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January 4, 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 (Jan 4, 2022 13:21 HST)

DOUGLAS MURDOCK
Chief Information Officer
State of Hawaiʻi

Attachment (1)

Hawaii Unemployment Insurance Modernization (HUI Mod) Project

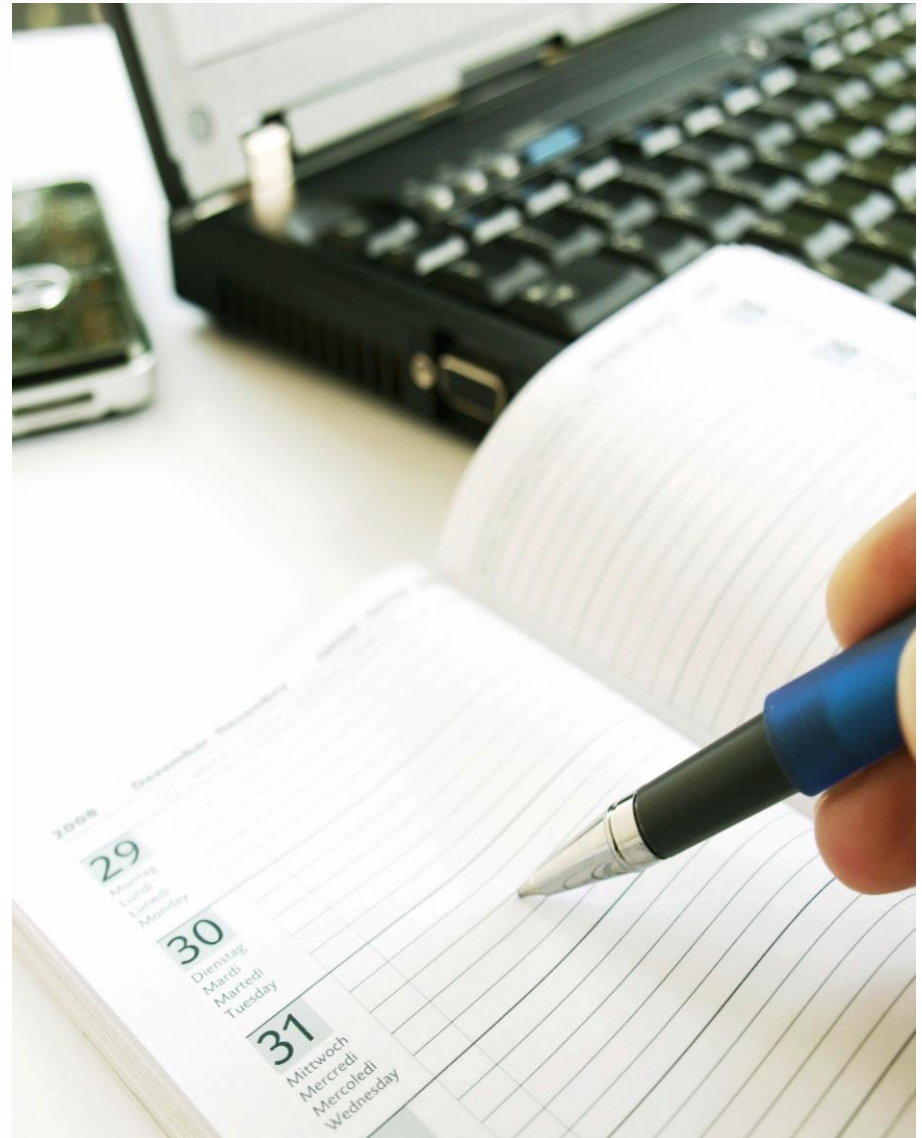## Department of Labor and Industrial Relations (DLIR)

IV&V Monthly Status Report – **Final**

For Reporting Period: **November 2021**

Draft Submitted: 12/7/2021

Final Submitted: 12/17/2021

PUBLIC CONSULTING GROUP

Solutions that Matter

Overview

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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. There were no significant updates for risk mitigation this period, but mitigation plans should be available by the middle of December. Project activities are behind schedule across scoping, development, testing, and data conversion activities for all workstreams. Testing activities remain delayed which means that code quality remains unknown. The Project has also experienced resource constraints which have delayed Tax scoping and development activities.

