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February 5, 2021

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 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 Hawaii Department of Education's FMS 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 (Feb 5, 2021 15:49 HST)

Douglas Murdock
Chief Information Officer
State of Hawai'i

Attachment (2)

FMS Modernization Project

Department of Education (DOE)

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

For Reporting Period: **November 16 – December 15, 2020**

Draft Submitted: January 7, 2021

Final Submitted: January 29, 2021

PUBLIC CONSULTING GROUP

Solutions that Matter

Overview

- Executive Summary
- IV&V Findings and Recommendations
- IV&V Status
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Executive Summary

The project continues to make progress toward completion of the second round of System Integration Testing (SIT) and DOE testers system knowledge continues to grow. The testers have provided important valuable feedback on system capabilities and usability which has provided the project with early detection of potential user complaints. IV&V remains concerned that unexpected delays may occur, due to the late introduction of new configurations into the SIT environment, and the lack of a detailed fully resourced project schedule. These delays, along with other testing challenges, may prevent critical SIT objectives from being met.

The System Integrator (SI) continues to make efforts to improve their team's ability to deliver quality work products and improve overall project technical leadership. The SI has recently replaced their training lead with a resource that has a proven track record on other Hawaii State projects (DAGS Payroll). However, DOE SMEs continue to report SI quality issues that continue to increase their project workload. The SI team continues to demonstrate a general lack of technical leadership as important design decisions and solutioning of design challenges are delayed. IV&V and DOE also continues to note the SI foregoing quality control measures (e.g., making changes in the SIT environment without following release management procedures) as they rush to meet development deadlines, which could degrade system quality and further delay the schedule due to the increased potential for rework.

DOE leadership continues to make efforts to address SME capacity concerns including opting out of the state-wide Time & Leave project, so their resources can focus on project activities. However, as the project nears completion of SIT, the project could be faced with a narrowing window of opportunity to effectively mitigate these risks. IV&V continues to monitor risks related to supporting a complex security model, insufficient SI unit testing, insufficient SI security configuration resources, and the overallocated SI PM.

Executive Summary (cont'd)

Oct	Nov	Dec	Category	IV&V Observations
M	M	M	Cost & Schedule Management	IV&V and the DOE PMO continue to be concerned that planning details outside the current rolling 6-week project schedule planning window could be insufficient and could lead to schedule delays once these activities are thoroughly vetted and detailed. Due to the aggressive schedule, the project has elected to implement security and some other functionality during the latter half of SIT. This could lead to schedule delays if the added functionality cannot be completed and tested in time to meet SIT exit criteria. The project has also elected to forego test script revisions during SIT despite testers complaining of multiple spelling and grammar problems and that the scripts are difficult to follow. Further, the SI, at times, appears to be foregoing other system configuration quality control measures (e.g., failure to follow release management procedures) as they rush to meet activity deadlines, which could degrade system quality and further delay the schedule. IV&V remains concerned that the SI does not consistently mitigate schedule slippage risks and/or communicate the urgency of specific project tasks. The SI is reportedly exploring additions to their team to shore up areas that have experienced delays.

Executive Summary (cont'd)

Oct	Nov	Dec	Category	IV&V Observations
M	H	H	Human Resources Management	DOE SMEs continue to report challenges with the SI project team that has led to an increase in their project workload as they seek to ensure SI work product quality, comprehensive SI communications and follow through, and that proposed systems designs are fully vetted. The SI team continues to show signs of a general lack of technical leadership as important design decisions are delayed. However, the SI has made efforts to address DOE concerns and increased some of their team's capabilities and capacity. The SI has replaced their training lead with a resource that has proven success assisting other State projects (DAGS Payroll) and is therefore familiar with DOE capabilities and training needs. IV&V and DOE continues to note a lack of internal collaboration amongst the SI project team members which has led to some unproductive DOE/SI work sessions. One key member of the Gartner PMO team has been replaced by a Gartner technical PM resource, and the longstanding Gartner assistant PM is now the Lead DOE PM. Turnover to the new Lead PM appears to have been effective, as the project has not experienced any noticeable disruption due to the change. The new Gartner technical PM resource has been assisting the DOE IT team, offering technical guidance and coordination support. DOE has been impacted by the COVID pandemic in ways that other agencies may not have been impacted and this has put an overall strain on DOE resources. DOE leadership continues to make efforts to address SME capacity concerns including opting out of the state-wide Time & Leave project, so their resources can focus on project activities. However, as the project nears completion of SIT, the project could be faced with a narrowing window of opportunity to effectively mitigate these human resource risks. DOE is reportedly limited in their ability to augment their staff due to budgetary and union constraints, and the amount of time required to onboard new resources can be lengthy. This combined with the SI staffing challenges has led IV&V to maintain the "High" risk rating for this category.

Executive Summary (cont'd)

Oct	Nov	Dec	Category	IV&V Observations
M	M	M	Project Management & Organization	State leadership has announced that furloughs could begin January 4, 2021, though DOE employees will likely see less furlough days than other State employees. Given that the project currently relies heavily on 3-4 key resources (see Finding #2), if any one of these individuals contract COVID-19, the project could be negatively impacted by their lack of availability. DOE SMEs continue to report instances of unproductive work sessions due to a lack of SI preparation for meetings and/or insufficient activity coordination; also, meeting minutes and agendas are not consistently provided to attendees. DOE PMO and IV&V continue to note instances of the SI scheduling meetings with multiple DOE participants that may have been unnecessary (or meeting length significantly reduced) if the SI had one-on-one conversations with SMEs to clarify or resolve issues prior to (or in lieu of) meeting with the larger group. It appears the SI PM continues to be overallocated as some PM tasks are delayed or rushed, which may reduce the effectiveness of the overall management of the project. The DOE IT team is making efforts to prepare for post go-live support and remains concerned the complex security model could be difficult to support. Though details of post go-live DOE/SI support responsibilities have yet to be clarified, the SI has begun work on a Maintenance & Operations (M&O) plan. The SI has stated they plan to garner lessons learned (as the project progresses) to help determine the recommended levels of SI post go-live support.

Executive Summary (cont'd)

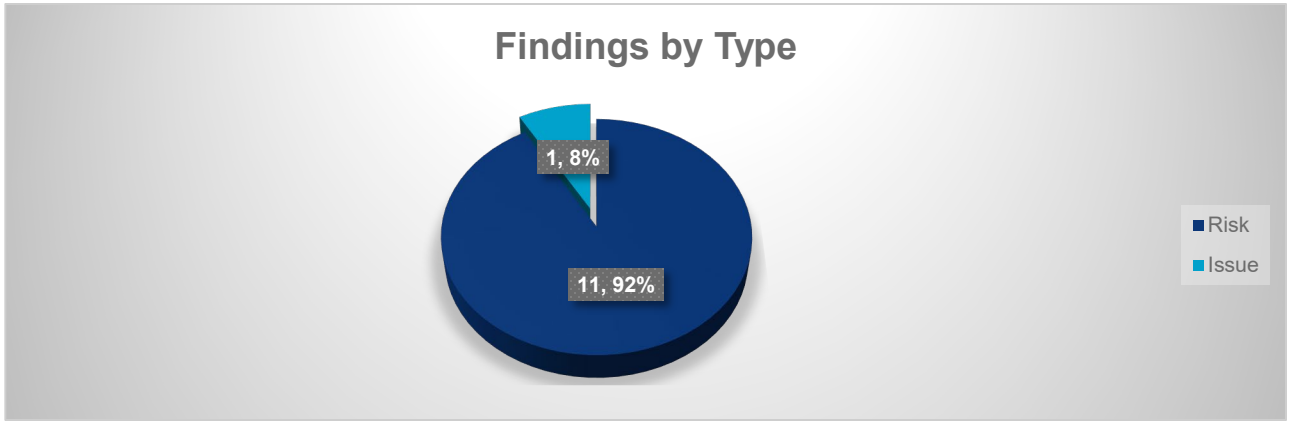
Oct	Nov	Dec	Category	IV&V Observations
M	M	M	Quality Management	IV&V remains concerned that the SI Test Lead may be overallocated given that they also serve as the SI PM. DOE has noted that the SI testing approach and SI produced test script quality have not met DOE expectations. DOE Leads have noted multiple shifts in approach, inefficiencies, and confusing testing procedures. It appears the SIT test scripts were not fully reviewed by the SI prior to delivery to the DOE test team and may not have been used for SI unit testing, a common practice to ensure test script quality. Testers have noted multiple test script grammar and spelling errors and have complained that scripts lack sufficient instructions or important execution details. This has led to an increase in the test team's workload and could lead to testers marking a test as successful when it is not. Further, testers have reported instances where they were given test scripts that tested functionality that had not been fully implemented in the system. The project has elected to forego revising the test scripts during SIT due to time constraints but plans to revise them before the start of User Acceptance Testing (UAT). DOE has accepted this risk in order to keep to their aggressive schedule. The SI continues to experience release management challenges and previous SI release management errors continue to hinder DOE interface development efforts as the system does not allow developers to easily back out some configuration mistakes. Recently, data was uploaded into the SIT environment without notifying the DOE test lead, effectively invalidating their tests without notice. With multiple members of the project team working at or beyond capacity, testing coordination has become difficult to manage and led to testing missteps. IV&V remains concerned that SI unit testing may be inadequate as they rush to complete tasks. Failure to fully unit test configurations (or code) push the burden of finding bugs onto the DOE testing team who is already constrained. IV&V recommends DOE request the SI improve their unit testing practices.

