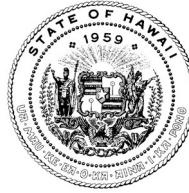


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DOUGLAS MURDOCK
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March 7, 2022

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


The Honorable Scott K. Saiki,
Speaker, and
Members of The House of Representatives
Thirty-First 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 (IV&V) reports to the Legislature within ten days of receiving the report, please find attached the IV&V report the Office of Enterprise Technology Services received for the State of Hawaii Department of Labor & Industrial Relations Hawaii Unemployment Insurance (HUI) Modernization Project.

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

Sincerely,


Douglas Murdock (Mar 7, 2022 14:09 HST)

DOUGLAS MURDOCK
Chief Information Officer
State of Hawai'i

Attachment (1)



Hawaii Unemployment Insurance Modernization (HUI Mod) Project

Department of Labor and Industrial Relations (DLIR)

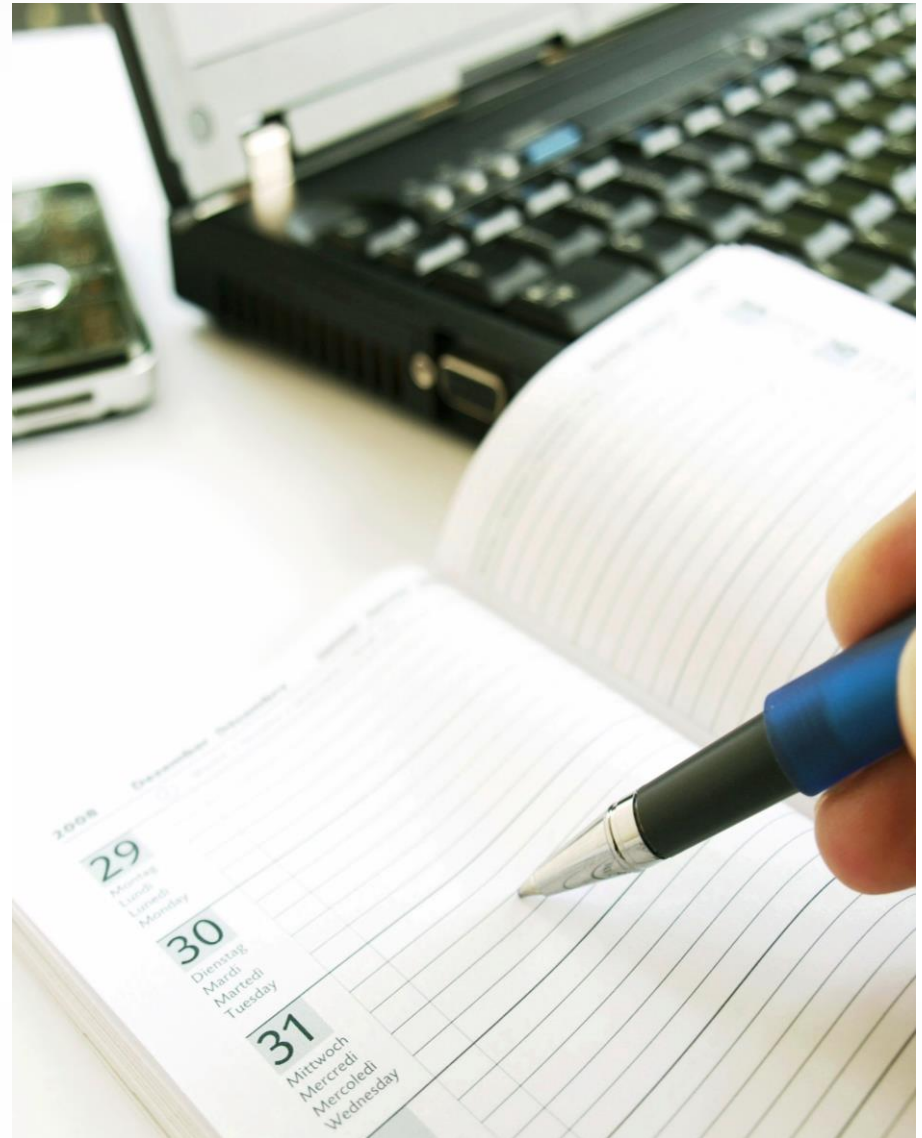
IV&V Monthly Status Report – **Final**
For Reporting Period: **January 2022**

Draft Submitted: 2/7/2022

Final Submitted: 2/24/2022

Overview

- Executive Summary
- IV&V Findings and Recommendations
- Appendices
 - A – IV&V Criticality Ratings
 - B – IV&V Standard Inputs
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Executive Summary

The HUI Mod Project is no longer on track for go-live in October 2022 and should re-baseline the schedule to account for increases in project scope related to the Employer Portal, as well as upcoming changes for Localization and Identity Proofing. This month, the Project focused on drafting a Data Migration Plan and Test Management Plan, as well as continued making progress for scoping, development, and testing activities across the Benefits, Tax, and Employer Portal workstreams. However, all activities remain behind schedule and an updated schedule is not expected until April 2022. The system vendor is planning to use the upcoming period to enhance project documentation and conduct a deep-dive analysis to determine the true status of the Project and an updated timeline of activities. Testing activities remain delayed which means that code quality remains unknown.