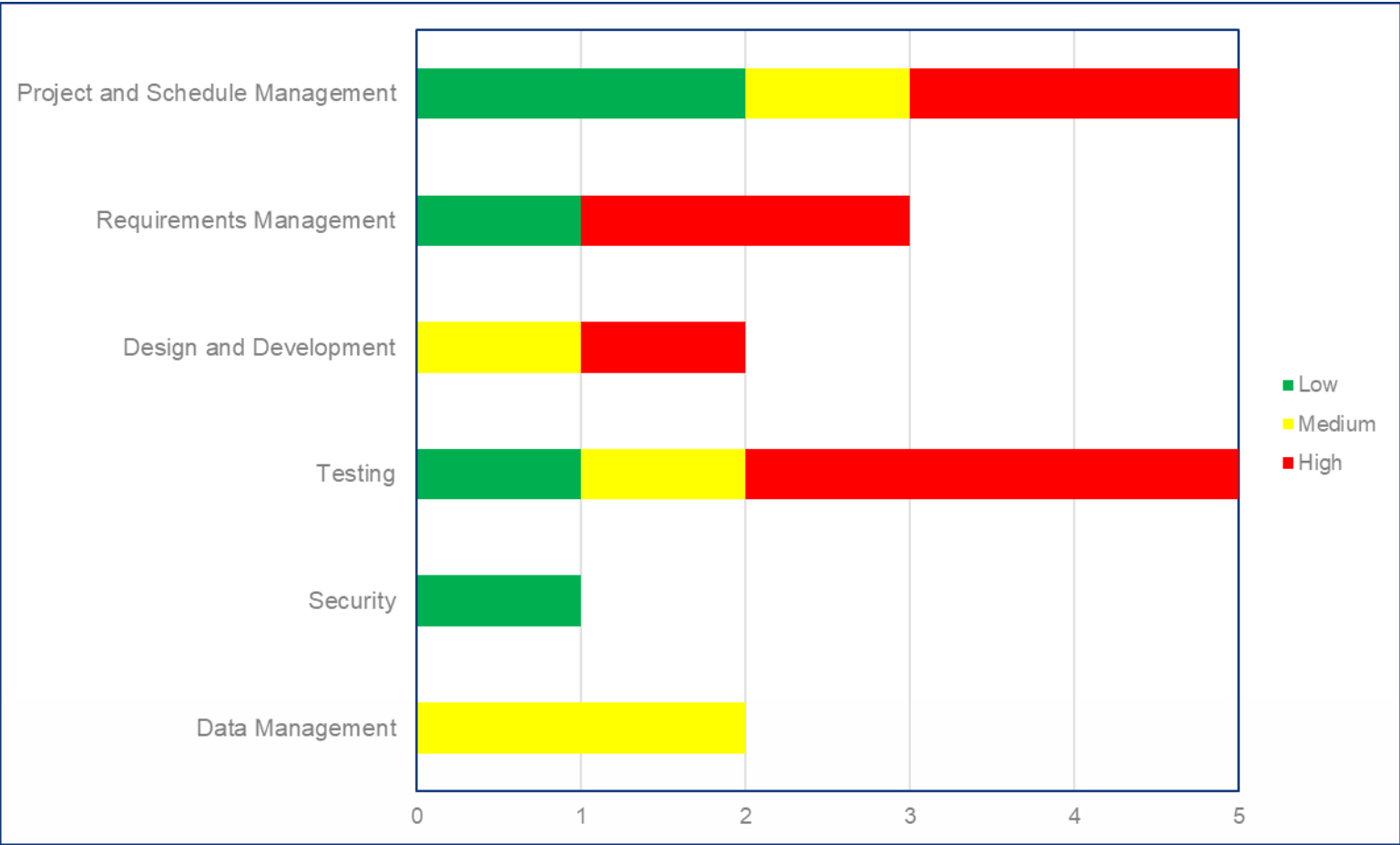| Sept 2021	Oct 2021	Nov 2021	Category	IV&V Observations
M	H	H	Project and Schedule Management	The Project is developing a "Get Well Plan" to address the High priority risks identified for the project, but there was no significant progress in mitigating these risks this month. Activities across all workstreams remain delayed due a number of factors including resource constraints (**#27**), environment availability, 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. SSO understands the concerns and plans to reallocate experienced resources to the Project to get activities back on track, with a special emphasis on Employer Portal and Tax activities.
H	H	H	Requirements Management	The scoping activities for the Tax and EP workstreams remain behind schedule (**#12)** and were not able to meet previously adjusted deadlines. Tax scoping sessions remain at three per week, but scoping is still behind schedule. The potential risk for additional scope that may be needed to account for Technical Debt and configuration activities which may extend the schedule also remains (**#29).**
M	H	H	Design and Development	Tax development remains on hold due to lack of available developers on the SSO side (**#31**). Benefits Sprints 8 – 9 completed this period but stories continue to get deferred and no details have been shared on SSO testing or post sprint validation by DLIR. 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. EP development sprints made good progress and are now 70% complete, but a full understanding of the dev effort cannot be ascertained until scoping complete.