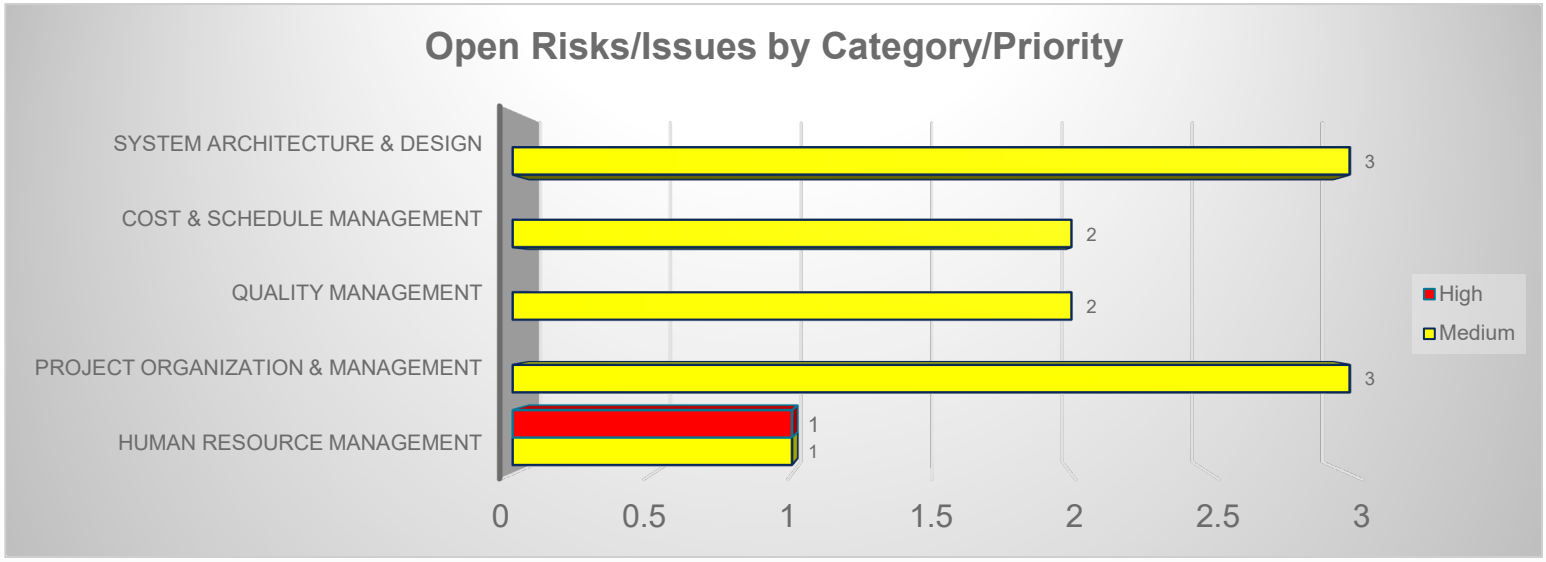
Executive Summary (cont'd)

Oct	Nov	Dec	Category	IV&V Observations
M	M	M	System Architecture & Design	Feedback from testers during SIT have led the project to reevaluate whether they should use the default Oracle Financials (OF) "requisitions" feature. The DOE legacy FMS did not utilize requisitions, and testers have indicated the OF user interface is cumbersome, inefficient, and confusing. Testers have also complained of system slowness which the SI is in the process of addressing. IV&V and DOE leadership remains concerned with the level of effort required for DOE to perform regression testing to test Oracle quarterly updates post go-live. IV&V remains concerned with the complexity of the security implementation and the lack of adequate SI security resources, as security challenges continue to hinder project progress and are likely to contribute to schedule slippage. Further, it appears the security model was not thoroughly unit tested prior to implementation as security model changes continue to be implemented throughout SIT and has led to increased DOE tester rework. The single SI security resource appears to be overwhelmed and is rushing security fixes into SIT in order to meet deadlines, bypassing some unit testing and release management processes. The SI Engagement Manager is now assisting the SI security resource with security activities and with addressing outstanding security issues and recently identified problems with the security model. If the identified security issues are not resolved soon, the project schedule could be delayed. IV&V recommends DOE request the SI augment their team with OF security experts to validate the security model and the security implementation approach prior to UAT. It remains unclear if the security model will fully support segregation of duties, protection of assets, privacy, and protection against fraud. Interfaces continue to face delays and are likely to continue to cause schedule slippage. Interfaces with external systems continues to be a challenge for the project. For example, it remains unclear why the DAGS payroll system interface has been delayed. Concerns have been raised that outbound interface testing could be hindered if external stakeholders are unavailable or unresponsive.

IV&V Findings and Recommendations

IV&V identified 12 findings (1 Issue and 11 risks) for this reporting period. The following chart breaks down the risks by category/priority.





IV&V Findings and Recommendations (cont'd)

Summary of IV&V Open Risks/Issues Criticality

Category	Type	#	Finding Title	Criticality
Cost & Schedule Management	Risk	3	Adoption of an aggressive schedule could lead to poor system quality, user frustration, stretch DOE resources beyond their capacity, and bad press.	Medium
	Risk	4	Delayed finalization of the Project Management Plan (PMP) and schedule could lead to stakeholder confusion and less than informed planning and ultimately lead to reduced productivity and project delays.	Medium
Human Resource Management	Risk	2	Over reliance on a few skilled and overtaxed DOE project resources could lead to significant project disruption.	High
	Risk	5	SI staffing challenges could reduce project productivity and system design quality, and lead to schedule delays.	Medium
Project Organization & Management	Risk	6	COVID-19 State-wide shutdown could hinder project activities and negatively impact the project schedule and budget.	Medium
	Risk	8	Inefficient project management practices could lead to overall lack of productive project activities and ultimately schedule delays.	Medium
	Risk	11	Insufficient knowledge transfer (KT) and M&O planning prior to go-live could lead to project delays and diminished quality of post go-live support.	Medium
Quality Management	Issue	10	Inadequate release management processes could lead to significant rework and schedule delays.	Medium
	Risk	12	Insufficient testing strategy and planning could lead to poor test quality, including incomplete and invalid test results.	Medium
System Architecture & Design	Risk	7	Oracle Financials environment constraints could lead to schedule delays and leave the project unable to meet development, testing, and training objectives.	Medium
	Risk	9	User provisioning and security model complexities could lead to unmet user expectations, unfulfilled business objectives, and schedule delays.	Medium
	Risk	13	Integration with older (antiquated technology) systems could be unexpectedly complicated and lead to schedule delays.	Medium

IV&V Findings and Recommendations (cont'd)

M

Cost & Schedule Management

#	Key Findings	Criticality Rating
3	Risk - **Adoption of an aggressive schedule could lead to poor system quality, user frustration, stretch DOE resources beyond their capacity, and bad press:** In October of 2018, the aging DOE FMS failed, was offline for several weeks, and led to significant disruption of critical operations. As a result, the DOE quickly procured and launched this project with the goal of replacing their FMS as quickly as possible to avoid a similar event. The project is currently executing an aggressive, accelerated timeline with a January 2021 go-live date. This accelerated schedule incurs risks that the DOE has deemed acceptable given the potential larger risks associated with another legacy FMS failure. In order to speed implementation, the project has elected to implement a cloud-based Oracle Software-as-a-Service platform based on a pre-configured template, leverage Agile SDLC methods, limit the amount of new or improved functionality, and scaled back some project documentation and early analysis. The accelerated schedule could lead to: • Lack of thorough consideration of required business process changes resulting from the new system • User confusion and frustration due to the added burden of learning a new system with new processes, unmet expectations for improvements, and significant disruption to their daily duties • Over allocation of project resources and users • Significant OCM and Training efforts with limited time to plan and execute • Project decisions to cut corners to meet milestones and DOE expectation • Unproductive working sessions due to insufficient analysis efforts • Limited time to react to or resolve issues that may arise • Poor system design • A flurry of chaotic stakeholder activity as the project progresses closer to go-live. If this risk is realized, negative user feedback could lead to inflammatory media coverage which could negatively impact legislative, board of education, and public support. The project has stated they will only go live if the system sufficiently supports DOE operations and users are able to do their jobs.	Medium

IV&V Findings and Recommendations (cont'd)

M Cost & Schedule Management (cont'd)

#	Key Findings	Criticality Rating
4	Risk - **Delayed finalization of the Project Management Plan (PMP) and schedule could lead to stakeholder confusion and less than informed planning and ultimately lead to reduced productivity and project delays.:** The project is currently operating under a draft Project Management Plan (PMP) and project schedule. The PMP was due 3/12/20 but, as of this reporting period, both have not been finalized. DOE project leadership has indicated that existing drafts appear to lack sufficient details. The projects accelerated schedule leaves little room for any impact to project productivity. Lack of a finalized PMP could lead to uncertainty around project scope and uncertainty around how the project will be executed or managed, which can reduce overall project cadence and productivity. Delays in establishing a clear, detailed baselined schedule could lead to project delays and leave the project unable to effectively monitor project progress. Further, the lack of a clear critical path could leave the project with little time to respond to critical path activities that may have already impacted the project go-live date.	Medium

IV&V Findings and Recommendations (cont'd)

M Cost & Schedule Management (cont'd)

Recommendations	Progress
• Take steps to assure sufficient OCM planning and activities are performed to prepare users for the significant change taking place at an accelerated rate.	In progress
• Project leadership closely monitor project productivity and meet regularly to perform continuous process improvement (continuously reach out for feedback and move quickly to improve unproductive project elements and processes).	In progress
• Leadership take steps to closely monitor project team capacity and assure resources are not overallocated.	In progress
• Implement a plan for broad validation of system functionality with clear channels of communication for user feedback to assure all users are able to perform their duties prior to the project go/no-go decision.	In progress
• Project make early efforts to plan for and prepare contingency plans in the event it becomes clear the accelerated schedule is unsustainable or critical project objectives will not be met by the planned go-live date.	In progress
• Request the SI proactively augment their team with additional experienced resources as needed to assure project milestone deadlines are met.	In progress
• Request the SI accelerate efforts to finalize the PMP and provide a detailed fully resourced project schedule.	In progress

IV&V Findings and Recommendations (cont'd)

H Human Resource Management

#	Key Findings	Criticality Rating
2	Risk - **Over reliance on a few skilled and overtaxed DOE project resources could lead to significant project disruption:** There are currently 3-4 DOE team members who are relied on to a greater extent than others. Each of these individuals have significant standing critical operational responsibilities and most have managerial responsibilities as well. While each of these team members have indicated a strong commitment to project success, each has multiple competing priorities, and most will be constrained with operational tasks between now and go-live. Many DOE team members will likely participate in the FMS Mainframe-as-a-Service project currently planned for August 2020, though, the required level of effort remains unclear. It remains unclear if DOE staffing levels committed to in the original Statement of Work (SOW) have been met. Over reliance on key resources can not only overtax and thereby reduce the effectiveness of these key individuals, but also presents a risk of significant project disruption in the event of their departure. While most projects have this risk, the risk impact for this project, from IV&V's perspective, is higher than most, and while the project could be impacted by the loss of any DOE team members, there are 3-4 individuals who are relied on to a greater extent than others. Loss of these individuals could lead to significant project disruption. Failure to transfer standing daily operational and managerial responsibilities from these individuals to other DOE resources could stretch them beyond their capacity and lead to a lack of job satisfaction, decreased productivity, decrease in quality, and increases the probably they could make critical mistakes that could negatively impact the project. Several of these key resources have indicated they have significant operational responsibilities and projects between now and go-live (e.g., year-end close, audit, the Time & Leave project, preparations for the new school year, etc.) and may simply lack the capacity to meet all current expectations. Further, if the SI is not able to resolve some staffing challenges (see *Risk #5*), the project may increase their reliance on these individuals and may have to work harder to ensure system designs are accurate, project milestones are met, and overall project activities remain productive.	High

