

**Information Technology Steering Committee
(ITSC) Meeting Agenda**

December 19, 2023, 3:00 p.m.

1151 Punchbowl Street, Conference Room B-20, Honolulu, Hawaii 96813

This meeting will be conducted remotely. Members of the public may participate via interactive conference technology (ICT) or in person at the physical meeting location indicated above.

Join on your computer or mobile device: [Click here to join the meeting](#)

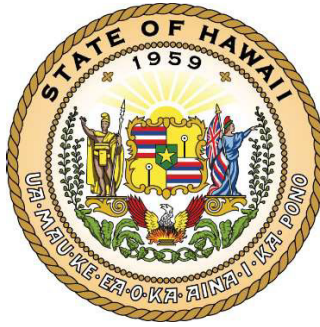
Call in / Audio only: 1-808-829-4853; Conference ID# 998 660 393#

- I. Call to Order
- II. Introduction of Chief Data Officer, Rebecca Cai
- III. Annual Report – Discussion and Appropriate Action
- IV. Strategic Plan – Discussion and Appropriate Action
 - a. ETS IT System Quality Assurance Program
- V. IT Consolidation Working Group – Discussion and Appropriate Action
 - a. Final Working Group Report
- VI. Good of the order
 - a. Announcements
 - b. Next Meeting: To be determined
- VII. Adjournment

Individuals may provide oral testimony during the meeting or submit written testimony in advance on any agenda item. Written testimony may be sent via email to ets@hawaii.gov, Subject: *ITSC Testimony*, or testimony may be mailed or delivered to 1151 Punchbowl Street, B-10, Honolulu, Hawaii 96813. Oral testimony will be limited to three (3) minutes per person or organization.

This ICT meeting will provide automated captions/live transcription. Individuals requiring other reasonable accommodations to participate are invited to email ets@hawaii.gov or call (808) 586-6000, at least three (3) working days prior to the meeting. Last-minute requests will be accepted but may not be possible to accommodate.

Upon request, this notice is available in accessible formats.



ENTERPRISE TECHNOLOGY SERVICES ANNUAL REPORT 2023





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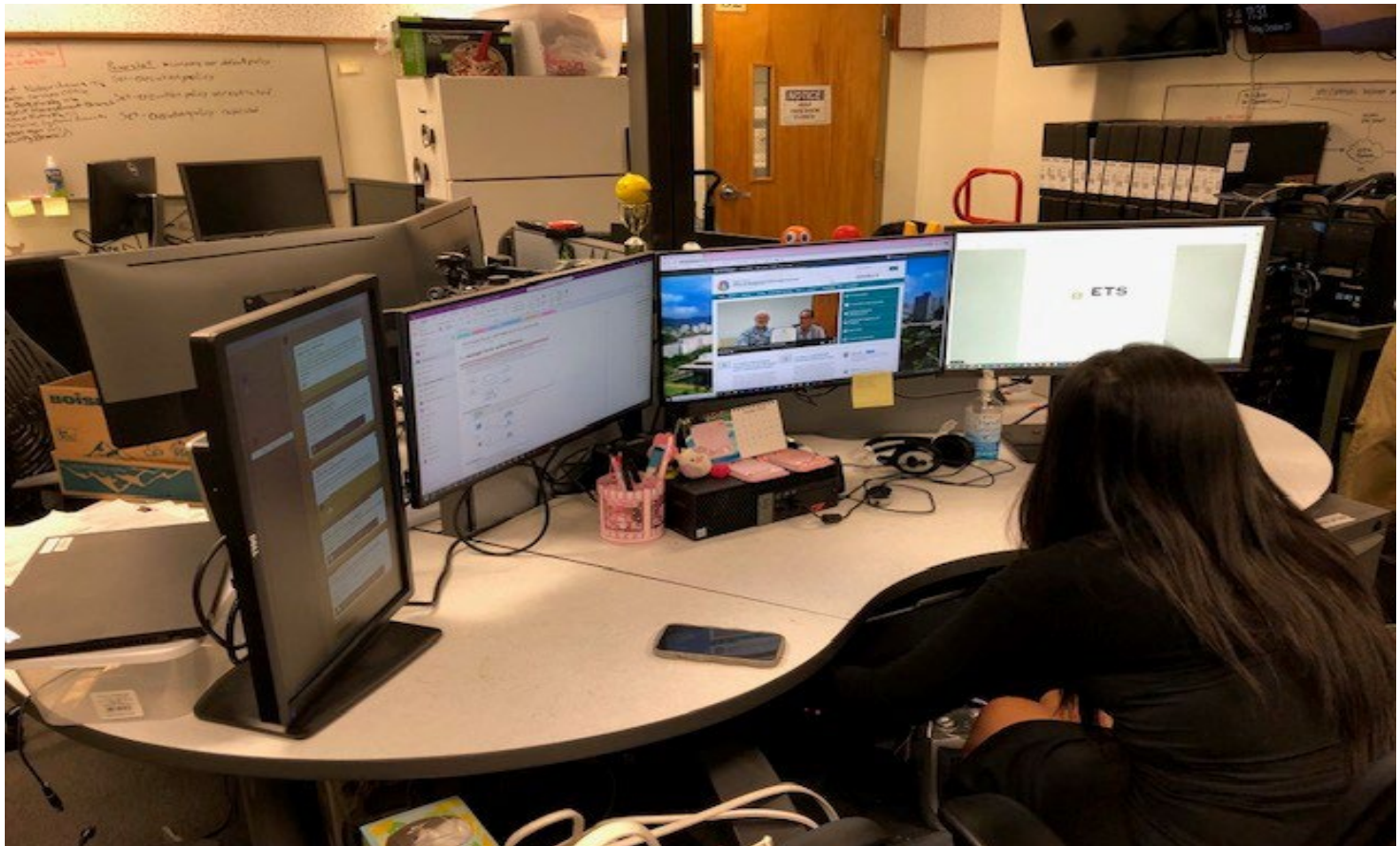


ABOUT US

The Office of Enterprise Technology Services (ETS) provides governance for executive branch IT projects and seeks to identify, prioritize, and advance innovative initiatives with the greatest potential to increase efficiency, reduce waste, and improve transparency and accountability in state government.

Composed of nine branches, ETS also supports the management and operation of all state agencies by providing effective, efficient, coordinated, and cost-beneficial computer and telecommunication services. The nine branches include: Production Services, System Services, Technology Support Services, Client Services, Enterprise Systems, Network, Security, Enterprise Architect, and Program Management.

The Office of Enterprise Technology Services (ETS) was established by Hawai'i Revised Statutes §27-43. ETS is headed by a full-time chief information officer (CIO) to organize, manage, and oversee statewide information technology. The chief information officer is appointed by the governor and reports directly to the governor. A key responsibility of the CIO is to develop, implement, and manage the state information technology strategic plan.



Inside the Help Desk office.



Hawai'i Revised Statutes §27-43 also establishes an Information Technology Steering Committee (ITSC) to work with the CIO in developing the State's information technology standards and policies, including the strategic plan. The ITSC meets quarterly and held two meetings in 2023.



State of Hawaii CIO Doug Murdock

IT STEERING COMMITTEE MEMBERS (served during 2023)

Douglas Murdock (Chair), Office of Enterprise Technology Services, State of Hawai'i

**Christine Sakuda (Vice Chair),
Transform Hawai'i
Government**

Benson Choo, Finance Factors

**Mel Horikami, Optimum Business
Solutions**

**Jarrett Keohokalole, Hawai'i State
Senate**

**Arnold Kishi, Center for Internet
Security, MS-ISAC**

**Joel Kumabe, Ohana Pacific
Health**

Michael Nishida, First

Hawaiian Bank

**Christine Shaw,
State Department of
Education**

**Mai Nguyen Van, Hawai'i
State Judiciary**

**Kyle Yamashita, Hawai'i State
House**

**Marcus Yano, CBTS Hawaiian
Telcom Garret Yoshimi,
University of Hawai'i**

The CIO or designee also serves on the following state committees:

- Access Hawaii Committee (ex officio Chair)
- Information Privacy and Security Council (ex officio Chair)
- Enhanced 911 Board (ex officio)
- Hawaii Health Data Steering Committee (ex officio)
- Broadband Assistance Advisory Council (appointed)

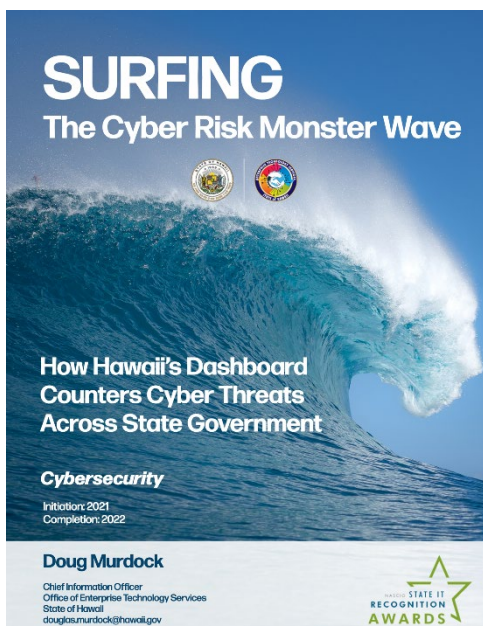


Award Recipient 2023



ETS EARNS NATIONAL RECOGNITION FOR CYBERSECURITY

The National Association of State Chief Information Officers (NASCIO) selected the Office of Enterprise Technology Services for its top cybersecurity category award at its 2023 State IT Recognition Awards Oct. 11 in Minneapolis, MN.



The award showcases the use of information technology to address critical business problems, more easily connect citizens to their government, improve business processes and create new opportunities that improve the lives of citizens.

ETS' winning submission is titled "State of Hawai'i: Surfing the Cyber Risk Monster Wave."

Hawaii Chief Information Officer Doug Murdock said state governments face an ever-increasing "wave" of cyber threats that, if unmanaged, can lead to devastating consequences.

"To help protect Hawaii, we developed the State of Hawaii Cyber Risk Scoring System to deliver real-time



visibility around cybersecurity controls and risk posture across all state departments in the executive branch,” Murdock said.

The Cyber Risk Scoring Program is based on a risk-based approach to cyber security. This means that resources are prioritized to mitigate the highest risks first. The program uses a scoring system to assess the risk of each information system. The scoring system takes into account the following factors:

- The value of the information system
- The sensitivity of the information system
- The likelihood of a cyber attack
- The impact of a cyber attack

Operated by ETS, this tool aggregates risk data from every endpoint in the executive branch into an easily digestible risk score that is updated for state leadership, including the Office of the Governor, State CIO, and State CISO as frequently as every two minutes.

“The Cyber Risk Scoring Program is a continuous improvement process,” said Vincent Hoang, Hawaii’s Chief Information Security Officer. “The program is constantly being updated to reflect changes in cyber security threats and risks. The program is also designed to be collaborative. ETS works closely with other state agencies and stakeholders to manage cyber security risks.”



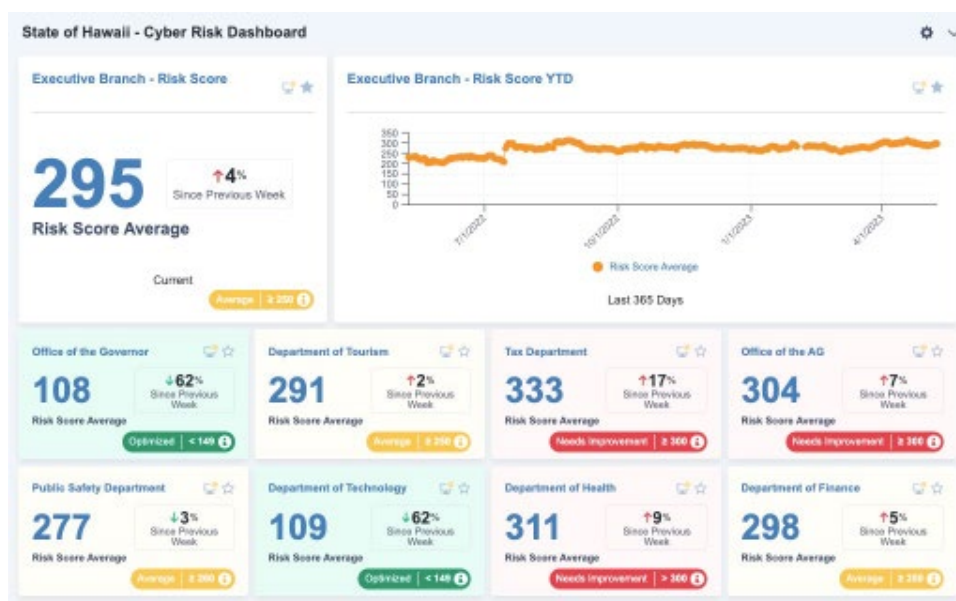
Hawaii CIO Doug Murdock (center) accepts the 2023 NASCIO award for cybersecurity along with (from left) Juha Kauhanen ETS, Bryce Fujii ETS, Zachary Nandapurkar Tanium, Josh Frank Tanium. Arnold Kishi ETS, Allan Wong Tanium.



The Cyber Risk Scoring program is built on top of the Tanium platform – which the State of Hawaii uses to manage and secure state-wide computer systems. The partnership between ETS and Tanium reflects the shared commitment to securing the State of Hawaii’s endpoints so that resident data is protected and essential services remain open.

Every week, Tanium Technical Account Managers meet with the ETS staff to create data-driven and innovative solutions around cybersecurity that save staff time and create higher value for State IT hygiene and cybersecurity management.

The Cyber Risk Scoring Program has been a tremendous success and has helped ETS to improve its cyber security posture and protect the state's information systems from cyber threats. The program has also saved the state money by helping to identify and mitigate risks before they become costly problems.



Note: Notional CRSS Dashboard recreated with mock data

This year nearly 100 submissions were received from NASCIO member states and territories and over 80 NASCIO members served as volunteer judges.

To ensure states have access to the innovations and leading practices of their peers, all award submissions have been added to [NASCIO's Awards Library](#).



ETS PROVIDES EMERGENCY COMMUNICATIONS, IT SUPPORT ON MAUI

Since day one of the Lahaina wildfire disaster, ETS has acted as the primary, lead agency for ESF#2 (Emergency Support Function 2 – Communications) coordinating the overall activities of state, federal, and private communication service providers responding to the Aug. 8 tragedy. ESF #2 provided emergency communications and IT support following the wildfire and coordinated restoration of the overall government and commercial communications infrastructure.

Two ETS managers lead the ESF #2 Team along with other ETS staff, the State Dept of Defense, and HIEMA. In response to Requests For Assistance (RFA) from county and responding agencies, the EFS #2 Team coordinated with other government partners and commercial suppliers to source and deliver requested and approved equipment and services.



Photo: Office of Governor Josh Green, M.D.

ETS also:

- Provided State ESF #2 lead role for the wildfires incident, managed by HIEMA.
- Responded to Request For Assistance entries, coordinated with ESF #2 partners and suppliers to source and deliver approved equipment and services to the counties.
- ETS added capacity to HIWIN (our statewide public safety communications network) to support the surge in responders in the west Maui region.
- Programmed and distributed 100 portable land mobile radios.
- Provided data network connectivity for Maui County in the impacted area to support coordination efforts.
- Restored communications to Kapalua airport by installing satellite terminals allowing airport operations and supply flights to resume.
- Responded to RFA (request for assistance) to send one Oahu based ETS staff to Maui to continue supporting communications restoration efforts.

Until the overall communications infrastructure destroyed during the wildfires is fully restored, ETS will continue to support provisioning telephone, data communications, radio communications, and Internet services required by the additional federal, state, county and National Guard presence in and around West Maui and in the Lahaina disaster recovery centers.



SUPPORTING TELEWORKING

The creation of ETS allowed the state to take a fresh look at the capabilities and infrastructure that allow government operations to continue in the event of unplanned disruptions, disasters, and emergencies. New mobile workforce and remote computing (telework) initiatives permitted employees to work from any location outside their usual offices that offered wired, wi-fi, or cellular phone internet access.

As specific examples, the state's Cloud First policy guides the migration of critical infrastructure and services from on-premise data centers to mainland cloud service providers; ETS works with all Executive Branch departments to implement the broad package of cloud-based Microsoft Office 365 tools that offer secure data sharing within and among departments using OneDrive and SharePoint, and convenient remote group meetings using Teams; ETS adopted the Adobe Sign platform providing digital signature workflow; and ETS conducted periodic training and education activities for departments and employees to learn how to use and redesign their business processes to apply those new productivity tools.



In 2022, one of the many enhancements to the Teams collaborative service was the ability to have any Teams conference meeting provide a dial-in telephone number for invited participants who cannot or will not use the Teams client or web interface.

This effort is continuing with our movement of State Enterprise Resource Applications to a managed environment and our current effort to shift from a physical mainframe to mainframe as a service. The migration of the ETS mainframe to a managed service was completed in January 2022. This completed the migration of both the primary and backup mainframe systems.

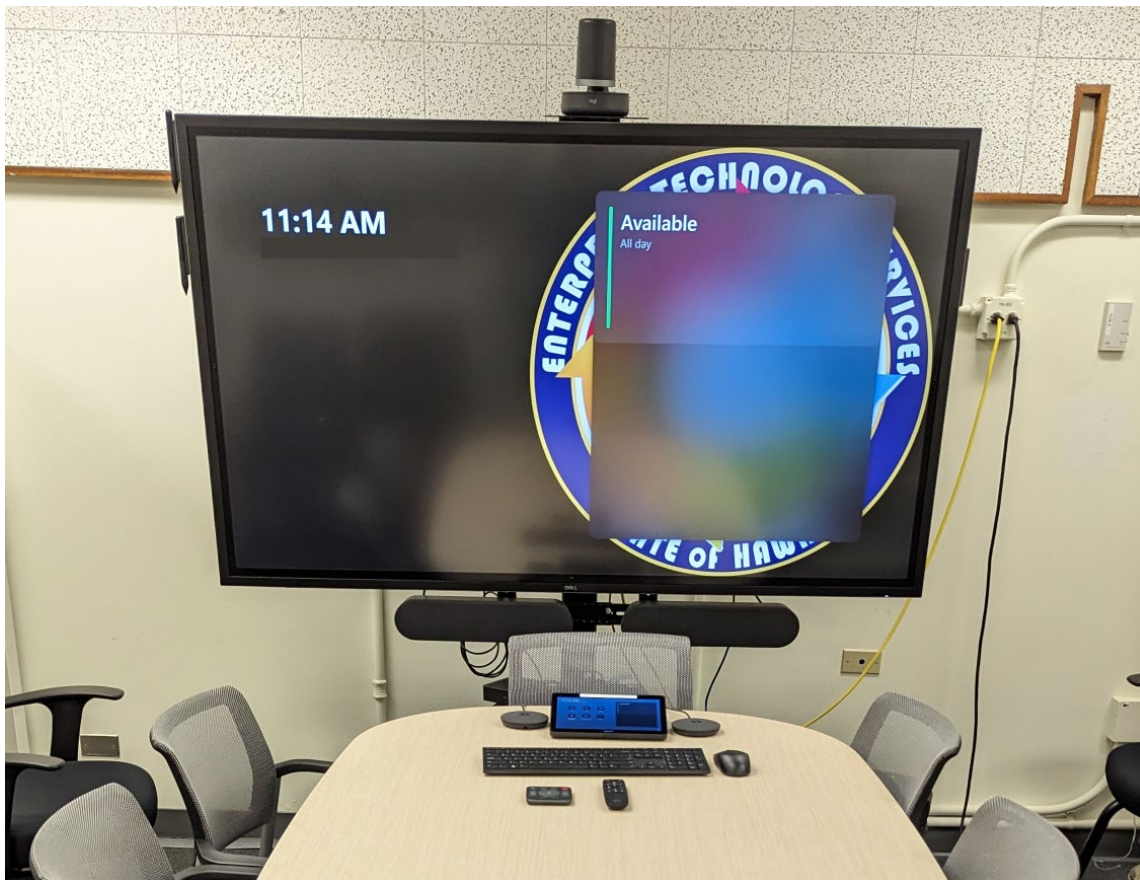
ETS also provides leadership, technical guidance and administrative support to the Access Hawai'i Committee, which is responsible for management and oversight of the state-wide citizen portal. This portal allows citizens to complete many state and county government services online and complete transactions without having to go to a government office.



MICROSOFT TEAMS CALLING PHONE SYSTEM

Teams Calling was implemented for the Office of Enterprise Technology Services (ETS) in June 2021. Teams Calling provides a cloud-based phone system built on Microsoft Teams. All ETS staff were migrated to Teams Calling from Hawaiian Telcom phone lines, which provided cost savings and better communication abilities for teleworking with external parties. ETS has worked with two other state offices on their conversion, and several other agencies are currently piloting the adoption of Teams Calling.

ENHANCED HYBRID MEETING SYSTEMS



Microsoft Teams System for enhanced hybrid meetings.

ETS began work on developing best practices and low-cost system configurations to enhance “hybrid” meetings and collaborations between those meeting on-premises and those accessing the same meeting remotely. .



Microsoft Teams Activity 2023

Team usage

Number of teams, by type and activity

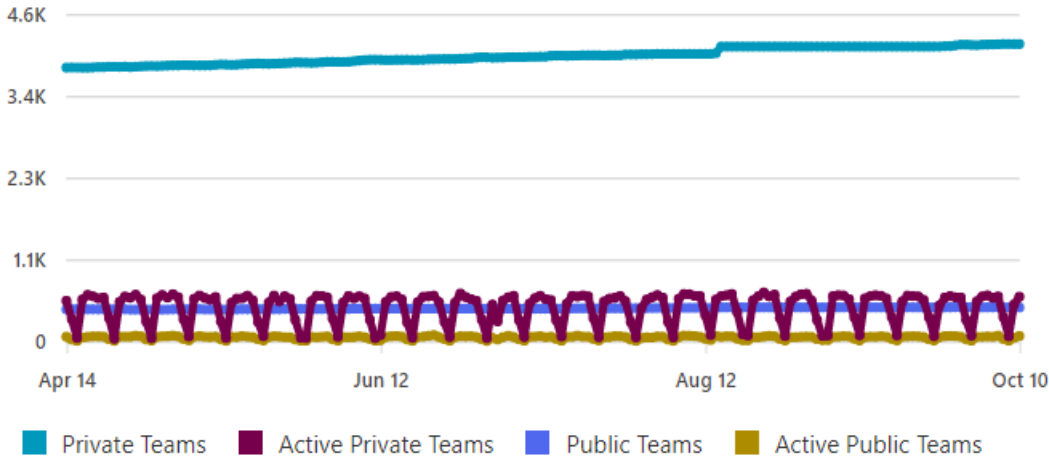
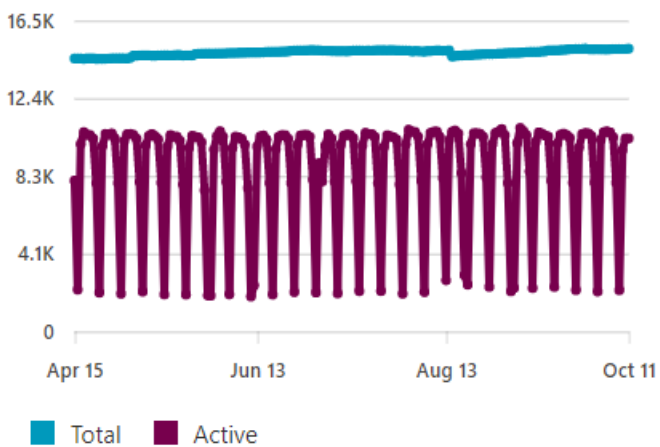


Figure 1: Teams Usage Chart – The chart shows a steady increase of private teams being used from April (3808) to October (4137) 2023.

Exchange Email Usage 2023

Mailbox

Number of total and active user mailboxes



Storage

Amount of storage used

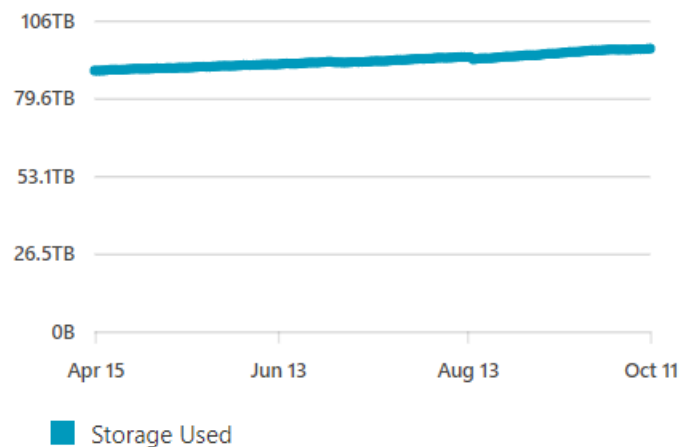


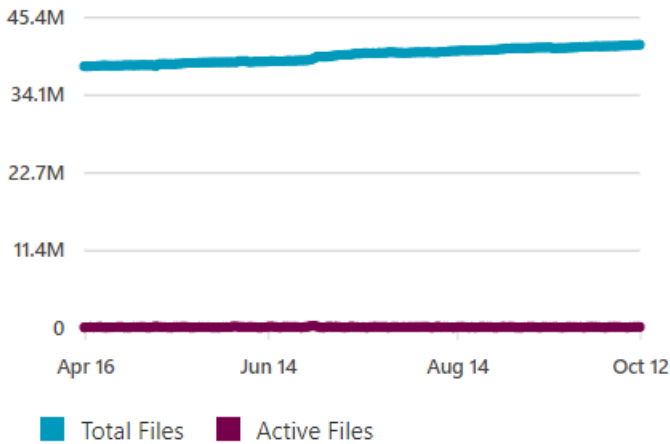
Figure 2: Exchange Email Usage Chart - The chart to the left shows a steady increase in the number of total user mailboxes from April (14493) to October (15019) 2023. The chart to the right shows the total amount of mailbox storage used from April (88.9TB) to October (96.5TB) 2023.



OneDrive Usage 2023

Files

Number of total and active files



Storage

Amount of storage used

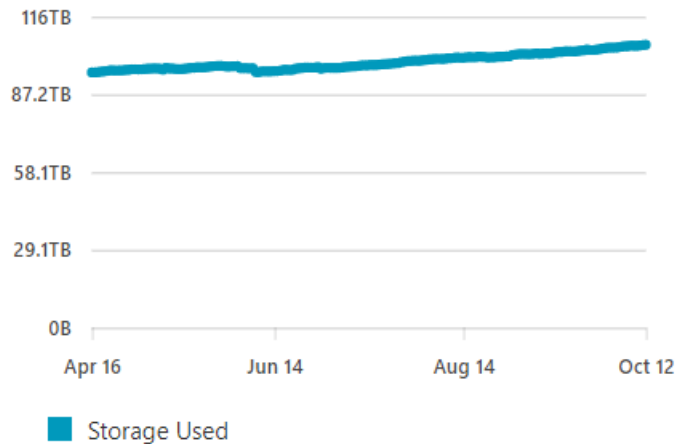
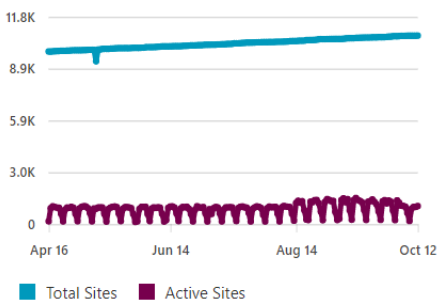


Figure 3: OneDrive Usage Chart – The chart to the left shows a steady increase in the number of total files from April (38.1M) to October (41.2M) 2023. The chart to the right shows the total amount of storage used from April (95.3TB) to October (105TB) 2023.

