

# Five-Year IT Roadmap



## *Department of Labor & Employment*

Aligning business goals and technology forecasts

June 2018



**COLORADO**

**Governor's Office of  
Information Technology**

Serving people serving Colorado

# Table of Contents

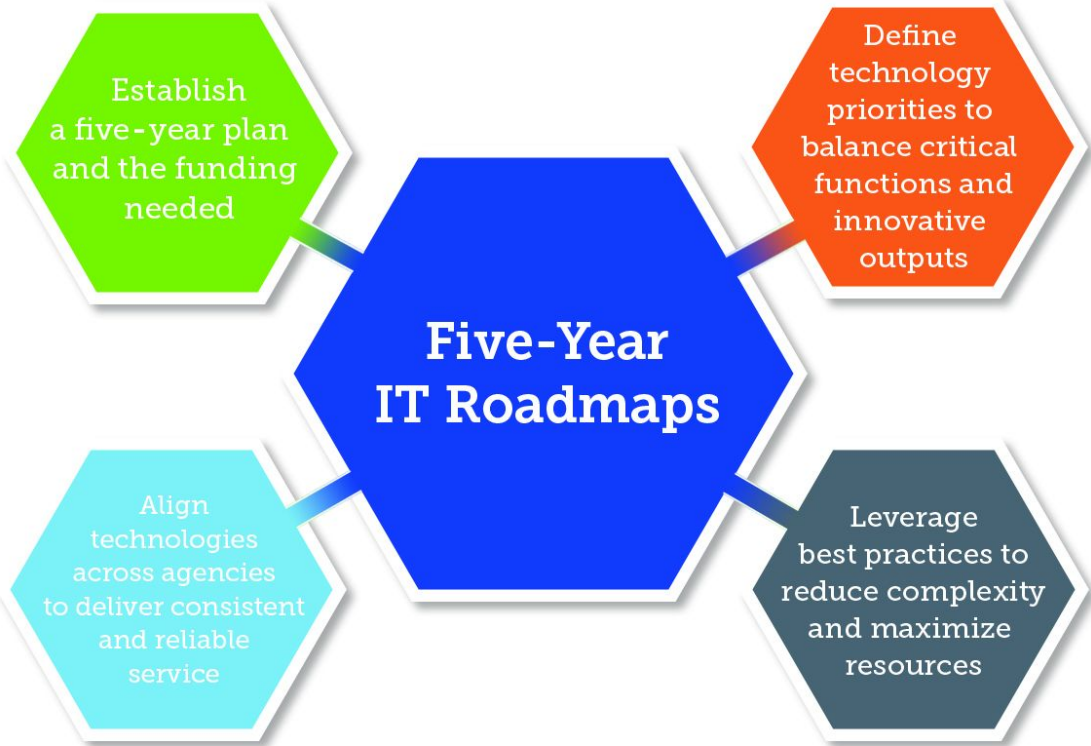
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Introduction	2
Assumptions	3
Agency Business Objectives	4
Agency Initiative Roadmap	5
Agency Initiative Roadmap	6
Agency Initiative Details	7
Mission-Critical Technology Debt	7
New Solutions	8
Future Innovations	8
CDLE's Unfunded Technology Outlook	9
Appendix A: Enterprise Initiative Roadmap	10
Enterprise Initiative Roadmap	11
Appendix B: Enterprise Initiative Details	12
Mission-Critical Technology Debt	12
Enterprise New Solutions	15
Enterprise Future Innovations	17

# Introduction

The Governor’s Office of Information Technology (OIT) works in partnership with our customers to create a Five-Year IT Roadmap for each agency we serve. OIT has four primary goals that guide our technology planning to help state agencies receive the most from their technology and related services.

## Technology Planning Goals



# Assumptions

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Agency and enterprise initiatives, timelines and costs within this document operate under the following assumptions.

## Environment

- Decisions related to major agency initiatives or projects may alter this plan.
- Infrastructure and security will be maintained to meet state and federal compliance.
- OIT is a cloud-first advocate and, therefore, will look to cloud solutioning for all new service needs. OIT will also seek cloud service capabilities for legacy applications/workloads requiring refresh before targeting on-premise utilizations.
- As it relates to this document, the term “enterprise” is used to define high-impact, IT services utilized by multiple OIT customers.

## Drivers of Cost and Complexity

- Cost are estimates that are based on an initial quote, vendor information or past initiatives and are subject to change.
- It is estimated that overall IT costs will increase by no less than three percent per year.
- Cost allocation for Decision Items are based on OIT’s current Common Policy rates.

## Assumed Constants

- Staffing is assumed to remain constant.
- Hardware refresh cycles are assumed to be executed on a four-year lifecycle for desktop computers and a three-year lifecycle for laptops.
- Approximately 20 percent of the state IT infrastructure is refreshed annually with the intent of completing a full infrastructure refresh every five years. Budget constraints may impact this cycle.

