excess of its annual growth rate and continues to consume ever-larger portions of its total spending. Research suggests that usage of IT systems across the country has increased dramatically over the last 10 years, and this additional usage has resulted in

increased costs. Although there is a recognition at the agency level that expenditures have increased over time due to use, the level at which some state agencies are increasing is higher than they would expect. OIT meets with the agencies annually to discuss the reasons associated with additional cost; however, some agencies feel that OIT has not successfully articulated the benefits received by the agency for the additional cost represented, and additional transparency would be helpful to them.

Although OIT reports cost avoidance in its annual report (since 2010), some agencies reported they lacked confidence in the metrics used to determine OIT cost-avoidance figures. OIT reports that IT costs increase due to several primary factors, including but not limited to: agency demands for adoption of technology, legacy systems being retired and replaced, and a greater reliance on technology as part of daily activity each year (additional usage). Departments also reported concern that the disparity between the cost savings reported annually by OIT and the billing statement increases they receive can cause contention.

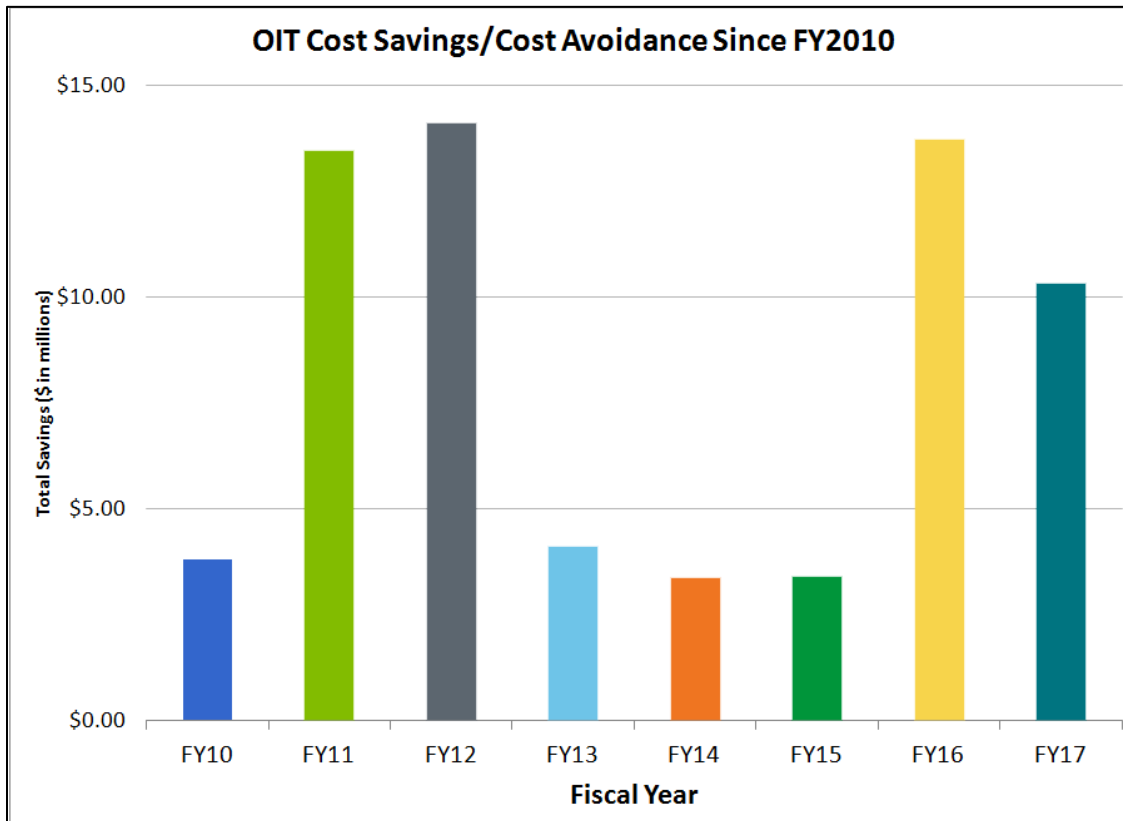
OIT has reported, and State research supports, that replacing systems that no longer meet business needs often costs more (than the legacy environment) in order to provide improved features and functions to the agency. Some agencies desire greater transparency on exactly what they are paying for in terms of OIT service and the ability to understand what services from OIT could be reduced in order to lower their OIT costs.

Table 5.2.2: Average Annual Budget Increase

	FY12-13	FY13-14	FY14-15	FY15-16	FY16-17	FY17-18	FY18-19	Average Annual Growth
Average Annual Agency Budget Increase	6.6%	7.5%	9.6%	9.1%	2.8%	4.4%	7.4%	6.8%
OIT Average Annual Budget Increase	0.8%	20.9%	27.0%	4.0%	21.3%	13.6%	3.5%	13.0%

Data Source: Long Bills 2012 – 2019

Figure 5.2.1: OIT Representation of Cost Savings/Cost Avoidance in FY17 Playbook



Data Source: OIT FY17 Playbook

5.2.4 Why Did These Findings Occur?

1. OIT hasn't consistently followed the NASPO methodology for calculating cost savings, which states that cost savings can only be calculated based on:
 - a. Reduced Baseline Appropriation
 - b. Reduction from Budgeted Spend
 - c. Volume Reductions
 - d. Refunds/Credits/Rebates
 - e. New Revenue
 - f. Enhanced Reimbursement

However, although OIT combines cost savings and cost avoidance in its annual reports, the total amount reported in FY12 – FY17 reports are inflated due to a cost savings that was calculated based on vendor comparisons rather than against budgeted amounts as per the OIT standard (this inflation was not found in the most recent annual report). Additionally, OIT has not invested resources in documenting cost savings of technology implementations since consolidation. In the case of the misrepresentation of cost savings, OIT has represented cost avoidance as cost savings in historical annual reports and has duplicated this description in more recent annual reports.

2. Documenting data center consolidation requires full knowledge of baseline costs and baseline assets prior to the consolidation activity. However, many of these costs were not tracked by prior administrators of the data centers (i.e., the agencies), and OIT had limited visibility into pre-consolidated data center costs without conducting a full spend analysis. Similarly, understanding the full cost impact of implementation of new technologies requires a level of collaboration between agencies and OIT that currently does not exist.
3. State agencies are seeing increases in billing because, upon consolidation, OIT inherited aging technology and infrastructure, which OIT had to remediate or replace. Additionally, significant IT projects were approved by the legislature, further increasing IT costs for State agencies.

5.2.5 Why Do These Findings Matter?

1. Inaccuracies and misrepresentations undermine trust between some agency stakeholders and OIT.
 - a. “Cost savings” terminology exacerbates tension between OIT and agencies when they do not see savings passed down in their allocations.
 - b. Greater distrust of technology leads to lower efficiencies and effectiveness.
 - c. Some agencies perceive a lack of transparency with regard to how OIT has quantified greater efficiency and effectiveness.
2. OIT cannot quantify cost savings on IT projects including data center consolidation.
3. Not providing justification of cost savings to agencies leads to lower customer satisfaction.
4. On average over the last seven years, a larger percentage of total agency budgets supports IT rather than programmatic needs (see table 5.2.2 above). When this occurs, some agencies perceive this as a reduction to their programmatic service (as determined by interviews and indirectly supported through survey data), particularly when these costs relate to additional expenditure on IT systems/programs not strongly desired by the agency. This can result in a perception of not serving their constituents well.

5.2.6 Recommendation No. 3

The Governor’s Office of Information Technology (OIT) should improve savings and efficiencies by:

- A. Revising the annual report to separate the costs savings generated through consolidation and implementation of newer technologies from cost avoidance and following OIT’s adopted standards for cost-benefit analysis (CBA) and for calculating cost savings. As a result, reporting is enhanced and additional cost savings should be documented.

- B. Working with agencies to ensure that a thorough CBA for all significant IT projects is conducted, documenting baselines in the business case, and conducting post-project reviews to analyze whether cost savings were achieved.
- C. Ensuring that cost savings rationale for all significant IT projects is communicated to agencies.
- D. Championing discussions for a transition from technology assets (routers, hubs, servers, desktops, etc.) funded through legislative decision items to a model where OIT is given the spending authority to manage technology assets under its control, but with controls on spending (evaluate placing a growth cap on IT budget increases as recommended in 11.A).

5.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

- A. Agree. Implementation Date: November 2019

True cost savings on technology implementations is usually realized in the executive branch agencies through improved business processes and not directly through OIT. Therefore, OIT will partner with agencies to achieve better visibility into cost avoidance and cost savings. To the extent achievable, this information will appear in the next annual report by November 2018. OIT will fully implement this recommendation by November 2019. It should be noted that OIT does not believe its annual reports have misrepresented cost savings as the annual report provides a combined total for cost savings and cost avoidance and not a separate total for each.

Auditor's Addendum:

It is unclear from this response if OIT intends to report cost avoidance separately from cost savings as per the recommendation. It is also unclear if OIT will use the required Cost Benefit Analysis (CBA) to document expected cost savings and expected cost avoidance.

- B. Agree. Implementation Date: June 2019

OIT will partner with executive branch agencies to document CBA during actual project gating including baselines and follow up measurements to ascertain whether cost savings were achieved. However, it should be noted that CBA usually occurs during the budget request phase of the initiative and it is not a project within OIT at that time. Therefore, OIT will review its current process and determine if shifting CBA to earlier in the process and prior to funding approval is appropriate. Without proper alignment of eventual funding, this can limit transparency and accuracy of ultimate total costs. Relevant adjustments to the OIT-owned process will be implemented by June 2019.

- C. Agree. Implementation Date: June 2019

OIT will partner with executive branch agencies to mutually understand the cost savings rationale for all significant IT projects as defined by Executive Governance standards. OIT will communicate this rationale during initial phases of the projects and during a post implementation review session. Relevant adjustments to the OIT-owned process will be implemented by June 2019.

D. Agree. Implementation Date: March 2019

OIT will initiate a discussion with the Governor's Office of State Planning and Budgeting and the Joint Budget Committee, as appropriate, on championing a model where OIT is given the on-going spending authority to manage technology assets under OIT control.

Auditor's Addendum:

Although OIT agrees, they do not agree with the added governance recommended in 11A. Since these two recommendations (3D and 11A) are closely tied, without new governance (Recommendation 11A), the efficiency gains inherent in OIT fully managing financial and operational control of assets may not be realized.

6.0 IT Billing Practices

OIT is funded through reappropriated funds and recovers a majority of its costs from cost allocations to departments, which are appropriated funding in their annual budgets to pay for the OIT services provided. This allocation methodology is called common policy. Departments receive an appropriation in the Long Bill for this allocation called “Payments to OIT.” OIT also recovers costs by direct billing to departments, which is done separately from common policy.

In 2015, a survey of state CIOs done by the NASCIO identified 83.0%⁸ of states using a “shared service model” where technology is consolidated in a technology organization and billed back to agencies based on their portion, or share, of the use. The common policy billing from OIT is the State’s version of the shared service model. The primary reason that organizations move to a shared service model is they reduce costs for a given service level through reductions in duplication, economies of scale, and ability to focus on service delivery.

However, funding the shared service model requires billing back to agencies, and in NASCIO’s 2017 state CIO survey, 50.0%⁹ of CIOs identified their funding or recovery model as the primary obstacle for the CIO becoming a partner with agency leads on enhancing service delivery (delivery broker). Further complicating billing is that agencies receive funding in many different ways, both internally (e.g., different tax types) and externally (e.g., federal funding). While the shared service model has been identified as a cost-effective way of delivering services, billing out these services requires good metrics, good governance, and good communication.

6.1 Evaluation Question: IT Billing Practices

HB17-1361 adds Section 24-37.5-803 (2)(a)(III), C.R.S. and requires the evaluation of:

“Whether OIT’s practice of billing state agencies for information technology services has:

- A. Resulted in efficiencies or long-term cost savings for the state and*
- B. What effect such practice has on accounting processes and employee costs for state agencies.”*

6.1.1 Answer to Questions A and B

We determined that OIT’s practice of billing State agencies does not provide an effective measure to assess efficiencies or long-term cost savings, including employee costs, for the State resulting from the IT consolidation. However, employee costs for State agencies have increased due to average OIT costs rising at a faster rate than the average growth rate of State agencies as determined by appropriations from FY11 – FY18 (Table 5.2.2). Accounting practices are complex due to the reconciliation/true-up process used to account for variations

⁸ <https://www.nextgov.com/feature/2015-state-cio-survey/>

⁹ https://www.nascio.org/Portals/0/Publications/Documents/2017/NASCIO_2017_State_CIO_Survey.pdf?ver=2017-10-25-174540-510

from budgeted amounts compared with actual usage. Additional detail related to our findings and recommendations for improvement are detailed below.

6.2 Related Findings and Recommendations

6.2.1 What Work Was Performed?

We performed the following tasks:

- Inquiries of CIOs from other states about how they bill for technology
- Detailed review and analysis of the common policies billing data, focusing on FY15 – FY18 true-up data
- Review of overall billing data from FY15 – FY17 including common policy, Interagency, and Telecom billing
- Review of annual reports
- Interviews with key OIT personnel
- Interviews with selected agencies
- Review of OIT user survey results
- Review of historical long bills
- Review of OIT financial office websites
- Review of cost savings and cost avoidance materials provided by OIT
- Review of sample common policy presentations for agencies
- Review of purchase catalogs
- Our analysis focused on billing data from recent years because the data format became more consistent and comparable after FY15, but we leveraged publicly available financial data going back to 2008

6.2.2 How Were the Results of the Work Measured?

The table below describes the criteria against which the current state of IT billing practices was measured. The criteria are best practices selected based on BerryDunn's expert opinion.

Table 6.2.1: Best Practices for Evaluating OIT's IT Billing Practices

ID	Best Practice	Source
1	State and local governmental financial reports should possess these basic characteristics: understandability, reliability, relevance, timeliness, consistency, and comparability.	Governmental Accounting Standards Board (GASB) Concept Statement No.1, Objectives of Financial Reporting, N.d.