Executive Summary (cont'd)

Sept 2021	Oct 2021	Nov 2021	Category	IV&V Observations
H	H	H	Testing	DLIR's access to the test environment is inconsistent and has prevented meaningful testing and post sprint validation from occurring. There remains a backlog of tests to execute from Benefits Sprints 1 – 9 which will need to be completed in parallel to the test activities for upcoming Sprints 10 – 11 next month which raises the risk that the Benefits Testing schedule will not be met (**#32**). The quality of the Sprints delivered to date is also still unknown since testing has not occurred (**#33**), although demos have met SME expectations. This highlights the importance of completing the Test Management Plan **(#24)** which was expected by 9/15 and has now been delayed to 12/10. The Plan will be a critical asset to describe how testing will be conducted throughout the Project and what resources and preparation are needed.
M	M	M	Data Management	Data Conversion activities continued this month and data validation activities began which is a key step in determining the data quality and effectiveness of the conversion approach. The Project plans to create a dashboard to track conversion and validation activities against the expected total number of tables and data to be converted. This will help identify areas of focus and schedule adjustments that may be needed. The project also continues to draft the Data Migration Plan and expects to have a version available in December.
L	L	L	Security	There were no significant findings during this reporting period. The Project continues to explore options for integrating with and Identity Proofing and Validation provider.
L	L	L	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.
L	L	L	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

(H) Project Schedule and Management

#	Key Findings	Criticality Rating
27	**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. • *11/30: Tax development activities were stalled due to the limited availability of resources from SSO and Netacent. Two additional resources have been assigned to this effort, and tax development activities are expected to resume on 12/06. However, there are concerns that additional resources may need to be assigned to ensure the original scope of work can be completed to meet the revised timelines.*	(H)
28	**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. • *11/30: The Project understands the complex increases in scope and SSO is working on a "Get Well Plan", expected by 12/15, that plans to address all High priority risks, including a mitigation strategy and details on resource allocation, revised timelines for scoping, development, testing (post sprint validation) activities, and a data conversion plan with details on a testing approach. The additional scope for Localization and Identity Proofing should also be accounted for in the re-baselined schedule produced as part of the new plan. The Project is exploring options to set up another environment, and is in the process of identifying revised timelines for testing activities across all modules.*	(H)