Nov 2021	Dec 2021	Jan 2022	Category	IV&V Observations
H	H	H	Project and Schedule Management	Activities across all workstreams remain delayed due to several factors including resource constraints (#27), lack of planning documents, and unexpected issues causing user stories to get deferred to future Sprints. Together, these create a risk (#28) that the current schedule is not feasible and go-live will be delayed, which has been confirmed by the lack of an accurate schedule and discrepancies between the multiple schedule tracking tools (#7). The development vendor, Solid State Operations (SSO), has been working on a Project Action Plan for the last several months to mitigate these risks, and expects to have an updated timeline by April 2022. That will put the Project at six (6) months away from go-live and is likely too late to implement preventative measures to maintain the October 2022 release date. The mitigation strategies to date have not been effective and the Project continues to fall further behind schedule.
H	H	H	Requirements Management	The scoping activities for the Tax and EP workstreams have been extended another month as anticipated in Risk #12 . Tax scoping sessions remain at three per week, but progress remains behind the anticipated schedule, and may start to impact Tax development activities in February. The IV&V team previously identified a risk (Risk #30) that a lack of a Requirements Traceability Matrix (RTM) may lead to missed activities, and as anticipated, all of the “fit” requirements were not documented during the scoping sessions. These are requirements that DLIR would like the final solution to satisfy, which are also deemed during the scoping sessions to be already met by the base Data Station solution. Risk #38 was opened this period to capture the risk that not all requirements are getting tracked or tested, and could result in an incomplete system at go-live.



Executive Summary (cont'd)

Nov 2021	Dec 2021	Jan 2022	Category	IV&V Observations
H	H	H	Design and Development	Development activities continued this month for all workstreams, although it is unclear what progress was made or what challenges have been encountered during the process as aggregated data has not been shared or reliably tracked by the Project. EP development again missed the planned completion date of 1/20/22 and has extended into February. SSO continues to look at ways to improve Sprint reporting to include additional details which will be more beneficial once the associated testing can begin.
H	H	H	Testing	This month, the Project shared an updated Test Management Plan (#24) which is a good start to managing testing activities, but gaps remain regarding associated timelines, test data and scenarios, entry and exit criteria for each phase, defect management, and roles and responsibilities for all testing activities. There also remains a backlog of tests to execute from Benefits Sprints 1 – 14 which will need to be completed in parallel to the test activities for upcoming Sprints 15 – 16 next month. The quality of the Sprints delivered to date remains unknown since testing has not occurred by DLIR and no test details have been shared for any of the workstreams (#33). The IV&V team identified two new risks that a lack of early end-to-end testing may disrupt UAT (#39), and that the lack of an approach for testing with interface partners could cause delays (#40).
M	M	M	Data Management	Data Conversion activities continued this month but there is still no Plan guiding the process, and therefore it is difficult to determine how well the activities are progressing. The scheduled activities remain a black box which expects to complete in July 2022, and while the Project has stated in meetings that they plan to use a two-phased approach for data conversion, the details have not been shared or documented.
L	M	M	Security	There are no updates for this period. Risk #36 remains open concerning the lack of a system security plan which could lead to vulnerabilities in the system. The IV&V team is also unclear how production data is planned to be used in development and test environments, which raises the risk that restricted data will be shared or accessed inappropriately (#37).

Executive Summary (cont'd)

Nov 2021	Dec 2021	Jan 2022	Category	IV&V Observations
			Organizational Change Management	The Project continues to hold biweekly working sessions with DLIR stakeholders from all affected program areas which is useful to communicate status, share upcoming processes, and gain buy-in from staff. Staff remain engaged and active participants in these sessions.
			Knowledge Transfer	Activities have not yet started but are planned in the project schedule and will be monitored.


