For August 28 2023 JTC Hearing

Technical (tech) debt is the cost of maintaining legacy technology - a challenge the public and private sectors face. The state has an estimated $465 million in tech debt—the cost of equipment and staff time to keep unsupported and insecure older technology running to deliver services—stemming from aging infrastructure, end-of-life applications and systems with security vulnerabilities. When it isn't addressed, the consequences can be severe, and its impacts stretch across organizations.

The State of Colorado cannot advance digital government services with outdated and unsupported legacy systems.

The tech debt remediation portfolio launched in July 2022 with three main pillars:

- Decommissioning the mainframe.
- Moving the state from a leased data center (eFORT) to a state-owned data center and the cloud.
- Remediating Salesforce Vulnerabilities & Asset Management Projects

As we work to think differently about creating a digital government with state services accessible to all, we will continue to add projects to our tech debt portfolio that will allow us to modernize our technology infrastructure.

For more information and to stay up to date on the Tech Debt Remediation effort, please visit the ReimagineIT website and sign up for the monthly newsletter (https://public.govdelivery.com/accounts/COOIT/signup/34838).

1. Which elements of the project are currently underway? Which elements have been completed since the department last updated the JTC? Is the project on schedule with initial plans?

OIT Response:

Mainframe Decommission Program

The state mainframe was a 30-year-old central data center housing millions of data points and linking computers and services throughout the state. It was unreliable and expensive to maintain. Decommissioning the mainframe has been the most important project in our work to remediate technical debt in state systems and applications.

On July 29, 2023, the state-owned mainframe was migrated to the vendor-hosted mainframe environment. This enabled us to decommission the old mainframe hardware, stabilize the platform, and re-establish disaster recovery functionality. The Mainframe Stabilization project is nearing completion. The team now focuses on the

mainframe migration's IT service management (ITSM) component.

As of August 17, 2023, the mainframe migration project is 85% complete and is anticipated to be completed in Q3 2023.

Additional projects are in progress and running parallel to the mainframe migration effort.

Replacement of TIBCO Cyberfusion with TIBCO Managed File Transfer (MFT) Project - 84% complete

TIBCO Cyberfusion will be replaced with Managed File Transfer (MFT) to securely transfer files between State of Colorado agencies and the Social Security Administration (SSA). This is the latest version of TIBCO's file transfer product supported by the SSA. It is a regulatory requirement that we upgrade our product to the latest version approved by the SSA.

TIBCO Cyberfusion and all related jobs will be removed from the mainframe as part of the update to MFT, and MFT will be hosted in the Amazon Web Services (AWS) Cloud. The team has completed the configuration of VPN connectivity and the Amazon Web Services (AWS) environment. Network security configuration and agency development work is underway to replace TIBCO Cyberfusion with Managed File Transfer (MFT).

Modernization of the Electronic Benefit Transfer (EBT) Application - 32% Complete

EBT is the Colorado Department of Human Services (CDHS) application that processes and combines financial files transmitted by other CDHS products, including the County Financial Management System (CFMS), Colorado Benefits Management System (CBMS), Low-Income Assistance to Parents (LEAP), Childcare Automated Tracking System (CHATS), and Colorado's Statewide Automated Case Management System (Trails). These files work with FIS ebtEDGE to ensure Coloradans' benefits are paid.

The vendor has been identified, and the team is working with the Google (vendor) team to design and implement the cloud-based solution.

The modernization work started as part of the Mainframe Decommission Program. The project is expected to be completed in December 2023.

Modernizing the Automated Child Support Enforcement System (ACSES) - 63% Complete

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The Colorado Department of Human Services (CDHS) ACSES system is a 40-year-old computerized network used in most jurisdictions throughout Colorado to collect and redistribute child support. This project will move ACSES from the current mainframe to a cloud-based environment to improve security and reliability and modernize the ACSES system.