## Changes to Roadmap

- This is a living document which will be updated once per year; dependencies, timelines, and cost estimates are subject to change.



# Agency Business Objectives

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Maximizing technology resources requires that agency business objectives drive technology investments. The objectives below have been identified by the Colorado Department of Labor and Employment and submitted to the Governor's Office of State Planning and Budgeting (OSP) to reflect the agency's current top strategic IT priorities. OIT works with the agency to provide the best solutions to support each objective.

## Objective 1

### Improve Customer Satisfaction by Five Percent Annually

CDLE will be creating and implementing an ongoing customer survey, striving to achieve a five percent increase in customer satisfaction annually by fostering an agency-wide culture of service based on values, utilizing customer feedback and strategic initiatives to improve service delivery and maintaining an effective Continuity of Operations Plan (COOP).

## Objective 2

### Improve Employee Survey Results by Five Percent Annually

CDLE strives to establish a culture of engagement and accountability that affords employees the opportunity, structure and tools to thrive and provide an exceptional customer experience. Because employee satisfaction has been shown to increase customer satisfaction, productivity and performance, CDLE is striving to achieve a five percent increase in employee satisfaction annually. Strategies for reaching this goal include maintaining the Employee Quality and Excellence Plan (EQEP) as a tool, maintaining Covey as the foundation of the Leadership Development Program, continuing work with succession planning, improving the CDLE rewards and recognition program and encouraging the practice of appropriate change management.

## Objective 3

### Implement Process Improvement

CDLE will be implementing six key process improvements annually to maximize the value they bring to their customers and stakeholders. This will be done by prioritizing, implementing and reporting on process improvements using the Process Improvement Forum and Lean.