Executive Summary

Open IV&V Findings by Category and Priority




IV&V Findings and Recommendations

Project Schedule and Management

#	Key Findings	Criticality Rating
27	<p>Risk – Vendor Resource Management Unable to Meet Scheduled Activities: Vendor resource management has not been able to meet the Project’s needs, with the limited availability of resources from SSO and Netacent having an impact on the project schedule. Resources are dealing with competing priorities which has caused delays in development activities for Tax and Employer Portal. For instance, during the October 2021 reporting period, a key resource for the Collections/ Overpayments module was replaced, as DLIR SMEs were concerned about the approach used for user story authoring activities, and meetings not being structured, causing significant delays in scoping activities.</p> <ul style="list-style-type: none">• 01/31: Additional resources were added to assist with Tax development and Data Conversion. As the originally identified dates could not be met, the SSO PM is expected to determine velocity and revised timelines, based on sprint iterations by 04/01. However, there are concerns that a delay in determining velocity may further push out scoping, development and testing activities. The Project needs to align on a plan for resources needed from SSO and Netacent, for all activities in the schedule. Resources need to be identified at the earliest, to ensure they are prepared and available when required, to prevent further delays in project activities.	



IV&V Findings and Recommendations

Project Schedule and Management

#	Key Findings	Criticality Rating
28	<p>Risk – Project May Not Meet the October 2022 Go-Live date Due to Delayed Activities and Increases in Project Scope: The Original Go-Live date may not be feasible given the complex increases in project scope due to Employer Portal, Localization, and Identity Proofing. These each will require significant resources and time yet the schedule has not been re-baselined since the Project started. In addition, the Project has already faced delays across many aspects of the project including scoping, development, data conversion and testing activities for all workstreams. The STG environment continues to remain unstable, which has prevented post sprint validation activities from taking place. Currently, the Project is behind by seven (7) Sprints for Benefits Testing and five (5) Sprints for Employer Portal. As noted in risks #12 and 29, further delays in Tax and Employer Portal scoping and development activities will continue to create downstream delays, which may lead to a domino effect causing delays on future related activities and a strain on the project schedule.</p> <ul style="list-style-type: none">01/31: SSO shared a Project Action Plan on 01/25. However, the plan did not address how the current schedule delays will be resolved. SSO understands that additional scope will have an impact on the project schedule, and has requested time till 04/01 to analyze and determine project velocity. In addition to accommodating increases in project scope due to Identity Proofing and Translation, the Project needs to plan for UAT and OCM activities as well, not currently accounted for in the schedule. These activities, if not accounted for, can increase the risk of pushing out the go-live date beyond October.	


IV&V Findings and Recommendations

Project Schedule and Management

#	Key Findings	Criticality Rating
7	<p>Risk – Use of Multiple Schedule Tracking Locations May Lead to Confusion: SSO is tracking project progress in DevOps instead of the Smartsheets tool identified in the Time Management Plan, which has made it difficult for Project leadership to understand project progress and schedule variance at any given point.</p> <ul style="list-style-type: none">01/31: As noted in previous reporting periods, the risk remains high due to inconsistencies between the updates on Smartsheets vs DevOps. SSO is expected to share reports on a weekly basis, that will include updates requested by DLIR, as well as details on sprint activities. DLIR has also proposed to take ownership of the schedule, and will be managing and tracking the schedule on their end as well. It is imperative for the Project to identify and address the inconsistencies between the updates on Smartsheets and DevOps, as different statuses across the different sources make it difficult for the Project to understand the status at any given time.	
13	<p>Risk – DLIR Resource Management Needs Clarity: Resource needs for reviews and information gathering has been disjointed, often with a lack of lead time which has resulted in individuals not being available or prepared for meetings and reviews. There is a risk that downstream activities will take longer than expected or end up blocked because resources are not available.</p> <ul style="list-style-type: none">01/31: Subject Matter Experts (SMEs) are expected to become more involved as testing and data conversion activities progress. However, resource assignments have not been identified for all activities. For instance, while the scope of work has been identified for Notifications, the planned start and finish dates have not been identified by activity, leading to confusion around which SMEs need to be involved and when. If SMEs are not informed ahead of time, they may not be prepared or available when required, leading to delays in downstream activities. DLIR is expected to onboard a test lead and additional resources to assist with requirements gathering.	

IV&V Findings and Recommendations

Project Schedule and Management

#	Key Findings	Criticality Rating
25	<p>Risk – Regression Testing Not Accounted for in the Project Schedule: The current Project Schedule does not have time built into it for regression test related activities. Regression testing will be an important mitigation to ensure current development does not impact previous development (see Risk #26), and activities to set up, configure, and manage regression testing may add time to the schedule.</p> <ul style="list-style-type: none">• <i>01/31: The plan is for the Project to conduct regression testing manually. As noted in the September reporting period, regression testing has not yet been accounted for in the Project Schedule on Smartsheets.</i>	


