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June 18, 2018

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

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

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

Pursuant to HRS section 27-43.6, which requires the Chief Information Officer to submit applicable independent verification and validation reports to the Legislature within ten days of receiving the report, please find attached the report the Office of Enterprise Technology Services (ETS) received for the State of Hawaii Department of Accounting and General Services (DAGS) and ETS' HawaiiPay Project Independent Verification and Validation (IV&V) report.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Todd Nacapuy".

TODD NACAPUY
Chief Information Officer
State of Hawai'i

Attachment (2)



State of Hawaii

Department of Accounting and General
Services (DAGS)

Office of Enterprise Technology Services (ETS)
HawaiiPay Project

IV&V Initial Assessment Report

Version 2.0 - FINAL

June 8, 2018



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1. Document History

Version	Date	Brief Description of Modifications
0.1	April 20, 2018	Draft assessment template submitted for state review
1.0	May 18, 2018	Draft IV&V Initial Assessment Report submitted for state review
1.1	May 29, 2018	Revised draft submitted for state review
2.0	June 8, 2018	Final IV&V Initial Assessment Report submitted to state

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1. EXECUTIVE SUMMARY

The State of Hawaii's (SOH) Office of the Enterprise Technology Services (ETS) acquired the services of the Public Consulting Group – Pacific Point (PCG-PP), hereafter referred to as PCG, to provide Independent Verification and Validation (IV&V) services for the HawaiiPay Project with the Department of Accounting and General Services (DAGS). These services include both an initial assessment report of the project's current state followed by ongoing periodic assessment and monthly reports. IV&V reports are intended to describe key activities, current status, any findings or concerns, as well as an independent perspective of the project's current state of risk.

This report describes IV&V's initial assessment of the HawaiiPay Project's health given the current state of the project, and since the project has been in the midst of implementation Group 1, IV&V's approach aimed at being as non-intrusive as possible in order to avoid disruptions to the project. This assessment focuses on the ETS-defined project categories and is intended to be informative but also succinct. The sections herein summarize activities and highlight new preliminary concerns, risks, and/or issues as identified by the PCG IV&V team. Section 1.2, Key Initial Findings, highlights findings rated with a Medium exposure to the project. Section 1.3 includes Table 1, Initial IV&V Dashboard, which outlines the finding and rating drivers for each project category. The specific details supporting each finding are elaborated in Section 3, Analysis and Findings.

1.1. Background

The HawaiiPay Project is a statewide initiative intended to modernize the current Payroll system into one integrated statewide solution. The project refers to the implementation of Payroll as "Phase 1". The state contracted with a system integrator (CherryRoad) to provide key management and technical services for the duration of the HawaiiPay Project. To provide the required functionality, the state chose PeopleSoft, an established commercially available off the shelf (COTS) solution. An existing instance of PeopleSoft has already been deployed for Department of Human Resources Development (DHRD). The state chose to utilize this existing instance to support all state employees.

As described in the Systems Architecture and Design section below, this DHRD instance was relocated to a commercial data center. As part of the system integration contract, CherryRoad was engaged to relocate the DHRD instance and assume operations of the PeopleSoft application for all Human Capital Management (HCM) functionality. CherryRoad completed the transition and assumed operations of the PeopleSoft application prior to the PCG IV&V contract. At the time of this assessment, IV&V is not aware of any known severe or critical issues related to the operations and support of the relocated PeopleSoft application. In addition to no significant defects reported since the assumption of operations by CherryRoad, IV&V noted that a Disaster Recovery process has been implemented and tested on numerous occasions. IV&V is not aware of any severe or critical issues reported since CherryRoad took over operations in May 2017.

The project went live with Group 1 in April/May 2018, a small pilot of departments, and payroll functionality is now operating in Production. Each subsequent Group deployment,

with increasing numbers of departments and complexity, will require key phases of the project to be repeated. The phases include design, development, testing, data migration, training, and deployment which are normal processes outlined in the software development life cycle (SDLC). In addition, the project focuses significant attention on organizational change activities and the project is at a stage where these activities are not only peaking but also running in parallel as a result of the concurrent Group deployment SDLC approach.

1.2. Key Initial Findings

As a result of the initial assessment, IV&V did not find any critical risks or issues related to the current state of the project. In total, IV&V identified 21 findings: six (6) Positive, four (4) Preliminary Concerns, ten (10) risks, and one (1) issue.

IV&V's key initial Risks and Issues, which are rated with Medium exposure to the HawaiiPay Project, include:

- **3: Project schedules not integrated.**

The ambiguity created by not having a detailed, integrated scheduled impairs the project's ability to identify over-allocation of assignments to resources or to identify a true critical path in the schedule to manage to the project's activities against and therefore jeopardizes the scheduled implementation dates Groups 2 and 3.

- **5: Impact of project resource attrition.**

Loss of key project resources could significantly disrupt the project and impact the project schedule or budget.

- **6: Insufficient project resources.**

The project does not have dedicated Leads filling key roles needed during the implementation phase, resulting in existing resources serving multiple roles which may impact their overall effectiveness or timeliness.

- **12: Less than optimal OCM management structure.**

The absence of more formal structure to provide outreach to departments and agencies may increase risk that critical information and training is not provided to all HawaiiPay end users or stakeholders which could result in higher levels of post-implementation support to ensure appropriate adoption of the new system.

- **15: Impact of legislative actions.**

Changes mandated by legislative actions may drive changes to the HawaiiPay solution thereby impacting the project's scope, schedule, and budget.

- **19: Interface development and testing coordination.**








The lack of a functioning process and signoff to coordinate both parties regarding the development and comprehensive end to end testing of interfaces may cause unnecessary risk.

Consistently, IV&V observed that the integrated team of both state and CherryRoad project team members appears to be functioning well with a high capacity and is operating with a common understanding that “Quality” is the primary objective of all project outputs and results. The team does not appear to be averse to acknowledging risk and issues and manages them in an appropriate manner.

1.3. Initial IV&V Dashboard

The IV&V Dashboard for the HawaiiPay Project is shown in Table 1 below and includes a high-level description of the drivers affecting IV&V’s rating of each project category assessed. Overall, IV&V observed the project being collaborative and creative about mapping a path to success that aligns with the Hawaii state government culture and meets the project’s objectives.

Table 1: HawaiiPay IV&V Dashboard

Assessment Category	Rating	IV&V Findings and Drivers
Communications Management		<ul style="list-style-type: none"> Undefined communication metrics and performance targets (Risk #1 - Low)
Contract Management		<ul style="list-style-type: none"> Non-functional contract requirements not tracked (Risk #2 – Low)
Cost and Schedule Management		<ul style="list-style-type: none"> Project schedules not integrated (Issue #3 – Med) Group 2 and 3 planning and execution activities overlap (Risk #4 – Low)
Human Resources Management		<ul style="list-style-type: none"> Impact of project resource attrition (Risk #5 – Med) Insufficient project resources (Risk #6 – Med)
Knowledge Transfer		No open findings.
Operational Preparedness		<ul style="list-style-type: none"> High volume of manual processes at cutover (Preliminary Concern #7) Detailed processes for Help Desk and end user support not finalized (Preliminary Concern #8)
Organizational Change Management		<ul style="list-style-type: none"> Less than optimal OCM management structure (Risk #12 – Med) + Robust and high-quality Training for Group 1 (#9)

Assessment Category	Rating	IV&V Findings and Drivers			
		<ul style="list-style-type: none">+ Confirmation of business processes (#10)+ Established tools for tracking progress (#11)			
Project Organization and Management	<div>L</div>	<ul style="list-style-type: none">• Impact of Legislative Actions (Risk #15 – Med)• Lessons Learned for Group 1 (Risk #16 – Low)+ High-performing HawaiiPay project team (#13)+ Group deployment strategy effectively mitigates risk (#14)			
Quality Management	<div>M</div>	<ul style="list-style-type: none">• Increasing parallel testing defect resolution scope (Preliminary Concern #18)• Inadequate interface development and testing coordination (Risk #19 – Med)+ Planned and executed ADA testing (#17)			
Requirements Management	<div>L</div>	No open findings.			
Risk Management	<div>L</div>	<ul style="list-style-type: none">• Mitigation strategies and activities not documented (Risk #20 – Low)			
Systems Architecture and Design	<div>L</div>	<ul style="list-style-type: none">• Negative impacts from user generated PS queries (Preliminary Concern #21)			
Category Rating Legend					
+ denotes Positive finding type					
<div>L</div>	Low – The current risk to overall project quality is low or could not yet be fully established.	<div>M</div>	Medium – This category presents a substantial risk to overall project quality.	<div>H</div>	High – This category presents a catastrophic risk to overall project quality and requires immediate attention.

Assessment category definitions can be found in Appendix B: Assessment Category Definitions and Ratings.

2. OVERVIEW

2.1. Purpose

The purpose of the IV&V Initial Assessment Report was to conduct an initial review of the HawaiiPay Project to assess the project's overall health and to establish a baseline for evaluating and measuring project performance and outcomes in future IV&V assessment reports. IV&V has performed an initial, high-level review of the health of HawaiiPay and developed this report for DAGS' and ETS' considerations.

This initial report includes a summary of the information collected and analysis conducted to assess the project management structure, plans, and processes, the technical approach for developing the system, and the tools and mechanisms used to control and monitor project performance. This assessment identifies areas of risk or concern that may threaten project success and identifies recommendations and/or strategies for mitigating them in a timely manner.

2.2. Scope

The scope of this initial assessment includes the project categories listed in Table 1: HawaiiPay IV&V Dashboard, and primarily focuses on activities associated with HawaiiPay Project's current or future Phase 1, Group 1 activities as of March 2018. The scope does not include detailed evaluation of the project's processes or performance in phases prior to March 2018; however, any draft or final project deliverables may be reviewed by IV&V in order to thoroughly assess the project.

Therefore, the Analysis and Design phases for any Group and the Analysis, Design, Development, or Test phases for Group 1 will not be assessed unless there is an indication that outputs from these completed prior phases pose significant risk to the project's future phases or objectives. Rather, since the HawaiiPay Project has approved CherryRoad deliverables from these phases, IV&V will utilize the project's documentation from these phases as input for the Pre-deployment and Post-implementation assessments for Groups 2 and 3.

2.3. Approach

The PCG IV&V team utilizes the **Eclipse IV&V®** Technical Assessment Methodology depicted in Figure 1 to establish and deliver IV&V findings throughout all IV&V work products. Executing the tasks using this common methodology helps ensure that all pertinent facts are gathered, the relevant stakeholders are consulted, there is a clear understanding about any findings resultant from the assessment, and that the assessment report is objective, accurate and does not result in surprises to stakeholders.