IV&V Findings and Recommendations

H **Project Schedule and Management**

#	Key Findings	Criticality Rating
7	**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. • *11/30: Both DLIR and SSO PMs continue to make updates to the schedule on Smartsheets. However, there continues to be a disconnect between the updates on Smartsheets vs DevOps. For instance, the total count for Benefits user stories is 276 on Smartsheets and 249 on DevOps, and the total count for Tax is 113 on Smartsheets, 90 on DevOps and the latest number shared by the SSO team is 81. Similarly for Employer Portal, the total count on Smartsheets is 59, 62 on DevOps and the latest number shared by the SSO team is 70. These inconsistencies were observed across a number of different sprints and reporting types. There was also reporting confusion this month as a 3rd source of development tracking was identified which was only being used by internal developers, and caused confusion on the completed development stories for EP.* • *For testing, the total number of user stories tested and blocked are included on Smartsheets, but the user story IDs are missing, leading to confusion on which user stories were completed, deferred, and blocked during each testing sprint, compared to the user stories identified in DevOps. It is imperative for the Project to identify and address the inconsistencies between the updates on Smartsheets and DevOps, as different statuses across the two (or three) sources make it difficult for the Project to understand the status at any given time.*	M

IV&V Findings and Recommendations

H Project Schedule and Management

#	Key Findings	Criticality Rating
13	**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. • *11/30: During the November reporting period, Testing and post sprint validation activities started for the Benefits module. However, DLIR SMEs do not have access to the link to set up roles and responsibilities in the STG environment for testing. IV&V will continue to monitor this risk as SMEs are expected to become more actively involved as testing activities progress. The Technical lead was also onboarded in November.*	L
25	**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. • *11/30: IV&V understands that the current plan is for the Project to conduct regression testing manually, and details will be included by the SSO team in the Test Management Plan, scheduled for review on 12/10. As noted in the September reporting period, regression testing has not been accounted for in the Project Schedule on Smartsheets.*	L

IV&V Findings and Recommendations

(H) Project Schedule and Management

Recommendations	Status
• Losing key resources during the critical stages of the project can be detrimental to the completion and success of project activities. IV&V understands that additional developers from SSO will be onboarded to assist with Tax and Employer Portal development activities, as well as a key technical resource from the Data Conversion team will be leading the Collections/ Overpayments meetings. The Project should finalize details on resource allocation and to ensure activities in other modules of the Project (such as Data Conversion) are not impacted. The Project should also ensure it is effectively conducting Knowledge Transfer sessions with new resources who will be stepping in.	In Progress
• The Project should ensure there is a mitigation plan in place to meet the revised timelines for all delayed activities in the schedule, as 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
• 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
• 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 activities progress.	In Progress
• 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

H **Requirements Management**

#	Key Findings	Criticality Rating
12	**Risk – 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 IV&V team understands that 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. • *11/30:The projected new finish dates for tax scoping activities have been further pushed out to late November and December. In addition, Employer Portal user story authoring activities did not meet the initial timelines identified in the schedule, and revised dates for completion have not been identified. IV&V understands that user story authoring sessions for Tax have been increased to two 2-hour sessions on Tuesday and Thursday to catch up with scoping activities and ensure tax development can begin as planned on 12/06. The same SMEs are involved in the Tax and EP scoping sessions, and there are concerns that the focus of the sessions initially shifted to EP, and user stories that were scoped were not signed off. The Project should ensure both Tax and EP user story authoring activities are taking place as planned, and all user stories are scoped, signed off and accurately updated on Smartsheets to effectively track progress. EP Development activities have been divided into two blocks, with the first block expected to be done by 12/07 and the second by 12/23. The scope of work for each block was not identified as planned on 12/01. The Project recently identified confusion around reporting which misrepresented the development progress of EP by reporting it as 0% complete, when in fact ~70% of development is complete. During the November reporting period, DLIR SMEs agreed to share business rules to SSO for EP Scoping activities. The timeline to share the requirements has not been identified and the Project should ensure the rules are shared at the earliest to prevent further delays in scoping and development activities.*	**H**