ID	Best Practice	Source
2	<p>Assist in Assessing Accountability</p> <ol style="list-style-type: none"> 1. Financial reporting should assist in fulfilling government's duty to be publicly accountable and should enable users to assess that accountability by: <ol style="list-style-type: none"> a. Providing information to determine whether current-year revenues were sufficient to pay for current-year services. This objective implies that financial reporting should enable the assessment of interperiod equity. b. Demonstrating whether resources were obtained and used in accordance with the legally adopted budget and should demonstrate compliance with other finance-related legal or contractual requirements. c. Providing information to assist users in assessing the governmental entity's service efforts, costs, and accomplishments. Such information will help users assess government's efficiency and effectiveness. 	<p>GASB Concept Statement No.1, Objectives of Financial Reporting, N.d.</p>
3	<p>Financial reporting may take many forms depending on numerous factors, such as whether the messages are intended for use by internal management or by external users or whether the messages are intended for a specific use or a general use.</p>	<p>GASB Concept Statement No. 3, Communication Methods in General Purpose External Financial Reports That Contain Basic Financial Statements, N.d.</p>
4	<p>To promote achievement of the objective of service efforts and accomplishments (SEA) reporting, SEA information should focus primarily on measures of service accomplishments (outputs and outcomes) and measures of the relationships between service efforts and service accomplishments (efficiency); SEA information also should meet the characteristics of relevance, understandability, comparability, timeliness, consistency, and reliability.</p>	<p>GASB Concept Statement No.2, Service Efforts and Accomplishments Reporting, N.d.</p>
5	<p>To facilitate the process of decision-making in the context of the public administration system and budgetary cycle, ideally a governmental entity should establish and communicate clear, relevant goals and objectives; set measurable targets for accomplishment; and develop and report indicators that measure its progress in achieving those goals and objectives (measures of performance).</p>	<p>GASB Concept Statement No.2, Service Efforts and Accomplishments Reporting, N.d.</p>

ID	Best Practice	Source
6	<p>Accountability is a relationship between those who control or manage an entity and those who possess formal power over them. It requires the accountable party to provide an explanation or a satisfactory reason for his or her activities and the results of efforts to achieve the specified tasks or objectives.</p>	<p>GASB Concept Statement No.1, Objectives of Financial Reporting, N.d.</p>
7	<p>From a functional perspective, accountability has been presented in the form of a ladder comprising five distinct levels. The levels move from more objectively measured aspects (legal compliance) to aspects requiring more subjective measures (policies pursued and rejected). The ladder is generally consistent with the analysis of the AAA's committee.</p> <p>Level 1: Policy accountability– election of policies pursued and rejected (value)</p> <p>Level 2: Program accountability – establishment and achievement of goals (outcomes and effectiveness)</p> <p>Level 3: Performance accountability – efficient operation (efficiency and economy)</p> <p>Level 4: Process accountability – using adequate processes, procedures, or measures in performing the actions called for (planning, allocating, and managing)</p> <p>Level 5: Probity and legality accountability – spending funds in accordance with the approved budget or being in compliance with laws and regulations (compliance)</p>	<p>GASB Concept Statement No.2, Service Efforts and Accomplishments Reporting, N.d.</p>
8	<p>The Elements of SEA Reporting</p> <ol style="list-style-type: none"> 1. Measures of efforts: <ol style="list-style-type: none"> a. Financial information: This information includes financial measures of expenditures/expenses. These measures include the cost of salaries, employee benefits, materials and supplies, contract services, equipment, and so forth, for providing a service. b. Nonfinancial information <ol style="list-style-type: none"> i. Number of personnel: Because personnel are the major resource, indicators that measure the number of full-time equivalent (FTE) employees or employee-hours used in providing a service often are appropriate measures of resources used. These measures have the effect of removing wage, benefit, and 	<p>GASB Concept Statement No.2, Service Efforts and Accomplishments Reporting, N.d.</p>

ID	Best Practice	Source
	<p>cost-of-living differences from the resource inputs, and may facilitate comparisons over time and with other organizations</p> <ul style="list-style-type: none"> ii. Other measures: These may include the amount of equipment (i.e., number of vehicles) or other capital assets (i.e., lane-miles of road or acres of park land) used in providing a service iii. Measures of accomplishments: Accomplishment measures report what was provided and achieved with the resources used <ul style="list-style-type: none"> • Output measures • Outcome measures <p>2. Measures that relate efforts to accomplishments:</p> <ul style="list-style-type: none"> a. Efficiency measures that relate efforts to outputs of services: These indicators measure the resources used or cost (e.g., in dollars, employee-hours, or equipment used) per unit of output. They provide information about the production of an output at a given level of resource use and demonstrate an entity's relative efficiency when compared with previous results, internally established goals and objectives, generally accepted norms or standards, or results achieved by similar jurisdictions. <p>Cost-outcome measures that relate efforts to the outcomes or results of services: These measures report the cost per unit of outcome or result. They relate costs and results so that management, elected officials, and the public can begin to assess the value of the services provided by an entity.</p>	
9	<ul style="list-style-type: none"> 1. Capital assets should be depreciated over their estimated useful lives unless they are either inexhaustible or are infrastructure assets reported using the modified approach in paragraphs 23 through 25. 2. Depreciation expense for capital assets that can specifically be identified with a function should be included in its direct expenses. Depreciation expense for "shared" capital assets (for example, a facility that 	<p>GASB Statement No. 34, Basic Financial Statements and Management's Discussion and Analysis for State and Local Governments, June 1999</p>

ID	Best Practice	Source
	<p>houses the police department, the building inspection office, and the water utility office) should be ratably included in the direct expenses of the appropriate functions.</p> <p>3. Depreciation expense for general infrastructure assets should not be allocated to the various functions. It should be reported as a direct expense of the function (for example, public works or transportation) that the reporting government normally associates with capital outlays for, and maintenance of, infrastructure assets or as a separate line in the statement of activities.</p>	

6.2.3 What Findings Did the Evaluation Identify?

We identified the following findings with billing practices:

1. Agency-owned IT capital assets are not billed on a depreciation basis. These capitalized assets are being purchased by OIT and billed to agencies on a cash basis (with the agency having spending authority) and then depreciated by agencies, rather than OIT purchasing the asset (with OIT having spending authority) and charging the agencies for the annual depreciation expense.
2. As a result of OIT attempting to work with agencies through various meetings to provide billing transparency, OIT’s billing calculation is complicated and difficult to understand.
 - a. The complexity of the billing calculation is magnified by the frequent changes in the use of service codes, as well as changes in the financial reporting format. These changes are frequently the result of specific agency requests.
 - b. OIT’s billing practice relative to common policies lacks a financial report that is consistent, comparable, and easy to understand. OIT has worked to update common policy reporting as a result of agency feedback.
 - c. Agencies, both centralized and non-centralized, are not involved in the prioritization process of enterprise-wide IT spending, and the agencies feel (through interviews) the IT spending focuses too much on Statewide outcomes and does not reflect their individual needs.
 - d. OIT communication to the centralized and non-centralized agencies focuses on the processes of how OIT bills are calculated and presentation of cost for the coming year. OIT utilizes communication channels that include (but are not limited to) service narratives and catalog, OIT budget documents, and OIT Roadshow presentations. However some important components can be improved, such as:

- i. Aggregated and summarized cost comparison by service: The OIT common policy presentation shows the cost, utilization, and allocation rate for the upcoming fiscal year by service codes, but the presented data does not tell stories more meaningful to agencies, such as how much the cost of certain aggregate services has decreased or increased and what services have been added or eliminated.
 - ii. Reasons behind the changes: OIT's presentation explains what components can affect the charges, but it does not explain why. Interviews with agencies identified interest in knowing why certain bills are included as a change request and why they are beneficial to the agency.
- e. Additionally, survey data showed room for improvement communicating OIT billing details across State agencies.
- i. 13.7% of survey respondents (who self-identified as a decision-maker for the IT services used by their agency) agree that their agency or organization understands how the charges OIT is billing to the agency or organization are calculated and what they are for
 - ii. 6.5% of survey respondents (who self-identified as a decision-maker for the IT services used by their agency) agree that changes in charges billed by OIT are explained and communicated clearly
 - iii. 7.4% of survey respondents (who self-identified as a decision-maker for the IT services used by their agency) agree that their agency or organization receives service levels from OIT consistent with what they pay OIT.

6.2.4 Why Did the Findings Occur?

1. Ownership of IT assets and recording of related depreciation has been historically retained by the agencies. (See Recommendation 2)
2. While OIT billing incorporates maintenance costs for assets it owns, the State has maintained a process where the agencies purchase the assets or they request funding, through a Decision Item (DI), within their annual budget requests for assets OIT does not own. The funding sources are leveraging one-time funds, yet most assets purchased will require refresh at the end of their useful life, requiring additional funds.
3. Ninety-one unique service codes have been used in the billing of common policies between FY15 and FY19. Of the 91, only 20 codes (22%) were used for the consecutive five years, and from FY15 through FY19, 42 codes (46%) were used only in one year. Of the 42 codes, 33 were for the services included in special bills. Although it is our understanding that OIT is required to track the cost of these special bill items separately, which may necessitate use of a unique service code, a better-defined grouping of service codes may have made it easier to track the costs of related services. In addition,

and because the common policy matrix only tracks the cost by service code, not by services, the actual cost of services cannot be easily determined (i.e., due to mainframe service code changes, the total costs of mainframe services are difficult to identify).

4. Inconsistencies in service codes, complexities of common policy billing, and lack of effectiveness in communicating why many decisions were made are significant factors in the billing confusion among agencies. For example, mainframe service codes have changed to provide greater transparency to a specific agency, which makes historical reporting on mainframe costs difficult, if not impossible.

6.2.5 Why Do These Findings Matter?

1. One of the charges of the original consolidation bill was to centralize the IT assets in OIT. As the funding remains decentralized in the agencies and significant funding is acquired through legislative decision items, assets will remain decentralized until mechanisms to reconcile the difference between centralized assets with decentralized funding are addressed. Industry best practice has shown a greater potential for cost savings exists and information security is enhanced when assets are consolidated. While OIT has consolidated the operations of assets, opportunities for efficiency and cost savings will be missed until assets are “owned” by OIT throughout their entire life cycle.
 - a. Frequently resulted in funds not being available to refresh equipment on a timely basis
 - b. Additional stress on the relationship between OIT and agencies
 - c. Spending is not consistent from year to year, making it harder to plan
 - d. Equipment is not always refreshed at End-of-Life (EOL) leading to a reduction in efficiency and effectiveness
 - e. Portion of the management and reduction of IT spending is outside the purview of OIT, potentially leading to less efficient or effective operations
 - f. While capitalized assets are being depreciated correctly, OIT is missing an opportunity to make billing more consistent and make technology refresh more efficient
2. The inconsistencies observed in the use of service codes make it difficult to compare the cost of a particular service, year to year, and identify the trends. It also makes it difficult to identify factors that may have caused an increase or decrease in the cost over time. This lack of transparency capability is reflected in the purchase catalog. For example, in the FY17 – FY18 Purchase Catalog, the historical cost of service code 2101 for mainframe services is presented to show a drastic decrease from \$5.0 million to \$2.0 million from FY17 to FY18. OIT does not clearly explain that a new service code of 2110, “MF computing operation,” has been added and whether some of the services historically reported under 2101 were transferred to 2110.

- a. The matrix does not track input and output for each service in a measurable and consistent manner; therefore, it does not provide information regarding the efficiency of services OIT provides and resulting cost savings.
- b. The survey conducted showed, and interviews confirmed, that agencies, both centralized and non-centralized, are not confident that they understand what they are billed for and why, and they feel that they are not involved in the periodization process of IT spending for which they are ultimately charged. This uncertainty and invisibility is creating frustration and lack of trust.

6.2.6 Recommendation No. 4

The Governor's Office of Information Technology (OIT) should consider improving technology billing by:

- A. Purchasing all capital technology assets (see Recommendation 2) and billing those assets to agencies on a depreciation basis. Develop a method to clearly identify and control refresh dollars that would hold collected depreciation funds for equipment refreshes; work with appropriate parties such as the OSPB or the General Assembly as needed to accomplish this.
- B. Simplify the OIT billing process to:
 - a. Evaluate and significantly reduce the number of units of measure used to compute OIT bills for departments, focusing heavily on measures that are less technical and more easily understood by customers and the business yet still meeting any requirements for reporting to outside funding sources (e.g., federal).
 - b. Improve financial reporting consistency and comparability by minimizing changes to the service codes.
 - c. Include newly created financial reporting that is consistent and comparable (maintaining consistent service codes will help, but new reporting is required to compare historical data). The format and measurement units (i.e., services included in a cost item) should be consistent and comparable year to year.
 - d. In support of recommendation 4.A, each agency should be provided with a financial report of its portion of assets used to increase the transparency of financial reporting funded through all of its funding sources and meets its requirements for IT reporting.

6.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

- A. Agree. Implementation Date: March 2019

OIT will work the Governor's Office of State Planning and Budgeting and General Assembly, as appropriate, to move full financial control of IT assets to OIT. If this

change happens, OIT will utilize depreciation collected on such assets for technology refresh.

B. Agree. Implementation Date: September 2019

In effort to make the billing process more easily understood by its customers, OIT will evaluate its billing process to determine if reductions in service codes can be made and subsequently attempt to limit changes to the service codes. OIT will create a new financial report that assists in comparing services on a year over year basis. If OIT receives full financial control of assets as noted in recommended no. 4, OIT will develop an IT asset report for agencies.

Auditor's Addendum:

It is unclear if OIT plans to "significantly reduce" the number of units of measure used to compute OIT bills for departments.

7.0 Strategic Plan for Use of Consultants, Vendors, or Other Organizations to Centralize State IT Resources

As organizations strive to be more efficient and effective, their strategic use of sourcing for personnel and services is an area of focus. A 2014 NASCIO survey of state CIOs¹⁰ noted that the use of partial outsourcing of services had almost doubled from 42.0% of states in 2010 to 81.0% of states in 2014. In the follow-on CIO survey in 2015¹¹, the NASCIO executive summary said:

“As their responses showed, the dominant future business model for the state CIO organization will be a shared services organization leveraging managed services and application outsourcing to deliver a significant proportion of the service portfolio. We also asked CIOs to what extent they saw their state CIO organization migrating from a direct provider of services to a ‘broker’ of services. Every respondent stated that they expected in the future to be functioning as a broker of services for at least some of their services.”

7.1 Evaluation Question: Strategic Plan for Use of Consultants, Vendors, or Other Organizations to Centralize State IT Resources

HB17-1361 adds Section 24-37.5-803 (2)(a)(IV), C.R.S. and requires the evaluation of:

“Whether OIT has a strategic plan, or its equivalent, to use consultants, vendors, or organizations such as the Statewide Internet Portal Authority to realize the original and ongoing objectives of centralizing the management of state agency information technology resources.”

7.1.1 Answer to Question

OIT has a strategic plan called the OIT Playbook (Playbook) that is intended to define “OIT’s priorities and provides a strategic and operational roadmap for today and the future.” However, the OIT Playbook does not, nor did OIT management intend it to, specify where consultants, external cloud providers, vendors, or organizations such as the Statewide Internet Portal Authority (SIPA) are leveraged to realize the objectives of centralizing the management of state agency IT resources. OIT communicates with its vendors using other communication methods (such as but not limited to): conducting vendor days to meet with the vendor community, providing strategy to vendors as part of specific project Request For Proposals (RFP), and developing agency roadmaps annually that identify significant IT projects for a five-year period. This communication from OIT to the vendor community is in keeping with the communication strategies used in other states. In some cases, the best practice shared by other state CIOs was that over-sharing of strategy with the vendor community could place the state at a disadvantage.

¹⁰ https://www.nascio.org/Portals/0/Publications/Documents/2014_State_CIO_Survey_FINAL.pdf

¹¹ https://www.nascio.org/Portals/0/Publications/Documents/2015/NASCIO_2015_State_CIO_Survey.pdf

The only consensus regarding these evolving best practices related to the adoption of cloud services and the use of managed service providers.

The strategy for sourcing services from the cloud is provided in OIT's 2011 Cloud Strategy that states, "Colorado is adopting the cloud first policy and expects to transition most services to cloud computing from 2011 through 2021. As part of this policy, Colorado will look to cloud provisioning first in new or expanded deployments of applications or services. Subsequently, existing applications will be evaluated for transitioning to a cloud platform." The services provided by the partnership between SIPA and its contractor, Colorado Interactive (CI), do not strictly meet the NIST definition of a cloud service referenced in OIT's Cloud Strategy, yet share many of the same attributes. While SIPA serves primarily web services, it can also serve as a consolidation point for many license or service agreements with external partners. As SIPA serves a larger customer base than OIT, existing license and service agreements apply to more of the State, and SIPA has greater flexibility with purchasing due to it being a state authority rather than a state agency.