In addition to modernizing the ACSES system, the project will identify all dependent systems and databases currently accessible from the mainframe and work to migrate those systems off the mainframe as quickly as possible.

This project is expected to be completed by June 2024.

CPPS (Colorado Personnel Payroll System) shift from the mainframe in preparation for the Department of Personnel and Administration's CPPS Modernization Project

The CPPS tech debt project leverages an interim solution that moves CPPS to a vendor-hosted mainframe environment until the Colorado Personnel and Payroll System has been fully modernized. The modernization of CPPS is being handled by the Department of Personnel & Administration (DPA) and is outside the tech debt portion of this project's scope.

The CPPS interim solution replaces a dependence upon outdated hardware and software systems that are no longer supported by vendors or are no longer available in today's market.

This will provide continuity of operations for all agencies while the DPA CPPS modernization effort commences.

Modernizing State ID Module (SIDMOD) Application - 17% Complete

This project aims to allow demographic information to remain in sync across all the systems using State ID as the primary client identifier. To complete this project, a new software application in a modern cloud environment will support SIDMOD functions.

SIDMOD will be integrated with the Colorado benefit systems like the Colorado Benefits Management System (CBMS) and the Automated Child Support Enforcement System (ACSES) to ensure easier access for Coloradans seeking assistance from all state agencies. The estimated project completion date is June 2024.

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eFORT Migration Project - 54% complete

The state's lease of the eFORT Data Center is currently one of the most costly capital lease expenses. Since the state always strives to be good stewards of taxpayers' dollars, OIT identified that significant cost savings could be achieved by consolidating hardware from eFORT into the newly modernized Lakewood Data Center. Not only will a considerable amount of money be saved each year, but the facility offers state-of-the-art equipment and security, making it the best choice to set a foundation for modern infrastructure and advance digital government services in Colorado.

When we began our work to migrate out of the eFORT Data Center in January 2022, we had 178 racks in inventory. As of July 31, 2023, 95 racks have been removed. That is a 53% reduction in usage. When the tech debt project tracking began in July 2022, there were 160 occupied racks, and as of July 31, 2023, 65 of the 145 racks have been removed. This work is helping to save money and secure the state for all Coloradans.

The project will be completed by the end of Q1 2025.

Cloud Migration Projects - 50% complete

Core Network Refresh - 54% complete

OIT monitors and maintains the core network infrastructure at two data centers and the Capitol Complex network (CCLAN) for 18 state agencies. Many of these routers and switches are old. They are no longer supported by the vendor, presenting a risk of expensive repairs, major network interruptions, and cascading security risks on an enterprise scale.

The network refresh will minimize security risks associated with older and unsupported products that have reached the manufacturer's end of support. New infrastructure equipment will establish a more reliable network and enable modernization opportunities with cloud services and easier integration with newer technology, resulting in a better user experience. The estimated completion date is June 30, 2024.

Enterprise Wireless - 45% complete

Statewide Infrastructure Backbone (Session Initiation Protocol - SIP) - 94% complete

This project replaces T-1 trunking with Session Initiation Protocol trunking (SIP) for MIPC phones. SIP Trunking uses Internet Protocol (IP) to enable organizations to place telephone calls through the public telecom network. SIP is a new service through our managed services provider. Using SIP, voice and video become applications on the IP

Network like email or the web. It is more reliable and redundant than T-1 trunking.

This project's initial phase began on July 11, 2022, and is now 94% complete.

WINDOWS 2008 Project - 65% Complete / WINDOWS 2012 Project - 10% complete

Microsoft stopped supporting (providing technical support and upgrades for) Windows 2008 in January 2020. Windows 2012 support will end in October 2023. The main focus of this project is to decommission, upgrade, or modernize servers running on these operating systems due to the lack of support for Windows 2008 and before support ends for Windows 2012.

Windows 2008 has 171 total servers, and we have successfully decommissioned or upgraded 109 as of July 2023. The Windows 2012 project is currently in the process of completing server inventory (collecting server information). Once complete, they will begin evaluating servers for decommissioning or upgrades.

