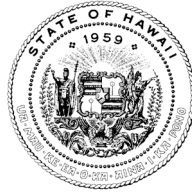


JOSH GREEN, M.D.
GOVERNOR



DOUGLAS MURDOCK
CHIEF INFORMATION
OFFICER

OFFICE OF ENTERPRISE TECHNOLOGY SERVICES

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June 27, 2023

The Honorable Ronald D. Kouchi
President of the Senate
and Members of the Senate
Thirty-Second State Legislature
State Capitol, Room 409
Honolulu, Hawai'i 96813


The Honorable Scott K. Saiki
Speaker and Members of the
House of Representatives
Thirty-Second State Legislature
State Capitol, Room 431
Honolulu, Hawai'i 96813

Aloha Senate 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 (IV&V) reports to the Legislature within ten days of receiving the report, please find attached the report the Office of Enterprise Technology Services received for the State of Hawai'i, Public Utilities Commission (PUC), Content and Document Management System Project.

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

Sincerely,


Douglas Murdock (Jun 27, 2023 09:56 HST)

Douglas Murdock
Chief Information Officer
State of Hawai'i

Attachment



Content and Document Management System (CDMS) Project

Hawaii Public Utilities Commission (PUC)

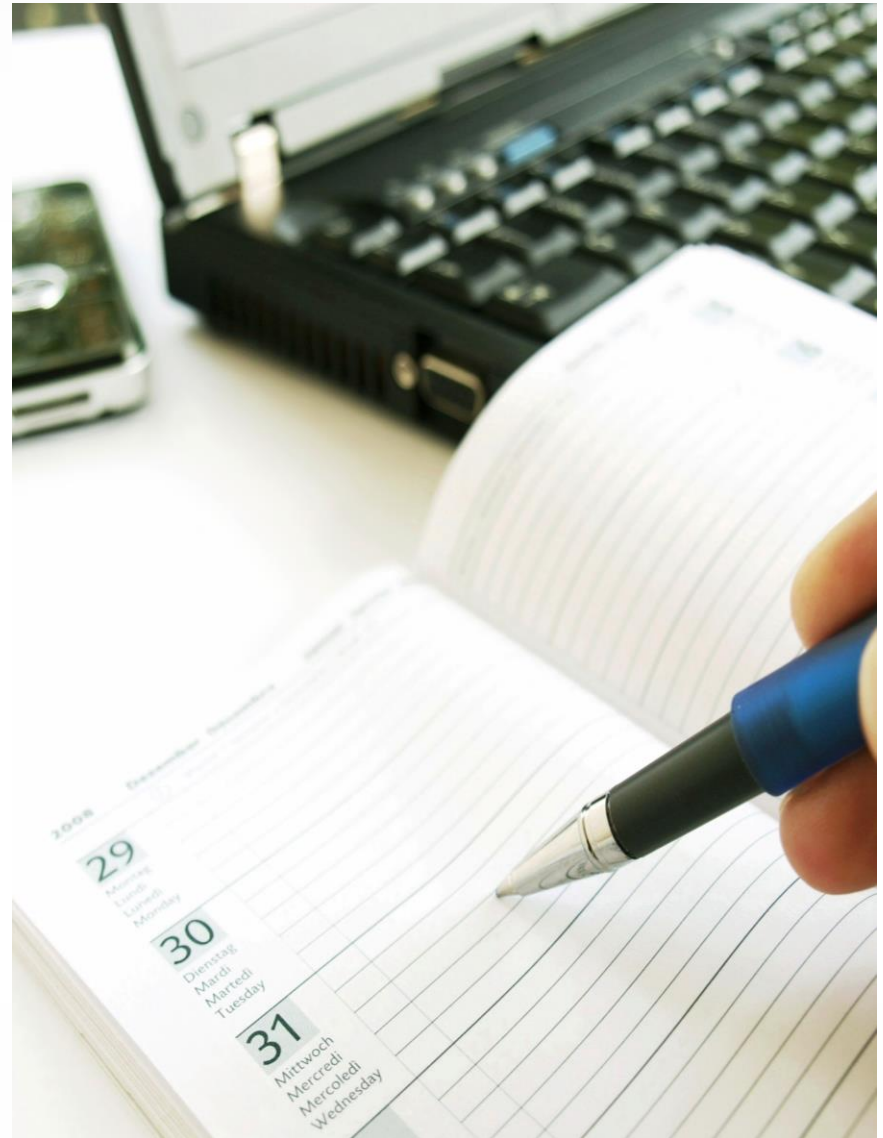
IV&V Pre-Go Live and Monthly Status Report - FINAL
For Reporting Period: **May 2023**

Draft Submitted: 6/9/2023

Final Submitted: 6/27/2023

Overview

- Executive Summary / Go-Live Readiness
- IV&V Findings and Recommendations
- IV&V Preliminary Concerns
- IV&V Scope and Approach
- IV&V Engagement Status
- Appendices
 - A – IV&V Criticality Ratings
 - B – IV&V Inputs
 - C – Upcoming IV&V Activities



Executive Summary

The purpose of this report is to assess project readiness for go-live and provide the Project with updates to risk categories and individual risks that IV&V has been tracking since the beginning of the project.

Updates to Risk Categories

This report includes updates to last month's IV&V risk report to provide context to the readiness assessment. In this report, we are providing an overall risk rating for each assessment category.

The project has made good progress over the past month to wrap up UAT and is poised to complete training on June 9, 2023 and go-live on June 19, 2023. Project leadership continues to effectively manage their resources, the project schedule, and risks, and continues to demonstrate a strong commitment to making the project a success. However, on 5/30/23, it was disclosed that PUC's Document/OCR subcontractor (Bitwise/Stria) furloughed all of their employees and currently faces the risk of insolvency. The SI has expressed their intention to take over the work that was subcontracted to Stria. They are actively working to ensure that the go-live of the project will not be adversely affected.