SharePoint Usage 2023

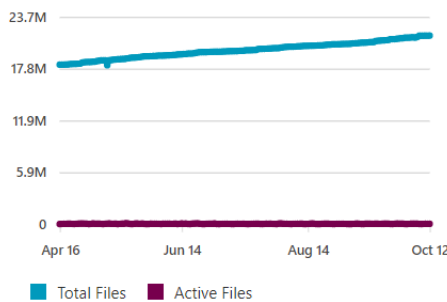
Sites

Number of total and active sites



Files

Number of total and active files



Storage

Amount of storage used

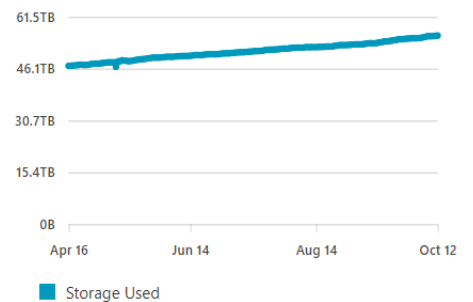


Figure 4: SharePoint Usage Chart - The left-most chart shows a steady increase in the number of total sites from April (9852) to October (10765) 2023. The chart in the middle shows a steady increase in the number of total active files from April (18.2M) to October (21.5M) 2023. The chart on the right shows a steady increase in the amount of storage used from April (47TB) to October 55.9TB) 2023.



SUPPORTING AGENCIES

Department of Labor and Industrial Relations. Since the pandemic began in 2020, ETS continues to support and assist the Department of Labor and Industrial Relations' (DLIR), Unemployment Insurance (UI) Division with its response. In 2021, the Federal government provided funding assistance through several programs to aid Hawai'i residents who filed claims.



Although the programs listed below have ended, ETS continues to support DLIR with the distribution of funds for claimants who still meet program eligibility qualifications and have filed claims which fall within the date range for each of the programs.

- 1) Federal Pandemic Unemployment Compensation (FPUC)
- 2) Pandemic Emergency Unemployment Compensation (PEUC)
- 3) Multi Earner Unemployment Compensation (MEUC)
- 4) Extended Benefits (EB20), and
- 5) American Rescue Plan Act (ARPA).

In 2023, ETS is also providing support for the newly implemented Treasury Offset Program (TOP) that intercepts federal and state payments to collect delinquent debts owed by individual and businesses to federal and state agencies. The Client Service Branch (CSB) Project Team continues to support DLIR's UI efforts and will continue do to so until the DLIR UI modernization project is completed.

Department of Commerce and Consumer Affairs. Support provided by the CSB Project Team included "Salesforce Support Case Analysis" and assistance with the preparation for 4 license renewal cycles: June 2022, September 2022, December 2022, and June 2023.

Department of Accounting and General Services. Support provided by the CSB Project Team to the Campaign Spending Commission included assistance with campaign report filings for Candidate Committees; 576 active committees, 7 report filing deadlines and 2,022 disclosure reports filed and Non-Candidate Committees; 329 active committees, 6 report filing deadlines and 1,547 disclosure reports filed.



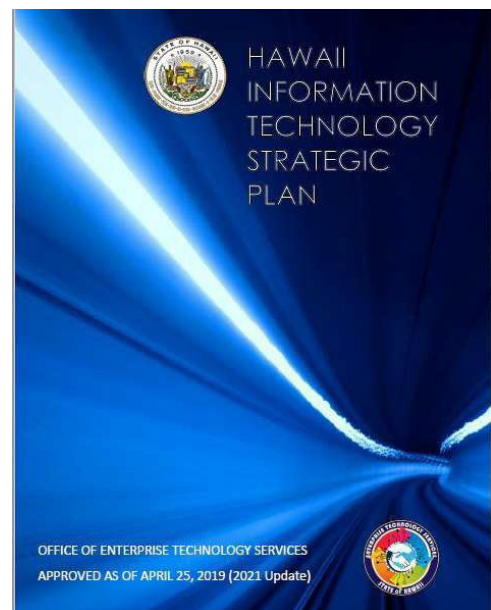
IT STRATEGIC PLAN PROGRESS

Pursuant to HRS section 27-43, an updated Hawai'i Information Technology Strategic Plan was submitted to the Legislature before the convening of the 2021 session. The plan updates the IT Strategic Plan that was to be submitted ahead of the 2020 Legislative Session.

The 2019 Hawai'i Information Technology Strategic Plan was developed with input from stakeholders, including the staff at ETS, the ITSC, representatives from departmental business and IT staff, and members of the community. The final plan was approved by the state Information Technology Steering Committee for implementation.

The purpose of the Strategic Plan is to:

- Clearly articulate the State Information and Technology future vision, mission, strategic priorities, expected outcomes, major initiatives to achieve those priorities, and responsible owners for key plan elements.
- Establish a system for implementation of the plan over the first year and next four years.
- Provide guidance to ETS and department IT organizations to help with alignment throughout the state.
- Create an instrument to support awareness and accountability for all parties to the strategic plan.
- Fulfill the requirement of Hawai'i Revised Statutes §27-43 and House Concurrent Resolution 94.



VISION, MISSION, VALUES

The Vision, Mission, and Core Values statements that guide the Strategic Plan are:

VISION STATEMENT

Transformative information and technology-enriched government that serves all the people of Hawaii.



MISSION

Seamlessly blend innovative IT with well-engineered business processes to deliver and support dynamic and sustainable systems that empower our workforce to accelerate excellent outcomes in support of the state's policies, decisions, operations and services.

CORE VALUES

<i>Aloha</i>	We treat everyone with dignity, respect and kindness, reflecting our belief that people are our greatest source of strength.
<i>Kuleana</i>	We uphold a standard of transparency, accountability and reliability, performing our work as a government that is worthy of the public's trust.
<i>Laulima</i>	We work collaboratively with business, labor and the community to fulfill our public purpose.
<i>Kūlia</i>	We do our very best to reflect our commitment to excellence.
<i>Pono</i>	We strive to do the right thing, the right way, for the right reasons to deliver results that are in the best interest of the public.
<i>Lōkahi</i>	We honor the diversity of our employees and our constituents through inclusiveness and respect for the different perspectives that each brings to the table.
<i>Ho'okumu</i>	We continually seek new and innovative ways to accomplish our work and commit to finding creative solutions to the critical issues facing this state.

*The 'āina (land) is not just soil, sand or dirt. The 'āina is a heart issue for the people of Hawai'i. The very word 'āina brings forth deep emotion evolved from ancestral times when people lived in nature as an integral part of it. We chose to incorporate the ethical, philosophical, and spiritual aspects not only present in the state's vision and mission statements, but also that are present in the culture that make Hawai'i Hawai'i.



STRATEGIC PRIORITIES

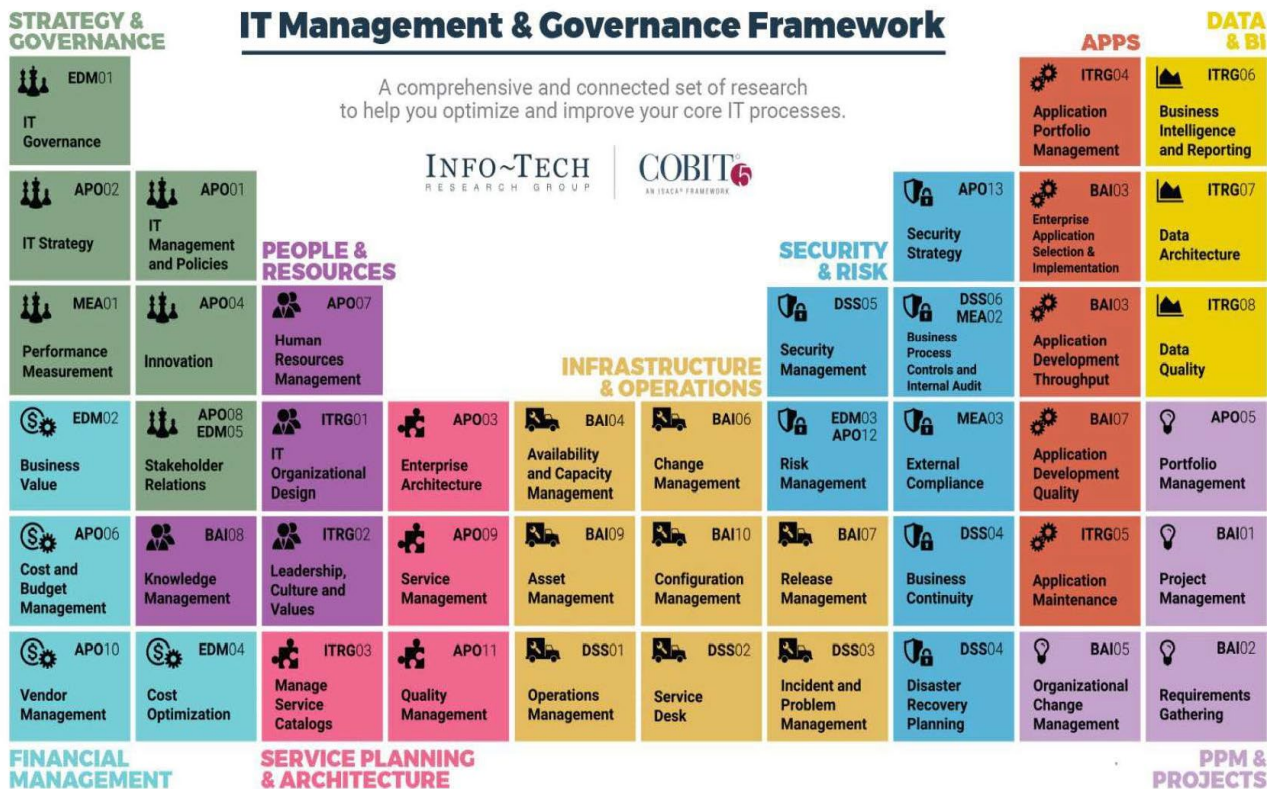
Our IT Strategic Priorities reflect 7 key focus areas necessary to take full advantage of the state’s investments and attain long-term success:

<p><i>Partner for Successful Outcomes</i></p>	<p>Shape the partnership between government functions and IT by creating a standard framework to ensure successful outcomes.</p> <p style="text-align: right;">❖ <i>Team Lead: ETS Enterprise Program Manager</i></p>
<p><i>Expand Statewide Cyber Security Strategy</i></p>	<p>Extend the statewide cyber security strategy to protect the State’s IT infrastructure and constituent data through adoption of cyber security industry best practices across the State’s IT systems.</p> <p style="text-align: right;">❖ <i>Team Lead: ETS Chief Information Security Officer</i></p>
<p><i>Enhance the Value of State Data</i></p>	<p>Maximize the value of State data by designing, implementing and governing State systems for data stewardship, sharing, and public use.</p> <p style="text-align: right;">❖ <i>Team Lead: ETS Business Architect</i></p>
<p><i>Optimize Enterprise Systems</i></p>	<p>Optimize ETS enterprise systems to leverage the state’s investment in centralized IT services.</p> <p style="text-align: right;">❖ <i>Team Lead: ETS Chief Operations Officer</i></p>
<p><i>Extend IT Portfolio Governance</i></p>	<p>Extend the State IT Governance Model to better align the state’s functions with resources and ensure the State follows industry best practices and garners the full benefits of its investments.</p> <p style="text-align: right;">❖ <i>Team Lead: ETS Senior Enterprise Architect</i></p>
<p><i>Implement Dynamic and Sustainable IT Operations</i></p>	<p>Implement dynamic and sustainable IT operations to ensure business systems are up-to-date and ready to support the current and future needs of business users and citizens at all times.</p> <p style="text-align: right;">❖ <i>Team Lead: ETS Chief Governance Officer</i></p>
<p><i>Digital Workforce Development</i></p>	<p>Establish a continuous learning culture and growth mindset to modernize how we work and enable the state to develop and sustain the digital workforce needed in a constantly evolving IT world.</p> <p style="text-align: right;">❖ <i>Team Lead: ETS Personnel Officer</i></p>



IT STRATEGIC PLAN ADOPTION PROGRESS

- In 2023, ETS continued to refine strategy governance process, executive sponsor, charter, program lead, and working group in each strategic area.
- ETS adopted the IT Management & Governance Framework shown below as our high-level prioritized reference model for best practices in tactics, techniques and procedures. ETS is working with Info-Tech Research Group since 2019 to develop common processes and tools for use by ETS and state agencies in managing IT operations.



- A high-level Capability Maturity Model measurement framework is available in the IT Management and Governance Framework for implementation. We are working on measurement dashboards.



PARTNERS FOR SUCCESSFUL OUTCOMES

Shape the partnership between government lines of business and IT by creating a standard framework to ensure successful outcomes.

The following programs align with the key focus area of Partner for Successful Outcomes, which is one of the strategic priorities of the Hawai'i Information Technology Strategic Plan.



The Hawai'i Modernization Initiative, also known as HiMod, is the State's modernization project team that works to transform government by

replacing legacy systems to create the state's new integrated Enterprise Resource Planning program.

Our strategy, adopted in 2016, is to break strategic systems into smaller transactional pieces in order to reduce complexity and increase success. So far, we have upgraded the State Human Resource Management System and implemented the new Payroll and Time and Leave Management systems. The team is currently preparing for the design, development, and implementation of a new Financial Management System. HiMod is governed by an Executive Governance Committee. Membership includes the Governor's Administrative Director, State Budget & Finance (B&F) Director, State Human Resources Director, State Comptroller, State Chief Information Officer, and Enterprise Program Manager-Hawaii Modernization Initiative.

STATEWIDE FINANCIAL SYSTEM REPLACEMENT

Enterprise Financial System (EFS) is a business transformation project that replaces and improves upon FAMIS, the State's 55-year-old finance system. The new system will be supported by modernized technology and the latest cybersecurity. It will accurately record and report financial transactions for the State of Hawaii and will unify traditionally separate IT systems and processes into an integrated financial management system used across State government. The system will benefit everyone across the state because the government will be able to deliver services more efficiently to the community and the state will maintain more accurate real-time data and information. Ultimately, EFS will effectively manage the State's money, resulting in greater efficiency and timely responsiveness to the people and organizations of Hawaii.



The EFS Project principles are:

1. Organizational change management is everyone's responsibility.
2. Identifying risk is good, developing solutions even better.
3. Default to best practices if people don't have time to participate.
4. Be nimble. React and adjust when necessary.
5. Drive change and innovation. Be willing to change outmoded statutes and policies.
6. One leader and one project dashboard – for unified direction and accountability.
7. Develop Minimum Viable Product (MVP) first, then maximize the full capabilities of the system.
8. Key project roles require fully dedicated resources.

In 2020, the Legislature allocated funds to advance modernization efforts, including those related to finance operations and business processes. In late 2021, the state contracted with an implementation vendor to implement an SAP-based system and issued a Notice to Proceed. It was decided by the new executive leadership team appointed by the Green administration that it was in the best interests of the state to terminate the contract to allow the state to replan and reprocure the EFS project in 2023. The Enterprise Financial System (EFS) project is sponsored by the Department of Accounting and General Services and the Department of Budget and Finance and supported by the Office of Enterprise Technology Services. The State has invested in acquisition support services as well as accounting and business process modernization services to maximize the opportunity with the new solicitation and to minimize the risks for the next evolution of the project execution for this replanning and procurement effort.

A modern accounting system is essential for modernizing and standardizing government accounting processes. EFS will offer the State an integrated, consistent financial platform, ensuring timely data accessibility across both the executive and legislative branches while also enhancing accountability. The project involves the departments and agencies of the executive branch and will implement the Uniform Chart of Accounts and modernize the business processes and functionality to a modern finance application. Currently, we estimate that over 50 existing systems within the executive branch could be replaced by this modern financial management system.

The vision for continued modernization of key enterprise resource planning (ERP) components is a dynamic integration suite of functions that enables delivering quality information and services to all stakeholders thus replacing multiple



implementations, duplications of effort and embedded practices within each state agency. The expansion of the Enterprise Finance System will serve as the modernized and trusted source for transactions and data validation for financial management for the State of Hawaii. In addition, the enterprise application can provide subject area data views that are derived and made available to stakeholders and constituents to serve the unique information needs of each organization.



Comptroller Keith Regan (right) hosted a town hall meeting to discuss changes to EFS with Christine Sakuda, Executive Director of Transform Hawaii Government (from left), Hawaii CIO Doug Murdock, and Luis Salaveria, Director of the State Department of Budget and Finance.

The project aims to reduce the number of existing applications, enhance data sharing, foster collaboration, improve mobile accessibility, and optimize functional execution across different Lines of Business (LOBs). This will be achieved through an enterprise system that aligns with the new state enterprise architecture. There are still many current paper-based processes that are labor intensive at a time when it is becoming increasingly difficult to obtain additional headcount or hire professional finance and accounting staff to perform key accounting and system functions within the state. For example, using the current accrual-based accounting required for financial reporting (i.e., the Annual Comprehensive Financial Report) is



manually intensive and cannot be produced within a reasonable time (3-6 months after the close of the State's fiscal year). Additionally, eliminating or consolidating departmental secondary accounting systems into a unified system will decrease operating expenses.

The departments of the executive branch will be engaged to understand their unique needs and requirements before determining the best path forward to achieve successful systems integration. If it is determined the department's requirements are too disruptive to the operations of this department, alternative conversion plans must be identified. If converting any department to the new EFS platform is not in the best interest of the state, the Comptroller's approval for an exemption should be obtained.

The alternative is for the statewide financial system to continue to operate as-is, which presents a high risk to the State of Hawaii should the software application and hardware become inoperable. Resources and funding (available) will be sunk into continued integration support and infrastructure hardening that may not return any value to the State, nor full financial reporting functionality that is timely for decision-making.

Additional benefits from the EFS adoption include:

- Standardize and unify accounting systems and practices. Standardize internal controls and delegation processes.
- Decrease operating expenses by eliminating or consolidating departmental secondary accounting systems into the State system.
- Decrease manual efforts and physical resources to prepare the annual financial reporting.
- Increase the state's ability to implement and respond quicker to mandated accounting and disclosure standards (e.g., GASB 96 Subscription-Based Information Technology Arrangements).
- Increase the state's ability to consolidate and analyze data, enabling data-driven policy decisions regarding the use of state funds.
- Increase accounting capacity for the state through standardized processes and documentation by enabling employee portability and mobility.
- Standardize accounting processes and documentation that enable the central financial agencies to manage and monitor the use of state funds.
- Realize and implement work completed on a Uniform Chart of Accounts (UCOA) structure for the state and all departments included in the State of Hawaii's reporting.
- Easier implementation of the Uniform Chart of Accounts throughout the executive branch.



TIME AND LEAVE SUPPORT

The primary objective of the Time and Leave (T&L) Support section is to ensure sustained support for T&L users across the State of Hawai'i. The ongoing knowledge transfer to state personnel focuses on familiarizing them with the concepts, processes, and system logic of the T&L section within the Hawaii Information Portal (HIP) System.

Over the past year over 1,500 tickets related to the Time and Leave system were addressed through a collaborative effort involving DAGS Accounting, ETS, and consultants from Cherry Road Technologies (CRT). Efforts to resolve the tickets consisted of researching issues, ranging from simple to complex in nature, as well as identifying and developing enhancements to improve user experience and user reports to accommodate new/updated policies, procedures, HRS and user requirements.

Before the rollout of new features, various testing scenarios were conducted to ensure efficient runtime performance and appropriate user access to system screens, tiles, and reports. These tests also verified the ability to enter and process transactions, as well as the integrity of the data. Prior to implementation in the production environment, end-to-end User Acceptance Testing (UAT) was employed to validate the data and confirm that updates or customizations were functioning as intended.

Additionally, a major HIP System Upgrade was released this year resulting in new features. Key features include a new ability to see absence balance detail broken down by pay period and a new way to request leave.

Balance Details

*Entitlement
Vacation Balance

Balance as of 05/15/2023
446.00 Hours

Disclaimer: The current balance does not reflect absences that have not been processed.

Summary

Period	01/01/2023 - 12/31/2023 (Year to Date)	Earned	56.00
Taken	0.00	Adjustment	0.00

Balance History 12 rows

Month	Opening Balance	Earned	Taken	Adjustment
May	446.00 Hours	0.00	0.00	0.00
April	432.00	14.00	0.00	0.00

Forecast Balance

Absence Balance Detail



View all requests

02 - Vacation

09/26/2023

2.00 Hours

Approved

02 - Vacation

10/27/2023

8.00 Hours

Approved

02 - Vacation

11/22/2023

8.00 Hours

Approved

Create a new Request

*Start Date

*Absence Name

End Date +1 Day

Submit

Related Information

Balances

As Of 08/15/2023

Vacation Leave Receive Ent: 0.00 Hours

Sick Earn as you go Balance: 0.00 Hours

Vacation Balance: 750.50 Hours

Sick Balance: 907.50 Hours

Holiday Calendar

September (1 day)

4, Monday - Labor Day

November (2 days)

10, Friday - Veterans Day

23, Thursday - Thanksgiving

December (1 day)

25, Monday - Christmas Day

Updated Leave Request page

PROGRAM TRANSFORMATION



ETS established the Program Transformation (PT) section in FY 23 to provide centralized consulting services to assist State of Hawai'i executive branch departments with their department-led IT projects. Program Transformation is comprised of five specialized project positions and has a team of experienced professionals who have demonstrated knowledge and experience.

PT provides the following- 1) consultative support services, 2) standards, best practices, and templates, and 3) training.

"Guiding projects to success!"

CONSULTATIVE SUPPORT SERVICES

As identified by the State Legislature's proposal, PT's five staff have knowledge and experience specifically in project management, business analysis and requirements, process improvements, quality assurance, testing, training, business architecture, and organizational change management. The scope of services PT offers depends on customer needs and may include self-service project management tools and a *la carte* consulting services. The team works with department staff to determine project needs during the planning or execution phases of a project and engage with departments by attending various project meetings.

The following table lists projects the PT section has engaged in FY 23.



Project Name
Unemployment Modernization Project
Systems Modernization Project (BES)
Health Analytics Program (HAP)
DOT Highways Financial Project
Systems Modernization Project
KEIKI System Replatform/Refactor
Time and Leave Project
BHA Integrated Case Management System Project
CDMS
Time and Leave Operations
HCSOC Complaint Intake System
Inspire Plus
BRIMS/RDPMS Modernization
Enterprise Financial System Project
IT Consolidation Project*

Note *: In 2023, PT participated in the CIO chaired Act 179, IT Consolidation project. The Sr. Project Manager managed the planning phase activities and deliverables. Other PT staff were assigned as either Working Committee facilitators or served on multiple Working Committees as recorders.

STANDARDS, BEST PRACTICES, AND TEMPLATES

Program Transformation develops standards and templates providing standardization and best practices to departments statewide. Often departments have few resources to manage projects, and even fewer with the necessary knowledge and experience to manage projects. Developing a central repository of past project deliverables, lessons learned, and other project related resources is critical for supporting the departments and improving the quality of contracts and deliverables. Here are some of the major accomplishments for FY 23:

- Developed and created an external facing PT web page - <https://ets.hawaii.gov/pt/>



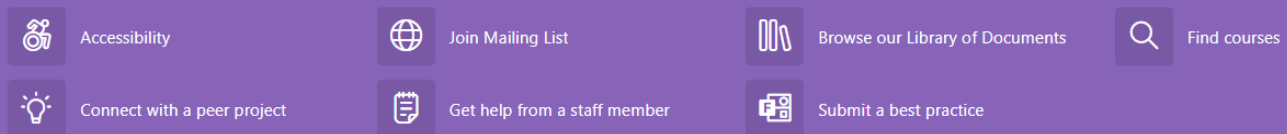
- Identified key performance metrics for Program Transformation and is currently reporting project consulting activities and recommendations register on its web page.
- Developed standard procedures and playbooks for 3 different levels of projects that correspond to various right-sized tools and templates.
- Developed a project charter and business requirements document template that when utilized, is an effective tool for good project management and business requirements practices.
- Created a centralized document library for project management templates and tools that is accessible to all internal executive level State departments.
- Cataloged best practices in project management and business analysis.
- Conducted root causes analysis to investigate prior State project failures to learn from and incorporate into respective training courses.
- Started a collection of project management position descriptions.

Program Transformation's internal project resources landing page.

A note from Program Transformation

This learning center is a testament to our commitment to professional growth, life-long learning and improvement of State of Hawaii government services and personnel. Whether you are looking to learn how to run large or small projects, or just need help with best practices, we have opportunities for everyone to learn and grow. Browse our materials and become invested in your future!

Find resources quickly



TRAINING

Program Transformation has developed and is continuing to develop and expand a series of courses to prepare project teams to take on projects of various sizes and complexity. Here are the training pathways in the following disciplines:

- Project Management (PM)



- Business Analysis
- Business Architecture
- Quality Assurance
- How to Conduct Training
- Lean Six Sigma (a process improvement methodology)
- Organizational Change Management

Lean Six Sigma - One of the first certification series to launch in FY23 was the Lean Six Sigma (LSS) program. LSS is a team-focused managerial approach that seeks to improve performance by eliminating waste and reducing defects. It is a structured and effective process improvement methodology that focuses on operational excellence. The program is progressive and culminates in a Green-Belt certification that teaches using data in statistical analysis to identify root causes, measure defects, and improvements.

Through its team of five specialized consultants, Program Transformation will continue to work with departments to help them achieve their desired and expected business outcomes and increase the likelihood of project success for the State of Hawai'i.

IT CONSOLIDATION AND ACT 179

ETS will be implementing [Act 179 SL 2022](#) and consolidating staff and systems in the Executive Branch of State of Hawaii government, where practicable. In 2023, ETS and the Executive Branch departments worked on planning how the IT consolidation might ideally occur, identifying key considerations and decisions points, and forming recommendations to align with the strategic goals of Act 179.

Some of the key principles of the planning were ensuring efficient provision of effective IT services, improving IT capabilities, and lowering total costs of IT services. The resulting plan informs further discussions, decisions, and designs. Consolidation effort is complimentary to ETS objectives for the digital transformation of state government.



DIGITAL GOVERNMENT SERVICES



In February 2023, Hawaii Information Consortium LLC's "doing business as" (DBA) was changed from NIC Hawaii to Tyler Hawaii.

Tyler Hawaii is the contracted State of Hawai'i Portal Program manager and has successfully partnered with 90+ state agencies and across jurisdictions to provide 158 services for the State of Hawai'i and counties. The number increased from 153 this year.