IT Asset Management (Complete for Tech Debt Scope) and Salesforce Security Vulnerabilities Remediation Project - 78% Complete

The IT Asset Management effort was completed within the scope of the Tech Debt remediation effort in January 2023. OIT will work with operations for ongoing maintenance outside of the scope of the Tech Debt project.

The Salesforce Security Vulnerabilities Remediation project is underway and is approximately 78% complete as of August 1, 2023. The project is scheduled to be completed by the end of September 2023.

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2. How much money has been obligated and spent at this point? Please break down amounts and spent separately.

FY2022-23 R-01 Modernizing Aging IT Systems (Tech Debt)				
Program	**Budget**	**Actual Expenses (Spent)***	**Encumbrances (Obligations)***	**Remaining Budget**
Decommission Mainframe	$28,199,078	$7,709,768	$14,428,268	$6,061,043
Exit Efort and Cloud Migration	$20,467,581	$6,196,573	$3,902,226	$10,368,782
Tech Debt Projects - ITSM and ITAM	$1,715,900	$2,329,759	$47,725	-$661,585
Tech Debt Projects - Salesforce Security	$1,638,166	$1,014,430	$898,856	-$275,120
Administrative Support	$1,263,835	$865,053	$0	$398,782
Total	**$53,284,560**	**$18,115,583**	**$19,277,074**	**$15,891,902**

**CORE data as of August 1, 2023*

3. What is anticipated to be completed by the next quarterly update?

The Salesforce Security Vulnerabilities Remediation project is expected to be completed by September 2023.

The Statewide Infrastructure Backbone (Session Initiation Protocol - SIP) project is expected to be completed by the end of October 2023.

4. When does the department/institution anticipate that the project will be complete?

	% Complete	Start	Finish
FY2022-23 R-01 Modernizing Aging IT Systems	**49%**	**Fri 7/1/22**	**Fri 6/28/24**
Decommission Mainframe	55%	Fri 7/1/22	Fri 6/28/24
Other Tech Debt Projects	89%	Fri 7/1/22	Fri 9/29/23
Exit eFORT and Cloud Migration	50%	Fri 7/1/22	Fri 6/28/24

5. Are there any important concerns or updates you wish to share with the committee?

There are concerns related to resource constraints and competing priorities. OIT continues to identify and reprioritize crucial technical debt projects that need remediation. More funding and human capital resources will be required to complete all of these projects. We will continue to follow the budget process requesting these resources; however, we must collaborate with OSPB and the legislature to create a sustainable technical debt funding model while not pausing or reducing the current investments being made through budget decision items. While the investments made in FY2022-23 and FY2023-24 in technical debt have been substantial, the funds that were approved were lower than what was originally requested from the legislature.

Increasing costs due to inflation pose a challenge and has contributed to increased costs in various sectors, including information technology. Predicting and even tracking inflation in IT projects can be incredibly challenging due to the dynamic nature of technology markets and the complex factors that influence pricing and availability. As a result, our project managers are doing their best to build contingency plans and flexible cost structures to mitigate some of these impacts.

Lastly, we are battling to work smarter while simultaneously being asked to work harder. We must find better ways to balance work and life for our employees, including adding staff to support tech debt remediation work or daily tasks that those staff cannot prioritize.

6. For multi-phase projects, has there been any insight gained through this phase of the project that will cause changes in the next requested phase of the project?

The technical debt remediation portfolio launched in July 2022 and continues to refine, scope and prioritize the projects themselves. OIT has learned much over the past year. We dug deeper into assessing the state's current technical debt projects and remediation needs. We have better insight into the work, resources, and support that OIT and agencies need to complete for this work. Our project and funding requests in the next phase of tech debt remediation will include a more significant focus on several components that will help modernize critical state services across multiple agencies.