

DAVID Y. IGE  
GOVERNOR



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CHIEF INFORMATION  
OFFICER

**OFFICE OF ENTERPRISE TECHNOLOGY SERVICES**

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January 6, 2019

The Honorable Ronald D. Kouchi,  
President, and  
Members of The Senate  
Thirtieth State Legislature  
Hawaii State Capitol, Room 409  
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki,  
Speaker, and  
Members of The House of Representatives  
Thirtieth State Legislature  
Hawaii State Capitol, Room 431  
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

Pursuant to sections 27-43(a)(6) and 27-43(e), Hawai'i Revised Statutes (HRS), the Chief Information Officer (CIO) of the State of Hawai'i submits this report on the status and implementation of the State information technology strategic plan, the activities and programs under the authority of the CIO and the IT Steering Committee, and the expenditures of all moneys received from all sources and deposited into the IT Trust Account and the Shared Services Technology Special Fund.

In accordance with HRS section 93-16, this report may be viewed electronically at <http://ets.hawaii.gov> (see "Reports").

Sincerely,

  
Douglas Murdock (Jan 6, 2020)

DOUGLAS MURDOCK  
Chief Information Officer  
State of Hawai'i

Attachment (1)

# OFFICE OF ENTERPRISE TECHNOLOGY SERVICES

State of Hawaii | CIO Annual Report | Jan. 6, 2020





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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. ETS also supports the management and operation of all state agencies by providing effective, efficient, coordinated and cost-beneficial computer and telecommunication services.

The Office of Enterprise Technology Services (ETS) was established by Hawaii 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.

Hawaii 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 four meetings in 2019.

### IT STEERING COMMITTEE MEMBERS (served during 2019)

**Douglas Murdock (Chair), Office of Enterprise Technology Services, State of Hawaii**

**Benjamin Ancheta, Ekahi Health System**

**Jared I. Kuroiwa, KHON2**

**Aryn H. K. Nakaoka, Tri-net Solutions**

**Michael Nishida, First Hawaiian Bank**

**Christine Sakuda, Transform Hawaii**

**Government**

**Kelly Taguchi, Spectrum**

**Kevin Thornton, Hawaii State Judiciary**

**Kyle Yamashita, House of Representatives**

**Marcus Yano, SystemMetrics Corporation**

**Garret Yoshimi, University of Hawaii**

**Jarrett Keohokalole, State Senate**

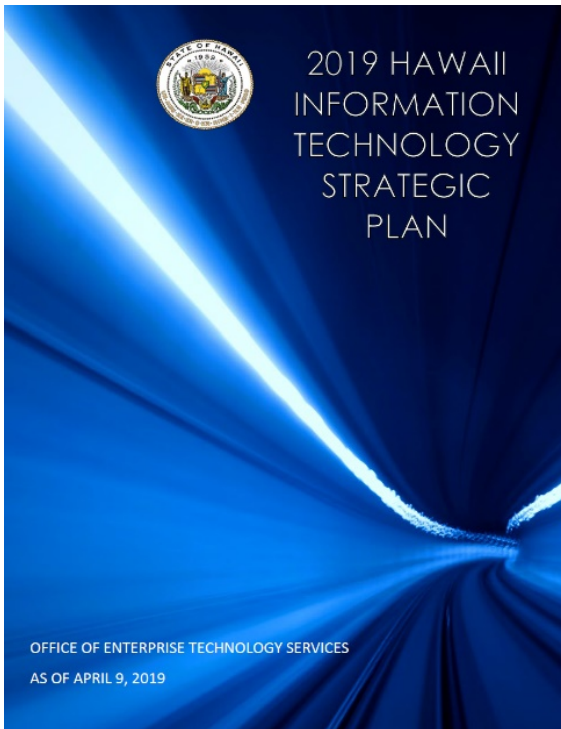
The CIO or designee also serves on the following state committees:

- 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)





## NEW IT STRATEGIC PLAN COMPLETED IN 2019



The 2019 Hawaii 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 IT Strategic Plan can be found here: [Plan](#)

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 Hawaii 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 listed on the following pages:

## 2019 HAWAII INFORMATION TECHNOLOGY STRATEGIC PLAN

### **VISION STATEMENT**

**Transformative information and technology-enriched government that serves all the people of Hawai'i and the 'āina\***

### **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**

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

\*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 Chief Data Officer</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 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>

## 2019 HAWAII INFORMATION TECHNOLOGY STRATEGIC PLAN

### IMPLEMENTATION PLAN

For each of the seven Strategic Priorities, the following objectives will be implemented.

#### *Near-Term Objectives (FY 2020: 12 months)*

- Establish a strategy governance process, executive sponsor, charter, program lead, working group and user groups
- Develop a high-level prioritized reference model for best practices in tactics, techniques and procedures and begin measurement
- Establish a high-level Capability Maturity Model measurement framework and begin measurement
- Plan & begin implementing change management efforts
- Team Leads begin reporting to IT Steering Committee at each ITSC Meeting

#### *Longer-Term Objectives (FY 2021-2024, Years 2-4)*

- Continue to operate Governance process
- Increase successful implementation in prioritized reference model and adjust as necessary
- Capability Maturity Model: Increase level attained and granularity for state, departments and agencies
- Identify & drive next-tier legislative changes/additions
- Adjust the Strategic Plan elements to maintain a current and relevant plan
- Team Leads continue reporting to IT Steering Committee during each ITSC Meeting

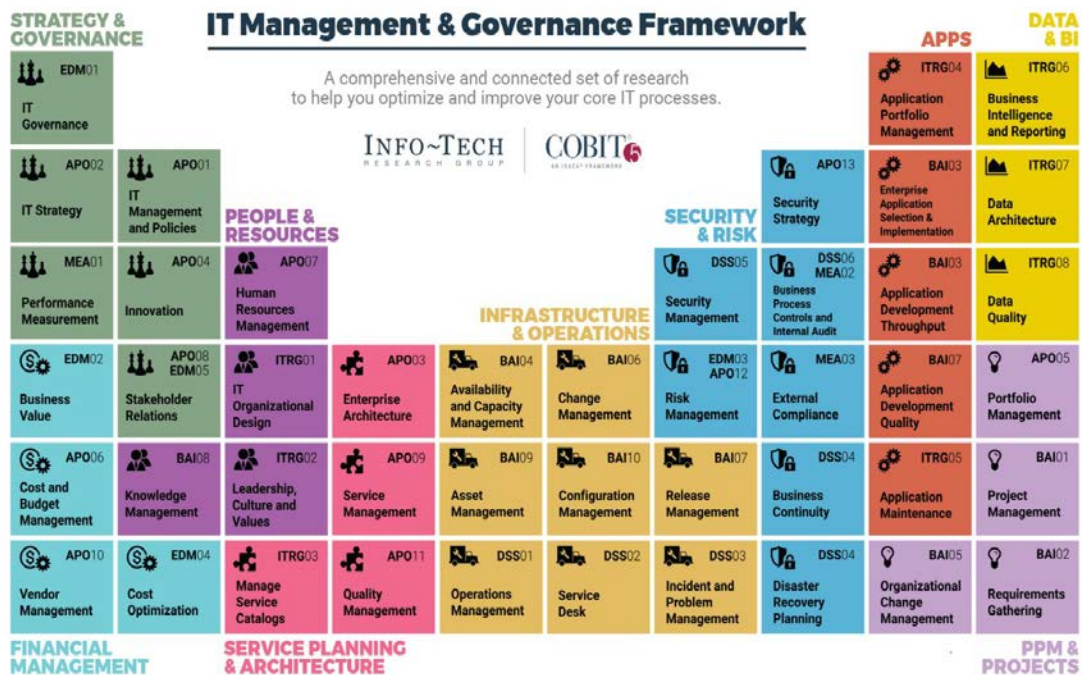
#### *Additional Documentation*

A reference book of work products developed during the strategic planning process will be used by ETS, the ITSC, team leads and working groups. It is presented as a separate volume that includes situation analysis, workshop notes, and detail for each strategic priority including Microsoft Word and PowerPoint versions.



## 2019 IT STRATEGIC PLAN ADOPTION PROGRESS

- In 2019, ETS established a 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 in 2019 and 2020 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 in 2020. We are working on measurement dashboards.
- ETS added an organizational change management specialist to our staff in 2019 to help. ETS is also funding seven workshops for 2019-2020, one in each strategic plan area, to help state IT staff analyze processes that need to change and to improve our capability maturity. One workshop has been completed and several are scheduled for early 2020.
- Info-Tech also provides online training in each of the core areas and certification in each of the areas. Several ETS members have already earned certifications through this program.

## PARTNER 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 Hawaii Information Technology Strategic Plan.



The Hawaii Modernization Initiative, also known as HiMod, is the State's modernization project 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 system. The project is currently working on a Time and Leave Management System and researching options for a new Financial Management System. HiMod is governed by an Executive Steering Group.

The HawaiiPay Project, which brought the State's payroll system into the twenty-first century with a modern, efficient platform, went live with the first groups of employees in May 2018 and covered all employees with the inclusion of the Department of Education and University of Hawaii in January 2019. The system also provides payroll service for the Judiciary, Legislature and Office of Hawaiian Affairs.

### HAWAIIPAY PROJECT



- Nearly 70,000 State employees are enrolled for direct deposit.
- An average of 4,500 employees use the HIP call center monthly.
- Modernization Cost: \$17,037,148 contract with CherryRoad Technologies, Inc. covering Payroll and Time and Leave Management.

# Partner for Successful Outcomes

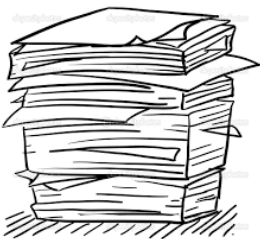
## PAYROLL WEEK

Gov. David Ige proclaimed Labor Day (Sept. 2) to Sept.6 as Payroll Week in Hawaii, honoring nearly 350 state payroll professionals across all departments. These individuals oversee, direct and process payroll checks for nearly 70,000 employees on any given pay day.



### HAWAII PAY PAPER REDUCTION:

- The transition to online pay statements has reduced the paper issuance from over 3.2 million checks and statements annually to about 60,000 checks annually.
- The project office continues to add capabilities leading to additional paper reduction for other employee self-service transactions including emergency contact updates, functionality to submit tax withholdings online, and online W-2 delivery to begin in 2020 for the 2019 tax year.