The portal program launched twenty-two (22) new services and upgrades in Fiscal Year (FY) 2023. These services include:

- AG Collections Payment – Department of Attorney General (AG)
- McKinley Community School for Adults Online Payments - Department of Education
- Kauai Gross Liquor Sales Percentage Fee Payments – County of Kauai
- Honolulu Emergency Services Department – City and County of Honolulu
- Kauai County Liquor Licenses and Permits – County of Kauai
- Hawaii Occupational Safety & Health (HIOSH) Payments – Department of Labor and Industrial Relations
- Aloha Stadium Online Store – Department of Accounting and General Services
- Reservation and Access Management System (Diamond Head Reservation System) - Department of Land and Natural Resources
- Maui Liquor Payments – County of Maui
- Honolulu Real Property Tax Payments – City and County of Honolulu
- DOT Harbors Online Payments – Department of Transportation (DOT)
- Hawaii Remote Work Project Website – Department of Business, Economic Development and Tourism
- Small Business Regulatory Review Website – Department of Business, Economic Development and Tourism
- Medical Cannabis Registry System (1 of 2) - Department of Health
- Kauai County Liquor Licenses and Permits (1 of 2) - County of Kauai
- Medical Cannabis Registry System (2 of 2) - Department of Health
- Go Hunt Hawaii (1 of 2) - Department of Land and Natural Resources
- Go Hunt Hawaii (2 of 2) - Department of Land and Natural Resources
- State Parks Reservation and Access Management System – Department of Land and Natural Resources
- Waipahu Community School for Adults Online Registration and Payment



System - Department of Education

- Kauai Liquor Licenses and Permits (2 of 2) County of Kauai
- State Template – Enterprise Technology Services

In 2023, Tyler Hawaii worked on one (1) no-cost project, the Judicial Appellate Court Judge Evaluation. Tyler Hawaii continues to support the online Judicial judge evaluation process by creating anonymous online judge evaluations on behalf of the Judiciary. This saves a significant amount of time for Judicial staff not having to conduct paper surveys and consolidating results by hand. It also ensures anonymity whereby attorneys are more willing to participate and provide valuable feedback. This fiscal year, Tyler Hawaii conducted an Appellate Court judge evaluation for eleven (11) Appellate Court judges.

ETS and Tyler Hawaii collaborated on a few different projects outside of the typical services that Tyler Hawaii provides. Tyler Hawaii has been an active participant and proud sponsor of the ETS hosted Hawai'i Annual Code Challenge (HACC) event for the past four years. In addition, Tyler Hawaii has sponsored a challenge project for the event for the past three years. One high school HACC participant from the 2021 event has been a quality assurance intern with Tyler Hawaii for the past two years. ETS and Tyler Hawaii are excited that the synergy from this event helps build our local technology workforce.



Access Hawai'i Committee & Portal Program Manager

In 2000, the Governor enacted Act 292, which establishes the Access Hawai'i Committee (AHC). AHC manages the state digital government portal with the assistance of ETS. The CIO is the Chair of the AHC.

ETS has a Portal Program Manager who provides guidance to the AHC relating to strategies for online payment and processing, internet initiatives, electronic document filing, paperless initiatives, and web application development. The Portal Program Manager also monitors the portal provider's activities to ensure compliance with terms and conditions of the portal provider contract, reviews the portal provider's financial reports, evaluates new and existing Statements of Work, fee agreements, priorities, and Service Level Agreements being negotiated between government agencies and the portal provider. The Portal Program Manager collaborates with the portal provider and government agencies to promote e-government and to increase on-line services that can be easily, conveniently, and securely accessed by the public.

The State portal program earned the following awards:

Service/Agency	Award Description
Honolulu Records Collection – City and County of Honolulu	<ul style="list-style-type: none">• Global Excellence Award – Platinum• Interactive Media Awards – Outstanding Achievement Award• Center for Digital Government – Project Experience Award
Hawaii.gov- State of Hawaii	<ul style="list-style-type: none">• W3 Award – Silver• Interactive Media Awards – Best in Class Award
Honolulu Fire Department Website- City and County of Honolulu	<ul style="list-style-type: none">• DotComm Award - Gold



INITIATIVES

HAWAI'I CITIZEN SINGLE SIGN-ON PROGRAM

The eHawaii.gov Single Sign-On (SSO) service is used by over 80 online portal services. The State of Hawai'i is moving forward in universally using Azure B2C for online services/portals (Hawai'i Citizen Access Program). In 2023, ETS and Tyler Hawaii continue their work on migrating citizen authentication to Tyler Hawaii-supported platform eHawaii.gov over to the Hawai'i Citizen Access Program. In addition, Department of Commerce and Consumer Affairs looks include the Business Registration Portal by end of 2024.

DYNAMICS FRAUD PROTECTION

In August 2021, ETS started working with the Department of Human Services (DHS) to architect and implement Dynamics Fraud Protection to provide more robust authentication security and identity proofing for Business-to-Consumer (B2C) access to public-facing applications. ETS continues to utilize Dynamics Fraud Protection in its baseline Azure AD B2C offering supporting production workloads for all citizen-facing applications serviced through this platform.



CYBERSECURITY PROGRAMS

Expand the statewide cyber security strategy to protect the State's IT infrastructure and constituent data through adoption of cyber security industry best practices across the State's IT systems.

MISSION: *Protect and safeguard data passing through and stored on state government technology infrastructure.*

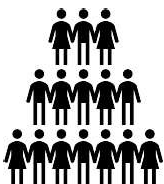
THREAT: *The state cyber infrastructure is under constant attack.*



TEAM



- Chief Information Security Officer



- Fifteen full-time ETS Cybersecurity Staff

- Other State Staff: approximately part time 20 employees on state teams maintaining data communication networks, enterprise software platforms, and cloud computing services



- External Support: Multi-State Information Sharing and Analysis Center provides remote monitoring with 365/7/24 alerts and advisories of state network and Internet activities



CYBERSECURITY INITIATIVES

Cyber Response Plans. ETS and the Office of Homeland Security collaborated to establish the State's first Cyber Incident and Cyber Disruption Response Plans. This allows for stronger coordination of response activities between state and local agencies.

Cybersecurity Reviews. ETS continues at reviews semi-annually with departments. With the number of cybersecurity related initiatives, shifting away from ad-hoc reviews based on specific initiatives to a broader, more coordinated schedule allowed for ETS and the departments to maintain focus on the higher priority initiatives.

Tabletop Exercises. ETS coordinated a half day enterprise-wide tabletop exercise with the state IT staff. ETS began incorporating short tabletop exercises that cover high level communication and coordination to incident handling procedures.

Positions. ETS received approval the addition of 8 new positions under the Security Branch during the 2022 legislative session and are actively recruiting to further support the enterprise security initiatives and additionally drive support adoption and implementation of cybersecurity safeguards within the departments.

Vulnerability scanning. ETS continues to expand migration of the vulnerability management platform. The new platform allows for more flexibility and allows for integration from departments that are large enough to support their own system.

Advanced Endpoint Protection. In partnership with the Judiciary and the University of Hawaii, ETS increased license coverage to 21,000 devices. This provides considerable capabilities to ETS and the departments to detect and respond to evolving cybersecurity related threats.



PHISHING AWARENESS CAMPAIGN

ETS provides recurring cybersecurity awareness campaigns through simulated phishing emails. Educating and empowering employees to be safe and secure when using computers not only benefits the State but also our employees' homes.



In the most recent 2022 campaign, a test message was delivered to 12,912 mailboxes, with 978 (7.6%) users clicked on the phishing e-mail. During the campaign, 228 (9.8%) users reported a suspicious e-mail. The first report was received 1 minute upon receipt.

CYBERSECURITY AWARENESS MONTH

Gov. Josh Green, M.D., proclaimed October Cybersecurity Awareness Month in Hawai'i, in recognition of the state's role in identifying, protecting its citizens from and responding to cyber threats.



Proclamation

WHEREAS, the State of Hawai'i recognizes that it plays a vital role in identifying cybersecurity threats, protecting its citizens from fraud, and responding to cybersecurity threats that can have a significant damaging impact to the lives of individuals and the collective safety and privacy of our entire state; and

WHEREAS, critical infrastructure (i.e., financial services, educational institutions, energy, telecommunications, transportation, utilities, health care, and emergency response systems, etc.) is increasingly reliant on the support of information systems and technology; and

WHEREAS, cybersecurity education and awareness are crucial for everyone, including large corporations, small businesses, financial institutions, schools, government agencies, non-profit organizations, home user, and anyone who connects to the internet, be it with a computer, mobile phone, or other internet-connected device; and

WHEREAS, monitoring your accounts, being conscientious of what you share online, keeping computer software up to date, creating unique passwords and changing them regularly, installing antivirus programs and firewalls, and using mobile devices and other internet-connected devices safely, are ways people and organizations can protect themselves from phishing, viruses, ransomware, other types of malware, financial loss, and loss of sensitive data; and

WHEREAS, we showcase the need to inspire, engage, and inform the public about the demand, opportunities, and career options available within the area of cybersecurity and highlight how building the nation's and the State of Hawaii's cybersecurity workforce enhances the nation's security and promotes economic prosperity; and

WHEREAS, the National Institute of Standards and Technology (NIST) Cybersecurity Framework is a free resource to help organizations (both large and small, public and private) improve their cybersecurity practices through a practical approach to addressing the ever-evolving cybersecurity threats and challenges; and

WHEREAS, the State Department of Commerce and Consumer Affairs, Office of Consumer Protection, works tirelessly to identify potential personal cybersecurity attacks to protect our residents from fraudulent online activities; and the State Department of Defense, Office of Homeland Security provides planning and training efforts to prevent, protect, mitigate and respond to government cyber threats; and

WHEREAS, the Office of Enterprise Technology Services established the cybersecurity state government program to enhance and protect the Hawaii's cybersecurity ecosystem; and

WHEREAS, maintaining the security of cyberspace is a shared responsibility in which each of us has a critical role to play, and awareness of essential cyber hygiene will improve the security of Hawaii's information, infrastructure, and economy.

THEREFORE, I, Josh Green M.D., Governor of the State of Hawai'i, do hereby proclaim October 2023 as

"Cybersecurity Awareness Month"

in Hawai'i and ask the people of the Aloha State to join me in recognizing the importance of cyber hygiene, cyber education and awareness, and to remember that maintaining the security of cyberspace is a shared responsibility in which each of us has a critical role.

Done at the State Capitol in the Executive Chambers, Honolulu, State of Hawai'i, this second day of October 2023.


JOSH GREEN, M.D.
Governor, State of Hawai'i



ELECTION SYSTEM

The Department of Homeland Security has designated elections systems as a critical infrastructure. ETS provides the cybersecurity monitoring, network management, and virtual server support to facilitate statewide elections.



ETS provides the computing, communication network infrastructure, and many layers of cybersecurity protections for the State Office of Elections digital assets.

As the processes and systems that collect and count votes are not exposed to the Internet at any time, voters can be confident that election counting results are accurate and safe.

The State of Hawai'i was awarded more than \$3 million under the Federal government's 2018 Help America Vote Act.

EMERGENCY OPERATIONS

ETS has been providing 24/7 IT & telecommunication staffing support for the State Emergency Operations Center at Diamond Head where they monitor operational status of statewide communications networks, assist with expanding state worker telework and teleconferencing capabilities, and provisioning Internet broadband and IT services.





The Kalanimoku Building

STATE DATA

Maximize the value of State data by designing, implementing and governing State systems for data stewardship, sharing and public use.

Pursuant to HRS sections 27-43 and 27-44, Open Data, an IT Strategic Plan priority area, includes building on established data and transparency platforms to facilitate open data.

CHIEF DATA OFFICER AND DATA TASK FORCE

- The state will have its inaugural Chief Data Officer, slated to start in the position in October 2023.
- The CDO will be coordinating and leading the state data task force, which is expected to start convening late 2023 or early part of 2024.
- The CDO will lead efforts started by ETS and ETS data working group to improve data governance and management at the state and enable better data quality and data sharing.

DATA WORKING GROUP

- ETS continued leading a state data working group, which seeks to share awareness of best practices between data management initiatives across the departments.



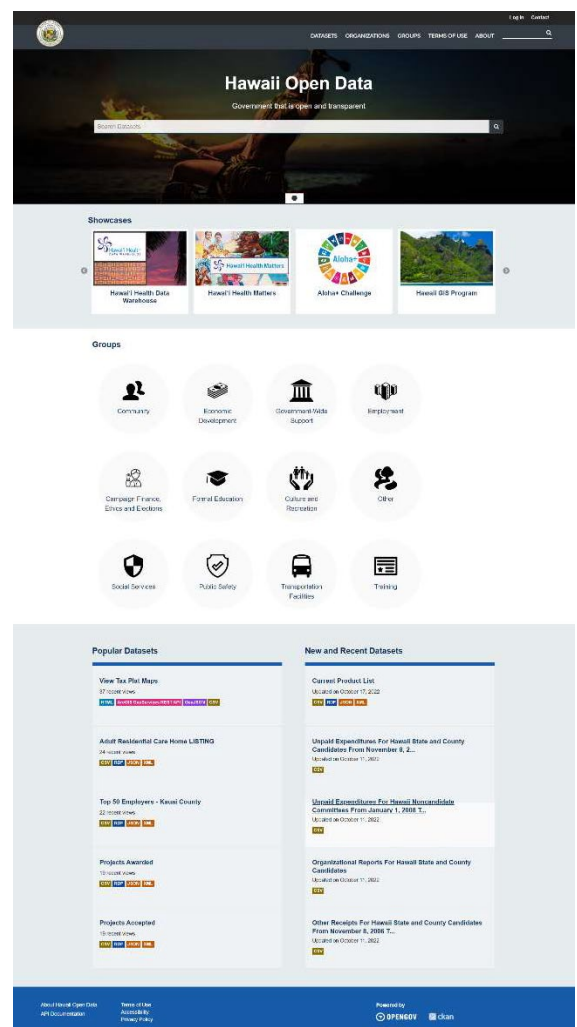
- The working group has active members from several departments, representing major data domains such as human services and health.
- ETS supports and participates actively, mostly in an advisory role, in the major projects, which have a data governance and management facet to them.

The working group piloted a data management maturity assessment. This analysis provided further knowledge of the critical issues with data sharing and management and about the high value data sharing use cases.

- Working group has been supporting data governance and management platforms analyses and selections at some of the major departments.
- Working group has drafted a statewide data policy framework, policies, procedures, and standards, leveraging existing, actively used ones.

OPEN DATA PORTAL

- Visitors to the state Open Data Portal will find datasets organized by major topics such as culture and recreation, economic development, employment, environmental protection, formal education, and government-wide support.
- ETS continues to work with the Department of Accounting and General Services and the Department of Budget and Finance to finalize the State's financial transparency data to provide up-to-date State budget and expenditure information to our constituents and civic entities.
- ETS facilitates executive branch departments' efforts to make appropriate and existing electronic data sets





electronically available to the public through opendata.hawaii.gov, which now offers charting libraries and mapping tools for the creation of dynamic visualizations.

- More than 1100 data sets are publicly available through the portal, providing residents, analysts, and civic developers with self-service access to state data
- Last year, there were nearly 131K browser page views.

Optimize ETS enterprise systems to leverage the State's investment in centralized IT services.

The following programs align with the strategic focus area of Optimize Enterprise Systems and also the area of Implement Dynamic and Sustainable IT Operations. Enterprise Programs and Projects consist of initiatives identified as enterprise in scope, leveraging economies of scale and setting standard platforms for IT systems to maximizing adoption and positive return on investment.

SHARED SERVICES (LEGACY)

ETS manages legacy enterprise shared services centrally to leverage economies of scale (e.g., mainframe, data center, and high-speed printing).

- **Shared Data Center** – ETS has three data centers for use by state departments: DR Fortress, University of Hawai'i, and the Kalanimoku Building .





- **Mainframe Services** – In line with the modernization of mainframe applications, ETS continuously maintained and enhanced the security, operational capability, and compliance of the mainframe system. ETS ensured that the infrastructure and processes for mainframe application hosting services comply with IRS Publication 1075 and resolved audit findings according to risk category. The mainframe team successfully conducted the annual disaster recovery system test. The operating systems, database systems as well as application software of the mainframe host systems are verified to be operational at the disaster recovery site. Annual testing is being done to ensure that ETS has the operational capability to fail over to the disaster recovery site in case of real disaster.

Mainframe Application Services – ETS provides application services ranging from COBOL, ADABAS, Linux, and more, in support of various Mainframe applications.

- **High Speed Printing** – ETS maintains 2 redundant high-speed printers to provide for printing of state checks, accounting and financial records, forms and letters to beneficiaries of state and federal programs.

Paper printing, pre-pandemic (prior to March 2020), had stabilized at a lower level after the first phase of the paper reduction project.

The 2020 pandemic, which caused a large increase in Unemployment Insurance (UI) claims, caused a large increase in printing claimant letters related to eligibility and payment as well as letters to employers.

Overall printing increased 44% in 2020 (compared to 2019).

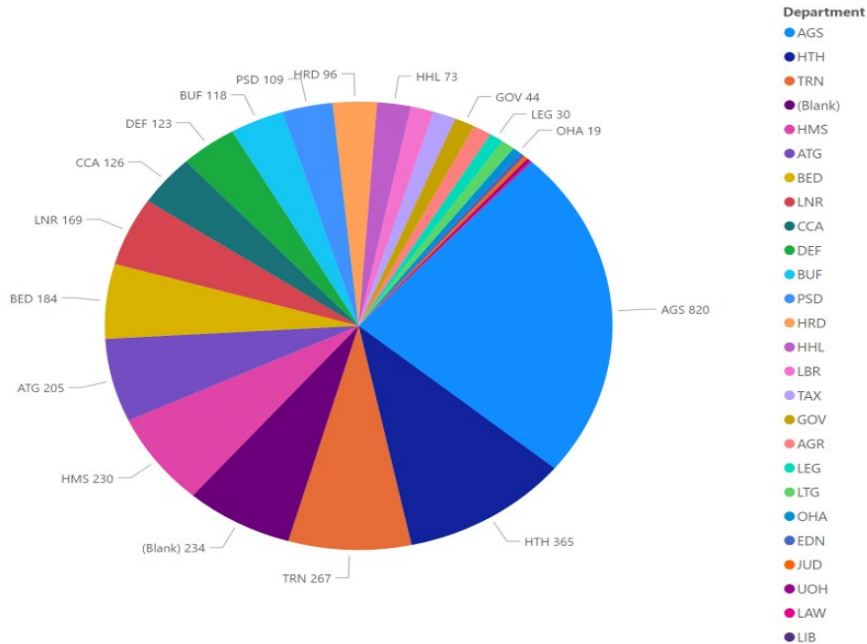


Cases of paper printed by Year/Month, 1 case = 5,000 pages

Month	2019	2020	2021	2022	2023
January	153	105	102	84	63
February	60	75	136	54	48
March	109	88	147	68	55
April	81	205	119	56	57
May	80	133	99	58	40
June	77	104	105	68	49
July	94	173	105	63	55
August	71	94	85	58	64
September	53	128	145	56	51
October	101	108	16	52	
November	67	120	69	69	
December	62	119	66	81	

- Service Desk** - From responding to requests to unlock passwords to providing support for websites and applications, ETS' service desk provides executive branch departments with assistance. ETS responded to over 3,400 service requests in 2023.

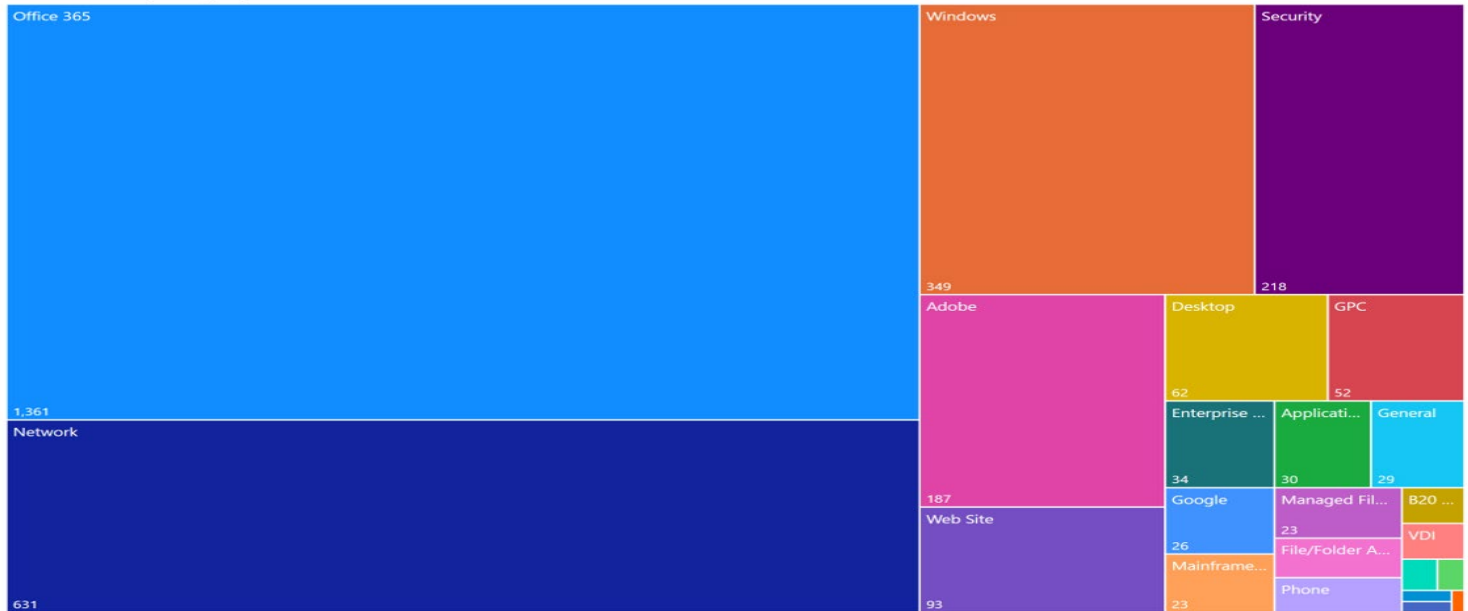
Total Requests by Department



Total Service Desk Tickets by Department



Total Tickets by Category



Total Service Desk Tickets by Category

IT GOVERNANCE

Extend the State IT Governance Model to better align the state’s functions with resources and ensure the State follows industry best practices and garners the full benefits of its investments.

The following programs align with the strategic priority to Extend IT Portfolio Governance from the Hawaii Information Technology Strategic Plan. Success with this strategic priority necessitates excellent cooperation between ETS and the executive branch departments and agencies.

ETS provides statewide IT governance (ITG) for both the entire IT portfolio of the state’s Executive Branch under HRS section 27-43 as well as governance of large enterprise projects under Administrative Directive No. 18-03 Program Governance and IV&V Requirements for Enterprise IT Projects.

IT PORTFOLIO GOVERNANCE

Portfolio-level information technology governance consists of processes and standards guiding the management and oversight of the State of Hawai’i’s IT and information resource investments, acquisitions and projects, seeking efficiencies and cost-savings through economies of scale, leveraging of shared assets, reduction of waste, and alignment with statewide IT strategies and industry best practices. This includes the



implementation of governance and monitoring procedures across enterprise programs and projects to ensure successful outcomes and positive return on investment (ROI) are achieved, to the extent possible, and the efficient management of the statewide portfolio to ensure projects are prioritized appropriately and resources are sufficiently managed.

The following improvements on IT Portfolio Governance were accomplished during 2023:

- As part of the statewide IT Consolidation Planning, ETS coordinated and participated in all the working committees for the benefit of the IT Consolidation Working Group. Regarding IT Governance, significant changes were proposed to the statewide IT governance by the committees in their recommendations to the Working Group.
- Worked with both DHS and DCCA to define their respective departmental IT plans, in accordance with the planning structure defined the year before.
- Continued refinement of the statewide IT portfolio data model by enhancing the data model with concepts for IT Strategy, Business Goals, IT Goals, and IT Capabilities. Also refined existing data models for IT Applications and IT Projects. Continued data collection for the statewide IT portfolio in the monthly IT roadmap meetings – as well as a separate vendor-executed survey of the state's IT Applications.
- Acquired a module for the state IT portfolio management tool for technology lifecycle management - and started planning the related data collection.
- Revised the guidance matrix for the state's executive branch enterprise IT projects, structured by readiness reviews by each phase in this process. Revised the RFP checklist for large IT procurement solicitations.
- Continued providing solution architecture and technical architecture guidance for multiple departments in their large-scale IT procurements.
- Continued refining the state's IT portfolio strategy refinement by coordinating the activities of the IT Portfolio Working Group.
- Continued refining the state's IT portfolio strategy refinement by coordinating the activities of the Data Governance Working Group.



IT PROJECT GOVERNANCE

ETS provides IT governance (ITG) for Executive Branch projects under Administrative Directive No. 18-03 Program Governance and IV&V Requirements for Enterprise IT Projects.

In alignment with the governance framework for the overall statewide IT Portfolio, ETS engages in monitoring and consulting with the large IT projects with the Executive Branch departments.

In addition to the ongoing communication regarding the status of all major IT projects, the following notable activities on IT Project Governance were accomplished during 2023:

- Provided solution architecture and technical architecture guidance for multiple departments in their large-scale IT procurements.
- Participation in steering groups, including participation by the Program Transformation team
- Participation in IV&V review meetings

IT Project Governance Guidance

In alignment with Administrative Directive No. 18-03, ETS provides specific guidance for each of the phase gates. These guidance documents were reviewed and updated during 2023.



