

# Five-Year IT Roadmap



## *Department of Personnel & Administration*

Aligning business goals and technology forecasts  
July 2019



**COLORADO**  
Governor's Office of  
Information Technology  
Serving people serving Colorado

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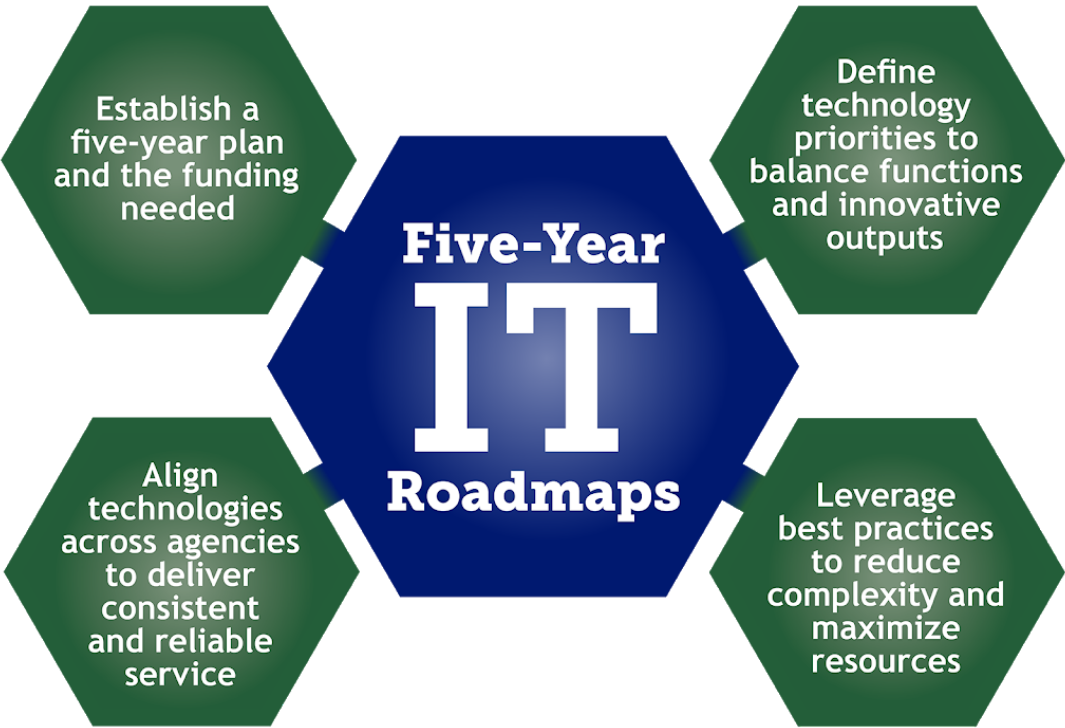
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# Introduction

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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

- Costs 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 3% 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% 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 Personnel & Administration 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

Reduce health care costs for Coloradans - To expand health care value and reduce costs, utilize an invitation to negotiate to procure services to provide health insurance benefits to State employees; have contracts executed by January 31, 2020.

## Objective 2

100% Renewable Energy by 2040 - To reduce the amount of energy consumed by our Capitol Complex buildings, transition from 0% to 100% of our buildings equipped with LED lighting (approximately 22,000 light fixtures within 17 buildings across Colorado) by June 30, 2020.

## Objective 3

Make Colorado State Government an Employer of Choice -Meet with 50% of the State employees by March 2020 in order to better understand their perspectives for organizational successes and begin to roll out a 3-year strategic plan by June 30, 2020 to make the State of Colorado Government an Employer of Choice.

## Objective 4

Innovations and Efficiencies - To increase vendor competition and leverage the State's negotiation power, increase statewide procurement of goods and services from \$0 to \$1B (total contract value) through invitations to negotiate (ITNs) by June 30, 2020.