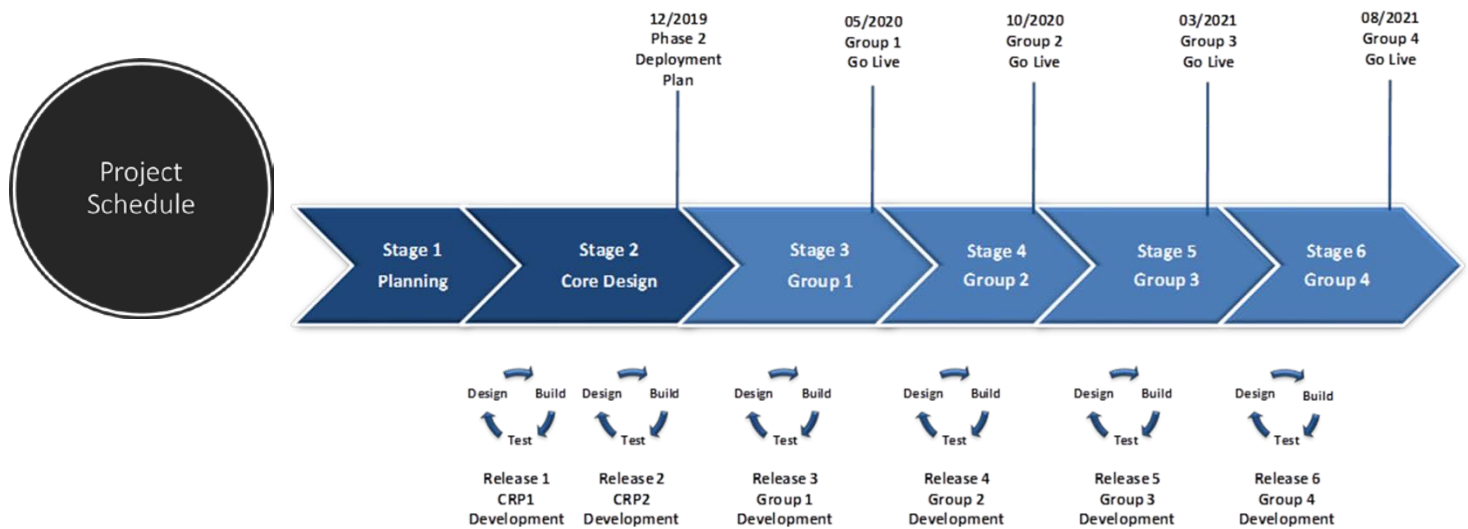


- An average of nearly 20,000 State employees log into Employee Self-Service each month.

# Partner for Successful Outcomes

## TIME AND LEAVE PROJECT

- Currently, most state jurisdictions process pay and leave paperwork and calculations manually before entering the gross pay calculations into the HiPay system.
- The Time and Leave Project will allow participating state departments, agencies, and jurisdictions to process electronic timesheets and leave requests in HIP, replacing many manual forms. The new system will increase efficiency by standardizing practices and reducing pay processing times and pay errors.
- The Time and Leave Project will be launched by HiMod in May 2019 with the first departments scheduled to go live in May 2020. The project will complete by 2022.



## Online Employee Timesheet Example

Job Title \*General Professional

13 October - 19 October 2019  
 Sunday to Saturday  
 Scheduled 40.00 | Reported 3.00

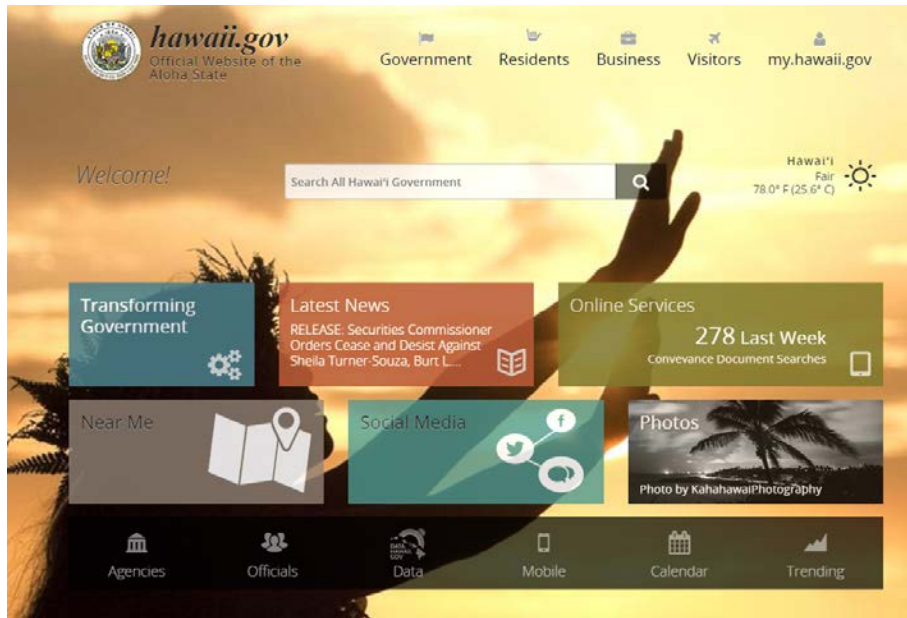
View Legend Request Absence Save for Later Submit

Time Reporting Code / Time Details	Sunday 13	Monday 14	Tuesday 15	Wednesday 16	Thursday 17	Friday 18	Saturday 19
Scheduled OFF Reported 0		Scheduled 8 Reported 3	Scheduled 8 Reported 0	Scheduled 8 Reported 0	Scheduled 8 Reported 0	Scheduled 8 Reported 0	Scheduled OFF Reported 0
OT - Overtime Pay		2.00					
MEAL3 - Meal - Dinner		1.00					
Comments							



# Partner for Successful Outcomes

## DIGITAL GOVERNMENT SERVICES



- The state's digital government portal, at ehawaii.gov, provides information and online services to state citizens. Today, the portal provides over 160 online services to the state and the counties.
- The Access Hawaii Committee (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 portal provider 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



**EHAWAII.GOV  
RECOGNIZED**

ehawaii.gov was the winner of a 2019 Davey Silver Award for its innovative design. This is the third award the site has received since the site's redesign launched in February 2019.

The Davey Awards recognize those who utilize flawless execution, groundbreaking technology and a fresh approach.

The site works across all platforms with over 50% of visitors coming from a mobile device or tablet.





# Partner for Successful Outcomes

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.

- Hawaii Information Consortium is the contracted State of Hawaii portal manager. HIC has successfully partnered with 90+ state agencies and across jurisdictions to provide more than 160 online services for the State of Hawaii.
- The portal program launched 7 new services in Fiscal Year (FY) 2019. These services include the Judiciary's Circuit Court Judge Evaluation, the Department of Attorney General Tax & Charities Special Invoice Payment System, the Energy Office's Solar Water Heater Variance Application, HIC's Payment Platform, the Department of Health's (DOH) Clean and Sober Homes Registry, the DOH's Facility Access Plan Submission and Review System, and the County of Hawaii's Liquor License Renewals System. In addition, 12 major application updates and 1 website upgrade were delivered. The breakdown of portal services by department and service is provided in the AHC annual report at [ahc.ehawaii.gov](http://ahc.ehawaii.gov).

Hawaii Compliance Express is one of many ehawaii.gov services:

The screenshot shows the Hawaii Compliance Express (HCE) website. At the top, there is a header with the Hawaii.gov logo on the left and the text "Certificate of Compliance Dept. of Accounting and General Services" on the right. Below the header, there is a "Navigate" menu with links for Home, Login, Create An Account, Forgot Password?, FAQ, Contact Information, Procurement, and Regulations. To the right of the menu is a "Modules" section featuring a "Live Chat" button with a question mark icon and the text "online Live Chat Technical Support". Below the menu and chat button, there is a section titled "Hawai`i Compliance Express" with a welcome message: "Welcome to Hawai`i Compliance Express (HCE), which expedites your ability to furnish proof of compliance with the requirements of 103D-310(c), HRS. The Compliance Express service saves you time and hassle by providing an online 'Certificate of Vendor Compliance' for your business entity. This single certificate eliminates the need to obtain individual copies of clearances with the IRS, Department of Labor, DCCA, and State tax offices. The service includes real time monitoring of your status of compliance with each agency and you will be automatically notified by email any time your compliance status is changed." Below this message, there is a paragraph stating: "Under Hawaii law, you must provide proof of compliance in order to receive a contract \$2,500 or more with state and county government entities in Hawaii." This is followed by a question: "New to the Service and have questions? Please visit the following links:" and two bullet points: "Frequently Asked Questions" and "Procurement Regulations". At the bottom, there is a paragraph: "To get started, you will need your Taxpayer Identification Number (FEIN or SSN), Hawaii Tax ID#, Unemployment Insurance Identification number (UI ID#), if applicable, and a valid credit card for the \$12 annual registration fee to complete the transaction." Finally, there is a line: "If you have an HCE or a Business Express account login otherwise Create an Account".

# Partner for Successful Outcomes

## ETS 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 end of 2019:

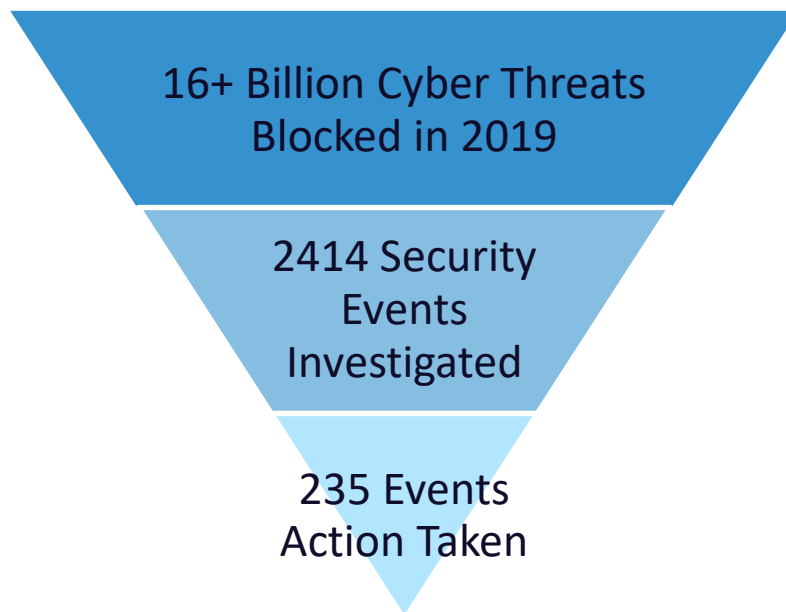
<b>IN PROGRESS – Operational</b>	<b>Department</b>
HiMod Payroll & Human Resources	DAGS/DHRD
Tax System Modernization	DOTAX
Harbor Master Information System	DOT-HAR
Behavioral Health Inspire	DOH
<b>IN PROGRESS – Developing</b>	<b>Department</b>
Benefits Eligibility System	DHS
HiMod Time & Leave Management	DAGS-Statewide
OHA Financials	OHA
Disability Compensation	DLIR
<b>COMING 2020</b>	<b>Department</b>
DOT-HWY Financial Management System	DOT-HWY
DOE Financial Management System	DOE
KEIKI Child Support System	AG-CSEA
Unemployment Insurance	DLIR
ERS Financials	B&F-ERS
Workforce Information Sys	DLIR
Corrections Management	PSD
Statewide Financial Mgt System	DAGS-Statewide
<b>COMING 2021</b>	<b>Department</b>
E-Procurement System	DAGS-SPO
Child & Adult Welfare (HAWI)	DHS
ERS Benefits Replacement	B&F-ERS
Health Benefits Administration System	E&F-EUTF
Vital Records Management Info System	DOH

# Expand Statewide Cyber Security Strategy:

*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.*

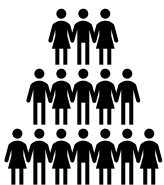
**THREAT:** *The state cyber infrastructure is under constant attack.*



## TEAM:



- Chief Information Security Officer
- Seven 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



# Expand Statewide Cyber Security Strategy

## CYBER SECURITY TRAINING



- ETS has been working with the State Department of Human Resources to provide Cybersecurity Awareness Training as part of the State's foundational knowledge set. Information Technology integrates with every area of State business and educating and empowering employees to be safe and secure when using computers not only benefits the State but also our employees' homes.