7.2 Related Findings and Recommendations

7.2.1 What Work Was Performed

The work performed included the following tasks:

- Stakeholder interviews with OIT leadership
- Review of OIT strategic planning documentation, current and historical
 - OIT Playbooks and Annual Reports
 - OIT Cloud Strategy
 - RFPs and OIT presentations
 - OIT project planning material
- Review of OIT procurement plans, policies, and procedures
 - OIT publications including standards and policies
- Interviews with key OIT personnel
- Interviews with select agency personnel
- Interview with SIPA leadership
- Publicly available websites

7.2.2 How Were the Results of the Work Measured?

Nothing in SB 08-155, or any subsequent State legislation, requires OIT to use consultants, vendors, or organizations such as SIPA to realize the original and ongoing objectives of centralizing the management of state agency IT resources.

We did not identify any documentation contending the use of consultants, vendors, or quasi-governmental organizations is a best practice approach for centralizing State IT resources. However, we did identify some evolving best practices from NASCIO and some guiding principles that OIT has adopted.

Table 7.2.1 Criteria for Evaluating OIT’s Strategic Planning for Use of Consultants

ID	Criteria	Source
1	OIT has a 2011 document that details its cloud strategy and says: <i>“Colorado is adopting the Cloud First policy and expects to transition most services to cloud computing over the next ten years. As part of this policy, Colorado will look to cloud provisioning first in new or expanded deployments of applications or services. Subsequently, existing applications will be evaluated for transitioning to a cloud platform.”</i>	OIT website
2	NASCIO has identified sourcing as an important strategy for states and “cloud services” have consistently been among the top 10 priorities.	NASCIO CIO Survey
3	NASCIO has identified managed services as a significant factor with over 50.0% of CIOs responding that they plan to expand managed services consistently in each annual survey over the past five years (2012 – 2017)	NASCIO CIO Survey
4	<p><i>“OIT is charged with coordinating the effort to consolidate IT procurements and has been statutorily directed to:</i></p> <ul style="list-style-type: none"> <i>• Initiate or approve all procurements of IT resources for state agencies and enter into any agreement or contract in connection with such a procurement on behalf of a state agency or agencies</i> <i>• Coordinate with and provide assistance, advice, and expertise in connection with business relationships between state agencies and private sector providers of information technology resources</i> <i>• Aggregate information technology procurements for one or more state agencies.”</i> 	OIT’s website has a page titled “Procurement & Vendor Services

7.2.3 What Finding Did the Evaluation Identify?

We identified the following finding:

1. Vendor-managed services are not specifically referenced in OIT’s 2011 cloud strategy document. OIT’s cloud strategy is on its website and is dated 2011. BerryDunn was advised through interviews that the document remains a guiding principle; there have only been minor updates made to this document since that time.

7.2.4 Why Did the Finding Occur?

1. While OIT has updated its cloud strategy as part of the annual agency roadmaps and for specific projects in RFPs, OIT's 2011 cloud strategy has not been kept current.

7.2.5 Why Does This Finding Matter?

1. Without an updated and clearly defined strategy for using external cloud providers, vendors or managed service organizations, it may be difficult to communicate management's vision, direction, and plans for using them to support OIT's mission and business objectives, including centralizing the management of state agency IT resources. In turn, this may lead to confusion or a lack of understanding by external and internal stakeholders or other interested parties, which ultimately could adversely impact service delivery opportunities or quality of service.
2. Cloud services and managed services have changed dramatically over the last seven years, as has OIT's use of these services. Many more robust offerings are now available that were not mature in the 2011 timeframe. Not having an updated strategy could cause OIT and State agencies lost opportunities if not leveraging them strategically or with purpose.

7.2.6 Recommendation No. 5

The Governor's Office of Information Technology (OIT) should strategically plan for the use of consultants, vendors, or other organizations to centralize State IT resources by reviewing annually (and updating as necessary) the 2011 OIT cloud strategy to reflect significant changes in the adoption, value, and technology of recommended services.

7.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

Agree. Implementation Date: December 2018

OIT will review and update its 2011 cloud strategy to reflect changes in industry, adoption, value, and technology by December 2018. OIT has already taken steps in this area by forming a cloud governance sub-committee and an operation team focused on cloud solutions.

While OIT agrees outsourcing has been a trend in the private sector, starting in 2015 this trend slowed among states. The trend has been driven by a review of real costs, loss of in-house intellectual knowledge, and several large-scale outsourcing failures. OIT agrees that small strategic outsourcing is a growing and valuable trend for states and private-sector organizations. For example, OIT recently outsourced a portion of security operations where OIT could no longer meet agencies demands with existing resources or locate properly skilled individuals in the market. The State has already shifted quite a few of its applications and services to third parties for direct or indirect support. Large-scale outsourcing is not an OIT strategy as such projects are typically not cost effective and do not meet required service levels.

Auditor's Addendum:

It is unclear how often OIT will review its cloud strategy. Given the pace of change in the industry, an annual review is recommended.

8.0 IT Project Evaluation and Selection Process

The State's current process for IT project strategic planning occurs at both the enterprise (statewide) level and the agency-level for agency line of business technology needs.

- In 2015, the JTC requested that OIT collaborate with its agency customers to create Five Year IT Roadmaps.
- Using a standard template, each agency, including OIT, creates a Five-Year IT Roadmap to align technology needs with agency business goals. The purposes of the roadmaps are to:
 - Establish a five-year planning horizon to better understand funding needs
 - Leverage best practices to reduce complexity and maximize resources
 - Align technologies across agencies to deliver more consistent and reliable service
 - Define technology priorities to ensure appropriate balance of critical functions versus innovative outputs
- The first round of roadmaps was submitted in 2016
- The roadmaps are intended to be “living documents” that are updated once per year
- The OIT roadmap addresses OIT enterprise initiatives, defined as OIT-led projects that apply to all or most customer (centralized) agencies and may be mandated or offered to agencies optionally. Each agency roadmap includes an Appendix A: Enterprise Roadmap, and Appendix B: Enterprise Initiative Details

The State's current process for IT project evaluation, prioritization, and selection occurs within the agencies, using processes developed by OIT. OIT has created the Project Lifecycle Management (PLM) Reference Guide Ideation (Discovery & Intake) to outline the process for agencies to follow to plan an IT project. The reference guide outlines the individuals involved from OIT and agencies, roles and responsibilities, steps to be followed, and forms and tools to be used. A summary of the key steps follows:

- Agencies lead planning for both ongoing IT maintenance and new projects. Agency IT Steering Committees (ITSCs) prioritize their own projects based on needs and budgets using the OIT-defined process, then submit those projects to OIT for approval and creation of a decision item.
 - Projects are categorized based on size and information security risk. Executive Governance projects are \$100,000 or more and typically involve projects that have a greater security risk. Local projects of less than \$100,000 do not have to go through the agency ITSC, resulting in less agency oversight for these projects.

- The stated IT project planning and selection process includes performance of a Risk Assessment and a Cost Benefit Analysis (CBA)
- OIT sends a compiled list of projects to the Office of the Governor's Office of State Planning and Budgeting (OSPB)
- OSPB presents the final budget requests to the JBC, which can ask about specific projects, or request the JTC to review the request. The JTC is required by statute to review all IT projects over \$500,000.
- Once the budgets are approved by the legislature, OIT assigns resources such as business analysts and project managers to support and lead the project.

8.1 Evaluation Question: IT Project Evaluation and Selection Process

HB17-1361 adds Section 24-37.5-803 (2)(b)(I), C.R.S. and requires the evaluation of:

"Whether the Executive Branch has a strategic plan, or its equivalent, in place to guide its process for evaluating, prioritizing, and selecting information technology projects that require new or ongoing appropriations of state money, including but not limited to:

(I) The efficiency and effectiveness of the state's current process for information technology project evaluation, prioritization and selection, including a cost-benefit analysis, and whether OIT, state agencies, the Governor's Office, or the Joint Technology Committee or Joint Budget Committee could make any changes or improvements to the process;"

8.1.1 Answer to Question

The Executive Branch has a strategic plan to guide its process for evaluating, prioritizing, and selecting IT projects that require new or ongoing appropriations of State money. The annual OIT Playbook provides the strategic plan for OIT, using the strategic planning methodology selected by the Governor's Office (e.g., the 4 Disciplines of Execution). Each centralized agency, including OIT, creates an agency-specific IT strategic plan called a Five Year IT Roadmap that elaborates the specific IT projects and timelines for the agency.

The State's current process for IT project evaluation, prioritization, and selection, including a CBA, is not wholly effective. The CBA is not regularly completed, and agencies sometimes bypass parts or all of the process due to a perceived lack of value (based on interviews). Based on input from agencies through interviews and survey responses, we determined the process has room for improvement.

We asked survey respondents (excluding OIT who self-reported as having a decision-making role with their agency's use of IT and also had experience in the last 12 months with project evaluation, prioritization, or selection) to rate the effectiveness and efficiency of the project selection process in the consumer satisfaction survey. There were 146 survey respondents who met the criteria to answer questions related to project process effectiveness and efficiency. Below are the results, based on a scale of 1 to 5, with 1 being "Not effective/efficient at all" and 5 being "Very effective/efficient":

- With regard to effectiveness:
 - 21.9% responded with a 4 or a 5
 - 39.7% responded with a 1 or a 2
- With regard to efficiency:
 - 21.9% responded with a 4 or a 5
 - 50.0% responded with a 1 or a 2

The following section provides additional detail related to our findings and recommendations for improvements to the project selection process.

8.2 Related Findings and Recommendations

8.2.1 What Work Was Performed?

In order to understand whether the project selection process was efficient and effective, BerryDunn sought to understand how the selection process worked, what projects had been selected, and how the process had worked for specific projects/agencies. We approached this question by requesting documentation describing the OIT project selection policies, processes, and procedures, as well as project-specific documentation related to a sample of six projects that underwent the current project selection process. In addition, we conducted interviews with OIT staff and agency staff involved in the six selected projects. We worked with OIT to select a group of projects representative of different sizes and scopes.

We reviewed the following six projects:

- CDA: AgLicense
- CDHS and HCPF: CBMS (Colorado Benefits Management System)
- CDLE: Telephony Modernization
- DOR: DRIVES (Driver License, Record, Identification, and Vehicle Enterprise Solution)
- DPA: CORE (Colorado Operations Resource Engine)
- DPA: HRWorks

We met with OIT central office staff, OIT staff assigned to agencies and projects, and agency staff and held a separate meeting for each project with the OIT director assigned to the agency and the project manager for the selected project. During the project-specific meetings, we confirmed the project selection role of the OIT staff assigned to each agency, and the role of the steering committee within each agency. These meetings allowed us to learn more about each project and understand how OIT acted within each agency. Finally, we also met with OSPB staff about project selection.

The Customer Satisfaction Survey was also used to gather information from stakeholders about the efficiency and effectiveness of the project selection process, and opportunities for improvement.

8.2.2 How Were the Results of the Work Measured?

The table below describes the criteria against which the current state was measured. The criteria are Colorado Revised Statutes (C.R.S.) and OIT processes and procedures.

Table 8.2.1: Criteria for Evaluating the Project Selection Process

ID	Criteria	Source
1	<p>“any new or amended information technology budget request or supplemental information technology budget request submitted to the joint technology committee pursuant to this paragraph (c.5) must clearly identify and quantify anticipated administrative and operating efficiencies or program enhancements and service expansion through cost-benefit analyses and return on investment calculations.”</p>	<p>Colorado HB 15-1266 C.R.S 24-37-304(1)(c.5)(V)</p>
2	<p>“(3) The office [OIT] shall: (h) Oversee and supervise the maintenance of information, information technology, and the initiation of any information technology updates or projects for state agencies; (i) Initiate or approve all procurements of information technology resources, enterprise facilities, and any goods or services related to such procurements for state agencies and enter into any agreement, contract, or enterprise agreement in connection with such procurements on behalf of a state agency or agencies;”</p>	<p>C.R.S 24-37.5-105(3)(h) and (i)</p>
3	<p>“(1) The chief information officer shall: (a) Monitor trends and advances in information technology resources, direct and approve a comprehensive, statewide, four-year planning process, and plan for the acquisition, management, and use of information technology. The statewide information technology plan shall be updated annually and submitted to the Governor, the joint technology committee, the speaker of the house of representatives, and the president of the senate. (b) Require state agencies to participate with and advise the office on the creation of an information technology plan for such agency as part of the state's planning and budgeting process. Such plans shall: (l) Be in compliance with the state's annual information technology plan;</p>	<p>C.R.S 24-37.5-106</p>

ID	Criteria	Source
	(II) Specify the state agency's information technology procurement and system acquisition plans for the planning period; and (III) Identify risks, issues, and concerns with the agency's information technology infrastructure.”	
4	“(f.5) Approve a set of minimum standards to control purchases of information technology resources by the office for state agencies and approve criteria to be used in approving or rejecting state agency requests for procurements of information technology resources;”	C.R.S 24-37.5-106
5	Project Lifecycle Management (PLM) Reference Guide Ideation (Discovery & Intake)	OIT Processes and Procedures

8.2.3 What Finding Did the Evaluation Identify?

We identified the following finding regarding the project selection process:

1. Agencies sometimes bypass the OIT-prescribed project evaluation, prioritization, and selection process, or parts of it, such as the CBA, and select IT services, products, and vendors and enter into IT-related contracts without OIT involvement.

8.2.4 Why Did the Finding Occur?

This finding occurred for several reasons including the following:

1. OIT Agency IT Directors have varied levels of visibility into their agency’s technology planning efforts and input into the conception and planning phases of projects across the agencies.
2. Most OIT Agency IT Directors have voting privileges on the agency ITSC; some do not.
3. Some agencies admit they do not fully understand the OIT project evaluation, prioritization, and selection process (supported by interviews and survey responses) and find it time-consuming (per interviews) and do not always see its value (per interviews).
4. Agencies may not have a clear understanding of what projects and purchases fall under the definition of IT since all projects have a business purpose yet they achieve that business purpose using technology. Agencies are not always clear on the difference between a business project and a technology project.
5. During face-to-face interviews, some representative agencies reported lack of clarity regarding OIT’s purpose and role in the IT project evaluation, prioritization, and selection process.

8.2.5 Why Does This Finding Matter?

When agencies bypass the OIT project evaluation, prioritization, and selection process and statutorily required procurement regulations:

1. Agencies may be making IT purchases that:
 - a. May not leverage enterprise solutions or licensing and product agreements OIT has negotiated, and therefore may not be the most cost-effective solution
 - b. May not conform to the State's identified solution architecture, hardware standards, or software standards, which can lead to difficulty supporting and maintaining the IT purchase or incompatibility with other systems
 - c. May not get inventoried by OIT as an IT asset and, therefore, the purchased asset may not get incorporated into OIT's enterprise security infrastructure, thereby potentially exposing the State to security risks
2. OIT's effectiveness may be limited in subsequent project management and/or oversight phases

8.2.6 Recommendation No. 6

The Governor's Office of Information Technology (OIT) should improve the IT project evaluation, prioritization, and selection process by:

- A. Working with agency leadership to encourage them to include the OIT IT Directors assigned to each agency in strategic planning activities and regular senior leadership meetings.
- B. Ensuring that the regular meetings between OIT and agencies that garner feedback on OIT service include discussion of how variations to the project evaluation, prioritization, and selection process can be improved in order to help with adoption and buy-in at the agency level. Since agencies are met with individually by OIT, OIT should consider ways of sharing feedback from various agencies so that consensus can be achieved on proposed process variations. OIT should consider summarizing the consistent feedback and outline planned changes that resulted from meetings with agencies.
- C. Documenting and socializing a clear definition of what constitutes a technology project versus what is considered a business project in Project Lifecycle Management (PLM) materials. Documentation should include defining roles for projects for OIT and the agency (for example, which projects OIT leads, supports [but does not lead], or is not involved in).
- D. Publicizing success stories of cost savings and efficiencies attributable to the OIT evaluation, prioritization, and selection process.
- E. Continuing to have a member of the OIT Executive Leadership team meet with agency senior leadership regularly (at least two times per year), but to focus discussions on strategic alignment with IT, longer-term budget items, and opportunities for improvement.