# 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.

		FY20	FY21	FY22	FY23	FY24
Mission Critical Technology Debt	Application Consolidation and Decommissioning	[Green bar spanning FY20-FY24]				
	CORE Upgrades	[Green bar FY20]	[White bar FY21-FY24]			
	CORE SOC 1 Type 2	[Green bar FY20-FY22]			[White bar FY23-FY24]	
	Integrated Document Solutions Mail Equipment Refresh	[Green bar FY20-FY21]		[White bar FY22-FY24]		
	South Campus Infrastructure Refresh	[Green bar FY20]	[White bar FY21-FY24]			
	New Solutions	Asset Inventory Management System	[Gold bar FY20-FY21]		[White bar FY22-FY24]	
Benefits Solution		[Gold bar FY20-FY22]			[White bar FY23-FY24]	
Comprehensive Annual Financial Reporting		[Gold bar FY20-FY21]		[White bar FY22-FY24]		
Credit Card Payment Processing		[Gold bar FY20]	[White bar FY21-FY24]			
HRWorks - Talent Management and Acquisition and Learning Management		[Gold bar FY20-FY23]				[White bar FY24]

# 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 efforts and resources that surpass the resources needed if the initiative were carried out proactively.

## Application Consolidation and Decommissioning

At DPA, there are 13 applications recommended for decommissioning and one recommended to be consolidated with other applications. This will result in the requirement for Enterprise Applications to process decommission and consolidation plans and obtain agency approval to remove data and decommission servers. This initiative is unfunded and the timeline is FY21-24.

## CORE Upgrades

The upgrade of the Colorado Operations Resource Engine (CORE) scheduled to take place after the implementation of HRWorks, will expand functionality within the system to incorporate additional grant modules, workflows, reporting and user interface improvements. The upgrade will also move all of the components of CORE, and payroll, and time and leave solutions of HRWorks, to the same software version. Upgrades are provided by the vendor as part of the contract, and additional funding is not required. The timeline is scheduled for FY20 but is currently dependent on the implementation of HRWorks. This initiative is funded and the timeline is FY20.

## CORE SOC 1 Type 2

The System and Organization Controls (SOC) 1 Type 2 report provides details around the management of system controls. The reports assist the department with determining if proper controls are in place for a system. The department would work with the vendor to implement controls to comply with audit findings. This initiative is currently unfunded and the timeline is FY20-22. Budget estimates is \$116k for FY21

## Integrated Document Solutions Mail Equipment Refresh

The Department's Integrated Document Solutions (IDS) provides mail solutions for the notices generated by the Colorado Benefits Management System (CBMS). IDS utilizes mail inserting equipment to manage the large volumes of notices to Coloradans relating to benefits such as food, cash and medical assistance. The existing mail inserting equipment was purchased seven years ago, and was designed to handle moderate growth in CBMS volumes. The equipment was designed to last approximately 10 years under those conditions. CBMS volumes have outpaced growth projections, and as a result, are taxing existing mail inserting equipment to the point of possible failure. The Department anticipates the need to replace the equipment before the anticipated lifespan of 10 years due to the high volumes and criticality of the documents. The replacement of equipment includes server and network components that assist with tracking print jobs at the facility. This initiative is unfunded and the timeline is FY20-21.

## South Campus Infrastructure Refresh

This project involves upgrading the hardware infrastructure at the South Campus of DPA's Division of Central Services. The South Campus provides scanning and document storage services for numerous agencies. The infrastructure is nearing its five year life cycle and is due for a replacement. As part of this initiative, OIT will work with the division on a more sustainable architecture, which may include the utilization of the consolidated data centers. This initiative is currently unfunded, and estimates are pending the architecture plan. This initiative is unfunded and the timeline is FY19-20.

## 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.

### Asset Inventory Management System

Several sections within DPA are in need of an asset management system, including the Capitol Complex section as well as the state vehicle fleet management section. Existing solutions are antiquated with limited ongoing support. The ideal solution would provide an enterprise wide solution for multiple divisions and departments to utilize. While cost estimates have not been detailed at this time, there is likely to be a request for funding in FY20. Implementation will likely not begin until FY20 with estimated completion in FY21.