IV&V Findings and Recommendations (cont'd)

H Human Resource Management (cont'd)

#	Key Findings	Criticality Rating
5	Risk - **SI staffing challenges could reduce project productivity and system design quality, and lead to schedule delays:** Since soon after project launch, the DOE project leadership has raised several concerns with regards to the SI project team. DOE stakeholders have reported that working session productivity has, at times, been hindered by the apparent lack of sufficient knowledge, capabilities, and expertise of some SI team members. While some appear to have some strong capabilities and financial system knowledge, others appear to lack the capability to drive productive discussions, quickly solution implementation issues, and accelerate the Software Development Lifecyle (SDLC). The SI has recently responded to DOE leadership concerns that the SI PM lacked sufficient capabilities, experience, and the temperament to perform effectively as the project PM. The SI has responded to these concerns and the engagement manager has temporarily taken over PM responsibilities and augmented their team with a project coordinator resource. DOE leadership has raised concerns with other SI leads as well and the SI appears to be making efforts to augment their staffing model to address each concern. Due to the accelerated project schedule, the project can ill afford to tolerate a lack of productivity given go-live is in 6 months. One of the primary factors of project success is establishing a skilled, experienced, productive, highly available and high-functioning team. If the SI is not able to quickly implement a staffing model that can establish this kind of team, the project schedule could be at risk. Further, the lack of sufficiently capable SI resources could weigh heavily on already constrained DOE SMEs as they attempt to compensate and extend additional efforts to ensure project milestones are met. The addition of highly capable and experienced SI resources could reduce the burden on DOE SMEs. This risk is likely to be exacerbated by the significant time zone difference between the project team (HST and PST) and the SI technical team who reside in India. The SI teams' apparent lack of deep, expert-level Oracle Financials (OF) cloud expertise could continue to reduce the productivity of work sessions and/or lead to poor design decisions that could require significant rework once a better design or solution is discovered.	Medium

IV&V Findings and Recommendations (cont'd)

H Human Resource Management (cont'd)

Recommendations	Progress
• Executive leadership regularly monitor the workload and job satisfaction of key individuals as well as assist with workload management, clarification of priorities, and establishment of a sustainable pace.	In progress
• Temporarily re-allocate operational/managerial responsibilities from key resources until project completion.	In progress
• Consider temporary staff augmentation options (e.g., temps or 89-day hires) to both augment the existing project team and augment the operations staff to offload operational responsibilities from key resources.	In progress
• Prepare contingency plans in the event that the DOE project team can no longer sustain project and operational activities at the expected pace.	In progress
• Work closely with the SI in their staffing efforts and quickly, but thoroughly, vet additions to the SI project team.	In progress
• Request the SI explore augmenting their team with highly capable, expert-level resources that can provide technical leadership that could potentially accelerate the project and reduce the burden on constrained DOE SMEs.	In progress
• Request the SI make efforts to ensure solutions they have provided, and key decision documents are properly vetted by industry experts to ensure the best options are being presented to DOE SME's.	Not started

IV&V Findings and Recommendations (cont'd)

M Project Management & Organization

#	Key Findings	Criticality Rating
6	Risk - **COVID-19 State-wide shutdown could hinder project activities and negatively impact the project schedule and budget**: On 3/23/2020, the Governor issued a "stay at home, work from home order" that appears to have reduced the ability of the DOE to be fully functional, as the large majority of their workers have been required to work from home/remotely. Though the governor has allowed state workers to return to the workplace, many continue to work remotely. The state legislature is currently contemplating implementing 1-2 day/week furloughs as well as salary cuts for state workers to make up for budget shortfalls due to COVID-19. While the extent to which remote work requirements will impact the project are not fully known, it will likely complicate planning and execution of training, testing, and OCM. Many users have a strong preference for in-person training, however, due to social distancing policies, existing classroom capacity has been significantly reduced. Limited in-person training could lead to unmet user expectations and frustration as well as reduce the effectiveness of training. In the event in-person training is limited, project training planning and preparation will likely increase. If furloughs are mandated, the project may not be able to meet project milestone deadlines which could also negatively impact the project budget. IV&V will continue to monitor for other COVID-19 related impacts. Given that the project currently relies heavily on 3-4 key resources (see Finding #2), if any one of these individuals contract COVID-19, the project could be negatively impacted by their lack of availability. The project is currently faced with productivity and communication challenges because, due to COVID, the SI off-shore senior technical resources reside in India. Time zone (India team) challenges appear to have limited communications with the project team, and SMEs have often had to wait until the following day to get answers to some questions. Further, SMEs have indicated that the lack of in-person project work sessions has likely hindered their productivity.	Medium

IV&V Findings and Recommendations (cont'd)

M Project Management & Organization (cont'd)

#	Key Findings	Criticality Rating
8	Risk - **Inefficient project management practices could lead to overall lack of productive project activities and ultimately schedule delays**: This project is scoped to be staffed by both a DOE PM and an SI PM with the SI PM managing the bulk of SDLC activities with the DOE PM assisting in managing DOE assigned project activities. The DOE struggled to adequately staff the DOE PM position during the initial months of the project, until they were able to acquire a capable consultant to fill the role, April 2020. The project reported some early insufficient and inefficient project management processes, including: • Insufficient action item tracking and follow-up • Insufficient attention to risk management • Unclear project scope definition • Lack of clear meeting objectives and late delivery of meeting agenda's • Lack of preparation and planning for meetings and work sessions • Insufficient guidance on attendee management and vetting of attendees • Previous SI project manager (PM) had not met project expectations for project leadership, strategic direction, communication, and organization. The SI has recently responded to DOE leadership concerns by removing the SI PM and adding a project coordinator to their team, and the SI engagement manager has taken over as the PM and is now making some progress in addressing the above concerns. Lack of good project management processes can lead to an overall lack of project productivity, and ultimately lead to schedule delays and stakeholder frustration and reduced user buy-in. The SI appears to be making good progress in addressing DOE project management concerns. However, the impacts of operating the project under poor project management processes for the initial 5 months of the project remain unclear. Further, the current SI PM could be quickly overwhelmed as they attempt to fulfill both the PM and engagement manager roles, in addition to other responsibilities in their role as Vice President of Operations and senior CherryRoad executive (principle/partner). The recently added SI project coordinator appears to have had a positive impact on PM processes.	Medium

IV&V Findings and Recommendations (cont'd)

M Project Management & Organization (cont'd)

#	Key Findings	Criticality Rating
11	Risk - **Insufficient knowledge transfer and M&O planning prior to go-live could lead to project delays and diminished quality of post go-live support.**: There appears to be a lack of clarity around post go-live support responsibilities and the level of SI support. Apparently, some contractual post go-live support requirements have yet to be clarified and agreed to between the SI and DOE. Further, DOE expectations for the SI to train their IT staff have not been met. The DOE IT group currently has some interface development project responsibilities and DOE's expectation was that the SI would provide sufficient knowledge transfer (KT) on Oracle Financials (OF) and Oracle Integration Cloud (OIC) in order to perform these tasks in a timely manner as well as meet expectations for DOE post go-live support responsibilities. DOE has stated their expectation that DOE IT staff would work alongside the SI technical team for KT throughout project implementation, however, the level of KT has not met DOE expectations thus far. If the DOE IT staff are not sufficiently trained to effectively implement their project tasks this could lead to a reduction of efficient execution and quality of the technical components they have been assigned and, ultimately, to schedule slippage. Lack of clarity or sufficient planning around post go-live support could lead to diminished quality of post go-live support. Failure to adequately augment the existing DOE IT group with OF skillsets could leave DOE unable to adequately support the new OF system post go-live and lead to an over-reliance on costly vendor resources and impact the project budget.	Medium

IV&V Findings and Recommendations (cont'd)

M Project Management & Organization (cont'd)

Recommendations	Progress
• Begin early contingency planning to address further impacts of COVID-19, such as potential furloughs as well as fully remote UAT and Training.	In progress
• Perform an assessment of DOE remote capabilities prior to UAT and Training to determine stakeholder's ability and effectiveness in relying on remote access for project participation.	In progress
• Continue to monitor project stakeholders and system users are sufficiently competent with remote meeting technology including ensuring they are highly functional with remote access technology (e.g. WebEx), as UAT and Training will likely require some level of (if not full) remote participation.	In progress
• Send broad communications to assure stakeholders the project has a clear understanding of COVID-19 impacts to the project and provide regular updates, as appropriate, as new plans and tactics develop.	In progress
• Detail relevant OCM strategies and plans for addressing the impacts of COVID-19 in the project OCM Plan.	In progress
• Request the SI make efforts to address time zone challenges with the off-shore technical team.	In progress
• Initiate efforts to request exemptions from hiring freeze constraints and furlough exemptions for the DOE project team.	In progress
• Monitor and provide regular feedback on PM processes and implement continuous process improvement processes to assure consistent and effective project management.	In progress
• Document and execute detailed risk mitigation steps for tasks that appear to be slipping that include offering additional resources to support project team members who are falling behind on critical path tasks.	In progress

IV&V Findings and Recommendations (cont'd)

M Quality Management

#	Key Findings	Criticality Rating
10	Risk – **Inadequate release management processes could lead to significant rework and schedule delays:** Due to existing Oracle Financials cloud limitations, upload of data is often difficult to back out. Errors made during data uploads can either require manual data entry corrections or an environment refresh that will likely take 3 weeks. During initial uploads to the development environment, the wrong version of a file use mistakenly uploaded which created some disruption of development activities. Due to limitations of the OF cloud limitations, back out of bad data or configurations is not always automated and therefore can require manual correction of data. Alternatively, if the data corruption is significant, the project may elect to refresh the environment to a previous state, however, an OF refresh will likely take 3 weeks, which may not be feasible given the tight deadlines. If comprehensive quality controls are not implemented as an integral part of release management processes, mistakes that are made by both DOE and the SI can be difficult to back out. Lack of clear upload file versioning and other controls could lead to wrong files being uploaded which could lead to disruption of development efforts and, if not caught, could lead to disruption of testing phases and ultimately, schedule slippage. If release management procedures are unclear or if the execution of release procedures lack sufficient rigor, the likelihood of missteps may increase. Missteps during testing or go-live could lead to user confusion, reduced user buy-in, costly schedule delays, reduced executive stakeholder project support, and a negative public perception that could be picked up by the local media (aka "bad press").	Medium

IV&V Findings and Recommendations (cont'd)

M Quality Management (cont'd)