**12,193 USERS**

**10% CLICKED ON THE PHISHING  
EMAIL**

## PHISHING AWARENESS CAMPAIGN

ETS provides cyber security awareness campaigns quarterly 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.

## ELECTION SYSTEMS

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 cyber security 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 Hawaii was awarded more than \$3M under the Federal government's 2018 Help America Vote Act.
- To see Hawaii's Program Narrative, click [here](#).

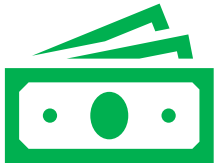


# Expand Statewide Cyber Security Strategy

## MULTI-FACTOR AUTHENTICATION

ETS has enabled multi-factor authentication (MFA), requiring employees to use more than one method of login to verify their identity during login. This program protects our Office 365 environment and users, remote access connections, and other Internet accessible environments. Additionally, ETS developed policies and procedures to enroll and enforce MFA.

## CYBER SECURITY NEW PROGRAMS



- The 2019 Legislature appropriated \$1,038,240 in fiscal year 2020 and \$1,263,902 in fiscal year 2021 for cyber security capability enhancements by Office of Enterprise Technology Services.

So far, ETS implemented three applications executive branch wide to enhance its cyber security programs:

**External email label:** Makes external e-mail easy to identify while making internal e-mail more difficult to impersonate to reduce the risk of phishing.

**Email filtering:** A new user digest classifies Email as spam or junk and sends it to a personal quarantine instead of being delivered to the inbox or junk folder.

**Web enhancer:** Provides content delivery network services, cyber attack mitigation, and a web application firewall for the purposes of increasing security and performance of websites.

## CYBER SECURITY MONTH

Gov. David proclaimed October Cybersecurity Awareness Month in Hawaii, in recognition of the state's role in identifying, protecting its citizens from, and responding to cyber threats.





# Expand Statewide Cyber Security Strategy

## **GIRLS GO CYBERSTART**

Girls Go CyberStart is a state sponsored, ETS led initiative that encourages young women to explore the field of cyber security through a fun, interactive online program composed of digital challenges. The nationwide competition is organized by the Sans Institute



*Governor Ige is surrounded by Hawaii's winners of the 2019 Girls Go CyberStart. This year's state winners are teams from Myron B. Thompson Academy, first place; St. Andrews Schools, second place; and Seabury Hall, third place. Finalists in the competition are teams from Sacred Hearts Academy, Kapolei High School and Keaau High School.*

### **GIRLS GO CYBERSTART BY THE NUMBERS:**

- **476 GIRLS FROM 34 HAWAII HIGH SCHOOLS PARTICIPATED IN 2019**
- **THE HAWAII STATE WINNER RANKED 6TH IN THE NATION.**
- **PRIZES: 1ST PLACE = \$100 PER GIRL + \$100 FOR THE SCHOOL; 2ND PLACE = \$75 PER GIRL + \$100 FOR THE SCHOOL; 3RD PLACE = \$50 PER GIRL + \$100 FOR THE SCHOOL**
- **10 HAWAII GIRLS QUALIFIED FOR \$500 SCHOLARSHIPS**

# Enhance the Value of 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.

## OPEN DATA PORTAL



### What's New?

The redesign and relaunch of Hawaii's Open Data Portal brings new features and new tools to open data. New charting libraries and new mapping tools allow the creation of dynamic visualizations, and datasets are larger and faster than ever.

The dataset catalog has expanded to more than twice the size it was this time last year, and more are added every day. Click here to explore the entire data catalog, or browse the categories on the right to see what's available.



### Video Tutorials

To help you get started with these tools, we've created a series of videos designed to teach you the basics about interacting with this data site.

### Learn More

With the State of Hawaii's Open Data portal, the State of Hawaii provides residents, analysts, and civic developers with unparalleled access to State data for use in increasing transparency, driving civic innovation, and engaging participants in a more collaborative form of government. Click here to read more about the portal here.

### Average Gasoline Prices

Explore the average monthly gas prices in different parts of Hawaii compared to the state as a whole.

### Farmer's Markets in Hawaii

"Buy Local, It Matters" at one of many neighborhood farmer's market throughout Hawaii. Check out this map of local farmer's markets, and visit the underlying dataset for schedules and more information.



- ETS facilitates executive branch departments' efforts to make appropriate and existing electronic data sets electronically available to the public through the state's Open Data Portal at [data.hawaii.gov](http://data.hawaii.gov), which now offers charting libraries and mapping tools for the creation of dynamic visualizations.

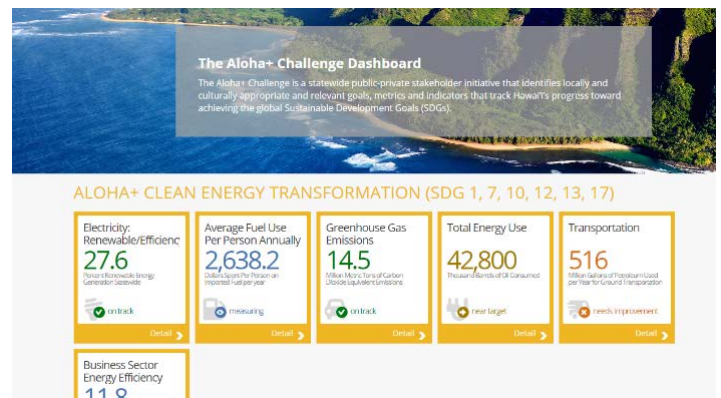
- More than 660 data sets are publicly available through the portal, providing residents, analysts, and civic developers with self-service access to state data

- Last year, there were more than 3 million browser page views.

## ALOHA+ CHALLENGE DASHBOARD

- The Aloha+ Challenge Dashboard is an online open data platform to track progress, provide accountability, and ensure transparency on the Aloha+ Challenge.

- The Aloha+ Challenge Dashboard is designed for decision makers, practitioners, and the public to inform policy, data driven decision making, and inspire action on Hawai'i's statewide 2030 sustainability goals.



## **OPTIMIZE ENTERPRISE SYSTEMS:** *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: DR Fortress, University of Hawaii, and the Kalanimoku Building for use by the departments.
- **Mainframe Services** – ETS provides Mainframe hosting and services for use by the departments. As the mainframe leases expire in May of 2020, ETS is evaluating options to continue mainframe services.
- **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.
- **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.



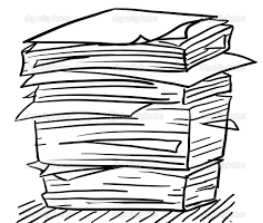
# Optimize Enterprise Systems

**PAPER REDUCTION PROGRAM:** *In Governor Ige’s 2015 State of the State address, he pointed to the fact that the State goes through about 1 million pieces of paper a month – 12 million pages each year – and committed to helping the state go paperless as a means of transforming the culture of government to embrace and accelerate change. Since then, ETS has launched several paper reduction initiatives*



In 2017, ETS began transitioning departments into producing electronic reports instead of printing hard-copy documents.

- In three years, the State is projected to save \$500-thousand and 10 million sheets of printed paper through this paper reduction program.
- Additional paper reductions and cost savings are expected in the coming months as more departments eliminate many printed paper reports entirely and convert others to digital documents.
- The transition to online pay statements has reduced the paper issuance from over 3.2 million checks/statements annually to about 60,000 checks/statements.
- It continues to decline each pay day, with more employees enrolling in direct deposit.
- Additional paper reduction for other employee self-service transactions include emergency contact updates, the recently-added functionality of submitting tax withholdings online, and online W-2 delivery to begin in 2020 for the 2019 year.

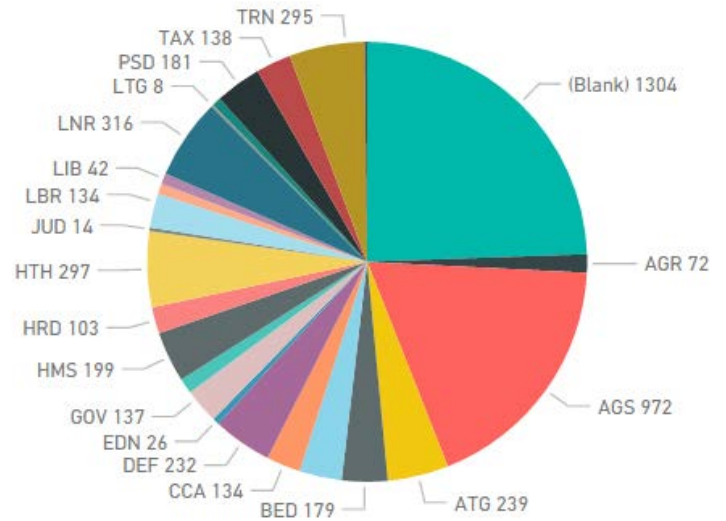


# Optimize Enterprise Systems

## SERVICE DESK

ETS responded to more than 5,000 service requests in 2019. From responding to requests to unlock passwords to providing support for websites and applications, ETS' service desk provides executive branch departments with assistance.

Number of Tickets by Dept



Number of Tickets by Ticket Category





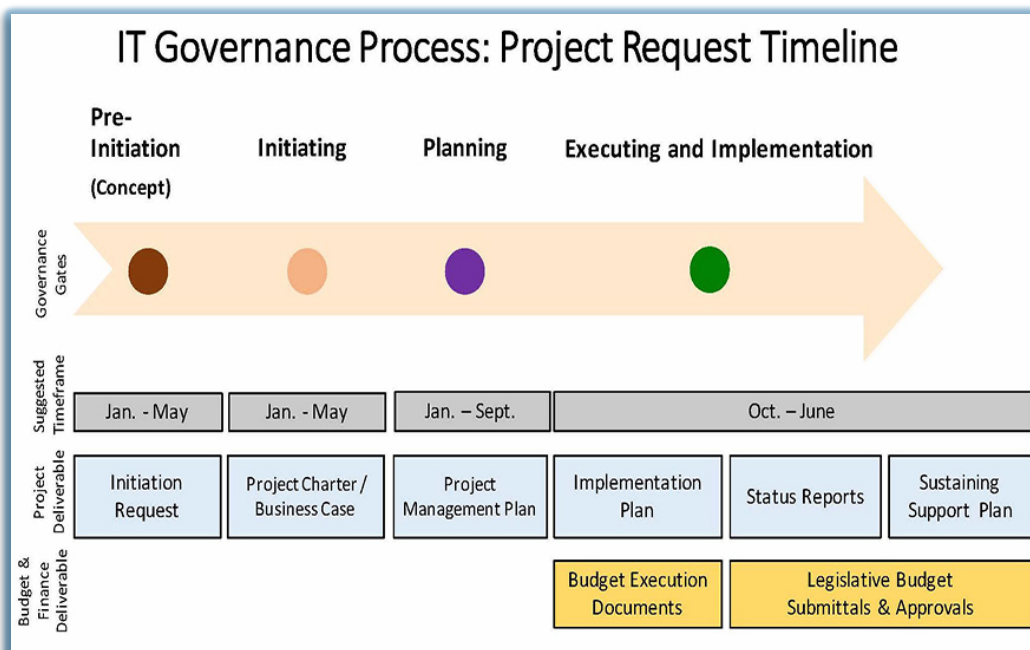
# Extend IT Portfolio Governance: *Extend the State IT Governance Model to better align the state’s functions with resources and ensure the State follows industry best practices and garners the full benefits of its investments.*

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.