### Benefits Solution

The department has a need for a new statewide benefits solution. The department has explored benefits solutions as part of the HRWorks program. This initiative is funded and the timeline FY20 - 22.

### Comprehensive Annual Financial Reporting

The Comprehensive Annual Financial Reporting (CAFR) will eliminate the use of disparate systems, spreadsheets and documents to produce annual financial reports for the State of Colorado. The agency is seeking a solution that will automate and enhance internal controls over the preparation of the CAFR by synchronizing financial, statistical and narrative data for the Office of the State Controller. This effort is in the request for information (RFI) stage that will identify potential solutions and costs. The RFI stage will begin in FY20 with potential for implementation in FY20. This is agency funded.

### Credit Card Payment Processing

Three areas within DPA will be implementing credit card payment processing: State Archives, Capital Assets and the north campus of the Integrated Document Solutions. Funding of this initiative has not been determined at this time. Implementation began in FY19 with estimated completion in FY20.



## Electronic Signatures

The department intends to expand on the utilization of electronic signatures either with an existing solution or through the use of alternative solutions based on the use case. Current budget estimates are \$11k in FY21.

## Fleet Telematics

The State Fleet program is exploring the use of a telematics solution for vehicles. A telematics system exchanges information between a fleet of vehicles and a central system. The typical solution incorporates a mobile vehicle system with a stationary communication system. A central database maintains system and vehicle details. Budget estimates are \$671k in FY21, annualizing to \$1.3M in FY24.

## HRWorks - Talent Management and Acquisition and Learning Management

A future phase of the HRWorks project will address additional functionality at an enterprise level. This initiative will continue to address the multiple disparate systems throughout the state that provide similar functionality and will address the need for talent acquisition, talent management, benefits and learning management solutions. This initiative is currently unfunded. The implementation timeline is tentatively scheduled for FY20-23, but it is dependent on the implementation of the first phase of HRWorks (scheduled for FY19), funding and the solution.

## State Archives Digital Repository

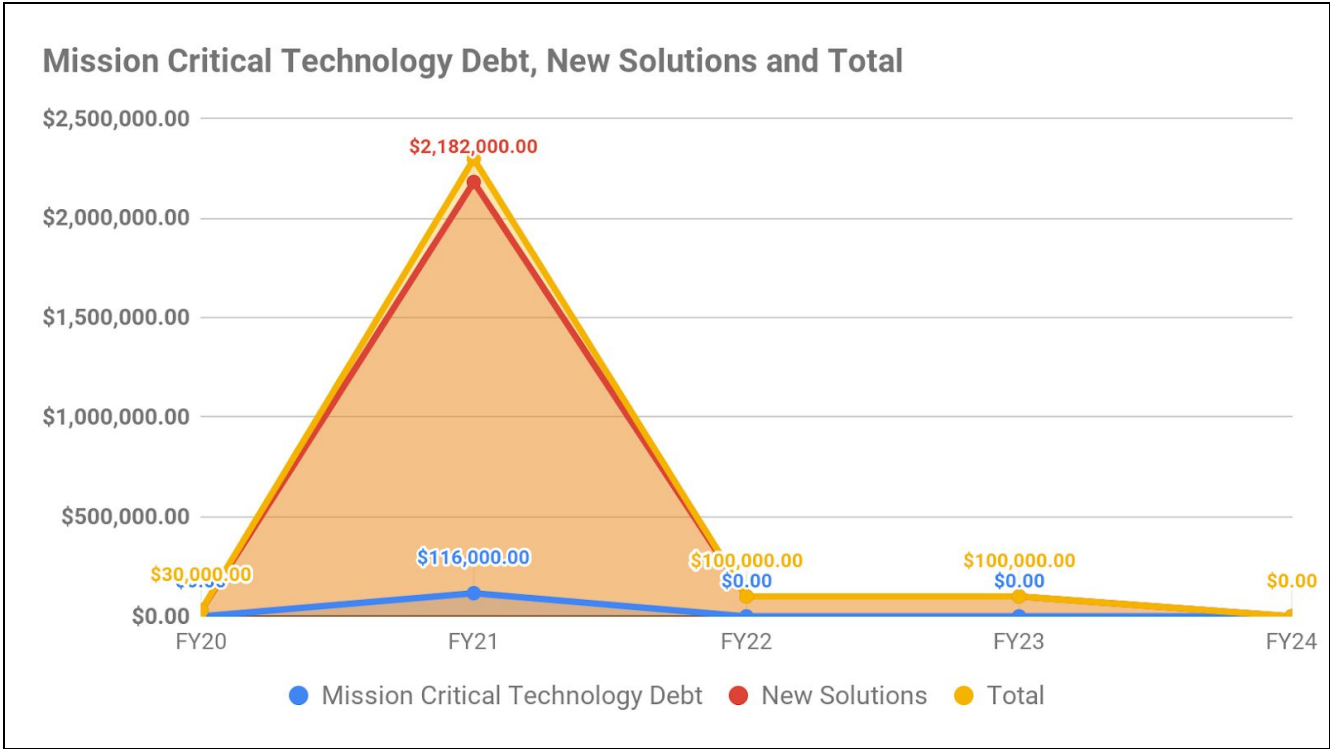
The Colorado State Archives (Archives) preserves the state's permanent legal records and information to promote its use by Colorado residents. Archives maintains a tremendous amount of audio, video and hard copy records without a system to manage the content. In many cases, should the original records be lost, they will be lost forever. This project would replace the current indexing system of paper binders to ultimately digitize historical content and provide Coloradans the ability to search for content online. Archives has limited funding and has been dependent on grant funding to implement solutions. It is anticipated that the greatest need will be for storage as archives generally generates about four terabytes of content per week, which could be increased under the current environment to 11 terabytes per week. While cost estimates have not been detailed at this time, there is likely to be a request for funding. Implementation is likely to start in FY19 and span multiple fiscal years, at least through FY21.