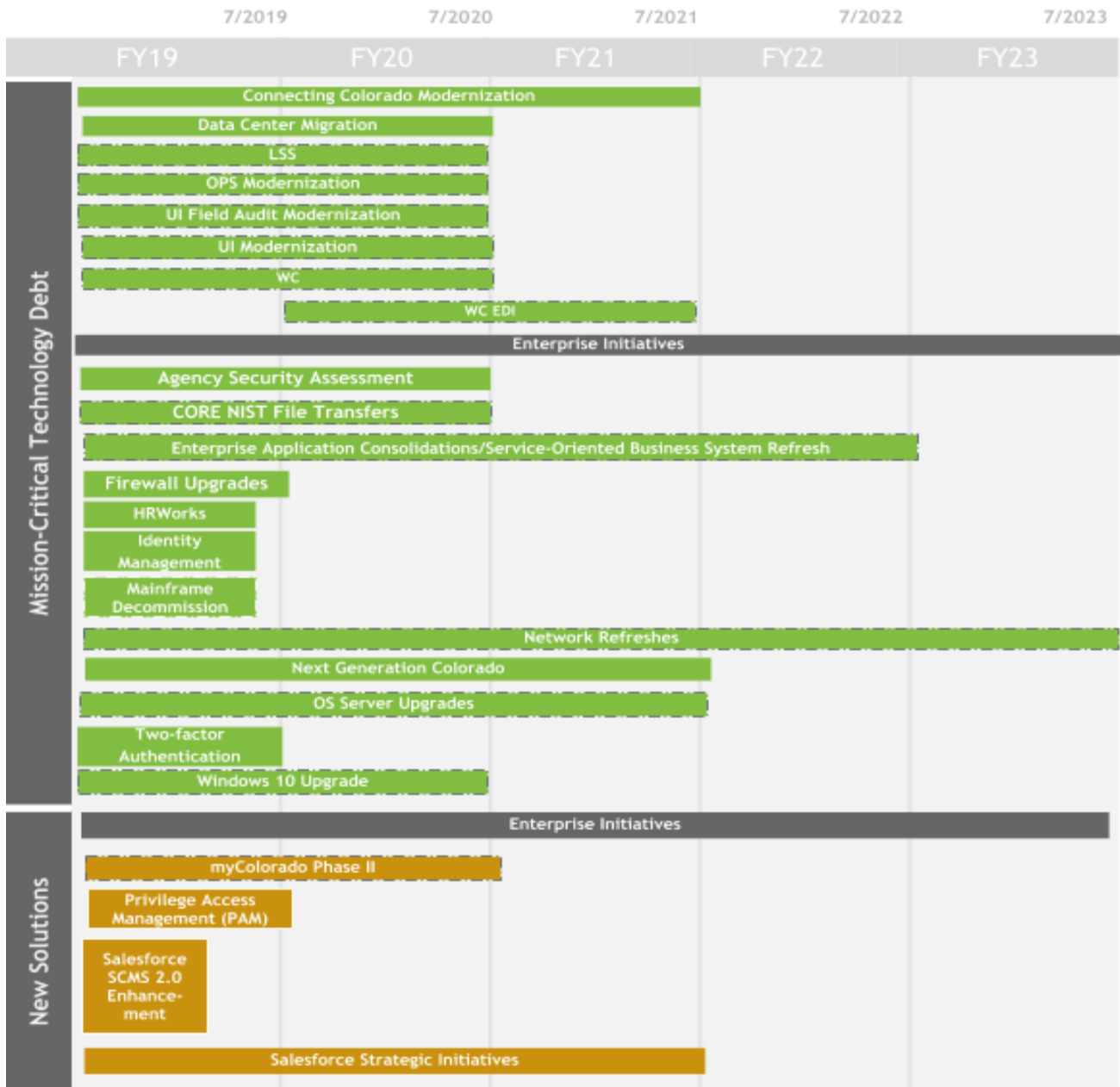
## Objective 4

### Implement Optimal Technology Solutions

CDLE will be employing a multitude of strategies to implement optimal technology solutions that create an exceptional customer experience, including approaching technology projects with a focus on better serving the customer and actively engaging and partnering with OIT.

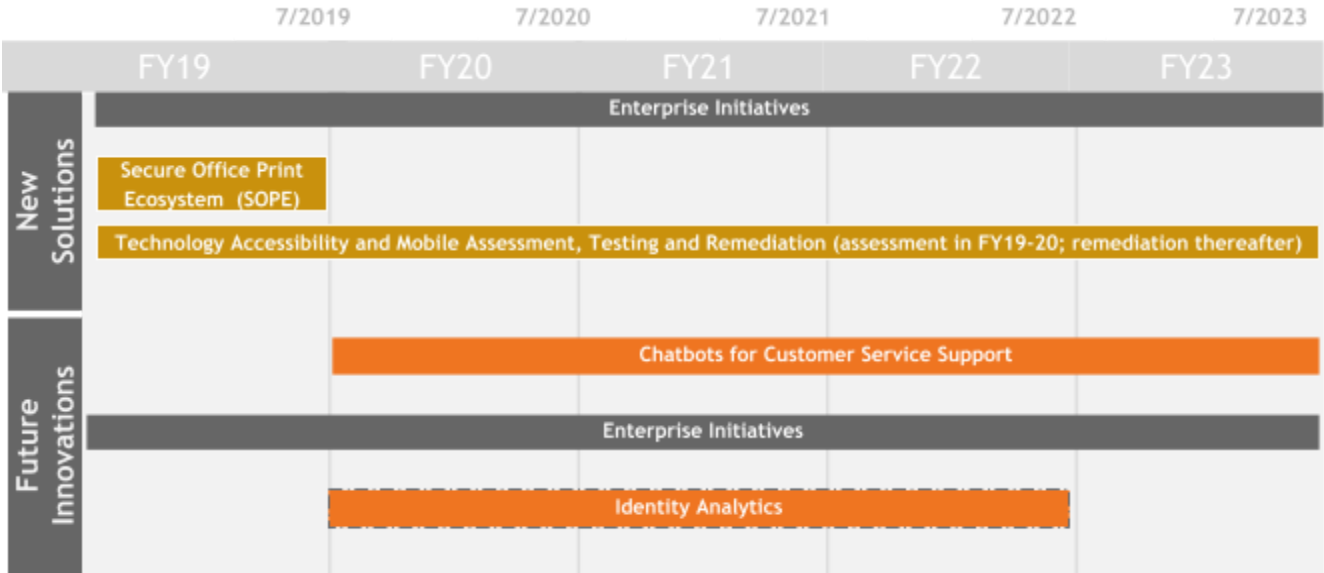
# Agency Initiative Roadmap

The graph below shows where agency and enterprise objectives fit into the overall five-year roadmap and plan for scheduled completion. The graph contains three sections. The first presents mission critical technology debt which are either agency or enterprise initiatives that are vital to the functioning of government services. The second section presents new solutions which are requested by the agency or initiatives that OIT has identified as a gap in services or solutions, and the third section presents future innovations which are proposed as solutions that will increase state employee efficiency and improve service to Colorado residents and state visitors.



NOTE: An initiative with a dashed-line border indicates the initiative is unfunded or partially funded.

# Agency Initiative Roadmap



NOTE: An initiative with a dashed-line border indicates the initiative is unfunded or partially funded.

# Agency Initiative Details

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## Mission-Critical Technology Debt

These initiatives are vital to the functioning of normal government services. Delay in pursuing the initiatives will create a need for future effort and resources that surpass the resources needed if the initiative were carried out proactively.