Go-Live Readiness

In this assessment, IV&V focused on seven components: requirements management, testing, data migration, help desk readiness, performance and load testing, training, and Organizational Change Management (OCM). The assessment scorecard reveals that five components carry a "Low" go-live risk, while two components pose a "Medium" risk. The potential for challenges particularly in the areas of data migration and help desk readiness remains the highest but appears to be within manageable levels. Overall, project risk is manageable barring any unforeseen significant events. If the Project can successfully mitigate the impact of losing their OCR vendor, they will be adequately prepared for go-live.




Executive Summary

Go-live Readiness Scorecard

Assessment Components	IV&V Observations	Go-live Risk
Requirements Management	Although the SI-delivered requirements traceability matrix (RTM) lacked traceability to test script results, the PUC project team appears to have mitigated this risk through their own extensive requirements validation and testing efforts. PUC is confident requirements for go-live will be met. The project has identified a limited number of requirements that will be implemented post go-live and intend to manage user expectations accordingly.	
Testing	The Project has encountered multiple testing challenges since the commencement of testing, including inadequate SI system and regression testing, subpar test script quality, and an RTM that failed to establish a clear traceability between requirements and test script outcomes. The PUC has diligently worked to mitigate these risks and ensure that functional requirements and system functionality have been thoroughly tested to meet user satisfaction. PUC is confident that users will be able to proficiently carry out their duties upon go-live. IV&V has some concern that certain testing challenges could give rise to unforeseen system issues and potential usability difficulties, but the Project seems poised to address issues that arise post-go-live.	

Executive Summary

Go-live Readiness Scorecard

Assessment Components	IV&V Observations	Go-live Risk
<p>Data Migration</p>	<p>The data migration planning, analysis, and testing efforts for the Project have yielded positive results thus far. However, IV&V expressed concerns regarding the inclusion of problematic data, such as duplicate accounts, in the pre-go-live migration. The current plan is for PUC staff to address data quality issues over the weekend before go-live to minimize the presence of bad data. Nevertheless, it remains uncertain how much progress will be made or the extent to which the system will contain flawed data at go-live. IV&V continues to worry that users may become frustrated if they encounter inaccurate data in the system after go-live. PUC has accepted this risk and remain poised to address issues that arise post-go-live.</p> <p>IV&V has concerns regarding the recent loss of the Document migration/OCR vendor, which now necessitates the SI to assume these responsibilities with a mere 20 days remaining until go-live. However, the SI has reassured PUC that they do not anticipate any issues that could potentially cause a delay in the go-live timeline.</p>	<p style="text-align: center;"></p>

Executive Summary

Go-live Readiness Scorecard

Assessment Components	IV&V Observations	Go-live Risk
Help Desk Readiness	Concerns regarding the capacity of the PUC help desk and its ability to handle the potential initial influx of help desk calls during the go-live week remain. IV&V is concerned with the potential of unforeseen system issues to quickly overwhelm the help desk, and leave users frustrated with extended response times for system support. However, PUC is taking steps to train Office Administrators (OAs) how to intake and process calls for help.	M
Performance & Load Testing	IV&V has not been made aware of any formal performance and/or load testing that is planned to be conducted. Both the SI and PUC have reported conducting extensive informal testing and express confidence that performance will not significantly impact go-live. The implementation of the system on the Salesforce platform, known for its ability to effectively address various performance challenges, provides mitigation of performance risks. However, IV&V continues to have concerns regarding the possibility of user frustration, particularly among public users, due to potential delays in uploading large files.	L
Training	The training sessions are currently in progress and are scheduled to be completed by 6/9/2023. IV&V witnessed productive training sessions, and initial user feedback has been positive. However, IV&V still have concerns regarding the inherent difficulties of training external users and whether the training efforts and user preparations for the portal will effectively minimize user frustration with the new system. To mitigate this, PUC has been developing additional documentation, Q&A's, and how-to's that include step-by-step and video instructions.	L
Organizational Change Management (OCM)	IV&V maintains concerns regarding the sole responsibility of the PUC for OCM activities and their inability to allocate adequate resources to implement OCM as desired. However, PUC acknowledged and accepted this risk. Despite limited capacity, the PUC has demonstrated commendable efforts in developing and executing an informal plan for OCM. This plan includes a well-structured schedule of strategic communications that will be disseminated to stakeholders.	L




Executive Summary

May '23	Category	IV&V Summary
	Project Management	<p>Initial concerns regarding the capacity and availability of PUC resources did not significantly impact the project. PUC subject matter experts (SMEs) and users were generally available and accessible throughout the project duration. However, IV&V continues to express concern regarding the potential for PUC resources responsible for help desk support to become overwhelmed with support calls related to the new system.</p> <p>The risk associated with the accelerated schedule has been largely mitigated through strategic schedule extensions, and it is highly likely that the go-live date of June 19, 2023, will be achieved. Therefore, IV&V has closed Finding #16 (<i>Adoption of an aggressive schedule can lead to poor system design, PUC stakeholder frustration, and stretch PUC resources beyond their capacity</i>). Project leadership has demonstrated effective management of resources, scheduling, and various project risks. The Project team has consistently exhibited a strong commitment to ensuring the success of the project.</p>
May '23	Category	IV&V Summary
	Software Development	<p>The SI has taken steps to address initial concerns regarding the quality of business analysis, user interface design, and process flow efficiencies. As a result, IV&V has closed Finding #17 (<i>Inefficient and insufficient business analysis activities could lead to rework, schedule delays, SME frustration, and poor system design</i>). Previously reported issues concerning missed payment system requirements have been resolved and the updated payment functionality (single vs. dual system payment reporting) is expected to be available for go-live.</p> <p>During the training sessions, users have provided predominantly positive feedback, acknowledging that the new system offers numerous efficiencies compared to the previous one. Nevertheless, the PUC project team has identified specific areas within the system that require further improvement. The extent of these necessary improvements, and the associated costs that may need to be covered by M&O funds, are still unclear.</p>