Eclipse IV&V® Technical Assessment Methodology

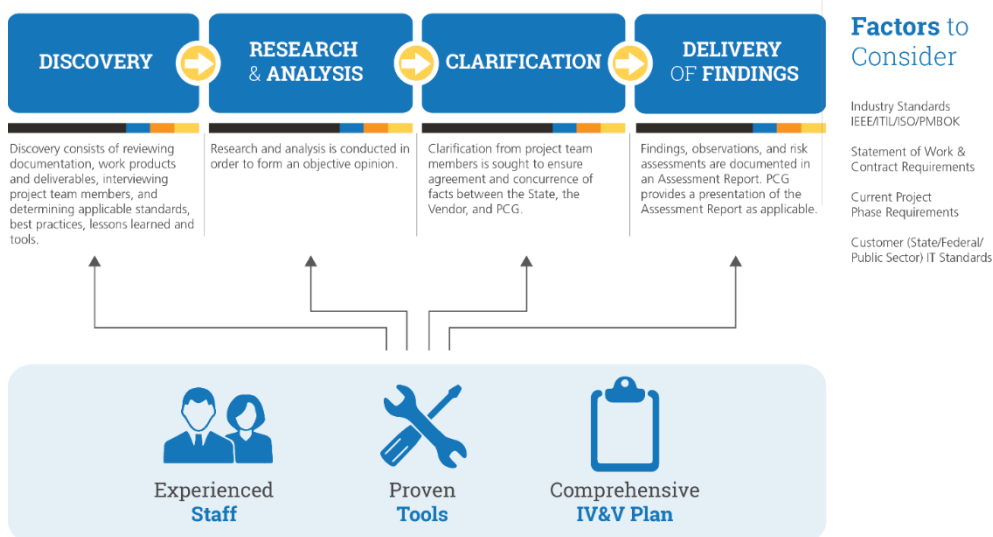


Figure 1: Eclipse IV&V® Technical Assessment Methodology

The *Eclipse IV&V®* Technical Assessment Methodology includes four primary actions:

- **Discovery** — the IV&V team reviews project documentation, work products, deliverables, along with any plans or schedules that apply. The IV&V team interviews key project team members to gain a thorough understanding of the assessment area, identifying applicable standards, best practices, and lessons learned to be used as evaluation criteria.
- **Research and Analysis** — the IV&V team conducts research and analysis of specific aspects of the component or process being assessed in order to form an evaluation of the validity of the approach. Once the initial analysis is completed, the assessment preliminary results are documented for clarification.
- **Clarification** — the IV&V team seeks clarification, as needed, from key project team members on aspects of the organization and communication processes to ensure agreement and concurrence on the results of the discovery, research, and analysis.
- **Delivery of Findings** — the IV&V team's assessment and status reports document the results of discovery, research, analysis, and clarification, presenting detailed findings and documentation of project strengths. These reports contain measurement dashboards, observations/findings, risk assessments, and risk mitigation strategies. Before the delivery of findings, they are reviewed internally by IV&V team members, so that any gaps or inconsistencies can be identified and corrected.

The IV&V team conducted evaluations of project activities and produced this assessment report based on the results of these activities. For this initial assessment, IV&V conducted informal interviews with various members of the HawaiiPay project team. The list of

interviews conducted can be found in Appendix C. Throughout April 2018, IV&V attended the following meetings as often as possible to keep abreast of the project's progress:

- Weekly Infrastructure/Technical/Deployment Track
- Weekly Project Schedule Meeting
- Weekly State/CRT (Joint) Project Meeting
- Weekly Risks-Issues-Opportunities-Decisions (RIOD) Meeting
- Bi-Weekly Project Change Advisory Board (PCAB)

2.4. Industry Standards and Best Practices

PCG applies and abides by best practices in the information technology industry, including, but not limited to, standards and methodologies issued by:

- Institute of Electrical and Electronics Engineers (IEEE)
- The Project Management Institute's (PMI), Project Management Book of Knowledge (PMBOK)
- Information Technology Infrastructure Library (ITIL)
- International Organization for Standardization (ISO) 9000
- National Institute of Standards and Technology (NIST)
- Center for Internet Security (CIS)

2.5. Reference Documents

The following is a sample list of documents that were used in whole or in part for the creation of this assessment:

- DAGS and ETS HawaiiPay Team and Committee Charters
- HawaiiPay Deliverables (e.g., Communication Plan, Project Scope Document, Department Change Impact, Change Control Plan, Project Management Plan)
- HawaiiPay Executive / Steering Committee Meeting Agendas and Minutes
- HawaiiPay Team Meeting Agendas and Minutes (various)
- HawaiiPay Project Schedules (various)
- HawaiiPay Risks-Issues-Opportunities-Decisions workbook
- HawaiiPay Business Processes
- HawaiiPay Disaster Recovery Plan
- HawaiiPay Group 1, Round 2 Parallel Test Results
- HawaiiPay Requirements Traceability Matrix (RTM)
- HawaiiPay Group 1 Go Live Items to Monitor 2.0

- HawaiiPay Group 1 Defect List
- HawaiiPay Technical Specifications for Interfaces
- HawaiiPay Communication Packages for Groups 2
- CherryRoad Technologies SOC1 and SOC2
- CherryRoad Technologies – Best and Final Offer
- CherryRoad Technical Architecture Plan

2.6. Terms and Definitions

This section contains a list of terms (i.e., abbreviations, acronyms, and notations) used in this assessment and their definitions to provide a common understanding.

Table 2: Common Terms

Term	Definition
ADA	Americans Disability Act
ALM	Application Lifecycle Management
BAFO	Best and Final Offer
CAB	Change Advisory Board
CIS	Center for Internet Security
COI	Communities of interest
COTS	Customer off-the-shelf
DAGS	Department of Accounting and General Services
DHRD	Department of Human Resource Development
ERP	Enterprise Resource Planning
ETS	Office of Enterprise Technology Services
HCM	Human Capital Management
IEEE	Institute of Electrical and Electronics Engineers
ISO	International Organization for Standardization
ITIL	Information Technology Infrastructure Library

Term	Definition
IV&V	Independent Verification and Validation
HawaiiPay	HawaiiPay Project
KM	Knowledge Management
M&O	Maintenance and Operations
MOU	Memorandum of Understanding
NIST	National Institute of Standards and Technology
OCM	Organizational Change Management
PCAB	Project Change Advisory Board
PCG	Public Consulting Group
PII	Personal identifying information
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMP	Project Management Plan
PP	Pacific Point
RACI	Responsibility assignment matrix (Responsible, Accountable, Consulted, Informed)
RIOD	Risks-Issues-Opportunities-Decisions
RTM	Requirements Traceability Matrix
SDLC	Software Development Life Cycle
SME	Subject Matter Expert
SOH	State of Hawaii
TPA	Third party administrator

3. ANALYSIS AND FINDINGS

This section includes summaries of the analysis associated with IV&V findings by category. Risk and Preliminary Concern findings are denoted with blue table headers, Issue findings are denoted with orange table headers, and Positive findings are denoted with dark green table headers as well as the ‘+’ indicator. IV&V rating definitions for findings can be found in Appendix A.

3.1. Communications Management

Communication Management is a two-pronged endeavor as internal and external project communications have different requirements and typically require different tools and/or resources. Good internal communication is founded in mature project processes, team cohesion, and the transparency of information. Good external communications are predicated on robust and accurate stakeholder analysis. The project has an approved Communication Plan that mostly focuses on the external communications, which are specifically related to organizational change, and lightly touches on the protocols and processes for internal communications. However, a key communication mechanism which mitigates the undefined internal communication protocols and processes is the team’s Daily Scrum meeting. This meeting helps maintain a common understanding of project status and current high priority work effort across core project team members. In addition, the project team has strong, well-defined, and smoothly-executed meeting cadence. Separate weekly meetings have been established for project management focus areas such as schedule, risk and issues, and change. Participation in these meetings is consistent, meeting objectives are typically met, and agendas and notes are prepared for and available to the project team at all times. Further, the project publishes a monthly newsletter and other content to their HawaiiPay public website and monitors the site hits to evaluate the effectiveness of this communication forum. In general, IV&V has observed the HawaiiPay project team operate with high efficiency, open communications, and a common, accomplishment-focused drive that allows for flexible and undocumented internal communication processes and enables the project team to overcome internal communication challenges.

The HawaiiPay Communication Plan elaborates the strategy and approach for communications focused on organizational change and outlines the mechanism for tracking of such communications in a separate matrix. The plan outlines four distinct Awareness Campaigns; however, the activities and milestones associated with these campaigns, as well as any surveys, though catalogued in the matrix, are not included in the SOH Project Schedule. In addition, the plan is absent any correlation between the identified stakeholder groups and each campaign. Therefore, it is unclear if all stakeholder groups’ communication needs will be addressed through the campaign strategy. Currently, three campaigns are in flight, but the status of each is subjective and imprecise since these activities are not integrated into the schedule. The plan does not define any communication metrics, success criteria, or minimum performance targets that could provide insight into the quality of the communications and/or readiness of external stakeholders to transition to the new system.

IV&V identified the following findings in this category:

IV&V ID #01	Type: Risk Rating: Low	Category: Communications Management Date Opened: 5/17/2018
Title: Undefined Communication Metrics and Performance Targets		
Statement: Without predefined communication metrics and performance targets, some stakeholder groups may not receive the appropriate or timely communication necessary for them to seamlessly transition to the new system which could delay the implementation schedule or result in increased post-implementation support.		
Supporting Analysis: <p>The HawaiiPay Communication Plan does not include predetermined communication metrics or minimum performance targets for each stakeholder group that could provide insight into the quality of the communications and/or readiness of external stakeholders to transition to the new system. Though the project records metrics (e.g., website visits, training attendance, and Service Center calls), the metric thresholds which represent the project's metric goal do not appear to be defined. The project team approaches stakeholder management in an ad hoc manner, addressing and assuaging communication requirements and challenges as they arise for the various stakeholder groups and integrating those efforts into the Awareness Campaigns approach. This risk is partially mitigated since the project has been tracking department readiness for all Groups since prior to Group 1 implementation and a concerted effort has been made to ensure the preparedness of departments.</p>		
Recommended Mitigation: <ul style="list-style-type: none"> • Re-execute Stakeholder Analysis activities to ensure all stakeholder groups' communications needs are known, accurate, and updated • Elaborate and document how and when each stakeholder group will be addressed by the Awareness Campaigns • Define the communication metrics that should be captured for each stakeholder group to ensure they are ready to execute their tasks and transition in accordance with the project's schedule • Define the communication performance targets for external stakeholders, and/or success criteria for each stakeholder group, so that informed implementation decisions are made based on the state of readiness of external stakeholders 		

3.2. Contract Management

A Contract Management Plan is not included in the project's scope; therefore, the project utilizes current SOH processes to execute and monitor the vendor contracts associated with HawaiiPay. IV&V learned that the SOH accepted a large, multi-faceted change to CherryRoad's best and final offer (BAFO) to realign the project which also changed the scope of the project. All changes were incorporated in a revision to deliverable P02

Project Management Plan (Version 2.05) which did not go through the formal sign-off since SOH executed Change Order (No. 1) to codify the agreement and re-baseline scope. Since the project is unable to secure any additional funding, IV&V was advised that there was zero cost impact associated with the change. IV&V learned that the Contract Manager is not utilizing a tracking mechanism to monitor CherryRoad compliance with contract terms or evaluate CherryRoad's contract execution progress.

Further, the project has a process for identifying, evaluating, quantifying, and prioritizing scope changes that are identified during the course of the project. When new and necessary scope is identified, CherryRoad re-evaluates the requirement(s), sizes the effort, analyzes the impact to the overall project schedule, and provides recommendations and options to SOH for incorporation into the project. Often CherryRoad performs the work at no cost and with minor schedule impact; however, as the project approaches implementation, there is minimal schedule slack and the addition of scope at this point in the project's timeline requires the removal or deferral of other, lower priority scope. CherryRoad incorporates these changes in the RTM and the approved change orders are appended to the contract. However, IV&V was advised that SOH is not actively tracking the execution progress of CherryRoad's contract.

Last, IV&V has learned there remains outstanding contractual issues regarding the Service Level Agreement (SLA) 4.0.11. CherryRoad has indicated to the state that SLA contract language is vague and has requested clarifications and revisions so they can provide the appropriate measurement data. While talks are ongoing, the state and CherryRoad have come to a fundamental agreement as well as an MOU that clarifies and/or revises the SLA requirement. CherryRoad is discounting their monthly managed service fee until contractual revisions are finalized. IV&V will continue to monitor how SLA contractual requirements (including revisions) are fulfilled as the project progresses. The overall risk to the project appears to be low since the probability of impacts to the project's schedule or CherryRoad's performance seems unlikely and there does not appear to be any disputes between parties regarding invoice payments.