8.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

A. Agree. Implementation Date: January 2019

OIT, with support of the Governor's Office, has worked diligently over the past years to ensure that IT Directors are part of the agency strategic planning process. Currently, the vast majority of OIT IT Directors are seen by the agencies as joint executive leaders and participate with agency strategic planning and regular senior leadership meetings today. OIT will continue to meet with agencies to encourage directors to include IT Directors in senior leader and strategic planning meetings.

Auditor's Addendum:

Although OIT agrees and have largely addressed the recommendation in their response, the OIT IT Directors need to have appropriate knowledge and experience for full inclusion in strategic planning and senior leadership meetings. OIT should assess each of the OIT IT Directors to ensure they can perform at a senior level and contribute strategically. Those IT Directors not able to contribute at a senior level should be placed on a development path or replaced.

B. Agree. Implementation Date: April 2019

OIT strives to adapt the foundational project process to the scope, investment and risk of a project. There is a very fine balance of the standardization a consolidated, shared services organization requires, accountability for disciplined and industry standard practices, and significant flexibility in approach from project to project. Agencies experience a natural resistance to process in general and the need to prioritize/schedule. OIT already holds twice annual business reviews where multiple agencies participate in providing feedback and guidance to OIT initiatives. OIT will include discussions on the project evaluation, prioritization, and selection process during agency meetings. OIT will incorporate feedback from the agencies to improve processes. Initial meetings will occur by April 2019.

C. Agree. Implementation Date: June 2019

Specific guidance as recommended is already included in major projects where agencies and OIT agree on roles, ownership, and overall governance structure. There is still room for improving broad understanding and recognition of a technology project. A guideline for what constitutes a technology project will be added to the project life cycle methodology documentation. Documentation currently includes information related to project organization and staffing. This documentation will be reviewed for opportunities to elaborate and/or clarify, including information related to project roles. Updates will be published by June 30, 2019.

D. Agree. Implementation Date: November 2018

OIT will include specific success stories related to cost savings and cost avoidance in its annual report.

E. Agree. Implementation Date: June 2019

As these meetings already occur, OIT is committed to continuing them with an emphasis on strategic alignment with IT, longer term budget items, and opportunities for improvement.

9.0 OIT Legislative Review and Reporting Processes

The JTC was created in 2013 by HB13-1079 to oversee OIT. JTC also assists the JBC in reviewing IT budget requests. According to the bill, the JTC's role includes: "review the state of information technology," "any general information technology needs," "any anticipated short-term or long-term changes for information technology," and "the office of information technology's responsibilities related to the statewide communications and information infrastructure...." The JTC makes recommendations on legislation and budgetary requests from agencies. OIT provides quarterly updates to the JTC on the status of ongoing technology projects.

The JTC was created to support the JBC due to the number and complexity of State IT projects. The JBC's responsibility, as stated on its web page, is "... studying the management, operations, programs, and fiscal needs of the agencies and institutions of Colorado state government." While the JTC considers IT projects, policy, and operations, the JBC must approve "operating budget requests related to the ongoing costs associated with the maintenance of IT systems." (See State Legislative Council Staff Issue Brief dated November 2014.) JTC also prioritizes for the JBC "significant IT budget requests (costing \$500,000 or more)." JTC must also report in writing committee findings and recommendations to the JBC by the first day of each regular legislative session.

9.1 Evaluation Question: OIT Legislative Review and Reporting Processes

HB17-1361 adds Section 24-37.5-803 (2)(b)(II), C.R.S. and requires the evaluation of:

"Whether the Executive Branch has a strategic plan, or its equivalent, in place to guide its process for evaluating, prioritizing, and selecting information technology projects that require new or ongoing appropriations of state money, including but not limited to:

Whether OIT's existing legislative review and reporting processes in connection with the Joint Budget Committee and the Joint Technology Committee are adequate."

9.1.1 Answer to Question

OIT has a Project Lifecycle Management (PLM) repository that includes various types of documentation that summarize the processes for evaluating, prioritizing, and selecting IT projects. The PLM documents (and associated policies) are posted in a shared Google drive accessible to State employee.

The existing legislative review and reporting processes are adequate for most projects but is not adequate for some. Examples of some projects that the existing legislative review and reporting process needs improvement (include but are not limited to): projects where consensus on who owns the project is unclear, or where contract negotiations are ongoing. In these instances, additional reporting would be beneficial. Additional information related to our findings and recommendations for improvement in this area is detailed on the following page.

9.2 Related Findings and Recommendations

9.2.1 What Work Was Performed?

We approached this question by performing the following activities:

- Examined the legislation prescribing the OIT reporting requirements
- Reviewed examples of required reports produced by OIT such as the quarterly project scorecards and annual reports provided to the public
- Attended JTC hearings in which OIT staff discussed the projects OIT was working on and reviewed hearing minutes
- Interviewed OIT staff in charge of corresponding with the legislature, members of the JTC (both staff and legislators), and JBC staff in order to identify how each group perceived the current reporting requirements and processes

9.2.2 How Were the Results of the Work Measured?

The current state of Legislative review and reporting processes was measured against the statutory requirements set forth in C.R.S. 24-37.5-106 (m), which states that... OIT shall:

“Advise the joint technology committee and the joint budget committee on requested or ongoing information technology projects, including the adherence of the office to the budget, amounts appropriated, and relevant contract deadline dates or schedules for those projects;”

9.2.3 What Findings Did the Evaluation Identify?

We identified the following findings regarding OIT’s current legislative review and reporting process:

1. It is unclear to JTC members whether OIT or the agency requesting the project is ultimately responsible for the success of the project
2. Although OIT maintains (as part of the PLM repository in Google Docs) standards and policy for project delivery, terminology, status reports, risks, issues, and schedule, OIT does not actively educate key agency stakeholders, resulting in a lack of a common understanding
3. OIT reporting on project status does not always align with information JTC members receive from other channels (the agency project lead, project stakeholders, the vendor project manager, etc.). Each may have varying levels of understanding and may not always agree with one another or correlate with project outcomes. For example, OIT may regularly report a project status as “Green” or on-track, but then the project experiences significant cost overruns or delays.

9.2.4 Why Did the Findings Occur?

These findings occurred for several reasons including the following:

1. Accountability for IT project success is not clearly assigned in statute or other policy guidance, or communicated to oversight bodies. However, agency IT projects are assigned an OIT project manager,¹² and a project manager by industry definition¹³ is responsible and accountable for successful project execution. Moreover, OIT is the party responsible for providing the status reporting, so OIT appears to the JTC as the party responsible for project success.
2. OIT develops the project status reports with an opportunity for the agency to participate. However, sometimes the agency does not participate. Although OIT has a standard governance process (guideline) for gathering agency input regarding project status, some agencies report that there are opportunities for improvement with this process.

9.2.5 Why Do These Findings Matter?

These findings matter because without clearly defined and communicated accountability for project success and accurate and timely project status reporting included from all appropriate stakeholders, project risks may not be mitigated effectively, issues may not be resolved promptly, and corrective action, if necessary, may not be initiated in a timely manner.

9.2.6 Recommendation No. 7

The Governor's Office of Information Technology (OIT) should work with the Joint Technology Committee (JTC), as needed to:

- A. Clarify the definition of project manager in State statute to align with the industry definition, so the OIT project manager's responsibility for project success is clear. During OIT's existing meetings with agencies at the start of each project, project roles should be agreed upon with all primary project stakeholders and formalized in writing as a project artifact; signatures would be satisfactory to signify agreement.
- B. Update OIT's process to include procedures that ensure agency participation in both the creation of the OIT quarterly status reports and the delivery of the quarterly status reports to the JTC.
- C. Update the "Project Overview Section" of the one-page dashboard to explicitly require listing the Agency Project Sponsor, OIT Project Sponsor, Agency Project Lead, and OIT Project Manager.
- D. As part of the OIT quarterly status reports delivered to the JTC (one-page project dashboard) a color (red, yellow, green) should be required for a new health indicator called "Stakeholder and policy alignment." This would allow the project to identify for the

¹² C.R.S. 24-37.5-102 (3.2) "Project manager" means a person who is trained and experienced in the leadership and management of IT projects from the commencement of such projects through their completion.

¹³ According to the PMI® PMBOK®, Project Manager is defined as: "The person assigned by the performing organization to achieve the project objectives."

JTC when project stakeholders are not in alignment with PLM policy and guidelines or any other relevant state/federal policy.

9.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

A. Agree. Implementation Date: August 2019

Current OIT project process requires a detailed charter and governance agreement signed by agencies and OIT. Much of this recommendation is already addressed by existing process and documentation. OIT will work with the Governor's Office and the General Assembly to modify the current definition of project manager to align with an industry standard definition. OIT will discuss statutory change with Governor's Office by August 2019 and will pursue additional steps as determined necessary by the Governor's Office regarding this recommendation.

B. Agree. Implementation Date: April 2019

OIT is committed to continually improving its reporting process and will update its process to ensure that agencies participate in the creation and delivery of the quarterly JBC project status reports. Adjustments will be made by April 2019.

C. Agree. Implementation Date: April 2019

The OIT Project Manager and Agency Project Sponsor have been included in the Project Overview section of the project dashboard for over two years. OIT Project Sponsor and Agency Project Lead will be included when provided by the agency. Adjustments will be made by April 30, 2019.

D. Agree. Implementation Date: April 2019

While this is not a typical indicator and would likely be, in part, quite subjective, OIT will work with agency partners to attempt to define this indicator. This indicator will be added to JTC dashboards by April 30, 2019.

10.0 Opportunities for Improved IT Interaction With the Public

Online citizen interaction with government, also known as “citizen engagement” and “24/7 government” enables citizens to obtain data and information about State programs and services, conduct business with the State through self-service tools, and participate in the decision-making process without having to make a phone call or visit an office in-person. Citizens now expect their interactions with government to be more like their interactions with private entities—intuitive, customized to their preferences, and available anytime, anywhere, from any device.

In the State, individual state agencies are primarily responsible for interaction with the public, using OIT (primarily citizen-serving applications) or SIPA (primarily web pages) as the service delivery partner. In some instances, where explicitly defined in statute, OIT is the primary interaction with the public; for example, broadband internet access.

OIT’s Vision, as articulated in the OIT FY18 Playbook, is: “Enriching the citizen experience at every digital touchpoint.” Examples of OIT-managed digital touchpoints and IT solutions to enhance citizen engagement in the State include the Colorado PEAK system, an online service for Coloradans to screen and apply for medical, food, cash, and early childhood assistance programs, as well as the Colorado Information Marketplace (CIM) system, an open data platform offering citizens a central location to access and use public information (State data sets) in real time.

The mission of SIPA is to “provide efficient and effective services for citizens through the use of modern business practices and innovative technology solutions.” Individual State agencies work directly with SIPA and its contractor, ColoradoInteractive (CI), regarding design, content, and functionality. SIPA has overall responsibility for the State’s website and its 225 component agency sites, which are key channels for citizen interaction with State government. In addition to obtaining information about State programs and services, members of the public can use the State’s website to conduct business with the State, such as renew a driver’s license, renew a vehicle registration, obtain or renew a professional license, register a business, and/or access vital records.

10.1 Evaluation Question: Opportunities for Improved IT Interaction with the Public

HB17-1361 adds Section 24-37.5-803 (2)(c), C.R.S. and requires the evaluation of:

“The opportunities the state has to interface with the public through information technology, including but not limited to whether the state can take advantage of new and emerging opportunities for future automation and online citizen interaction with government and, if so, how the state could proceed with such opportunities.”

10.1.1 Answer to Question

The State has a number of opportunities to improve its interaction with the public through IT, including developing strategic plans for citizen and business engagement, 24/7 service availability, and social media; implementing processes for soliciting citizen feedback; optimizing websites for mobility; and enhancing website functionality. These opportunities and recommendations are detailed in the following section.

10.2 Related Findings and Recommendations

10.2.1 What Work Was Performed?

The work performed included the following tasks:

- Stakeholder interviews with OIT leadership and Agency IT Directors, SIPA executive leadership team, and agency staff
- Review of State documentation such as strategic plans, presentations, C.R.S, and funding requests
- Review of peer State and best practices documentation regarding citizen engagement through IT from sources, including NASCIO, GovTech, Gartner, and McKinsey

10.2.2 How Were the Results of the Work Measured?

The table below identifies best practices for citizen engagement with government through IT.

Table 10.2.1: Best Practices for Evaluating the State’s Interaction With the Public Through IT

ID	Best Practice	Source
1	The State should have a coordinated, enterprise approach to planning for citizen and business interaction and 24/7 service availability through IT, and developed a strategic business plan in collaboration with a broad range of stakeholders. The plan should include a strategy for social media.	“24/7 Government: Enabling access to critical information and services anytime, anywhere,” Center for Digital Government, Q1/2015
2	The State should have standard processes in place for soliciting and collecting customer (citizen) input to measure satisfaction with interaction through IT, identify needs for new services, test new functionality, conduct usability testing, and identify opportunities for improvement, such as web- and app-based feedback tools, surveys, participation on governance entities, and focus groups.	“24/7 Government: Enabling access to critical information and services anytime, anywhere,” Center for Digital Government, Q1/2015
3	Websites should utilize mobile-first, responsive design optimized for touchscreen interfaces and/or access to key services through mobile apps.	“24/7 Government: Enabling access to critical information and services anytime, anywhere,” Center for Digital Government, Q1/2015

ID	Best Practice	Source
4	Citizens should be able to conduct basic transactions such as hunting and fishing licenses, tax payments, driver's license renewals, auto registration renewals, and park reservations online. Payment engines should allow secure and easy payment. A number of best practice states have well over 1,000 online services available on a 24/7 basis.	"24/7 Government: Enabling access to critical information and services anytime, anywhere," Center for Digital Government, Q1/2015
5	The State's website should be customer-centric, with advanced search capabilities such as focused search results and query expansion; an alphabetical listing of all online services; customer support and citizen engagement tools such as social media and live-chat; geolocation mapping service; and user-centric design.	"24/7 Government: Enabling access to critical information and services anytime, anywhere," Center for Digital Government, Q1/2015
6	The State should provide commonly requested information and data to the public via easily navigable open government portals on a 24/7 basis.	"Digital States Survey: Best Practices Guide," Center for Digital Government, 2014
7	State government leaders should understand the concept of citizen engagement and its importance, and the State should be prepared to engage a new generation of citizens who expect engagement to be done on their terms.	"Rethinking Citizen Engagement," Center for Digital Government, Q1/2016
8	"(3) The office shall: (m) Develop and encourage a world wide web-based State government and facilitate the dissemination of information onto the web;"	C.R.S. 24-37.5-105

10.2.3 What Findings Did the Evaluation Identify?

We identified the following findings regarding opportunities the state has to improve its use of IT to engage with citizens.