Executive Summary

May '23	Category	IV&V Summary
	Data Management	<p>SI data migration planning, analysis, and testing efforts have produced positive results thus far. IV&V remains concerned that the project plans to include some bad data (including duplicate accounts) in the pre-go-live data migration and plans to have PUC staff perform data clean up over the weekend before go-live to resolve as many data quality issues as possible prior to go-live. However, it remains unclear what their progress will be or the extent to which bad data will be in the system at go-live. IV&V remains concerned that users could be frustrated if bad data appears in the system post go-live.</p> <p>IV&V and PUC remain concerned with the recent disclosure that the project Document/OCR subcontractor (Bitwise/Stria) had furloughed all of their employees and are currently facing insolvency. The SI has expressed their intention to take over the work that was subcontracted to Stria and are actively working to ensure that the go-live of the project will not be adversely affected. In the event that the SI is unable to adequately carry out the tasks originally assigned to Stria, there is a possibility of project go-live being delayed. IV&V recommends the SI implement a proof of concept as soon as possible to validate whether they will be able to effectively carry out the tasks originally assigned to Stria. IV&V recommends the project prepare contingency plans in the event go-live is impacted.</p>



Executive Summary

May '23	Category	IV&V Summary
M	Testing	<p>The project has had to overcome several testing challenges since testing began including insufficient SI system and regression testing, poor test script quality, and an RTM that failed to trace requirement to test script results. The PUC has made significant efforts to mitigate these risks and assure functional requirements and system functionality has been fully tested to their user's satisfaction and that users will be able to effectively perform their duties at go-live. Therefore, IV&V is lowering this category risk to "Medium".</p> <p>IV&V remains concerned that some testing challenges could lead to unforeseen system issues and usability challenges. Further, IV&V is not aware of any formal performance and/or load testing that will be performed. The SI and PUC has reported performing significant informal testing and both are confident performance will not materially impact go-live. IV&V remains concerned with the potential for user (especially public user) frustration with delays in the upload of large files.</p>

May '23	Category	IV&V Summary
L	Requirements	<p>Although PUC did not receive a fully traceable Requirements Traceability Matrix (RTM), they accepted the delivered incomplete RTM. PUC conducted their own validation efforts, testing, and system review to increase their confidence that requirements have been fulfilled. To further mitigate the absence of a fully traceable RTM, the Project may utilize the warranty period to address any missing functionality. Therefore, IV&V has lowered this category risk to "Low".</p>



Executive Summary

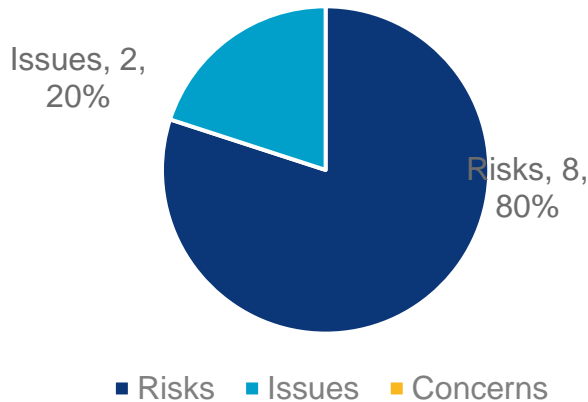
May '23	Category	IV&V Summary
L	Training (OCM)	<p>Training sessions are on-going and are planned for completion on 6/9/2023. IV&V has observed productive training sessions and user feedback has been positive thus far. IV&V remains concerned with the inherent challenges of training public (external) users and whether portal training and user preparation efforts will prove successful to minimize user frustration with the new system and avoid a flood of help desk calls the week of go-live. IV&V also remains concerned with PUC help desk capacity and whether they will be overwhelmed with the potential initial surge of help desk calls during the week of go-live.</p> <p>IV&V remains concerned that OCM activities are the sole responsibility of PUC and they have been unable to allocation sufficient resources implement OCM the way they wanted to and have therefore accepted this risk. Though PUC OCM capacity is limited, they appear to have made good efforts to put together and execute on an informal plan that included a schedule of communications that will be strategically sent out to stakeholders.</p>