# DPA 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.

	FY20	FY21	FY22	FY23	FY24
Mission-Critical Technology Debt	\$0.00	\$116,000.00	\$0.00	\$0.00	\$0.00
New Solutions	\$30,000.00	\$2,182,000.00	\$100,000.00	\$100,000.00	\$0.00
<b>TOTAL</b>	<b>\$30,000.00</b>	<b>\$2,298,000.00</b>	<b>\$100,000.00</b>	<b>\$100,000.00</b>	<b>\$0.00</b>



# 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.

		FY20	FY21	FY22	FY23	FY24
<b>Enterprise Initiatives</b>						
	Application Lifecycle Management					
	CORE NIST File Transfers					
	Clarity PPM (CA PPM or Clarity)					
	Enterprise Infrastructure Refresh					
	HRWorks					
	Mainframe Decommission					
	Network & Infrastructure Refresh					
	Next Generation Colorado					
	OS Server Upgrades					
	Windows 10 Upgrade					
New Solutions	Antivirus Protection Removal					
	Content Services Application Consolidation					
	Content Services Enterprise Solution Deployment					
	CrowdStrike					
	Desktop Cloud Backup					

		FY20	FY21	FY22	FY23	FY24
	MyColorado					
	Privilege Access Management					
	Salesforce Platform Org Strategy					
	Salesforce Lightning Migration					
	Salesforce Release & Environment Management					
	Secure Office Print Ecosystem (SOPE)					
	Technology Accessibility and Mobile Assessment, Testing and Remediation					
	Future Innovations	Cloud Access Security Broker				
Data and Access Governance						
Cloud Access Security						
East West Traffic Security						
Easy Secure Service Excellence - ESSE						
End-to-End Monitoring and Logging						
Identity Analytics and Risk Intelligence						
Server and Deskside Endpoint Management						
Smart Cities Exploration						

# 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.

### **Application Lifecycle Management**

With an inventory of 1100+ applications, a key strategy for OIT is to streamline the application footprint. Through the consolidation of existing and new applications onto standard enterprise platforms, OIT can 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; with the funding of the Service-Oriented Business System Refresh Decision Item, \$800,700 will be approved for this program in future years. Allocation of the funds will be under the authority of an agency focused governance team. This funded initiative impacts all agencies and the timeline is FY20-23.