1. The State does not have a statewide strategic plan for citizen and business engagement, 24/7 service availability, or social media.
2. The State does not have standard processes in place for soliciting citizen input to measure satisfaction with interaction through IT, identify needs for new services, test new functionality, conduct usability testing, and identify opportunities for improvement.
3. About 65.0% of 159 of the State's websites are currently not optimized for mobile devices, according to a recent joint OIT and SIPA assessment.
4. The State's website does not reflect a customer-centric strategy; services are not aggregated and presented in a list; some but not all self-service opportunities are aggregated; and search capabilities are basic.

10.2.4 Why Did the Findings Occur?

These findings occurred for several reasons including the following:

1. Connecting citizens to State government is a common goal of OIT and SIPA. However, it is not clear which entity owns the responsibility of developing a statewide strategic plan for engaging citizens through IT.
2. IT projects are driven by agencies, the State's website is managed by SIPA and CI (with some exceptions), there is no statewide governance structure for coordination and planning for citizen engagement through IT across the enterprise, and statutes related to internet access are outdated. Historically, the responsibility of connecting with citizens is decentralized and managed at the agency level.
3. The State has not developed a governance structure to place a priority on soliciting citizen input through IT across the enterprise.
4. Not all State websites are optimized for mobile because they are driven by individual agencies and there is no statewide citizen engagement strategy. OIT rolled out tools to launch responsive websites and mobile-responsive applications in 2014, but it is incumbent upon individual agencies to prioritize and budget for leveraging the tools.
5. The State's website does not reflect a customer-centric strategy because there is no governance structure for coordination and planning for citizen engagement through IT across the enterprise.

10.2.5 Why Do These Findings Matter?

1. In the absence of requirements or strategic guidance, agencies may not prioritize improved citizen interaction through IT, and OIT may not prioritize enterprise-wide projects to enable better interaction with citizens through IT.
2. Lack of a statewide governance structure and strategic plan for citizen engagement through IT has resulted in duplication of effort and IT investment in some areas and gaps in other areas. An example of this is that SIPA/CI have launched the Gov2Go mobile application, and OIT is building a citizen engagement platform called MyColorado, both of which have similar purposes. Both applications have unique characteristics, yet there is overlap in the vision of services each aspires to provide. This redundancy could be confusing for citizens and a wasteful use of their tax dollars.
3. Without standard processes for collection and analysis of citizen input and feedback, the State has limited guidance regarding what improvements are needed to improve citizen interaction through IT.
4. Websites that are not optimized for mobile devices are not as easy to use on mobile devices, which may deter citizens who primarily use phones (as opposed to personal computers) for Internet access from using State online services.
5. Lack of a customer-centric web strategy may also deter some users from using State online services.

10.2.6 Recommendation No. 8

The Governor's Office of Information Technology (OIT) should improve citizen interaction through IT by:

- A. Working with state agencies and SIPA to commission the formation of a multi-stakeholder council to focus on citizen engagement and digital government experience, comprised of OIT, SIPA, centralized and non-centralized State agencies, and Colorado citizens and businesses, as a formalized governance structure for planning for citizen engagement and digital government experience through IT across the enterprise.
- B. Working with state agencies and SIPA to task this council with the job of creating and implementing a statewide strategy and plan, to coordinate, plan, and prioritize citizen and business engagement through IT across the enterprise, covering areas, including but not limited to, 24/7 service availability, social media, mobile optimization of State websites, and a customer-centric strategy for the State's website, as necessary. The strategy and plan should also clearly articulate roles, responsibilities, expected results, and points of accountability, and include citizen feedback standards, customer journey mapping, and a citizen communications plan.
- C. Working with stakeholders such as the General Assembly, the JTC, and SIPA as necessary to revise Section 24-37.5-105(3)(b), C.R.S., to define a role that aligns with OIT's authority, financial and HR capacity, and the stated responsibilities of partner entities such as OIT, SIPA, and other State agencies. Once updated, OIT should review this annually as part of strategic plan development and recommend when statute revisions are needed to ensure state statute accurately reflects the State's technology capabilities.

10.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

- A. Agree. Implementation Date: April 2019

OIT agrees citizen engagement to be a required focus area both now and going forward and will work to establish a council to focus on citizen engagement and digital government experience across the enterprise. Initial outreach to stakeholders will be made by April 2019.

- B. Agree. Implementation Date: July 2019

While OIT agrees with the idea of a council and output, OIT should not encumber a new administration on how to achieve this goal. OIT will work with the new administration, general assembly, SIPA, and other stakeholders on the intent of this recommendation and develop a plan accordingly.

C. Disagree. Implementation Date: N/A

OIT believes its currently statutory authority provides OIT the authority it needs to develop and manage the state's IT strategy for citizen engagement.

Auditor's Addendum:

Since SIPA is not an agency but an authority, BerryDunn does not believe the current OIT statute provides enough clarity to prevent ambiguity. Where ambiguity exists, there will be confusion on what role OIT and SIPA have, making execution of a plan more difficult.

11.0 OIT Relationship With Non-Centralized Agencies

For reference, agencies not included in the centralization of state agency IT resources include the Legislative Branch, Judicial Branch, Department of Law/Colorado Office of the Attorney General (COAG), Department of State/Secretary of State (SOS), Department of Treasury (DOT), Colorado Department of Education (CDE)¹⁴, and the State-supported institutions of higher education. These agencies were not included in the SB08-155 consolidation of IT resources because of the need to maintain separation of powers. The centralized agencies are all within the Executive Branch and report to the Governor.

However, most, if not all, non-centralized agencies utilize OIT services including both OIT common policy and Direct Bill Services, including enterprise systems such as Kronos, HRWorks; security services; Colorado State Network; and voice and data services. In addition, non-centralized agencies have data exchanges with centralized agencies that involve engagement with and/or reliance on OIT.

11.1 Evaluation Question: OIT Relationship With Non-Centralized Agencies

HB17-1361 adds Section 24-37.5-803 (2)(c), C.R.S. and requires the evaluation of:

“OIT’s working relationship with state agencies, departments, offices, and institutions that were not included in the centralization of state agency information technology resources pursuant to Senate Bill 08-155, enacted in 2008, but rely on OIT to provide certain information technology services or resources”

11.1.1 Answer to Question

OIT has significant opportunities to improve its working relationship with non-centralized agencies under OIT, pursuant to SB08-155. While the services OIT provides are documented, there are no agreed-upon service-level commitments (SLCs) between OIT and the non-centralized agencies. The following sections provide further details related to our findings and recommendations to help OIT improve relationships with non-centralized agencies.

11.2 Related Findings and Recommendations

11.2.1 What Work Was Performed?

The work performed included the following tasks:

- Stakeholder interviews to discuss the working relationship between OIT and State agencies not included in the centralization of state agency IT resources.

¹⁴ Since CDE has an elected board/commission, it was not a consolidated entity, but due to the timing of the bill, it was not formally noted in the bill as such.

- Stakeholders from the Judicial Branch, COAG, SOS, and CDE were interviewed about the OIT services they utilize, their experience working with OIT, and suggestions for improvement.
- Stakeholders from OIT were interviewed to gain OIT leadership’s perspective of OIT’s working relationship with State agencies, departments, offices, and institutions that were not included in the centralization of state agency IT resources.
- Review of State documentation, such as OIT’s SLCs with centralized agencies, strategic plans, communication plans, Colorado Revised Statutes, funding requests, and OIT’s Purchase Catalogue.
- Review of peer state and best practices documentation from sources including NASCIO, Prosci®, and McKinsey. Specifically, we reviewed best practices related to IT consolidation, and standards for appropriately defining relationships.

11.2.2 How Were the Results of the Work Measured?

The table below describes the criteria against which the current state was measured. The criteria are best practices selected based on BerryDunn’s expert opinion.

Table 11.2.1: Best Practices for Evaluating OIT’s Working Relationship With Non-Centralized State Agencies

ID	Best Practice	Source
1	Every user of IT services, regardless of which unit or organization he or she belongs to, should be viewed as an equal customer.	<p>“Capturing Value Through IT Consolidation and Shared Services.” McKinsey & Company. 2011.</p> <p>“Managing State IT through Service Level Agreements: An Unprecedented Journey.” NASCIO.org. 2013.</p>
2	Leadership must ensure that the needs and requirements of all agencies (customers) are understood.	“Capturing Value Through IT Consolidation and Shared Services.” McKinsey & Company. 2011.
3	Leadership must ensure that standard service-level agreements (SLAs) are in place to measure the quality of IT delivery.	“Managing State IT through Service Level Agreements: An Unprecedented Journey.” NASCIO.org. 2013.

11.2.3 What Findings Did the Evaluation Identify?

We identified the following findings regarding OIT’s working relationship with the non-centralized State agencies:

1. OIT does not provide the same level of customer service to non-centralized agencies that it provides to centralized agencies. For example:

- a. At the time of this review, non-centralized agencies are not included as an option to select on OIT's automated telephonic service desk system. However, OIT reports that this capability is currently being added.
 - b. When non-centralized agencies experience issues with the Colorado State Network, their only point of contact is the OIT service desk.
2. OIT does not understand the needs and requirements of non-centralized agencies. For example:
 - a. The Judicial Branch's Strengthening Abuse and Neglect Courts in America (SANCA) data exchange with the CDHS has been out of service for over a year due to a CDHS hardware failure that OIT is responsible for remediating. Because OIT has the relationship with CDHS on this effort, and this data exchange was not a high priority for CDHS, the remediation was not prioritized, even though it was important to the Judicial Branch. As a non-centralized agency, the Judicial Branch does not have a dedicated management channel for communicating and escalating its needs and requirements to OIT.
 - b. OIT is currently a signatory of procurement for IT service for non-centralized agencies. This adds time to what some agencies feel like can be an already lengthy process.
 3. There is no documentation defining the relationship between OIT and the non-centralized agencies, such as a description of services utilized and SLAs.
 4. Many non-centralized agencies do not clearly understand the OIT billing methodology and the common policy billing documentation they receive from OIT.

11.2.4 Why Did the Findings Occur?

These findings occurred because no formal requirements, guidelines, or accountability mechanisms are in place for the OIT relationship with non-centralized agencies, even though OIT does provide services to them. Neither SB08-155 nor any State statute outlines expectations for the responsibilities of OIT with regard to serving non-centralized agencies.

11.2.5 Why Do These Findings Matter?

The lack of a defined relationship and SLAs between OIT and non-centralized agencies has resulted in non-centralized agencies reporting:

1. The outage of the Judicial Branch's data exchange with CDHS resulted in lack of direct access to data and reports needed for permanency case management of juveniles in custody, leading to the need to implement time-intensive manual data entry and workarounds to ensure statutory timeframes are met and to meet State goals of reducing time in foster care.
2. There is no clear escalation path for non-centralized agencies, resulting in the need to rely on personal relationships to identify a resource at OIT to resolve an issue and delayed problem resolution.

3. Confusion regarding roles and responsibilities in key administrative processes such as contract execution and management, resulting in project delays and risk of non-compliance with established processes and procedures.
4. OIT does not have an effective means to communicate network changes and other relevant information that may impact non-centralized agencies. OIT reports that it plans to add non-centralized agencies to the major incident and other service desk notifications.
5. Non-centralized agencies are a consumer of some of the enterprise-level services provided by OIT; however, they generally do not participate in the planning, selection, or acquisition of these solutions. As a result, some functionality does not meet their needs, which can lead non-centralized agencies to continue to use standalone systems and products instead of leveraging OIT-supported enterprise applications. Additionally, sometimes that means non-centralized agencies are billed for system functionality they do not use.

11.2.6 Recommendation No. 9

The Governor's Office of Information Technology (OIT) should improve its working relationship with the non-centralized agencies by:

- A. Developing and executing service level commitments (SLCs) for non-centralized agencies, similar to those already in place with centralized agencies.
- B. Assigning an existing manager within OIT to be the single point of escalation for all non-centralized agencies to assist in managing the customer relationship.

11.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

- A. and B. Agree, pending budgetary approval. Implementation Date: July 2019

OIT currently invites non-centralized IT leadership to meet with OIT IT Directors to align strategy, standards, and process and to share information. Creating documents, metrics, and regularly managing the relationship and service delivery with non-centralized agencies would require additional funds and/or staffing given this requirement is beyond current OIT purview.

12.0 Consumer Satisfaction

OIT is the enterprise provider of IT and communications services for the 16 State agencies centralized under OIT by SB08-155. These State agencies are OIT's primary customers. The OIT Purchase Catalog defines the IT and communications services OIT provides. OIT services to agency customers include mainframe, infrastructure, hourly personnel, enterprise software, security, end user support, and network. OIT's first of six "wildly important goals" (WIGs) is "Delivering Effective Solutions and Reliable Customer Services." OIT conducts regular customer satisfaction surveys, and reports on the WIGs in its annual Playbook.

12.1 Evaluation Question: Consumer Satisfaction

HB17-1361 adds Section 24-37.5-803 (2)(c), C.R.S. and requires the evaluation of:

"Consumer satisfaction, to be determined through a consumer satisfaction survey, among state agencies with the management of state agency information technology resources and access to state government via information technology resources."

12.1.1 Answer to Question

Our evaluation of consumer satisfaction among state employees with OIT's management of State IT resources revealed that consumer satisfaction varies significantly among centralized agencies, as measured by several different survey questions. History Colorado (HC) and the Colorado Department of Public Health and Environment (CDPHE) reported the lowest satisfaction levels across the measures. Overall:

- 92.6% of survey respondents (199 of 215) who self-identified as a decision maker for IT services used by their agency, were either neutral or disagreed that their agency or organization receives service levels from OIT consistent with what they pay OIT
- 64.7% of survey respondents (3,451 of 5,331) reported the services provided by OIT met their expectations
- 60.9% of survey respondents (3,214 of 5,279) agreed that OIT understands their individual needs and requirements
- 56.6% of survey respondents (2,956 of 5,220) agreed that OIT understands their agency's requirements
- 75.1% of survey respondents (3,964 of 5,277) agreed that OIT services are valuable

Please note, the survey results above and throughout this section do not include responses from OIT staff.

Customer satisfaction also varied based on OIT service. Customer satisfaction is lowest for project management services, procurement and vendor services, and infrastructure services. Customer satisfaction is highest for email services, phone services, Google apps services, OIT Service Desk, and deskside support services. Based on the results of the survey provided above, there are opportunities for OIT to improve the perception agencies have of OIT and the

services they receive. The second part of the evaluation question asks about satisfaction with access to State government through IT resources:

- 53.5% of survey respondents (2,465 of 4,607) reported being satisfied
- 20.4% of survey respondents (942 of 4,607) reported being neutral (neither satisfied or unsatisfied)
- 12.3% of survey respondents (566 of 4,607) reported being unsatisfied
- 13.8% of survey respondents (634 of 4,607) responded being unsure

With just over half of respondents reporting being satisfied, we conclude that State employees believe there are opportunities to improve access to State government through IT resources. The following sections provide additional detail from the survey results as well as recommendations for OIT to improve customer satisfaction and to address the subject of low satisfaction with access to State government through IT.

12.2 Related Findings and Recommendation

12.2.1 What Work Was Performed and What Was the Purpose?

The purpose of the evaluation work was to evaluate satisfaction of centralized agencies with the management of state agency IT resources and access to State government via IT resources.

In collaboration with the OSA and OIT, we developed an online survey, which was distributed to over 30,000 State employees of centralized agencies in February 2018. Appendix E contains the complete survey questionnaire.

Overall, 6,194 surveys were completed, a response rate of 20.6%, well above the industry average online survey response rate of between 5.0% and 15.0%. Table B-1 in Appendix B indicates the number of completed surveys by department. Note that OIT staff responses are not included in this table and were not included in this analysis.