IV&V Findings and Recommendations

Project Schedule and Management

Recommendations	Status
<ul style="list-style-type: none">• Losing key resources during the critical stages of the project can be detrimental to the completion and success of project activities. Additional developers from SSO were onboarded to assist with Tax development and Data Conversion. The Project should also ensure it is effectively conducting Knowledge Transfer sessions with new resources who will be stepping in.	In Progress
<ul style="list-style-type: none">• As noted in Risk #28, the Project does not look to be on track to meet the October 2022 Go-Live date. SSO shared a Project Action Plan, however, the plan did not include details on the approach and methodology to meet the originally identified dates. The Project is now expected to consume some of the contingency in the future, causing a strain on the schedule. The IV&V team recommends exploring alternative options to re-baseline the Go-Live date which takes into account the expanded scope, and appropriately adjusts the schedule and budget based on DLIR's priorities. It has been observed that a significant increase in seasonal claims are usually observed during the November – March time period and going live during this window should be avoided if possible.	In Progress
<ul style="list-style-type: none">• The Project should ensure the schedule in Smartsheets accounts for all user stories that require development and is consistent to the data that is shown in DevOps, including the state of each activity and whether it is complete or not.	In Progress
<ul style="list-style-type: none">• The same resources are involved in the Tax and EP Scoping sessions. Resources should be informed ahead of time, to ensure they are available and are prepared for all meetings. The availability of DLIR SMEs need to be accounted and planned for in the schedule as they are expected to become more actively involved as testing and data conversion validation activities progress.	In Progress
<ul style="list-style-type: none">• The Project should consider adding slack to the Project Schedule to account for regression test-related activities. Regression tests can help validate the quality of the application, provide a feedback cycle for newly developed features, and identify any adverse effects and mitigate them at the earliest.	Not Started

IV&V Findings and Recommendations

Requirements Management

#	Key Findings	Criticality Rating
12	<p>Issue – Delay in Employer Portal and Tax Scoping Activities May Impact Development Schedule: The Tax and Employer Portal modules are large scope activities that have not been incorporated into the Project Schedule. The initial plan was for activities to occur in parallel for both Benefits and Tax modules. Associated sprint activities were planned to start in July 2021 for EP but have been pushed out to August 2021, and Tax will start in October 2021. There is a risk that there is insufficient time to complete these activities prior to go-live.</p> <ul style="list-style-type: none">• <i>01/31: The Projected finish dates for Tax scoping activities have been pushed out to after February. Due to delays in scoping, development activities have not been able to meet the dates originally identified in the schedule. The Project's partner Netacent, who is responsible for the design and development of Tax-related functionality, is expected to share a six-week plan which outlines a strategy to complete scoping activities ahead of development. The Tax lead from Netacent is also expected to conduct in-person user authoring sessions to expedite the process and ensure development activities can resume at the earliest.</i>• <i>According to the schedule on Smartsheets, there are two activities as part of scoping still pending completion – 'Employer Portal Forms' with a finish date of 12/14, and 'Employer Portal Filing Quarterly Reports and Amend' with a finish date of 01/14. However, the status for completion of scoping activities in general is unclear as these activities have not been reported as complete. EP scoping and development activities are being tracked on an internal DevOps site, not visible to the Project team, and it is integral for SSO to share relevant updates during the PM meetings to understand the progress and identify roadblocks. All EP development was not completed by 12/23 as originally planned, and has been extended to 02/17 with respect to completion of feature development. SSO acknowledges that additional development activities related to EP will require corresponding Tax development activities to occur for full EP functionality to be realized. The dependencies need to be identified and accounted for in the schedule to prevent further delays.</i>	


IV&V Findings and Recommendations

Requirements Management

#	Key Findings	Criticality Rating
38	New Risk – Undocumented Requirements for Non-Gap Functionality May Lead to Additional Effort and an Incomplete System: The Project conducted gap analysis sessions in July 2021, during which DLIR program experts assessed and analyzed the proposed SSO solution against DLIR’s needs for the final HUI Mod system. Through these sessions, the Project was able to identify which DLIR requirements were met out of the box by the SSO solution (“fit”, or “non-gap” requirements), and which would require configuration or customization of the solution, which in turn became the design and development effort (“gap” requirements). While this process allowed the Project to discuss the full set of requirements which need to be satisfied by the final solution (the combination of fit and gap requirements), it is unclear where or if the non-gap requirements were documented. There is a risk that all requirements have not been captured and documented, including those that do not require customizations as well as non-functional requirements. Without the full set of system requirements, it will not be possible to fully test the system to verify it meets all of DLIR’s needs. This could result in some requirements getting overlooked and not be implemented in the final system released to production, or that the missed requirements will not be discovered until UAT and result in re-work or delays.	
30	Risk – Lack of Requirements Traceability Matrix May Lead to Missed Activities: The Project should create and update a cohesive Requirements Traceability Matrix (RTM) that provides clarity on how user stories progress from scoping into sprint development and eventually into testing. The RTM can help effectively identify any missing requirements and additional effort that needs to be accounted for in the schedule. <ul style="list-style-type: none">01/31: As the Project is steadily moving into Development and Testing, it is integral to create an RTM. According to the Project Action Plan, SSO will be sharing a Traceability Matrix to provide estimates of velocities as it relates to requirements gathering and development. A draft version of the Traceability Matrix was not shared with DLIR as originally planned on 01/28. DLIR is also working in parallel to track all requirements in one document. The timeline has not been identified on when the document will be shared.	