IV&V identified the following findings in this category:

IV&V ID #02	Type: Risk Rating: Low	Category: Contract Management Date Opened: 5/17/2018
Title: Non-functional contract requirements not tracked		
Statement: If CherryRoad's contract is not actively monitored and tracked, specifically for non-functional requirements, as the project progresses, contract performance gaps may be identified too late in the project's timeline which could result in a schedule delay or unmet contract requirements.		
Supporting Analysis: The Requirements Traceability Matrix (RTM) does not include non-functional requirements and the project does not have a separate mechanism for tracking contract performance. The project processes \$0 change orders and, therefore, relies on the Change Advisory Board		

IV&V ID #02	Type: Risk Rating: Low	Category: Contract Management Date Opened: 5/17/2018
(CAB) to monitor changes to functional requirements. It is unclear how and when non-functional requirements are being met.		
Recommended Mitigation: <ul style="list-style-type: none"> Create a checklist of non-functional contract requirements that CherryRoad must satisfy in order to close-out the contract and actively monitor progress 		

3.3. Cost and Schedule Management

The project is constrained in that the project budget, or cost, cannot be changed. To maintain the project costs, the project must stay on schedule, have static scope, and be completed with the existing, planned resources. To date, requests for additional scope have been added at no additional cost with the exception of major scope changes (i.e., single sign-on functionality) which have been deferred to Group 3 post implementation.

There is no single, integrated Project Schedule whereby dependencies between CherryRoad and SOH tasks are consolidated and monitored; tracking occurs across disparate scheduling tools and the combined state and CherryRoad project team meets daily to sync up scheduled activities. The SOH's schedule includes mostly high-level tasks and a few major milestones. To be more comprehensive, a schedule typically includes dependencies between tasks, tasks to indicate when and who participates in reviews of deliverables, significant project meetings such as cutover checkpoints, risk mitigation activities with due dates, organizational change management (OCM) and other communication activities, and be resource leveled. In the absence of these details, the project may be unable to accurately confirm that all the state tasks and resources required during cutover or any phase in the SDLC can be accomplished. Although considered best practice, the project has noted that creating an integrated schedule at this time may not be the best use of their resources. Also, IV&V observed the project actively mitigating this risk through a daily meeting which coordinates project activity across schedules for project resources. Though this process is currently working well for both CherryRoad and SOH, unexpected project tasks may be identified during the implementation phases for Groups 2 or 3 which cause resources to be over-allocated and unable to complete tasks within the cutover window.

Further, during the weekly Project Schedule meeting, IV&V observed new tasks added or existing tasks pushed out without impact analysis. Resources provide estimates of percent complete, and due dates are changed as requested or agreed upon in the meeting. Since dependencies are not included, the SOH schedule and scheduled tasks are almost all assigned to the designated Lead project team member in that focus area. In general, the ambiguity created by not having a detailed, integrated schedule poses a

risk to the project in that over-allocation of assignments to resources cannot be confirmed and a true critical path cannot be derived.

The planned approach is to deliver the solution in three Groups, one following the other. The project is using a non-standard, hybrid (agile and waterfall) methodology to execute the SDLC for each Group and is executing them concurrently. Further, the product is being built in a series of Releases, each with their own development, test, and implementation cycle, which incrementally build upon each other and will eventually comprise the fully integrated solution. Initial planning for Groups 2 and 3 has been completed with fine tuning of activities occurring ongoing as task details become more discrete. Until task details are finalized, there is a low risk that the project team may be performing activities that will need to be reworked when they are more fully defined or elaborated. There is a higher risk that, until the planning is finished, the intended scope for Groups 2 and 3, respectively, cannot be confirmed or meet the current, planned milestone schedule for implementing these Groups. This risk is partially mitigated by the lessons learned from the smaller, pilot Group 1 implementation.

IV&V identified the following findings in this category:

IV&V ID #03	Type: Issue Rating: Medium	Category: Cost and Schedule Management Date Opened: 5/17/2018
Title: Project schedules not integrated		
Statement: The ambiguity created by not having a detailed, integrated schedule impairs the project's ability to identify over-allocation of assignments to resources or to identify a true critical path in the schedule to manage to the project's activities against and therefore jeopardizes the scheduled implementation dates for Groups 2 and 3.		
Supporting Analysis: <p>There is no single, integrated Project Schedule whereby dependencies between CherryRoad and SOH tasks are readily indicated and monitored; tracking occurs across disparate scheduling tools and the combined state and CherryRoad project team meets daily to sync up scheduled activities. The State requires CherryRoad to provide three Cutover plans (one for each group) as separate deliverables, which means project tasks are documented and tracked separately from the project schedule. Additionally, numerous State communication tasks are incorporated in the State's project schedule (e.g., communication kits, key memos, training activities, briefings). To minimize the risk of having multiple schedules out-of-synch, CherryRoad provides SOH a weekly project schedule report for reconciliation purposes. CherryRoad and the State manage their resources separately because CherryRoad has a fixed price contract that requires them to deliver the State's requirements irrespective of how many resources they have on the project at any given time, and the State team has a staff dedicated to its own tasks. However, the ambiguity created by not having a detailed, integrated schedule poses a risk to the project in that dependencies cannot be confirmed and a true critical path cannot be derived.</p>		
Recommended Mitigation:		

IV&V ID #03	Type: Issue Rating: Medium	Category: Cost and Schedule Management Date Opened: 5/17/2018
<ul style="list-style-type: none"> Though current schedule management processes appear to be effective, IV&V recommends SOH consolidate scheduled activities into a single, integrated schedule (including detailed organizational change, communication, cutover, and readiness assessment activities for stakeholders, interfaces, and Group) and incorporate CherryRoad's milestones in order to indicate dependencies and more easily identify resource over-allocations 		

IV&V ID #04	Type: Risk Rating: Low	Category: Cost and Schedule Management Date Opened: 5/17/2018
Title: Group 2 and 3 planning and execution activities overlap		
Statement: Concurrently planning and executing tasks for both Groups 2 and 3, which are running in parallel, may result in less efficient use of project resources and cause an overall delay if new tasks are introduced later in the project.		
Supporting Analysis: Planning for Groups 2 and 3 is still underway but the project team is performing activities to support the SDLC for these Groups. The project completed re-planning exercises in 2017 which included the overlapping activities as a way of mitigating risks associated with the former linear approach which was reportedly causing a strain on project resources. However, executing the work before planning is complete introduces risk of potential rework or throw away effort until the initial planning and Group scope is baselined. Without a baseline plan, the project is unable to determine the impact of progressively elaborating the scheduled over time.		
Recommended Mitigation: <ul style="list-style-type: none"> Update the schedules for Group 2 and Group 3 with tasks and lessons identified from the Group 1 pilot implementation Finalize new baseline schedules for Groups 2 and 3 which confirm that all the tasks and deliverables are achievable in prescribed timeframes Continually monitor changes to the schedule and the impact on defined implementation dates 		

3.4. Human Resources Management

IV&V has observed the project demonstrate good human resource management. A positive finding has been documented in section 3.8, Project Organization and Management, entitled "High-performing Project Team", which describes the Project

team's high-functioning capabilities, which is typically indicative of effective human resource management. Key state resources have demonstrated exceptional subject matter expertise, drive, attention to detail and quality as well as exceptional project buy-in and ownership. The project seems to rely on these key resources to drive a significant number of project activities as they possess a great deal of explicit and, more importantly, tacit project and subject matter knowledge. However, the loss of key project resources could significantly disrupt the project and impact the project schedule and budget. Further, over reliance on key resources can not only overtax and thereby reduce the effectiveness of these key individuals, but also presents a significant risk of project disruption in the event of their departure. While this risk focuses on the loss of key individuals, it also draws attention to the possibility that their effectiveness could be reduced in the event they become overwhelmed. Such risk can be mitigated through aggressive succession planning and knowledge transfer activities as well as a renewed focus on the transition of execution responsibilities from supervisory resources to lower level project staff where possible. It is recommended that DAGS take steps to develop a knowledge management (KM) strategy and plan for a KM initiative to help ensure project or operational knowledge (tacit and otherwise) is not lost when staff leave the project. Finally, it is critical for project leadership to regularly monitor key resources for job satisfaction and take appropriate steps to avoid or overcome project resource attrition.

The project also has some project resources with dual responsibilities for both leading and managing the project area as well as executing the associated project tasks. In the absence of sufficient project resources, the leads are unable to delegate assignments and focus on strategic planning, risk mitigation, or validating quality outcomes. For example, the OCM effort is supported by the project management office and functional teams as needed when the OCM Lead is over allocated. However, the OCM effort is more reactive than strategic and transition elements for some stakeholder groups may be overlooked or surface too late. Further, since the project has gone live with only a few departments and still has the majority of the user population to go live, the HawaiiPay Project team must not only focus on key project activities, but also must provide Maintenance and Operations support for the new user population and functionality in production. This may cause an over allocation of key staff members.

IV&V identified the following findings in this category:

IV&V ID #05	Type: Risk Rating: Medium	Category: Human Resource Management Date Opened: 5/17/2018
Title: Impact of project resource attrition		
Statement: Loss of key project resources could significantly disrupt the project and impact the project schedule or budget.		
Supporting Analysis:		

IV&V ID #05	Type: Risk Rating: Medium	Category: Human Resource Management Date Opened: 5/17/2018
<p>The project relies on a few, very talented, and dedicated key resources in leadership roles to drive most project activities and, more importantly, drive project quality, as evidence by their keen attention to minute project activity details. Loss of key individuals can lead to significant project disruption. Over reliance on key resources can not only overtax and thereby reduce the effectiveness of these key individuals, but also presents a significant risk of project disruption in the event of their departure.</p>		
<p>Recommended Mitigation:</p> <ul style="list-style-type: none"> • Develop an approach to expedite succession planning and identify near-term knowledge transfer activities. • Consider re-allocation of responsibilities from key resources, where possible, to transition key resources to supervisory roles which would provide increased capacity for them to perform coaching and quality control, thereby increasing the overall project quality. As responsibilities are transitioned, team members taking on new responsibilities typically have a greater sense of motivation, project ownership and commitment • Develop a KM strategy to help ensure project knowledge (tacit and otherwise) is not lost when staff leave the project or state employment • Survey project resources to determine job satisfaction and take appropriate steps to increase retention 		

IV&V ID #06	Type: Risk Rating: Medium	Category: Human Resource Management Date Opened: 5/17/2018
<p>Title: Insufficient project resources</p>		
<p>Statement: The project does not have dedicated Leads filling key roles needed during the implementation phase, resulting in existing resources serving multiple roles which may impact their overall effectiveness or timely execution of tasks.</p>		
<p>Supporting Analysis:</p> <p>The SOH does not have single, designated Management Leads for key areas during the Implementation Phase such as OCM or Training. Current designated Leads are focused on execution while strategy and management activities are being performed by the Project Management team. Also, some current Lead roles are filled by multiple resources who have other responsibilities as well. While the work is being completed, it is done so without a dedicated leader who drives and takes ownership of the overall strategic vision, is focused on measuring quality and progress, and who can be a point of escalation when issues arise. When resources focus on serving multiple leaders or have no leader at all, the highest priority tasks</p>		

IV&V ID #06	Type: Risk Rating: Medium	Category: Human Resource Management Date Opened: 5/17/2018
may not be completed in a timely manner or tasks are rushed and completed with less attention to detail.		
Recommended Mitigation: <ul style="list-style-type: none"> • Evaluate which project resources are needed to allow for dedicated strategic leadership in key positions (e.g. OCM and Training) and to alleviate existing project resources with multiple project leadership responsibilities. • Assign a single, dedicated strategic management lead for key areas such as OCM and Training. 		

3.5. Knowledge Transfer

The project's Knowledge Transfer Plan contains adequate details of knowledge transfer processes and expected activities; however, the project has yet to fully utilize these processes or execute the defined activities. Section 3.4, Human Resource Management, discusses the need for additional strategic planning related to KM not only for the project but also for state employees. The project could benefit from knowledge transfer activities performed earlier rather than at the end of the project so that lessons learned from subsequent Group deployments may be incorporated into the approach for final system turnover.

No findings were identified in this category. However, IV&V will continue to monitor this focus area.

3.6. Operational Preparedness

Tasks related to operational preparedness are aimed at establishing and confirming the readiness of the technologies, organization, and end users to stand up a new system and transition to the new operations. Preparing to deploy systems into operations can include business process definition, system testing, data management, training, cutover planning, and decommissioning activities. Understanding the state of readiness for systems prior to implementation is predicated on having acceptance, entrance, exit, and success criteria as well as the mechanism for metrics reporting in each of these areas.