Phase	Activity	Guiding Documents	Deliverables	Approvals
Departmental IT Planning	<ul style="list-style-type: none"> Create & maintain the departmental IT plan Review any changes to the departmental IT Plan with ITG 	<ul style="list-style-type: none"> BA and IT Planning Guide (in progress, check with ETS ITG) IT plan checklist (in progress, check with ETS ITG) 	<ul style="list-style-type: none"> Department's multi-year information technology strategic and tactical plan 	
IT Roadmapping	<ul style="list-style-type: none"> Review the project's business value and risks Enter a Project fact sheet in LeanIX portfolio management system 	<ul style="list-style-type: none"> Roadmap requirements Detailed LeanIX roadmapping tutorial 	<ul style="list-style-type: none"> LeanIX Project fact sheet satisfying roadmap requirements 	
Budgeting	<ul style="list-style-type: none"> Complete and submit Form A (business case) to Budget & Finance 	<ul style="list-style-type: none"> Form A guide 	<ul style="list-style-type: none"> Budget & Finance Form A 	<ul style="list-style-type: none"> Form A approval by Budget & Finance Form A approval by CIO Budget approval by Legislature
Initiating	<ul style="list-style-type: none"> Update Project fact sheet in LeanIX to satisfy IT Spend Request requirements 	<ul style="list-style-type: none"> IT Spend Request checklist 	<ul style="list-style-type: none"> Project Charter / IT Spend Request (LeanIX Project fact sheet) 	<ul style="list-style-type: none"> IT Spend Request approval by CIO (<i>Note: IT Spend Requests submitted by Monday EOB will be reviewed in the Spend Request meeting that Wednesday, anything submitted after Monday EOB will be reviewed in the following week's Spend Request meeting</i>)
Planning <small>(for projects over \$1 million)</small>	<ul style="list-style-type: none"> Prepare PAC presentation 	<ul style="list-style-type: none"> PAC Preparation Guideline PAC Presentation Template 	<ul style="list-style-type: none"> PAC presentation 	<ul style="list-style-type: none"> IT Spend Request approval by PAC
Procurement	<ul style="list-style-type: none"> Prepare RFP or other procurement vehicle Schedule RFP checklist review with ITG 	<ul style="list-style-type: none"> RFP checklist Technical Architecture Planning Guide (in progress, check with ETS ITG) 	<ul style="list-style-type: none"> RFP - including IT-specific content 	<ul style="list-style-type: none"> RFP approval by CIO BAFO approval by CIO
Contract and Operations	<ul style="list-style-type: none"> Prepare project plan schedule Validate scope of work with vendor 	<ul style="list-style-type: none"> Requirements checklist (in progress, check with ETS ITG) 	<ul style="list-style-type: none"> Project implementation schedules plan and supporting documentation Quarterly status updates 	

Figure - IT Governance Guidance Matrix

PARTNERSHIP AND GOVERNANCE OF MAJOR SYSTEMS

As part of Partnering for Successful Outcomes and IT Governance, ETS monitors progress on a state-wide portfolio of major systems from ideation to recently operational to help departments ensure that systems are properly engineered and ready to meet business requirements. Below is the list of major systems ETS is monitoring and assisting with as of the October of 2023:

COMPLETED - Operational	Department
Tax Modernization	DOTAX
KOLEA Medicaid System	DHS
HiMod Human Resources & Payroll	DAGS/DHRD
HiMod Time & Leave Management	DAGS-Statewide
ERS Financials	B&F-ERS
ERS Benefits Replacement	B&F-ERS
OHA Financials	OHA
PVL Ho'ala License Management System	DCCA
Health Benefits Administration System (IV&V)	B&F-EUTF
Behavioral Health Inspire (IV&V)	DOH



DOE Financial Management System	DOE
RECENTLY COMPLETED –	Department
Operational / Developing Additional Phases	
Harbor Master Information System	DOT-HAR
Disability Compensation (IV&V)	DLIR
Case & Document Management System (CDMS) (IV&V)	DCCA-PUC
IN PROGRESS – Developing	Department
Statewide Enterprise Financial System (IV&V)	DAGS-Statewide
Benefits Eligibility System (IV&V)	DHS
DOT-HWY Financial Management System (IV&V)	DOT-HWY
BRIMS Business Registration Modernization (IV&V)	DCCA
E-Procurement System	DAGS-SPO
KEIKI Child Support Enforcement Re-platform (IV&V)	ATG
Immunization Registry	DOH
Medicaid Health Analytics Program (IV&V)	DHS
Vital Records Management Information System	DOH
STARTING FY 2024	Department
Unemployment Insurance Re-procurement (IV&V)	DLIR
Child & Adult Welfare (IV&V)	DHS
Corrections Management (IV&V)	PSD
Other Major Modernizations Completed Since 2015	
Microsoft Office365 - Including Office, SharePoint, OneNote, Teams	ETS, Executive Branch Wide
Adobe eSign	ETS, Executive Branch Wide
Microsoft Azure Active Directory	ETS, Executive Branch Wide
MainFrame as a Service (MFaaS)	ETS, DLIR, DHS, DAGS, DOT, DAGS
Access Hawaii Committee Portal Infrastructure	ETS, Executive Branch Wide
Cybersecurity Endpoint Detection and Response	ETS, Executive Branch Wide

STATEWIDE IT PORTFOLIO MANAGEMENT

The departmental IT roadmap and portfolio management effort continues to inform the statewide IT spending prioritization and architectural modernization. During the monthly roadmap meetings between department IT staff and ETS, and with the help of the LeanIX portfolio management tool, ETS worked together with the departments to assess capabilities, criticality and both business and technical fit of the state's existing IT applications. This assessment yields a summary roadmap disposition called TIME for each IT application. TIME translates to whether to Tolerate, Invest in, Migrate or Eliminate each application.



State of Hawaii IT Applications - Portfolio and Roadmap

Application is a software program/system or group of programs owned and managed by a department - and used by the department's employees or by citizens/constituents

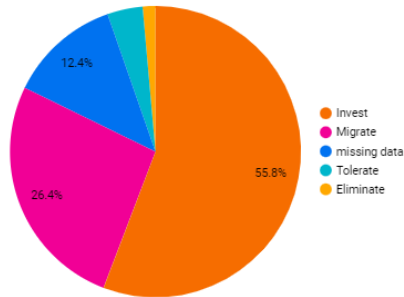
All IT Applications
636

Roadmapped*
552

* In order to consider an application roadmapped, the following data and estimates must be captured for the application: Criticality, Functional Fit, Technical Fit, Business Capability, Lifecycle

Application Roadmap - TIME Model

What is the estimated roadmap for IT Applications?



TIME Model Explanation

Tolerate - An application with high technical quality, but sub-optimal functional business value. The applications should be redesigned for better business alignment.

Invest - An application with high technical and business value. There is an attributable and recognizable value - and high and/or critical usage. The application is worth continued investment to get even better returns or reduce more costs.

Migrate - An application has high business value, but a poor technical fit. Discard the application but migrate its data and users to a new application or to a better-fit existing application.

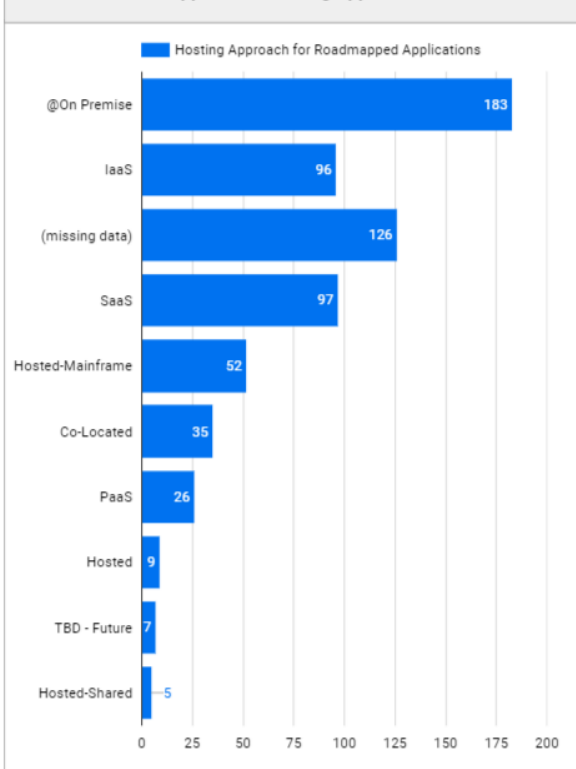
Eliminate - Eliminate useless applications with low business value and a poor technical fit (possible reasons: no business value, not used, low utility, based on obsolete software).

Figure - Public IT Roadmap, TIME Model

HAWAI'I PUBLIC IT ROADMAP DASHBOARD

ETS continues to provide public transparency of the departmental IT roadmap and portfolio management STATE OF HAWAI'I IT PORTFOLIO AND ROADMAP, available to the public on the ETS website at <https://ets.hawaii.gov/state-of-hawaii-it-portfolio-management/>.

Application Hosting Approach



Application Redundancy by Business Capability

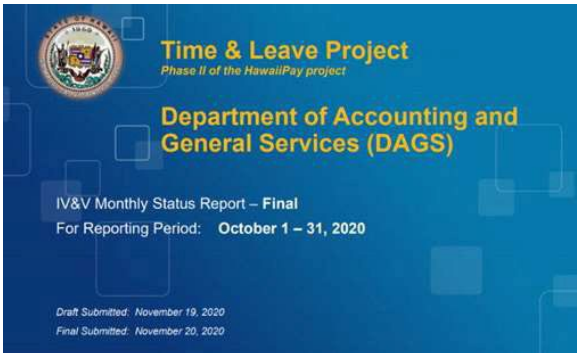
Note: You can drill down on any row to view the applications (click a capability and right-click to drill down)

Business Capability	Applications Serving This Capability
Core Capabilities / Individual Rights / Business Practices Enforcement	30
Core Capabilities / Individual Rights / Licensing/Permitting	29
Core Capabilities / Constituent Benefits / Case Management	29
Core Capabilities / Health / Environmental Management and Health Services	26
Support Capabilities / Financial Management / Accounting	25
Core Capabilities / Transportation / Transportation Delivery	21
Support Capabilities / IT / Operations / Security	17
Support Capabilities / IT / Data Management / Document Management	16
Core Capabilities / Individual Rights / Service Regulation	16
Core Capabilities / Transportation / Transportation Operations	16
Core Capabilities / Constituent Benefits / Benefit Eligibility Determination	15
Support Capabilities / Property & Facilities	13
Core Capabilities / Economic Development	13
Core Capabilities / Public Safety	13
Support Capabilities / IT / Applications / Tools & Utilities	13
Support Capabilities / Financial Management / Financial Reporting	12
Support Capabilities / Customer/Citizen Relationships / Constituent Outreach	12
Support Capabilities / IT / Applications / Case Management	11
Core Capabilities / Health / Disease Outbreak Surveillance	11
Core Capabilities / Transportation	10
Support Capabilities / Human Resources	10
Support Capabilities / Financial Management / Budgeting	10

Public IT Roadmap, Hosting and Capabilities



INDEPENDENT VERIFICATION AND VALIDATION REPORTS



Pursuant to section 27.43.6, HRS, and section 93-16, HRS, Independent Verification and Validation (IV&V) Reports for certain major systems are to be submitted to the legislature and posted on the ETS website.

IV&V provides a rigorous independent process that evaluates

the correctness and quality of the business product of the project to ensure that the product is being developed in accordance with customer requirements and is well-engineered.

In 2023, ETS provided IV&V oversight over the following projects:

- Department of Health's Behavioral Health Administration Integrated Case Management System
- Public Utilities Commission's Case & Document Management System
- Department of Human Services' Systems Modernization Project
- Department of Human Services Med-Quest Health Analytics Program
- Department of Labor and Industrial Relations, Disability Compensation Division's Modernization Project
- Department of Transportation's Financial Management Systems Project
- Department of Commerce and Consumer Affairs Business Registration Modernization Project
- Department of Accounting and General Services' Statewide Enterprise Financial System



IMPLEMENT DYNAMIC AND SUSTAINABLE IT OPERATIONS

(Also known as EVERGREEN OPERATIONS)

Implement dynamic and sustainable IT operations to ensure business systems are up-to-date and ready to support the current and future needs of business users and citizens at all times.

The following programs align with the key focus area of Dynamic and Sustainable IT Operations, which is one of the strategic priorities of the Hawaii Information Technology Strategic Plan.

SHARED SERVICES

ETS manages enterprise shared services centrally to leverage economies of scale (e.g., network, data management, unified communications, data center, and various cloud services).

- **Office 365** – Activated 14,265 Office 365 licenses that are now being utilized by branch department users. Benefits include fortified security, greater disaster recovery capability, expanded applications and services, added tools for collaboration, and long-term budget sustainability. A dramatic increase of Microsoft SharePoint storage was driven in response to the pandemic and increase in telework: 1.8TB (terabytes) of SharePoint storage was in use shortly before widespread awareness of COVID-19 in March 2020. By the end of October, 12.99TB of SharePoint storage was in use – a more than seven-fold increase in less than a year. In 2023, we consumed 55.7TB of storage as more users shift their workloads into the cloud.
- **eSign Service** – Departments statewide increased government efficiency within the executive branch through the use of eSign. Roughly 500,000 transactions were processed through the Adobe eSign service this year.
- **Government Private Cloud** – ETS is a VMware Service Provider and provides Hyper Converged Infrastructure and services to various departments.
- **Public Cloud Services** – ETS provides Amazon Web Services (AWS), Microsoft Azure, and Google Cloud services to various applications, and services.
- **Open Data Infrastructure** – The State's Open Data Infrastructure is managed and maintained by ETS.



- **Public Facing Website Infrastructure** – Various department and agency websites are housed and managed by ETS in AWS.
- **Network Services** – ETS has designed and maintains the largest computer network in the State of Hawaii that spans multiple islands.
- **HIWIN Radio System** – The Hawai'i Wireless Interoperability Network is the State's Radio infrastructure, which is used by first responders, departments, counties, and other various agencies.
- **Executive Legislative Tracker (ELT)** – Using Sharepoint, SQL Server and PowerApps, ETS designed a way for departments to search for and track measures during the Legislative Session. Departments collaborate and discuss proposed measures using this tool. Technical aspects of the application read the information on the capitol.hawaii.gov site and updates the tracker in near real time, store documents that are associated with a specific measure and has functions to send email from the application. The ELT has been in use for six years with additional functionality added every year. For the 2023 Legislative Session, the application garnered 410 users.
- **Executive Testimony Tracker (ETT)** – Using Sharepoint, ETT provides the executive branch departments a tool to submit and collaborate on testimonies during the Legislative Session. Submitting the testimony is automated through an email with an attachment. The system also organizes the testimonies for the executive department. For the 2023 legislative session, 5037 testimonies were submitted
- **Legislative Bill Enrollment** - To increase the efficiency and organization of the legislative bill enrollment process, the ETS team developed the Bill Enrollment system for the Office of the Governor in [April 2021](#). The system streamlines the gathering of comments and recommendations from the Departments/Attached Agencies, and handles the communications and transfer of documents between the parties. For the 2023 Legislative Session, 274 bills were processed for comments and recommendations to the executive branches.

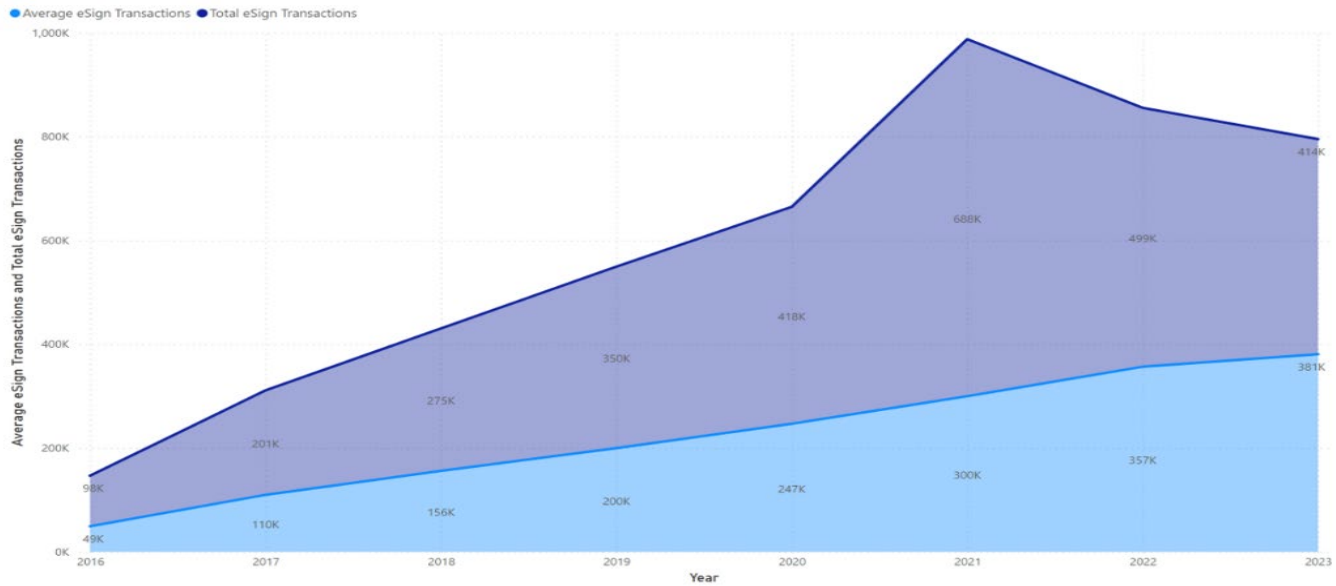


eSIGN

Eight years after eSign was officially launched, over 2.9 million eSign transactions have occurred. From onboarding new employees, to signing documents, 19 state departments are using eSign.

The application creates efficiency within state government through digitizing paper-based processes and reduces the environmental impact on our world.

Average eSign Transactions and Total eSign Transactions by Year



Average eSign Transactions and Total eSign Transactions by Year

		
342021750	18859148	119228400
Gallons of water saved	Pounds of waste saved	Pounds of wood saved



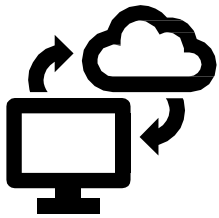
OFFICE 365

ETS manages 14,265 Office 365 licenses that are now being utilized by executive branch department users. Licenses include applications like Outlook, Microsoft Teams, OneDrive, OneNote, and SharePoint

Activated benefits include fortified security, greater disaster recovery capability, expanded applications and services, added tools for collaboration, and long-term budget sustainability.



WEB SERVICES



ETS manages the infrastructure that hosts the State's public facing websites, which includes 552 sites (department websites and its subsites) and provides other cloud hosting options.



ETS supports the application, which HiMod's payroll call center, Hawai'i Information Portal (HIP), uses as its customer relationship manager.

An average of 4,500 employees use the HIP call center.



HAWAII WIRELESS INTEROPERABILITY NETWORK (HiWIN)

ETS manages the State's radio system, which is used by first responders, federal, state and county other agencies. It is a system architected in such a way that if any portion of the system is isolated, it will continue to operate with the full functionality of the system at-large. Backed by the State of Hawai'i microwave network of links, the system joins sites that are designed to survive a category 4 hurricane.



ETS has recently partnered with DOT Airports to apply the vast technical capabilities of the HiWIN system connected by the microwave network to offer interoperable communication platform for all agencies likely to respond to an emergency at any airport statewide. This includes county, state, and federal agencies representing law enforcement as well as Fire, EMS, and other public safety functions. All harbors statewide use HiWIN and are connected over the microwave system, enabling instant statewide communications for almost any emergency.

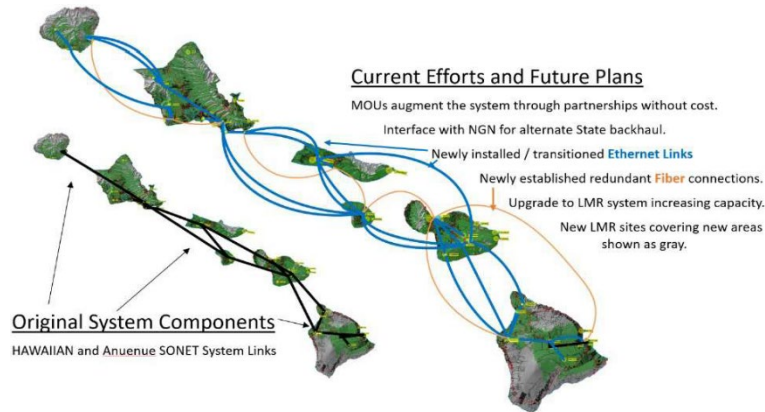
HiWIN Use In Lahaina Fire Response

The HiWIN system was one of the two communication systems that remained operational during the Lahaina fire and subsequent response. Furthermore, HiWIN was the only communication system that actually remained fully operational during this period. ETS was one of the first entities to arrive with equipment purchased for emergency data connections and creation of small bubbles of cellular system access which were deployed on Maui and at HIEMA on Oahu as well.



ANUENUE Interisland Digital Microwave Partnership

Radio Section System Status & Plans



The State maintains a vast network of resilient radio sites that are linked by microwave connections. The network consists of State sites as well as USCG sites, designed to meet the unique topography and climate challenges of the Hawaiian Islands, Anuenue's backhaul infrastructure can withstand the 155 mph winds of a Category 4 hurricane, run for one to two weeks on generators without commercial power, and survive in earthquake Zone 4-rated facilities built far away from tsunami inundation zones.

The partnership between the State with the USCG, known as Anuenue, provides resilient and survivable communication throughout Hawai'i. It is similar to other partnerships penned by ETS to share sites with counties thereby advancing connectivity without the cost of a new site build.

While the partnerships and overall network of microwave sites and links have also been designed to support all State Office Buildings to provide connectivity and continuity of government functions, if terrestrial connections such as fiber optic cables are cut or damaged, the foremost important role is to support the HIWIN network (discussed above) for First Responders and those supporting them serving in the broader public safety arena.

The ANUENUE Network infrastructure of high-capacity microwave links, radio towers, and ground facilities support systems used by Hawai'i's first responders, search and rescue, law enforcement, emergency services, and



critical government services during both routine operations and during natural disasters like hurricanes and tsunamis. The ANUENUE's 12 "high sites", located on remote mountain tops, connect with eight sites located at state office buildings and USCG properties across the islands.

State users of the ANUENUE include ETS, with the Hawai'i Wireless Interoperability Network (HIWIN); Maritime Wireless Network System; Hawai'i Emergency Management Agency; the Departments of Public Safety, Transportation, Health, and Land and Natural Resources; and the County of Maui Police Department and other agencies of all counties. The Coast Guard's primary use of the ANUENUE is its Rescue 21 maritime distress radio system, providing significantly improved coverage and location capabilities to locate mariners in distress.

USCG-sponsored federal users include the U.S. Army Pacific Land MobileRadio System, National Oceanic and Atmospheric Administration Emergency Weather Broadcast System, U.S. Customs and Border Protection, and United States Geological Service.





Enterprise Notification System (ENS) using Alert Media



ETS procured 10,000 licenses of the Alert Media services to create an Enterprise Notification System (ENS) for participating Executive Branch

Agencies' staff. The ENS gives the State mass notification capabilities using voice call, text message, email, or mobile app push notification. Outgoing notifications can target by organizational entities, specific geographic locations, as well as other kinds of categorizations. It is also possible for individuals to issue a request for assistance. The ENS is functionally deployed by seven agencies now with 10 other agencies in various states of deployment.

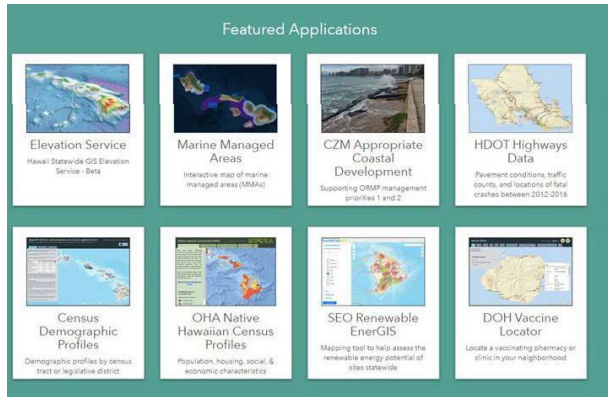
WEB ACCESSIBILITY

Web accessibility is measured using the globally recognized Web Content Accessibility Guidelines (WCAG) 2.0 level AA standards, which defines how to make web content more accessible for people with disabilities. Roughly 300K pages across 125 websites are being actively scanned and monitored.

In response to Act 172 SLH2022, relating to electronic information technology accessibility for persons with disabilities, ETS, in conjunction with the Disability and Communication Access Board (DCAB), has begun development of the "Hawai'i Electronic Information Technology Disability Access Standards." This publication will detail electronic information technology accessibility standards to be implemented by all state entities to require that all electronic information technology, developed, purchased, or used by a state entity must be made accessible to persons with disabilities.



GEOGRAPHIC INFORMATION SYSTEM PROGRAM



- The GIS Program is an Office of Enterprise Technology Services and Office of Planning joint effort.
- Approximately 1,000 active users in State's primary Cloud mapping organization.
- Established enterprise licensing agreements and cloud-based hosting services that encourages broad GIS adoption across all State of Hawai'i departments.
- Reduces redundant local databases, standardizes information analyzed by decision makers.
- Collects and distributes up-to-date authoritative GIS data to more than 400 state GIS data and system users state departments that develop and maintain a wide variety of data, maps and ERP applications — many of which are available to the public and/or relied upon by state personnel.
- Maintains a public-facing geospatial open data portal with access to most of the GIS data and imagery layers.
- Is used by agencies to develop and maintain a wide variety of data, maps, and ERP applications — many of which are available to the public and/or relied upon by state personnel.

GOVERNMENT PRIVATE CLOUD

ETS is a VMware Service Provider and provides Hyper Converged Infrastructure and services to various departments.



Storage Capacity (Terabytes Used) by Year

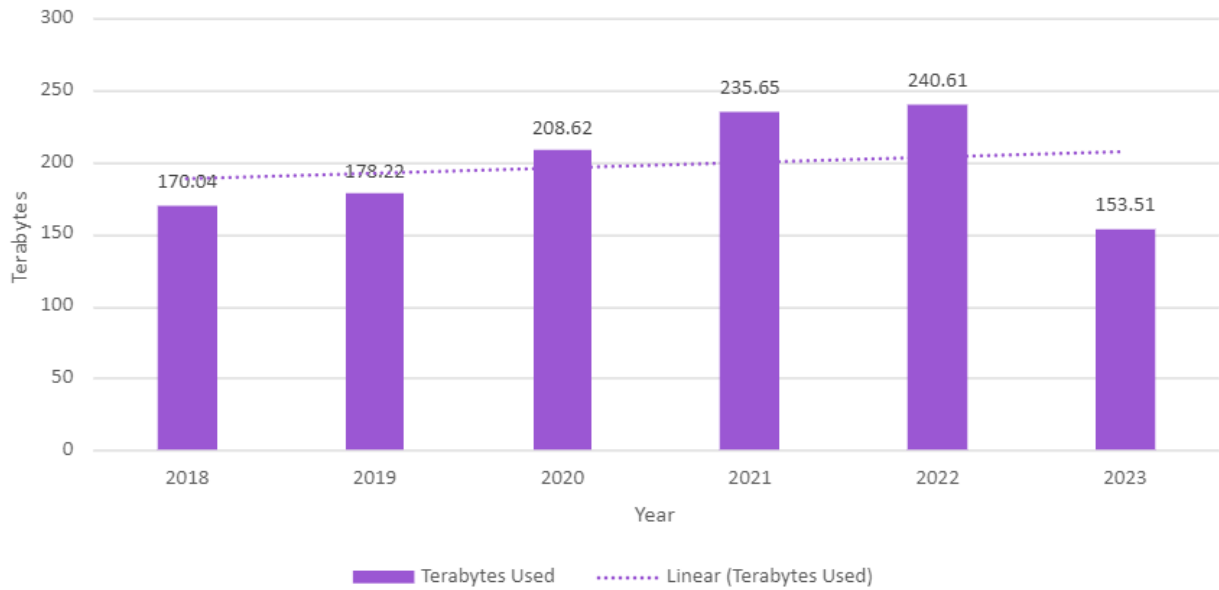


Figure 5: Government Private Cloud Storage Capacity (Terabytes Used) by Year

Total Virtual Machines by Year

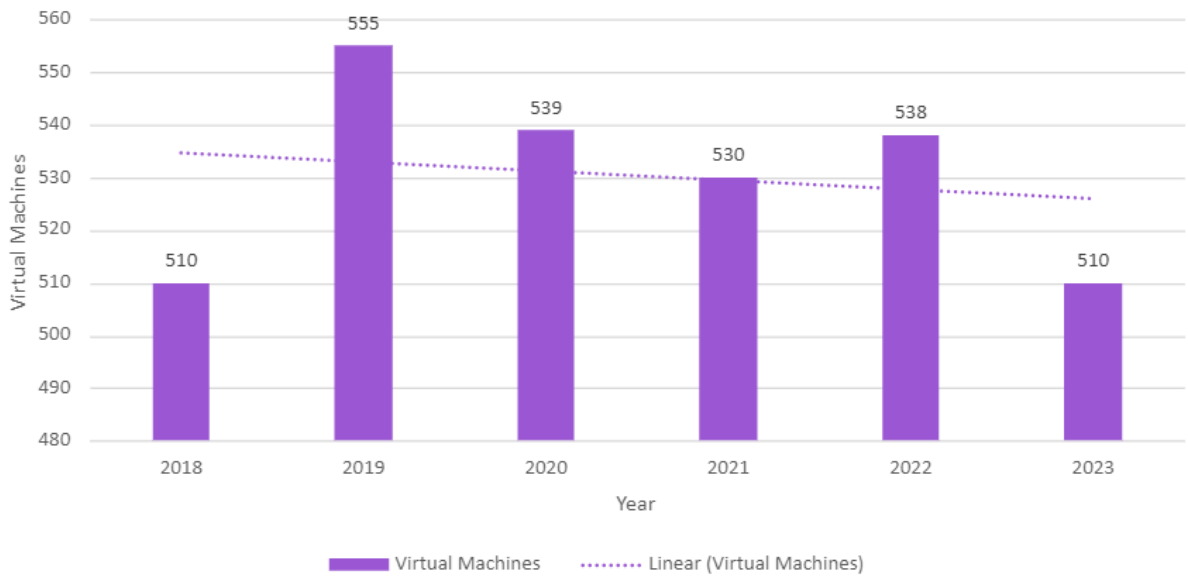


Figure 6: Government Private Cloud Total Virtual Machines by Year



PUBLIC CLOUD SERVICES

ETS provides Amazon Web Services (AWS), Microsoft Azure, and Google Cloud services as infrastructure to host various applications, and services.