## IT PROJECT GOVERNANCE

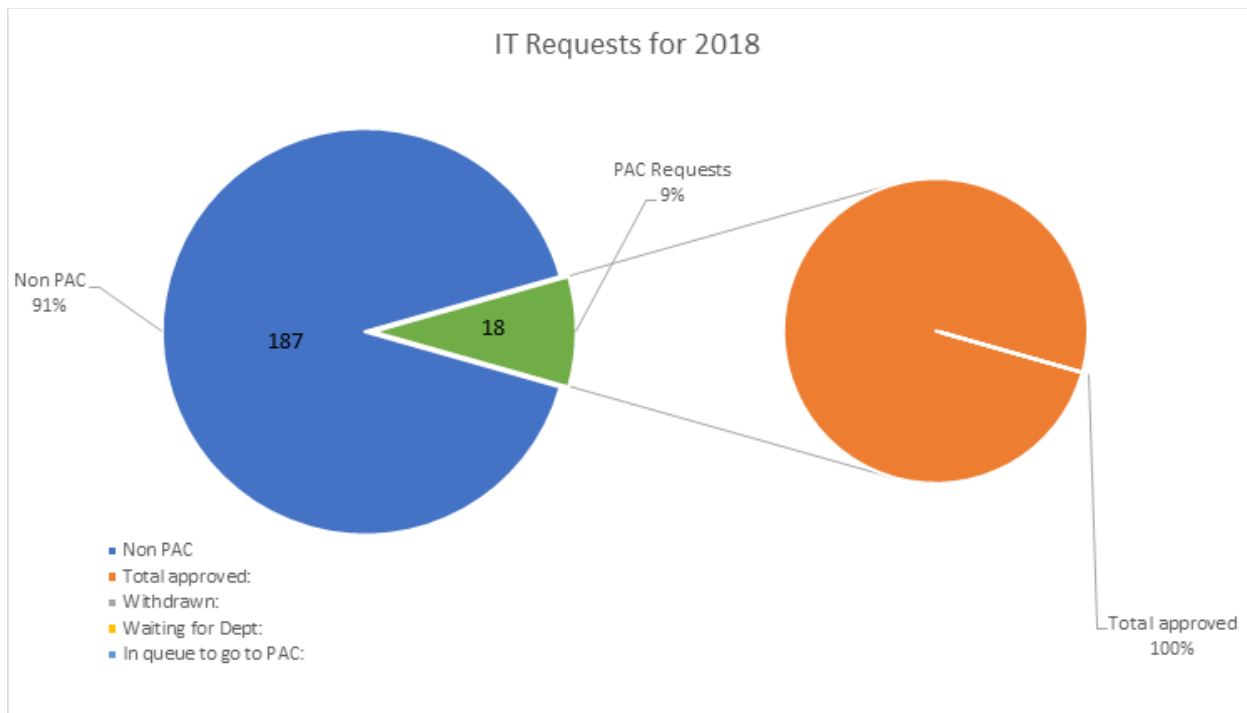
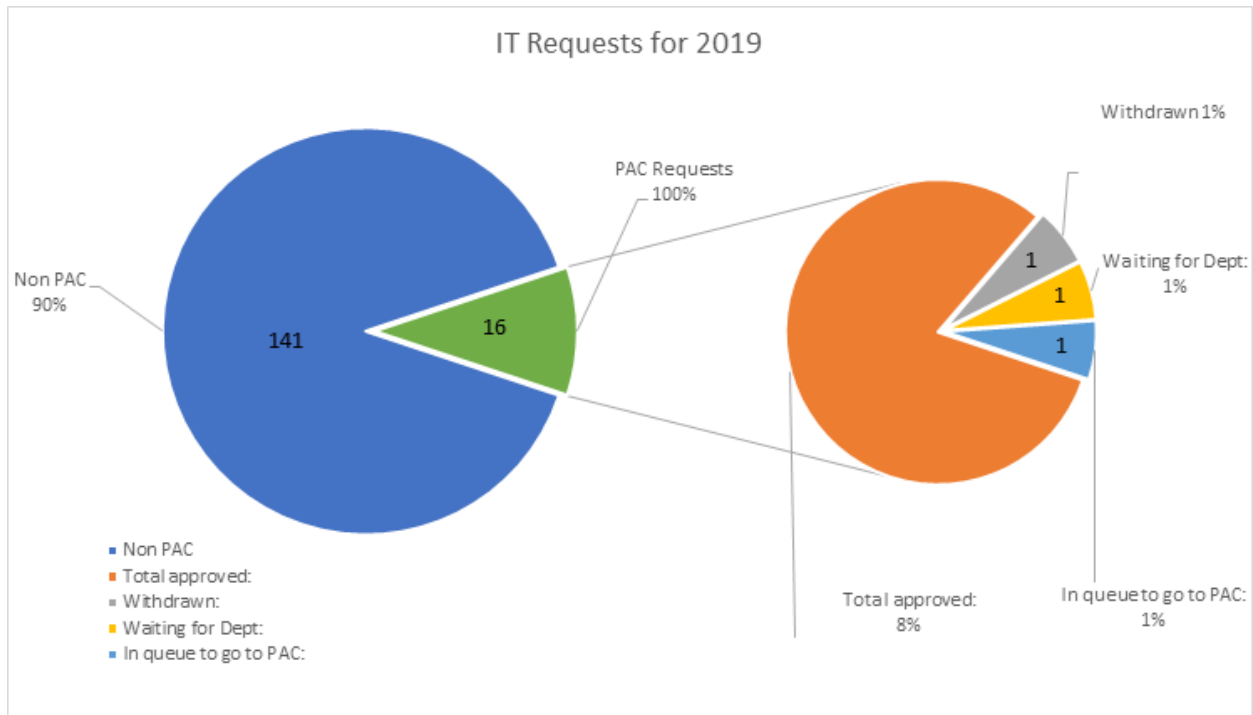
ETS provides IT governance for Executive Branch projects under Administrative Directive No. 18-03 Program Governance and IV&V Requirements for Enterprise IT Projects.

Information technology (IT) governance consists of processes and standards guiding the management and oversight of the State of Hawaii’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.



# Extend IT Portfolio Governance

The charts below show project requests over the last 2 years.

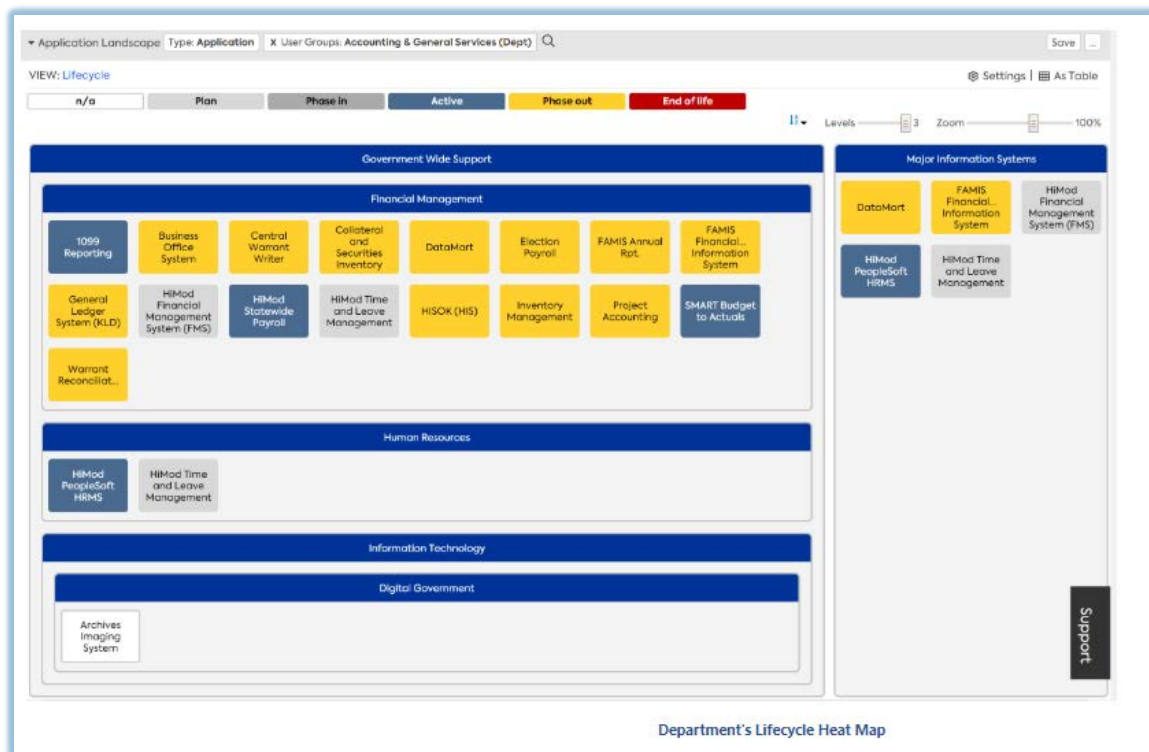


# Extend IT Portfolio Governance

## HAWAII DEPARTMENTAL IT ROADMAP DASHBOARD

In August 2019, ETS began transitioning departments to a new dashboard for analyzing business capabilities and supporting technology.