Section 3.12, Systems Architecture and Design, describes the hardware and networking infrastructure required for the HawaiiPay solution to be in place prior to the engagement of IV&V. Additionally, communications, training, temporary help desk procedures and other operational requirements for Group 1 were also in place prior to the beginning of this assessment. IV&V will continue to monitor operational readiness for each of the

subsequent groups and report any findings or concerns in upcoming IV&V Monthly Status reports.

IV&V identified the following findings in this category:

IV&V ID #07	Type: Preliminary Concern Rating: N/A	Category: Operational Readiness Date Opened: 5/17/2018
Title: High volume of manual processes at cutover		
Statement: The number of manual processes that need to be executed during the cutover window and post implementation for future Group deployments may grow to a level of effort that cannot be accomplished during the designated timeframes thereby causing a delay in the implementation schedule.		
Supporting Analysis: <p>During the cutover and post implementation a number of manual processes are executed to produce the appropriate conversion and configuration of data needed to operate the system. While avoiding manual processes is unavoidable, since some are needed to ensure the proper sequencing of activities and to avoid post implementation pre-notes and paper checks, the timeframes for manual processing are constrained to data conversion dependencies. During Group 1 deployment, the pilot and smallest of the three deployments, these processes were able to be executed in a timely manner. However, new data and functional anomalies were identified during Group 1 deployment and additional manual processes have been added to the rollout schedules for future Groups 2 and 3. It is unknown at this time since these groups involve much larger end user communities, whether, in the aggregate, all manual processes will be able to be executed during the cutover and post implementation windows. Further, the project is strategically reaching out to Agencies less than 60 days in advance of go live and providing them instructions for required data cleanup prior to go live (e.g., social security number mismatches in Central Payroll). These pre-go-live activities are not directly under the control of the project since they need to be performed by external project stakeholders and it is unknown if the time provided will be enough for all Agencies to complete within the implementation schedule.</p>		

IV&V ID #08	Type: Preliminary Concern Rating: N/A	Category: Operational Readiness Date Opened: 5/17/2018
Title: Detailed processes for Help Desk and end user support not finalized		
Statement: Though Group 1 is in production, tools and detailed process to provide end user support may not yet be in place which may impact project and production support teams' abilities to provide adequate support to end users or the system and cause a delay in the implementation schedule for future Group deployments or the transition of the system from CherryRoad to the State at project close-out.		
Supporting Analysis:		

IV&V ID #08	Type: Preliminary Concern Rating: N/A	Category: Operational Readiness Date Opened: 5/17/2018
Group 1 is now in production and Group 2 is scheduled for deployment in June/July yet, while there is an agreed upon approach for end user support and defect management), the detailed processes are not yet finalized or documented. The project implemented tools in February 2017 for Group 1 such as TalkDesk and ETS Service Ticket and trained service desk staff on basic operating procedures. However, Group 2 implementation stage is underway and service level agreements and compliance requirements for departments are not yet finalized. The project is in the midst of moving to a new service cloud and implementing a new Help Desk tool which requires updated process and training documentation for project and production support teams.		

3.7. Organizational Change Management

A key process to help ensure that maximum value is gained when deploying a new business application is known as OCM. A simplified definition of the goals for the OCM effort is to communicate how the new solution will be utilized to meet certain business objectives and monitor how business processes are modified to meet those objectives as well as how end users are trained to use the new solution. Additionally, another key aspect of the OCM effort is to ensure that leadership is helping staff to adopt the new solution and not fall back into previous operating modes that don't gain full value of the new solution or, in some cases, no longer meet the objectives of a business process.

The management of change of any type in an organization can make or break new initiatives. Managing and monitoring of change efforts can significantly improve the odds of a successful transition. The basic strategy of the project's OCM strategy is outlined in the OCM Plan. The methods to communicate and assess the impact of key change initiatives are outlined in the Department Change Impact Analysis, the Communication Plan, and Change Management Strategy deliverables. The OCM team has the responsibility to communicate to a diverse group of external stakeholders including seasonal workers and elected officials. There are varying requirements for transitioning stakeholders to the new system; therefore, communication requirements also vary which adds complexity to the OCM effort.

IV&V noted that the current OCM efforts for the HawaiiPay project are substantial and appear to be mostly effective. The level of concern for the success of the HawaiiPay project and the state's employee population was obvious during initial discussions with the OCM team. The OCM team members take personal pride in understanding the specific cultural needs of their fellow staff members and have deployed personalized methods that may not appear to be best practice, but are clearly effective.

IV&V also noted that the OCM team made initial visits to each department. They are tracking operational readiness from the departments perspective using a "Readiness Tracker". It was also noted that the OCM team is leading an effort to help departments

cleanse existing data prior to the data conversion, though, IV&V was not able to confirm the mechanisms or processes used to manage the data cleansing process.

However, IV&V noted that some of these processes may not be sufficiently formal and therefore may lack consistency and not provide the same level of guidance to the entire population. Although the Communication Plan outlines the roles and responsibilities for Change Agents as a key part of the OCM activities, it was unclear during the IV&V initial review if the project staff clearly understood the use and necessity of these agents and that they have an appropriate level of authority to communicate in the organization. IV&V recommends that more formal Organizational Change Management practices, including the use of locally deployed “Change Agents” be implemented. This may help ensure that communications, training and other required processes are equally effective across the entire employee population and may also provide improved measuring capabilities for department leadership. The process should clearly define how the change agents will accomplish the following:

- Complete training to ensure they understand the role
- Ensure their time is sufficiently allocated to perform the Change Agent tasks
- Act as project evangelists to inspire system usage and act as a conduit for project communications to inspire its use and tout the benefits, success stories, and process improvements
- Receive additional training that will allow them to act as their local office functional system expert and to provide tier 0 (or tier 1) training and system support
- Report to both project leadership and department leadership any issues or concerns
- Collaborate as part of the “Change Agent” user group (options include Skype IM groups, SharePoint community of interest (COI) sites, etc.)

Although, an OCM lead is defined in the project’s organization chart, lead responsibilities seem to be focused on OCM execution and management of OCM activities. OCM strategic direction and leadership seems to be primarily driven by the PMO. While there may be some benefit to a collective leadership team supporting an OCM effort, often, the lack of a dedicated leader can lead to a lack of clear ownership of the OCM strategy or focused OCM leadership to strategically drive OCM team activities. Further, with the PMO’s multiple competing priorities, important OCM activities and details can more easily slip through the cracks, or not given the appropriate level of attention, and therefore reduce OCM effectiveness.

IV&V recommends appointing a dedicated OCM manager (or strategic lead) whose primary responsibility/focus is to own/drive the OCM strategy and direct OCM activities. We would further recommend that a RACI be clearly defined to document the OCM roles and individuals responsible for each OCM task.

IV&V identified the following findings in this category:

IV&V ID #09	Type: Positive Rating: N/A	Category: Organizational Change Management Date Opened: 5/17/2018
Title: + Robust and high-quality Training for Group 1		
Statement: The training approach for Group 1 was robust and high-quality offering end user's insight into how the system will meet their business needs (not just how the system will work) which resulted in a high degree of system adoption by end users at go live.		
Supporting Analysis: <p>Treated as a pilot effort, the Training for Group 1 involved a high degree of in-person education and communication and resulted in several lessons learned that the team has already built into the planning for training for Groups 2 and 3. The use of the Learning Management System (LMS) allowed for robust reporting on training outcomes and trainees offered a lot of insight into what additional content could be included in the training materials to provide clarifications to end users. Also, many trainees are intentionally included in testing activities and receive pre-training to facilitate testing activities. Feedback from testing is also incorporated into training materials.</p>		

IV&V ID #10	Type: Positive Rating: N/A	Category: Organizational Change Management Date Opened: 5/17/2018
Title: + Confirmation of business processes		
Statement: Visiting key departments after development and prior to go live to review how business processes will be satisfied by the new system offers additional mitigation opportunity for any process gaps identified during the implementation phase.		
Supporting Analysis: <p>Project team members closely review the Departmental Change Impact document for each Group in conjunction with training materials before meeting with departments to discuss their, perhaps individualized, processes to ensure all business processes will be executable at go live. If department business process gaps are identified, the project is able to evaluate development and work around options in advance of go live. This high-touch activity helps assuage departmental concerns and angst related to the roll-out of the new system and streamline post implementation support.</p>		

IV&V ID #11	Type: Positive Rating: N/A	Category: Organizational Change Management Date Opened: 5/17/2018
Title: + Established tools for tracking progress		

IV&V ID #11	Type: Positive Rating: N/A	Category: Organizational Change Management Date Opened: 5/17/2018
<p>Statement: The implementation of established tools for tracking the transition engagement and progress provides project leadership with the decision-making information necessary to evaluate the readiness of both the system and stakeholders for implementation.</p>		
<p>Supporting Analysis:</p> <p>The project has established several tools (e.g., Implementation Readiness Tracker) and mechanisms (e.g., tracking website hits) that enable the evaluation of the state of readiness of stakeholders to go live. Monitoring stakeholder groups individually is a critical mitigation activity for reducing implementation shortcomings at go live.</p>		

IV&V ID #12	Type: Risk Rating: Medium	Category: Organizational Change Management Date Opened: 5/17/2018
<p>Title: Less than optimal OCM management structure</p>		
<p>Statement: The absence of more formal structure to provide outreach to departments and agencies may increase risk that critical information and training is not provided to all HawaiiPay end users or stakeholders which could result in higher levels of post-implementation support to ensure appropriate adoption of the new system.</p>		
<p>Supporting Analysis:</p> <p>Though OCM efforts for Group 1 were substantial and appear to be mostly effective, some of the OCM processes may not be sufficiently formal and therefore may lack consistency and not provide the same level of guidance to the entire population. Although the Communication Plan outlines the roles and responsibilities for Change Agents as a key part of the OCM activities, it was unclear during the IV&V initial review if the project staff clearly understood the use and necessity of these agents or that they have an appropriate level of authority to communicate or delegate within or across the State's organization.</p>		
<p>Recommended Mitigation:</p> <ul style="list-style-type: none"> Clearly define how the change agents will accomplish the following: <ul style="list-style-type: none"> Complete training to ensure they understand the role Ensure their time is sufficiently allocated to perform the Change Agent tasks Report to both project leadership and department leadership any issues concerns Update the project's roles and responsibilities (document) to clearly define the assigned resources for each OCM task Appoint an OCM manager (or strategic lead) whose primary responsibility is to own/drive the OCM strategy and direct OCM activities 		

3.8. Project Organization and Management

The project is traditionally organized with a state and CherryRoad team working in a collocated environment to plan, execute, and monitor project activities, whether planned or unanticipated. The overall size of the project team is small relative to the scope and complexity of the project. The team has visible cohesion and common understanding of project goals, priorities, management processes, tools, and governance. In team meetings, IV&V observed a strong team dynamic that is collaborative, engaging, productive, and results-oriented. The team, though hard-working and faced with challenges, executes with confidence and appears to be having fun working together on the project.

The Project Management Plan (PMP) deliverable was approved in January 2017. The plan outlines the key project management process that will be used to control the project. Compared to a PMP that has plans and processes for each of the project management knowledge areas, the HawaiiPay PMP subordinate management plans include Document Management but excludes Contract, Change, Stakeholder, and Procurement Management. Some, but not all, of the processes outlined in the PMP are detailed in subordinate plans (e.g., Scope, Schedule, and Communication). Below are additional IV&V's observations regarding the PMP's subordinate plans:

- The P01 Stage 1 Project Schedule describes that SOH will develop and maintain a separate schedule to augment the CherryRoad schedule. The SOH schedule should only have tasks and milestones that are outside the scope for CherryRoad software development and implementation tasks (e.g., coordination with union and government entities) but the SOH schedule includes tasks that contribute to CherryRoad delivery. The Management plan does not address how dependencies between tasks and entities will be indicated in the schedule. In addition, some tasks appear to be merely completion tasks (e.g., "distribute" something) with no proceeding tasks for creating and approving it before distribution.
- The P03 Project Scope document is not comprehensive of all the project's scope or RTM items as it does not include non-functional scope (e.g., training or the project's plan deliverables).
- The P04 Stage 2–5 Project Schedule does not include Lessons Learned activities at the end of each Group's implementation.