### Connecting Colorado Modernization

The Division of Employment and Training has begun modernizing its Connecting Colorado application within their existing maintenance and support contract with the application vendor. Modernization is expected to continue through June 2021. Connecting Colorado connects job seekers, job providers, and training providers. The application was custom designed and is completely vendor hosted and maintained.

### Data Center Migration

CDLE's infrastructure environment hardware will reach end-of-life in December 2019. A project is underway with common policy funds to migrate to the enterprise hosting environment prior to the end-of-life. Timeline: FY19-20.

### Labor Standards and Statistics (LSS)

The Labor Standards Unit, within the Division of Labor Standards and Statistics, recently migrated their legacy Labor Complaint processes to a modern, web-based system leveraging the Salesforce platform and enabling them to more efficiently and effectively comply with changes in legislation, regulations and internal policies and procedures. To support the licensing needs of the new system, the Division is anticipating an operating request of approximately \$10,000 in FY19-20.

### Oil and Public Safety (OPS) Application Modernization

The Division of Oil and Public Safety (OPS) is in the process of modernizing its aged licensing, permitting, and inspection applications. All of the applications are currently developed in application languages which are, or will be soon, at end-of-life. Funding was requested and received in FY17-18 to modernize the Conveyances system and that project is currently on target to complete as scheduled prior to the end of FY17-18. The Division is now completing market research to request funding of approximately \$2,225,000 for FY19-20 to modernize their final major application, the Petroleum Database.

### Unemployment Insurance (UI) Field Audit Modernization

The Division of Unemployment Insurance has prioritized its Field Audit system (Chronicles) as critical for replacement. The U.S. Department of Labor (USDOL) requires CDLE to audit one percent of all their employing businesses each year, which equates to 2,500 audits annually. The current system, Chronicles, is an internally developed office automation tool utilizing a combination of Access databases and Excel spreadsheets, which is extremely difficult to maintain and modify to comply with changing federal and state laws, regulations and internal policies and procedures. The



Division is currently conducting market research in anticipation of a funding request of approximately \$450,000 in FY19-20.

## Unemployment Insurance (UI) Application Modernization

The Division of Unemployment Insurance has undertaken a multi-year modernization of its core technology systems - Colorado Unemployment Benefits System (CUBS) and Colorado Automated Tax System (CATS). This project involved a code conversion of the existing mainframe systems that went live on March 5, 2018 and subsequent modernization that will make the system highly adaptable for continuous improvements while ensuring compliance with state and federal requirements. To provide the necessary ongoing support for the migrated and modernized systems, the Division is anticipating an operating request of approximately \$4,000,000 for FY19-20.

## Workers' Compensation (WC)

Beginning in 2014, the Division of Workers' Compensation began a multi-year modernization of its core technology systems. In 2016 they successfully migrated off the mainframe environment and subsequently have modernized a significant portion of their main system now referred to as Colorado Compensation (CoCo). To support the additional licensing needs of the new system, the Division is anticipating an operating request of approximately \$100,000 in FY19-20.

## Workers' Compensation Electronic Data Interchange (WC EDI)

The Division has prioritized its interface to the Electronic Data Interchange (EDI) as the next system in need of a major upgrade and is anticipating a funding request of approximately \$1,000,000 for FY20-21.

## New Solutions

These initiatives provide new yet fundamental service to agencies. Heightened end-user technical expectations are driving service providers to strengthen system functionality. Delay in implementing these new services in the coming years would exacerbate major inefficiencies and significantly impair the state from meeting citizen expectations.

Not Applicable.

## Future Innovations

The ideas in this section have been proposed as solutions that will allow OIT to grow and discover new and innovative services for state agencies. The solutions in this section will increase state employee efficiency and improve service to Colorado residents and state visitors. They are currently not funded. We may see these as new projects in the future.

## Chatbots for Customer Service Support

Beyond the major modernization of the Unemployment Insurance Benefits system in 2020, CDLE may begin investigating additional technological advances such as chatbots to both improve the speed of service to claimants as well as to streamline program costs. This agency-funded initiative has a tentative timeline of FY20-23.

# CDLE's Unfunded Technology Outlook

The totals below are high-level cost estimates where funding has not been clearly identified. In most cases, for technology initiatives defined as an OIT enterprise initiative, OIT seeks funding through Decision Items. Enterprise initiatives help ensure that the state maintains consistent technology service and is able to take advantage of scalable rates.