PROFESSIONAL DEVELOPMENT

Establish a continuous learning culture and growth mindset to modernize how we work and enable the state to develop and sustain the digital workforce needed in a constantly evolving IT world.

INFOTECH ACADEMY



InfoTech Academy has a series of 45 online courses designed to help the IT leadership team master the core IT processes from the IT Management & Governance framework. Completion of a set of courses in any of the 9 major areas leads to a certificate.

In 2022, ETS staff continued to participate in guided Implementations and virtual Workshops covering various subjects.

INFO~TECH
RESEARCH GROUP

Home Technology Research Improve Core IT Processes IT Strategy & Diagnostics IT Leadership Training

Home

TRAIN AND DEVELOP YOUR
IT Leadership Team

Have the right training in place for your IT executive team and help develop the next generation of IT managers

Leadership & Management my Academy

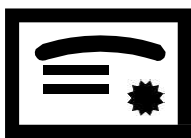
Info-Tech Academy
Train your staff and develop a world-class IT team.



VENDOR SPONSORED TRAINING

ETS uses vendors to provide training on technologies used by the state. The training usually is a hands-on workshop on how to use a technology. Statewide trainings were offered on topics like productivity and collaboration, messaging and communications, web meetings, electronic signatures, accessibility, and telework. Statewide and focused trainings were offered by Microsoft, Adobe, and AlertMedia on topics like productivity and collaboration, messaging and communications, web meetings, electronic signatures, accessibility, open data, and telework.

CERTIFICATIONS



- Employees are encouraged to earn their certifications in the area of their profession.
- Provides an opportunity for our employees to submit for a salary increase because of their professional growth.
- If an employee passes their exam, they are reimbursed for the cost.

CAREER PATHS



- Many opportunities on a day-to-day basis for employees to grow, such as mentoring or shadowing opportunities, stretch assignments, and other learning opportunities throughout the organization.
- ETS has leveraged the Department of Labor Workforce Development Division's Student Internship Program (SIP) to provide paid internship opportunities for students approaching graduation or have recently graduated from college. Interns have the opportunity to gain valuable experience towards their future careers in the IT field. Our goals for the internship are to provide an environment for interns to apply knowledge learned from school curriculums, develop hands-on work experience, and become better prepared to enter the information technology and cybersecurity workforce.



DIGITAL GOVERNMENT SUMMIT

government
technology

2023

Hawaii
Digital Government Summit

SEPTEMBER 25 / HONOLULU



The 2023 Hawai'i Digital Government Summit, organized by Government Technology Magazine, is a collaborative forum to share information technology best practices, to hear about emerging technology trends, and to reflect on our future challenges.

Attendees connected with peers from the government and industry sectors to share ideas, best practices, and technology trends.

Recognized national speakers, Hawai'i IT leaders, and colleagues from other states shared their collective experiences and proven problem-solving strategies.

Topics included IT Consolidation in the State of Hawai'i; Cybersecurity Readiness and Response; The Future of Work; Real Talk About Change Management; A Modernization Journey: The New Hawaii Enterprise Financial System; Managing the Constituent Experience and Excellence; Data Makes Equality Possible; The Importance of Identity and Access Management for Government; and Department Paths to Modernization.

This professional development and learning event drew more than 200 participants from all levels of government in Hawaii.



HAWAI'I ANNUAL CODE CHALLENGE (HACC)

2023 Hawai'i Annual Code Challenge Returns to Live Judging

Two high school teams and a team from the University of Hawai'i at Mānoa took the top honors at the Eighth Hawaii Annual Code Challenge (HACC) on Nov. 18 on the UH West O'ahu campus. The program returned to live presentations and judging this year with the removal of COVID restrictions.



The HACC solicits challenges from state departments and community groups and asks student, amateur and professional coders to develop technology applications to help solve specific problems during a

four-week period.

The HACC was created to encourage engagement between Hawai'i residents and the local technology community to modernize state functions and services for a more effective, efficient, and open government. Another objective of the hackathon is to strengthen the pipeline of the IT workforce and expand the tech industry in our state.

HACC 2023 included five challenges, one each from the University of Hawai'i, ITS Ask Us; Tyler Hawai'i, Affordable Health Care; Hawai'i Pacific University CMDR, Large Marine Debris Reporting, Dispatching; Maui Institute of Art and Technology, Lahaina Digital Twin Project; and Zero Waste Oahu, Reusable Takeout Program App.

The 2023 HACC was sponsored by the State of Hawai'i Office of Enterprise Technology Services (ETS) in partnership with the University of Hawai'i.

Other sponsors include Transform Hawai'i Government, Hawaiian Airlines, Verizon, Google for Government, Tyler Technologies, Microsoft, eWorld Enterprise Solutions, Salesforce, Hawai'i Data Collaborative, AT&T and AWS.

Partners include IMAG Foundation, the Hawai'i Department of Education Computer Science Team, UH Mānoa Information & Computer Sciences, Hawai'i Pacific University, and the Hawai'i Technology Develop Corporation.

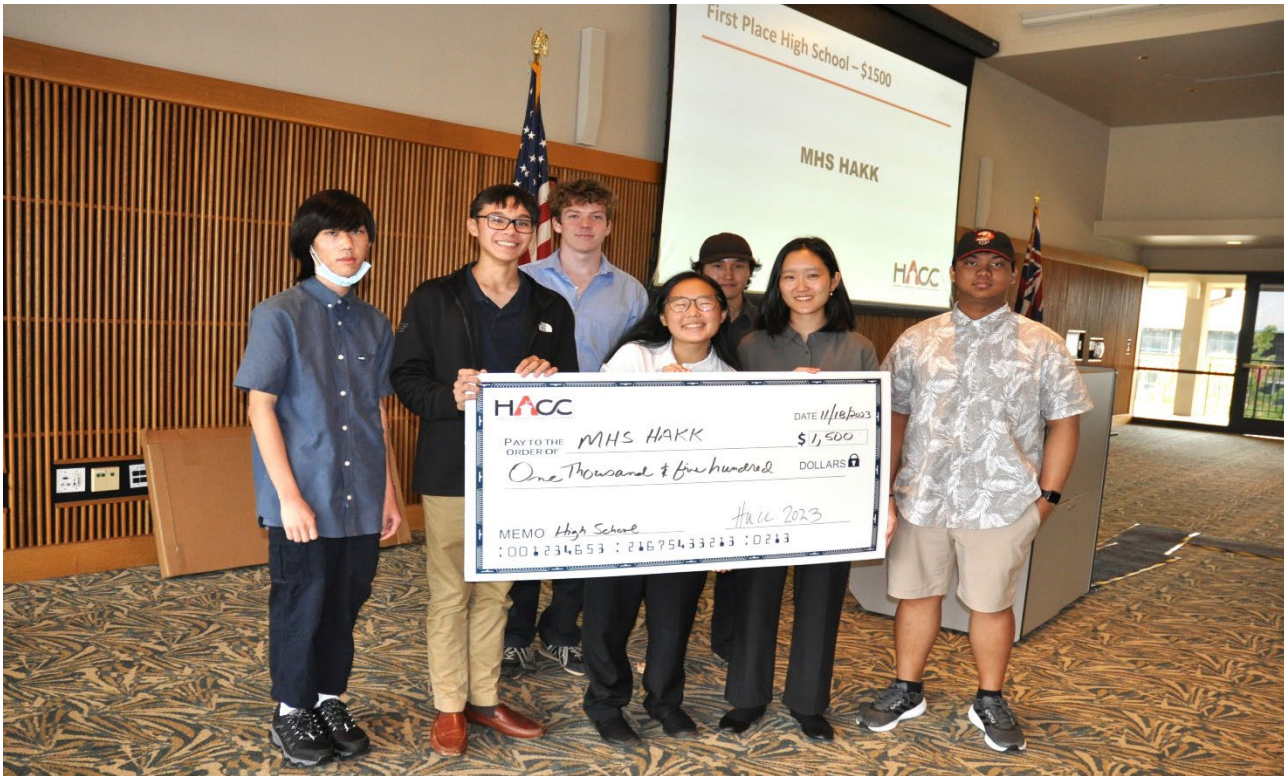


2023 HACC BY THE NUMBERS

- **187 PARTICIPANTS**
- **64 HIGH SCHOOL STUDENTS**
- **39 TEAMS CREATED**
- **26 TEAMS SUBMITTED SOLUTIONS FOR JUDGING**
- **22 CODE BASED SOLUTIONS & 6 NO/LOW CODE SOLUTIONS**
- **21 FINALIST TEAMS ON JUDGING DAY**

HACC CHALLENGES BY TEAMS

University of Hawai'i <i>(ITS Ask Us)</i>	10
Tyler Hawai'i <i>(Affordable Healthcare)</i>	9
Hawai'i Pacific University CRMR <i>(Large Marine Debris Reporting, Dispatching)</i>	7
Maui Institute of Art and Technology <i>(Lahaina Digital Twin Project)</i>	5
Zero Waste Oahu <i>(Reusable Takeout Program App)</i>	8



Mililani High School students on team MHS HAKK took first place in the high school category and a \$1,500 prize.

Mililani High School team MHS HAKK took first place in the high school category and a \$1,500 prize for their work to develop a solution for a challenge to help underinsured or uninsured individuals find and access affordable healthcare in Hawai'i.

Cassidy Ibanez is the team captain and members include Courtney Hisamoto, Kyle Bain, Nolan Carlisle, Miles Hackney, Toby James, Kyler Ching and Jourdan Hung.

In the coded category, first place and a \$4,000 prize went to team VENGEN for their design to create a web portal to facilitate civic engagement around rebuilding Lahaina, Maui, including surveys, forums, sharing design concepts with visual and data models for economic, environmental analysis.

Ethan Chee is the captain of the UH Mānoa student team and members include Timothy Huo, Michelle Leano, Eda Cadiena and Marissa Halim.

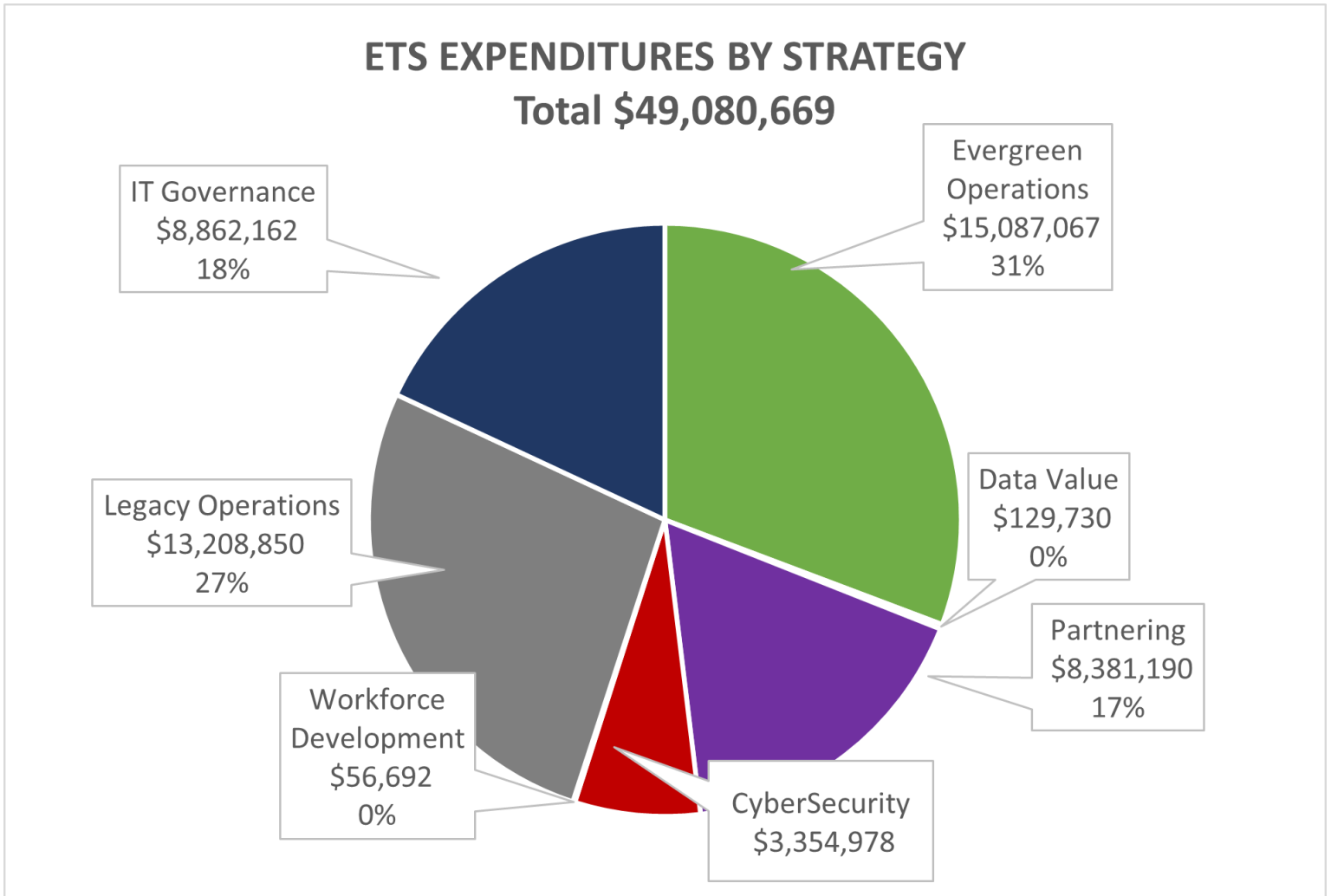
In the low/no code category, team T777+ took first place and a \$4,000 prize for their response to the affordable healthcare challenge. The team is from a mix of high schools also took second place in the high school category.

Joshua Li is the team captain and members include Brix Kozuki, Jacob Osada, Max Chin and Leo Zhang.



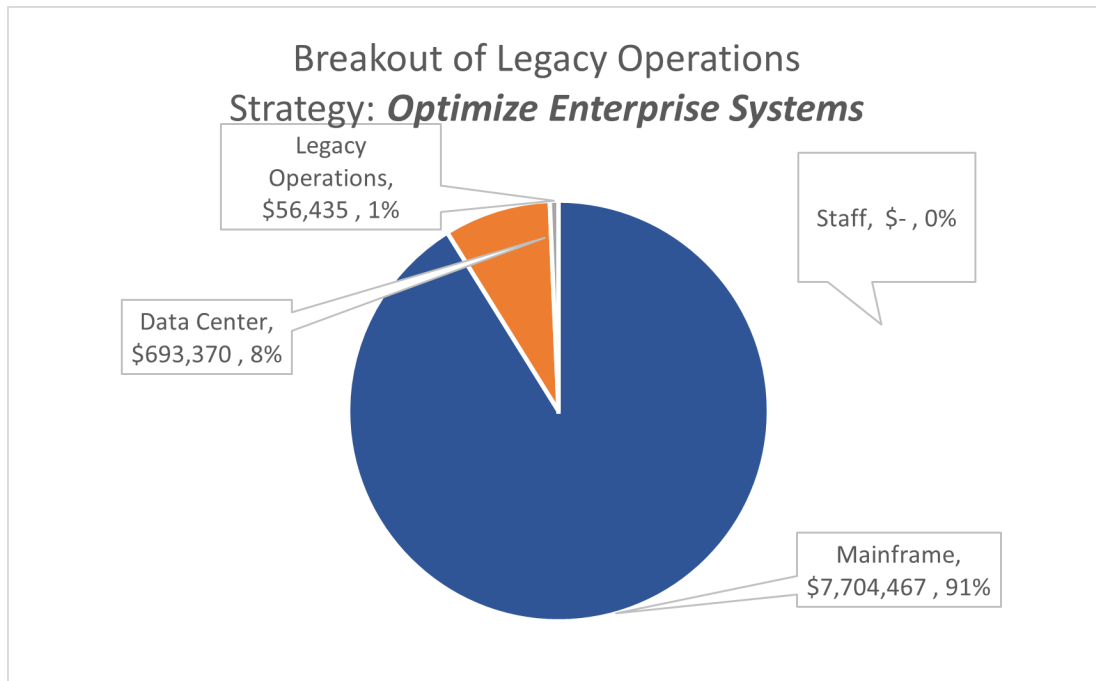
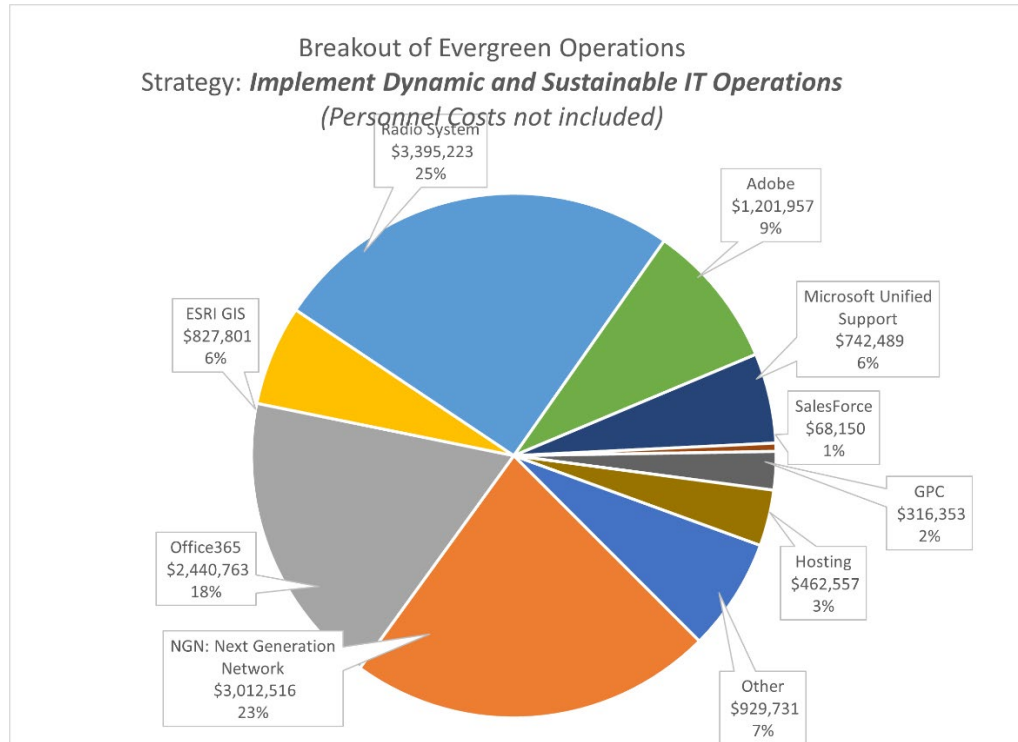
ANALYSIS OF FY2023 EXPENDITURES

This section analyzes ETS's expenditures by strategic priorities.





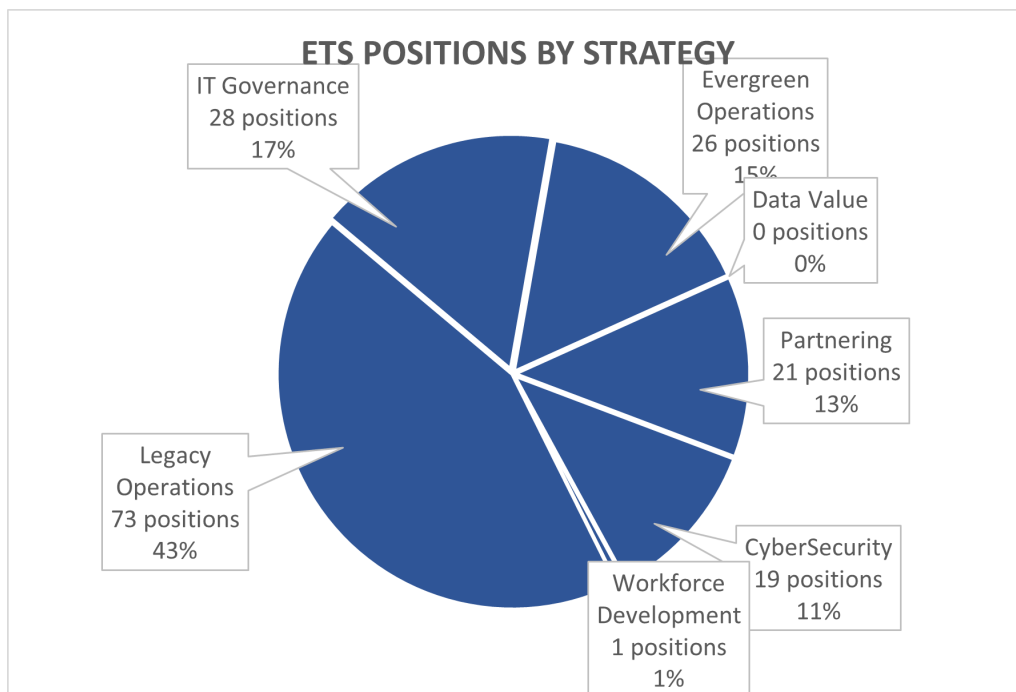
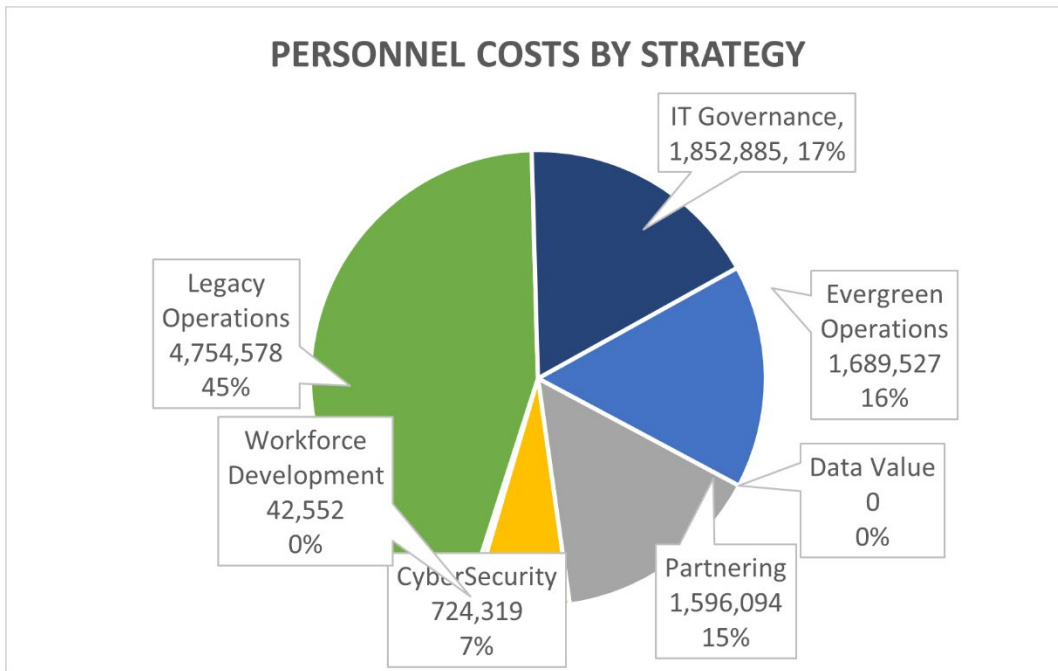
ANALYSIS OF FY2023 EXPENDITURES





ANALYSIS OF FY2023 EXPENDITURES

PERSONNEL





ETS IT System Quality Assurance Program

The purpose of the State of Hawaii Enterprise Technology Services Information Technology System Quality Assurance Program is to provide State-wide QA Standards to

- Encourage the use of best practices for IT Systems in development and operation
- Improve the success rate of Design, Development, and Implementation (DD&I) of new state IT systems;
- Ensure production systems continue to be reliable, effective and secure in maintenance and operations (M&O); and
- Plan for updates, upgrades or replacement of systems in a timely and appropriate manner.

Implementation of the QAP is tailored based on the cost, duration, complexity and business impact of a system.

- QA Program Elements Currently in Place
 - IT Strategy and Governance Process & Program Approval Committee (PAC) - ETS' IT Governance (ITG) assists the CIO with developing, implementing, and managing statewide information technology governance. ETS' IT Governance implements and coordinates the governance process required by the [Administrative Directive No. 18-03 – Program Governance and IV&V Requirements for Enterprise IT Projects](#). The state's IT project portfolio governance consists of project phase review gates to ensure project execution and associated expenditures are sufficiently evaluated and receive approval by the appropriate state governing bodies. More information is available on the ETS website at [Office of Enterprise Technology Services | IT Governance \(hawaii.gov\)](#).
 - ETS Enterprise Subject Matter Experts (ESMEs) – ETS staff provide subject matter expertise in many areas including project management, strategy and governance, enterprise architecture and portfolio management, business analysis, technical analysis, cybersecurity, identity and access management, procurement process and data. Department or Agency projects can request assistance from any of the ESME areas.
 - Lean IX Portfolio Management and Roadmap of Systems and Projects - Aligning with the [State of Hawaii IT Strategic Plan](#), ETS coordinates management of the statewide IT Portfolio. The state executive branch departments work with ETS to maintain a portfolio of major IT applications and projects for each department, along with a roadmap of planned update, upgrade or replacement projects. A summary version of the portfolio can be found at [Office of Enterprise Technology Services | State of Hawaii IT Portfolio and Roadmap](#).

- ETS as a Broker and Success Partner – ETS serves as a broker of information to agencies regarding IT trends and resources, vendor capabilities and projects in other departments. Each department has an assigned ETS analyst to help them work through governance processes and find helpful information. ETS also manages an IT Coordinating Council comprised of IT staff from each department. The ITCC meets monthly to share information from ETS and between departments.
- Independent Verification & Validation (IV&V) – HRS §27-43.6 gives the CIO discretion to require IV&V on certain DD&I projects based on criteria in the statute. The state defines IV&V as "independent verification and validation of an information technology project" means a rigorous independent process that evaluates the correctness and quality of the business product of the project to ensure that the product is being developed in accordance with customer requirements and well-engineered. IV&V reports are posted publicly on the ETS website to enhance transparency and accountability in IT projects.
- Earned Value Management (EVM) - Earned value management (EVM) is a project management methodology that integrates schedule, costs, and scope to measure project performance. Based on planned and actual values, EVM predicts the likelihood that a project will meet its goals and enables project managers to adjust accordingly. ETS is incorporating EVM into the IV&V process but it may also be used as a best practice on projects without IV&V.
- Project Transformation Office – The Program Transformation Office (PTO) provides centralized consulting services to assist with department-led IT projects. The PTO is comprised of experienced professionals who work collaboratively with and provide guidance and support to departments and agencies. The scope of services provided depends on customer needs and may include self-service project management tools and a la carte consulting services. The PTO also has a website with guidance, useful information and prebuilt forms for use in managing an IT project. More information is available at [Office of Enterprise Technology Services | Program Transformation \(hawaii.gov\)](https://www.hawaii.gov/office-of-enterprise-technology-services/program-transformation/).
- Organizational Change Management (OCM) – Implementation of change in government can be very hard when status quo is in our DNA. Disruption of the status quo is often difficult for leadership and the workforce to accept. OCM is a process of planning and implementing new ways of operating within an organization by preparing everyone for the change and getting buy-in. ETS has OCM resources to assist departments with the change that comes with IT system modernization and strongly encourages departments to engage in OCM as part of modernization.
- IT Request for Proposal (RFP) Checklist and Review– ETS IT Governance developed a standardized RFP checklist with over 60 items to ensure that RFP packages include important IT-related conditions and requirements. ETS provides the checklist to departments and helps review the draft RFP for inclusion of checklist items.