The survey collected both quantitative and qualitative data (open-ended comments):

- **Quantitative:** The survey questions included categorical items for which the respondent chose the response (for example “very satisfied” or “strongly agree”)
- **Qualitative:** The survey allowed respondents to provide in-depth and constructive comments in order to clarify their views on services provided by OIT. Respondents provided over 10,000 open-ended comments to the questions included in the survey

The survey results presented are of an unweighted sample. Given the nature of the survey questions and, in some cases, the small sample sizes for certain sub-groups, it is important to use caution when interpreting and drawing conclusions from the results. They may represent the opinions of those who completed the survey and not the larger population of State employees.

12.2.2 How Were the Results of the Work Measured?

The relative comparison approach (i.e., comparing results of one category of respondent against another) is used to analyze survey results and identify findings.

Table 12.2.1: Criteria for Evaluating Customer Satisfaction

ID	Criteria	Source
1	Stakeholder Management, distinct from Communications Management, is one of the 10 knowledge areas defined in the PMI®'s PMBOK®. Stakeholder Management is also a core component of many customer satisfaction planning, strategic planning methodologies, and organizational performance management frameworks.	PMI® PMBOK®, Fifth Edition, 2013
2	A Communications Plan is a key element to building strong relationships with IT customers.	NASCIO, "Relationships Matter: Customer Service Strategies to Promote Enterprise Services," Issue Brief, October 2006
3	Key elements of a Detailed Communications Plan: Communication Plan should be developed collaboratively. Communication Plan must be updated on a regular basis.	Abudi, G. (2013). Managing communications effectively and efficiently. Paper presented at PMI® Global Congress 2013 – North America, New Orleans, LA. Newtown Square, PA: PMI®

12.2.3 What Findings Did the Evaluation Identify?

We identified the following opportunities for improved customer satisfaction:

1. Consumer satisfaction¹⁵ varies based on the service in question; it is lowest for project management services, procurement and vendor services, and infrastructure services.
2. Consumer satisfaction, as measured by several different metrics—services worth what they pay for them, services meet expectations, staff understand individual needs, staff understand agency needs, and services are viewed as valuable—varies widely by agency and is below the national customer satisfaction benchmark (based on the American Customer Satisfaction Index [ACSI] for Government and our experience).
3. Although OIT uses multiple methods to communicate with its customers (OIT's Playbook, five-year roadmaps, service level commitments, SLCs, internal tracking of issues, etc.) it does not have a comprehensive communications and stakeholder management plan that articulates all of the available communication tools OIT uses, and which of those tools are shared with each customer. Clarifying this information for OIT customers would be extremely helpful.

¹⁵ Note that we have filtered the OIT responses out of the data in all of the tables in this section, so the data only represents the responses of the agencies.

- a. The most current version of the OIT Communications Plan is an incomplete draft dated June 2011 for FY11-FY12. A template for an updated plan was provided in January 2018, but it does not contain content.

12.2.4 Why Did the Findings Occur?

The findings of low levels of consumer satisfaction for certain OIT services and among certain agencies occurred due to:

1. OIT organizational changes, including staffing changes or turnover (addressed by Recommendation 10)
2. Lack of clearly defined and effectively communicated policies, processes, and expectations (addressed by Recommendation 6)
3. Lack of decision-making transparency at OIT (addressed by Recommendations 4 and 10)
4. Lack of commonly understood billing from OIT (addressed by Recommendation 4)
5. Lack of a consistent experience offered by OIT staff (addressed by Recommendation 6)
6. While OIT has communications plans at the project level, it has not provided a comprehensive communications and stakeholder management plan for its customers (addressed by Recommendation 10)

12.2.5 Why Do These Findings Matter?

The impacts of low consumer satisfaction include:

- Decreased confidence and trust in OIT
- Lack of compliance with OIT policies and procedures, which could increase risk for OIT and impact OIT's overall ability to meet its defined goals

12.2.6 Recommendation No. 10

The Governor's Office of Information Technology (OIT) should address the findings associated with low levels of consumer satisfaction by focusing and improving communications to all customers. This should start with the development of a comprehensive communications and stakeholder management plan that minimally includes the following:

- A. Establish and articulate goals for the communication and stakeholder management plan
- B. Identify and profile the stakeholder audience
- C. Include key messages and tools tailored for different audiences (for example centralized and non-centralized agencies)
- D. Identify and select the communication channels that will be used to communicate to stakeholders
- E. Develop a matrix of which stakeholders will receive which communications, including when communications will be received

- F. Conduct an annual survey of the State for feedback on OIT services (similar to the survey conducted during this assessment); have an independent third party conduct the survey on behalf of OIT to encourage staff to participate in a truly anonymous fashion (as it elicits better feedback)
- G. The plan should include a stakeholder analysis and feedback to learn where stakeholders feel communications from OIT can improve or should be different
- H. Develop a list of specific actions to undertake annually to close the gaps between current and desired stakeholder engagement levels, based on feedback collected by OIT, the annual survey, and other feedback channels
- I. Communicate the list of specific actions that are conducted each year by OIT so that all stakeholders understand their feedback and engagement has resulted in tangible improvements that impact them
- J. Assign individuals who will be responsible for execution of plan activities
- K. Other items the plan should address (include but may not be limited to):
 - 1. A process for informing customers when specific OIT staff changes occur that impact them
 - 2. A process for informing customers how and when OIT will update the agency on the status of open OIT positions, and when vacancies are filled
 - 3. A process for informing all agencies when OIT organizational changes occur and the reasons for the changes.

12.2.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

A-J. Agree. Implementation Date: June 2019

OIT is in agreement that a comprehensive communication and stakeholder management plan would be beneficial to complement the communication plans currently being developed for enterprise projects and agency initiatives, which are intentionally customized by agency due to the varying needs of our customers. We agree that a comprehensive communication plan would tie together the customer communication efforts executed by teams across OIT and will incorporate the elements as suggested in the recommendation.

K. Partially Agree. Implementation Date: June 2019

Current OneView reports by agency already address these questions about staffing. It is a delicate balance for OIT with this recommendation, given not all positions are directly supporting one agency. OIT wants the conversations with agency customers to center on service delivery and service level commitments, not specific positions or any one individual. This conversation and focus is a throwback to initial consolidation. OIT believes most of these concerns have been addressed. Of course, communication and

mutual understanding can always be improved. Appropriate adjustments to existing process will be implemented by June 30, 2019.

Auditor's Addendum:

The concern from OIT is that all staff changes should not be communicated because OIT uses a team approach. The concern with this approach, as OIT notes, is one of service delivery. Service delivery is being impacted by staff changes, but this could be mitigated if OIT provided better handoff and knowledge transfer to other team members.

13.0 Opportunities for Improved IT Governance

There is no single accepted definition of IT governance, but all definitions share the basic premise that governance exists to align IT with business needs, to hold IT accountable for delivering business value, and to manage IT risks. The IT Governance Institute goes one step further and creates a simple framework with which to think about IT governance and the different domains it covers¹⁶:

- Strategic alignment of IT with the business
- Value delivery of IT
- Management of IT risks
- IT resource management
- Performance measurement of IT

A key attribute of organizations with effective IT governance is that they consider IT an integral part of the enterprise, not something to be relegated to a technical function; IT strategy as an integral part of enterprise strategy; and IT governance as an integral part of enterprise governance.¹⁷

Gartner's Tina Nunno says, *"Organizations with good IT governance enjoy benefits such as increased business value of IT-related assets. Strongly governed organizations receive 20.0 percent higher return on assets."* She goes on to say, *"If an effective governance framework is implemented effectively it reduces conflict between stakeholders, finance can easily track organization spending against framework priority categories, business performance significantly improves and the organization reacts better to competitive threats."* This is from a private industry perspective; however, the key concepts translate to government.

NASCIO has placed significant emphasis on appropriate IT governance to meet the business needs of State government. Effective IT governance rises as a top priority as the public demands more transparency and accountability in government. Technology is not just ancillary to the mission. States rely heavily on IT to conduct the business of government.¹⁸

¹⁶ "[Board Briefing on IT Governance, 2nd Edition](#)". IT Governance Institute. 2003.

¹⁷ Ibid.

¹⁸ (IT Governance and Business Outcomes - A shared Responsibility between IT and Business Leadership, 2008) NASCIO

13.1 Related Findings and Recommendation

13.1.1 What Work Was Performed and What Was the Purpose?

Since alignment, value, risk, and resource management are critical to achieving IT goals effectively, we examined IT governance as it relates to HR, technology asset management, and technology billing, including:

- Customer satisfaction survey results and analysis
- Interviews with agency and OIT staff
- OIT documentation for common policy and true-up¹⁹

13.1.2 How Were the Results of the Work Measured?

The table below describes the criteria against which the current state was measured. The criteria are best practices selected based on BerryDunn’s expert opinion.

Table 13.1.1: Criteria for Evaluating IT Governance

ID	Criteria	Source
1	Show value for the money	Hunter, Richard; George Westerman. “The REAL Business of IT,” Harvard Business Press, 2009.
2	Link IT to business outcomes	Hunter, Richard; George Westerman. “The REAL Business of IT,” Harvard Business Press, 2009.
3	Make decisions with the citizen in mind	NASCIO Best Practice, 2017
4	Balance enterprise and agency interests	NASCIO Best Practice, 2017
5	Make effective use of taxpayer dollars	NASCIO Best Practice, 2017
6	Make sure all stakeholders are aligned, including: executives, business/agency leadership, enterprise architects, program managers, data stewards, IT stakeholders, security, and enterprise portfolio managers	NASCIO Best Practice, 2016
7	Each business case would address “What’s in it for me” for each stakeholder group	NASCIO Best Practice, 2016
8	CIOs should build relationships and partnerships in environments that do not have the luxury of a single executive leader	Shark, Alan R. “CIO Leadership for State Governments, Emerging Trends and Practices.” Public Technology Institute. 2011.

¹⁹ True-up is the process used by Colorado agencies to reconcile between budgeted/billed common policy amounts and the amounts based on actual usage.

ID	Criteria	Source
9	Create steering committees comprised of key agency-level leadership	Shark, Alan R. "CIO Leadership for State Governments, Emerging Trends and Practices." Public Technology Institute. 2011.
10	Statewide committees should focus on areas such as infrastructure, security, shared services, investment, and standards	Shark, Alan R. "CIO Leadership for State Governments, Emerging Trends and Practices." Public Technology Institute. 2011.
11	Fundamentally, IT Governance's concern is about two things: IT's delivery of value to the business and mitigation of IT risks	IT Governance Institute. "Board Briefing on IT Governance, 2nd Edition." 2003.
12	Create an IT strategy committee of the board that reviews major investments on behalf of the full board and advises management on strategic directions	IT Governance Institute. "Board Briefing on IT Governance, 2nd Edition." 2003.
13	Balance IT's increasing costs and information's increasing value to obtain an appropriate return from IT investments	IT Governance Institute. "Board Briefing on IT Governance, 2nd Edition." 2003.
14	IT Governance is the responsibility of executive management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization's IT function sustains and extends the organization's strategies and objectives.	IT Governance Institute. "Board Briefing on IT Governance, 2nd Edition." 2003.
15	IT Governance is not a one-time exercise or something achieved by a mandate or setting of rules. It requires a commitment from the top of the organization to instill a better way of dealing with the management and control of IT.	ISACA, website. www.isaca.org

13.1.3 What Findings Did the Evaluation Identify?

We identified the following findings regarding IT Governance:

1. Centralized and non-centralized agencies are not always directly involved in decisions made by OIT that impact their business prior to presentation to the legislature. When agencies are directly involved, involvement is not always at the executive level. While there appears to be good faith effort and intent at OIT to engage agencies (through regular one-on-one meetings, agency roadmap discussions, and budget presentations) in technology discussions and improve relationships with their customers, survey results suggest there is room for improvement.
2. Lack of efficiency is evident in the governance process for common policy purchasing decisions. It was noted that dialogue with individual agencies is part of the governance

process over common policy purchasing decisions; however, there was no evidence that indicated any cross-agency governance in this area.

3. A national trend within state government is that all agencies within state government are adopting and implementing technology to support their business objectives at a significantly higher pace than historic trends. In the State, IT spending growth is not aligned with overall State spending growth and is not sustainable. Over the period from FY11-12 through FY18-19, OIT's requested budget has grown at an average annual rate of 13.0%, twice that (on average) than the annual growth of 6.8% for all agencies. In FY13-14, FY14-15, and FY16-17, OIT budgets increased by more than 20.0% in each of those years compared to a growth of 7.5%, 9.6%, and 2.8% for all agencies. While having a few years of rapid growth in OIT to overcome deferred maintenance items or install significantly new technology may be acceptable if those items create future efficiencies, the regular growth of OIT costs compared to agency costs is not sustainable. When combined with other IT costs (outside of OIT control) also increasing at unsustainable rates (e.g., CORE), the problem is magnified.
4. The survey results suggest there is room for improved communication, and although OIT regularly meets with all agencies individually and has cabinet meetings between all agencies, OIT does not conduct a single meeting with representatives from all agencies and OIT leadership for the sole purpose of having open and honest communication with the agencies.

13.1.4 Why Did the Findings Occur?

1. Efforts to improve communications and address problem areas resulted in the individual monthly agency meetings focused on problem resolution. The content of these OIT monthly meetings with each agency is not strategic. The focus of this group should not be technology; rather, the focus should be the cost, value, and risk to the business units created by technology changes. Technology change that does not significantly alter the costs/value/risk of the delivery of common policy is the purview of OIT and should not be considered by the governance group.
2. OIT sometimes tries to define business need, which is the purview of agencies. Multiple examples of this were taken from survey responses but a recurring example was OIT not allowing some agency personnel to purchase OIT-approved technology (laptop or tablet), even when the purchase was approved by the agency.
3. The unsustainable growth occurred because of multiple factors, including:
 - a. Prior to the consolidation, some infrastructure maintenance items were deferred, causing increased costs for OIT to "catch up."
 - b. Refresh costs for technology replacement are not included in OIT's budget, leading to large one-time costs for refresh.

- c. The current governance process does not appropriately include impacted agencies prior to going to the legislature for approval of projects, and increased spending, without full knowledge of the impact these projects have on agencies.
- d. The increased cost of new IT projects is not offset by efficiency gains in supported agencies. Based on the experience other states have had with process consolidation projects, OIT should be able to justify the cost of these efforts through the efficiency savings in agencies.

13.1.5 Why Do These Findings Matter?

The findings matter because:

1. They lead to lack of clarity in responsibilities between OIT and agencies.
2. Without a higher level of governance, OIT is left to make decisions and set priorities in an isolated fashion without appropriate agency and other stakeholder input and vetting.
3. Without a high degree of cross-agency collaboration (OIT and all agencies), poor communication, and levels of customer satisfaction could become the norm. Transparent communication and collegial relationships will be a natural outcome of good governance.
4. The percentage of budget spent by agencies on delivering services to customers is decreasing while overhead and management costs of providing government services are increasing. If non-sustainable growth continues, it will result in a degradation of agency-provided services. As it stands now, agencies are pressured to make cost cuts that are not aligned with the best interests of future services.