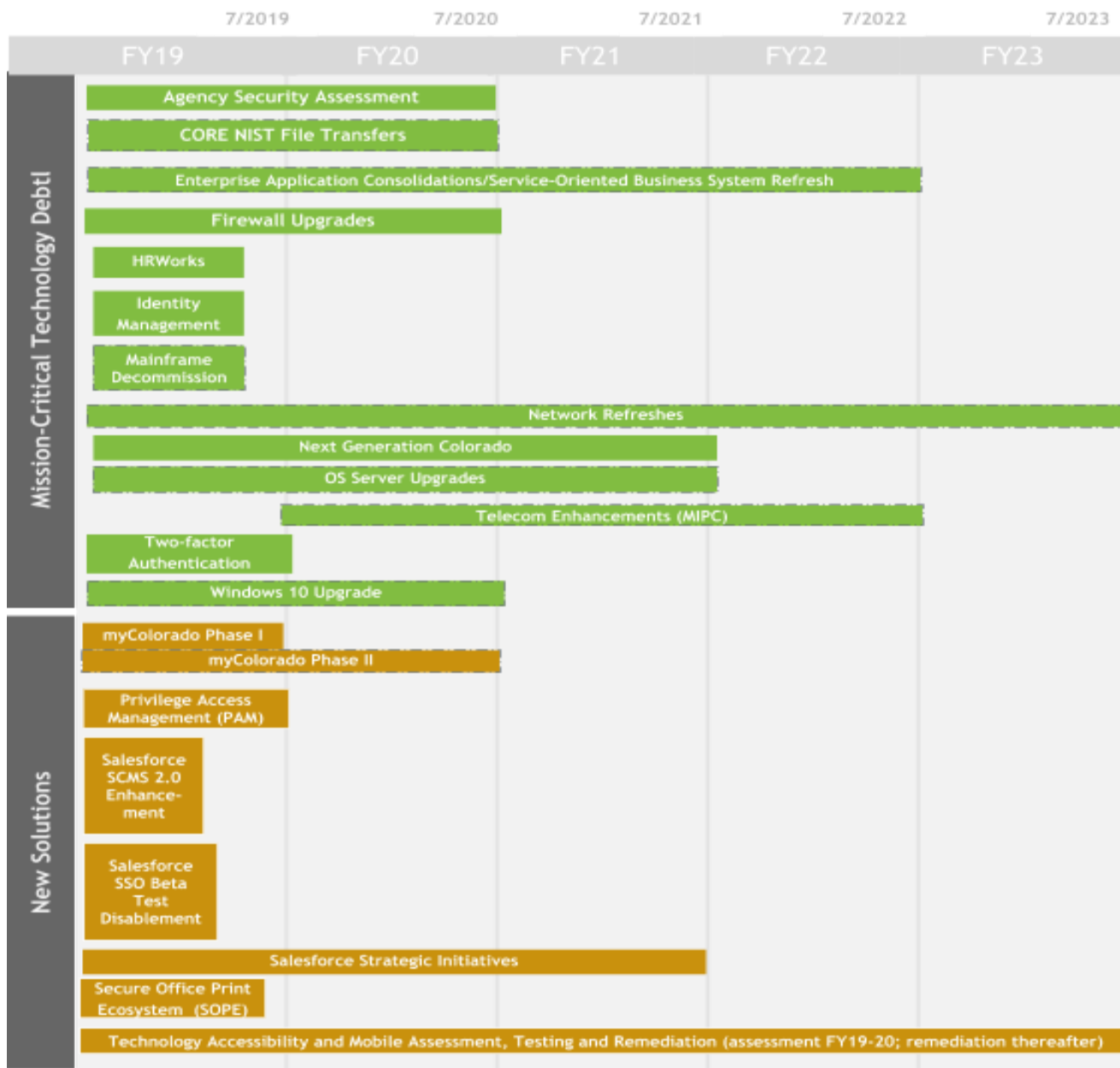
For a more detailed breakdown, contact your agency's IT Director.

	FY19	FY20	FY21	FY22	FY23
Agency Mission-Critical Technology Debt	\$0.00	\$6,785,000.00	\$1,000,000.00	\$0.00	\$0.00
New Solutions	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>TOTAL</b>	\$0.00	\$6,785,000.00	\$1,000,000.00	\$0.00	\$0.00

# Appendix A: Enterprise Initiative Roadmap

The timeline below represents OIT’s enterprise initiatives. Enterprise initiatives help to ensure that the state maintains consistent technology service and is able to take advantage of scalable rates. These initiatives are part of OIT’s overall strategic direction and may be mandated or offered to agencies optionally.

This timeline has been included to provide a reference as to how an individual agency’s IT Roadmap correlates to OIT’s enterprise plan. Descriptions of each initiative can be found in Appendix B.



NOTE: An initiative with a dashed-line border indicates the initiative is unfunded or partially funded.

# Enterprise Initiative Roadmap



NOTE: An initiative with a dashed-line border indicates the initiative is unfunded or partially funded.