Though the PMP does not include several project management processes, the project has documented these processes in other project plans or supporting documents (e.g., Change Control, Data Management, and Decommissioning Plans). In general, the PMP primarily focuses on the approach for each process but does not outline the overall strategy, describe the detailed process steps, or define the metrics to be used to measure progress. IV&V observed the team administering the core project management functions prioritizing simplicity over rigor, most likely in the interest of time and resource availability.

IV&V observed the team perform unplanned quality assurance activities by identifying areas of improvement and immediately modifying the process or make plans to revise the process for future Group roll outs. For example, revising what and when training and UAT activities occur for program testers. The team adeptly applied the lessons learned from Group 1 into the planning for future Groups. However, Group 1 implementation is reaching conclusion and formal lessons learned activities with project stakeholders is not planned or represented in the schedule. Project team members have already turned their attentions to future Group SDLC activities and opportunities for process improvements and risk mitigation activities may be lost without a coordinated and comprehensive Group 1 lessons learned activity. IV&V has documented this as a preliminary concern finding until the post go-live period for Group 1 has concluded.

IV&V identified the following findings in this category:

IV&V ID # 13	Type: Positive Rating: N/A	Category: Project Organization & Management Date Opened: 5/17/2018
Title: + High-performing HawaiiPay project team		
Statement: The HawaiiPay project team embodies characteristics of a high-performing, highly-collaborative team operating under established processes to meet commonly understood project objectives which results in open communication as well as efficient and flexible execution of project activities.		
Supporting Analysis: <p>The HawaiiPay team demonstrates several hallmarks high-performing teams, including:</p> <ul style="list-style-type: none"> • Team members work well together in a collaborative environment that encourages participation, each member working toward the same goals. • Team members actively pursue innovative ways to efficiently complete tasks. • Team members' views disagreements as a positive thing, constructively problem solve and work to diffuse friction and tension. • Criticism is upbeat and constructive and focuses on solving problems through removing obstacles. • Team members have a deep sense of trust in each other and in the team's purpose. <p>Not all teams are created equal. Staffing for quality talented resources (especially PeopleSoft) is no simple task in a state where IT workforce development has always been a challenge. HawaiiPay leadership seems to have found a way to bring together exceptionally talented individuals, establish a culture of excellence and trust, and develop team members into a high-performing team.</p>		

IV&V ID # 14	Type: Positive Rating: N/A	Category: Project Organization & Management Date Opened: 5/17/2018
Title: + Group deployment strategy effectively mitigates risk		
Statement: The Group deployment strategy provides mitigation opportunities for reducing risk with each, more complex, Group roll-out		
Supporting Analysis: The project team was able to learn significantly from the roll-out experience of the less complex Group 1 deployment. This intelligence enables the project team to make process and execution improvements for the more complex and riskier Group deployments in the future.		

IV&V ID # 15	Type: Risk Rating: Medium	Category: Project Organization & Management Date Opened: 5/17/2018
Title: Impact of Legislative Actions		
Statement: Changes mandated by Legislative actions may drive changes to the HawaiiPay solution thereby impacting the project's scope, schedule, and budget.		
Supporting Analysis: <p>The State Legislature may make laws that could require significant system changes thereby disrupting the project's activities, schedule, and/or budget. These laws could change SOH processes without consideration of impact to the project or providing the project time to react to such changes. For example, in the last legislative season, Act 007, HB 1725 was passed and requires union dues collected by the SOH based on an anniversary date. The project may be required to implement this change in order to be compliant with the new law. The project has already defined a mitigation strategy for implementing this change and is monitoring potential new legislation for similar impact.</p>		
Recommended Mitigation: <ul style="list-style-type: none"> Establish increased communication with lawmakers and legislative analysts to ensure informed legislative decisions 		

IV&V ID # 16	Type: Risk Rating: Low	Category: Project Organization & Management Date Opened: 5/17/2018
Title: Lessons Learned for Group 1		

IV&V ID # 16	Type: Risk Rating: Low	Category: Project Organization & Management Date Opened: 5/17/2018
<p>Statement: If lessons learned are not captured from Group 1 deployment, the project will lose the opportunity to incorporate process improvements for future Group deployments thereby reducing the associated risk.</p>		
<p>Supporting Analysis:</p> <p>The project schedule does not include tasks associated with conducting or documenting formal Lessons Learned from Group 1 deployment. Lessons have been identified and are being incorporated piece meal across the teams but there is no centralized aggregation of this information where the project team can holistically analyze the data and determine, perhaps, over-arching lessons for future Group deployments. Further, a summarized debrief of lessons learned cannot be clearly communicated to the entire project or leadership teams and risk mitigation strategies cannot be developed for identified process improvements.</p>		
<p>Recommended Mitigation:</p> <ul style="list-style-type: none"> Formally collect lessons learned for Group1 from various segments of project stakeholders Document and summarize Group 1 lessons learned, and broadly communicate them Identify what (if any) actions need to be taken for Groups 2 and 3 Include actions resulting from lessons learned analysis for Group 1 into the schedule 		

3.9. Quality Management

The IV&V review of the project's quality efforts primarily focused on testing. The project utilizes a structured testing methodology which is outlined in the project's Test plan. Testing related to data conversion is a separate effort and will be reviewed in more depth during subsequent IV&V reports.

Best practices for testing, outlined in the IEEE SDLC standards, requires multiple levels of testing. The specific testing cycle is dependent on what is being tested. A description of these common testing cycles is below:

1. Unit Testing – testing for custom extensions (customizations) and configurations starts with "Unit" testing by the functional or technical person responsible for the development of the custom object or configuration change.
2. System Testing – System testing for custom extensions and configurations is required once the Unit Testing is complete. System testing often utilizes more comprehensive testing scripts that are designed to meet the objectives of the testing scenarios described in the functional and technical specifications.

3. User Acceptance Testing – Once all the defects discovered during System Testing have been resolved and re-tested, new custom extensions and configurations are often tested by end users as part of the general acceptance of the solution.

Other testing cycles are often employed to ensure that specific elements are tested. These additional testing cycles may include:

- Integration Testing – When new or modified objects or configurations are deployed to an existing solution, the solution is often tested to ensure the new objects or configurations do not cause unexpected issues in other areas of the solution.
- Performance Testing – To help ensure that new or modified solutions meet the organizations service level objectives and availability expectations, these solutions are often put through a stress test that emulates a number of end users greater than the expected number of concurrent users in the production systems. Specific transactions that represent the most resource intensive functional areas are often selected for performance testing.
- Parallel Testing – When deploying new business applications, Parallel Testing is often performed to compare results between specific transactions previously executed in the legacy system with the results of similar transactions in the new solution. The results of Parallel Testing include records or groups of records that match the legacy solution along with “known” and expected differences. Any other variance could be considered a defect and requires a resolution before the new solution can be deployed. Parallel Testing is often utilized during data conversion testing to compare the data records between the legacy system and the new solution to ensure the data extraction, transformation and migration was completed successfully.

After discussions with the project team and a high-level review of the testing strategy and expected results, IV&V focused on the group one Parallel Testing results and methodology during this initial review. The results of the Parallel Testing indicated a number of unexpected results which were recorded as defects. The project team resolved a number of these defects by altering the configuration or making custom changes to the PeopleSoft solution. However, a number of these defects may have required a level of effort to repair that grossly exceeded the level of effort required to make a manual adjustment. In some cases, a decision was made to resolve the defect with a manual work around. IV&V noted that this process is not unusual, but cautioned the project to ensure that all the work arounds were documented and included in the production cutover plan and tested during the cutover dry run.

IV&V did not find any significant concerns related to testing, however it was noted that IV&V was not able to assess the methods used to complete the payroll Parallel Testing as the raw data was not made available to IV&V due to concerns that this data included Personal Identifying Information (PII). IV&V offered recommendations on how to remove the PII so further validation could occur. Without the raw data IV&V may not be able to conclude that the Parallel Testing was comprehensive and complete. IV&V expects to be

able to assess the Parallel Testing data, results and methodology during the next reporting period.

Finally, with the absence of detailed tasks in the schedule related to ensuring the readiness of interface partners (including third party administrators (TPAs)), it is unclear how the SOH will assess either the qualitative or quantitative state of readiness of interface partners. IV&V recommends that SOH develop a process for comparing Department self-readiness assessment with the Project's independent assessment of readiness. Also, there are no milestones to indicate which steps must be completed, by when. Such measures are key inputs for the Steering Committee as they weigh progress and readiness criteria to determine a Group's overall implementation readiness at the Go / No-Go decision point. The project reported that there were no agency-related interfaces in Group 1 but there were 27 TPA interfaces in Group 1; and for Groups 1 and 2, respectively there are 25 and 21 TPA interfaces planned with both Groups having two agency-related interfaces (i.e., Hawaii Health Systems Corp and State of Hawaii Judiciary in Group 2 and Department of Education and University of Hawaii in Group 3). The risk of interface partners not being ready has been partially mitigated by CherryRoad who created the interface format to match the existing interface format to minimize the required change.

IV&V identified the following findings in this category:

IV&V ID #17	Type: Positive Rating: N/A	Category: Quality Management Date Opened: 5/17/2018
Title: + Planned and executed ADA testing		
Statement: The project has planned for and executed specialized testing activities to ensure ADA requirements are satisfied which reduces the risk of the system being non-compliant with the federal accessibility standards.		
Supporting Analysis: Per the Americans Disabilities Act (ADA), the HawaiiPay solution must meet accessibility requirements in order to be compliant with this legislation. The project has planned for and engaged in specialized testing efforts (e.g., blind tester) to confirm system compliance.		

IV&V ID #18	Type: Preliminary Concern Rating: N/A	Category: Quality Management Date Opened: 5/17/2018
Title: Increasing parallel testing defect resolution scope		
Statement: An increasing number of manual workarounds to resolve defects discovered during parallel testing may cause unnecessary risk or delays during the production cutover.		

IV&V ID #18	Type: Preliminary Concern Rating: N/A	Category: Quality Management Date Opened: 5/17/2018
Supporting Analysis: <p>A continuing number of defects discovered during Parallel testing are being rectified with manual workaround. It is unclear if all the workarounds are documented in the cutover plan and schedule. The project should plan to ensure that all defect resolutions are prioritized and tracked in the cutover plan and that manual workarounds are resourced with appropriate staff.</p>		

IV&V ID #19	Type: Risk Rating: Medium	Category: Quality Management Date Opened: 5/17/2018
Title: Inadequate interface development and testing coordination		
Statement: The lack of a functioning process and signoff to coordinate both parties regarding the development and comprehensive end to end testing of interfaces may cause unnecessary risk.		
Supporting Analysis: <p>It is unclear if each party responsible for the complete end to end testing of an interface has the capacity and capability to complete detailed testing. There does not appear to be any method for the project to get assurance that the testing is planned and executed as needed. To date, there seems to be a low volume of feedback from TPAs and approval of TPA readiness lacks rigorous evaluation from the project. For example, contacts for interfaces need to be confirmed as having the appropriate IT skills and availability to perform the required tasks in the project's timeline.</p>		
Recommended Mitigation: <ul style="list-style-type: none"> Establish a communications plan and signoff procedure that ensure all parties clearly understand the expectation related to interface testing and signoff that they have the capacity to complete the testing, document defects, re-test and signoff that the interface is fully functional. 		

3.10. Requirements Management

HawaiiPay project requirements are currently tracked in the SI's custom Application Lifecycle Management (ALM) tool referred to as the "Implementation Tracker". Seems access to the tool is limited as the Project was not able to grant IV&V access. This could limit IV&V ability to assess management of requirements and other content (defects, specifications, test scripts, etc.) and/or burden project leadership with the task of providing dumps of data from the tool. Dumps of data may not clearly show relationships of entities,

for example, a data dump of requirements may not clearly show traceability of requirements to specifications or to test scripts and test results. IV&V was provided an Excel extract of the RTM that showed some testing traceability but will need to work with the project team to better understand how requirements are managed. IV&V will continue to gather information regarding requirements management and traceability and report any findings or concerns in upcoming IV&V Monthly Status reports.