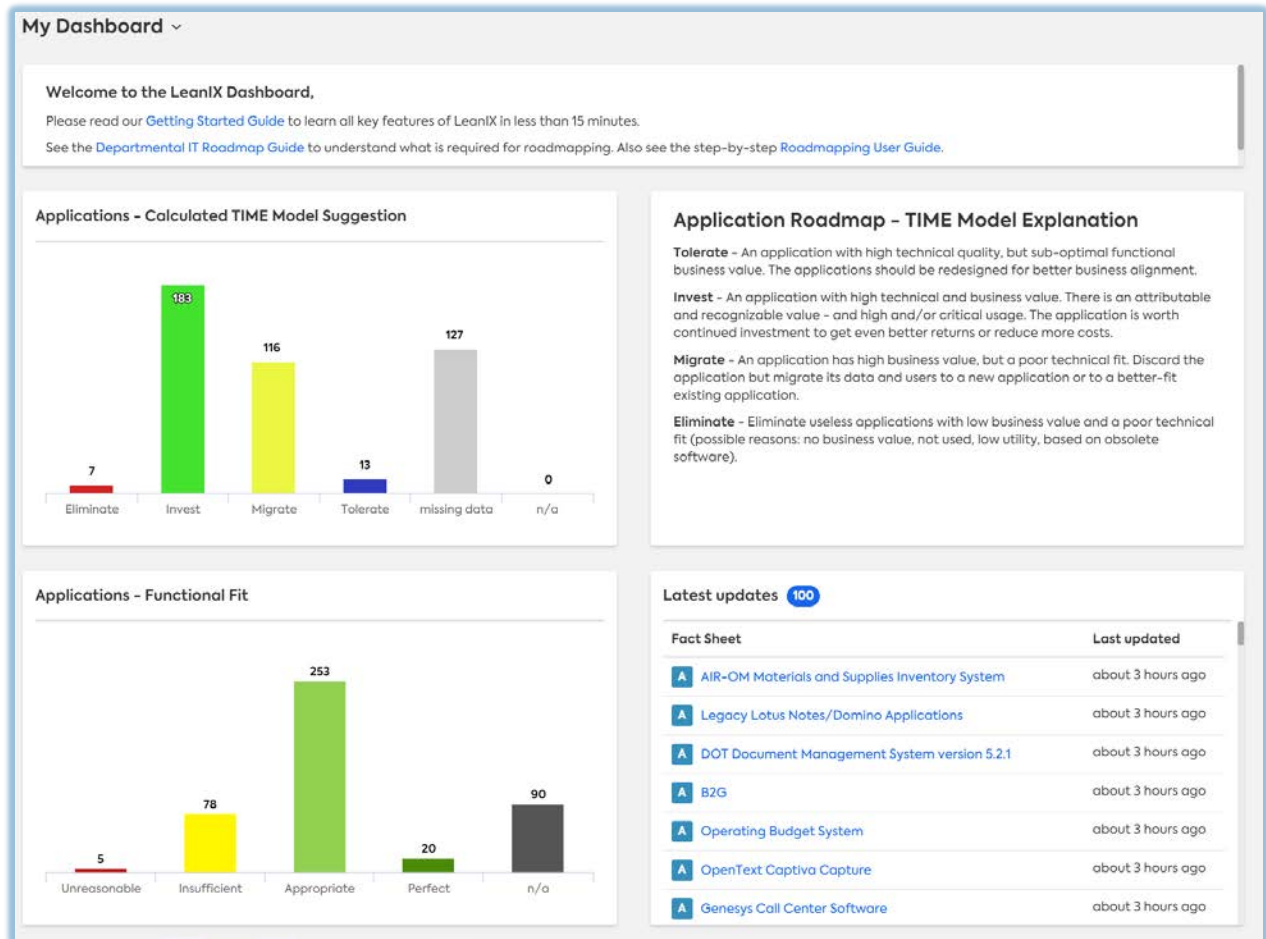
- ETS adopted a product called LeanIX for state-wide application portfolio management.
- The tool provides a more structured capability for enterprise architecture and portfolio management, including the ability to track business capabilities, technical fit, and functional fit, and to produce heat maps based on system parameters.



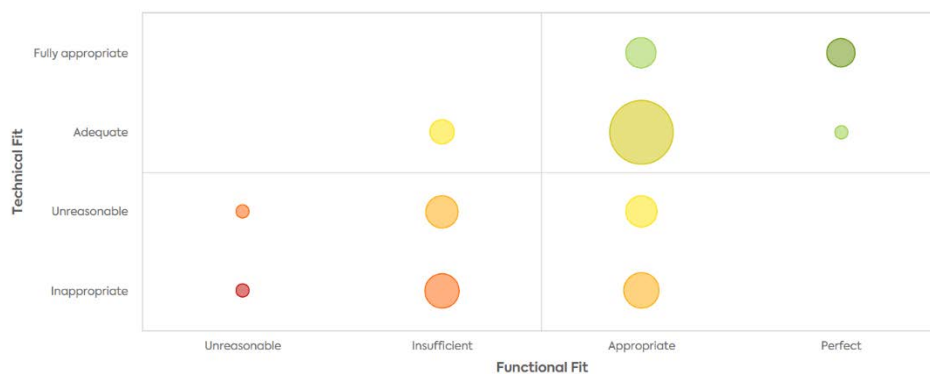
- The department IT staff and ETS hold monthly roadmap meeting as a working session and a checkpoint for managing the departmental business capability and application portfolio in LeanIX.
- With the ongoing investment in time and effort to establish and maintain application portfolio in LeanIX, departments will be able to use the business intelligence in LeanIX to prioritize, justify and monitor their business modernization IT projects and applications.

# Extend IT Portfolio Governance

- The departments will have a dynamic user-friendly tool for internal communication on its business capability and IT landscape.



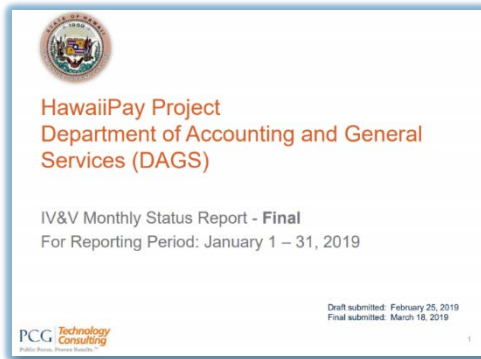
- The state can benefit from the state-wide application portfolio transparency and enhanced strategic decision-making, including the ability to identify duplication of effort and combine many similar state systems into one universal system when appropriate.



# Extend IT Portfolio Governance

## INDEPENDENT VERIFICATION AND VALIDATION REPORTS

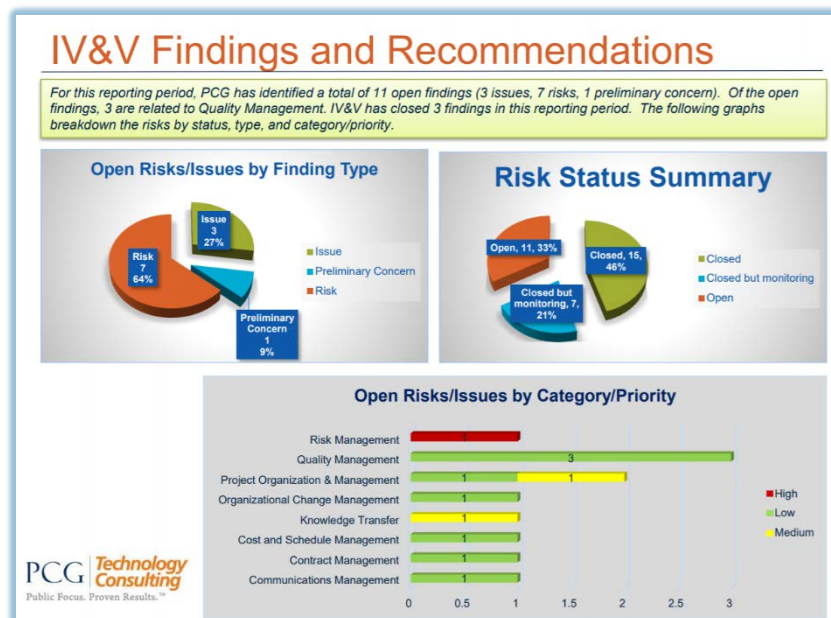
Pursuant to section 27.43.6, HRS, and section 93-16, HRS, Independent Verification and Validation (IV&V) Reports for certain major systems are to be submitted to the legislature and posted on the ETS website.



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 2019, ETS provided IV&V oversight over the following projects:

- Department of Taxation’s Tax System Modernization,
- Department of Health’s Behavioral Health Administration Integrated Case Management System,
- Department of Accounting and General Services’ HawaiiPay Project,
- Department of Human Services’ Systems Modernization project, and
- Department of Labor and Industrial Relations Disability Compensation Division’s Modernization Project.





# 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).

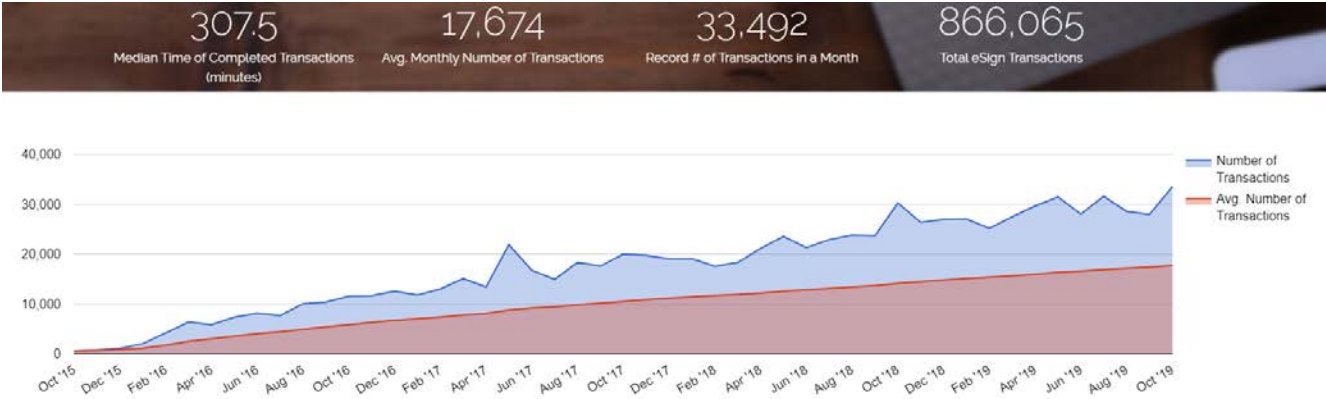
- **Office 365** – Activated 12,390 Office 365 licenses that are now being utilized by branch department users. Benefits include fortified security, greater disaster recovery capability, expanded applications and services, added tools for collaboration, and long-term budget sustainability.
- **eSign Service** – Departments statewide increase government efficiency within the executive branch through the use of eSign. About 200,000 transactions are processed through the Adobe eSign service each year.
- **Adobe Creative Cloud** – Departments statewide have access to the Adobe products suite to create PDFs, and other digital media and assets.
- **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 Hawaii Wireless Interoperability Network is the State’s Radio infrastructure which is used by first responders, departments, counties, and other various agencies.

ETS maintains a list of other services available for use or purchase through ETS contracts.




# Evergreen Operations

## eSIGN

Three years after eSign was officially launched, more than 866-thousand 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 environmental impact by saving more than 61-thousand pounds of wood, 177-thousand gallons of water and 9-thousand pounds of waste.