### **CORE NIST File Transfers**

The CORE secure file transfer service provides file transfer services between the State (all agencies, Wells Fargo and other external/higher education institutions) and the CORE financial system. The CORE file transfer service was originally implemented during the CORE project as a temporary service. The service compromises regulatory compliance and security of the assets entrusted; has significant risks from process and personnel perspective; Although meant to be a secure file transfer server, this asset is also using for archival of data files and the nature of that use compromises both the asset and the content. Data currently on the CORE secure file transfer server needs to be migrated to the properly structured and organized file storage and appropriate archiving and retrieval processes need to be established. If not executed there will be severe impacts to the CORE system and continued audit findings, it will cause a drain on OIT resources needed to support the current solution and perpetuation of risk due to inadequate business processes and inadequate, costly IT solutions supporting those processes. CORE secure file transfer server replacement will require any current department/agency user of CORE to become a consumer of technology platforms (Automic and MoveIT) providing new CORE integration services. This unfunded initiative impacts all agencies and the timeline is FY20.

## **Clarity PPM (CA PPM or Clarity)**

Clarity PPM is a comprehensive Project and Portfolio Management Tool in use by OIT and other agency customers to track and report on projects, programs and maintenance activities across the State enterprise. In recognition of this, OIT will begin distributing the costs associated with the tool by user license and type. Invoices are received from the vendor on or about July 1 of each fiscal year. OIT will produce a report of all users on July 1 of each year and based upon license type disburse the expense amongst the agencies of the user community. This initiative impacts all agencies and the timeline is FY20.

## **Enterprise Infrastructure Refresh**

This effort includes refreshing infrastructure support equipment (power, HVAC, UPS systems, etc.) for all agencies in order to ensure service uptime is in accordance with our service level commitments. This unfunded initiative impacts all agencies and the timeline is FY20-23.

## **HRWorks**

The Department of Personnel & Administration (DPA) and OIT continue their work to develop an enterprise Human Resource Information System (HRWorks). 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. Development of the system is funded through a DPA FY16 Decision Item. At this time the HRWorks project consists of human capital management (HCM), benefits module, payroll, labor allocation and timekeeping. Work is underway to identify the impact to each agency. Decommissioning of CPPS and related applications will be handled as a separate project. This funded initiative impacts all agencies and the timeline is FY20-22.

## **Mainframe Decommission**

OIT is working to retire the mainframe and associated applications. Integration and data sets must be identified and planned for migration or retirement. This includes determining agency costs. Agencies that still have applications on the mainframe include the Departments of Human Services, Labor & Employment Personnel & Administration, and Revenue. Additionally, with the state payroll system on the Mainframe, all agencies are impacted by this initiative. OIT has identified dependencies amongst other large projects that will prevent the retirement of the mainframe until functionality residing on the mainframe moves to new applications, and will require agency funding to address agency-specific migration and services costs. This funded initiative impacts all agencies and the timeline is FY20-22.

## Network & Infrastructure Refreshes

OIT is developing a statewide refresh lifecycle that will annually replace 20% of network and systems 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 these critical components. Customers will experience increased IT system performance with decreases in downtime, outages and lost connectivity with the added availability of 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 network refreshes, so agencies will need to fund part of the agency-owned network components. The systems infrastructure portion of the refresh initiative includes shared storage and vBlock hosting platforms in the two state data centers; agencies do not pay additional funding outside the Decision Item budget line for this portion of the refresh effort. This unfunded initiative impacts all agencies and the timeline is FY20-23.

## Next Generation Colorado

This is a two-part initiative representing Infrastructure and operational improvements as well as data center modernization. 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, upgrades 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. 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. This funded initiative impacts all agencies and the timeline is FY19-23.

## 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 and FY-21. This unfunded initiative affects all agencies and the timeline is FY19-21.

## 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 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 funded initiative and has a timeline of 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.