#	Key Findings	Criticality Rating
12	Risk – **Insufficient testing strategy and planning could lead to poor test quality, including incomplete and invalid test results:** IV&V has observed some unproductive test preparation work sessions and some confusion among the project team members as some elements of the test strategy and plan are unclear or not well defined. At times, it appears the SI is asking DOE test leads to perform activities they lack expertise to perform. DOE test leads have also stated that SI led testing preparation efforts have not always been productive and have not met their expectations that the SI would provide sufficient testing preparation guidance. The SI appears to have responded by replacing the SI Test Lead, and the SI PM has taken over as the SI Test Lead, despite concerns that the SI PM may be overallocated. It is unclear whether the SI PM has capacity to effectively lead the testing effort and provide DOE test leads with sufficient guidance for them to adequately prepare for testing. The SI reports that they are making efforts to find a permanent replacement. Additionally, IV&V has concerns with the proposed testing strategy. The SI has stated they intend to begin System Integration Testing (SIT) without some system components being fully operational which could, A) result in incomplete testing and, B) invalidate test results for functionality that has been previously tested.	Medium

IV&V Findings and Recommendations (cont'd)

M Quality Management (cont'd)

Recommendations	Progress
• Implement comprehensive and rigorous release management processes and quality controls (checks and double-checks).	In progress
• Clarify and fully vet the testing strategy and plans for DOE leads and stakeholders.	In progress
• Develop and implement a robust regression test methodology.	Not started

IV&V Findings and Recommendations (cont'd)

M

System Architecture & Design

#	Key Findings	Criticality Rating
7	Risk – **Oracle Financials environment constraints could lead to schedule delays and leave the project unable to meet development, testing, and training objectives:** The project has planned for a total of 4 environments, currently slated for development, testing, training, and production. Oracle Financials cloud service level agreements for environment refresh is reportedly 3 weeks. The SI has indicated they are working on a strategy for accomplishing project objectives with the limited environments and the DOE is reportedly making efforts to increase the number of environments. Typically, projects of this size, complexity, and pace rely on quick environment refreshes in order to effectively meet development, testing, and training objectives. Most will plan for an abundance of environments in order to avoid the need to repurpose environments, avoid project delays, and provide flexibility to "freeze" environments to improve testing and training quality. If the project is unable to quickly refresh environments and is has only a limited number of environments.	Medium

IV&V Findings and Recommendations (cont'd)

M System Architecture & Design (cont'd)

#	Key Findings	Criticality Rating
9	Risk – **User provisioning and security model complexities could lead to unmet user expectations, unfulfilled business objectives, and schedule delays:** Initial security discussions have revealed some complexities and challenges with implementing a security model that fully meets DOE business objectives including segregation of duties, principle of least privilege. The project has elected to implement a single Business Unit (BU) for all of DOE, which could create system implementation challenges given Oracle Financials security is optimally implemented for multiple BU's. The SI is making efforts to ensure DOE business objectives are met and can be implemented so as not to put an undue burden on user provisioning staff. Implementation of a security model that does not meet user expectations and fully support end user provisioning and segregation of duties controls can lead to user frustration that: • Security is too restrictive and hinders their ability to be productive and do their job • Security is overly permissive and privileged information is visible to other groups that do not have a business need for the data • User provisioning maintenance is overly complex and/or labor intensive • The security model has made testing overly complex due to tester user provisioning challenges The security model is currently being developed by a single SI resource. Failure to fully vet the proposed security model with multiple Oracle Financials cloud security experts and fully address DOE business objectives, could lead to project disruption in the event that a significant change to the model is needed as go-live approaches and as a result of mounting user complaints.	Medium

IV&V Findings and Recommendations (cont'd)

M

System Architecture & Design (cont'd)

#	Key Findings	Criticality Rating
13	Risk – **Integration with older (antiquated technology) systems could be unexpectedly complicated and lead to schedule delays:** The project currently has requirements to integrate with older systems that often lack sufficient documentation and/or system expertise. A number of systems that the new FMS must interface with are based on older technology that may be incompatible with new technology and can be difficult to integrate with. Many systems have accumulated a significant amount (decades in some instances) of technical debt, reportedly due to lack of funding and technical team capacity. For example, it has been reported that patching for many systems are severely out of date and may run on Operating Systems or other software technology/tools that are no longer supported by the vendor. Many of these systems no longer have system experts because support staff have moved on or retired, and documentation and/or knowledge transfer upon their departure may not have been sufficient. Documentation for many older systems is reportedly missing or incomplete. Unexpected complications that arise in attempts to integrate with antiquated systems can lead to project delays or unexpected costs for tools to compensate for limitations of antiquated systems. Interface development efforts can also be delayed when expected system documentation, expertise, or vendor support is no longer available. Given the amount of technical debt these systems have accumulated over the years and the lack of system patching, the system could open the FMS replacement system, other connected systems, and the DOE to undue system failure risks. If any of these antiquated DOE systems fail during project execution, project resources (who are already at capacity) will likely have to be reallocated towards repair and recovery of these systems and lead to schedule delays.	Medium

IV&V Findings and Recommendations (cont'd)

M System Architecture & Design (cont'd)

Recommendations	Progress
• SI make efforts to fully vet the proposed security model with multiple Oracle Financials cloud security strategy experts prior to implementation.	Not started
• Make early OCM efforts to manage expectations based on potential limitations of the security model as they relate to business objectives.	In progress
• DOE establish clear controls with regard to segregation of duties and least privilege permissions.	In progress
• Request the SI develop an environment management plan.	In progress
• DOE investigate the value of adding additional environments as necessary to assure accelerated development cycles.	In progress
• Consider petitioning the State leadership for additional funding to resolve technical debt that could be putting the project and the State at risk of potentially embarrassing and costly security breaches and/or critical system failures.	In progress
• Consider prioritizing patching and system upgrades to stabilize boundary systems.	In progress
• Perform early discovery and due diligence to identify potential complications with integrating with older systems.	In progress
• Consider implementing early, basic proof of concept interfacing with older systems to assure integration is feasible and to vet optimal interface solutions.	In progress

IV&V Status

- **IV&V activities performed during the reporting period:**
  - Attended Project Management meetings
  - Attended Weekly Managers & Leads meetings
  - Attended various Working Group sessions
  - Review relevant project documentation
  - Led IV&V Risk Review sessions with DOE leadership and the SI
  - Interviewed DOE and SI project team members
  - Produced IV&V Monthly Status Report
- **IV&V next steps in the coming reporting period:**
  - Attend key project meetings
  - Interview additional key project stakeholders
  - Deliver next IV&V Monthly Status Report

Appendix A – IV&V Criticality Ratings

This appendix provides the details of each finding and recommendation identified by IV&V. Project stakeholders are encouraged to review the findings and recommendations log details as needed.

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 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