- Rigorous Vendor Presentation Requirements – Vendor written responses and oral presentations in response to an RFP need to be rigorously planned and analyzed by the purchasing agency. ETS is encouraging departments to dedicate significant time and effort to vendor selection considering the large investment and long-term investment of IT system change.
- Early Return on Investment - Staging and Minimum Viable Product – ETS recommends IT projects be built in stages to allow agency use of each stage of the IT system as early as possible to begin receiving a return on investment. This also helps to evaluate the project’s likelihood of success. The first usable part of the project should be an early, basic version of a product that meets the minimum necessary requirements for use but can be adapted and improved in the future, known as the minimum viable product (MVP) or initial operating capability (IOC). Often this allows the agency to turn off all or part of an existing system and thereby reduce expenses to maintain and operate the old system.
- Fixed Price Contracts and Contract Payments Based on Deliverables – IT implementation projects for major systems should be fixed price contracts. If contract payments are appropriate before contract completion, ETS recommends agencies tie any partial payments to completion of significant deliverable items or milestones in the statement of work. These payments must be commensurate with level of effort and actual work accomplished and not for actual time and materials. Deliverables must meet the quality standards established under the contract.
- Central Purchase Contracts and Procurement Price Lists – Central contracts and price lists simplify and speed up procurement of IT systems and products. National price lists are available through the National Association of State Procurement Officials’ ValuePoint and the United States General Services Administration. In addition, the state has price list for cloud services and other IT services purchased by departments.
- National Association of Chief Information Officers (NASCIO) – ETS is a member of NASCIO. NASCIO is a resource for information on what other states are doing on modernization and other major topics and a forum for discussion of common problems and potential solutions.
- Commercial Advisory and Assistance Services – ETS and departments utilize IT advisory and assistance companies to assist with procurement and operations. Commonly used companies include InfoTech and Gartner. These services often provide best practice information to the state and can assist with every stage of procurement planning and execution.
- Planned Improvements – These items are being used or tested in systems currently under development or in operation but are not standardized:
 - Project Charters – Charters are short documents that outline the details and potential benefits of a project and help teams and customers better understand its purpose. The document provides key information about a project and provides approval to start the project.

- RACI Charts with Significant Detail - A RACI chart (sometimes called a Responsibility Assignment Matrix) is a way to identify your project teams' and stakeholders' roles and responsibilities for any task, milestone, or project deliverable. By following the RACI acronym, you can clarify responsibility and reduce confusion. RACI stands for Responsible, Accountable, Consulted and Informed. With a RACI chart, you can prevent poor decision making and avoid roadblocks in the approvals process that could impact overall project success.
- User Stories and Outcome analysis - Choosing User Stories to define requirements demonstrates an intention to work collaboratively with the users to discover what they really need and to measure the result user benefits as outcomes.
- State Data ETL Analysis and Plan including Vendor Role – extract, transform, load (ETL) is a three-phase process where data is extracted from the existing system, transformed (cleaned, sanitized, scrubbed) and loaded into new system. This process is a key to the success of a modernization project. Vendor and government ETL roles and responsibilities must be carefully explained in RFP documents, including who will provide and apply ETL tools. A RACI matrix is a good way to lay out detailed responsibility for ETL. In the absence of a state-provided ETL tool, the vendor must provide a tool-set for ETL.
- Automated Testing Program – Automated testing is essential to running modern IT systems both during development and operations. In automated testing, tests are executed automatically via test automation tools and software. In manual testing, a human performs the tests step by step, with or without test scripts. Manual Testing shows lower accuracy and takes significant amounts of workforce time. However, manual testing still needs to be done as part of user acceptance testing to ensure the system works well and interface to users is appropriate. Automated testing requirements should be included in RFP and contract language including who will do what and who will provide the tooling. Automated testing is also needed after development due to regular system upgrades. It may be necessary for the vendor to provide user stories or test scripts for upgrades and enhancements during the maintenance and operation phase.
- Documentation - Business Process and Technical Documentation must be a requirement in the development and operation of any system. Both As-Is and To-Be should be described in system runbooks. Runbooks provide IT system teams with contextual documents that increase consistency and efficiency through standardization. They act as a walkthrough or step-by-step guide for both new and experienced professionals working on or using the system. They are also useful for training, testing, trouble-shooting and incident management and help reduce down-time. IT Infrastructure Library (ITIL) protocols and Business Process Management Notation protocols should be adhered to in the documentation.
- Special Project IT Modernization Staffing – Some projects have established PMOs using the Governor's authority for cases where existing positions to

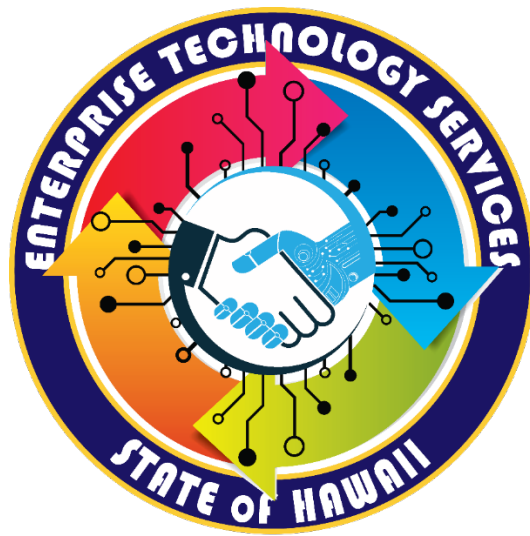
modernize the system do not exist. ETS has a template available for requesting the Governor's approval.

- Guidelines for PMO Staffing – Each IT Project should be assigned to a Project Management Office within the department. The system RFP should describe the leadership, business, and IT staff available full- and part-time to work on the project and any time when they will not be available. Vendors generally expect they will not have to pause their work due to unavailability of government staff and that government staff will be reasonably available as needed. Vendor expectations should be addressed through the procurement and contracting process to ensure that there is agreement on access to employees. Generally, you can expect to need one full-time staff person to match each full-time project staff member of the vendor to stay on the development schedule. ETS is preparing a guide for establishing and sizing your project management office.
- Security Standards – ETS is planning to create a security standards guideline and evaluation checklist for systems during development and operations. Systems must be developed and operated using good cybersecurity practices and in accordance with any federal or state laws or rules that apply.
- RFP as Contract Document – The RFP is often used as a part of the contract and therefore it must be written with that in mind. Chapters or sections describing the RFP and procurement process, including RFP response format, content or timing should be clearly separated from requirements and terms and conditions that will apply as part of the contract. Any language that may be referenced in the contract needs to be clear and unambiguous as should anything submitted by the respondent.
- IT Contract Language Standards – ETS is planning to prepare recommended standard clauses for IT contracts.
- Automation and AI Focus - New or modified systems should consider how automation and artificial intelligence (AI) can be used in an ethical manner to enhance the IT system. Vendors should be required to disclose how they use AI in completing work under the contract.
- Phase Gates in Development as Off-Ramps (PAC approval) – ETS is currently reevaluating the PAC approval process to determine if additional approvals should be required at other development or operations lifecycle stages.
- Thresholds for Quality Assurance Requirements – All ETS guidance for quality will be based on the size and scope of the IT system including costs to develop and operate, development time, expected operating life, impact on residents, business operations and other users, complexity and integration with other systems.
- Configuration Control Board (CCB) – During development and operations, it will be important to have a process to evaluate and execute system changes systematically. The group is responsible for recommending or making decisions on requested changes to baselined work. These changes may affect

requirements, features, code, or infrastructure and may also impact planned shut-downs of operating systems. The group should have a Change Control Plan and may be advised by a lower-level working group. The CCB should include IT and business leaders.

- Backup and Disaster Recovery – Each IT system must have a documented backup and disaster recovery process that is tested as appropriate.
- Lifecycle Planning – Each IT system must have a lifecycle plan for regular business and technology architectural reviews with projected modernizations or replacement of the system.
- Technical Debt - Technical debt is an accumulation of design or implementation artifacts that can make future changes more costly or impossible. Technical debt may limit future maintainability and evolvability. Technical debt may be known or unknown and may build during development or operations based on expediency, or a lack of resources, knowledge or capabilities. Known technical debt should be logged and considered during development and during regular architectural reviews.
- RIOD Management – IT Systems and projects should keep a log of significant risks, issues, opportunities, and decisions (RIOD) made during development and operations. The quality of thinking and judgment applied to these areas often will determine whether a program meets its objectives throughout the life cycle.

Act 179 IT Consolidation
2023 Findings and Recommendations
Report
for the State of Hawai'i Legislature



Prepared by the Office of Enterprise Technology Services

For questions, please contact ETS@hawaii.gov

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1 Introduction

ETS and the Executive Branch departments have been working on how the IT consolidation might occur, identifying key considerations and decisions points, gathering feedback from the Consolidation Working Group and forming recommendations to align with the strategic goals of [Act 179](#).

The Consolidation Working Group believes that the best way to implement consolidation without negatively impacting departments or the citizens and beneficiaries they serve, is to **continue to develop the shared services model**. Consolidation planning focuses on effective IT services across the departments, improving business capabilities and consequently lowering total costs. However, direct IT cost savings will be tracked and reported as well.

Filling vacant ETS positions, reclassifying legacy positions, and transforming ETS philosophy will be necessary for IT consolidation to be possible. ETS must be a great role model and a place that all state workers would like to work.

The IT consolidation effort will be complimentary to ETS objectives for the digital transformation of State government, shown in Figure 1.

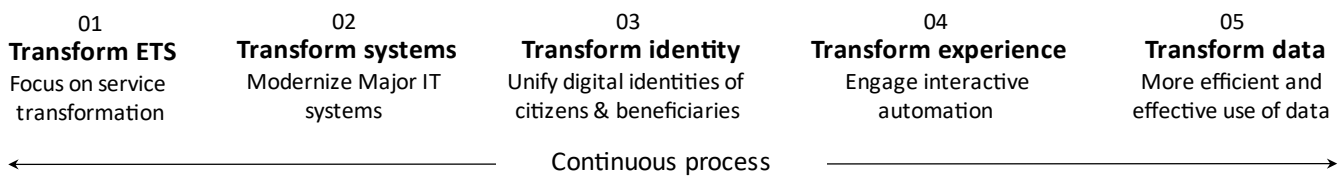


Figure 1. ETS objectives for the digital transformation of State government.

1.1 Intended Benefits of the Consolidation

[Act 179](#) summarizes the intended main benefits as: *“to gain economies of scale and provide for a more efficient and secure use of technology and information management. The consolidation of information technology services will also help to ensure that the State remains in compliance with growing regulatory requirements for accessibility, information storage, data sharing, and security.”*

Table 1 is copied from the original Project Charter, and it seeks to further itemize benefits. In short: better services with lower cost.

ID	Benefit Description	Type	Impacted Stakeholders
1	Standard, streamlined processes	Qualitative	Executive Branch Departments, the Public
2	Consistent and predictable levels of service	Quantitative	Executive Branch Departments, the Public
3	Reduction in IT costs through leveraging economies of scale	Quantitative	Executive Branch Departments, the Legislature
4	Reduction in “IT burden” on Executive branch departments	Qualitative	Executive Branch Departments
5	Greater control over security	Qualitative	Executive Branch Departments, the Public
6	General reduction of risks	Qualitative	Executive Branch Departments, the Public

Table 1. Intended benefits of the consolidation.

2 Comparison of IT Operating Models and Their Suitability for the State

Table 1 below details high-level options to organize IT in diverse organizations such as the State of Hawai'i. The Working Group committees, which were created to address specific areas of the IT consolidation effort, are recommending the Hybrid – Extended Shared Services model for **gradual, structured consolidation, where and when it makes sense considering risks, effort, and intended benefits.**

Operating model	Description and suitability
Decentralized: <ul style="list-style-type: none"> Decentralized governance & planning Decentralized management & delivery 	<p>Applies when organizational units have few common customers, suppliers, or ways of doing business. Units offer different services to their customers, and thus central governance exercise limited control over the units.</p> <p>This model does not apply ideally for the State as it forfeits the benefits of shared services for the common, shared services, centralized planning and governance across most services.</p>
Coordinated: <ul style="list-style-type: none"> Centralized governance & planning Decentralized management & delivery 	<p>Like the Hybrid model, except the Hybrid is more flexible in governance and planning aspects. Calls for high levels of integration and standardization of common processes. Units would share one or more of the following: customers, products, suppliers, or partners. The benefits would include more standardized customer service, cross services, and transparency across processes.</p> <p>While some business capabilities and processes can be integrated, departments have unique business capability needs, demanding unique IT capabilities systems, process, and people, rendering a fully centralized planning impractical and adding non-value for the state, in addition to centralized management and execution.</p>
Centralized: <ul style="list-style-type: none"> Centralized governance & planning Centralized management & delivery 	<p>Organizational units (departments) are tightly integrated around a standardized set of processes. Maximizes efficiencies of services though fully integrated data and drives variability out of business processes.</p> <p>This model does not apply ideally to the State for the same reason as the coordination model – high variability of department's needs and core processes.</p>
Hybrid - Extended Shared Services: <ul style="list-style-type: none"> Federated governance & planning Federated management & delivery ETS centers of management & execution excellence 	<p>Combines the beneficial aspects of all models, fit for Hawaii: Extending governance and delivery of services and IT processes that are common to all or most departments, with departments retaining ownership of those IT capabilities that are supporting business processes and needs unique to single or few departments. ETS develops key IT policies, standards, and plans, around which the departments detail their plans, management, and execution. ETS monitors and enforces compliance of key policies and standards, driving process efficiencies and efficacy.</p> <p>Departments largely retain ownership and resources to manage and operate Line of Business specific systems and data.</p>

Table 2. Operating model analysis.

2.1 The Recommended Model: Hybrid - Extended Shared Services

Figure 2 provides an illustrative overview of the recommended Hybrid Service Model in the State of Hawai'i.

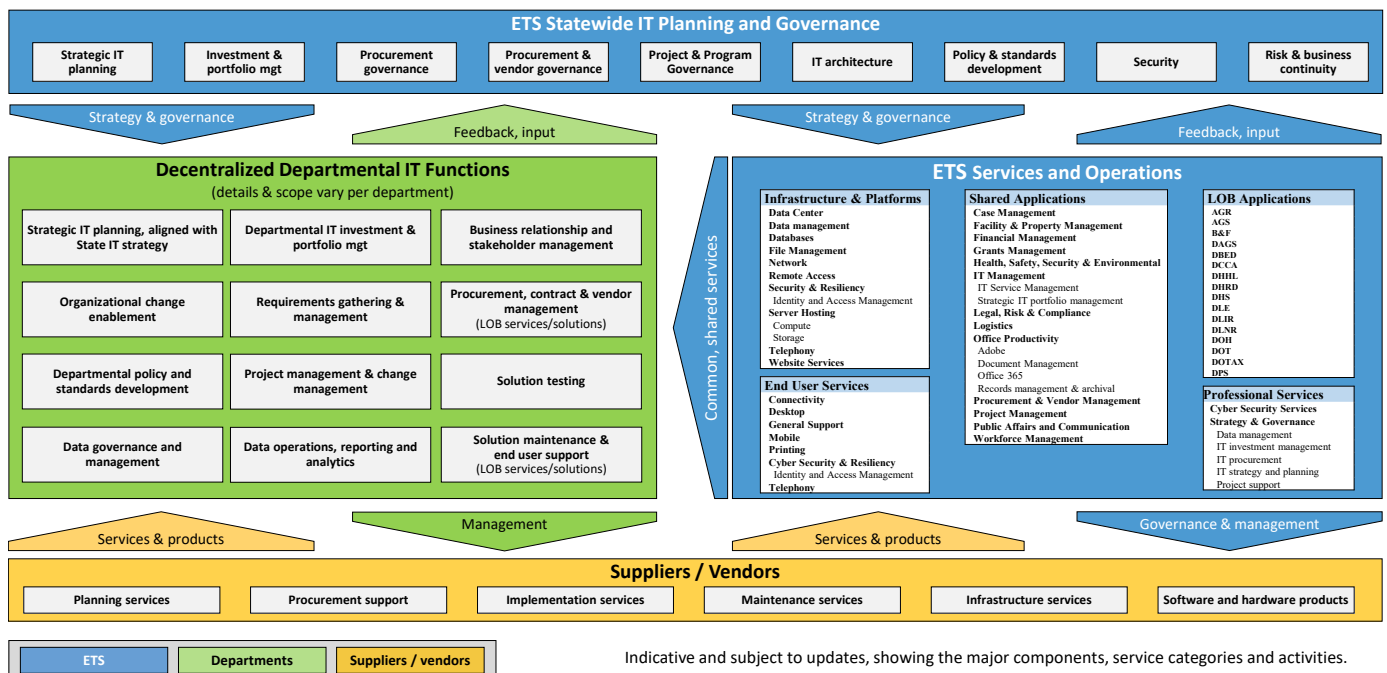


Figure 2. Illustrative overview of the Hybrid Shared Service Model in the State of Hawai'i.

The illustrated model is subject to change, displaying major components, service categories, and activities.

3 Summary of Recommendations for Consolidation Actions

The following sub-chapters summarize the key recommendations coming out of the Working Group committees. All committee reports, documents, and supporting appendices are available on the ETS website at ets.hawaii.gov.

3.1 Cost, Benefit and Timing Analysis of Changes

Before any major changes are made, a thorough business case (value/benefits, cost, risk) analysis should be done, per change domain and per major service change.

3.2 Ensure Delivery Capabilities and Extend Current Shared Services

ETS and the State overall have limited resources to take on additional implementation projects and there are a multitude of dependences between initiatives, that are unavoidable determinants for how and when specific services can be centralized. ETS needs to [assure the foundations](#) of IT service processes and capabilities are sound before taking on major new service delivery responsibilities.

The best approach is to continue extension of service types that are already provided by ETS in some scope and capacity, particularly Infrastructure and Platform, End User and Professional Service, and certain Shared Applications type of services (see [Chapter 6.1](#) and [6.3](#)).

3.3 Continue Ongoing and Scheduled Systems Modernizations

ETS will continue to direct resources to support the major ongoing and planned enterprise systems renewal projects, such as Enterprise Financial System (EFS) modernization and DLIR's Unemployment Insurance System Modernization.

It is essential that these modernization efforts succeed as planned, as they will provide baselines in all areas of implementation for other subsequent consolidation efforts of similar scale. Especially those that are to be maintained and operated under the State Shared IT Services umbrella - such as EFS - will require concerted efforts and focus from ETS.

3.4 Develop and Offer New Shared Services in a Phased Manner

Some of the Working Group Committees (for example Service Utilization, Governance Structures, Portfolio Management, Vendor Management) identified new opportunities to be considered for consolidation. These are identified and evaluated for effort/complexity and value, but not yet planned in detail.

High value and low complexity (effort and cost) services should be prioritized as new Shared Services are planned, defined, and implemented. The detailed planning and design per service area and per service would take place mostly in 2024.

[Chapter 6.4](#), provides an overview of identified new Shared Services.

3.5 Execute Infrastructure and Facilities Consolidation

Infrastructure and Facilities Consolidation has been in focus before Act 179 and the dedicated Working Group Committee has produced the most detailed plan on this area out of any of the Committees, including indicative timeline and budgets for the individual projects.

For further details, see [Chapter 7.10](#).

3.6 Analyze Common (Shared) Enterprise Applications for Consolidation

Common enterprise applications refer to applications that are used by all or most departments, serving usually common business capabilities such as finance, HR, facilities management, and some more specialized capabilities such as case and grants management.

Some of these applications are already centralized, such as finance (FAMIS) and HR (HIP). ETS is looking to analyze further consolidation and centralization opportunities in this space, such as for IT management and office productivity service categories.

For the service categorization and taxonomy model at the state, see [Chapter 5](#) and [Chapter 6](#) for the consolidation opportunity analysis summary.

3.7 More Collaboration and Sharing of IT Expertise Cross Departments

Some committees discussed opportunities and means where departments with specialized expertise could support other departments in areas that will be identified and analyzed.

Viable opportunities would then be enabled and supported by ETS working with the departments extending their services.

An example of a potential opportunity are Geographical Information System (GIS) services, which could be leveraged more by many departments and where certain departments (e.g., DOT) have a long history of internal capability and expertise.

3.8 Limited Transitions of Staff from Departments to ETS

Staff transitions should be limited to roles that are focused on redundant and standard IT processes and technologies, as mentioned in the previous point, and to departments wanting to transfer staff to ETS (smaller departments typically).

Retaining staff will allow the already resource strapped department IT functions to continue supporting the core IT capabilities unique to the departments and extend more effort to development tasks as opposed to common/shared tasks which can be sourced from ETS.

Some future staff transitions may occur as and/or after departments modernize existing and legacy systems and migrate to shared services offered by ETS.

Organizational Change Management will be an important aspect of successful transitions and dedicated capability will support this during the consolidation.

3.9 Funding Model of Shares Services

The Financial Model Committee believes, based on the general direction the consolidation plan is taking, that the existing financial model should continue. The committee did discuss several financial constraints, such as federal grant limitations or changes in statute that may be required, if more extensive consolidations are recommended.

3.10 Data Governance and Management

Data governance and management must be formalized between departments across the state to enable better data program and application sharing and improve data quality, while ensuring data security. These would ultimately benefit service planning, operations, and constituent service delivery.

State data strategy will be developed, governance structures (roles, committees, policies, and standards) will be set, and shared tools and technologies will be implemented to formalize and standardize data governance and management. The new state CDO will lead these efforts and help departments in a use-case based, focused manner.

3.11 Workforce Development and Training

Adopting progressive, proven industry and public sector best practices for employee recruitment, compensation, benefits, and career building can effectively **recruit, develop, and retain** the Government Technology Workforce.

A key recommendation is for the State to develop and implement a standardized workforce development program focused on training courses, job rotations, career pathways, internships, mentorships, and other job and skill building opportunities. Specific areas of training and workforce development include:

- Strategic IT Portfolio Management.
- IT Procurement.
- IT Project Management.
- IT Service and Operations Management.
- Business and Vendor Relationship Management.
- Security and Privacy.
- Data Management.
- Artificial Intelligence (AI) use and application.

To improve entry-level recruitment, the State will collaborate with the lower and higher education community to expand funded government technology student internship and externship opportunities providing hands-on experience that transition into regular government employment. To optimize recruitment, promotion, and job-sharing opportunities, the State will explore expanding temporary exempt technology positions that offer flexible compensation, flexible duties and responsibilities, flexible minimum qualifications and skill sets, and shorter, faster recruiting and hiring processes. This has been a successful model for the Office of Enterprise Technology Services whose enabling Legislation (HRS Section 27-43) provides creating and hiring its employees as temporary exempt.

4 Implementation Scenarios

How the implementation of consolidation could happen is an underlying theme and a recurring discussion topic within the committees.

Consensus was reached that a full-scale centralization would not be viable and would not produce business intended benefits and value.

To implement the recommended model – Hybrid / Extended Shared Services – three scenarios were identified.

- Menu of Services
- Willing Transition
- Enforced

Menu of Services and Willing Transition scenarios can co-exist.

4.1 Menu of Services

ETS would offer its consolidated services as a menu, where some would be strongly recommended and even mandated, and some would be discretionary for the departments to choose.

The idea would also be that ETS services would be competitive compared to alternatives and would provide the best value and ease of implementation for the departments to choose over alternatives.

4.2 Willing Transition

Some departments may be inclined to have their IT capabilities and staff to be transferred to ETS. These departments typically tend to be smaller departments, with limited internal capabilities.

Other departments, with larger and more capable IT, would largely retain their current IT capabilities and staff, while transitioning standard IT processes and common solutions to ETS and allowing departmental IT staff to focus on more value adding and developmental activities.

4.3 “Enforced”

This scenario would mean that most of the current, extended and newly identified services provided by ETS would be mandatory for the departments to acquire from ETS and that no alternatives would be allowed except with a case-by-case approval.

5 ETS Shared Services and State IT Service Catalog

A four-day workshop hosted by ETS and lead by Info-Tech Research Group was held from August 30 to September 2, 2022. Participants included ETS leaders, department IT coordinators and various IT staff. Info-Tech provided and consolidated the work output into a spreadsheet. The data was analyzed by ETS to make an initial view of the 633 services, and which might become “shared services.”

A second data set was taken from the ETS Service Desk ticketing system. A list used to categorize service requests and incidents received from ETS customers was recorded to identify current services for which ETS provides support.

Additional classification of ETS services in the list was modeled after [Version 4.0 of the Technology Business Management \(TBM\) Taxonomy](#) specification (TBM is an industry discipline that improves business outcomes by giving organizations a consistent way to translate technology investments to business value). The resulting taxonomy was defined as Type > Category > Subcategory > Service / Solution.

The resulting state-wide IT Service Catalog is presented in Figure 3 below.