## Content Services Application Consolidation

Per the findings from a recent audit, Enterprise Content Services (ECS) will strategically assist agencies in transitioning and migrating away from unsupported, legacy content services applications. The goal is to eliminate redundant agency deployed ECM applications, which will dramatically reduce agency hardware and software costs by leveraging our Enterprise License Agreement with Hyland. Furthermore, this will streamline content management applications and directly support the playbook strategy of "Strengthening Colorado's Technology Landscape". We will continue to move the state's legacy and/or unsupported applications to our enterprise content services platform, which will reduce the total number of applications. The EDW application is the immediate focus in FY20-FY22 and is used by 14 agencies today. HP Records Manager deployed at CDPHE will also drive forward in FY21-FY22. This initiative is unfunded and the timeline is FY20-24.

## Content Services Enterprise Solution Deployment

ECS is continuing to develop enterprise solutions that can be leveraged by all agencies - highly standardized with an ability to customize via embedded non-code configuration will dramatically increase time to value. Agencies will directly benefit with improved operational efficiency, document/information sharing, visibility and cloud infrastructure. This effort ties to many of the agency application modernization efforts. Targeting License, Permitting & Inspections, Contract Management, Electronic Requisitions, Employee File Management, and Travel Requests, Approval & Reimbursement solutions. These solutions will improve business processing times and bring complete visibility to each business lifecycle, saving time and money! Content Services enables us to establish these enterprise solutions, which become standardized products offerings in our solutions portfolio. This initiative is based on the assumption that approximately half of the agencies leverage each of the following solutions:

1. License, Permitting & Inspections - OIT pilot is underway. Standard service offerings are slated for FY20.
2. Contract Management - contract creation through signatories (integrated with DocuSign). OIT project in-flight.
3. Electronic Requisitions - complete processing of funding requests with dump into CORE - already live at OIT.
4. Employee File Management - focus on capturing and managing HR employee files. OIT and CDOT are in-flight.
5. Travel Requests, Approval and Reimbursements - already live at OIT.

This unfunded initiative affects all agencies and the timeline is FY20-24.



## **Crowdstrike Deployment**

Deploy Crowdstrike across all agency systems to provide the very best endpoint security and protection from current threats, for the agency. This is a funded initiative and the timeline is FY20 - FY24.

## **Desktop Cloud Backup**

OIT will be providing expanded backup services across the state in the future. This expanded service will now include providing backups of documents and files that are stored on individual laptops and desktops. This is a funded initiative and the timeline is FY20 - FY24.

## **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 users 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 is the release 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. Phase II, could include state services provided by DNR, DOC, DOLA, DPA, CDPS and CDE. The planning efforts are underway which includes determining costs and funding. This is a funded initiative and the timeline is FY20.

## **Optimization of Endpoint Security**

Assess endpoint security tools to ensure the most effective security while minimizing performance impact. This may result in the lessening or removal of the McAfee endpoint agent, and may incorporate additional tools and capabilities to ensure appropriate anti-virus, encryption, and patching. This is a funded initiative and the timeline is FY20 - FY24.

## **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 funded initiative affects every agency and the timeline is FY20.

## **Salesforce Platform Org Strategy**

Defining a Salesforce Org Architectural Strategy to improve business/IT alignment, platform effectiveness and IT cost savings is part of the Salesforce Program strategic initiatives planned to continue transforming how government innovates, maintains and promotes secure cloud-based agile technology platforms in an enterprise model. This approach will account for the OIT enterprise Salesforce support model and application management best practices. This initiative is unfunded and the timeline is FY20-24.

## **Salesforce Lightning Migration**

Continued migration of existing legacy applications to and development of all new applications in the Salesforce Lightning (UI) is an effort to maintain the quality of the platform and accessibility to new product features. This is part of the effort to improve business/IT alignment, platform effectiveness and IT cost savings and is part of the Salesforce Program strategic initiatives planned to continue transforming how government innovates, maintains and promotes secure cloud-based agile technology platforms in an enterprise model. This initiative is unfunded and the timeline is FY20-24.