		
177192	9771	61770
Gallons of Water Saved	Pounds of waste saved	Pounds of wood saved



# Evergreen Operations

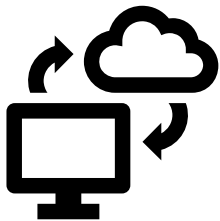
## OFFICE 365



ETS manages 12,390 Office 365 licenses that are now being utilized by executive branch department users.

- Licenses include applications: Microsoft Teams, One Drive, Skype, 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 500 sites (department websites and its subsites) and provides other cloud hosting options.



## SALESFORCE



- ETS supports the application which HiMod’s payroll call center, Hawaii Informaton Portal (HIP), uses as its customer relationship manager.
- An average of 4,500 employees use the HIP call center.

## BRANDWATCH

ETS is working with social media management platforms, such as Brandwatch, to assist with content curation, monitoring and management, among other things. ETS assisted Hawaii County in using the tools during its disaster and volcano recovery. The tools are used to track social media content and help in the creation of communication strategies and correct misinformation.

# Evergreen Operations

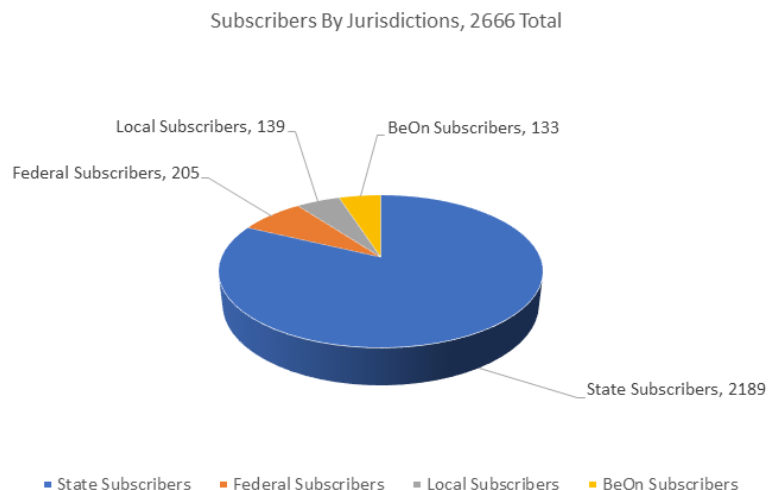
## HAWAII WIRELESS INTEROPERABILITY NETWORK (HiWIN)

ETS manages the State's radio system which is used by first responders, state departments, counties, and various 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 Hawaii microwave network of links, the system joins sites that are designed to survive a category 4 hurricane.

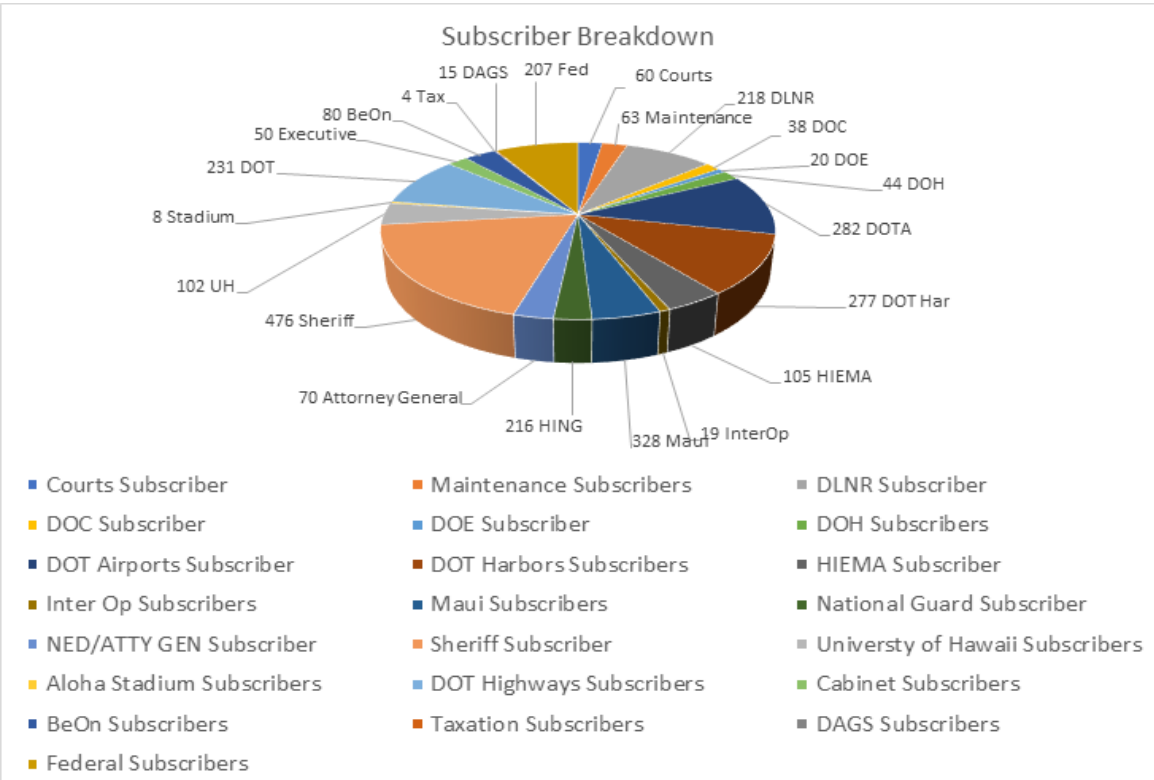
### HiWIN By The Numbers

- In an average month, the system handles over 230,000 calls for over 300 hours of talk time.
- 44 radio sites are in use by ETS and its partners including: County of Kauai, Kauai Island Utility Cooperative, City & County of Honolulu, Hawaii Emergency Management Agency, University of Hawaii, U.S. Coast Guard, County of Maui, Maui Electric Company, County of Hawaii, U.S. Army Pacific Land Mobile Radio, Hawaii Electric Light Co., Secret Service, and National Parks.
- 24 of the 44 radio sites are managed by ETS. 20 of the 44 radio sites are managed by ETS Partners including City and County of Honolulu, County of Maui, County of Hawaii, and U.S. Coast Guard.

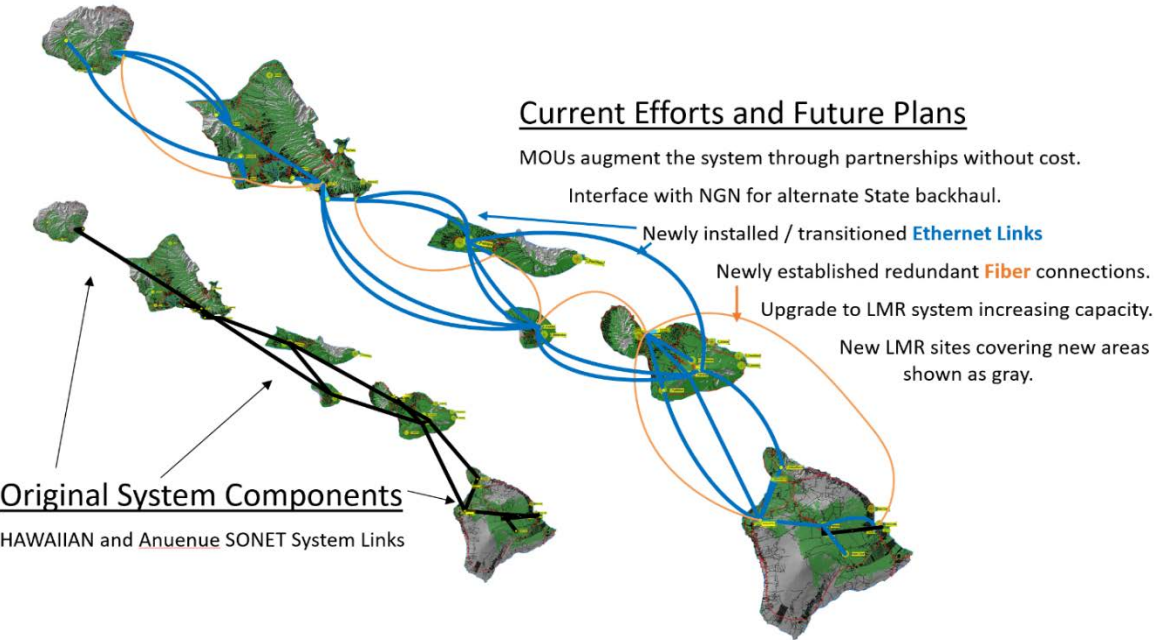
Roughly 22 agencies statewide use HiWIN, with more than 2600 users:



# Evergreen Operations



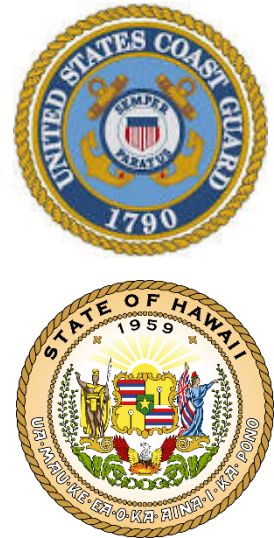
## Radio Section System Status & Plans





# Evergreen Operations

## ANUENUE Interisland Digital Microwave Partnership



This partnership between State of Hawaii (managed by ETS) and US Coast Guard provides resilient and survivable communication throughout Hawai'i.

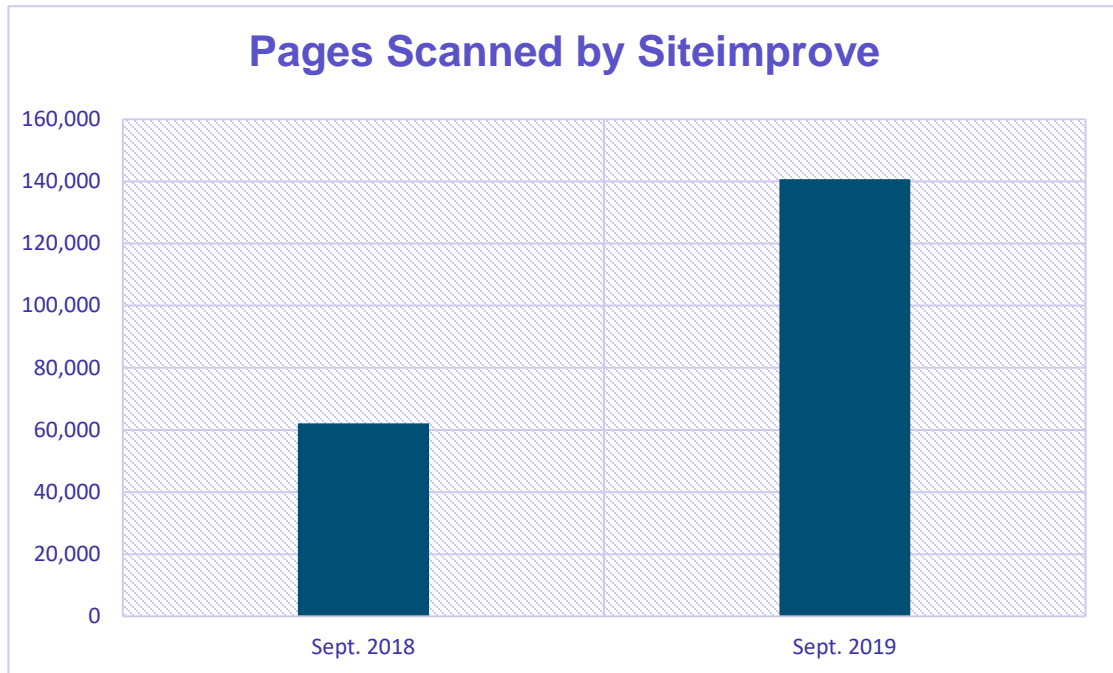
The ANUENUE Network infrastructure of high-capacity microwave links, radio towers, and ground facilities support systems used by Hawaii's first responders, search and rescue, law enforcement, emergency services, and critical government services during both routine operations and during natural disasters 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. 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 a week on generators without commercial power, and survive in earthquake Zone 4-rated facilities built far away from tsunami inundation zones.