# Appendix B: Enterprise Initiative Details

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This section provides an overview of each Enterprise Roadmap initiative.

## **Mission-Critical Technology Debt**

These initiatives are vital to the functioning of normal government services. Delay in pursuing the initiatives will create a need for future effort and resources that surpass those needed if the initiatives are carried out proactively.

### **Agency Security Assessment**

The Security Operations Team will conduct agency-specific assessments to determine what risks and threats our customers may be facing and ensure that the security program is aligned and designed to mitigate security risk to the business objectives. The effort includes understanding the agencies' specific nuances and business objectives, ensuring that critical and essential systems match OIT's inventory, and that agency risks are understood. With implementation in FY19-20, the assessment will highlight specific areas of risk-reduction for each agency, and we will create roadmaps for reducing those risks. The effort will be funded through the Emergency fund to the extent it is available and supplemental funding thereafter as needed.

### **CORE NIST File Transfers**

As a part of the HRWorks Project, the state accounting application (CORE) is being moved into a more secure environment. This initial migration of CORE was completed in April 2018. As a result of this move, file transfers to and from CORE are impacted. The immediate impact has been mitigated; however, after completion of Phase I of the HRWorks Project, currently scheduled for FY19, there will be a need to migrate to a more secure file transfer process called One Automate. Thus, the CORE NIST and CORE SFTP Replacement will require any current department/agency user of CORE to become a consumer of technology platforms (e.g., MuleSoft, Automic and MoveIT) providing new CORE integration services. Agencies will need to determine their costs for migrating to One Automate. Unfunded. Timeline: FY19-20.

### **Enterprise Application Consolidations/Service-Oriented Business System Refresh**

The statewide consolidation of existing and new applications onto standard enterprise platforms will create a simpler and easier end-user experience, reduce the long-term cost of maintaining duplicative applications, and strengthen OIT's support capabilities. Consolidation efforts completed through FY16 were funded through the Eliminate Redundant Applications Decision Item; any future costs, including implementation, license cost and maintenance, will be funded by the agencies. Timeline: FY19-22.

### **Firewall Upgrades**

OIT will continue upgrading the disparate agency-specific firewalls to the statewide standard Next Generation Firewall. These firewall upgrades will increase security through web filtering, application inspection, and intrusion protection systems, and we expect to see significant cost



savings from an enterprise licensing agreement. Agencies targeted for FY19: OIT-GOV, DNR, DOLA, CDA, DOR, CDHS, CDLE, HCPF, DPA, CDPHE, Treasury/Facility; for FY20: HC, CDPS, DORA. HC has requested that its firewall to be migrated earlier than FY20 if possible; depending on availability of resources, OIT will try to meet this request. This project has been funded through an FY16 Decision Item.

## HRWorks

The Department of Personnel & Administration (DPA) and OIT continue their work to develop an enterprise Human Resource Information System (HRIS). The HRWorks project is a collaborative effort to consolidate approximately 80 disparate, outdated, and redundant systems into a modern, seamless solution that will eventually integrate with CORE, the state's financial system of record. Modules in the new HRIS, which is expected to go live in FY19, will include central employee demographics repository, employee performance management, onboarding, payroll and timekeeping. Development of the system is funded through a DPA FY16 Decision Item.

## Identity Management

OIT is establishing One Identity, a centralized system for secure access, authentication, authorization and user account administration for all systems managed or supported by OIT. In addition to significantly speeding up the delivery of access control and onboarding requests, we expect a reduction in the risks and costs associated with duplicative accounts. Secure Colorado has supplied funding for the statewide deployment of One Identity and will pay for internal licenses. Agencies interested in having additional applications integrated into One Identity, or needing external licenses, will need to fund the professional services for the connection and configuration. This multi-year effort is expected to be complete by February 2019.

## Mainframe Decommission

OIT is working to retire the mainframe; applications, integration and data sets must be identified and planned for migration or retirement, including determining agency costs. Agencies that will be impacted are the Departments of Agriculture, Corrections, Health Care Policy & Financing, Human Services, Labor & Employment, Natural Resources, Public Health & Environment, Personnel & Administration, Public Safety, Regulatory Agencies, Revenue and Transportation. This initiative has a target date for retirement of December 2019 and will require agency funding to address agency-specific migration and services costs.

## Network Refreshes

OIT is developing a statewide refresh lifecycle that will annually replace 20 percent of network infrastructure that is at its manufacturer's end-of-support lifecycle. This will keep the state's technology current and under warranty, which ensures continued support for this critical component. Customers will experience increased IT system performance with decreases in downtime, outages and lost connectivity with the added availability to a secure and stable infrastructure. This is an ongoing effort that will incur some impact to each agency each year. The effort has been funded through the FY16 Infrastructure Refresh Decision Item; however, the funding does not cover all the needed refreshes, so agencies will need to fund part of this effort. The initiative is ongoing.