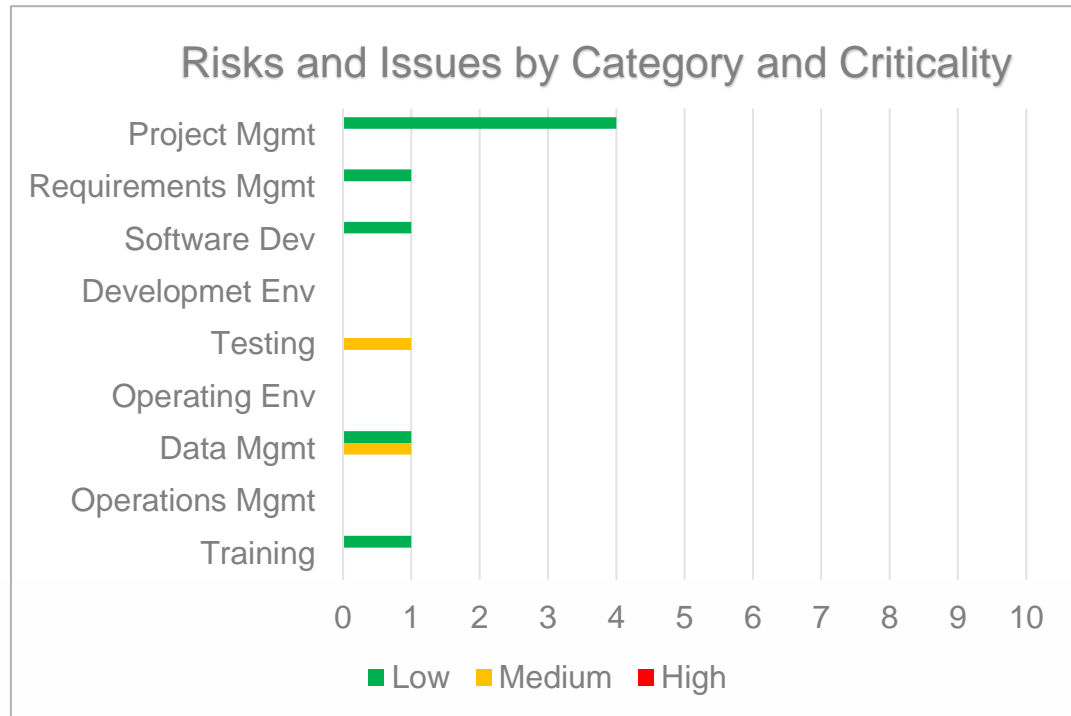
Executive Summary

IV&V is monitoring ten open findings. Two findings (#16 – Schedule and #17 – Business Analysis) were closed which lowered the number of findings under Project Management and Software Management. One new finding (#26 – OCR Vendor) was opened and is a medium risk. This finding falls under Data Management. Two findings (#21-Payment Processing and #25-RTM) were lowered from medium to low. One finding (#29-testing) was lowered from high to medium.

All Findings by Type



Risks and Issues by Category and Criticality



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IV&V Findings and Recommendations

IV&V Findings and Recommendations

IV&V ID #14	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021
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Title: Limited PUC resource availability could lead to schedule delays and incomplete system design.

Observation: Although the CDMS Project is a high priority at the PUC, resource limitations appear to exist throughout the life cycle of the Project. These constraints were communicated to the System Integrator (SI) early in the project for planning purposes.

Context: System development projects require coordination and engagement between the SI and the client in order to accurately document business needs, processes, user stories, business rules, and anything needed to build a system that meets the client's needs.

Impact: Schedule delays, increased project cost, implementation of a solution that that does not meet the PUC's needs

Updates

5/31/2023: The availability of PUC resources during the project appeared not have a significant impact on the project schedule or system design. PUC subject matter experts (SMEs) and staff were readily available when required, and they remain accessible for ongoing training. There are no expected risks to the project schedule or system design related to resource availability going forward. PUC leadership effectively managed resources and PUC showed a strong commitment to make the project a success.



IV&V Findings and Recommendations

IV&V ID #14 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
The Project conduct detailed resource planning under the new schedule to avoid resource constraints.			Medium Term	In progress
PUC PM and SI PM develop a plan to address these constraint and work closely together throughout the project to plan important meetings based on resource availability.			Long Term	In progress
PUC and SI review Sprint Plan and ceremonies to identify specific resources to help identify resource risk that can be addressed before sprint cycles begin.			Short Term	Complete
SI employ agile processes and methodologies so that progress can be made regardless of PUC resource availability.			Long Term	Complete



IV&V Findings and Recommendations

IV&V ID #15	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021
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Title: Project deliverables and artifacts that lack sufficient detail could lead to project delays, misunderstandings, inefficient project execution, and rework.

Observation: Early SI submissions of project deliverables lacked sufficient detail.

Context: Project planning documentation such as the Project Plan, Risk Management Plan, Communication Plan and Change Management Plan, can be effective tools for projects of this size to increase stakeholder understanding of the goals, approach, steps, timelines, roles and responsibilities. Additionally, conceptual designs, requirements traceability matrices, and process maps can also provide important information for successfully developing a system that meets PUC's needs.

Impact: Failure to provide sufficient detail in project deliverables can lead to project team confusion, missteps, project delays, misunderstandings, inefficient project execution, and rework.

Updates

5/30/2023: Both PUC and IV&V have reviewed Deliverable 5.3, UAT Test Results and both express concerns that the draft fails to meet the deliverable goal of defining how the system fulfills system requirements. Furthermore, the draft does not accurately reflect the actual activities performed during UAT. PUC is requesting the SI to update the deliverable.



IV&V Findings and Recommendations

IV&V ID #15 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
Although DEDs were developed for all deliverables, the SI should involve PUC before providing the draft deliverable to obtain feedback and expedite review cycles.			Long term	In progress
The SI should perform additional QA of deliverables prior to submission			Long term	In progress



IV&V Findings and Recommendations

ID #16	Type: Issue	Status: Closed	Category: Project Management
	Rating: Medium		Date Opened: September 30, 2021

Title: Adoption of an aggressive schedule can lead to poor system design, PUC stakeholder frustration, and stretch PUC resources beyond their capacity.

Observation: The project has an aggressive schedule with little slack given the volume of deliverables and artifacts, the availability of PUC resources, and the perceived cadence of project meetings and workshops.

Context: A schedule with flexibility and sufficient slack to accommodate project changes that impact the schedule such as resource availability, activities that take longer than anticipated, or missed dependencies, typically result in a project that is delivered on time. Projects with aggressive schedules tend to rush project activities to meet deadlines.