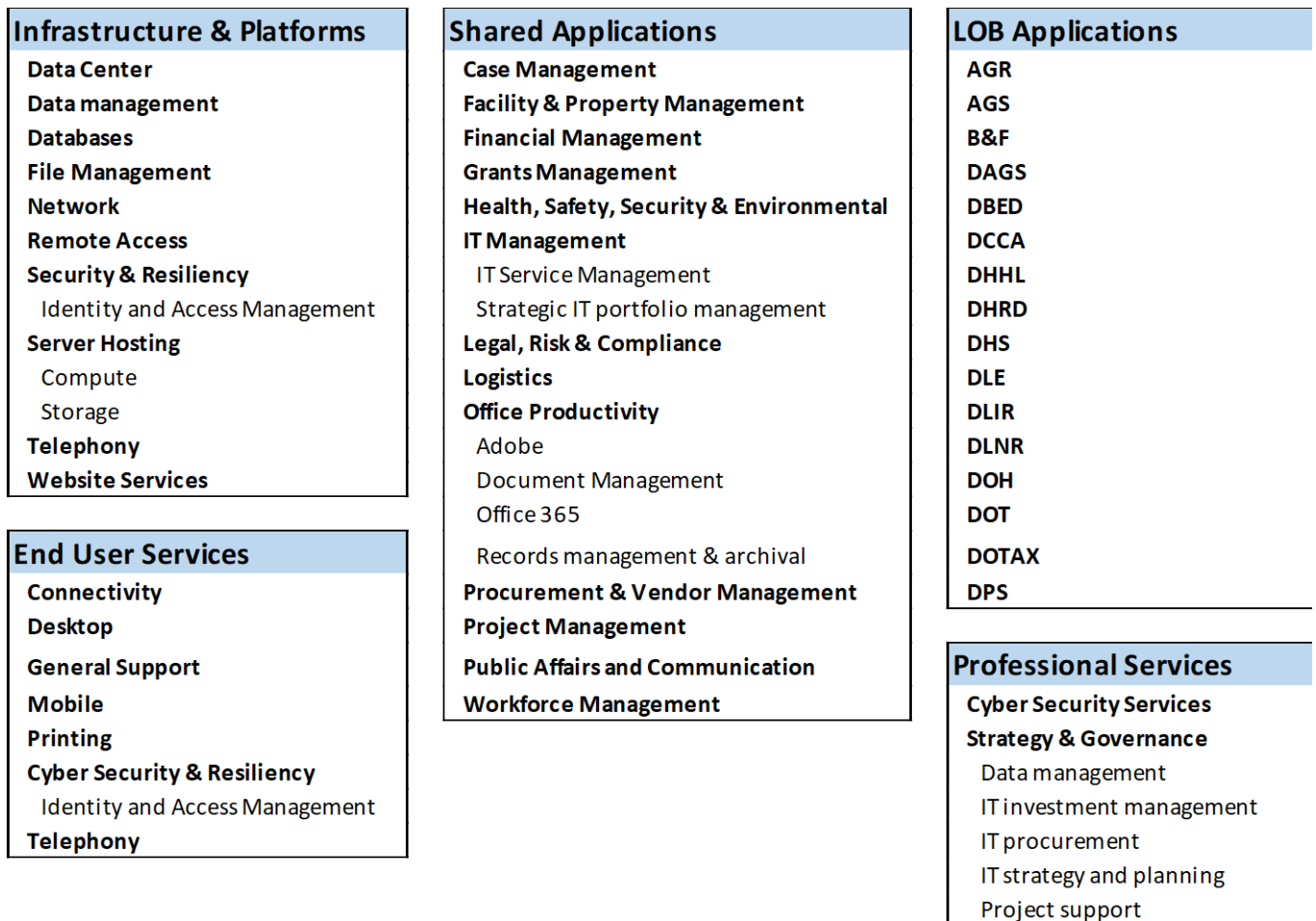


Figure 3. State IT Service Catalog, per Service Type (5), Category and Subcategory.

6 Extended and New Shared Services

6.1 Summary of IT Service Consolidation Opportunity

Figure 4 summarizes the analysis across the IT Consolidation Working Group committees on which services would provide the most value, and with the least effort and lowest complexity to implement the consolidation. This overview does not go into individual service; instead, showing the category and subcategory level, where the subcategories have been defined.

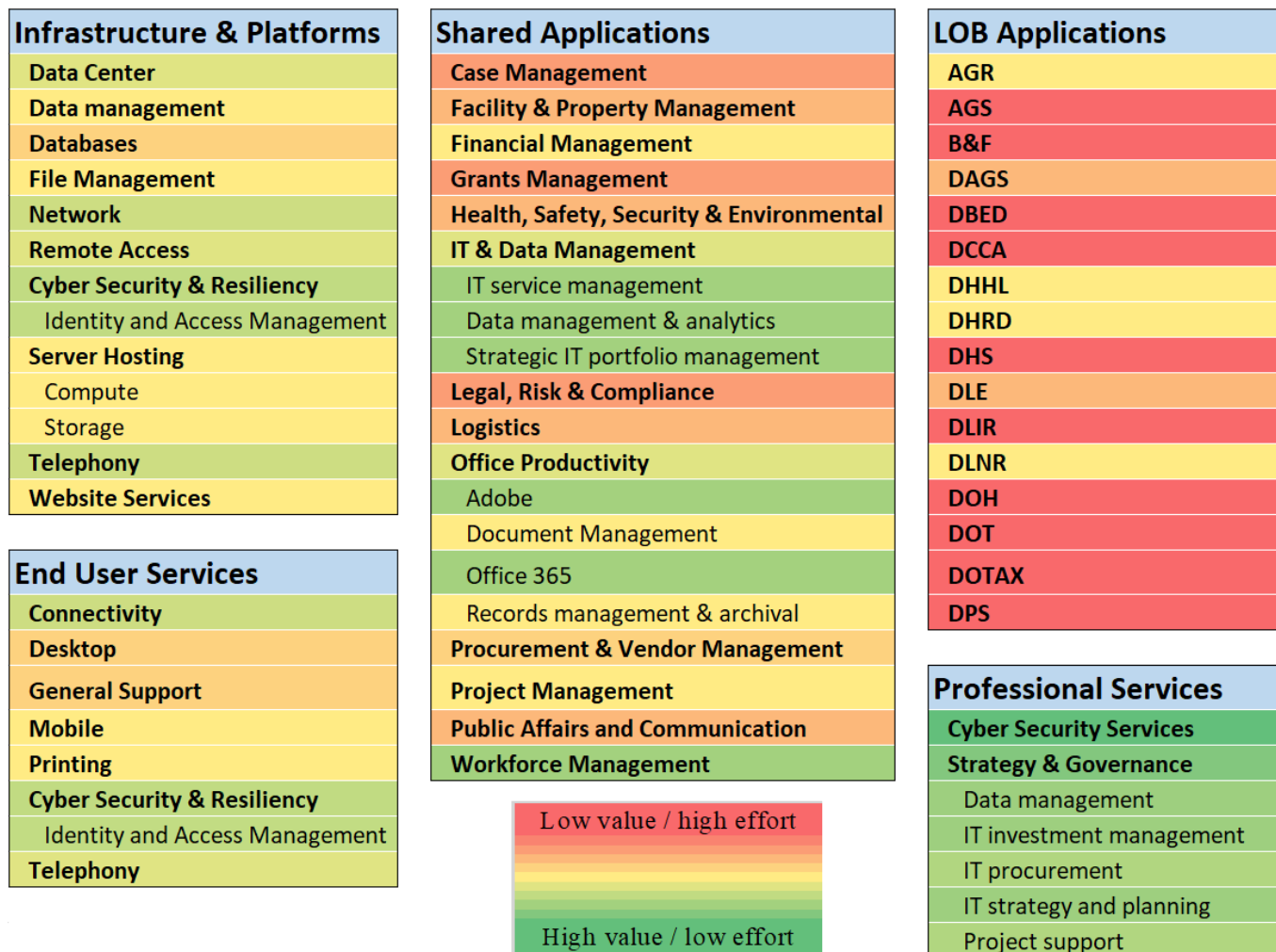


Figure 4. Indicative overview of IT Service consolidation business case analysis.

Most value, meaning least effort and largest benefit of consolidation, generally is with Infrastructure and platform type of services, End User Services, and Professional Services, followed by Shared Applications with more effort needed. The most difficult type to consolidate is the Line of Business Applications. However, all Line of Business Applications use the consolidated, “weightbearing” Infrastructure and Platform Services as well as in many instances Professional and End User Services.

In addition to the Services listed in this chapter, committees identified actions towards improvement of the current services and enablement and adoption of the extended and new services. Committee recommendations are summarized in [Chapter 7](#).

6.2 Current Service Delivery Capabilities Improvements

Before taking on new or extending current services, the foundations of IT service management and delivery needs must be assured to ensure uninterrupted delivery of services. The following sub-chapter summarizes some of the identified short- and medium-term actions. Improvements to current services are detailed in [Chapter 6.2](#).

The analysis and observations below are not a fully conclusive list of all potential improvement opportunities but highlight the critical ones.

6.2.1 Service / Solution Retirements

To take on and improve/extend current services requires continual, critical assessment of services for their value and utilization levels versus maintenance cost/effort to plan for due retirements. Services are continually evaluated for modernization and/or further consolidation and standardization of technology infrastructure and platforms that are underpinning the solutions.

6.2.2 IT Planning and IT Service Management

A new IT service catalog structure will support customer interactions with ETS services through a universal structure for all departments. This structure and taxonomy enable governing, management, and transition of service delivery responsibilities between entities more fluently.

New, consistent state-wide IT service management (ITSM) tooling would improve IT planning, support, service management, capacity management, asset management, and configuration management. Improved tooling provides better understanding of services’ alignment with business and IT objectives, expenditures per asset and service, and assurance that services/systems are reliable and available.

Increased staffing for ETS will be required to provide improved support and service levels of ETS services.

6.2.3 Policies and Standards

Departments are asking for more policies, standards, and guidelines on IT. They know that the systems they use and look to procure are part of a bigger whole and need to work together and integrate with other, reliant, or feeding systems, and may have requirements to be compliant with laws and regulations, national, local, and internal to the state.

ETS will develop and update IT policies in 2023-2024, to not only address the changes brought up by the consolidation/centralization efforts, but also due to requirements set by the rapidly evolving external factors, including technology. These policies will be published to state entities internally and some publicly on the ETS website.

6.2.4 Communications and Training

ETS will develop and adopt improved guidance documentation and self-help options. A technical service catalog will be developed along with the IT service management tooling to help customers learn, find, and request ETS provided services more easily through improved service descriptions with costs and Service Level Agreements (SLAs).

ETS will provide trainings, manage the training schedule, and assist with the coordination of trainings across the various ETS teams and client departments. Trainings can be augmented by strategic vendors and further sourced through enterprise support contracts.

6.2.5 Staffing

ETS and the service qualities would greatly benefit from additional resources in several areas even with possible staff transitions from the departments. Headcount estimates depend on the scope of expanded and new services.

6.3 Suggested Extensions of Current Shared Services

Table 3 below summarizes the services identified to be extended.

Type	Category	Service	Value	Effort	Timing
Infrastructure & platforms	Cyber Security	Active Directory	High	M/H	M
Infrastructure & platforms	Cyber Security	Multifactor Authentication	High	L	S
Infrastructure & platforms	Cyber Security	Vulnerability Scanner	High	L	S
Infrastructure & platforms	Network	VOIP / Call Center Systems	High	L/M/H	M
Infrastructure & platforms	File Management	File Shares	High	L/M	M
Infrastructure & platforms	File Management	Secure FTP (File Sharing)	High	L	S
Infrastructure & platforms	Network	Virtual Private Network (Client)	M/H	L	S
Infrastructure & platforms	Server Hosting	Virtual Server Hosting	Med	M	S
Infrastructure & platforms	Cyber Security	DNS	Med	L/M	M
Shared Applications		Enterprise GIS	Med	M/H	L
Professional Services	Strategy & Governance	Data management	High	Low	S/M

Professional Services	Strategy & Governance	IT investment management	High	Low	S/M
Professional Services	Strategy & Governance	IT procurement	High	Low	S/M
Professional Services	Strategy & Governance	IT strategy and planning	High	Low	S/M
Professional Services	Strategy & Governance	Project support	High	Low	S/M
Professional Services	Cyber Security	Training	High	Low	S/M

Table 3. Suggested extensions of current shared services.

Value and effort estimates correlate with prioritization and implementation timing. Timing value indications are: S = 3-12 months, M = 6-18 months, L = 12-24 months to plan, design and implement.

6.4 Suggested New Shared Services

Recommendations across all Working Group committees are summarized in Table 4 below. As noted above in Chapter 6, this list is evolving, non-conclusive, as of August, 2023.

Type	Category	Service	Value	Effort	Timing
Infrastructure & platforms		Endpoint Remote Access	H	L	S
Infrastructure & platforms		Active Directory Monitoring	M/H	L	S
Infrastructure & platforms		Network Monitoring/Config Mgmt.	M/H	M	S
Infrastructure & platforms		Virtual Desktop Infrastructure (VDI)	M	H	M
Infrastructure & platforms		Backup Solution	M	L	S
Infrastructure & platforms		Syslog/SIEM/Log Analyzer	M	M	M
Infrastructure & platforms		VPN (Site to Site – Internal/Ext)	L	H	M
Infrastructure & platforms		Data management platform	M/H	M/H	M/L
Infrastructure & platforms		BI and Analytics platforms	M/H	M/H	M/L
Infrastructure & platforms		Enterprise payment gateway	M/H	M/H	M/L
Shared Applications	Office Productivity	Content/Document Management	L	L/M/H	M
Shared Applications	IT Management	Help Desk Solution (part of “IT ERP”)	M	M	M
Shared Applications	IT Management	IT Asset Management (part of “IT ERP”)	H	M	M
Shared Applications	IT Management	“IT ERP” – see chapter 7.2.3.	H	H	L
Shared Applications	IT Management	Data Management & Analytics Platforms	H	H	L
Professional Services	Strategy & Governance	Data governance and management	H	M/H	L

Table 4. Suggested new Shared Services.

Suggested new Shared Services.

Value and effort estimates correlate with prioritization and implementation timing. Timing value indications are: S = 3-12 months, M = 6-18 months, L = 12-24 months to plan, design and implement.

6.5 Shared / Common Enterprise Applications

See [Chapter 3.6.](#)

6.6 High Level Roadmap of Consolidation Activities

Figure 5 below shows a suggested, indicative roadmap of the required changes for consolidation with various components of the overall change. Timings will evolve to a degree and details will be clarified as the work progresses.

Area	2023	2024	2025	2026	2027	2028
Strategic planning & governance	Policy and process updates					
		New roles, updates				
		Oversight group updates				
		Tools				
Management processes and tools	Investment & portfolio mgt					
		Procurement & sourcing				
	Program and Project management					
		Vendor management				
	Service and operations management					
	Security					
Delivery capabilities and tools	Solution implementation and project delivery					
	Service management					
		Operations management				
Extended and new Shared Services (bulk of effort and cost)	Infrastructure and Platforms (current extended)					
		Infrastructure and Platforms (new)				
	Shared (common) Business Applications					
	Professional Services					
		End User Services				
		Line of Business Applications (selected departments)				
Human capital and workforce development	Staff transitions to ETS					
	Training development and delivery			Continual		
	Recruitment processes		Continual			
	Compensation models					

Figure 5. Major activities indicative timeline.

7 Summaries of Working Group Committees' Reports

7.1 Human Resources Committee

According to [Act 179 2022](#), and as stated in the [Act 179 IT Consolidation 2022 Preliminary Status Report for the State of Hawai'i Legislature](#), the mandate and goals of the Governance Structures Committee are to:

- Determine the scope of positions within the IT consolidation effort, factoring in any constraints such as federally funded and special funded positions that cannot be moved.
- Identify each position within the scope of consolidation.
- Analysis of existing staff – staffing levels, job titles, benchmarks, key strengths, gaps and challenges.
- Determine future state roles and functions, standardization of positions, and staffing levels.
- Recommend an approach to filling skill gaps.

The definition of “IT positions” at the state is vague and the committee found the analysis of positions difficult, with a mixture of exempt and civil service positions. The committee approved a definition for “IT position” as: “Workers who create or maintain computer applications, systems, and networks.” This was adapted from the U.S. Bureau of Labor Statistics’ definition (<https://www.bls.gov/ooh/computer-and-information-technology/home.htm>).

The committee identified the relevant laws and policies to be:

- The Merit Principle (HRS §76-1)
- Department of Human Resources and Development (DHRD) Policies
 - 200.001, Position Classification and Compensation System
 - 200.002, Basic Policies and Practices in Position Classification
 - 1000.001, Exempt Service
- CIO’s Statutory Authority (HRS §27-43(8)) to employ persons exempt from §§76 and 89.

7.1.1 Current IT Positions and Staffing Levels

DHRD provided the committee an extract of civil service positions and exempt positions. DHRD noted that research into specific position duties was necessary to determine if exempt positions were IT positions. After analysis of the data, the committee removed additional non-IT positions from the list, establishing a total of 570 IT positions for the state; 160 are from ETS, and 410 spread across other departments (note: not all positions are filled, or funded). Of the 410 IT positions from other Departments, 261 are non-100% general funded, leaving a remainder of 149 general-funded IT positions (these 149 positions were classified by the committee as IT positions and verified by department Administrative Services Officers, Business Management Officers, or Deputy Directors).

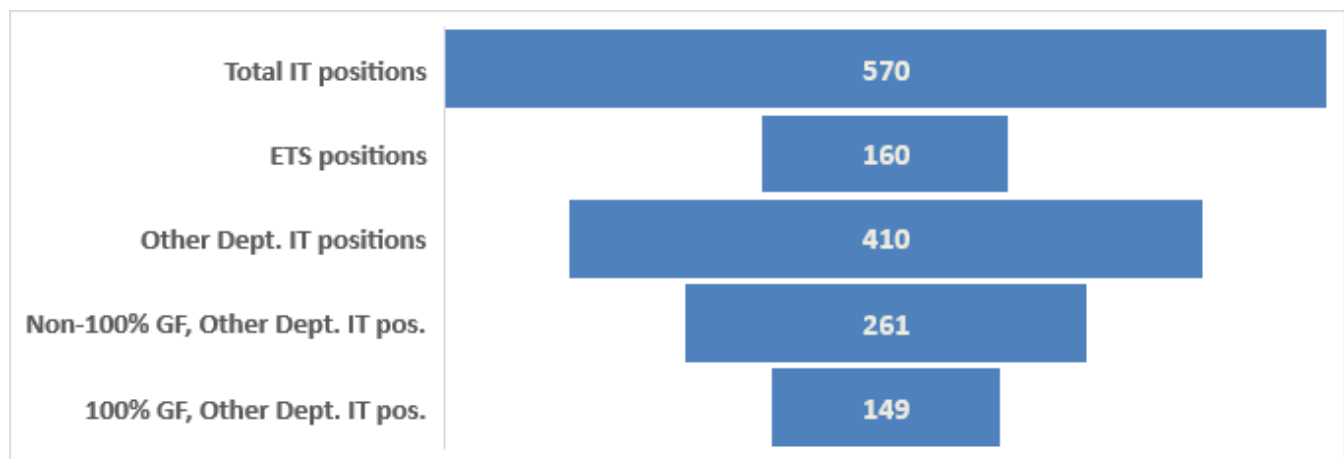


Figure 6. Current IT Positions at the state.

The committee used an industry standard benchmark – a ratio of 2.71% IT Positions to IT Users as a comparison benchmark. While the state’s overall ratio for IT positions vs. IT users for other departments stood at just over 3%, the committee nevertheless concluded that almost all departments are currently understaffed in IT support, based on demand, not all identified positions are funded, and not all are filled (i.e., challenges in recruiting and hiring).

7.1.2 Current IT Staff Competency Levels

The committee conducted a survey on the key strengths, gaps, and challenge of the existing IT Workforce, including eight (8) questions. All departments except for Law Enforcement participated in the survey.

Key strengths mentioned by departments were business domain knowledge and business analysis and service desk and end user support functions. Project management was seen as strong too, but with more variance.

Key challenges were noted in database management, cloud infrastructure management, IT audits and cybersecurity, procurement management, vendor management, service management, and IT asset management.

7.1.3 Staff Transitions and Training

Scope of positions to be consolidated and transitioned to ETS should be initially very small and demand (from the departments) driven. Recommended position types in scope should be limited to roles that currently manage or execute task that are common to all / most departments. The recommendation is to centralize tasks, processes and technologies and that transition of people would be driven by the process and technology centralization if anything. Common and standard processes and technologies would be transitioned from the department IT staff to ETS.

Specialized or unique department specific services remain and are strengthened at the departments, via specialization and training. Departmental IT will have more time to focus on core business support and development activities, instead of tasks which ETS can adopt and handle, better than the departments.

Existing staffing levels at ETS and at the departments are sufficient to execute current tasks, but additional or peak capacity resources are lacking. Operative tasks consume most capacity, and capacity for development-oriented tasks is lacking. Hence, centralizing burden of common tasks and technologies would free resources at the departments to more value adding and development-oriented activities.

Both department and ETS staff will need to be continually trained through standardized training programs, for example in areas of:

- Project and project portfolio management
- Security and compliance
- Procurement and vendor management
- Data management
- Artificial Intelligence.

7.1.4 Shifting of Roles and Responsibilities (Service Delivery Models and AI)

Overall, not just at the State, IT professionals' roles are shifting towards less operational responsibilities. Routine and manual tasks such as server provisioning, patching, and network configuration are increasingly automated (AI) and provided by vendors within the cloud environments they manage. This means moving to setting up and maintaining the automation workflows and managing vendors' performance over execution the detailed technical tasks. Departments' IT staff will have more time to focus on innovation and planning & managing strategic initiatives and vendors.

These transformations happen gradually, with some effects now or in the very near term, while some taking years. Inhouse IT expertise will always be required, but most IT services will be delivered by vendors, who need to be selected and managed with care. AI powered automation will lessen the IT staff focus on operational tasks, automating some management tasks, and making space for management of automation, AI systems, and strategic business partnership activities.

7.1.5 IT Staff Roles

Future IT roles and functions at the departments should include a Service Manager role, which would oversee and manage business relationship management, vendor management (including ETS and external vendors), and project and maintenance oversight. Future roles and functions at ETS and departments should include:

- **Service Owner** – Oversees service types and or categories, business relations and vendor management. Example: A CISO would be a service owner of cybersecurity related services.
- **Service Manager** – Oversees a group of connected / related services, business relations and vendor management. Example 1: An ETS branch manager would be a service manager of a group of services in his or her domain. Example 2. A department IT coordinator or IT expert would be a Service Manager of a highly business critical Line of Business Application.
- **Chief Data Officer** (larger departments)

- **Data Steward** – Role connecting business and IT, typically from business side, but with enough skills to converse with IT on technicalities of data management.
- **Data Architect.**

7.2 Strategic Steering and Governance Structures Committee

Goals of the Committee were to:

- Assess HRS, HAR, executive orders, and other policies and procedures on IT governance, determine if additional changes are necessary to adopt additional centralized shared services, and make formal recommendations if so.
- Review ETS governance structures against any available in sister states, and as necessary, define new roles, responsibilities, and oversight groups to provide future state leadership.

The committee focused its scope at the state and at department level on the following:

- Governance artifacts - laws, executive orders, standards, procedures, guidelines.
- Roles - responsibilities and accountabilities.
- Oversight groups - governance bodies.
- Governance processes and tools.

7.2.1 Governing Bodies

No major changes were deemed necessary to the existing IT governance structures to adopt additional centralized shared services. The main recommendations are to:

- Retain all current formally established IT governance bodies except the Strategic Priority Working Groups, which can be disbanded, as most have not been actively convening.
- Adjust the roles and responsibilities of current governing bodies:
 - IT Steering Committee (ITSC) to have a more tangible and impactful mandate, not only assistive to the CIO.
 - Project Advisory Council (PAC) to act in the earlier stages of the projects as opposed to only just before procurement stage.
- Adopt new structures, “User Groups” or “Communities of Practices” that are open for all staff involved in IT on voluntary registration basis. User Groups report to the state CIO and are facilitated by an ETS subject matter experts and attended by ETS leadership, management, and subject matter experts as per their focus areas. Purposes and responsibilities of each group are detailed in the Appendix to the Governance Structures Report. For example:
 - Strategic Steering and Planning
 - Shared Services and Solutions
 - Procurement and Vendor Management
 - Business and Data Governance
 - Technology and Security

Below Figure 7. provides an overview of the governing bodies.

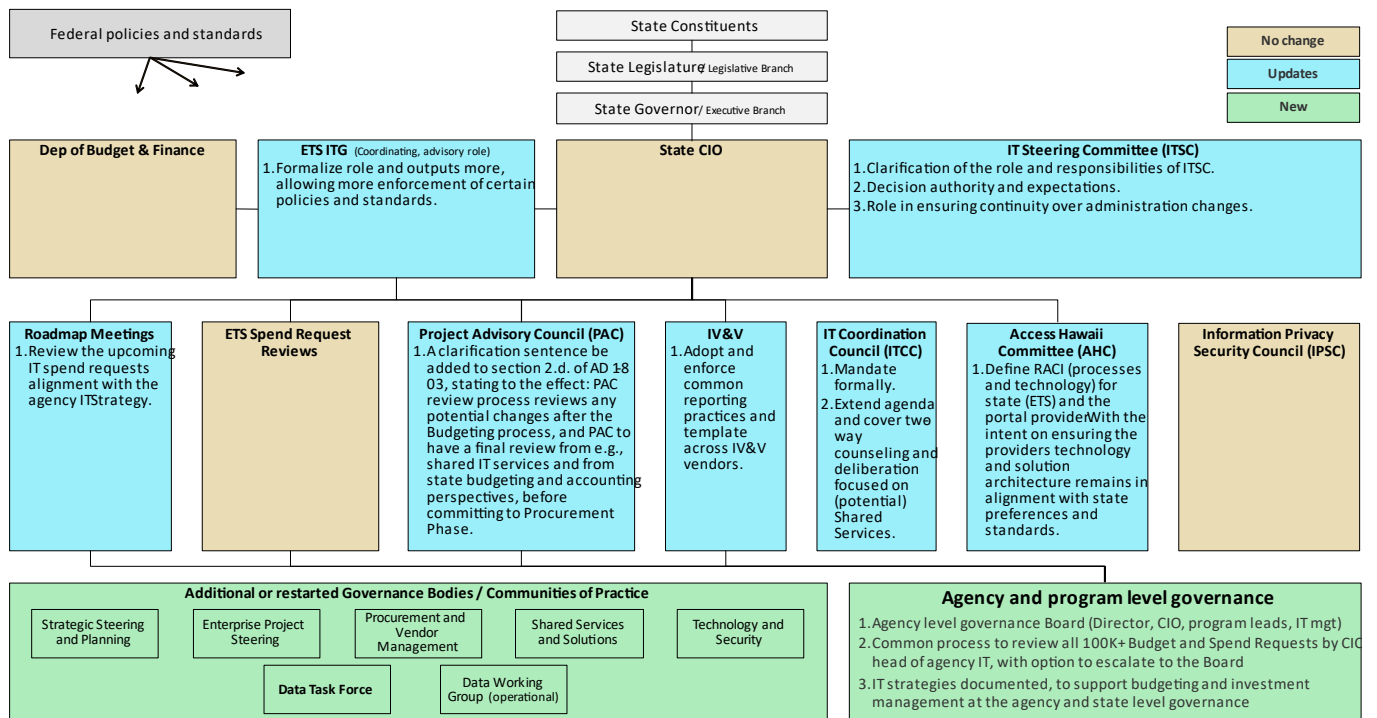


Figure 7. Governance Committee's vision for future Governance Bodies.

7.2.2 Processes

On the process side the Committees key recommendations were aligned with recommendations of the other committees, particularly Sourcing and Procurement and Project Portfolio Management committees.

7.2.3 Tools and Technology

The committee also agreed that a centralized tool or a few centralized tools for IT management and governance across the state for all departments to use and share with ETS would be beneficial. This toolset could be a single solution – an IT ERP – covering needs from IT strategic planning and budgeting to projects, operations, and IT service management, with underlying core components such as IT asset (financial view) and configuration management (technology components). The tool can also be a mix of a few, highly integrated best of breed solutions, such as the current portfolio management tool and best of breed solutions for service and operations management.

7.3 Change Management and Communications Committee

Goals of the Committee were to:

- Identify key stakeholder groups and analyze their level of influence and interest.
- Formalize a plan to ensure that all stakeholders are informed of changes and engaged, and the level of readiness stakeholders should have to prepare for the IT consolidation effort.
- Identify considerations for transition with regards to staff retention and satisfaction.
- Develop a plan for communication, including vendors, central state offices, legislators, unions, etc.
- Determine the key factors to communicate, the means of communication, and the timing. Define the communication process, including who should sign off on communications.