## Next Generation Colorado

Next Generation Colorado is an initiative to develop the automation and operations to support quick service delivery, transparent cost modeling, scalability on-demand, high availability and agility of workloads across the enterprise. This effort will also include data center modernization, operational management and hybrid cloud solutioning to span private and public Infrastructure as a Service (IaaS) models. This is a capital-funded initiative from a FY18 Decision Item (DI). Half of the funding was approved for use in FY19 and will support cloud readiness and sustainability, security improvements and data center repairs. The second half of the funding is expected to be approved for use starting in FY20 and will be used to continue our FY19 work as well as automation and service efficiencies. The initiative is scheduled for FY19-21 with ongoing maintenance annually thereafter. Agencies impacted: CDOC, CDLE, CDOT, CDHS, CDPHE, DOR, DORA, DOLA, DNR, OIT, DPA, HC, HCPF, GOV and CDA

## OS Server Upgrades

As Windows Servers (2003, 2008 and 2012) reach their end-of-support lifecycles, it is increasingly difficult to find service providers who continue to support these operating systems (OS). To ensure state servers continue to receive appropriate support and reduce risk, OIT will retire and replace all server end-of-support operating systems used by supported agencies. Moving to a newer version will give customers a more secure and supportable OS for their applications. The Enterprise Applications and the Server Admin teams will work together to determine the affected applications in FY19 and migrate the servers to the new OS in FY20 & FY-21. This effort is currently unfunded.

## Telecom Enhancements (MIPC)

To keep our phone technology current and consistent, OIT's Telecommunications Team will migrate agencies from their stand alone Cisco VoIP systems to the enterprise Managed IP Communications (MIPC) voice solution. The multi-year initiative is in the planning phase for the four remaining agencies: CDPHE, DNR, DOLA, CDHS/CMHIP. Implementation will occur as the current stand alone Cisco VoIP system approaches end of life in each of the agencies. The estimated timeline for planning, determining costs to the agency and migration for this currently unfunded initiative will occur in FY20-22.

## Two-factor Authentication

OIT will enable two-factor authentication (2FA) to add an extra layer of security to the verification process and thus reduce the risk of data breaches and meet data privacy requirements. OIT's internal and statewide Access Control policies require that access to the state's information systems be restricted to just those who need access to perform their jobs, using the principle of least privilege. Eighty percent of all privileged access will utilize two-factor authentication by the end of FY18, and with new funding from Secure Colorado beginning FY19, we will continue deployment. OIT, HCPF and CDOT have completed implementation. The implementation to the remaining agencies will be completed by the end of FY19.

## Windows 10 Upgrade

Support for the Windows 7 operating system (OS) expires in January 2020. To ensure there is no lapse in support, OIT will upgrade all Windows 7 computers (desktop and laptop) to Windows 10. This is a multi-year effort that spans 17 agencies and more than 28,000 devices. The Microsoft Enterprise License Agreement (ELA) will cover the upgrade for all agencies except four that will

need to cover the cost of the upgrades: CDHS, CDOC, DNR and HC. This is a multi-year effort that is expected to be complete in FY20.

## Enterprise New Solutions

These initiatives provide new yet fundamental service to agencies. Heightened end-user technical expectations are driving service providers to strengthen system functionality. Delay in implementing these new services in the coming years would exacerbate major inefficiencies and significantly impair the state from meeting citizen expectations.

### myColorado

OIT is leading the effort to create a mobile application that will deliver current and future agency services on a modern and mobile platform. The myColorado app will provide residents, visitors and businesses easy and secure access to services via Federated Identity Management for citizen engagement through a single interface accessible anytime, anywhere. The solution will provide easy integration for agencies wanting to add a service to the app. It will provide users a protected entry point into state services, and once they establish a profile, it will reduce the need to re-enter that data. Phase 1 will be the launch of the app through the Department of Revenue in FY19 with the initial services of driver license and vehicle registration renewal as well as the ability to store a digital copy of a vehicle insurance card. It will also include the ability for the Governor's office to provide direct communication to app users. Future phases will include the integration of services provided by multiple state agencies. Specifically, Phase II, which involves DNR, DOC, DOLA, DOR and CDLE, is in the planning stage, which includes determining costs and funding, during FY19-20.

### Privilege Access Management (PAM)

This is an effort to implement a least privilege management solution to oversee enterprise password management over privileged credentials, application password management and session logging and server privilege management to ensure administrator and root security and compliance. The benefits are many and include: a dashboard for operations, management and audit reports; an open standards tool that integrates with ITSM, IDM, Active Directory, etc.; automatic discovery of systems with privileged access; automating the creation of role-based access; assisting in role definition/creation; and secure employee exit de-provisioning which currently relies on manual processes that create security risks and the loss of assets. This effort, funded through Secure Colorado, is scheduled for completion in FY19.