Impact: Rushed project activities can reduce document and system quality. When activities do not seem thorough, customer frustration can result. A rushed schedule can place unnecessary demand on PUC resources, especially if PUC resources are already fully utilized.

Updates

5/31/2023: The Project's training phase will conclude June 9, and it is currently on track for the scheduled go-live date of June 19, 2023. Given the Project does not anticipate further delays, IV&V is closing this issue.



IV&V Findings and Recommendations

IV&V ID #17	Type: Issue Rating: Medium	Status: Closed	Category: Software Development Date Opened: September 30, 2021
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Title: Inefficient business analysis activities could lead to rework, schedule delays, SME frustration, and poor system design

Observation: PUC and IV&V were concerned that many analysis outputs lacked sufficient quality and comprehensiveness. For example 1) PUC workshop attendees mentioned various workshops and meetings were not very useful, unorganized and unproductive; 2) The workshop cadence seemed slow and did not appear to achieve all intended goals of each workshop session; 3) Although not a contractual requirement, meeting notes from the workshops were not sent to meeting attendees which helps confirm the SI's understanding and shows visibility that the SI understands PUC's needs; 4) Although not explicitly required, PUC requested the SI to review the business documentation provided by a 3rd party prior to conducting the as-is workshops to save time and not start from a blank slate. Despite having access to and reviewing the existing business documentation, PUC observed many questions and time spent on areas that were already documented and PUC was not confident as to how much of the existing documentation was leveraged.

Context: Efficient business analysis processes promote effective communications resulting in productive meetings, good project documentation that provides clarity to complex topics, and overall, foster trust.

Impact: Inefficient analysis activities can negatively impact the Project. For example, 1) Project delays can occur if meetings do not meet intended goals and require additional clarification; 2) Rework and redesign can happen if accurate information was not solicited because participant expectations were not clear during the meeting; 3) Client buy-in and system acceptance may reduce.

Updates

5/31/2023: Given the opportunity to perform business analysis is likely passed, this issue has been overcome by events. IVV will close this risk but will continue to track elements of this issue as part of finding number 18.



IV&V Findings and Recommendations

IV&V ID #18	Type: Risk Rating: Low	Status: In progress	Category: Software Development Date Opened: October 28, 2021
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Title: Lack of attention to process improvement can lead to a system that simply automates existing processes instead of improving them

Observation: The extent to which the Project intends to focus on process improvements remains unclear. Pain points do not seem comprehensively tracked or considered during design sessions or whether all stakeholders are aware of or are actively utilizing the pain points list. While IV&V recognizes that change is difficult, some stakeholders appear to be hesitant to let go of familiar processes during the design sessions. It remains unclear if PUC has assigned the role of change champion to drive organizational process improvements.

Context: IT Projects that assign change champions and prioritize process improvement have an increased likelihood of resulting in systems that meet the organization's future business needs and improve system acceptance.

Impact: Lack of attention to process improvement can lead to a final product that fails to provide maximum value to users. Tracking pain points can be an effective OCM strategy to promote user adoption and increase user buy-in by providing visibility into how the system can resolve their pain points. Also, identifying and implementing opportunities for process improvement avoids SME frustration and rework.

Updates

5/30/2023: User feedback from training has been generally positive in that users will now have an improved system that provides many efficiencies. However, the PUC project team has indicated there is room for improvement in key areas of the system. It remains unclear how many improvements will need to be made using M&O money that could have been part of the go-live system design.



IV&V Findings and Recommendations

IV&V ID #18 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Software Development Date Opened: October 28, 2021	
Recommendations/Action Items			Period	Status
Communicate to users and stakeholders process improvement that may not be optimized upon go-live but may be addressed during M&O.			Medium Term	In progress
Identify a PUC process improvement resource to drive/coordinate organizational process improvement efforts and assure system related processes are optimized. This resource could attend design sessions and validate designs support process improvement.			Short term	Not started
Work closely with the SI to identify opportunities for process improvement and implement associated features in the system being careful not to overwhelm users with too much change.			Long term	In progress
Formally engage stakeholders in identifying and tracking pain point and out-of-scope requirements so they are not forgotten and can be revisited in future project phases or other organizational initiatives.			Long term	In progress
Formally track readily available details of out-of-scope requirements that could be beneficial to users so they are not forgotten and they can be easily revisited in future project phases or other organizational initiatives.			Long Term	In progress



IV&V Findings and Recommendations

ID #19

Type: Risk

Rating: Low

Status: In progress

Category: Project Management

Date Opened: November 30, 2021

Title: Key PUC project resources performing multiple roles could lead to schedule delays and significant project disruption.

Observation: IV&V has noted that at least two of the PUC project team members perform multiple roles and responsibilities on the project which may impact their ability to be successful if project demands increase.

In addition to serving as PUC's CDMS PM, this position also performs the following roles: Organizational Change Management lead, Process Improvement lead, Business Analyst Co-lead, User Acceptance Test (UAT) Co-lead, and Contract Administrator. In addition to performing ongoing operational responsibilities, the PUC CDMS Technical Lead is the Project IT Sponsor, Data SME, BA Co-Lead, and User Acceptance Test Co-Lead, and is heavily relied on for business analysis.

While these team members have indicated a strong commitment to project success, each has multiple competing priorities. The team members stated their support staff, including the new communications lead, will take on more responsibility to alleviate demands on their time. Also, the team members believe that the overall future workload will lessen.

It remains unclear if PUC staffing levels are appropriate for this project.