No findings were identified in this category. However, IV&V will continue to monitor this focus area.

3.11. Risk Management

IV&V has, thus far, observed good project risk management practices. The combined project team maintains an active detailed risk/issues log and holds a weekly Risk-Issue-Observations-Decision (RIOD) meeting with several key stakeholders to discuss/update each log item. Items that require further discussion outside the meeting are assigned and tracked as appropriate and/or routed to more appropriate venues such as the Project Change Advisory Board (PCAB) meeting. This approach focuses on addressing the current status of risks and issues and mitigating them in their current condition. The project does not, however, develop or document mitigation strategies for risks or issues; doing so could enable more aggressive, proactive mitigation. Predefining and scheduling mitigation activities to occur sooner significantly helps to reduce the potential risk or impact, and lessens the burden on resources who may need to be redirected to address risks and issues.

IV&V identified the following findings in this category:

IV&V ID # 20	Type: Risk Rating: Low	Category: Risk Management Date Opened: 5/17/2018
Title: Mitigation strategies and activities not documented		
Statement: Insufficiently defined / documented mitigation strategies and unscheduled mitigation activities could result in missed opportunities to reduce risk or lessen the impact of project issues and potentially cause delays in the project's progress.		
Supporting Analysis: The RIOD workbook does not have documented mitigation strategies for risks or issues that can be translated into activities and tracked in the project's schedule.		
Recommended Mitigation: <ul style="list-style-type: none"> Review current risks and issues and document appropriate mitigation strategies Define mitigation activities, as appropriate, for open items in the RIOD workbook 		

IV&V ID # 20	Type: Risk Rating: Low	Category: Risk Management Date Opened: 5/17/2018
<ul style="list-style-type: none"> Add mitigation tasks to the project schedule and assign resources to complete the tasks in a timely manner to reduce the risk or impact to the project 		

3.12. Systems Architecture and Design

The previous state hosted instance of PeopleSoft, hosted by DHRD, was based on architectural standards common in many PeopleSoft implementations. As part of the HawaiiPay project, the DHRD instance of PeopleSoft was relocated to a commercial data center. CherryRoad was contracted to acquire and configure the necessary hardware and assume operations of the PeopleSoft instance and all continuing maintenance and support. Additionally, the DHRD instance was enhanced to support the HCM functionality required for Payroll operations. New configurations and custom extensions have been added to the DHRD instance to meet the Payroll requirements.

The now combined DHRD/DAGS instance is located in a commercial data center located in Honolulu. During the transition CherryRoad determined that the database servers would be upgraded to the current Oracle Exadata technology, but the application and web servers would not be upgraded to the Oracle Exalogic technology.

Access to the CherryRoad PeopleSoft instance is provided by state networking infrastructure components and methodologies. Troubleshooting connectivity issues may involve both state and CherryRoad networking support services.

IV&V reviewed the Technical Architectural plan deliverable. IV&V found the plan to be fairly comprehensive and sufficiently detailed; although it was necessary to combine the Network Overview diagram with the Server Overview in Appendix D to obtain a detailed overview of all the networking components and their specific configuration. Although, this is not best practice, IV&V found it be an adequate representation of the PeopleSoft “as-is” environments at the assumption of operations.

IV&V recommends that, when necessary, the Technical Architectural design be updated to show the current “as-is” configuration of both the state networking architecture as well as the CherryRoad infrastructure and application solution services. This update should include specific configuration information that could be used to re-construct both the networking infrastructure and the application servers.

IV&V also met with the HawaiiPay ETS and CherryRoad technical staff to review the current status of the PeopleSoft instance and any open risk, issues and reported defects.

IV&V also noted that a disaster recovery plan has been tested on at least two occasions. It was also noted that this test is a requirement to be repeated annually.

It is unclear if an independent audit of the commercial data center will be performed. IV&V recommends that penetration testing be performed annual by an independent resource.

IV&V identified the following findings in this category:

IV&V ID #21	Type: Preliminary Concern Rating: N/A	Category: Systems Architecture & Design Date Opened: 5/17/2018
Title: Negative impacts from user generated PS queries		
Statement: Queries generated from PS Query can be constructed in a manner that may cause unnecessary burden to the production system.		
Supporting Analysis: <p>PS queries written without sufficient control, i.e. excessive outer joins, may overuse system resources and cause the production environment to slow or stall to a point where end user transactions cannot be processed. Some users may be given access to PeopleSoft reporting/querying tools in production and have no restrictions that would prevent them from inadvertently creating a query with multiple joins that could cripple system performance. While these users have required training that instructs on how to avoid these kinds of large, "run-away" queries, there is currently nothing to prevent them from crippling the production environment. The State will need to design, document and implement training programs and other controls that help to ensure "poor" queries are either modified to perform better or are not run during business hours.</p>		

APPENDIX A: IV&V FINDINGS AND RATINGS DEFINED

IV&V attends meetings, reviews documentation, conducts interviews, and performs independent analysis in order to verify and validate project activities and progress. PCG defines a “finding” as a statement of observation that relates to the project. A finding may be classified as positive, preliminary concern, risk or issue.

- A positive finding presents a statement based on a fact that supports the project. Typically, these are raised to acknowledge adherence to standards and project guidelines that are identified as part of an assessment or evaluation. For example, a project performs additional testing (outside of testing requirements) to the benefit of the project.
- A preliminary concern is an item believed may pose risk to the project, but more analysis and a better understanding of the subject area is necessary before classifying the item as a formal risk or issue. Preliminary concerns are documented in statements which articulate the concern and indicate further analysis and/or understanding of the matter is required.
- A risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on a project’s objectives. PCG identifies risks with negative effects and expands the definition to include both conditions which may occur and those which may not occur (e.g. lack of a well-defined requirements traceability process could lead to delivery of an incomplete system, requiring costly and time-consuming rework).
- An issue is an event, often previously identified as a risk, which has occurred and caused negative impact to the project. Issues are documented as findings which identify the event, its impact to the project, and status towards resolution.

A key to risk management is having an understanding of all the potential risks to the project and ensuring that these risks and risk mitigation strategies are communicated to key project stakeholders on an ongoing basis. Risk analysis should begin early during project planning by determining or identifying the factors that may affect the project. Risk can impact a project in many different ways: project quality, manageability, cost, and schedule. Proper risk identification seeks to determine how the risk may affect the project and to document the project area(s) impacted by the identified risk.

Once risks are identified and characterized, both qualitative and quantitative factors are examined. Our analysis examines project conditions to determine the probability of the risk being realized and the impact to the project, if the risk is realized.

The overall risk exposure rating, or priority, is derived using the Risk Rating Matrix shown in Table 3 by finding the intersection of the probability of occurrence and the magnitude of impact on the HawaiiPay Project. The exposure rating determines the priority of each risk based on an assessment of probability of occurrence and magnitude of impact. Note that Eclipse IV&V™ incorporates “Time Horizon” (short, medium, long) into the probability score such that the more time that exists to address the risk, the lower the probability of occurrence will be.

Table 3: Risk Rating Matrix

Probability of Occurrence	Magnitude of Impact				
	1 Negligible	2 Minor	3 Moderate	4 Significant	5 Critical
5 Probable (80% – 99%)				High Risk	
4 Likely (60% – 79%)					
3 Possible (40% – 59%)		Medium Risk			
2 Unlikely (20% – 39%)	Low Risk				
1 Improbable (1% – 19%)					

The following Table 4 defines the Risk Priorities that PCG uses when identifying risks.

Table 4: Risk Rating Definitions

Risk Priority	Definition
High	Possibility of substantial impact to product quality, manageability, cost, or schedule. A major disruption is likely and the consequences would be unacceptable. A different approach is required. Mitigation strategies should be evaluated and acted upon immediately.
Medium	Possibility of moderate impact to product quality, manageability, cost, or schedule. Some disruption is likely and a different approach may be required. Mitigation strategies should be implemented as soon as feasible.
Low	Possibility of slight impact to product quality, manageability, cost, or schedule. Minimal disruption is likely and some oversight is needed to ensure that the risk remains low. Mitigation strategies should be considered for implementation when possible.

Issue Priority is determined by its impact on the Project. PCG uses the priority levels shown in Table 5 for issues:

Table 5: Issue Rating Definitions

Issue Priority	Definition
High	The issue presents substantial impact to product quality, manageability, cost, or schedule. A catastrophic disruption is likely and the consequences would be unacceptable. A different approach is required. Mitigation strategies should be evaluated and acted upon immediately.
Medium	The issue presents moderate impact to product quality, manageability, cost, or schedule. Some disruption is likely and a different approach may be required. Mitigation strategies should be implemented as soon as feasible.
Low	The issue presents slight impact to product quality, manageability, cost, or schedule. Minimal disruption is likely and some oversight is needed to ensure that the risk remains low. Mitigation strategies should be considered for implementation when possible.

APPENDIX B: ASSESSMENT CATEGORY DEFINITIONS AND RATINGS

Table 6 below lists and defines the HawaiiPay Project's assessment categories that are used throughout the project to group IV&V findings. It should be noted that, at times, findings may span more than one category.

Table 6: Assessment Category Definitions

Category	Category Description *
Communications Management	Communications management is the systematic planning, implementing, monitoring, and revision of all the channels of communication within an organization, and between organizations; it also includes the organization and dissemination of new communication directives connected with an organization, network, or communications technology. Tasks defined in the communications management plan aim to gather the project information, distribute it to the stakeholders in a timely manner, and, finally, store it. This category focused on internal project communications.
Contract Management	Contract management is the oversight and management of contracts made with customers, vendors, partners, or employees. Tasks defined in contract management are aimed at ensuring compliance with the terms and conditions, as well as documenting and agreeing on any changes or amendments that may arise during its implementation or execution.
Cost and Schedule Management	Delivering a project within the time frame promised (schedule) and within the allocated budget (cost) are fundamental objectives for all projects. Schedules and budgets are interlocked, and most likely an increase in one causes an increase in the other. Tasks defined in cost management are aimed at estimating costs for changes, monitoring contract performance, and processing approvals and invoicing for contract deliverables. Tasks defined in scheduled management are aimed at estimating and sequencing work effort, establishing a schedule baseline, managing project resources' assignments and the completion of work effort, and monitoring schedule performance.
Human Resources Management	Human resource management (HRM, or simply HR) is a function in projects designed to maximize team member performance in service of the project's strategic objectives. Tasks defined in HRM are aimed at recruiting, training, developing, and monitoring project team members as well as managing their productivity, transition within the organization, knowledge transfer activities, and appropriate utilization.

Category	Category Description *
Knowledge Transfer	Knowledge transfer is the practical task of transferring knowledge from one part of the organization to another. Tasks associated with knowledge transfer aim to organize, create, capture or distribute knowledge and ensure its availability for future users. Knowledge transfer includes formal and informal training, project document, and online tools which convey information need to support the implementation or operations of the new system.
Operational Preparedness	Operations management is an area of management concerned with designing and controlling the process of production and redesigning business operations in the production of goods or services. It involves the responsibility of ensuring that business operations are efficient in terms of using as few resources as needed and effective in terms of meeting customer requirements. Tasks defined for operational preparedness are aimed at establishing and confirming the readiness of the technologies, organization, and end users to stand up a new system and transition to the new operations.
Organizational Change Management	Change management is a collective term for all approaches to prepare and support individuals, teams, and organizations in making organizational change. It includes methods that redirect or redefine the use of resources, business process, budget allocations, or other modes of operation that significantly change a company or organization. Organizational change management (OCM) considers the full organization and what needs to change. Tasks defined for OCM are aimed at guiding internal and external end users to adopt the new system as seamlessly as possible. This category focuses mostly on external project team communications.
Project Organization and Management	Project management is the discipline of initiating, planning, executing, controlling, and closing the work of a project team to achieve specific goals and meet specific success criteria. The project organization is the hierarchical and/or matrixed structure created to the execute the project work. Since each project is unique, project organizations and management approaches are often customized to align with current organizational procedures, capabilities, or objectives.