### Salesforce SCMS 2.0 Enhancement

This initiative will implement product backlog to enhance the current system with increased functionality to support increasingly complex program activities and migrate the application to Lightning. The project will also be used as a beta environment for developing Salesforce enterprise initiatives DX and Security. Implementation is planned for June 1 through October 31, 2018, and the initiative is funded by OIT.

### Salesforce SSO Beta Test Disablement

This initiative will disable the integrations, profiles and licenses used for the FY16 Salesforce SSO Beta test that did not get approved to move forward. Disablement is scheduled for the following agencies from July 1 through September 30, 2018: OIT, DOC, CDPS, CEO, GOV, DOR, OEDIT, CDHS, DORA. No additional funding is needed.

## Salesforce Strategic Initiatives

Salesforce is an enterprise cloud platform that provides multi-tenant services including platform as a service and software as a service. The platform is a collection of application development, deployment and hosting services which allows customers the ability to purchase, use and customize Salesforce deployed applications or use platform capabilities to develop their own applications. It includes the Salesforce Platform, a multi-tenant platform that allows each organization to use a set of shared resources. Organizations share a common codebase and their applications can be customized for their specific needs.

As an OIT provided service, there are several Salesforce Strategic initiatives planned for FY19 to better serve the needs of the state which include the continued migration of existing agency applications to the new Salesforce UI and implementation of Salesforce DX which allows for the following: continuous delivery and quality controlled releases for Salesforce applications, an enterprise-wide Salesforce Release and Environment procedure to better manage multi-tenant environments, a Salesforce Platform System Security Plan and security standards to ensure Salesforce applications meet regulatory and compliance statutes and a new Salesforce private appexchange to share components and applications across the enterprise to reduce implementation costs associated with Salesforce.

The funding for the Salesforce initiatives will come from different sources. Lightning Migration is agency funded. Salesforce DX, Enterprise Wide Salesforce Release & Environment Management, and Enterprise Salesforce Org Strategy are enterprise funded, and funding for Enterprise Salesforce Security Management and Salesforce Private AppExchange & Storefront is still being planned. Timeline: FY19-21.

## Secure Office Print Ecosystem (SOPE)

OIT is working with the Department of Personnel & Administration (DPA) on the Secure Office Print Ecosystem (SOPE) project to secure the state's multifunction printers against hackers. This project involves approximately 656 devices managed by DPA's Multifunction Printer Program, which are distributed in 16 executive branch agencies. As members of the SOPE project, OIT's security and desktside teams are helping to upgrade firmware and secure the printer platform and its entry points into the state network. OIT is also providing project management services. DPA is incurring all costs associated with this managed print service solution. Implementation for all agencies is expected to be complete by March 31, 2019.

## Technology Accessibility and Mobile Assessment, Testing and Remediation

OIT has a statutory obligation to work with executive branch agencies to improve technology access to users with disabilities, including those who are blind and/or visually impaired (see C.R.S. 24-85-101 et seq). To fulfill our duty to improve these services, OIT must provide tools, methods and resources to adequately assess, remediate and maintain the systems for their ability to provide proper accessibility (in conformance to industry standards). This initiative will establish project governance, application testing requirements, standards and training to achieve the goals and mandates of this statute. Any changes needed to address accessibility within an agency will be funded by the agency. The initiative is scheduled for assessment in FY19-20 and remediation thereafter.

## Enterprise Future Innovations

The ideas in this section have been proposed as solutions that will allow OIT to grow and discover new and innovative services for state agencies. The solutions in this section will increase state employee efficiency and improve service to Colorado residents and state visitors. They are currently not funded. We may see these as new projects in the future.

### Identity Analytics

OIT would like to incorporate identity analytics into our security and big data strategy using machine-learning and advanced behavioral analytics that consume and analyze data and will improve our capabilities to detect and respond to risk timely, help with digital change, increase agility and enable higher levels of automation. Implementation is being planned for FY20-22; however, the initiative is currently unfunded.

### Smart Cities Exploration

A smart city is a designation given to a locality that incorporates information and communication technologies (ICT) to enhance the quality and performance of urban services such as energy, transportation and utilities to reduce resource consumption, wastage and overall costs. Traditional smart city projects focused on community internet access, smart lighting, transportation and citizen data sharing. State effort around smart cities would be focused around the coordination of infrastructure and standards to enable smart applications that seamlessly transition as residents transition from one locality to another. Timeline: FY19 and ongoing. This initiative is currently unfunded.





## Colorado Department of Labor & Employment

# Five-Year IT Roadmap