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**

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

Id	Short Desc	Title / Summary	Finding Description	Analysis and Significance	Recommendation	Updates	Category	Type	Priority	Status	Identified Date
2	DOE capacity - overreliance	**Over reliance on a few skilled and overtaxed DOE project resources could lead to significant project disruption.**	There are currently 3-4 DOE team members who are relied on to a greater extent than others. Each of these individuals have significant standing critical operational responsibilities and most have managerial responsibilities as well. While each of these team members have indicated a strong commitment to project success, each has multiple competing priorities, and most will be constrained with operational tasks between now and go-live. It remains unclear if DOE staffing levels committed to in the original Statement of Work (SOW) have been met (see SOW, page 3).	Over reliance on key resources can not only overtax and thereby reduce the effectiveness of these key individuals, but also presents a risk of significant project disruption in the event of their departure. While most projects have this risk, the risk impact for this project, from IV&V's perspective, is higher than most, and while the project could be impacted by the loss of any DOE team members, there are 3-4 individuals who are relied on to a greater extent than others. Loss of these individuals could lead to significant project disruption. Failure to transfer standing daily operational and managerial responsibilities from these individuals to other DOE resources could stretch them beyond their capacity and lead to a lack of job satisfaction, decreased productivity, decrease in quality, and increases the probably they could make critical mistakes that could negatively impact the project. Several of these key resources have indicated they have significant operational responsibilities and projects between now and go-live (e.g. year-end close, audit, the Time & Leave project, preparations for the new school year, etc.) and may simply lack the capacity to meet all current expectations. Further, if the SI is not able to resolve some staffing challenges (see related risk), the project may increase their reliance on these individuals and may have to work harder to ensure system designs are accurate, project milestones are met, and overall project activities remain productive.	• 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. • Temporarily re-allocate operational/managerial responsibilities from key resources until project completion. • Consider temporary staff augmentation options to both augment the existing project team and augment the operations staff to offload operational responsibilities from key resources. • Prepare contingency plans in the event that the DOE project team can no longer sustain project and operational activities at the expected pace. • Prepare a resource management plan that addresses current and projected project resource constraints and clearly identifies additional resource needs. Recommend this plan include a detailed analysis of these individual's workload over the next 6 months to determine if expectations on their time are realistic. • Request that the SI address issues with their project team that place an unnecessary burden on overtaxed DOE SME's.	12/15/20 - One key member of the Gartner PMO team has been replaced and the longstanding Gartner assistant PM is now the lead DOE PM. Turnover to the new PM appears to have been effective as the project has not experienced any noticeable disruption due to the change. The new Gartner technical resource has been assisting the DOE IT team offering guidance and coordination. DOE leadership continues to make efforts to provide some relief to overtaxed DOE SME's including a concerted effort to offload business operations tasks from the lead DOE SME who has become both the focal point and chokepoint for important project tasks. DOE is reportedly limited in their ability to acquire new DOE staff due to budgetary and potential union constraints. SI challenges continue to weigh heavily on the lead DOE SME as they make additional unexpected efforts to assist with coordinating SI communications and other activities, and provide quality assurance for SI work products. 11/15/20 - IV&V remains concerned that DOE SME's are operating at or beyond their capacity and the overreliance on one DOE SME, who currently provides exceptional value to the project, has become both the focal point and chokepoint for important project activities. Any disruption to this individuals' availability could lead to schedule slippage. SME's continue to spend a significant amount of time reviewing and double-checking SI configurations and other work products due, in part, to their lack of confidence in the quality of SI work products. The SI continues to make efforts to clarify and prioritize DOE SME tasks, however, specific SME task priorities are not always made clear to DOE SME's. 10/15/20 - The single DOE resource that has, at times, become a bottleneck for project activities continues to be overallocated. This has been exacerbated by a recent flood of audit activities that are occupying the DOE accounting teams time. IV&V has observed that SI leads lack of coordination, communication, apparent expert knowledge, and prioritization of DOE SME tasks (see Risk #5), has frustrated and often puts an additional hardship on DOE SME's. Further, the SI has recently reported their Conversion/Interfaces management lead is leaving the project, which could further exacerbate this risk. Until a suitable replacement is found, the SI PM and Engagement Manager will fill this void. The SI is also in the process of onboarding a new testing coordinator to take over for the SI PM that has been filling in. The DOE PMO appears to be stepping up efforts to assist with coordination, communication, and prioritization of SME tasks. 09/15/20 - DOE project leads have reported that, through the project schedule extension will	Human Resource Management	Issue	High	Open	6/30/2020
3	Accelerated Schedule	**Adoption of an aggressive schedule could lead to poor system quality, user frustration, stretch DOE resources beyond their capacity, and bad press.**	In October of 2018, the aging DOE FMS failed, was offline for several weeks, and led to significant disruption of critical operations. As a result, the DOE quickly procured and launched this project with the goal of replacing their FMS as quickly as possible to avoid a similar event. The project is currently executing an aggressive, accelerated timeline with a January 2021 go-live date. This accelerated schedule incurs risks that the DOE has deemed acceptable given the potential larger risks associated with another legacy FMS failure. In order to speed implementation, the project has elected to implement a cloud-based Oracle Software-as-a-Service platform based on a pre-configured template, leverage Agile SDLC methods, limit the amount of new or improved functionality, and scaled back some project documentation. The SI has stated that they had scaled back early analysis efforts in order to meet DOE expectations for an accelerated schedule. The SI also stated that initial analysis would not be needed because the project will be adopting a preconfigured Oracle SAAS template for system implementation and that DOE users will be required to change their existing processes and adopt processes supported by the platform template. Some SMEs have reported early work session have been unproductive due to the lack of sufficient early analysis efforts.	The accelerated schedule could lead to: •Lack of thorough consideration of required business process changes resulting from the new system •User confusion and frustration due to the added burden of learning a new system with new processes, unmet expectations for improvements, and significant disruption to their daily duties •Over allocation of project resources and users •Significant OCM and Training efforts with limited time to plan and execute •Project decisions to cut corners to meet milestones and DOE expectation •Unproductive working sessions due to insufficient analysis efforts •Limited time to react to or resolve issues that may arise •Poor system design •A flurry of chaotic stakeholder activity as the project progresses closer to go-live. This risk could be exacerbated by other IV&V identified risks which could lead to a need to extend the project schedule. If these potential risks are realized, negative user feedback could lead to inflammatory media coverage which could negatively impact legislative, board of education, and public support. Some SMEs have reported early work sessions have been unproductive due to the lack of sufficient early analysis efforts. This risk could be exacerbated by other IV&V identified risk which could lead to a need to extend the project schedule. Still, the project has stated they will only go-live if the system sufficiently supports DOE operations and users are able to do their jobs.	• Take steps to assure sufficient OCM planning and activities are performed to prepare users for the significant change taking place at an accelerated rate. • Project leadership closely monitor project productivity and meet regularly to perform continuous process improvement (continuously reach out for feedback and move quickly to improve unproductive project elements and processes). • Leadership take steps to closely monitor project team capacity and assure resources are not overallocated. • Implement a plan for broad validation of system functionality with clear channels of communication for user feedback to assure all users are able to perform their duties prior to the project go/no-go decision. • Project make early efforts to plan for and prepare contingency plans in the event it becomes clear the accelerated schedule is unsustainable or critical project objective will not be met by the planned go-live date. • Prepare and implement a public relations plan to avoid inflammatory media coverage which could negatively impact legislative, board of education, and public support. • Consider employing the role of a Scrum Master whose prime directive is to remove roadblocks to productivity. • SI clearly and often communicate specific DOE activity prioritization and dependencies and perform risk mitigation planning to avoid schedule slippage. • Clarify DOE PM vs. SI PM roles on the project with regard to monitoring critical path activities that appear to be falling behind as well as other risk mitigation activities. • DOE explore providing the project with a dedicated report writer that could be trained on the new reporting tools and offer long-term (post go-live) report writing support to system stakeholders.	12/15/20 - Due to the aggressive schedule, the project has elected to implement security and some other functionality during the later half of SIT. This could lead to schedle delays if the added functionality cannot be completed and tested in time to meet SIT exit criteria. Further, the SI, at times, appears to be foregoing some quality control measures as they rush to meet activity deadlines. The project has elected to forego test script revisions during SIT despite testers complaining of multiple spelling and grammer problems and that the scripts are difficult to follow. The SI is exploring additions to their team to shore up areas that have experienced delays. IV&V recommends DOE explore providing the project with a dedicated report writer that could be trained on the new reporting tools and offer long-term (post go-live) reporting support to system stakeholders. This could potentially free up SI resources so they can focus on activities that have a greater risk of delaying the project schedule. 11/15/20 - IV&V has observed that the SI does not consistently communicate the urgency of project tasks and may leave DOE SME's repeatedly questioning the SI as to specific task priorities. SI and DOE task deadline enforcement is often times lax, and deadlines have come and gone without root causes being addressed; further, mitigation plan details are not always considered and/or communicated to task owners or DOE leadership. Failure to take steps to assure timely completion of tasks that are at risk of going past due can lead to schedule slippage. Typically, SI's will quickly formulate mitigation plans to assure task are completed on time and will allocate additional resources to assist with tasks that appear to be falling behind schedule. 10/15/20 - The recent schedule extension Change Order (CO) has been signed by the SI and undergone State Attorney General (AG) review, and will likely receive final signature from the DOE Superintendent. The project has been operating under a revised project schedule that has a projected July 1, 2021 go-live date. However, though the project has not slipped the go-live date, some project tasks are behind schedule. Given the current project risks/challenges and the lack of a detailed, fully resourced project schedule, IV&V remains concerned that the schedule is aggressive and it remains unclear if the July go-live date is feasible. For example, due to delays in conversion, interface, and security development activities, the project expects to enter System Integration Testing (SIT) with some system components missing (see Risk #12). IV&V has also noted concerns with the SI general lack of formalized and coordinated risk management practices, which could leave the project surprised, at some point, that risks have triggered unexpected delays and left them little time to respond to prevent schedule (go-live) slippage.	Cost & Schedule Management	Risk	Medium	Open	6/30/2020

Id	Short Desc	Title / Summary	Finding Description	Analysis and Significance	Recommendation	Updates	Category	Type	Priority	Status	Identified Date
4	Delayed PMP & schedule	**Delayed finalization of the Project Management Plan (PMP) and schedule could lead to stakeholder confusion and less than informed planning and ultimately lead to reduced productivity and project delays.**	The project is currently operating under a draft Project Management Plan (PMP) and project schedule. The PMP deliverable was due 3/12/20 but, as of this reporting period, both have not been finalized. DOE project leadership has indicated that existing drafts appear to lack sufficient details.	The projects accelerated schedule leaves little room for any impact to project productivity. Lack of a finalized PMP could lead to uncertainty around project scope and uncertainty around how the project will be executed or managed, which can reduce overall project cadence and productivity. Delays in establishing a clear, detailed baselined schedule could lead to project delays and leave the project unable to effectively monitor project progress. Further, the lack of a clear critical path could leave the project with little time to respond to critical path activities that may have already impacted the project go-live date.	• Request the SI accelerate efforts to finalize the PMP and provide a detailed baselined project schedule. • Request the SI clearly define the project schedule critical path, monitor and clearly communicate critical path activities that are approaching slippage, and formulate risk mitigation strategies to address critical path activities that are falling behind.	12/15/20 - IV&V and the DOE PMO continue to be concerned that planning outside of the rolling 6-week project schedule updates could be insufficient and could lead to schedule delays once these activities are thoroughly vetted and detailed. The SI has stated they are making efforts for future planning. 11/15/20 - The SI is currently updating the project schedule on a rolling 6-week basis and regularly reviews critical path tasks (at a high level) with the PMO. DOE PMO reports that while the current project schedule (and critical path) lacks some details, it has been, thus far, adequate for managing project activities. IV&V continues to monitor risks related to the project schedule that could lead to the project being surprised when important milestones are missed because milestone activities were not sufficiently tracked/managed or because the project has not looked far enough ahead to plan for activities that could pose a risk to the schedule. 10/15/20 - The PMP received final signature by the DOE Superintendent on 9/22/20. DOE stakeholders have reported that some project documents are not consistently kept up to date and are less than comprehensive. Best practice is for the PMP and other project management documents are regularly updated and kept current, so project stakeholders have a single source of truth for foundational project information. Further, DOE PMO reports that the project schedule lacks sufficient details and an comprehensive critical path, and some other elements are confusing and difficult to follow. They have also state that SI PM is overallocated. IV&V remains concerned the project could be surprised by critical path activities that are delayed, leaving the project little time to shore up resources to address at-risk tasks, in order to ensure they don't slip the schedule. Projects of this size and scope are often staffed with a resource whose primary role is to manage the project schedule, maintain and communicate the critical path, and ensure tasks are appropriately staffed/resourced. The SI has made recent efforts to clarify, simplify, and communicate critical path tasks to the project team, though some DOE SME's continue to state the SI does not consistently communicate specific task priorities. 09/15/20 - The project expects the change order to push out the schedule to a potential July 2021 go-live date. Efforts are underway to revise the schedule and provide a new critical path. IV&V is concerned that the SI PM managing the schedule may be overallocated; if critical path and other project plan details are not updated in a timely manner, the project will not be able to assess whether they will be able to complete all required tasks to meet the new go-live date and	Cost & Schedule Management	Risk	Medium	Open	6/30/2020
5	SI Staffing Challenges	**SI staffing challenges could reduce project productivity and system design quality, and lead to schedule delays.**	Since soon after project launch, the DOE project leadership has raised several concerns with regards to the SI project team. DOE stakeholders have reported that working session productivity has, at times, been hindered by the apparent lack of sufficient knowledge, capabilities, and expertise of some SI team members. While some appear to have some strong capabilities and financial system knowledge, others appear to lack the capability to drive productive discussions, quickly solution implementation issues, and accelerate the Software Development Lifecyle (SDLC). The SI has recently responded to DOE leadership concerns that the SI PM lacked sufficient capabilities, experience, and the temperament to perform effectively as the project PM. The SI has responded to these concerns and the engagement manager has temporarily taken over PM responsibilities and augmented their team with a project coordinator resource. DOE leadership has raised concerns with other SI leads as well and the SI appears to be making efforts to augment their staffing model to address each concern.	Due to the accelerated project schedule, the project can ill afford to tolerate a lack of productivity given go-live is in 6 months. One of the primary factors of project success is establishing a skilled, experienced, productive, highly available and high-functioning team. If the SI is not able to quickly implement a staffing model that can establish this kind of team, the project schedule could be at risk. Further, the lack of sufficiently capable SI resources could weigh heavily on already constrained DOE SMEs as they attempt to compensate and extend additional efforts to ensure project milestones are met. The addition of highly capable and experienced SI resources could reduce the burden on DOE SMEs. This risk is likely to be exacerbated by the significant time zone difference between the project team (HST and PST) and the SI technical team who reside in India. The SI teams' apparent lack of deep, expert-level Oracle Financials (OF) cloud expertise could continue to reduce the productivity of work sessions and/or lead to poor design decisions that could require rework once a better design or solution is discovered.	• Work closely with the SI in their staffing efforts and quickly, but thoroughly, vet additions to the SI project team. • Request the SI make efforts to address time zone challenges with the off-shore technical team. • Request the SI explore augmenting their team with highly capable, expert-level resources that can provide technical leadership that could potentially accelerate the project and reduce the burden on constrained DOE SMEs. • DOE consider issuing a corrective action plan for the SI to sufficiently address technical leadership concerns. • Request the SI make efforts to ensure solutions they have provided, and key decision documents are properly vetted by industry experts to ensure the best options are being presented to DOE SME's.	12/15/20 - DOE SME's continue to report challenges with the SI project team that has led to an increase in their project workload as they seek to ensure SI work product quality, comprehensive SI communications and follow through, and proposed systems designs are fully vetted. The SI team continues to show signs of a general lack of technical leadership as important design decisions are delayed. However, the SI has made efforts to address DOE concerns and increase their teams capabilities and capacity. The SI has replaced their training lead with a resource that has proven success assisting other State (DAGS) projects and is therefore familiar with DOE capabilities and training needs. IV&V and DOE continues to note a lack of internal collaboration amongst the SI project team members which has led to some unproductive DOE/SI work sessions. 11/15/20 - The SI added a new test lead to the project team, however, it remains unclear whether this new resource will fully lead the testing effort. It appears the SI project PM continues to lead this effort and the new SI resource is acting in a support role for testing coordination activities. Other SI staffing challenges continue to show little improvement and DOE SME's have stated they are not always well informed on aspects of system functionality, system limitations and known bugs. DOE SME's continue to lack confidence in the SI functional leads knowledge of the system and ability to provide quality work products. 10/15/20 - IV&V previously reported that the SI's addition of a conversion/interface management lead had improved productivity in those areas. However, the SI has recently announced that this resource would be leaving the project 10/30/20. Project stakeholders and IV&V are concerned that the conversion/interfaces tasks are at risk of delaying project milestones, and could regress into showing little progress. The SI has stated they are working to find a suitable replacement. Other SI staffing challenges continue to show little improvement and, though good processes are in place, they are not always followed, which has led to confusion and extra work for DOE SME's that are already at capacity. The project has reported some lack of productivity with the testing lead and the SI has stated they will soon replace them with a new resource. The project has also elected to assign an addition resource from the OCM team to assist with proactive coordination and communication of training activities. 09/15/20 - IV&V and DOE leadership remains concerned that overall SI technical leadership has not met DOE expectations. SME's continue to report SI technical leads providing incorrect or	Human Resource Management	Risk	Medium	Open	6/30/2020