13.1.6 Recommendation No. 11

To improve IT Governance, the Governor's Office of Information Technology (OIT) should work with other appropriate agencies and the General Assembly, as necessary, to:

- A. Create a common policy Governing Board. Require participation by all centralized agencies and open participation to non-centralized agencies. Items impacting common policy cost, value, risk, and standards should be approved by this governance group prior to proposals being circulated to the legislature. Discuss the possibility of fully owning common policy purchasing decisions as long as dollar thresholds are not exceeded. This would mean OIT would be free to make any purchasing decision and have the spending authority for common policy as long as it does not change the price of common policy beyond a percent growth cap set by the common policy Governing Board.
- B. Increase the likelihood of efficiencies gains in agencies. OIT should shift its focus from resource consolidation to process consolidation to enable application-level consolidation in the future.
- C. OIT should conduct a single annual meeting with representatives from all agencies and OIT leadership for the sole purpose of having open and honest communications about evolving agency needs (including but not limited to): opportunities for sharing (data,

process consolidation, application consolidation, etc.), lessons learned, sharing solutions to challenges agencies have working with OIT, etc. This meeting should not include representatives from the Governor's Office (with the obvious exception of OIT leadership) or the legislature, to help encourage the likelihood of this team being able to discuss sensitive topics and learn from one another. OIT should summarize the results of this meeting in written form and develop an action plan to address the items discussed.

13.1.7 Agency Response

GOVERNOR'S OFFICE OF INFORMATION TECHNOLOGY

A. Partially Agree. Implementation Date: March 2019

OIT agrees with soliciting agency feedback on common policy items and currently provides all agencies (centralized and non-centralized) with draft common policy information prior to finalizing the annual budget. OIT engages with agencies through multiple avenues regarding changes, feedback, issues and concerns regarding the common policy. This includes one on one meetings, monthly budget director meetings, and IT Director meetings. In addition, OIT convenes working groups with agencies when necessary to discuss issues affecting common policy. OIT does not believe that a formal governing board is necessary. OIT will work with the Office of State Planning and Budgeting on the possibility of changing the budget request process for common policy spending authority. OIT will initiate conversations with OSPB by March 2019.

Auditor's Addendum:

This recommendation is closely tied to recommendation 3.D. and without a formal governing board to address the current issues between agencies and OIT, the checks and balances needed to support a transfer of spending authority would not exist. Without new governance, the efficiency gains inherent in OIT fully managing financial and operational control of assets may not be realized.

B. Agree. Implementation Date: Ongoing

OIT requires support from the executive branch and legislative branch to ensure buy in to the process and cultural changes required by this recommendation across the government. OIT has established a process improvement team and works with agencies on specific process consolidation today for key system replacements and modernizations. Work on this recommendation is ongoing.

C. Agree. Implementation Date: August 2019

OIT already conducts Business Review meetings during which OIT leadership and agency representatives discuss topics such as future technology needs, financial concerns and considerations, on-going agency concerns, etc. In the future, OIT will formally document the action items resulting from the meetings and action plans to address issues.

Auditor's Addendum:

Although OIT has agreed, the recommendation is not fully addressed in their response. In addition to formally documenting action items from the Business Review meetings, OIT should ensure those action items and plans are shared and discussed between agencies and any resulting changes are incorporated into the new action plan.

Appendix A: Acronyms

Table A-1: Acronyms

Acronym/Term/Abbreviation	Definition
ACSI	American Customer Satisfaction Index
ANSI	American National Standards Institute
BASE	Business Analysis and Solution Engineering
CBA	Cost-Benefit Analysis
CBMS	Colorado Benefits Management System
CDA	Colorado Department of Agriculture
CDE	Colorado Department of Education
CDHS	Colorado Department of Human Services
CDLE	Colorado Department of Labor and Employment
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Department of Public Safety
CEO	Colorado Energy Office
CFE	Certified Fraud Examiner
CI	ColoradoInteractive
CIM	Colorado Information Marketplace
CIO	Chief Information Officer
CMDDB	Configuration Management DataBase
COAG	Department of Law/Colorado Office of the Attorney General
CORE	Colorado Operations Resource Engine, the State's accounting system
CPA	Certified Public Accountant
CPU	Central Processing Unit
C.R.S.	Colorado Revised Statute
CST	Colorado State Treasury
DI	Decision Item
DMVA	Department of Military & Veterans Affairs
DNR	Department of Natural Resources

Acronym/Term/Abbreviation	Definition
DOC	Department of Corrections
DOLA	Department of Local Affairs
DOR	Department of Revenue
DORA	Department of Regulatory Affairs
DOT	Department of Treasury
DPA	Department of Personnel and Administration
DPS	Department of Public Safety
DRIVES	Driver License, Record, Identification, and Vehicle Enterprise Solution
EOL	End-of-Life
FASB	Financial Accounting Standards Board
FTE	Full-Time Equivalent
FY	Fiscal Year
GASB	Governmental Accounting Standards Board
GFOA	Government Finance Officers Association
GOV	Office of the Governor
HB	House Bill
HC	History Colorado
HCPF	Department of Health Care Policy and Financing
HR	Human Resources
IT	Information Technology
ITIL	Information Technology Infrastructure Library
ITSM	Information Technology Service Management
ITPM	IT Portfolio Manager
JBC	Joint Budget Committee
JTC	Joint Technology Committee
KPI	Key Performance Indicator
LOE	Level of Effort
NASCIO	National Association of State Chief Information Officers
NASPO	National Association of State Procurement Officials
NIST	National Institute of Standards and Technology

Acronym/Term/Abbreviation	Definition
OEDIT	Office of Economic Development and International Trade
OIT	Office of Information Technology
OSA	Office of the State Auditor
OSPB	Office of State Planning and Budgeting
SANCA	Judicial Branch’s Strengthening Abuse and Neglect Courts in America
SCCM	Microsoft System Center Configuration Manager
SDO	Standards Developing Organization
SEA	Services Efforts and Accomplishments
SIPA	Statewide Internet Portal Authority
SLA	Service-Level Agreement
SLC	Service-Level Commitment
SOS	Department of State/Secretary of State
TAC	Technical Assessment Committee

Appendix B: Section 12 Survey Results Tables

Table B-1: Number of Completed Surveys by Department

Department or Entity	Frequency	Percent of Total
Department of Military & Veterans Affairs (DMVA)	3	0.05%
Offices of the Governor	63	0.36%
History Colorado (HC)	50	0.85%
Department of Local Affairs (DOLA)	69	1.18%
Colorado Department of Agriculture (CDA)	92	1.57%
Department of Personnel and Administration (DPA)	133	2.27%
Health Care Policy and Financing (HCPF)	136	2.33%
Department of Regulatory Agencies (DORA)	199	3.40%
Department of Revenue (DOR)	453	7.74%
Colorado Department of Labor and Employment (CDLE)	457	7.81%
Colorado Department of Public Safety (CDPS)	495	8.46%
Department of Natural Resources (DNR)	539	9.22%
Colorado Department of Public Health and Environment (CDPHE)	546	9.33%
Colorado Department of Human Services (CDHS)	766	13.10%
Colorado Department of Transportation (CDOT)	816	13.95%
Department of Corrections (DOC)	1027	17.56%
Total	5,844	100.00%

Table B-2: Responses to Survey Questions About Service Satisfaction

Service	Number of Respondents	Dissatisfied (Responded 1 or 2)	Neutral (Responded 3)	Satisfied (Responded 4 or 5)
Project Management Services	180	42.2%	26.7%	27.8%
Procurement and Vendor Services	240	39.2%	27.5%	32.1%
Infrastructure Services	120	30.8%	29.2%	33.3%
Mainframe Services	83	16.9%	34.9%	42.2%
Enterprise Software Services	2,355	27.2%	26.6%	45.0%
Security Services	241	24.9%	23.7%	49.4%
Agency Line of Business Application Services	1,168	17.5%	27.1%	51.9%
Deskside Support Services	2,220	13.3%	16.0%	69.7%
OIT Service Desk	4,483	13.0%	16.3%	70.4%
Google Apps Services	3,691	8.2%	19.2%	71.3%
Phone Services	4,041	8.2%	15.5%	75.6%
Email Services	4,598	7.2%	14.1%	78.4%

Note: When totals do not add up to 100%, the remainder responded, "Unsure."

Table B-3: Summary of Results of Customer Satisfaction Measures

Survey Measure	Overall Positive ²⁰	Top 2 Agencies Rating OIT the Highest ²¹	Top 2 Agencies Rating OIT the Lowest ²²
How strongly would you agree or disagree that my agency or organization receives service levels from OIT consistent with what we pay OIT? ²³	7.4% ²⁴	Department of Corrections (DOC) – 40.0% Department of regulatory Agencies (DORA) – 33.3%	<i>Numbers of respondents too small to be statistically significant.</i>
To what extent have the services provided by OIT met your expectations?	64.7%	Department of Revenue (DOR) – 76.8% Colorado Department of Human Services (CDHS) – 70.0%	History Colorado (HC) – 41.3% Colorado Department of Agriculture (CDA) – 47.7%
How strongly would you agree or disagree that OIT understands my needs and requirements?	60.9%	Health Care Policy and Financing (HCPF) – 72.9% Department of Revenue (DOR) – 70.8%	History Colorado (HC) – 9.1% Colorado Department of Public Health and Environment (CDPHE) – 41.7%
How strongly would you agree or disagree that OIT understands my agency’s needs and requirements?	56.6%	Health Care Policy and Financing (HCPF) – 69.8% Department of Corrections (DOC) – 67.6%	History Colorado (HC) – 23.9% Colorado Department of Public Health and Environment (CDPHE) – 36.5%
How strongly would you agree or disagree that OIT services are valuable to me?	75.1%	Health Care Policy and Financing (HCPF) – 87.6% Department of Revenue (DOR) – 81.7%	History Colorado (HC) – 54.3% Colorado Department of Public Health and Environment (CDPHE) – 61.4%

²⁰ “Overall Positive” means of all respondents to this survey question, the percent that answered 4 or 5 on a scale of 1 to 5 where 1 is lowest and 5 is highest.

²¹ “Agencies Rating OIT the Highest” are the two agencies with the highest percentages of respondents answering a 4 or 5.

²² “Agencies Rating OIT the Lowest” are the two agencies with the lowest percentages of respondents answering a 4 or 5.

²³ Note: Only 215 respondents answered this question.

²⁴ This question had a high percentage of respondents, 19.5%, who answered “Unsure”

Table B-4: Responses to Survey Question 31

How strongly would you agree or disagree that my agency or organization receives service levels from OIT consistent with what we pay OIT?

Agency	Number of Respondents	Did Not Meet My Expectations	Neutral	Met or Exceeded My Expectations
Department of Corrections (DOC)	5	40.0%	-	40.0%
Department of Regulatory Agencies (DORA)	6	50.0%	-	33.3%
Department of Personnel and Administration (DPA)	3	33.3%	-	33.3%
Colorado Department of Public Safety (CDPS)	8	50.0%	-	25.0%
Health Care Policy and Financing (HCPF)	25	64.0%	4.0%	12.0%
Colorado Department of Human Services (CDHS)	36	50.0%	19.4%	8.3%
Department of Revenue (DOR)	13	30.8%	46.2%	7.7%
Department of Public Health and Environment (CDPHE)	34	79.4%	19.1%	2.9%
Colorado Department of Agriculture (CDA)	8	62.5%	12.5%	-
Colorado Department of Labor and Employment (CDLE)	21	66.7%	9.5%	-
Colorado Department of Transportation (CDOT)	17	64.7%	23.5%	-
Department of Natural Resources (DNR)	19	84.2%	-	-
Department of Local Affairs (DOLA)	5	80.0%	-	-
Offices of the Governor (GOV)	1	-	-	-
History Colorado (HC)	3	100.0%	-	-
Office of Economic Development and International Trade (OEDIT)	1	100.0%	-	-
Overall	215	61.1%	11.2%	7.4%

Note: When rows do not add up to 100%, the difference responded "Unsure." A '-' indicates the number of responses was too small to be statistically significant.

Table B-5 Responses to Survey Question 27:
To what extent have the services provided by OIT met your expectations?

Agency	Number of Respondents	Did Not Meet My Expectations	Neutral	Met or Exceeded My Expectations
History Colorado (HC)	46	26.1%	32.6%	41.3%
Colorado Department of Agriculture (CDA)	86	19.8%	32.6%	47.7%
Colorado Department of Public Health and Environment (CDPHE)	498	25.5%	23.1%	50.6%
Colorado Department of Public Safety (CDPS)	448	20.1%	25.7%	52.7%
Department of Natural Resources (DNR)	510	19.4%	25.1%	54.9%
Department of Personnel & Administration (DPA)	122	13.1%	22.1%	64.8%
Department of Local Affairs (DOLA)	61	13.1%	16.4%	67.2%
Colorado Department of Labor and Employment (CDLE)	418	12.0%	19.1%	67.2%
Department of Transportation (CDOT)	757	9.1%	20.9%	68.6%
Offices of the Governor (GOV)	26	11.5%	15.4%	69.2%
Department of Corrections (DOC)	891	9.4%	19.5%	69.8%
Colorado Department of Human Services (CDHS)	693	11.1%	17.5%	70.0%
Department of Regulatory Agencies (DORA)	184	7.1%	22.3%	70.1%
Health Care Policy and Financing (HCPF)	129	7.8%	20.2%	72.1%
Department of Revenue (DOR)	418	5.7%	17.2%	76.8%
Overall	5,331	13.1%	21.0%	64.7%

Note: When rows do not add up to 100%, the difference responded "Unsure."

Table B-6: Responses to Survey Question 28.1:
How strongly would you agree or disagree that OIT understands my needs and requirements?

Agency	Number of Respondents	Disagree	Neutral	Agree
History Colorado (HC)	46	34.8%	21.7%	39.1%
Colorado Department of Public Health and Environment (CDPHE)	494	36.6%	20.2%	41.7%
Department of Natural Resources (DNR)	508	27.4%	24.4%	47.6%
Colorado Department of Public Safety (CDPS)	444	28.8%	20.9%	47.7%
Colorado Department of Agriculture (CDA)	86	25.6%	20.9%	53.5%
Department of Local Affairs (DOLA)	60	18.3%	16.7%	61.7%
Colorado Department of Labor and Employment (CDLE)	413	15.3%	19.9%	63.0%
Department of Personnel & Administration (DPA)	121	19.0%	15.7%	65.3%
Colorado Department of Transportation (CDOT)	753	13.5%	18.9%	65.5%
Department of Regulatory Agencies (DORA)	183	9.8%	23.0%	66.7%
Colorado Department of Human Services (CDHS)	684	15.2%	15.9%	66.8%
Department of Corrections (DOC)	878	13.4%	16.6%	68.8%
Department of Revenue (DOR)	414	9.4%	18.4%	70.8%
Health Care Policy and Financing (HCPF)	129	10.1%	16.3%	72.9%
Offices of the Governor (GOV)	23	4.3%	17.4%	73.9%
Overall	5,279	18.6%	19.0%	60.9%

Note: When rows do not add up to 100%, the difference responded "Unsure."

Table B-7: Responses to Survey Question 28.2:

How strongly would you agree or disagree that OIT understands my agency's needs and requirements?