IV&V Findings and Recommendations

Requirements Management

#	Key Findings	Criticality Rating
29	<p>Closed Risk – Additional Scope for Technical Debt and Configuration User Stories May Impact Schedule:</p> <p>The Project has not accounted for additional scoping activities identified as part of the Benefits, Tax, and Employer Portal modules. As part of Benefits, for instance, there are user stories related to technical debt and configuration that have not been included in the schedule on Smartsheets but will require development activities. This additional effort will be needed for the Project to effectively assign resources and to ensure future plans for completion are accurate. Additionally, there may be an overlap between user stories in Tax and Employer Portal that needs to be resolved to determine the true level of effort needed for each workstream. There is a concern that if these user stories are not double-counted, there would be additional user stories that need to be scoped, which would require the Project to plan for resources. This additional scope across the three modules should be planned and accounted for in the schedule to prevent potential delays in downstream activities.</p> <ul style="list-style-type: none">• 01/31: The risk is closed and will be tracked in Risk #12.	


IV&V Findings and Recommendations

Requirements Management

Recommendations	Status
<ul style="list-style-type: none">The schedule on Smartsheets should be updated to reflect the delays and revised timelines for scoping based on discussions during the Tax DevOps sessions. The Project should complete all scoping activities for Tax and Employer Portal to meet the revised timelines identified in the schedule. The Project should have dependencies built in the schedule, where development sprints are tied to the scoping of user stories.	In Progress
<ul style="list-style-type: none">It is recommended that Netacent share an agenda prior to the Tax DevOps sessions and execute to it, to ensure there is sufficient lead time for DLIR SMEs to be prepared for meetings. The Project should also follow a documented process to share updates on progress, action items and roadblocks, that can be revisited during the meetings as required. To ensure the Project can catch-up on scoping activities, the Tax lead from SSO can go onsite to conduct sessions in-person with SMEs. As required, the project should validate the effectiveness of the Tax DevOps sessions and identify additional corrective measures if needed, to ensure prevent further delays to Tax and Employer Portal development activities.	In Progress
<ul style="list-style-type: none">As noted in Risk #30, the Project should create a Requirements Traceability Matrix (RTM) to include details on how user stories are mapped to sprint development, test scripts, and eventually into production releases. The RTM can help effectively identify any missing requirements and additional effort that needs to be accounted for in the schedule. There should be a mapping to the build release/sprint it was developed in, the Test Cases which show that the requirement works, and the release it gets deployed to production in. The project should also ensure that all required SMEs are involved in the scoping process.	Not Started
<ul style="list-style-type: none">The RTM should be created and consistently updated during the course of the Project and reflect changes based on scoping, development and testing activities.	In Progress
<ul style="list-style-type: none">The additional scope for technical debt and configuration activities should be planned and accounted for at the user story level in the schedule on Smartsheets, to prevent potential delays in downstream activities.	Closed


IV&V Findings and Recommendations

Design and Development

#	Key Findings	Criticality Rating
21	<p>Increased Risk – Limited clarity on user stories completed in each Sprint: The progress of user stories completed in each sprint is not clearly discussed during PM meetings and reports, and it is uncertain which stories were completed vs deferred in a given sprint. For example, during the sprint planning sessions on 07/27, there were discussions around potentially moving two user stories from Sprint 1 to Sprint 2, but it was not clear on which stories or what their complexity was.</p> <ul style="list-style-type: none">01/31: As noted in Risk #7, SSO is expected to share reports on a weekly basis which include details on sprint activities – including user stories completed, deferred and any issues identified in each sprint. However, reports were not shared over the last reporting period. The Project should also ensure there is a plan in place for completion of all user stories in subsequent sprints, that are dependent on the completion of the ones that have been deferred, as that could cause further delays in the project schedule. While development activities have been taking place for Benefits, Tax and Employer Portal, there is no visibility on current status, progress, activities completed, roadblocks or plan for future activities. During the PM meetings, SSO should share status updates for the different workstreams, and also use the meetings as a forum to discuss and escalate any concerns the development team is facing.	