Id	Short Desc	Title / Summary	Finding Description	Analysis and Significance	Recommendation	Updates	Category	Type	Priority	Status	Identified Date
6	COVID	**COVID-19 State-wide shutdown could hinder project activities and negatively impact the project schedule and budget.**	On 3/23/2020, the Governor issued a "stay at home, work from home order" that appears to have reduced the ability of the DOE to be fully functional, as the large majority of their workers have been required to work from home/remotely. Though the governor has allowed state workers to return to the workplace, many continue to work remotely. The state legislature is currently contemplating implementing 1-2 day/week furloughs as well as salary cuts for state workers to make up for budget shortfalls due to COVID-19.	While the extent to which remote work requirements will impact the project, it has already complicated planning for training and OCM. Many users have a strong preference for in-person training, however, due to social distancing policies, existing classroom capacity has been significantly reduced. Limited in-person training could lead to unmet user expectations and frustration as well as a less than optimal training effectiveness. In the event in-person training is limited, project training planning and preparation will likely increase. If furloughs are mandated, the project may not be able to meet project milestone deadlines which could also negatively impact the project budget. IV&V will continue to monitor for other COVID-19 related impacts. The project is currently faced with productivity and communication challenges because, due to COVID, the SI off-shore senior technical resources reside in India. Time zone (India team) challenges appear to have limited communications with the project team and SMEs have often had to wait until the following day to get answers to some questions. Further, SMEs have indicated that the lack of in-person project work sessions has hindered their productivity.	• Begin early contingency planning to address further impacts of COVID-19, such as potential furloughs as well as fully remote UAT and Training. • Perform an assessment of DOE remote capabilities prior to UAT and Training to determine stakeholder's ability and effectiveness in relying on remote access for project participation. • Continue to monitor project stakeholders are sufficiently competent with remote meeting technology and begin early efforts to help stakeholders to become highly functional with remote access technology (e.g. WebEx), as UAT and Training will likely require some level of (if not full) remote participation. • Send broad communications to assure stakeholders the project has a clear understanding of COVID-19 impacts to the project and provide regular updates, as appropriate, as new plans and tactics develop. • Detail relevant OCM strategies and plans for addressing the impacts of COVID-19 in the project OCM Plan. • Initiate efforts to request furlough exemptions for DOE project team members.	12/15/20 - State leadership has announced that furloughs could begin January 4, 2021, though DOE could see less than the projected State-wide standard 2 furlough days per month. Given that the project currently relies heavily on 3-4 key resources (see Finding #2), if anyone one of these individuals contract COVID-19, the project could be negatively impacted by their lack of availability. 11/15/20 - No material updates for this reporting period. 10/15/20 - State leadership has indicated that they may be implementing State-wide bi-weekly furloughs as early as December 2020. The project is analyzing potential impacts and risk mitigations to address the loss of DOE resource capacity. Typically, SI and DOE project resources would be co-located in order to increase productive communications. IV&V has observed some unproductive communications likely due to an over-reliance on email for communications which is often overly verbose and difficult to follow. IV&V recommends the project team utilize ad-hoc phone discussions to improve the efficiency of communications and speed resolution of complex topics, instead waiting for large meetings to discuss and/or multiple volleys of laborious emails. 09/15/20 - IV&V remains concerned that COVID-19 related budget cuts could hinder funding of critical project budgetary needs. State leadership have indicated they will consider implementing State employee furloughs as COVID-19 budget shortfall measure. Furloughs could reduce the amount of time DOE team members spend on the project, which could lead to schedule slippage. 08/17/20 - Hawaii state leadership has indicated that they may renew a "work from home" mandate. A recent COVID-19 related hiring freeze could hinder the DOE ability to augment their existing staff to meet project needs and to support the new system post-go-live. Some stakeholders continue to question the effectiveness of virtual testing and training. 07/15/2020 - Some stakeholders have indicated that some project activities could be more productive if teams were able to meet in person. There continues to be uncertainty around when the project team will be able to work together in-person as State leaders continue to push out projected opening dates.	Project Organization & Management	Risk	Medium	Open	6/30/2020
7	Environments	**Oracle Financials environment constraints could lead to schedule delays and leave the project unable to meet development, testing, and training objectives.**	The project has planned for a total of 4 environments, currently slated for development, testing, training, and production. Oracle Financial cloud service level agreements for environment refresh is reportedly 3 weeks. The SI has indicated they are working on a strategy for accomplishing project objectives with the limited environments and the DOE is reportedly making efforts to increase the number of environments.	Typically, projects of this size, complexity, and pace rely on quick environment refreshes in order to effectively meet development, testing, and training objectives. Most will plan for an abundance of environments in order to avoid the need to repurpose environments, avoid project delays, and provide flexibility to "freeze" environments to improve testing and training quality. If the project is unable to quickly refresh environments and is has only a limited number of environments.	• Develop an environment management plan with sufficient details to describe how the project will mitigate related to OF environment limitations. • DOE work to procure additional environments as necessary based on SI recommendations that would assure accelerated development cycles.	12/15/30 - Feedback from testers during SIT have led the project to reevaluate the use of Oracle Financials (OF) use of requisitions. The DOE legacy FMS did not utilize requisitions and testers have indicated the OF user interface is cumbersome, inefficient, and confusing. Testers have also complained of system slowness which the SI is in the process of addressing. Previously reported OF bugs introduced by the quarterly Oracle update have since been resolved by Oracle. 11/15/20 - The recent push of an Oracle quarterly update to the non-production environments introduced bugs and may have disrupted development efforts. It remains unclear when Oracle will be able to develop a patch for these bugs. DOE leadership remains concerned with the level of effort required for them to perform regression testing to test quarterly updates post go-live. They also remain concerned that bugs could be introduced that are not caught in regression testing, promoted to the production, and lead to disruption of system functionality and availability. IV&V recommends DOE make extensive efforts to plan for comprehensive regression testing efforts. 10/15/20 - The SI has confirmed that some system customizations will likely be overridden when Oracle quarterly updates are applied to the environments. IV&V remains concerned that, until Oracle is able to fix some apparent bugs in their Oracle Financials migration tools, the SI will not be able to automate environment refresh/rebuilds and will continue to rely on manual methods to build each new environment. 09/15/20 - The project has stated that the schedule extension change order will include additional controls to address limitations of the Oracle Financials environments. The project has identified several OF system limitations that could pose a significant risk to system security and useability and user buy-in. There are currently some issues that the project has yet to find a solution or work around which could also become an OCM challenge as some proposed work arounds could be a significant challenge for users. 08/17/20 - The project appears to be making progress in addressing many Oracle Financials (OF) platform constraints with work arounds and process changes and tracking them in a consolidated 'Change Impact Analysis' spreadsheet. However, the number of workarounds and changes appear to be significant. This could not only increase the level of effort for training and OCM but also hinder user buy-in/adoption and ultimately lead to bad press or the filing of union	System Architecture & Design	Risk	Medium	Open	6/30/2020