IV&V Findings and Recommendations

(H) **Requirements Management**

#	Key Findings	Criticality Rating
29	**Risk – Additional Scope for Technical Debt and Configuration User Stories May Impact Schedule:** 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. • *11/30: During the November reporting period, 21 technical user stories were identified and added as part of scoping activities for the Benefits module on Smartsheets. The overlap between the user stories in Tax and Employer Portal has not been resolved yet, and the Project is expected to share an update on the user stories and effort required for completion by 12/08. IV&V understands that there are also Employer Portal development activities that are dependent on Tax, that need to be identified and accounted for in the schedule on Smartsheets.*	(H)
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. • *11/30: While an updated Requirements Traceability Matrix (RTM) has not been shared, the Project understands the effectiveness of creating an RTM, and is exploring how to leverage DevOps to produce similar management and reporting.*	(L)

IV&V Findings and Recommendations

(H) Requirements Management

Recommendations	Status
• 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
• The project should align on a plan to ensure the Tax DevOps sessions are more efficient. It is recommended that Netacent share an agenda prior to the meeting 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. It is also recommended that the Project re-evaluate the schedule in two weeks to 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
• The additional scope for technical debt and configuration activities should be planned and accounted for in the schedule to prevent potential delays in downstream activities.	In Progress
• The Requirements Traceability Matrix (RTM) should be created and consistently updated during the course of the Project and reflect changes based on scoping, development and testing activities. SSO may have an RTM solution in place already for EP which can be extended to the other workstreams.	Not Started

IV&V Findings and Recommendations

H **Design and Development**

#	Key Findings	Criticality Rating
31	**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. • *11/30: Two additional resources have been assigned to this effort, and a mitigation plan is in progress to ensure tax development activities can resume on 12/06. New planned finish dates have been added to the schedule on Smartsheets, starting 12/10/21 as the originally identified dates were not met. However, there are concerns that additional resources may need to be assigned to ensure the original scope of work can be completed to meet the revised timelines. As noted in **Risk #29**, the Project is expected to share an update regarding the overlap between user stories in Tax and EP on 12/8, which will be required to plan for resources and ensure there are no further delays with development.*	**H**
21	**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. • *11/30: Sprints 1-10 (out of a total of 26) for Benefits have been completed. However, development activities for EP did not take place as originally planned. IV&V understands that EP development activities are expected to be completed in two blocks – with the first block scheduled to be done by 12/07 and the second block by 12/23. However, details on user stories completed vs deferred, sprint progress and resources assigned have not been finalized, and SSO is expected to share an update on 12/8. The Project should update the schedule on Smartsheets to reflect the changes, and 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.*	**M**

IV&V Findings and Recommendations

(H) Design and Development

Recommendations	Status
• 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.	In Progress
• As suggested in the previous reporting period, 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 begin, 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

IV&V Findings and Recommendations

H Testing

#	Key Findings	Criticality Rating
24	**Escalated to 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. • *11/30: The Test Management Plan continues to be missing key information and did not meet the target date of 09/15. The project understands the effectiveness of a TMP and a new resource from SSO has been identified to work on the plan. A revised date of 12/10 has been finalized to review the plan with the PM team. SSO should update the plan to include details on approach and strategy for testing, details on testing phases, test data and scenarios, roles and responsibilities for post sprint validation across all workstreams, as well as defect tracking and prioritization. There is a risk that downstream testing activities will get delayed or end up blocked if resources are not prepared.*	H
32	**Risk – Benefits Testing Schedule May not be Met**: DLIR Basic Functionality Testing for Benefits was initially scheduled to start on 09/22, and while a revised target date of 11/05 has now been identified for Testing to start, there are additional concerns with the data in the STG environment not being ready, which has prevented testing from taking place. The Project is currently behind by seven (7) Sprints for Benefits Testing and five (5) Sprints for Employer Portal. The Project should align on a plan for DLIR SMEs to catch up on testing activities. Any further delays in testing will continue to create downstream delays, that will eventually contribute to the Go-Live date getting pushed out. • *11/30: The Project did not meet the revised date of 11/19 identified in the previous reporting period for Sprints 0-7 to be tested as part of the Benefits module. However, during the November reporting period, 21 user stories were tested as part of the Benefits module. Of the 21 user stories tested, 7 were blocked due to test impediments. IV&V understands that the plan is to keep a running total of user stories that are blocked, but there are concerns with the approach. There is also a disconnect between user stories identified as completed on Smartsheets vs DevOps that should be resolved.*	H