IV&V Findings and Recommendations

Design and Development

#	Key Findings	Criticality Rating
31	<p>Risk – Delay in Tax Development Activities May Impact Schedule: Tax development activities have not progressed as planned due to the limited availability of vendor developers as they continue to deal with competing priorities. According to the revised timelines identified in the previous reporting period, only Sprint 0 for Tax has been completed. Subsequent sprints are behind schedule and will not meet the planned dates. The Project should align on a plan to ensure resources are available for activities to take place in a timely manner. As noted in the previous reporting period and in Risk #29, the Project should also determine if there is an overlap between user stories in Tax and Employer Portal, as this could lead to additional scoping and development activities that need to be accounted and planned for in the schedule.</p> <ul style="list-style-type: none">01/31: Additional resources were onboarded to assist with Tax development and the IV&V team is continuing to monitor to determine if these steps are effective to get activities back on track. SSO is expected to establish velocity based on development progress by late March. The staging environment for Tax has not been configured yet, with early testing activities expected to begin in February. As noted in Risk #12, Netacent is expected to share a six-week plan which outlines a strategy to complete scoping activities ahead of development. In addition, there are EP development activities that are dependent on the completion of Tax development. The Project needs to identify and account for all the dependencies to prevent further delays in Tax and EP development.	



IV&V Findings and Recommendations

Design and Development

Recommendations	Status
<ul style="list-style-type: none">The Project should follow a documented process to share the status and updates on user stories that have been completed and deferred to future sprints, and the complexity of those user stories. As testing activities take place, it is recommended that SSO also share details on pass/fail rate, number of defects generated, and mitigation strategies with a revised due date. The Project should track the progress of user stories in one location, and a periodic snapshot with updates after every sprint can help provide better visibility to the management team. This can also help the Project monitor and track the progress of user stories, and ensure future plans are realistic. It can also help avoid a common trap where complex user stories are deferred to the final sprints and the Project is not able to maintain the same user story completion velocity which could lead to downstream delays. There is also a need for the Project to account for all user stories that require development, in the schedule on Smartsheets.	In Progress
<ul style="list-style-type: none">The Project should build dependencies into the schedule, where development sprints are tied to the scoping of user stories. The Project should also align on a plan to ensure resources from SSO are available for Tax development activities to take place to prevent further delays to the schedule. This may include adding new resources to the team or reallocating senior resources from other efforts who can help the Project catch up to the planned schedule and velocity of user story development. Netacent should also share the six-week plan that is expected to outline a strategy to complete scoping activities ahead of development, at the earliest.	In Progress

IV&V Findings and Recommendations

Testing

#	Key Findings	Criticality Rating
24	<p>Issue – Lack of a Test Management Plan May Lead to Missed Activities and Miscommunication: There is limited clarity on the testing approach and process, including how it is incorporated into sprint development, what types of testing will be conducted at which stages of the project (e.g., SIT, UAT, Performance, ADA compliance, Security, etc.), what tools will be used, what data will be required, and who has responsibility for test script creation and execution. Without these details, it will be difficult for the Project to appropriately prepare resources, and critical test elements may be overlooked, resulting in an unstable system.</p> <ul style="list-style-type: none">01/31: The Project understands the effectiveness of a TMP and has assigned a test lead and two additional resources to assist with the plan. IV&V reviewed the draft version of the Test Management Plan and found it to still be missing key information on the Tax workstream, as well as details on test phases, including the associated timelines, test data and scenarios, entry and exit criteria for each phase, defect management and roles and responsibilities for all testing activities. As noted in previous reporting periods, the Plan should also include key information on non-functional testing, including details on the approach and strategy for performance testing, security testing, failover testing, accessibility testing etc. An updated version of the plan is expected to be reviewed on 02/11.	
40	<p>New Risk – Lack of a Testing Approach for Interfaces With Partners May Delay Test Activities: The Project has several interface partners which send or receive data that is essential to DLIR business operations. These partners are external to the Project team and have not been included in project planning activities. This could lead to miscommunications about expectations for development activities, the timing and structure of testing activities, and pre-requisite activities that must take place before testing can begin.</p>	


IV&V Findings and Recommendations

H Testing

#	Key Findings	Criticality Rating
33	<p>Risk – Limited Clarity on the Quality of Code May Lead to a High Volume of Defects and Rework: Sprints 1-7 (out of a total of 26) for Benefits, and Sprints 1-5 (out of a total of 8) for Employer Portal have been completed, but testing at the end of each sprint has not taken place. There is therefore limited clarity on the quality of code as post sprint validation by DLIR SMEs has not taken place for any of the 12 Sprints across Benefits and Employer Portal. Testing at the end of each sprint is integral to the agile process to provide an ongoing feedback loop into development, and to determine the success rate for each of the sprints.</p> <ul style="list-style-type: none"> 01/31: Post sprint validation activities have not been taking place as planned. The activities continue to be behind schedule, and not on track to meet the projected finish dates identified on Smartsheets. As testing activities progress, the Project should align on a plan to ensure the defects are prioritized based on criticality, and to ensure there is a mitigation plan to retest the blocked user stories. SSO is expected to set up the testing process, including identifying and ensuring the availability of the environments required for testing. The project should identify the dates and resources for all post sprint validation activities and execute to it to prevent downstream delays. 	H
39	<p>New Risk – Lack of Early End-to-End Testing Can Prevent the System from Working as Expected In UAT: The Test Management Plan does not include details on how end-to-end testing will take place. While the Project's approach for conducting unit testing and system testing seems sound to verify a specific use case works as expected, there is a risk that the final solution may not meet user expectations for a group of user stories that are combined into an overarching business process. Prior to UAT, development of a set of requirements in each sprint should be completed, and testing needs to be performed to check functionality, integration and end to end flow, to replicate real user scenarios and validate for data integrity.</p>	M