Id	Short Desc	Title / Summary	Finding Description	Analysis and Significance	Recommendation	Updates	Category	Type	Priority	Status	Identified Date
8	PM processes	**Inefficient project management practices could lead to overall lack of productive project activities and ultimately schedule delays.**	This project is scoped to be staffed by both a DOE PM and an SI PM with the SI PM managing the bulk of SDLC activities with the DOE PM assisting in managing DOE assigned project activities. The DOE struggled to adequately staff the DOE PM position during the initial months of the project, until they were able to acquire a capable consultant to fill the role, April 2020. The project reported some early insufficient and inefficient project management processes, including: ▣ Insufficient action item tracking and follow-up ▣ Insufficient attention to risk management ▣ Unclear project scope definition ▣ Lack of clear meeting objectives and late delivery of meeting agenda's ▣ Lack of preparation and planning for meetings and work sessions ▣ Insufficient guidance on attendee management and vetting of attendees ▣ Previous SI project manager (PM) had not met project expectations for project leadership, strategic direction, communication, and organization. The SI has recently responded to DOE leadership concerns by removing the SI PM and adding a project coordinator to their team, and the SI engagement manager has taken over as the PM and is now making some progress in addressing the above concerns. The project is currently operating under a draft Project Management Plan (PMP) and project schedule. These deliverables were due 3/12/20 but, as of this reporting period, have not been finalized (see Risk #4).	Due to the accelerated project schedule, the project can ill afford to tolerate a lack of productivity. Lack of good project management processes can lead to an overall lack of project productivity, and ultimately lead to schedule delays and stakeholder frustration and reduced buy-in. The SI appears to be making good progress in addressing DOE project management concerns. However, the impacts of operating the project under poor project management processes for the initial 5 months of the project remain unclear. The project could realize the reduced productivity during the planning and analysis phase has led to project delays. Further, the current SI PM could be quickly overwhelmed as they attempt to fulfill both the PM and engagement manager roles, in addition to other responsibilities in their role as Vice President of Operations and senior CherryRoad executive (principle/partner). The recently added SI project coordinator appears to have had a positive impact on PM processes.	• Request the SI work quickly to acquire a dedicated and highly-capable project manager that has proven experience successfully driving an Oracle cloud-based K-12 project in an accelerated timeframe. • Monitor and provide regular feedback on PM processes and implement continuous process improvement processes to assure consistent and effective project management. • Integrate risk management practices into existing processes (e.g. Review important deadlines in weekly working sessions). • Document and execute detailed risk mitigation steps for tasks that appear to be slipping that include offering additional resources to support project team members who are falling behind on critical path tasks. • Reallocate SI PM responsibilities so they can focus on effective, detailed management of the project. Consider augmenting the team with a project assistant to manage the project schedule.	12/15/20 - DOE SME's continue to report instances of unproductive work sessions due to a lack of SI preparation for meetings and/or lack of coordination of activities. Meeting minutes and meeting agenda's are not consistently provided to attendee's. DOE PMO and IV&V continue to note instances of the SI scheduling meetings with multiple DOE participants that may have been unnecessary or the amount of time taken could have been reduced if the SI had one-on-one conversations with SME's to clarify or resolve issues prior to (or in lieu of) meeting with the larger group. It appears the SI PM continues to be overallocated as some PM tasks are delayed or rushed, which may reduce the effectiveness of the overall management of the project. 11/15/20 - SI efforts to offload Testing Lead responsibilities from the PM to their new Test Lead have not met DOE expectations. If the SI PM continues to lead testing, the quality of SI project management could continue to be negatively impacted. Further, it remains unclear if adequate risk mitigation steps are being taken by the SI to ensure project deadlines are met. SI efforts to augment their team to accelerate tasks have not always proved successful. Therefore, IV&V is raising this risk to "Medium" priority. IV&V recommends DOE leadership work with the SI to address resource management planning and SI staff augmentation options to assure important project deadlines are not missed. 10/15/20 - The SI has recently added a new resources to assist with management of project action items. The SI PM has made efforts to improve communications to the DOE SME's including clarifying DOE tasks that are on the critical path. The DOE PMO has stepped up their own efforts to assist the SI PM with coordination and communications. IV&V recommends the SI continue to offload SI PM's responsibilities so they can focus on effective, detailed management of the project, and consider augmenting the team with another resource to manage the project schedule. 09/15/20 - DOE stakeholders have noted that while SI PM practices have improved, they continue to see other project management practices that are less than optimal and have not met DOE expectations. For example, DOE SME's continue to report that tracking of meeting minutes, action items, and decisions are inconsistent, and SI doesn't always provide clear direction or prioritization on DOE tasks. With the potential schedule extension, the project hopes that these conditions and practices will improve once the project team has more time to shore up their PM practices. IV&V is also concerned the SI project manager may be at risk of becoming	Project Organization & Management	Risk	Medium	Open	6/30/2020
9	Security model - complex	**User provisioning and security model complexities could lead to unmet user expectations, unfulfilled business objectives, and schedule delays**	Initial security discussions have revealed some complexities and challenges with implementing a security model that fully meets DOE business objectives including segregation of duties, principle of least privilege. The project has elected to implement a single Business Unit (BU) for all of DOE, which could create system implementation challenges given Oracle Financials security is optimally implemented for multiple BU's. The SI is making efforts to ensure DOE business objectives are met and can be implemented so as not to put an undue burden on user provisioning staff.	Implementation of a security model that does not meet user expectations and fully support end user provisioning and segregation of duties controls can lead to user frustration that: ☑Security is too restrictive and hinders their ability to be productive and do their job ☑Security is overly permissive and privileged information is visible to other groups that do not have a business need for the data ☑User provisioning maintenance is overly complex and/or labor intensive ☑The security model has made testing overly complex due to tester user provisioning challenges The security model is currently being developed by a single SI resource. Failure to fully vet the proposed security model with other Oracle Financials cloud security experts could lead a less than optimal security model which could lead to unmet user expectations as well as project disruption in the event that a significant change to the model is needed as go-live approaches.	• SI make efforts to fully vet the proposed security model with multiple Oracle Financials cloud security strategy experts prior to implementation. • Make early OCM efforts to manage expectations based on potential limitations of the security model as they relate to business objectives. • DOE establish clear controls with regard to segregation of duties and least privilege permissions.	12/15/20 - Security model changes continue to be implemented throughout SIT which has led to tests being invalidated and multiple retests by DOE testers. It appears the security model was not thoroughly unit tested prior to implementation into the SIT environment. IV&V continues to recommend DOE request the SI augment their team with OF security experts to validate the security model and implementation strategies prior to UAT. The single SI security resource appears to be overwhelmed and is rushing security fixes into SIT in order to meet deadlines, bypassing some unit testing and release management processes. The SI Engagement Manager is now assisting the single SI security resource with security activities and with addressing outstanding security issues and complications with the security model. If the identified security issues are not resolved soon, the project schedule could be delayed. 11/15/20 - The SI has made progress in clarifying the security model for DOE leadership. DOE and IV&V remains concerned with the level of effort to accurately implement and maintain the proposed security model, and whether security configuration delays will impact timely completion of SIT. Further, it remains unclear if the security model will fully support segregation of duties, protection of assets, and protection against fraud. 10/15/20 - The SI continues to make efforts to clarify the security model for DOE and has scheduled Knowledge Transfer (KT) sessions for DOE support staff who will be implementing user provisioning for the system post go-live. It remains unclear if system security implementation activities have been fully productive as security milestones have slipped and the project will enter SIT without some security components. Given this slippage, it remains unclear why the single SI resource responsible for security configuration has recently been assigned to prepare and perform KT sessions 2 hours a day for 4-5 days. IV&V is escalating this finding to a Medium risk. The SI has stated that though the security buildout has been delayed, they have made progress in simplifying the security model to improve ease of security management. 09/15/20 - The SI has made efforts to better articulate the system security and user provisioning strategy/model, and held a security overview session for DOE security stakeholders. While this has reportedly provided good details of the security framework, DOE leadership has remaining concerns that additional details will need to be provided and hands-on activities as well as OF security tool training will need to be conducted in order for the DOE IT team to effectively perform expected tasks. DOE leadership has reported that it remains unclear whether the	System Architecture & Design	Risk	Medium	Open	7/29/2020