The Committee, based on the general direction the consolidation plan is taking, is not expecting, and not recommending major organizational change initiatives. The draft OCM plan will be furthered as the scope and timing of changes are agreed. The following three aspects are crucial in managing the changes.

Good **communication, sponsorship and championing** is vital for the success here. Executive level directors (sponsors) will be the primary sources of organizational messaging and the managers and employee supervisors (change champions) for personal impact matters. Sponsors and change champions will communicate the 'why' of the effort and clearly and continuously communicate to their departments all updates and progress. An employees' immediate supervisor is responsible for ensuring forward momentum with the ability to remove barriers for a successful transition.

Employees being influencers of the planned changes as much as they are subjects. They will have a voice in the scoping, planning, design, and implementation of the changes. Employees will have a collective voice and an individual freedom of choice in the significant decision points along the change.

Prerequisite skills and knowledge of the affected staff for their planned future responsibilities and tasks will be accomplished through various **training programs**.

7.4 Organizational Structures Committee

For the committee report see the Appendix document (combined Committee Reports).

Goals of the Committee were to:

- Document current state IT organizational structures in use in Hawaii.
- Research organizational model alternatives based on sister states data.
- Identify challenges and pain points in the current organizational structures.
- Recommend the optimal organizational structure to be utilized by ETS.

7.4.1 Sister State References

Most sister states have or are moving towards a hybrid organizational structure). Two key reasons for decentralization being 1) federally funded department specific projects and assets, and 2) unique IT needs, best managed within the department. Main reason for centralization being the benefits of central planning, governance, management and governance of common processes, services, and assets.

7.4.2 Process

The committee identified quality criteria used to evaluate the various organizational structure orientations and approaches: asset, process, customer, and service based. The service-based orientation had the highest percentage score of 39% as this orientation would improve the IT service quality, service management processes, and service governance.

7.4.3 Recommendations

The committee recommends that a common service catalog structure and taxonomy be adopted across the state, making it easier to measure service levels, quality and user satisfaction uniformly transition services between departments and ETS as desired and needed. The committee also recommends specialized training and reshaping the departmental IT roles to focus on the core service management tasks, while transitioning common, standard tasks to ETS.

7.5 Sourcing and Procurement Committee

The committee’s goals were to identify:

- Pain points in the current IT procurement process.
- Opportunities to leverage economies of scale.
- Policy changes and model to leverage economies of scale, including contracts consolidation.
- Other opportunities to capture cost savings and efficiencies.

Procurement was defined as the umbrella process under which purchasing, sourcing, requisitions and purchase orders are, in the report specifically focusing on the processes after purchases. **Sourcing** was defined as a subset of procurement before purchases, including understanding the supply ecosystem, defining channels and procurement methods that provide the greatest value (fit/cost).

7.5.1 Challenges and Pain Points

Table 5 summarizes the identified key issues with IT procurement and sourcing at the state.

Pain point	Implications	Cause
Capacity and capability for sourcing tasks is lacking at departments.	Cutting corners in the process, resulting in increased implementation and operational risks.	Lack of resources. Redundant procurements.
Leveraging of vendor contracts between the various programs and departments is lacking. Lack of cooperative purchasing, federated purchasing.	Redundant procurements and operational IT systems.	Lack of cross departmental collaboration and information sharing.
Pricelists may not always be used in the	Increases risks in the implementation and	Tight schedules and pressure to act and

most appropriate and value adding ways.	operational states, particularly with more complex and larger procurements.	deliver fast. Lack of resources and capability to execute longer, proper procurement processes.
Capacity and capability for procurement and vendor management tasks is lacking at departments.	Vendors' performance is not well tracked and managed. Contract management difficult. Switching vendors difficult.	Staff time consumed in common, standard tasks, that ETS could take over. Not enough specialized capacity at ETS to support departments.
Lack of transparency: HANDS does not show all the solicitations and associated procurement history.	Hinders the overall state level monitoring and governance activities.	No strong enforcement.

Table 5. Pain points in IT procurement and sourcing at the state.

7.5.2 Recommended Actions

Following are key recommendations to improve IT procurement and sourcing at the state:

Development and approval of a state technology platform strategy and guidance: This strategy would define the preferred technology platforms and strategy conformance rules. The platform strategy is essential for any consolidation in that it would define the preferred platforms which would host most of the suggested future shared and consolidated IT solutions and services at the state. Technology platform and guidance would support departments' sourcing decisions, solution selection processes, and promote use of standard master contracts and master service agreements.

Resourcing and upskilling: More dedicated procurement professionals as well as more formally trained nondedicated staff to help departments with procurement, from sourcing to post purchase contract and vendor management: One (1) IT Procurement Officer and two (2) fulltime procurement managers. ETS staff and Department IT Service Managers trained (NASPO, SPO and ETS standards and guidelines).

Establishment of a Procurement and Vendor Management Community of Practice, to handle current and upcoming IT procurement cases, procurement vehicle (price lists) related matters, statewide contract, cross department opportunities, vendor performance and management issues, prepare policies, standards, practices, and guidelines for the area.

Updating key procurement and sourcing policies, standards, and guidelines: These policies focus in more clearly stating the:

- Use of pricelists.
- Conditions for, application, and the process of cooperative procurement.
- Revise procurement law, policy to allow for contract piggy-backing when certain criteria are met.

More consistent and stringent use the IT procurement tools provided by ETS and SPO, such as:

- Solution alternatives assessment guideline and tool.
- Procurement method guideline.
- IT RFP checklist and RFP template.
- IT contract special provisions checklist and special provisions template.

7.6 Project and Portfolio Management Committee

For the Committee report see the Appendix document (combined Committee Reports).

Goals of the Committee were to:

- Survey and analyze current project portfolio management approaches within departments and agencies.
- Recommend revised project scope-aware policy, standards, and guidelines for IT project portfolio management.
- Analyze and recommend a centralized project portfolio management approach.

Committee's key changes at ETS include:

- Expanding the ETS Program Transformation branch or establish a more comprehensive new statewide IT project management matrix organization and floating positions.
- ETS to acquire/develop tooling and a process for departmental/divisional IT project prioritization. There is a pilot underway with ETS, DHS, and DCCA to document departmental/divisional business goals and IT goals/objectives.

Committee's key policy change recommendation is to align IT projects with strategic plans, improve project status reporting, adopt project closure terms and responsibilities, adopt benefits tracking. Standards adoption recommendation focuses on project management and portfolio tooling, external project management.

Additional recommendations for short term actions include:

- Adopting a common IT portfolio management framework.
- Adopting a common IT project management framework. For example, use the PMI project lifecycle, with agile / hybrid options.
- Establishing a regular meeting with each department to review and approve the department's multiyear information technology strategic and tactical plans and road maps – see Governance Structures 'Strategic Steering and Planning User Group' –recommendation.
- Aligning project initiation with portfolio level business and IT strategy.
- Changing the role of Project Advisory Council (PAC) to be more impactful.
- Changing the timing of PAC reviews to coincide with the periodic departmental IT strategy review meetings.
- Emphasizing PAC's focus on large departmental IT projects as part of portfolio intake, ideally before detailed planning and budgeting.
- Adopting project portfolio sharing.
- Creating a standardized format and schedule for ETS to share project portfolio and strategy with departments. This enables departments to align their project portfolios with ETS.
- Establishing a process and standardized format for departments to view other departments' project portfolios, to accelerate collaborative planning for enterprise assets, shared solutions, and initiatives.

7.7 Vendor Management Committee

As ETS continues to focus on the "Shared Services" model for consolidation, it will be important for ETS to develop itself as a service provider. A service provider should have a well-defined set of services it provides and a strategy on how to best deliver those services to its customers.

To improve IT service management (ITSM) capabilities of ETS, further planning and development need to occur in each are of the People, Process, Technology (PPT) framework as it applies to ITSM. It was evident from the customer surveys and feedback that ETS must improve its ITSM capability around its current services.

The following improvements were identified as high priority:

- Modernize the ETS Service Desk tooling.
- Develop and publish a service catalog.
- Increase ETS Service Desk staff to align with the growing number of shared services.
- Develop and publish more policies and standards.
- Improve the communication plan, training, and awareness for ETS services.

It is important to consider that when services are consolidated, centralization can diminish an agency's ability to directly support its users and their unique needs. Department IT staff will have less control and decision-making authority over the service, which may reduce flexibility in tailoring support to their specific user needs. The overall effectiveness of the centralization will highly depend on how well ETS can manage and deliver its services. Thus, ITSM is critical to the success of the entire IT consolidation project.

7.8 Financial Model Committee

Goals of the Committee were to:

- Analyze current state funding approaches for IT expenditures.
- Determine if there are effective and whether they support a shared services model.
- Study possible funding models and determine the pros/cons of each option and make a recommendation for the best model/method available.
- Ensure sustainability of ETS' budget to deliver on shared services.

The Financial Model Committee, based on the general direction the consolidation plan is taking, the committee felt the existing financial model would continue. The committee did mention several financial constraints, such as federal grant limitations or changes in statute that may be required, if more extensive consolidations were recommended.

7.9 IT Network, Communications and Security Committee

Goals of the Committee were to:

- Assess the State’s current network utilization and network infrastructure assets (voice, video support, telecommunications, etc.).
- Identify current pain points and cost inefficiencies and recommend steps to address those.
- Identify any opportunities for third party management.
- Recommend a strategic plan for the optimization of network infrastructure.

The Committee recommends that a phased approach is used to:

1. Determine what should be consolidated with regards to telecommunications, network, and security;
2. Identify what are the requirements, risks, and parameters to consider when evaluating that specific area or scope to consolidate; and
3. Determine based on the factors above what can ultimately be consolidated and to what degree.

As part of the phase-in schedule provided for in the Act, the first year will include all shared services designated as “Low” effort in [Chapter 6](#). All other services in Chapter 6 with an effort rating other than “Low” will be evaluated in the subsequent years to determine what will be managed by ETS, what will be managed by the departments, and which will be hybrid responsibilities based on factors such as resources, cost, risk, capability, cost savings, and feasibility.

7.9.1 Network

ETS plans to continue providing Wide Area Network (WAN) to internet support to the departments. Goal is to extend WAN support for department remote offices, create reasonable network service level agreements based on 3rd party support which will be reimbursed by departments. Evaluation for future service delivery include: 1) “remote hands” – service from colocation providers or outsourced professional services, and 2) 24x7 network monitoring.

7.9.2 Compliance

ETS will continue to provide statewide minimum network and security requirements. Goal is to ramp up compliance requirements based on organization’s maturity. Departments with federal requirements have highest compliance standards and those specific departments will continue to align with those standards and not drive other departments to meet the same standards.

7.9.3 Security

ETS plans to uphold providing enterprise services as they do currently. ETS will continue to provide statewide minimum-security requirements. Goal is to assess how ETS security can expand 24x7 monitoring utilizing 3rd party professional services along with State workers for awareness and layered support.

7.10 Facilities Strategy and Management Committee

Pursuant to [Act 179 IT Consolidation 2022 Preliminary Status Report for the State of Hawai'i Legislature](#), the Facilities Strategy and Management Plan Committee was created to deliver on the stated mandate and goals.

The scope of this committee was to:

- Assess the State’s current footprint for people and physical assets, including data center utilization, and any future plans for cloud utilization and third-party Infrastructure-as-a-Service (IaaS).
- Recommend a strategic plan for the optimization of office space and data centers.
- Identify current pain points and cost inefficiencies and recommend steps to address those.

The following studies were commissioned by ETS in partnership with Kyndryl to deliver on the stated scope:

- Data Center Inventory Study (May 2023) and Application Disposition Study (October 2023)

The Data Center Inventory Study targeted 25 physical locations comprising of 34 Agency “IT spaces”, including Kalanimoku, that resulted in the following observations:

- Identified were 469 physical devices targeted for decommissioning with an additional 26 devices identified as past EOL but not currently slotted for decommissioning.
- Data Center Consolidation estimates include reductions in overall space of 9,800sf and power of 38KW, resulting in annual power and cooling savings of \$180K and \$150K, respectively.
- With continued rationalization and modernization efforts to move perhaps even more application workload to various cloud service providers, it’s quite possible that the data center consolidation estimates would result in further reduction in required space and power, thus realizing increased savings over time.
- ETS is targeting complete decommissioning of the Kalanimoku Data Center by 2026. Remaining computer

systems, communication networks, and high-volume printing services are in the process of migrating out to transform the data center floor space into general office space, hotel office space, conference room, and cyber security room.

The Application Disposition Study targeted 666 applications that resulted in the following observations:

- **Cloud Adoption:** More than 45% of the state-wide application workloads reside on Cloud:
 - Public Cloud – 21%
 - Government Cloud – 0.3%
 - Private Cloud (Co-Locations) – 12%
 - ETS Government Private Cloud (GPC) – 13%
- **Modernization Efforts for Legacy Systems:** 66 mission critical systems reside on mainframe (57) and power (9).
 - For ~55% of the applications, either in progress or planning is underway.
- **Inventory of Application and Infrastructure:** ETS’ LeanIX tool manages and maintains application portfolios. However, not all applications are listed here. Apart from applications, the repository also contains several IT cost items which are not necessarily applications.
 - LeanIX is missing robust CMDB capabilities (e.g., OS, DB and Application technical details)
 - Infrastructure to Application dependency mapping not readily available. Of the 3625 devices, 234 devices match an application in LeanIX, and 252 devices do not match an application in LeanIX
 - Impacts the detailed plan and effort of modernization program and decommission effort.
- **Business Criticality of Applications:** Over 2/3rd of the applications.
- **Retired/Abandoned:** ~11% of the applications not been decommissioned and use valuable Infrastructure.
- **SaaS Applications:** 32% of active applications. 1/3rd managed by Tyler Technologies and hosted from AWS
- **Shared Services Infrastructure (ETS GPC):** Only 13% utilize internal state-owned shared services infrastructure.
 - Of the larger departments (in terms of application counts) HMS, HTH and TRN should explore ways and opportunities to move more On-premises or CoLo workloads to ETS GPC
 - Existing hardware nearing end of lifecycle (less than 12 months) and located completely on Oahu.
 - Support staff located locally (e.g., no out of region support, typical recommendation resources distributed 100+ miles in event of disaster)
- **Additional infrastructure cost savings:** Possible with consolidated shared infrastructure services, hyperconverged infrastructure and removal of physical equipment targeted for decommission.
- **EOL OS:** 54 servers running EOL OS
 - Applications are from HTH, TAX, DEF, AGR

The Five-Year Roadmap for Application and Infrastructure Consolidation:

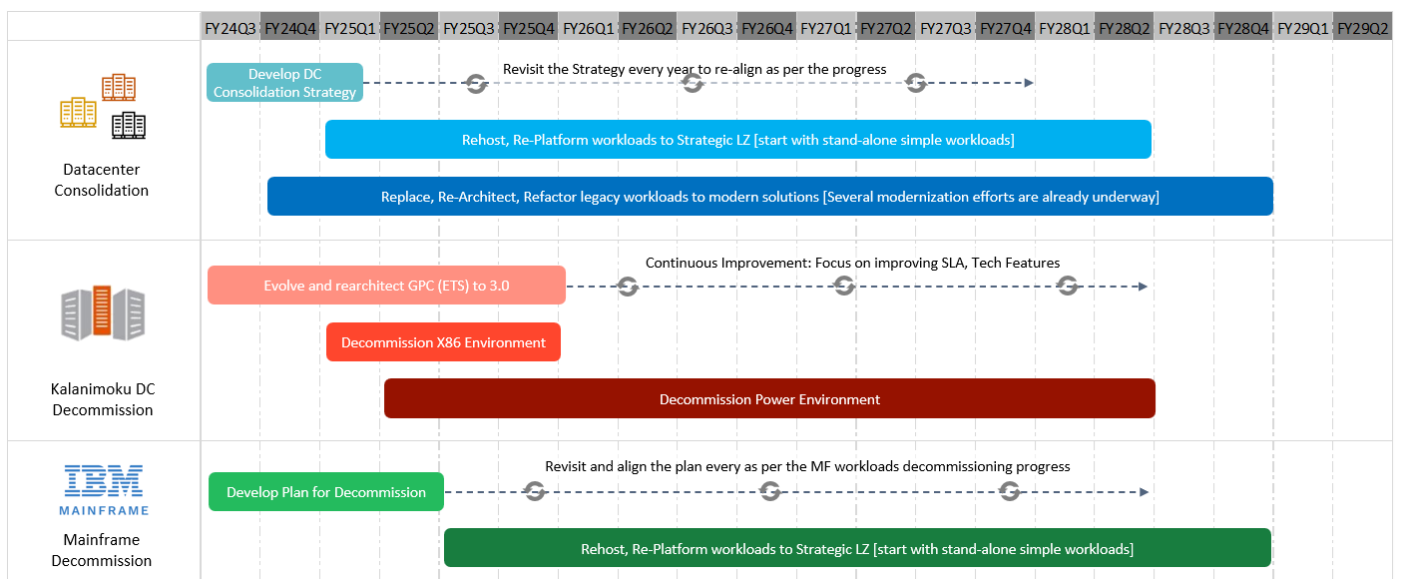


Figure 8. Five-Year Roadmap for application and Infrastructure consolidation

Recommended Next Steps:

1. Application Portfolio Rationalization – Identify Applications & Infrastructure → Completed – October 2023.
 - a. Full Application Portfolio Discovery and Analysis (R-Factor analysis).
 - b. Determine Readiness for Cloud or retirement to plan the MF/DC Exit.
2. Establish an Enterprise Governance Strategy and Structure
 - a. Create Strategic Steering Committee and link to program strategic vision to ensure goals are met (ensure all key stakeholders are represented).
 - b. Program management office to orchestrate multi-stream migration and modernization efforts.
3. Start PoC and Break Application Migration Execution into Manageable ‘Chunks’ (e.g., Wave Plans)
 - a. Execute a PoC for 3-5 agencies; establish blueprint for remaining agencies.
 - b. Deep dive on application affinity and wave planning across Mainframe, Power and each agency.
4. Define the Cloud Operating Model of the Day 2 Services and Supporting Workforce
 - a. Cloud Support organization, methods, tools and overall AMS & Infra Approach.
 - b. Upskilling current state workforce (Infrastructure, NW and Application).
 - c. Automated Platforms, application on-boarding patterns & developer experience.
5. Define Application Landing Zone / Re-architecting the GPC from 2.0 to 3.0
 - a. Leverage 3rd party Hyperscalers for economies of scale.
 - b. Address communication channels between HI and CONUS in NGN new strategic design utilizing direct connect or satellite options to support geographically dispersed GPC 3.0 model.
 - c. Limit the scope of GPC 3.0 to latency dependent or legal requirements to host on island.
 - d. Allow an opportunity for State staffing resources upskilled to support automation, compliance, disaster recovery and SLA support for critical workloads while removing the requirement to administrate low level tasks like facilities, hardware, and operating systems.
6. Finalize Next Generation NW Strategy and Build Execution Plan
 - a. NGN Assessment, Strategy & Roadmap.

7.11 Service Utilization Management Committee

Goals of the committee were to:

- Analyze current and planned use of resources, forecast future use, and develop models for best utilization.
- Determine how to use existing assets more efficiently and effectively and plan for effective uses of shared services.
- Identify opportunities to leverage alternative models such as managed services, pooled storage, and virtualization.

Recommendations were focused on core IT offerings given the foundational roles and benefits they typically provide with consolidation efforts. Benefits such as singular identities, increased stability and implemented standards and additional integration capability between applications/services, all of which could allow for further increases and successes in consolidation efforts. Other common benefits sought were potential cost savings/economies of scale, reduction of duplicative systems, and recommendations towards more modern offerings.

7.11.1 Recommendations with Existing Shared Services

Committee recommendations are summarized in table 3 below.

Existing Shared Service	Recommendation	Priority	Complexity
Active Directory	Departments migrate into ETS’s Enterprise Active Directory.	High	Med/High
Multifactor Authentication	Departments utilize Azure AD instance managed by ETS for any multifactor authentication (MFA) needs.	High	Low
Vulnerability Scanner	Departments utilize the Tenable instance and CISA solution provided by ETS.	High	Low
VOIP / Call Center Systems		High	Low/ Med/ High
File Shares	Departments migrate files to Office 365 (OneDrive, SharePoint, Teams)	High	Low/Med
Secure FTP (File Sharing)	Departments utilize the Axway Secure FTP (SFTP) service provided by	High	Low

	ETS.		
Virtual Private Network (Client)	Departments utilize the Palo Alto (Global Protect) Remote VPN service.	Med/High	Low
Virtual Server Hosting	Departments migrate virtual server workloads where applicable into GPC.	Med	Medium
DNS	Departments migrate into ETS's existing DNS service. Typically, this would be done during Active Directory migrations, but it was found some departments are hosting separate domains on their own DNS servers.	Med	Low/Med
Enterprise GIS	<ul style="list-style-type: none"> Departments continue using existing Esri Enterprise GIS platform solution (ArcGIS Desktop, ArcGIS Enterprise, ArcGIS Online, ArcGIS Hub, etc.) for GIS mapping, analysis, internal and public facing GIS applications, etc. Departments consider migrating non-Esri GIS software/applications/solutions to Esri platform, where feasible. ETS, with GIS Program support, research and consider pooled/shared/enterprise servers using RBAC and other tools, improving governance, use of best practices, and potentially reducing licensing costs as well as IT resource usage. 	Med	Med/High
Patch Management	Departments utilize Tanium for patching their user endpoints where applicable.	Low	Med/High

Table 6. Committee recommendations on existing Shared Services.

7.11.2 Recommendations for Potential New Shared Services

Committee recommendations are summarized in Table 7 below.

New Shared Service	Departments to utilize	Priority	Complexity
Asset Management	Various products mentioned in this report to help automate capturing inventory of IT assets.	High	Medium
Endpoint Remote Access	Standard tool(s) for access/support of endpoint users and devices that meet the defined requirements.	High	Low
Active Directory Monitoring	Tenable.AD. Can be integrated into ServiceNow for ticket creation automation.	Med/High	Low
Network Monitoring/Config Management	Network Monitoring and Configuration Management service provided by ETS.	Med/High	Med
Help Desk Ticket System	ServiceNow as the cloud-based platform for automating IT management workflows.	Med	Med
Virtual Desktop Infrastructure (VDI)	Centralized VDI solution managed by ETS.	Med	High
Backup Solution	Departments to migrate to their own Cohesity instances for those who continue maintaining their own server environments.	Med	Low
Syslog/SIEM/Log Analyzer	Microsoft Azure Sentinel, to centralize threat collection, detection, response, and investigation efforts.	Med	Med
VPN (Site to Site – Internal/External)	Site to Site VPN services provided by ETS using centralized VPN concentrators.	Low	High
Content/Document Management	Microsoft SharePoint Document Management System with their optional Syntex addon.	Low	Low/Med/High
Data management, reporting & analytics	Solutions provided by ETS (not currently in ETS portfolio)	Med/High	Med/High

Table 7. Committee recommendations on potential new Shared Services.

7.12 Workforce Development and Recruiting Committee

For the committee report see the Appendix document (combined Committee Reports).

The committee's goals were to review and suggest practices that would effectively **Recruit, Develop, and Retain** high-quality information technology professionals for Hawaii State government.

As the number of unfilled technology jobs at all levels, across all sectors, continues to grow exponentially, public sector and private industry employers locally and nationally are implementing multiple, interlocking workforce building programs to recruit, develop, retain, and compensate technology employees who are in extremely high demand and in short supply. For Hawaii State Government to successfully recruit and retain

qualified employees in this highly competitive technology job market, it must embrace a broad collection of solutions and demonstrated best practices.

Recommendation: Based on proven best practices and successes within the technology industry and other government jurisdictions, applying these recommended solutions will address specific challenges identified with recruiting qualified talent and retaining Hawaii state government technology employees:

- Consider expanding adoption of **temporary exempt** technology **positions** that offer flexible compensation, flexible duties and responsibilities, flexible minimum qualifications and skill sets, and shorter, faster recruiting and hiring processes. This has been a successful model for the Office of Enterprise Technology Services whose enabling Legislation (HRS Chapter 27-43) provides creating and hiring its employees as temporary exempt non-civil service, which are not subject to requirements of HRS Chapters 76 and 89.
- Provide **competitive salaries** at entry levels and subsequent career points. Local and national salary surveys consistently place Hawaii government at the lower end and bottom.
- Consider adding **flexibility to benefits** packages, such as pension funds that offer portability common to technology employees who change jobs often.
- Adopt **performance-based** compensation and rewards program, as existing programs deemed not competitive or relevant.
- Offer uniform **remote work** and flexible scheduling options, essential for technology employees who have been leading the national shift to more tele- and remote work.
- Develop technology **career ladders** that define career progression, job growth, future pathways, rotating job assignments, mentorship programs, and internal promotional opportunities within State government.
- Build **formal training program** offering leadership, management, and administrative skills training required for advancement within government, e.g., collaborate with proven consulting and training organizations that already deliver such programs to industry and government, e.g., CIO training academies, leadership institutes.
- Provide **incentives** such as fellowships, tuition assistance, and other financial support for individual development and enhancement to improve internal employee skills and knowledge as they progress through their government careers, e.g., obtain and maintain professional credentials and technical certifications for skills growth, rather than to only meet job requirement); attending conferences & vendor summits, joining professional organizations and associations.
- Encourage **formal** and **informal** programs where technology employees share information, success stories, and best practices, e.g., Centers of Excellence, brown bag lunches to learn.
- Deliver formal internal and external **professional development** programs to train, reskill, and upskill employees in these identified areas of need:
 - Strategic IT portfolio management.
 - IT Procurement.
 - Project Management.
 - IT Service and Operations Management.
 - Business and Vendor Relationship Management.
 - Security and Privacy.
 - Data Management
 - Artificial Intelligence (AI) use & application
- Migrate from education degree requirement to **skills and experience-based credential** hiring for selected positions, reflecting prevailing practices within tech industry, e.g., for many positions, experience and demonstrated practical skills considered more important qualifications than academic degrees.
- **Collaborate** with lower and higher **education community** to expand funded government technology student internship and externship opportunities providing hands-on experience that transition into regular government employment.
- Transition decades old static state government position descriptions to **dynamic position descriptions** that reflect modern, current, and flexible needs of today's technology positions, e.g., update minimum and preferred requirements for technology positions consistent with rapidly changing industry practices, align position and job titles with current industry standards and usage.
- **Shorten** significantly the **lengthy recruitment processes** and time to hire – extremely critical in highly competitive technology job market.
- Encourage **creative recruitment practices** and **collaborations** between state government technology employers and HR at all recruitment levels., e.g., while technology hiring managers best know the type of candidates they need, HR managers may have more resources and expertise to find and attract those candidates.

- Establish a marketing program to **highlight** advantages and experience of **working in public service**.
- Highlight **personal financial incentives** only available when working for government, such as loan forgiveness and payment reductions for student loans.
- Although not directly a workforce development practice, adopt emerging automated and **artificial intelligence (AI) tools** to handle routine and repeatable tasks allows employees to focus on tasks requiring higher-level skills, which may reduce the technology staffing shortage and need for additional staff, e.g., develop enterprise-wide AI training and orientation programs to explore possibilities, to build internal expertise on this emerging AI technology.

These findings come from extended discussions with and review of successful practices in other states and government jurisdictions, the National Association of State Chief Information Officers (NASCIO), National Governor’s Association (NGA), Hawaii CIO Council, University of Hawai’i, and Professional IT Recruitment organizations.

End