Context: Typically, Hybrid Agile projects require an increased level of customer engagement through all phases of the project. Overreliance on key resources can not only overtax and thereby reduce the effectiveness of these key individuals but also present a risk of significant project disruption in the event of their departure.

Impact: If the PUC PM and Technical SME are unable to transfer some responsibilities to other PUC resources, this could stretch them beyond their capacity which may lead to project delays and a decrease in quality in the project tasks they perform.

Updates

5/31/2023: The close of UAT has provided PUC resources with some relief and should allow them to focus on training and pre-go-live activities. PUC's decision to hire an additional analyst appears to have mitigated this risk to a significant extent.



IV&V Findings and Recommendations

IV&V ID #19 (con't)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: November 30, 2021	
Recommendations/Action Items			Period	Status
Continue to focus on high priority and critical items			Medium term	In progress
Continue to leverage analyst to relieve the demand on the PUC PM			Medium term	In progress
The Project should plan for different contingencies depending on when the third PM becomes available.			Medium term	Complete
The Project should plan for different contingencies depending on the role of the original PM moving forward.			Medium term	Complete
Consider temporary staff augmentation options to both augment the existing project team and augment the operations staff to offload operational responsibilities from key resources			Long term	Complete
Executive leadership regularly monitor the workload and job satisfaction of these key individuals as well as assist with workload management, clarification of priorities, and establishment of a sustainable pace.			Long term	Complete
Temporarily re-allocate operational responsibilities from key resources until project responsibilities are reduced.			Long Term	Complete



IV&V Findings and Recommendations

ID #20	Type: Risk Rating: Low	Status: In progress	Category: Data Management Date Opened: March 31, 2022
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Title: Data cleansing challenges could overwhelm PUC SMEs and could confuse users, reduce user buy-in, and/or lead to schedule delays if the Project went live with some bad data

Observation: IV&V is concerned with the poor quality of the legacy system data and whether PUC has the capacity to effectively cleanse their data. Further, if the project aims to meet data conversion milestones, the project may elect to go-live with some bad data to meet their planned go-live date.

Context: Typically, any bad data is addressed prior to go live to facilitate user adoption and to increase perceived system quality.

Impact: If all important data is not cleaned up prior to go-live, user adoption may be challenged, and user perception of the system may be diminished.

Updates

5/31/2023: PUC plans to schedule resources to help with data clean up over the weekend before go-live to resolve duplicate issues. However, the identification and approval of these resources to work overtime are still pending. IV&V remains concerned that users could be frustrated if bad data appears in the system post go-live.



IV&V Findings and Recommendations

IV&V ID #20 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Data Management Date Opened: March 31, 2022	
Recommendations/Action Items			Period	Status
The Project determine how long it will take to complete the post go live cleanup activities and if possible, complete after go-live is complete, but prior to production users using the system.			Medium term	In progress
Communicate to users and stakeholders the expected bad data and provide timelines and processes for fixing the bad data.			Medium term	Not started
Develop additional automation / pre-go-live strategies to clean data			Medium term	In Progress



IV&V Findings and Recommendations

IV&V ID #21	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: May 31, 2022
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Title: Delays in establishing card-not-present payment gateway could lead to schedule delays and increased cost

Observation: The Project elected to pause most activities for almost 3 months to procure a card-not-present payment processing vendor. Originally, the Project was planning on forego a public solicitation for these services, but the State Procurement Office required it. The SI stated the pause will be a no cost change order. .

Context: The Project has had past difficulties accurately estimating the procurement of the card-not-resent service vendor and it is unclear how accurate these new estimates are.

Impact: If PUC is unable to secure a new payment processing vendor by the beginning of January 2023, the Project may be delayed. Original: If the PUC is unable to process payments on August 14th, 2022, the Project may be further delayed. Given the SI will not charge the customer for the initial 3-month delay, the budget impact could be minimal. However, the SI stated if payment processing is not available by 8/14, there is a \$10,000 a week fee for the additional schedule extension. PUC stated they are confident they can complete this procurement before the 8/14 deadline but if the Project is unable to meet these deadlines, the Project stated they have alternative plans.

Updates

5/31/2023: The Project intends to implement the missing financial reporting functionality right after go-live. The Fiscal team is being trained to handle running reports in two different systems in the event the SI is unable to complete the single system financial reporting functionality before go-live. However, if the vendor can complete the single system reporting functionality before go-live, the Fiscal team will also receive training on the new method. Although testing this functionality is late and is unclear if it has been fully tested, the SI is confident in implementing the missing functionality successfully. Given the impact to PUC is low and the probability of the system completely breaking, IV&V is lowering this risk to a "Low".



IV&V Findings and Recommendations

IV&V ID #21 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: May 31, 2022	
Recommendations/Action Items			Period	Status
PUC consider requesting the vendor to address the missing functionality prior to go-live to prevent any inconvenience			Medium term	In Progress
PUC could consider delaying the May 15, 2023 go-live date to provide more time to complete all Project activities satisfactorily. PUC reported no significant business impact if go-live is further delayed.			Medium term	Complete
Closely monitor procurement for any signs of delay			Medium term	Complete
Develop mitigation strategies if procurement activities appear unfavorable			Medium term	Complete



IV&V Findings and Recommendations

ID #23	Type: Risk Rating: Low	Status: New	Category: Training (OCM) Date Opened: February 28, 2023
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Title: Lack of PUC OCM resources could hinder OCM effectiveness

Observation: PUC has limited capacity to perform comprehensive OCM activities. OCM is currently being led by the PM with assistance from the PUC communications officer, both of which have limited capacity.

Context: A major goal of OCM is to ensure an organization adopts new systems and processes without causing negative impacts.