## **Salesforce Release & Environment Management**

Salesforce Release & Environment Management practices and tools to govern how changes occur between the platform and various environments is an effort to minimize application issues and protect the integrity of existing applications in the multi-use environment when deployed to production. This initiative is unfunded and the timeline is FY20-24.

## **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 deskside 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. This unfunded initiative affects all agencies and the timeline is FY20.

## **Technology Accessibility and Mobile Assessment, Testing and Remediation**

OIT has a statutory obligation to work with executive branch agencies to improve technology access for 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. These ideas are either unfunded or funded through Decision Item funding. We may see these as new projects in the future.

## Cloud Access Security Broker

Cloud Access Security is a software functionality that enables automation of manual processes used to govern the use of and protect sensitive state data in the cloud. As cloud computing continues to grow, OIT needs a way to deliver consistent security across multiple clouds and protect everyone using that data, this is outside of on prem data storage. The solution is scheduled to go active in FY20 with ongoing funding each year thereafter. This funded initiative impacts all agencies and the timeline is FY20-24.

## Data and Access Governance

This initiative ensures that sensitive, unstructured data is only accessible to approved users. Funding will be used to implement Data Governance to analyze, approve and fulfill unstructured data access to files, folders, shares across Microsoft NTFS file systems, Network Attached Storage (NAS) devices and SharePoint - on prem storage. The solution is scheduled to go active in FY20 with partial ongoing funding each year thereafter for maintenance. This funded initiative impacts all agencies and the timeline is FY20.

## East West Traffic Security

The East West Traffic Security initiative addresses vulnerabilities present within the traffic going to public cloud, traffic between agency-to-agency applications, and traffic from network to servers. These initiatives are the "glue" that helps bind the security infrastructure together, representing agency network upgrades and firewall upgrades and enhancements. They cross the functional infrastructure, Network, Access Control and Security Operations. The solution is scheduled to go active in FY20 with partial ongoing funding each year thereafter for maintenance. This funded initiative impacts all agencies and the timeline is FY20.

## Easy Secure Service Excellence - ESSE

The Enterprise Application team is requesting a network solution that will allow all application developers to access the code at any agency in the Executive branch. At this time, firewall rules and servers are set up currently, because each agency has its own network, developers would need remote access to 17 agencies to perform work. This request is being made in hopes that Enterprise Applications will be able to align with Demand Management infrastructure, enabling developers to serve across many domains, working across a multitude of practices. This structure will directly impact the level of service EA is able to provide to the customer. In order for EA to move to a Service Excellence model, this demand must be met. This unfunded initiative impacts all agencies and the timeline is FY21-24.

## **End-to-End Monitoring and Logging**

This initiative will increase the annual budget for this particular activity, which enables OIT to have the management platform to automate, manage and patch more endpoints and at a faster pace. Technical training and incident response retainer are inclusive of this initiative. The anticipated outcome of this initiative is that all agency endpoints would be aligned under a common platform that deploys scripts, patches, and updates for proper security compliance and hardening. In short, agencies can expect to see the number of vulnerable endpoints to be drastically reduced. The solution is scheduled to go active in FY20 with ongoing funding each year thereafter. This funded initiative impacts all agencies and the timeline is FY20.

## **Identity Analytics and Risk Intelligence**

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. This funded initiative impacts all agencies and the timeline is FY20.

## **Server and Deskside Endpoint Management**

This initiative will increase the annual budget for this particular activity, which enables OIT to have the platform to automate, manage and patch more endpoints and at a faster pace. Technical training and incident response retainer are inclusive of this initiative. The anticipated outcome of this initiative is that all agency endpoints would be aligned under a common platform that deploys scripts, patches, and updates for proper security compliance and hardening. In short, agencies can expect to see the number of vulnerable endpoints to be drastically reduced. The solution is scheduled to go active in FY20 with ongoing funding each year thereafter. This funded initiative impacts all agencies and the timeline is FY20.