Category	Category Description *
Quality Management	Quality management ensures that an organization, product or service is consistent, meets project requirements and objectives, and is fit for purpose. Quality management tasks aim to plan for quality assurances and controls throughout the life of the project for not only the product or service but also the processes used to achieve it. Quality controls, or metrics, provide insight into the project's progress and highlight areas of concern that can be improved or mitigated.
Requirements Management	Requirements management is the process of documenting, analyzing, tracing, prioritizing and agreeing on requirements and then controlling change and communicating to relevant stakeholders. It is a continuous process throughout a project. Requirements management tasks are aimed at tracking and validating requirements through the project's life cycle to ensure the right system is being built.
Risk Management	Risk management is the identification, evaluation, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability or impact of unfortunate events or to maximize the realization of opportunities. Risk management tasks include identification, rating, tracking, and monitoring of both project risks and issues. Tasks also included detailed impact analysis of project risks and issues so that strategies are developed and executed to manage threats to the project.
Systems Architecture and Design	Systems Architecture links business processes to their solutions and defines how the infrastructure, applications, interfaces, batch / online processing, data flows between systems, diverse configurations, operational governance and service delivery will be integrated and managed. The architecture is used to proactively guide development and project efforts and includes: middleware, system environments, data centers, security, and network design. System architecture and design tasks include those efforts associated with building, documenting, and deploying a software solution that meets the needs of the organization and complies with organization's technology standards and policies.

* Some Category Descriptions were derived from <https://en.wikipedia.org/> and tailored for HawaiiPay.

Individual risks and issues are rated based upon qualitative and quantitative measures defined in the IV&V plan and shown in Appendix A: IV&V Findings and Ratings Defined. Category ratings distil the status of key project areas into a simple rating, with specific and prioritized recommendations for improvement. Each category will be rated based upon the overall category's risk to project success: high, medium, and low.

Table 7: Assessment Category Rating Matrix

Rating	Definition
High	A category rated high (also colored red), poses significant risk to project success. This category will either have an overwhelming quantity of medium and/or high risks and/or issues, or may have a specific risk or issue that presents catastrophic risk to project quality and overall success. Categories that are rated high should be given priority and will identify the major targets that caused the category to be rated as such.
Medium	A category rated medium (also colored yellow), poses moderate risk to project success and generally has some products or processes that are deficient in quality. A category rated medium will either have a preponderance of risks and/or issues or may have specific risks or issues which present substantial risk to project quality and overall success. Categories that are rated medium will identify the major risks and issues that caused the category to be rated as such.
Low	A category rated low (also colored green), poses the least risk to project success and can generally be considered to be delivering high quality products and processes. A category rated low will also generally not have significant quantities of risks or issues...

APPENDIX C: INTERVIEWS CONDUCTED

The interviews conducted as part of this assessment are listed in the table below. Most of the interviews were conducted on March 22-23, 2018 at HawaiiPay Office, Blue Sky Conference Room with the exception of the kickoff with Project Executives on April 4, 2018 which took place at Comptroller's Conference Room, 4th Floor; a few interviews were conducted by phone.

Table 8: Interviews Conducted for Initial Assessment

Meeting Topic	HiPay Invitees	CherryRoad Invitees	Date/Time
IV&V Kick-off Meeting: Project Team	All Project Staff		3/22 8:30 to 9:30
Project Management	Jennifer Halaszyn	Bill Hansen	3/22 11 to 12
Training	Jennifer Jerviss-Apo	LaDonna Slade	3/22 12 to 1
Business / Operations	Leila Kagawa Lenora Fisher Tara Cook	Mike Herrin Kathy Fry Christina Hansen	3/22 1 to 2
Technology / Infrastructure / Security	Shane Arakaki Mohammed Elkhatab Francisco Sanjur	Daniel Dopierala Vineet Srivastava Saurabh Marathe Ray Songco	3/22 2 to 3
OCM	Jennifer Jerviss-Apo	Mike Herrin	3/23 10 to 11
Information Technology - Security	Vincent Hoang	N/A	3/23 11 to 12
Project Leadership	Todd Omura Wayne Horie Leila Kagawa	Greg Catanzano	3/23 12 to 1
Testing	Dustin Goto Tara Cook	Priyanka Gadiyaram Bill Hansen	3/23 1 to 2
IV&V Contract Admin	Kurt Muraoka	N/A	3/23 2 to 3
IT – Service Operations	Michael Otsuji	N/A	3/30 1 to 2
IV&V Kick-off Meeting: Executive	Rod Becker Audrey Hidano Todd Nacapuy	N/A	4/6 10 to Noon

ID	ID Date	Status	Process Area	Title	Type	Priority	Finding Description	Significance / Potential Impact	Recommendation / Mitigation Opportunities	Updates	Closure Reason	Close Date
1	5/17/2018	Open	Communications Management	Undefined communication metrics and performance targets	Risk	Low	Without predefined communication metrics and performance targets, some stakeholder groups may not receive the appropriate or timely communication necessary for them to seamlessly transition to the new system which could delay the implementation schedule or result in increased post-implementation support.	The HawaiiPay Communication Plan does not include predetermined communication metrics or minimum performance targets for each stakeholder group that could provide insight into the quality of the communications and/or readiness of external stakeholders to transition to the new system. Though the project records metrics (e.g., website visits, training attendance, and Service Center calls), the metric thresholds which represent the project’s metric goal do not appear to be defined. The project team approaches stakeholder management in an ad hoc manner, addressing and assuaging communication requirements and challenges as they arise for the various stakeholder groups and integrating those efforts into the Awareness Campaigns approach. This risk is partially mitigated since the project has been tracking department readiness for all Groups since prior to Group 1 implementation and a concerted effort has been made to ensure the preparedness of departments.	<ul style="list-style-type: none">• Re-execute Stakeholder Analysis activities to ensure all stakeholder groups’ communications needs are known, accurate, and updated• Elaborate and document how and when each stakeholder group will be addressed by the Awareness Campaigns• Define the communication metrics that should be captured for each stakeholder group to ensure they are ready to execute their tasks and transition in accordance with the project’s schedule• Define the communication performance targets for external stakeholders, or success criteria, for each stakeholder group so that informed implementation decisions based on the state of			
2	5/17/2018	Open	Contract Management	Non-functional contract requirements not tracked	Risk	Low	If CherryRoad’s contract is not actively monitored and tracked, specifically for non-functional requirements, as the project progresses, contract performance gaps may be identified too late in the project’s timeline which could result in a schedule delay or unmet contract requirements.	The Requirements Traceability Matrix (RTM) does not include non-functional requirements and the project does not have a separate mechanism for tracking contract performance. The project processes \$0 change orders and, therefore, relies on the Change Advisory Board (CAB) to monitor changes to functional requirements. It is unclear how and when non-functional requirements are being met.	<ul style="list-style-type: none">• Create a checklist of non-functional contract requirements that CherryRoad must satisfy in order to close-out the contract and actively monitor progress			
3	5/17/2018	Open	Cost and Schedule Management	Project schedules not integrated	Issue	Med	The ambiguity created by not having a detailed, integrated scheduled impairs the project’s ability to identify over-allocation of assignments to resources or to identify a true critical path in the schedule to manage to the project’s activities against and therefore jeopardizes the scheduled implementation dates Groups 2 and 3.	There is no single, integrated Project Schedule whereby dependencies between CherryRoad and SOH tasks are readily indicated and monitored; tracking occurs across disparate scheduling tools and the combined state and CherryRoad project team meets daily to sync up scheduled activities. The State requires CherryRoad to provide three Cutover plans (one for each group) as separate deliverables, which means project tasks are documented and tracked separately from the project schedule. Additionally, numerous State communication tasks are incorporated in the State’s project schedule (e.g., communication kits, key memos, training activities, briefings). To minimize the risk of having multiple schedules out-of-synch, CherryRoad provides SOH a weekly project schedule report for reconciliation purposes. CherryRoad and the State manage their resources separately because CherryRoad has a fixed price contract that requires them to deliver the State’s requirements irrespective of how many resources they have on the project at any given time, and the State team has a staff dedicated to its own tasks. However, the ambiguity created by not having a detailed, integrated schedule poses a risk to the project in that dependencies cannot be confirmed and a true critical path cannot be derived.	<ul style="list-style-type: none">• Though current schedule management processes appear to be effective, IV&V recommends SOH consolidate scheduled activities into a single, integrated schedule (including detailed organizational change, communication, cutover, and readiness assessment activities for stakeholders, interfaces, and Group) and incorporate CherryRoad’s milestones in order to indicate dependencies and more easily identify resource over-allocations			
4	5/17/2018	Open	Cost and Schedule Management	Group 2 and 3 planning and execution activities overlap	Risk	Low	Concurrently planning and executing tasks for both Groups 2 and 3, which are running in parallel, may result in less efficient use of project resources and cause an overall delay if new tasks are introduced later in the project.	Planning for Groups 2 and 3 is still underway but the project team is performing activities to support the SDLC for these Groups. The project completed re-planning exercises in 2017 which included the overlapping activities as a way of mitigating risks associated with the former linear approach which was reportedly causing a strain on project resources. However, executing the work before planning is complete introduces risk of potential rework or throw away effort until the initial planning and Group scope is baselined. Without a baseline plan, the project is unable to determine the impact of progressively elaborating the scheduled over time.	<ul style="list-style-type: none">• Update the schedules for Group 2 and Group 3 with tasks and lessons identified from the Group 1 pilot implementation• Finalize a new baseline schedules for Groups 2 and 3 which confirm that all the tasks and deliverables are achievable in prescribed timeframes• Continually monitor changes to the schedule and the impact on defined implementation dates			

ID	ID Date	Status	Process Area	Title	Type	Priority	Finding Description	Significance / Potential Impact	Recommendation / Mitigation Opportunities	Updates	Closure Reason	Close Date
5	5/17/2018	Open	Human Resource Management	Impact of project resource attrition	Risk	Med	Loss of key project resources could significantly disrupt the project and impact the project schedule or budget.	The project relies on a few, very talented, and dedicated key resources in leadership roles to drive most project activities and, more importantly, drive project quality, as evidence by their keen attention to minute project activity details. Loss of key individuals can lead to significant project disruption. Over reliance on key resources can not only overtax and thereby reduce the effectiveness of these key individuals, but also presents a significant risk of project disruption in the event of their departure.	<ul style="list-style-type: none">• Develop an approach to expedite succession planning and identify near-term knowledge transfer activities.• Consider re-allocation of responsibilities from key resources, where possible, to transition of key resources to supervisory roles which would provide increased capacity for them to perform coaching and quality control, thereby increasing the overall project quality. As responsibilities are transitioned, team members taking on new responsibilities typically have a greater sense of motivation, project ownership and commitment.• Develop a knowledge management KM strategy to help ensure project knowledge (tacit and otherwise) is not lost when staff leave the project or state employment• Survey project resource to determine job satisfaction and take appropriate steps to increase retention			
6	5/17/2018	Open	Human Resource Management	Insufficient project resources	Risk	Med	The project does not have dedicated Leads filling key roles needed during the implementation phase, resulting in existing resources serving multiple roles which may impact their overall effectiveness or timeliness.	The SOH does not have single, designated Management Leads for key areas during the Implementation Phase such as OCM or Training. Current designated Leads are focused on execution while strategy and management activities are being performed by the Project Management team. Also, some current Lead roles are satisfying both lead and project team level activities. While The OCM work is being completed even though strategic planning and leadership for OCM appears to lack focus. When resources focus on serving multiple leaders or have no leader at all, the highest priority tasks may not be completed in a timely manner or tasks are rushed and completed with less attention to detail.	<ul style="list-style-type: none">• Evaluate which project resources are needed to allow for dedicated strategic leadership in key positions (e.g. OCM and Training) and to alleviate existing project resources with multiple project leadership responsibilities.• Assign a single, dedicated strategic management lead for key areas such as OCM and Training.			
7	5/17/2018	Open	Operational Preparedness	High volume of manual processes at cutover	Preliminary Concern	N/A	The number of manual processes that need to be executed during the cutover window and post implementation for future Group deployments may grow to a level of effort that cannot be accomplished during the designated timeframes thereby causing a delay in the implementation schedule.	During the cutover and post implementation a number of manual processes are executed to produce the appropriate conversion and configuration of data needed to operate the system. While avoiding manual processes is unavoidable, since some are needed to ensure the proper sequencing of activities and to avoid post implementation pre-notes and paper checks, the timeframes for manual processing are constrained to data conversion dependencies. During Group 1 deployment, the pilot and smallest of the three deployments, these processes were able to be executed in a timely manner. However, new data and functional anomalies were identified during Group 1 deployment and additional manual processes have been added to the rollout schedules for future Groups 2 and 3. It is unknown at this time since these groups involve much larger end user communities, whether, in the aggregate, all manual processes will be able to be executed during the cutover and post implementation windows. Further, the project is strategically reaching out to Agencies less than 60 days in advance of go live and providing them instructions for required data cleanup prior to go live (e.g., social security number mismatches in Central Payroll). These pre-go-live activities are not directly under the control of the project since they need to be performed by external project stakeholders and it is unknown if the time provided will be enough for all Agencies to complete within the implementation schedule.	N/A			
8	5/17/2018	Open	Operational Preparedness	Detailed processes for Help Desk and end user support not finalized	Preliminary Concern	N/A	Though Group 1 is in production, tools and detailed process to provide end user support may not yet be in place which may impact project and production support teams’ abilities to provide adequate support to end users or the system and cause a delay in the implementation schedule for future Group deployments or the transition of the system from CherryRoad to the State at project close-out.	Group 1 is now in production and Group 2 is scheduled for deployment in June/July yet, while there is an agreed upon approach for end user support and defect management), the detailed processes are net yet finalized or documented. The project implemented tools in February 2017 for Group 1 such as TalkDesk and ETS Service Ticket and trained service desk staff on basic operating procedures. However, Group 2 implementation stage is underway and service level agreements and compliance requirements for departments are not yet finalized. The project is in the midst of moving to a new service cloud and implementing a new Help Desk tool which requires updated process and training documentation for project and production support teams.	N/A			