Impact: Insufficient OCM can lead to user dissatisfaction and a lack of buy-in. The need to address user concerns and confusion as they struggle to adapt to the new system/ processes could weigh heavily on project leadership and PUC staff the week of go-live.

Updates

5/31/2023: The Project continues to send OCM communications to users. T-Minus 30 and T-Minus 15 communications were sent outline important project information. The Project plans to send T-Minus 7 and T-Minus 1 communications which will contain additional detail.



IV&V Findings and Recommendations

IV&V ID #23 (cont.)	Type: Risk Rating: Low	Status: New	Category: Training (OCM) Date Opened: February 28, 2023	
Recommendations/Action Items			Period	Status
PUC could consider pushing the May 15, 2023 go-live date further out to provide more time to complete all OCM activities satisfactorily.			Medium term	Complete
PUC strategically plan to implement select OCM activities that will provide the greatest OCM benefit.			Medium term	In progress
Focus efforts towards public portal users given the greater risk of bad press if communications are insufficient.			Medium term	In progress



IV&V Findings and Recommendations

IV&V ID #24	Type: Issue Rating: Medium	Status: In progress	Category: Testing Date Opened: February 28, 2023
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Title: Insufficient testing could lead to unexpected delays, increased burden on PUC testers, and reduced user buy-in.

Observation: The tests scripts the SI provided for system and user acceptance testing (UAT) were not comprehensive enough to assure full test coverage of the system. Given the significant number of defects (over 200) found in the first round of UAT, it remains unclear if SI system tests, prior to UAT, were comprehensive. The SI has yet to revise their test scripts to PUCs satisfaction. PUC has stated it appears SI regression testing efforts may be insufficient.

Context: One of the goals of testing is to reduce the number of defects found in subsequent project phases. For example, prior to UAT, system test should be conducted to minimize the number of defect introduced into the UAT environment so that UAT users can concentrate on determining if the system meet their needs instead of defects that should have been caught earlier.

Impact: Insufficient SI testing could increase the UAT level of effort if they are left with the additional burden of discovering defects missed by the SI, resulting in further Project delays. Further, overall impressions of the system and the improvements it will bring could be overshadowed by negative opinions voiced by PUC testers and thereby reduce user buy-in. If testing is not completed in a timely manner and/or if the SI is unable to assure each requirement has been fully met and comprehensively tested, system go-live could be delayed.

Updates

5/30/2023: By rescheduling the go-live date to June 19, 2023, PUC was able to extend the project timeline and carry out extra testing and validation. PUC is satisfied with the system once the Project addressed all additional defects and incorporated user feedback. The only functionality that remains untested is the financial reporting associated with payment processing. The Project aims to finalize this testing by June 9, 2023. The PUC has made significant efforts to mitigate these risks and assure functional requirements and system functionality has been fully tested to their user's satisfaction and that users will be able to effectively perform their duties at go-live. Given PUC's mitigation steps, IV&V is lowering this issue to "Medium".



IV&V Findings and Recommendations

IV&V ID #24 (cont.)	Type: Issue Rating: Medium	Status: New	Category: Testing Date Opened: February 28, 2023	
Recommendations/Action Items			Period	Status
As UAT is the last phase before production extend UAT as long as necessary to ensure the system is ready for go-live to PUC's satisfaction.			Medium term	Complete
PUC and the SI perform significant ad-hoc testing			Medium term	Complete
PUC could consider pushing the May 15, 2023 go-live date further out to provide more time to complete all Project activities satisfactorily. PUC reported no significant business impact if go-live is further delayed.			Medium term	Complete



IV&V Findings and Recommendations

IV&V ID #25	Type: Issue Rating: Low	Status: In progress	Category: Requirements Date Opened: February 28, 2023
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Title: Insufficient requirements traceability could lead to missed requirements, rework, and budget/schedule impacts

Observation: The Requirements Traceability Matrix delivered by the SI lacks sufficient detail to fully map test scripts back to individual requirements, rather, the SI has elected to only map test scripts back to requirement categories. The SI has stated they will not provide this level of details that is typical of an industry standard RTM despite multiple requests from PUC.

Context: IEEE states: Requirements are the most important part of any software projects. Many software projects were failed due to incomplete requirements and lack of user involvements. It is very important to define all requirements at the beginning of any new project so that all members of the team can easily find what goals they should be striving toward. Requirement Traceability Matrix (RTM) is a document that contains all requirements presented by the customer or development team at the end of the life-cycle. The main purpose of creating Requirement Traceability Matrix is to check that all test cases are covered and should not be missed any functionality while testing."

Impact: Failure to trace test cases/scripts back to individual requirements could lead to a system has not been fully tested to assure all system requirements have been met.

Updates

5/31/2023: Although PUC did not receive a fully traceable Requirements Traceability Matrix (RTM), they accepted the delivered incomplete RTM. PUC conducted their own validation efforts, testing, and system review to increase their confidence that requirements have been fulfilled. To further mitigate the absence of a traceable RTM, the Project may utilize the warranty period to address any missing functionality. Given PUC's mitigation steps, IV&V is lowering this issue's rating to "Low".



IV&V Findings and Recommendations

IV&V ID #25 (cont.)	Type: Issue Rating: Low	Status: In progress	Category: Requirements Date Opened: February 28, 2023	
Recommendations/Action Items			Period	Status
PUC Request the SI deliver a finalized fully traceable RTM that meets industry standards			Short term	Not started
If the PUC and SI come to an agreement, suggest the SI collaborate on ways to mitigate this risk			Short term	Complete



IV&V Findings and Recommendations

IV&V ID #26	Type: Risk Rating: Medium	Status: New	Category: Data Management Date Opened: May 31, 2023
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Title: Lack of an OCR contractor could result in data conversion delays.