State users of the ANUENUE include the Hawaii Wireless Interoperability Network (HIWIN); Maritime Wireless Network System; Hawai'i Emergency Management Agency; and 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 Mobile Radio System, National Oceanic and Atmospheric Administration Emergency Weather Broadcast System, U.S. Customs and Border Protection, and National Park Service.

# Evergreen Operations

## 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.



- Overall, numbers show that more executive state departments are adopting Siteimprove.
- The number of pages scanned in September was 140,693, that's compared to 62,154 pages in September 2018.
- Websites are now providing a more inclusive user experience by ensuring web accessibility standards are met, along with providing higher quality, digital performing sites without broken links and readability issues.
- Supported the Disability and Communication Access Board's user training series in web accessibility, along with the University of Hawaii Center on Disabilities; a series of workshops were held at the Capitol, providing students with the basics of creating documents and files with web accessibility in mind.

# Evergreen Operations



STATE  
RECOGNIZED FOR  
ADVANCES MADE  
WITH GIS  
PROGRAM

Hawaii's Statewide Geographic Information System (GIS) Program received a Special Achievement in GIS (SAG) award at the 2019 Esri User Conference. Hawaii's GIS Program was recognized in particular for its Open Geospatial Data Portal (<https://geoportal.hawaii.gov>), use of the web mapping platform (ArcGIS Online), and training provided to a broad range of State users.

## GIS Map Highlights:









Legislature by Districts  
<http://geoportal.hawaii.gov/search?q=legislature>

Governor's Story Maps  
<https://governor.hawaii.gov/story-map-gallery/>

Injury Prevention:  
<http://health.hawaii.gov/injuryprevention/home>

## GEOGRAPHIC INFORMATION SYSTEM PROGRAM

Featured Applications

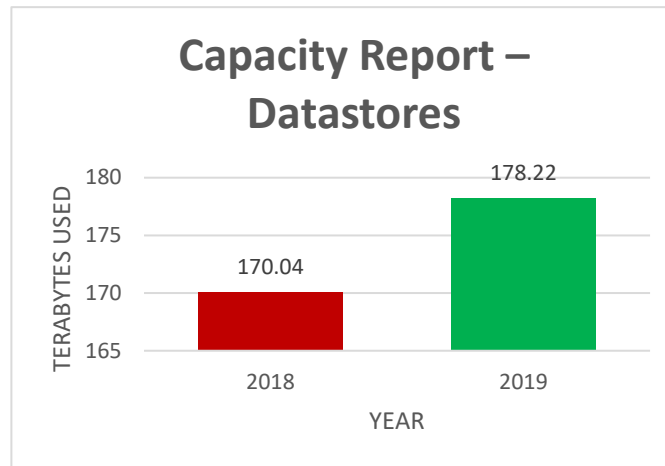
 <p><b>Elevation Service</b> Hawaii Statewide GIS Elevation Service - Beta</p>	 <p><b>Marine Managed Areas</b> Interactive map of marine managed areas (MMAs)</p>	 <p><b>CZM Appropriate Coastal Development</b> Supporting ORMP management priorities 1 and 2</p>	 <p><b>HDOT Highways Data</b> Pavement conditions, traffic counts, and locations of fatal crashes between 2012-2016</p>
 <p><b>Census Demographic Profiles</b> Demographic profiles by census tract or legislative district</p>	 <p><b>OHA Native Hawaiian Census Profiles</b> Population, housing, social, &amp; economic characteristics</p>	 <p><b>SEO Renewable EnerGIS</b> Mapping tool to help assess the renewable energy potential of sites statewide</p>	 <p><b>DOH Vaccine Locator</b> Locate a vaccinating pharmacy or clinic in your neighborhood</p>

- The GIS Program is an Office of Enterprise Technology Services and Office of Planning joint effort.
- 408 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 Hawaii departments.
- Reduces redundant local databases, standardizes information analyzed by decision makers.
- Collects and distributes up-to-date authoritative GIS data to more than 600 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.

# Evergreen Operations

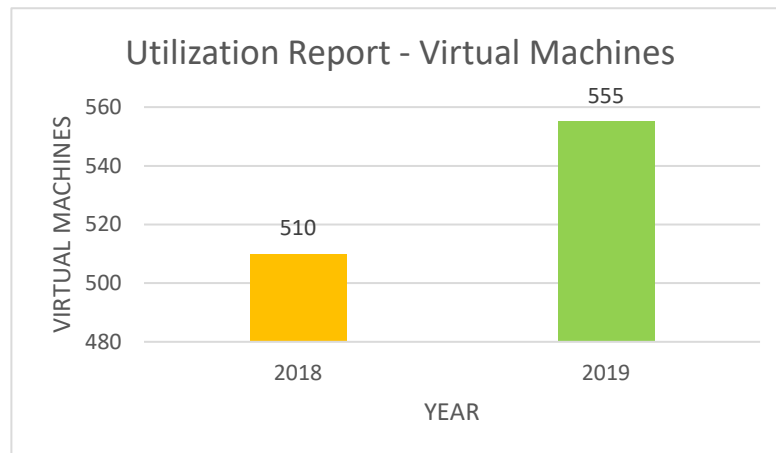
## GOVERNMENT PRIVATE CLOUD

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



## PUBLIC CLOUD SERVICES

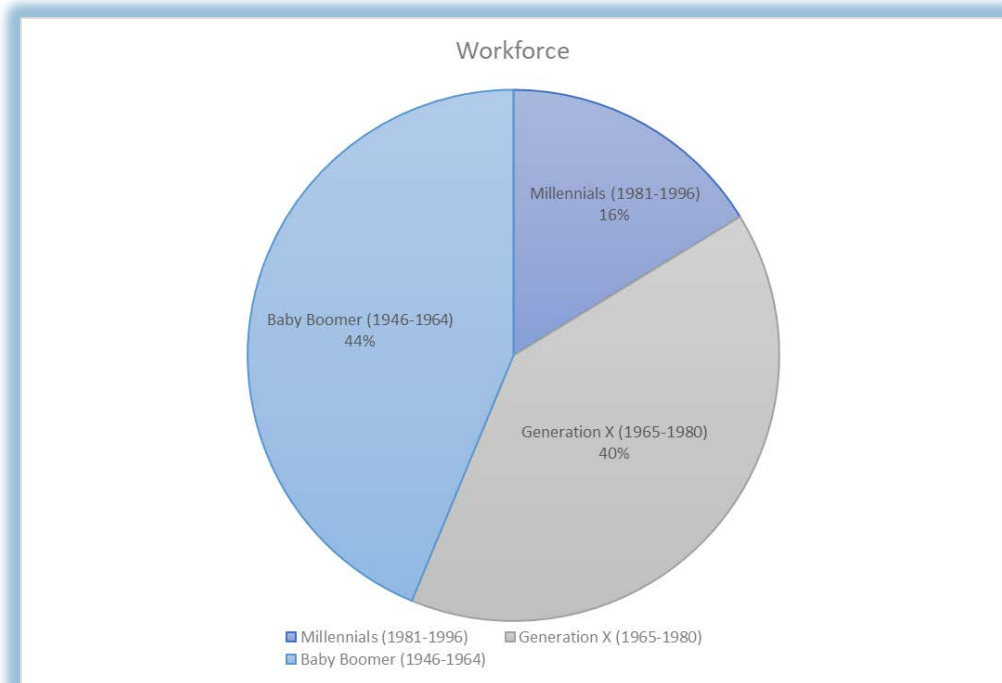
ETS provides Amazon Web Services (AWS), Microsoft Azure, and Google Cloud services to various applications, and services.



# **DIGITAL WORKFORCE 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.*

## **WORKFORCE STATISTICS FOR CALENDAR YEAR 2019**

- Employee Count with Vacancies – 180
  - 66 Exempt
  - 114 Civil Service
- New Hires – 11
  - 10 Exempt
  - 1 Civil Service
- Internal Promotions – 12
- Resignations – 22
  - 17 Exempt
  - 5 Civil Service
- Retirements – 15
  - 1 Exempt
  - 14 Civil Service
- Temp to Regular – 3 temp employees converted to exempt full-time regular employees
- Positions converted from Civil Service to Exempt – 6 (5 Data Center Technicians and 1 Data Center Technician Supervisor)





# DIGITAL WORKFORCE DEVELOPMENT

## PROFESSIONAL DEVELOPMENT

ETS provides employees with linear learning (learning a complete process, programming language or system from A to Z) and flow learning (learning about a narrow topic to solve a work-related problem or improve knowledge in a specific area).

### InfoTech Academy



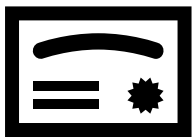
InfoTech Academy has a series of 45 online courses designed to help the IT leadership team master the core IT processes from the IT Management & Governance framework. Completion of a set of courses in any of the 9 major areas leads to a certificate.

**In 2019, ETS staff completed 32 courses and earned 6 certificates.**

**LinkedIn Learning.** LinkedIn Learning is an on-demand online course website offering video courses taught by industry experts in software, creative, and business skills. It provides ETS employees with unlimited access to more than 5,000 video tutorials. 87 ETS employees used LinkedIn Learning classes in 2019.