ID	ID Date	Status	Process Area	Title	Type	Priority	Finding Description	Significance / Potential Impact	Recommendation / Mitigation Opportunities	Updates	Closure Reason	Close Date
9	5/17/2018	Open	Organizational Change Management	Robust and high-quality Training for Group 1	Positive	N/A	The training approach for Group 1 was robust and high quality offering end users insight into how the system will meet their business needs (not just how the system will work) which resulted in a high degree of system adoption by end users at go live.	Treated as a pilot effort, the Training for Group 1 involved a high degree of in-person education and communication and resulted in several lessons learned that the team has already built into the planning for training for Groups 2 and 3. The use of the Learning Management System (LMS) allowed for robust reporting on training outcomes and trainees offered a lot of insight into what additional content could be included in the training materials to provide clarifications to end users. Also, many trainees are intentionally included in testing activities and receive pre-training to facilitate testing activities. Feedback from testing is also incorporated into training materials.	N/A			
10	5/17/2018	Open	Organizational Change Management	Confirmation of business processes	Positive	N/A	Visiting key departments after development and prior to go live to review how business processes will be satisfied by the new system offers additional mitigation opportunity for any process gaps identified during the implementation phase.	Project team members closely review the Departmental Change Impact document for each Group in conjunction with training materials before meeting with departments to discuss their, perhaps individualized, processes to ensure all business processes will be executable at go live. If department business process gaps are identified, the project is able to evaluate development and work around options in advance of go live. This high-touch activity helps assuage departmental concerns and angst related to the roll-out of the new system and streamline post implementation support.	N/A			
11	5/17/2018	Open	Organizational Change Management	Established tools for tracking progress	Positive	N/A	The implementation of established tools for tracking the transition engagement and progress provides project leadership with the decision-making information necessary to evaluate the readiness of both the system and stakeholders for implementation.	Supporting Analysis: The project has established several tools (e.g., Implementation Readiness Tracker) and mechanism (e.g., tracking website hits) that enable the evaluation of the state of readiness of stakeholders to go live. Monitoring stakeholder groups individually is a critical mitigation activity for reducing implementation shortcomings at go live.	N/A			
12	5/17/2018	Open	Organizational Change Management	Less than optimal OCM management structure	Risk	Med	The absence of more formal structure to provide outreach to departments and agencies may increase risk that critical information and training is not provided to all HawaiiPay end users or stakeholders which could result in higher levels of post-implementation support to ensure appropriate adoption of the new system.	Though OCM efforts for Group 1 were substantial and appear to be mostly effective, some of the OCM processes may not be sufficiently formal and therefore may lack consistency and not provide the same level of guidance to the entire population. Although the Communication Plan outlines the roles and responsibilities for Change Agents as a key part of the OCM activities, it was unclear during the IV&V initial review if the project staff clearly understood the use and necessity of these agents or that they have an appropriate level of authority to communicate or delegate within or across the State's organization.	<ul style="list-style-type: none">• Clearly define how the change agents will accomplish the following:<ul style="list-style-type: none">o Complete training to ensure they understand the roleo Ensure their time is sufficiently allocated to perform the Change Agent taskso Report to both project leadership and department leadershipany issues concerns• Update the project's roles and responsibilities (document) to clearly define the assigned resources for each OCM task• Appoint an OCM manager (or strategic lead) whose primary responsibility is to own/drive the OCM strategy and direct OCM			
13	5/17/2018	Open	Project Organization & Management	High-performing HawaiiPay project team	Positive	N/A	The HawaiiPay project team embodies characteristics of a high-performing, highly-collaborative team operating under established processes to meet commonly understood project objectives which results in open communication as well as efficient and flexible execution of project activities.	The HawaiiPay team demonstrates several hallmarks high-performing teams, including: <ul style="list-style-type: none">• Team members work well together in a collaborative environment that encourages participation, each member working toward the same goals.• Team members actively pursue innovative ways to efficiently complete tasks.• Team members' views disagreements as a positive thing, constructively problem solve and work to diffuse friction and tension.• Criticism is upbeat and constructive and focuses on solving problems through removing obstacles.• Team members have a deep sense of trust in each other and in the team's purpose. Not all teams are created equal. Staffing for quality talented resources (especially PeopleSoft) is no simple task in a state where IT workforce development has always been a challenge. HawaiiPay leadership seems to have found a way to bring together exceptionally talented individuals, establish a culture of excellence and trust, and develop team members into a high-performing team.	N/A			

ID	ID Date	Status	Process Area	Title	Type	Priority	Finding Description	Significance / Potential Impact	Recommendation / Mitigation Opportunities	Updates	Closure Reason	Close Date
14	5/17/2018	Open	Project Organization & Management	Group deployment strategy effectively mitigates risk	Positive	N/A	The Group deployment strategy provides mitigation opportunities for reducing risk with each, more complex Group roll-out	The project team was able to learn significantly from the roll-out experience of the less complex Group 1 deployment. This intelligence enables the project team to make process and execution improvements for the more complex and riskier Group deployments in the future.	N/A			
15	5/17/2018	Open	Project Organization & Management	Impact of Legislative Actions	Risk	Med	Changes mandated by Legislative actions may drive changes to the HawaiiPay solution thereby impacting the project’s scope, schedule, and budget.	The State Legislature may make laws that could require significant system changes thereby disrupting the project’s activities, schedule, and/or budget. These laws could change SOH processes without consideration of impact to the project or providing the project time to react to such changes. For example, in the last legislative season, Act 007, HB 1725 was passed and requires union dues collected by the SOH based on an anniversary date. The project may be required to implement this change in order to be compliant with the new law. The project has already defined a mitigation strategy for implementing this change and is monitoring potential new legislation for similar impact.	• Establish increased communication with lawmakers and legislative analysts to ensure informed legislative decisions			
16	5/17/2018	Open	Project Organization & Management	Lessons Learned for Group 1	Risk	Low	If lessons learned are not captured from Group 1 deployment, the project will lose the opportunity to incorporate process improvements for future Group deployments thereby reducing the associated risk.	The project schedule does not include tasks associated with conducting or documenting formal Lessons Learned from Group 1 deployment. Lessons have been identified and are being incorporated piece meal across the teams but there is no centralized aggregation of this information where the project team can holistically analyze the data and determine, perhaps, over-arching lessons for future Group deployments. Further, a summarized debrief of lessons learned cannot be clearly communicated to the entire project or leadership teams and risk mitigation strategies cannot be developed for identified process improvements.	• Formally collect lessons learned for Group1 from various segments of project stakeholders • Document and summarize Group 1 lessons learned, and broadly communicate them • Identify what (if any) actions need to be taken for Groups 2 and 3 • Include actions resulting from lessons learned analysis for Group 1 into the schedule			
17	5/17/2018	Open	Quality Management	Planned and executed ADA testing	Positive	N/A	The project has planned for and executed specialized testing activities to ensure ADA requirements are satisfied which reduces the risk of the system being non-compliant with the federal accessibility standards	Per the Americans Disabilities Act (ADA), the HawaiiPay solution by be meet accessibility requirements in order to be compliant with this legislation. The project has planned for and engaged in specialized testing efforts (e.g., blind tester) to confirm system compliance.	N/A			
18	5/17/2018	Open	Quality Management	Increasing parallel testing defect resolution scope	Preliminary Concern	N/A	An increasing number of manual workarounds to resolve defects discovered during parallel testing may cause unnecessary risk or delays during the production cutover	A continuing number of defects discovered during Parallel testing are being rectified with manual workaround. It is unclear if all the workarounds are documented in the cutover plan and schedule. The project should plan to ensure that all defect resolutions are prioritized and tracked in the cutover plan and that manual workarounds are resourced with appropriate staff	N/A			
19	5/17/2018	Open	Quality Management	Inadequate interface development and testing coordination	Risk	Med	The lack of a functioning process and signoff to coordinate both parties regarding the development and comprehensive end to end testing of interfaces may cause unnecessary risk.	It is unclear if each party responsible for the complete end to end testing of an interface has the capacity and capability to complete detailed testing. There does not appear to be any method for the project to get assurance that the testing is planned and executed as needed. To date, there seems to be a low volume of feedback from TPAs and approval of TPA readiness lacks rigorous evaluation from the project. For example, contacts for interfaces need to be confirmed as having the appropriate IT skills and availability to perform the required tasks in the project’s timeline.	• Establish a communications plan and signoff procedure that ensure all parties clearly understand the expectation related to interface testing and signoff that they have the capacity to complete the testing, document defects, re-test and signoff that the interface is fully functional.			
20	5/17/2018	Open	Risk Management	Mitigation strategies and activities not documented	Risk	Low	Insufficiently defined / documented mitigation strategies and unscheduled mitigation activities could result in missed opportunities to reduce risk or lessen the impact of project issues and potentially cause delays in the project’s progress.	The RIOD workbook does not have documented mitigation strategies for risks or issues that can translated into activities and tracked in the project’s schedule.	• Review current risks and issues and document appropriate mitigation strategies • Define mitigation activities, as appropriate, for open items in the RIOD workbook • Add mitigation tasks to the project schedule and assign resources to complete the tasks in a timely manner to reduce the risk or impact to the project			
21	5/17/2018	Open	Systems Architecture and Design	Negative impacts from user generated PS queries	Preliminary Concern	N/A	Queries generated from PS Query can be constructed in a manner that may cause unnecessary burden to the production system.	PS queries written without sufficient control i.e. excessive outer joins, may overuse system resources and cause the production environment to slow or stall to a point where end user transactions cannot be processed. Some users may be given access to PeopleSoft reporting/querying tools in production and have no restrictions that would prevent them from inadvertently creating a query with multiple joins that could cripple system performance. While these users have required training that instructs on how to avoid these kinds of large, "run-away" queries, there is currently nothing to prevent them from crippling the production environment. The State will need to Design, document and implement training programs and other controls that help to ensure “poor” queries are either modified to perform better or are not run during business hours.	N/A			