Observation: In the data conversion process, the SI had initially planned to subcontract the importation of electronic documents into DocuSign to Stria, which was recently acquired by Bitwise. Stria utilized customized tools to streamline this process. However, on 5/30/23, it was disclosed that Bitwise/Stria had furloughed all of their employees and currently face the risk of insolvency. Prior to this announcement, Stria had already processed a significant number of documents. In response to this situation, the SI has expressed their intention to take over the work that was subcontracted to Stria. They are actively working to ensure that the go-live of the project will not be adversely affected.

Context: OCR is a necessary part of PUC's data conversion efforts to ensure existing files are transferred to the new system.

Impact: In the event that the SI is unable to adequately carry out the tasks originally assigned to Stria, there is a possibility of project go-live being delayed. Such a delay would necessitate the correction or revision of the prepared communications, potentially leading to confusion among the users.

Updates

5/31/2023: n/a



IV&V Findings and Recommendations

IV&V ID #26 (cont.)	Type: Risk Rating: Medium	Status: In progress	Category: Data Management Date Opened: May 31, 2023	
Recommendations/Action Items			Period	Status
Request the SI implement a proof of concept (POC) to validate whether they will be able to effectively carry out the tasks originally assigned to Stria.			Short term	Not started
If the POC is effective, request the SI import a larger subset of documents and thoroughly validate and test the accuracy of the import.			Short term	Not started
Set a go/no-go decision date that would allow time for effective communications in the event of a no-go decision.			Short term	Not started





IV&V Scope and Approach

IV&V Scope

- In accordance with PCG's contract for the CDMS Project at the PUC, the subject areas that are within the scope of IV&V activities include:
 - Project Management
 - Requirements Management
 - Software Development
 - Development Environment
 - System and Acceptance Testing
 - Operating Environment
 - Data Management
 - Operations Oversight
 - Training
- As the CDMS IV&V project progresses, PCG's activities will focus on areas that represent highest risk to the Hawaii PUC.



IV&V Approach and Methodology

- What is Independent Verification and Validation (IV&V)?
 - Oversight by an independent third party that assesses the project against industry standards to provide an unbiased view to stakeholders
 - The goal of IV&V is to help the State get the solution they want based on requirements and have it built according to best practices
 - IV&V helps improve design visibility and traceability and identifies (potential) problems early
 - IV&V objectively identifies risks and communicates to project leadership for risk management
- PCG IV&V Methodology
 - Consists of a 4-part process made up of the following areas:
 1. **Discovery** – Discovery consists of reviewing documentation, work products and deliverables, interviewing project team members, and determining applicable standards, best practices and tools
 2. **Research and Analysis** – Research and analysis is conducted in order to form an objective opinion.
 3. **Clarification** – Clarification from project team members is sought to ensure agreement and concurrence of facts between the State, the Vendor, and PCG.
 4. **Delivery of Findings** – Findings, observations, and risk assessments are documented in this monthly report and the accompanying Findings and Recommendations log. These documents are then shared with project leadership on both the State and Vendor side for them to consider and take appropriate action on.
















Note: This report is a point-in-time document with findings accurate as of the last day in the reporting period.








IV&V Engagement Status

IV&V Engagement Status

IV&V Engagement Area	Mar 23	Apr 23	May 23	Comments
IV&V Budget				The IV&V engagement is deliverables-based and PUC is not at risk of being over budget.
IV&V Schedule				The IV&V engagement aligns with the SI schedule.
IV&V Deliverables				There are no known risks to upcoming IV&V deliverables.
IV&V Staffing				The IV&V team maintains the proposed team and there are no foreseeable changes.
IV&V Scope				The IV&V project continues to operate within the scope of its engagement.




Engagement Status Legend		
	The engagement area is within acceptable parameters.	
		The engagement area is somewhat outside acceptable parameters.
		
		The engagement area poses a significant risk to the IV&V project quality and requires immediate attention.

Appendices



Appendix A – IV&V Criticality Ratings

See definitions of Criticality Ratings below:

Criticality Rating	Definition
 H	A high rating is assigned if there is a possibility of substantial impact to product quality, scope, 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.
 M	A medium rating is assigned if there is a possibility of moderate impact to product quality, scope, cost, or schedule. Some disruption is likely and a different approach may be required. Mitigation strategies should be evaluated and implemented as soon as feasible.
 L	A low rating is assigned if there is a possibility of slight impact to product quality, scope, cost, or schedule. Minimal disruption is likely and some oversight is most likely needed to ensure that the risk remains low. Mitigation strategies should be considered for implementation when possible.

Appendix B – IV&V Inputs

Meetings attended during the reporting period:	Artifacts reviewed during the reporting period:
Weekly check-ins with PUC	Training Materials
Monthly check-ins with PP	5.3 UAT Test Results
Weekly PM Meetings	
CDMS – Risk Management Meeting	
Training Sessions	



Appendix C – Upcoming IV&V Activities

Anticipated meetings to attend next period	Anticipated artifacts to review next period
Weekly check-ins with PUC	
Monthly check-ins with PP	
Weekly PM Meetings	
CDMS – Risk Management Meeting	
Deliverable Review Sessions	
Go/No Go Meetings	



Appendix D – Recommendation Periods

Period	Definition
Short Term	These are recommendations that should be completed within the month and/or require less than a month to complete
Medium Term	These are recommendations that should be completed within 2-6 months and/or require 2-6 months to complete
Long Term	These are recommendations that should be completed within 6 months to a year and/or require > 6 months to complete.





Solutions that Matter