Id	Short Desc	Title / Summary	Finding Description	Analysis and Significance	Recommendation	Updates	Category	Type	Priority	Status	Identified Date
10	Release management	**Inadequate release management processes could lead to significant rework and schedule delays**	Due to existing Oracle Financials cloud limitations, upload of data is often difficult to back out. Errors made during data uploads can either require manual data entry corrections or an environment refresh that will likely take 3 weeks. During initial uploads to the development environment, the wrong version of a file use mistakenly uploaded which created some disruption of development activities.	Due to limitations of the OF cloud limitations, back out of bad data or configurations is not always automated and therefore can require manual correction of data. Alternatively, if the data corruption is significant, the project may elect to refresh the environment to a previous state, however, an OF refresh will likely take 3 weeks, which may not be feasible given the tight deadlines. If comprehensive quality controls are not implemented as an integral part of release management processes, mistakes that are made by both DOE and the SI can be difficult to back out. Lack of clear upload file versioning and other controls could lead to wrong files being uploaded which could lead to disruption of development efforts and, if not caught, could lead to disruption of testing phases and ultimately, schedule slippage. If release management procedures are unclear or if the execution of release procedures lack sufficient rigor, the likelihood of missteps may increase. Missteps during testing or go-live could lead to user confusion, reduced user buy-in, costly schedule delays, reduced executive stakeholder project support, and a negative public perception that could be picked up by the local media (aka "bad press").	• Implement comprehensive release management processes and quality controls (checks and double-checks) to ensure the right files are uploads with clean data. • Institute rigorous checklists and code freeze communications prior to customer demonstrations.	12/15/20 - The SI continues to experience release management challenges. Recently, the worker interface file was uploaded into the SIT environment without notifying the DOE test lead, effectively invalidating their tests without notice. The testing lead happened to recognize the problem when they were re-running a test script and noticed different results due to the change in the worker data. With multiple members of the project team working at or beyond capacity, testing coordination has become difficult and led to testing missteps. IV&V remains concerned that SI unit testing may be inadequate as they rush to complete tasks. Failure to fully unit test configurations/code pushes the burden of finding bugs onto the DOE testing team who is already operating at capacity. IV&V recommends DOE request the SI improve their unit testing efforts. Previous SI release management challenges continue to create problems (incorrect date formats) for interface development as the system does not allow developers to easily back out incorrect configurations. 11/15/20 - The SI continues to have some challenges with ensuring their leads are consistently following release management processes and keeping DOE SME's well informed of their release management activities. DOE and IV&V remains concerned with the quality of SI implementation activities and that the SI may not have sufficient quality assurance processes in place for system configuration activities. 10/15/20 - Though the SI has established processes and procedures for release management, they admittedly are having some challenges with ensuring they are consistently followed. The SI leads have made good progress in inputting data into the configuration workbooks, however, DOE SME's have raised some quality issues. 09/15/20 - The SI appears to have implemented a methodical release process in order to avoid release missteps. However, IV&V has noted some recent missteps due to SI leads not following the process. DOE leadership has also noted that additional rigor will need to be provided in order to assure effective release management and prevent unexpected schedule delays due to missteps in following release management processes. 08/17/2020 - The project presented a series of demos of each of the key financial modules to system users to validate system configurations and designs. During one demo (purchasing module), the automated creation of a purchase order failed, and they were not able to	Quality Management	Issue	Medium	Open	7/31/2020
11	Long term support	**Insufficient knowledge transfer and M&O planning prior to go-live could lead to project delays and diminished quality of post go-live support.**	`There appears to be a lack of clarity around post go-live support responsibilities and the level of SI support. Apparently, some contractual post go-live support requirements have yet to be clarified and agreed to between the SI and DOE. Further, DOE expectations for the SI to train their IT staff have not been met. The DOE IT group currently has some interface development project responsibilities and DOE's expectation was that the SI would provide sufficient knowledge transfer (KT) on Oracle Financials (OF) and Oracle Integration Cloud (OIC) in order to perform these tasks in a timely manner as well as meet expectations for DOE post go-live support responsibilities. DOE has stated their expectation that DOE IT staff would work alongside the SI technical team for KT throughout project implementation, however, the level of KT has not met DOE expectations thus far. The SI has stated they are not contractually obligated to formally train the DOE IT staff on the technology.	If the DOE IT staff are not sufficiently trained to effectively implement their project tasks this could lead to a reduction of efficient execution and quality of the technical components they have been assigned and, ultimately, to schedule slippage. Lack of clarity or sufficient planning around post go-live support could lead to diminished quality of post go-live support. Failure to adequately augment the existing DOE IT group with OF skillsets could leave DOE unable to adequately support the new OF system post go-live and lead to an over-reliance on costly vendor resources and impact the project budget.	• DOE develop a resource management plan to address gaps in their existing their existing IT team to ensure they are able to meet expectations for project implementation and post go-live support. • DOE explore seeking legislative exemptions to acquire experienced Oracle Financials (OF) resources to fill gaps on their IT staff as soon as possible to reduce dependence on vendors to support the system and to fill current skillset gaps and capacity constraints with existing DOE IT resources. • Consider preparing return on investment (ROI) data to present to the legislature that could clearly justify the cost of highly compensated OF (possibly exempt) resources that could potentially provide cost savings to the state compared to the cost of equivalent vendor support contracts. • Clarify SI KT, warranty, and post go-live support contractual obligations well ahead of go-live to avoid disagreements and last minute efforts to adequately support the system post go-live.	12/15/20 - The DOE IT team is making efforts to prepare for post go-live support and remains concerned the complexity of the security model could make it difficult to support. While details of post go-live support DOE/SI responsibilities have yet to be clarified, the SI has begun work on an M&O plan. The SI has stated they plan to garner lessons learned as the project progresses to help determine the recommended levels of support. 11/15/20 - IV&V and DOE leadership remains concerned with the level of effort required for DOE to perform post go-live regression testing to test quarterly updates. They also remain concerned that bugs could be introduced that are not caught in regression testing that could be inadvertently promoted to the production environment, which could quickly overwhelm DOE resources as they work to correct or provide adequate work arounds. DOE is in the process of evaluating automated testing tools that could enhance regression testing post go-live. Details of post go-live support DOE/SI responsibilities have yet to be clarified. 10/15/20 - The SI has scheduled 4-5 two hour Knowledge Transfer (KT) sessions for the DOE support staff who will be performing system user provisioning tasks post go-live. The project has initiated Maintenance & Operations (M&O) meetings to begin planning for post go-live system support. 09/15/20 - Current schedule extension change request negotiations are addressing DOE concerns with regard to a lack of knowledge transfer (KT) to ensure the DOE IT team is able to effectively complete assigned project activities and support the system post go-live. DOE leadership has stated the DOE IT team has yet to be trained to effectively perform security related tasks, and it remains unclear when DOE IT team will begin performing these tasks. DOE leadership has stated they do not have budget to augment their staff and may not be able to fully support the new system post go-live. IV&V remains concerned that this could negatively impact the project and post go-live support. Therefore, IV&V is raising this finding from a preliminary concern to a medium risk.	Project Organization & Management	Risk	Medium	Open	8/17/2020

Id	Short Desc	Title / Summary	Finding Description	Analysis and Significance	Recommendation	Updates	Category	Type	Priority	Status	Identified Date
12	Testing	**Insufficient testing strategy and planning could lead to poor test quality, including incomplete and invalid test results**	IV&V has observed some unproductive test preparation work sessions and some confusion among the project team members as some elements of the test strategy and plan are unclear or not well defined. At times, it appears the SI is asking DOE test leads to perform activities they lack expertise to perform. DOE test leads have also stated that SI led testing preparation efforts have not always been productive and have not met their expectations that the SI would provide sufficient testing preparation guidance. The SI appears to have responded by replacing the SI Test Lead, and the SI PM has taken over as the SI Test Lead, despite concerns that the SI PM may be overallocated. It is unclear whether the SI PM has capacity to effectively lead the testing effort and provide DOE test leads with sufficient guidance for them to adequately prepare for testing. The SI reports that they are making efforts to find a permanent replacement. Additionally, IV&V has concerns with the proposed testing strategy. The SI has stated they intend to begin SIT without some system components being fully operational which could, A) result in incomplete testing and, B) invalidate test results for functionality that has been previously tested.	Delays and unproductive test preparation sessions could lead to schedule delays once the project realizes they are not ready for SIT and UAT testing phases. If the SI cannot effectively leverage their testing expertise to offer guidance to the DOE testing team, DOE testing stakeholders could find themselves unprepared for SIT and UAT phases, which could lead to schedule delays. If the project, A) does not clearly define SIT or UAT entrance criteria and/or B) enters SIT or UAT phases without some system components being fully operational, the value of the project testing phases could be significantly reduced and lead to excessive bugs, overcomplicated testing, a solution that cannot perform the required or necessary functionality, and ultimately extend the project schedule.	• Clarify and fully vet the testing strategy and plans for DOE leads and stakeholders. • Develop and implement a robust regression test methodology. • Develop and implement an efficient process for updating/refining test scripts based on tester.	12/15/20 - DOE has indicated that the SI testing approach and SI produced test script quality has not met DOE expectations. The DOE Test Lead has noted multiple shifts in approach, inefficiencies, and confusing procedures. Testers have noted multiple test script grammar and spelling errors and have complained that scripts lack sufficient instructions or important step execution details. This has led to an increase in the test teams workload as they struggle to follow some script instructions. This could also lead to testers marking a test as successful when it is not. It appears the SIT test scripts were not reviewed (proofread or QA'd) by the SI prior to delivery to the DOE test team and may not have been used for SI unit testing, a common practice to ensure test script quality. Further, testers have reported instances where they were given test scripts that tested functionality that had not been fully implemented in the system. The project has elected to forego revising the test scripts throughout SIT due to time constraints, but plans to revise them before the start of UAT. DOE has accepted this risk in order to keep with their aggressive schedule. 11/15/20 - The SI has recently added an additional resource to lead the testing effort, however, it appears that the SI PM continues to lead testing. If testing leadership is stretched too thin, the quality of testing planning and testing activities could be negatively impacted. DOE testers have raised concerns with the quality of SI produced test scripts and the process for continuous improvement of testing scripts remains unclear and may not be adequate. The project continues to plan for late introduction of some system functionality into SIT. IV&V remains concerned that this could negatively impact the quality of the SIT phase. If development delays are not addressed soon and/or excessive bugs are realized late into SIT, the project schedule could slip. It remains unclear if the project would take on the additional risk of exiting SIT without full system functionality and/or if they would enter UAT without full system functionality. 10/15/20 - IV&V has noted that utilizing the SI PM as the test lead is less than optimal, but the SI has stated they will soon be adding a new test lead resource to the team. Thus far, DOE test leads have reported that testing support has not met their expectations, testing preparations have not always been productive, and the PM who has been leading the SI testing efforts appears to lack sufficient capacity to fully support them, which has shifted the burden of some testing activities to the DOE testing team. The project intends to enter into SIT without some components of conversion, interfaces, cross validation rules, COA translation, and security in place. This approach presents some testing risks, therefore, IV&V recommends documenting	Quality Management	Risk	Medium	Open	9/15/2020
13	Antiquated systems	**Integration with older (antiquated technology) systems could be unexpectedly complicated and lead to schedule delays**	The project currently has requirements to integrate with older systems that often lack sufficient documentation and/or system expertise. A number of systems that the new FMS must interface with are based on older technology that may be incompatible with new technology and can be difficult to integrate with. Many systems have accumulated a significant amount (decades in some instances) of technical debt, reportedly due to lack of funding and technical team capacity. For example, it has been reported that patching for many systems are severely out of date and may run on Operating Systems or other software technology/tools that are no longer supported by the vendor. Many of these systems no longer have system experts because support staff have moved on or retired, and documentation and/or knowledge transfer upon their departure may not have been sufficient. Documentation for many older systems is reportedly missing or incomplete.	Unexpected complications that arise in attempts to integrate with antiquated systems can lead to project delays or unexpected costs for tools to compensate for limitations of antiquated systems. Interface development efforts can also be delayed when expected system documentation, expertise, or vendor support is no longer available. Given the amount of technical debt these systems have accumulated over the years and the lack of system patching, the system could open the FMS replacement system, other connected systems, and the DOE to undue system failure risks. If any of these antiquated DOE systems fail during project execution, project resources (who are already at capacity) will likely have to be reallocated towards repair and recovery of these systems, and lead to schedule delays.	• Consider petitioning the State leadership for additional funding to resolve technical debt that could be putting the project and the State at risk of potentially embarrassing and costly security breaches and/or critical system failures. • Consider prioritizing patching and system upgrades to stabilize boundary systems. • Perform early discovery and due diligence to identify potential complications with integrating with older systems. • Consider implementing early, basic proof of concept interfacing with older systems to assure integration is feasible and to vet optimal interface solutions.	12/15/20 - Interfaces continue to face delays and are likely to continue to cause schedule slippage. Interfaces with external systems continues to be a challenge for the project. It remains unclear why the DAGS payroll system interfaces has been delayed. Concerns have been raised that outbound interface testing could be hindered if external stakeholders are unavailable or unresponsive. For example, the project has yet to get a clear answer with regards to p-card migration from Bank of Hawaii to First Hawaiian Bank. Delays like this could lead to project delays. 11/15/20 - The project is continuing efforts to modernize the DAGS payroll system interface; however, it remains unclear whether delays will be introduced due to DAGS limited capacity to support this effort. 10/15/20 - The project has identified at least one existing incoming boundary system interface that they will be making efforts to modernize as a means to decouple from the mainframe and simplify ongoing M&O efforts. The interface currently utilizes an antiquated encoding format (EBCDIC) and inefficient processing steps. The project is working with DAGS payroll to coordinate modernization efforts, but the level of effort has yet to be clarified.	System Architecture & Design	Risk	Medium	Open	9/15/2020