Agency	Number of Respondents	Disagree	Neutral	Agree
History Colorado (HC)	46	52.2%	21.7%	23.9%
Department of Public Health and Environment (CDPHE)	485	39.4%	18.8%	36.5%
Colorado Department of Public Safety (CDPS)	438	29.9%	22.1%	43.6%
Department of Natural Resources (DNR)	506	28.7%	25.1%	44.3%
Colorado Department of Agriculture (CDA)	84	25.0%	23.8%	51.2%
Colorado Department of Labor and Employment (CDLE)	408	18.9%	21.3%	53.7%
Department of Local Affairs (DOLA)	60	16.7%	21.7%	55.0%
Colorado Department of Transportation (CDOT)	745	15.7%	20.0%	60.8%
Colorado Department of Human Services (CDHS)	678	16.5%	16.1%	62.7%
Department of Personnel & Administration (DPA)	121	20.7%	14.9%	62.8%
Other (CST, DMVA, CEO)	19	15.8%	21.1%	63.2%
Department of Revenue (DOR)	406	9.6%	21.9%	64.5%
Department of Regulatory Agencies (DORA)	182	11.5%	21.4%	64.8%
Department of Corrections (DOC)	871	13.3%	16.9%	67.6%
Health Care Policy and Financing (HCPF)	126	7.9%	18.3%	69.8%
Offices of the Governor (GOV)	22	4.5%	9.1%	77.3%
Office of Economic Development and International Trade (OEDIT)	23	8.7%	13.0%	78.3%
Overall	5,220	20.0%	19.7%	56.6%

Note: When rows do not add up to 100%, the difference responded "Unsure."

Table B-8: Responses to Survey Question 28.4:
How strongly would you agree or disagree that OIT services are valuable to me?

Agency	Number of Respondents	Disagree	Neutral	Agree
History Colorado (HC)	46	23.9%	21.7%	54.3%
Colorado Department of Public Health and Environment (CDPHE)	495	19.6%	18.2%	61.4%
Colorado Department of Public Safety (CDPS)	445	14.6%	20.0%	64.7%
Colorado Department of Agriculture (CDA)	86	18.6%	15.1%	66.3%
Department of Natural Resources (DNR)	507	12.8%	17.4%	69.6%
Department of Local Affairs (DOLA)	61	14.8%	9.8%	73.8%
Colorado Department of Labor and Employment (CDLE)	412	8.3%	15.3%	76.0%
Department of Personnel & Administration (DPA)	122	7.4%	14.8%	77.0%
Colorado Department of Transportation (CDOT)	747	7.1%	12.6%	79.0%
Colorado Department of Human Services (CDHS)	684	7.6%	12.6%	79.1%
Department of Corrections (DOC)	878	6.7%	12.8%	79.2%
Department of Regulatory Agencies (DORA)	183	4.9%	13.7%	80.9%
Department of Revenue (DOR)	415	5.8%	12.0%	81.7%
Offices of the Governor (GOV)	24	4.2%	4.2%	87.5%
Health Care Policy and Financing (HCPF)	129	2.3%	9.3%	87.6%
Overall	5,277	9.6%	14.4%	75.1%

Note: When rows do not add up to 100%, the difference responded "Unsure."

Appendix C: Survey Questionnaire (without responses)

Complete anonymous survey results provide to management.

Introductory Demographics

Q1

First, a few questions about yourself. For which of the following agencies or organization do you currently work? (PLEASE SELECT ALL THAT APPLY)

- 10 Department of Agriculture
- 11 Department of Corrections
- 12 Department of Human Services
- 13 Department of Labor and Employment
- 14 Department of Local Affairs
- 15 Department of Military & Veterans Affairs
- 16 Department of Natural Resources
- 17 Department of Personnel & Administration
- 18 Department of Public Health and Environment
- 19 Department of Public Safety
- 20 Department of Regulatory Agencies
- 21 Department of Revenue
- 22 Department of Transportation
- 23 History Colorado
- 24 Health Care Policy and Financing
- 25 Offices of the Governor (including Colorado Energy Office, the Office of State Planning & Budgeting, the Office of Economic Development & International Trade, and the Office of Information Technology [OIT])
- 95 Some other Colorado government department (Specify)
- 96 Some other agency or organization (Specify)
- 98 Unsure

Q2

How long have you been working at your current agency or organization?

- 1 Less than one year
- 2 1 to 2 years
- 3 3 to 5 years
- 4 6 to 10 years
- 5 More than 10 years
- 8 Unsure

Q3

Which of the following describes you...

- 1 I use IT and IT services
- 2 I support the use of IT services within my agency or organization
- 3 I am a decision-maker for the IT services used by my agency or organization (for example, IT Director, Program Director, Project Sponsor)
- 5 Other (PLEASE SPECIFY)
- 8 Unsure

IF RESPONDENT IS UNSURE, END SURVEY

General Familiarity

Q4

These next questions are about the services and support provided by the Governor’s Office of Information Technology (OIT).

First, how familiar are you with the OIT?

Please rate on a scale from one to five where one is not at all familiar and five is very familiar.

1 - Not at all familiar	2	3	4	5 - Very familiar	Unsure
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

TXT1

As you may know, OIT provides IT infrastructure, network services, telecommunication tools, cloud computing, application development and support, and provisioning for more than 28,000 state agency employees across 1,300 locations. OIT also serves Colorado first responders via the public safety communications network, and our security team proactively protects the State’s information systems, and data for all three branches of State government.

Use of Services

Q5

During the past 12 months which of the following OIT services have you personally used (PLEASE SELECT ALL THAT APPLY)

FOR THOSE ANSWERING 1 OR “OTHER” TO Q3

- 10 Email
- 11 Phone service
- 12 Agency Line of Business Applications (Such as CBMS, CHATS, Trails, LIMS, DRIVES)

- 13 Enterprise software (Such as Kronos, CORE, Content Management System, Grant Management System)
- 14 Google Apps
- 15 The OIT Service Desk
- 16 OIT Deskside support
- 97 None of these
- 98 Unsure

Q6

FOR THOSE ANSWERING 2, 3 to Q3)

During the past 12 months which of the following OIT services, have you personally used, had a role managing their use within your unit, agency or organization, helped obtain for your unit, agency, or organization, or made decisions on their use within your unit, agency or organization(PLEASE SELECT ALL THAT APPLY)

- 10 Email
- 11 Phone service
- 12 Agency Line of Business Applications (Such as CBMS, CHATS, Trails, LIMS, DRIVES)
- 13 Enterprise software (Such as Kronos, CORE, Content Management System, Grant Management System)
- 14 Google Apps
- 15 The OIT Service Desk
- 16 OIT Deskside support
- 17 Project Evaluation, Prioritization, and Selection Services
- 18 Project Management Services
- 19 Procurement and Vendor Services
- 20 Mainframe Services
- 21 Infrastructure Services
- 22 Security
- 97 Other (PLEASE SPECIFY)
- 97 None of these
- 98 Unsure

IF RESPONDENT DOES NOT USE ANY SERVICE (97 or 98), END SURVEY

Satisfaction

Q7/Q8

Overall, how satisfied are you with the services provided to you by OIT?

For each of the following, please rate your satisfaction on a scale from one to five where one is very dissatisfied and five is very satisfied.

(FILL GRID WITH ALL SERVICES SELECTED IN Q5/6)

	1 – Very dissatisfied	2	3	4	5 - Very satisfied	Unsure
FILL FIRST SERVICE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FILL SECOND SERVICE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FILL THIRD SERVICE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FILL FOURTH SERVICE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Project Evaluation, Prioritization, and Selection Services Follow-ups

ASK IF RESPONDENT SELECTS PROJECT EVALUATION, PRIORITIZATION AND SELECTION IN Q6

Q9

These next three questions are specifically about project evaluation, prioritization, and selection services.

How would you rate the effectiveness of the project selection process? Please rate on a scale from one to five where one is not effective at all and five is very effective.

Effective is defined as meeting the intended goal.

1 – Not effective at all	2	3	4	5 - Very effective	Unsure
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ASK IF RESPONDENT SELECTS PROJECT EVALUATION, PRIORITIZATION AND SELECTION IN Q6

Q10

How would you rate the efficiency of the project selection process? Please rate on a scale from one to five where one is not efficient at all and five is very efficient

Efficient is defined as meeting the intended goal in a way that optimizes the use of time and resources.

1 – Not efficient at all	2	3	4	5 - Very efficient	Unsure
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ASK IF RESPONDENT SELECTS PROJECT EVALUATION, PRIORITIZATION AND SELECTION IN Q6

Q11

Should any changes or improvements be made to the project evaluation, prioritization, and selection process?

Q12 IF YES: What changes or improvement would you suggest?

- 1 Yes (SPECIFY)
- 2 No
- 8 Unsure

ASK IF RESPONDENT SELECTS PROJECT EVALUATION, PRIORITIZATION AND SELECTION IN Q6

Q13

How strongly would you agree or disagree with the following:

OIT’s guidance on use of preferred platforms such as Salesforce has benefited my agency or organization.

Please rate on a scale from one to five where one is strongly disagree and five is strongly agree.

1 – Strongly disagree	2	3	4	5 – Strongly agree	Unsure	Not applicable to my experiences
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14: Please add any comments you may have:

OIT Staff

Q15

Please provide your impressions of the OIT staff; base your answer on any interactions you had with OIT staff during the past 12 months by email, telephone, through the customer portal, or in-person.

Please rate on a scale from one to five where one is poor and five is excellent.

	1 – Poor	2	3	4	5 - Excellent	Unsure
A. How would you rate the ability of OIT staff to meet your specific IT needs?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B. How would you rate the knowledge of the OIT staff?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Citizen Access to Government

Q16

From your perspective as a State employee, how satisfied are you with Colorado citizens' access to the State government via information technology resources?

Please rate your satisfaction on a scale from one to five where one is very dissatisfied and five is very satisfied.

1 – Very dissatisfied	2	3	4	5 – Very satisfied	Unsure	Not applicable to my experiences
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Communications with OIT

Q17

Next, please think about OIT communications.

How strongly would you agree or disagree with the following:

I am satisfied with the general communication I receive from OIT on policies, system changes, and productivity tips.

Please rate on a scale from one to five where one is strongly disagree and five is strongly agree.

1 – Strongly disagree	2	3	4	5 – Strongly agree	Unsure	Do not recall these types of communications from OIT	Not applicable to my experiences
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18

During the past 12 months, have you contacted the **OIT Service Desk** by...?
(PLEASE SELECT ALL THAT APPLY)

- 1 Email
- 2 Telephone
- 3 Through the customer portal
- 7 I HAVE NOT CONTACTED THE OIT SERVICE DESK
- 8 Unsure

Q19

How would you rate the accessibility of the OIT Service Desk staff by...

Please rate on a scale from one to five where one is not at all accessible and five is very accessible.

(FILL IN THOSE CHECKED IN Q18)

	1 – Not at all accessible	2	3	4	5 - Very accessible	Unsure
Email	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Telephone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The customer portal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q20

Other than contacting the OIT Service Desk, have you communicated with other OIT staff during the past 12 months by...?

PROMPT: For example this would include contacting OIT staff about the services it offers or ongoing communications during problem resolution.

- 1 Emailing OIT staff
- 2 Contacting OIT staff by telephone
- 3 Meeting with OIT staff in-person
- 5 Some other way (SPECIFY)
- 7 HAVE NOT COMMUNICATED WITH OTHER OIT STAFF
- 8 Unsure

Q21

How would you rate the accessibility of the OIT staff by...

Please rate on a scale from one to five where one is not at all accessible, and five is very accessible.

(FILL IN THOSE CHECKED IN Q20)

	1 – Not at all accessible	2	3	4	5 - Very accessible	Unsure
Email	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Telephone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meeting with OIT staff in-person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ASK OF THOSE ANSWERING 2,3 to Q3

Q22

During the past 12 months, have you provided any feedback to OIT regarding current services, required services, policies, or proposed initiatives?

- 1 Yes (SPECIFY:)
- 2 No (SKIP TO Q23)
- 8 Unsure (SKIP TO Q23)

Q23 What was the subject of your feedback?

ASK IF YES TO Q22

Q24

How strongly would you agree or disagree with the following statements:
The staff of OIT is open to my feedback.

Please rate on a scale from one to five where one is strongly disagree and five is strongly agree.

1 – Strongly disagree	2	3	4	5 – Strongly agree	Unsure	Not applicable to my experiences
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ASK IF YES TO Q22

Q25

The staff of OIT has acted on my feedback.

Please rate on a scale from one to five where one is strongly disagree and five is strongly agree.

1 – Strongly disagree	2	3	4	5 – Strongly agree	Unsure	Not applicable to my experiences
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ASK OF THOSE ANSWERING 2.3 to Q3

Q26

How strongly would you agree or disagree that OIT proactively seeks the input of its customers when planning new multi-agency initiatives.

Please rate on a scale from one to five where one is strongly disagree and five is strongly agree.

1 – Strongly disagree	2	3	4	5 – Strongly agree	Unsure	Not applicable to my experiences
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Expectations and Outcomes
Q27

To what extent have the services provided by OIT met your expectations?

Please rate this on a five point scale from one to five where one is, they did not meet my expectations at all, and five is they exceeded my expectations.

1 – Did not meet my expectations at all	2	3	4	5 – Exceeded my expectations	Unsure
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q28

How strongly would you agree or disagree with the following statements:

Please rate on a scale from one to five where one is strongly disagree and five is strongly agree.

	1 – strongly disagree	2	3	4	5 – Strongly agree	Unsure	Not applicable to my experiences
A. OIT understands my needs and requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B. OIT understands my organization's needs and requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C. OIT services help me be as productive as I can be.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D. OIT services are valuable to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q29

And how strongly would you agree or disagree that:
State IT resources help me meet the needs of Colorado citizens.

Please rate on a scale from one to five where one is strongly disagree and five is strongly agree.

1 – Strongly disagree	2	3	4	5 – Strongly agree	Unsure	Not applicable to my experiences
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

IF YOU DISAGREE (RATING AS 1 OR 2):

Q30:Why do you disagree?

OIT Billing

ASK OF THOSE ANSWERING 3, to Q3

Q31

And how strongly would you agree or disagree that:

Please rate on a scale from one to five where one is strongly disagree and five is strongly agree.

	1 – strongly disagree	2	3	4	5 – Strongly agree	Unsure	Not applicable to my experience s
My agency or organization understands the how the charges OIT is billing to the agency or organization are calculated and what they are for.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changes in charges billed by OIT are explained and communicated clearly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My agency or organization receives service levels from OIT consistent with what we pay OIT.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please add any comments you may have:

Quality Improvement

Q33

We would like your feedback on how OIT can better serve its customers.

What changes can OIT make that would most improve OIT's service to you, your unit, or your agency?

These changes may concern OIT communications, customer service, speed of service, staff knowledge and experience, staffing levels, specific products and services, the onboarding process, or any other area in which you feel that OIT could improve what it does and how it operates. Please be as detailed and thorough as you need in explaining what you feel would most improve OIT services.

1 SPECIFY

8 Unsure

Q34

In 2008, State legislation mandated the consolidation of IT resources across sixteen agencies under OIT. Based on your experiences, how beneficial has this been to the State?

Please rate on a scale from one to five where one is very detrimental, and five is very beneficial.

1 – Very detrimental	2	3	4	5 – Very beneficial	Unsure
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ASK OF THOSE ANSWERING 1 – 5 TO Q34

Q35

And why do you rate it this way?

1 SPECIFY

8 Unsure

ASK OF THOSE ANSWERING 3, to Q3

Q36

Thinking about your experience with OIT, what has worked well for you?

1 SPECIFY

2 Nothing has worked well for me

8 Unsure

ASK OF THOSE ANSWERING 3, to Q3

Q37

What advice would you give OIT leadership to help strengthen their relationship with you personally, and/or your unit, agency or organization?

1 SPECIFY

2 I do not have any advice

8 Unsure

Q38

Finally, how can citizens access to the State government be improved through information technology resources?

1 SPECIFY

8 Unsure

Thank you for completing this survey.