IV&V Findings and Recommendations

H **Testing**

#	Key Findings	Criticality Rating
33	**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. • *11/30: As noted in **Risk #32**, post sprint validation activities resumed in November. 21 user stories from Benefits were tested, out of which 7 are blocked due to test impediments. Projected new finish dates for testing should be identified and updated on Smartsheets for Benefits, Tax and Employer Portal. As testing activities progress, the project should share updates on user stories tested, and a mitigation plan for all user stories identified as deferred and/ blocked due to test impediments.*	**H**
15	**Risk – Development Environment Lacks Stability for Benefits**: The Benefits development environment has faced availability issues preventing testing from occurring. While the issue does not block development, screen changes cannot be shown to DLIR and testing activities may be delayed. • *11/30: DLIR SMEs continue to experience issues accessing HI-specific data in the STG environment. IV&V understands that the Project is considering the need for another environment to ensure SMEs have access to data and for testing to take place.*	**M**
26	**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. • *11/30: 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. The IV&V team understands that details, including the approach, will be included in the Test Management Plan which is scheduled for review on 12/10.*	**L**

IV&V Findings and Recommendations

(H) Testing

Recommendations	Status
• The Project should create a comprehensive Test Management Plan which provides clarity on the process for testing across all testing phases.	In Progress
• The Project should identify a revised timeline for all Benefits testing activities and ensure testing activities 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.	In Progress
• The Project should resolve any configurations, permissions and/ data related issues in the STG environment for Testing to take place. Testing activities should begin immediately so that post sprint validation by DLIR SMEs can occur, and for code validation to take place.	In Progress
• 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 Testing activities get pushed out further, there is a risk that the revised dates identified for the completion of Benefits Testing will not be met, as the Project is currently behind by 7 Sprints for Benefits, which could cause further delays in testing and other activities in the project schedule.	In Progress
• 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	**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. • *11/30: Data conversion Validation activities did not take place as planned. Projected new finish dates need to be identified for 'Screen to Screen Validation' and 'Comparing Reports'. IV&V understands that the Project is also exploring options to set up another environment for testing activities to take place. The DLIR Technical Lead is working on the Data Migration Plan, with input from SSO, and the Project is expected to share the plan by the end of December.*	Ⓜ
35	**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. • *11/30: The Project is reporting out the number of tables converted as a metric to gauge progress for development activities. However, as noted in previous reporting periods, there is limited clarity on the details of the data that has been converted, including the accuracy and quality of conversion. SSO clarified this month that a table that is "completed" for these metrics really means that it has undergone a first pass by SSO to map from source to target system, but that there may be errors in the conversion run that were captured and will need to be discussed in the future with DLIR SMEs as part of a second phase of conversion development activities. This points to confusion around the definition of "completed" as it relates to the data conversion process, raising questions around the process to identify and minimize errors, as well the total number of passes required to ensure completion.*	Ⓜ

IV&V Findings and Recommendations

(M) **Data Management**

Recommendations	Status
• 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
• 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
• 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

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 Standard Inputs

Meetings attended during the reporting period:	
1. M/W/F Project Management meetings	6. Sprint Review meetings
2. Data Conversion Scrum meetings	7. Collections/ OP meeting – 11/08
3. Working Group meetings	8. EP User Story Requirements Gathering Sessions Issues with SSO PM – 11/05
4. Tax DevOps meetings	9. Data Conversion Meeting with SSO Lead – 11/15
5. HUI Mod Notifications meetings	10. October IV&V Draft Report Review – 11/16

Appendix B – IV&V Standard Inputs

Artifacts reviewed during the reporting period:	
1. SSO Weekly Status Reports	
2.	

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