IV&V Findings and Recommendations

Testing

#	Key Findings	Criticality Rating
26	<p>Risk – Lack of Regression Testing could Lead to Defects in Previously Completed Code: The Project is not conducting regression testing which could lead to code in the current sprint breaking code developed in previous sprints without the Project's knowledge.</p> <ul style="list-style-type: none">• 01/31: The Project understands the effectiveness of Regression Testing and the benefits of automating the process. SSO and Netacent have aligned on a strategy to conduct regression testing but have not finalized the process or shared the approach with the wider Project. Details are expected to be included in the Test Management Plan that will be reviewed on 02/11.	


IV&V Findings and Recommendations

Testing

Recommendations	Status
<ul style="list-style-type: none">The Project should update the Test Management Plan to include information identified in Risk #24, to provide clarity on the process for testing across all testing phases. Also, SSO should align on a plan with DLIR , prior to testing, to understand the user stories that will be tested, and how they will be tested.	In Progress
<ul style="list-style-type: none">The Project should identify the full list of interfaces for which development or testing needs to be completed, and the approach for interface testing. This will help DLIR inform the partners, and ensure time is planned in the schedule for testing. For each partner, the Project should identify the direction of the interface (send or receive), the frequency of communication, the required format, the key point of contact for the interface partner, the testing window and environment that will be used to test the interface, and any special considerations necessary for the interface, such as proof of a security audit prior to gaining access to the partner's test environment.	Not Started
<ul style="list-style-type: none">The Project should identify a revised timeline for all post sprint validation activities and ensure testing activities can take place as planned. The development team should also align on a plan to address the blocked stories as they may have dependencies downstream, causing further delays. The Project should expedite the environment access and data refresh process to ensure data validation and testing can occur, and for any bugs encountered in the process to be reported and resolved in a timely manner. As post sprint validation activities get pushed out further, there is a risk that the revised dates identified for the completion of Testing will not be met.	In Progress
<ul style="list-style-type: none">End-to-End testing is used to determine if the interaction between individual modules and any dependencies are working accurately. To reduce the number of errors prior to end-to-end testing in UAT, the Project should plan for and align on resources and timeline to conduct integration testing which covers sets of user stories instead of only individual user stories.	Not Started
<ul style="list-style-type: none">The Project should begin regression testing and look to automate those tests as they are refined. This will help maintain code quality and functionality without putting a resource strain on testers.	Not Started


IV&V Findings and Recommendations

Data Management

#	Key Findings	Criticality Rating
6	<p>Risk – Lack of a Data Conversion and Migration Strategy: There is no Data Migration Plan, leading to confusion about which information and resources are needed at any given time. This could cause activities to be delayed and important information to be overlooked, especially if the right subject matter experts (both technical and business) are not engaged at the right time.</p> <ul style="list-style-type: none">• <i>01/31: According to the Project Action Plan shared by SSO, the final version of the Data Conversion plan is currently in progress, and a revised timeline has not been identified for the documents to be shared. The risk was not lowered this reporting period, as the draft version of the plan continues to be missing key information on roles and responsibilities (both from SSO and DLIR), and details on testing and validation of the converted data, including a timeline on when the different phases of testing will take place.</i>• <i>Testing and validation of converted data are essential to understand the quality of the data that has been converted, including identifying issues with record counts and understanding if records were missed because of bad data or as a result of issues with the conversion process. This information is needed to plan the total number of sprints required for the data conversion process.</i>	