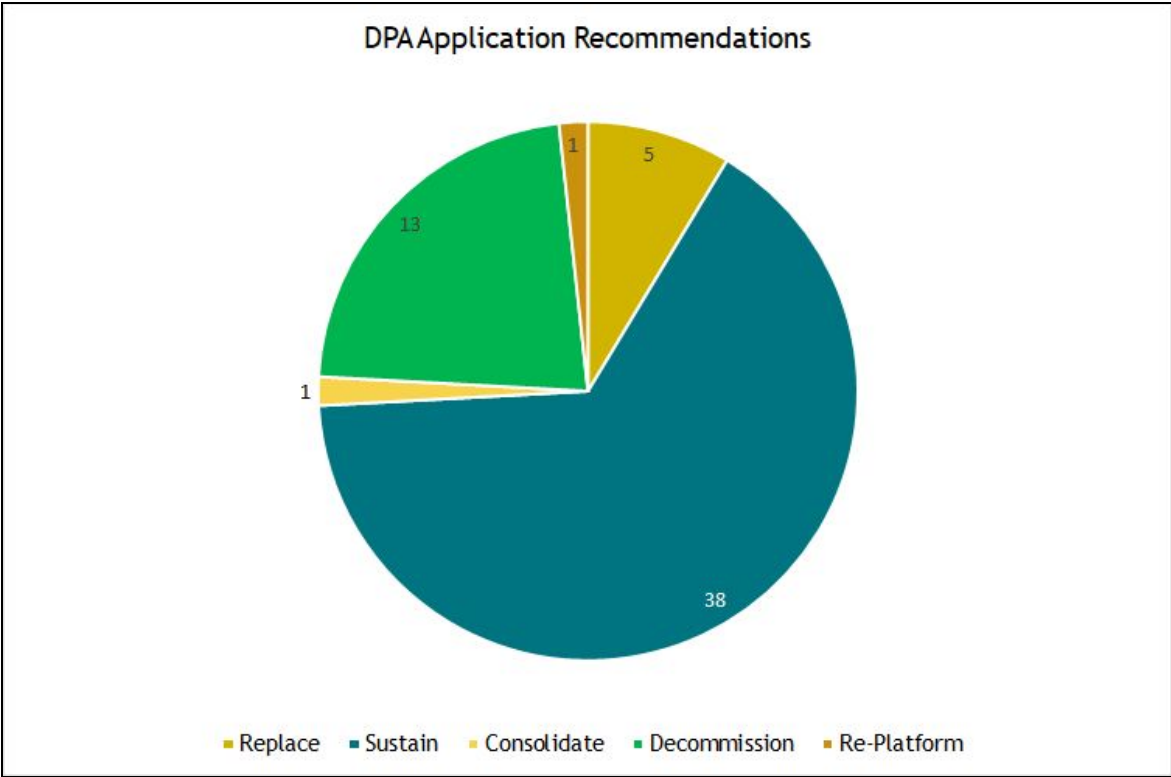
## **Smart Cities Exploration**

A smart city is a designation given to a locality that incorporates information and communication technologies 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. This unfunded initiative impacts all agencies and the timeline is FY20-24.

# Appendix C: DPA Application Lifecycle Recommendations

The table and chart below show the applications used by DORA, and the lifecycle recommendation for each application. In future years this will be expanded to include the application lifecycle timeline. The definitions for the recommendations below are as follows:

- **Consolidate:** Recommended when more than one application is being used to perform a single process. The multiple applications should be consolidated to perform the process.
- **Decommission:** Recommended for applications that have a definite plan to be decommissioned.
- **Enhance:** Recommended when an application that needs to be upgraded requires a more significant effort to upgrade than a recommendation to sustain.
- **Replace:** Recommended when an application needs to be replaced with a newer application.
- **Re-Platform:** Recommended when an application has the proper functionality but may be written in an outdated language or database and needs to be moved to a better platform.
- **Sustain:** Recommended when an application is functioning properly and does not require a major upgrade or change.





## Colorado Department of Personnel & Administration

# Five-Year IT Roadmap