**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.

## 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



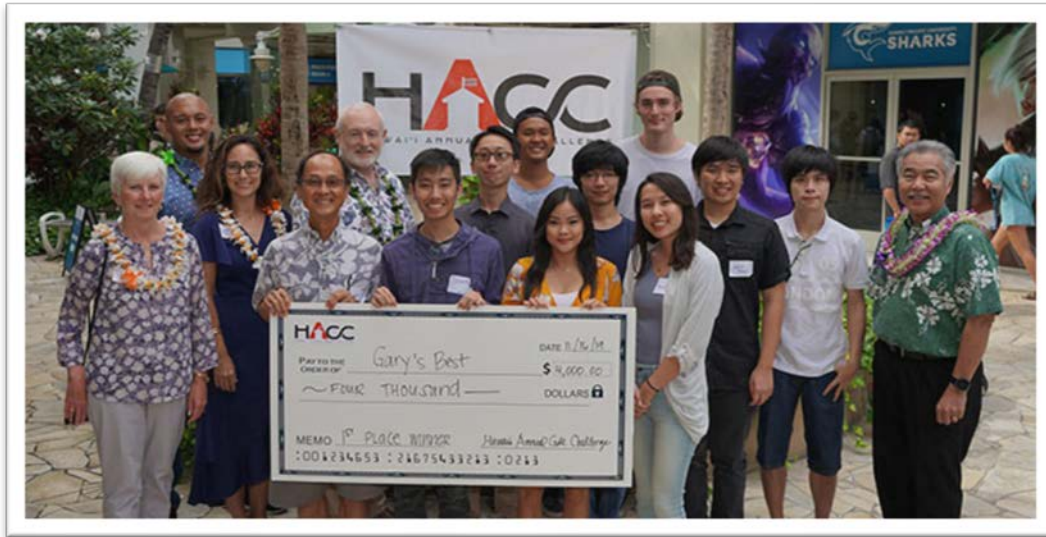
- Many opportunities on a day-to-day basis for employees to grow, such as mentoring or shadowing opportunities, stretch assignments, and other learning opportunities throughout the organization.

# DIGITAL WORKFORCE DEVELOPMENT



Gov. David Ige’s vision for the Hawaii Annual Code Challenge when it began in 2015 included providing an opportunity for civic engagement with the local technology community in modernizing state functions and services for a more effective, efficient and open government.

The HACC provides an expanded four-week timeframe meant to encourage interaction between community teams and state department personnel, ultimately resulting in sustainable solutions that are appropriately matched with technologies and platforms in use or being considered by the state. This event promotes the state as an innovative hub for future innovators.



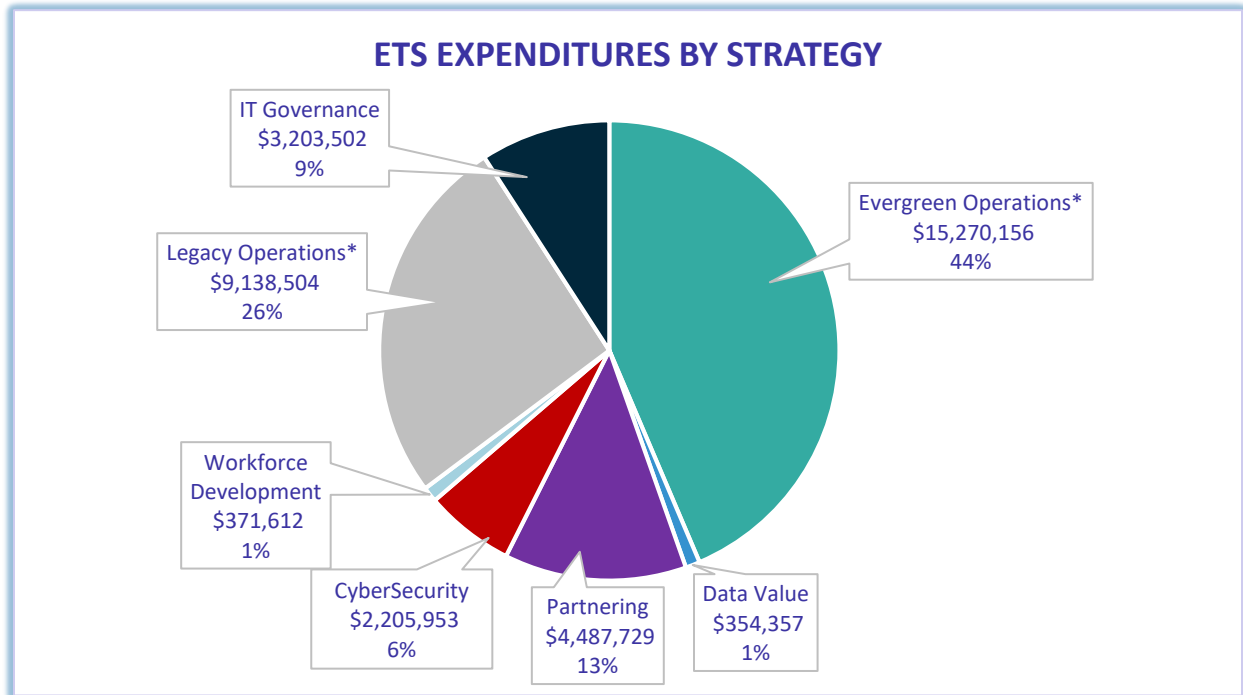
A University of Hawaii team, called Gary’s Best, took home the \$4,000 top prize at the Hawaii Annual Code Challenge (HACC). The team came up with an innovative solution for a challenge sponsored by the State Office of Energy and Hawaiian Electric Company. The challenge was for the creation of dashboard displaying the health of an electric vehicle charging station using key metrics developed from charging data analysis. Gary’s Best is surrounded by judges of the HACC, including Gov. Ige, CIO Doug Murdock, Christine Sakuda, Executive Director for Transform Hawaii Government; Donna Scannell, Vice President IT Operations & Business Information Officer for Kaiser Permanente; and Corey Goff, Director of Web, IT at Hawaiian Airlines.

## 2019 HACC BY THE NUMBERS

- 200 PARTICIPANTS
- 29 TEAMS CREATED
- 15 TEAMS ESTABLISHED WORKING CODE

# ANALYSIS OF FY 2019 EXPEDITURES

Although the strategic plan was not in place for most of FY 2019, this report analyzed ETS’s expenditures by budget area to evaluate alignment with strategic priorities.

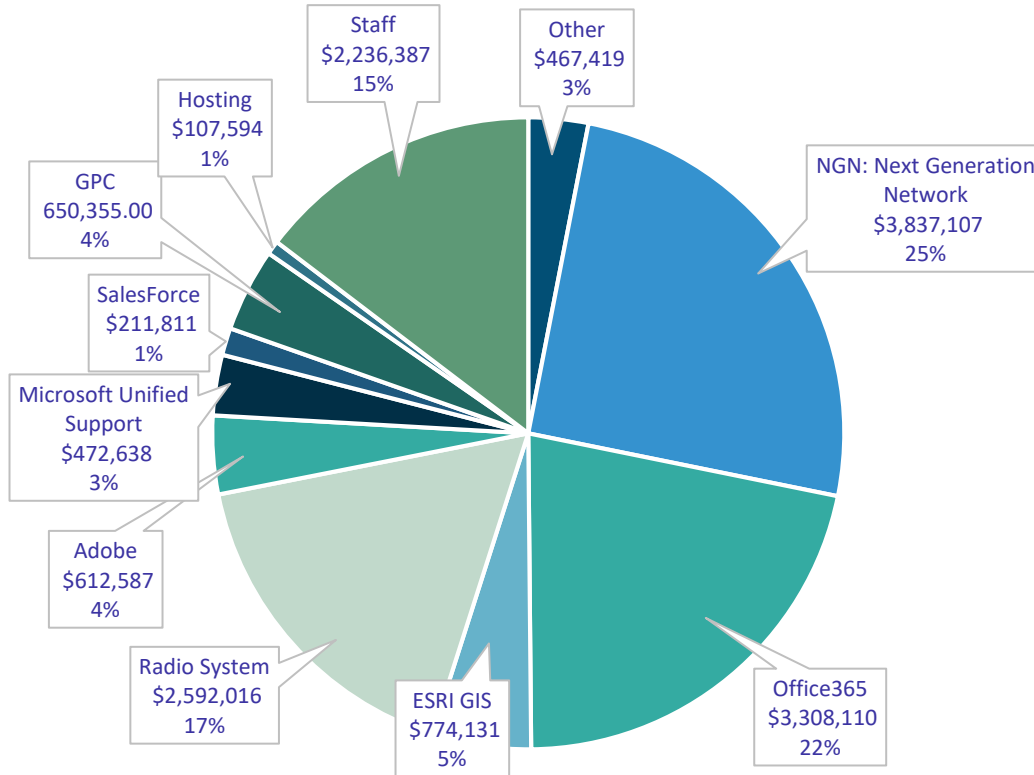


\*See detail charts on next page

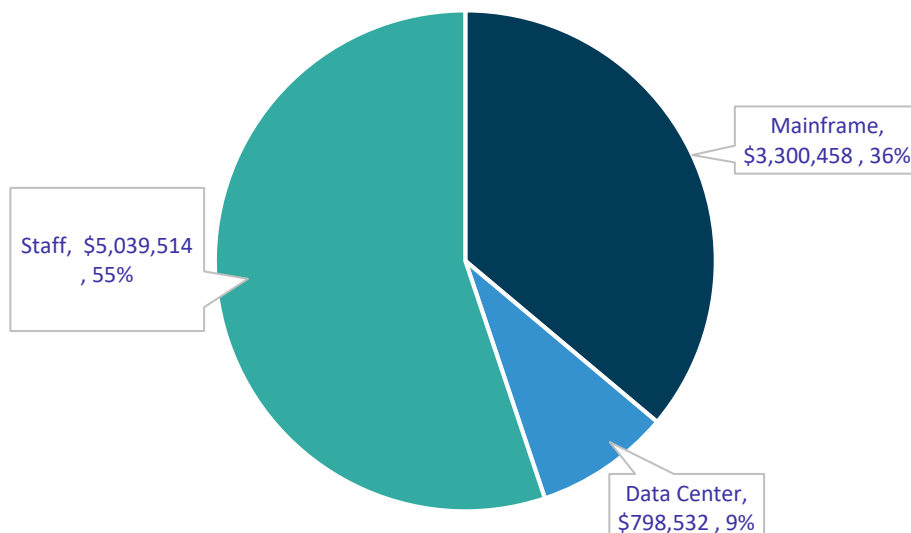
<i>Partner for Successful Outcomes</i>	Shape the partnership between government functions and IT by creating a standard framework to ensure successful outcomes
<i>Expand Statewide Cyber Security Strategy</i>	Extend the statewide cyber security strategy to protect the State’s IT infrastructure and constituent data through adoption of cyber security industry best practices across the State’s IT systems.
<i>Enhance the Value of State Data</i>	Maximize the value of State data by designing, implementing and governing State systems for data stewardship, sharing, and public use.
<i>Optimize Enterprise Systems (Legacy)</i>	Optimize ETS enterprise systems to leverage the state’s investment in centralized IT services.
<i>Extend IT Portfolio Governance</i>	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.
<i>Implement Dynamic &amp; Sustainable Operations (Evergreen)</i>	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.
Digital Workforce 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.

# ANALYSIS OF FY 2019 EXPEDITURES

Breakout of Evergreen Operations  
 Strategy: *Implement Dynamic and Sustainable IT Operations*



Breakout of Legacy Operations  
 Strategy: *Optimize Enterprise Systems*



# ANALYSIS OF FY 2019 EXPEDITURES

## ETS PERSONNEL COSTS