IV&V Findings and Recommendations

Data Management

#	Key Findings	Criticality Rating
35	<p>Risk – Limited Clarity on Data Conversion Runs May Lead to Misunderstanding and Rework: Data Conversion activities are currently in progress. However, there is limited clarity on the details for data that has been converted, including information on table counts, accuracy of conversion such as control totals and ensuring data reconciliation between the mainframe system and the new database, and any duplicated or skipped record counts. These details should be provided to understand the quality of conversion, and for errors to be minimized during the migration process.</p> <ul style="list-style-type: none">• <i>01/31: There is limited information shared on the data that has been converted, including the accuracy and quality of conversion. In February, SSO is expected to share two reports – the Conversion Disabled Report and Data Profiling Report, that will include details on the data that has been converted. However, there is limited clarity on the total number of sprints needed since “completed” essentially means that only a first pass was completed, and also dependent on the error resolution process. The Project needs to align on a plan for testing and validation of the data that has been converted, including resolving any environment related issues. The revised Data Migration Plan is expected to contain more details around the strategy and approach.</i>	

IV&V Findings and Recommendations

Data Management

Recommendations	Status
<ul style="list-style-type: none">Any errors identified during the Data Conversion process should be captured in a log and the Project should ensure there is a process in place to minimize them. In addition to screen-to-screen validation, there should be other means of testing identified and planned for to ensure the Data Migration process is successful. As Conversion activities take place, the Project should share an update to show the burndown against the total progress. This can help the Project track the progress across Sprints, and ensure future plans are realistic.	In Progress
<ul style="list-style-type: none">As a best practice, the IV&V team recommends that the Data Migration Plan includes the following information: Data Migration objectives and scope, Data Conversion methodology, Data extraction, Data Profiling, Data cleansing, Data security, and the testing approach for Data Conversion.	In Progress
<ul style="list-style-type: none">It is recommended that as validation activities progress, SSO also share details on tables converted, including table counts, control totals, conversion accuracy and skipped record counts. Data accuracy is critical to maintain high quality which includes ensuring data consistency, lack of duplicate/incorrect data records in the new database and data currency. The Project should also track the progress of data conversion in one location, and a periodic snapshot with updates can help provide better visibility to the project management team to ensure future plans are realistic.	In Progress

IV&V Findings and Recommendations

Security

#	Key Findings	Criticality Rating
36	<p>Risk – Lack of a System Security Plan Can Increase the Risk of Security Incidents and Prevent Access to Key Interface Partners: There is limited clarity on the system security controls in place for the Agency and the HUI Mod system. This could lead to security incidents and data breaches, and interface partners such as the IRS and SSA may deny the system access for key information needed to accurately and effectively perform business operations.</p> <ul style="list-style-type: none">• 01/31: During the January reporting period, there were no significant developments.	
37	<p>Risk – Lack of Clarity on Production Data Usage in Non-Prod Environments Could Lead to Data Breaches: The Project plans to use legacy production data in certain environments, such as testing and staging, but has not clarified how this data will be used or why it is needed. There is a risk that the data will be viewed or used by unauthorized individuals and could result in restricted data being used inappropriately.</p> <ul style="list-style-type: none">• 01/31: During the January reporting period, there were no significant developments.	




IV&V Findings and Recommendations

Security

Recommendations	Status
<ul style="list-style-type: none">The Project should share a System Security Plan that includes details on how controls can be implemented to prevent end users from completing system transactions that are not in the best interest of the state. These control objectives should include controls that, where possible, prevent unauthorized access to system functionality that would violate standards and/or policies related to adequate segregation of duties. In addition, there should be a mechanism or process to detect and identify user provisioning requests that include conflicting roles and/or behaviors not in line with the expected activity for a given role. The Project should also establish early memorandums of agreement (MOA's) with external department participants that obligates them to follow security standards established by the project.	Not Started
<ul style="list-style-type: none">The Project should clearly identify in both the System Security Plan and Testing Plan how production data will be used in non-production environments, what controls are in place to mask the data if needed, and who will have access to the data. It is typically a best practice to only include production data in production-like environments that have been security hardened to the same level as the production environment, and to limit data access to the most restrictive level needed to still allow business functions to occur.	Not Started

Appendix A – IV&V Criticality Ratings

See definitions of Criticality Ratings below:

Criticality Rating	Definition
	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.
	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.
	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 Standard Inputs

Meetings attended during the reporting period:	
1. M/W/F Project Management meetings	6. Overpayments and Collections User Story Authoring sessions
2. Data Conversion Scrum meetings	7. Sprint Review meetings
3. Working Group meetings	8. Executive Steering Committee – 1/25
4. Tax DevOps meetings	9. December IV&V Report review – 01/27
5. HUI Mod Notifications meetings	

Appendix B – IV&V Standard Inputs

Artifacts reviewed during the reporting period:	
1. SSO Weekly Status Reports	
2. Draft Test Management Plan	
3. Draft Data Migration Plan	

To keep abreast of status throughout the project, IV&V regularly:

- **Attends the project meetings**
- **Reviews the project documentation**
- **Utilizes Eclipse IV&V® Base Standards and Checklists**



PCG Eclipse IVV
Checklists

Appendix C – IV&V Details

- 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.





Solutions that Matter