DAVID Y. IGE
GOVERNOR

DEPT. COMM. NO. 93

DOUGLAS MURDOCK
CHIEF INFORMATION OFFICER

**OFFICE OF ENTERPRISE TECHNOLOGY SERVICES**
P.O. BOX 119, HONOLULU, HAWAI'I 96810-0119
Ph: (808) 586-6000 | Fax: (808) 586-1922
ETS.HAWAII.GOV

November 17, 2020

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

The Honorable Scott K. Saiki,
Speaker, and
Members of The House of Representatives
Thirtieth 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 (Nov 17, 2020 12:52 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: **August 16 – September 15, 2020**

*Draft Submitted: October 7, 2020*

*Final Submitted: October 19, 2020*

PUBLIC CONSULTING GROUP

Solutions that Matter

# Overview

- Executive Summary
- IV&V Findings and Recommendations
- IV&V Status
- Appendices
  - A – IV&V Findings Log & Priority Ratings
  - B – Standard IV&V Inputs
  - C – IV&V Details

# Executive Summary

*The project is making progress with system configurations in preparation for a planned kickoff of System Integration Testing (SIT) on 11/9/2020. Project momentum appears to be building as DOE SMEs continue to increase their understanding of the technology and system configurations. DOE and the SI are negotiating the details of a change order that would extend project go-live out to July 2021. The project has stated that the schedule may still be somewhat aggressive given ongoing project challenges and, though this offers some relief to overtaxed DOE resources, their workload demands may still exceed their capacity. IV&V has opened a new risk that unexpected complications could arise in attempts to integrate the new FMS platform with older boundary systems and lead to schedule delays. IV&V also opened a new preliminary concern with regards to potential insufficient test planning that could hinder DOE test preparations and a testing strategy that could reduce the overall quality of testing efforts. IV&V continues to monitor risks related to overreliance on 3-4 key DOE resources, SI staffing challenges, security model complexities, Oracle limitations, knowledge transfer for post go-live support, and insufficient risk and release management practices.*

| Jul | Aug | Sep | Category | IV&V Observations |
|---|---|---|---|---|
| M | M | M | Cost & Schedule Management | DOE/SI negotiations for the schedule extension change order are ongoing and the project expects to finalize in early October. Though the schedule is likely to be pushed out by 6 months, the project has stated that the schedule may still be somewhat aggressive given some of the ongoing challenges they have seen with conversion, interfaces, DOE resource constraints, and SI staffing challenges. Efforts are underway to draft a revised schedule and provide a new critical path; once the schedule is finalized, IV&V will reassess project risks. Any further schedule slippage beyond the potential July go-live could create greater technical complexity given cutover to the new system would not occur at the end of their fiscal year. IV&V is concerned the SI PM managing the schedule may be overallocated which could impact their ability to effectively manage the project schedule. If the 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 they could discover that delayed critical path activities could have already pushed out the new go-live date. Therefore, IV&V recommends the project complete a tentative project schedule, at minimum the critical path, prior to final approval of the schedule extension change order. IV&V also remains concerned that COVID-19 related budget cuts could hinder funding of critical project budgetary needs. |

# Executive Summary (cont'd)

| Jul | Aug | Sep | Category | IV&V Observations |
|---|---|---|---|---|
| M | M | M | Human Resources Management | DOE project leads have reported that, though the project schedule extension will provide some relief to their overtaxed resources, workload demands may still exceed their capacity. The project has recognized that one DOE resource has become the focal point of much of their system design and coordination efforts. While this one resource plays a significant role in providing leadership for many project activities, it appears they have become a bottleneck for some project activities including data and design quality reviews. Overreliance on this individual as well as 3-4 other key individuals could lead to significant project disruption in the event of their departure from the project. IV&V is also concerned that the SI project manager may be at risk of becoming overallocated, which could lead to a reduction in quality of project leadership, schedule management, and testing. The SI is reportedly making efforts to offload some PM tasks to other SI team members.<br><br>IV&V and DOE leadership remains concerned that overall SI technical leadership has not met expectations. SME's continue to report SI technical leads providing incorrect or inconsistent information and appear to lack deep system experience given that the bulk of their technical experience lies with other Oracle products and their Oracle Financials is limited. The SI teams' apparent lack of deep, expert-level Oracle Financials (OF) cloud expertise could continue to reduce the productivity of work sessions or worse, lead to poor design decisions that could require significant rework once a better design or solution is discovered.<br><br>The SI PM has taken over as testing lead, as the previous SI Testing Lead did not meet DOE expectations. The SI is reportedly looking for a skilled resource to permanently replace them. DOE SME's continue to report (and IV&V has observed) SI leads are, at times, disorganized, ill-prepared, and appear to operate independently, instead of as a cohesive team. DOE leadership stated their expectation for the SI is to provide strong technical and project leadership which would guide them through this process better and feel like this lack of guidance is the primary cause of project schedule slippage. The SI appears to be making efforts to shore up these concerns. |

# Executive Summary (cont'd)

| Jul | Aug | Sep | Category | IV&V Observations |
|---|---|---|---|---|
| M | M | M | Project Management & Organization | DOE stakeholders have noted that while some SI project management (PM) practices have improved, they continue to note other PM 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 the SI doesn't always provide clear direction or prioritization for 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 overallocated, which could further reduce the quality of PM practices. The SI is making efforts to offload some PM tasks to other SI team members as well as coach their leads to provide improved rigor in their PM tasks.<br><br>Ongoing change order negotiations will reportedly address 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 the DOE IT team will begin these tasks. DOE leadership has stated they do not have the budget to augment their staff and may struggle to fully support the new system post go-live.<br><br>State leadership has indicated they will consider implementing State employee furloughs as a 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. |

# Executive Summary (cont'd)

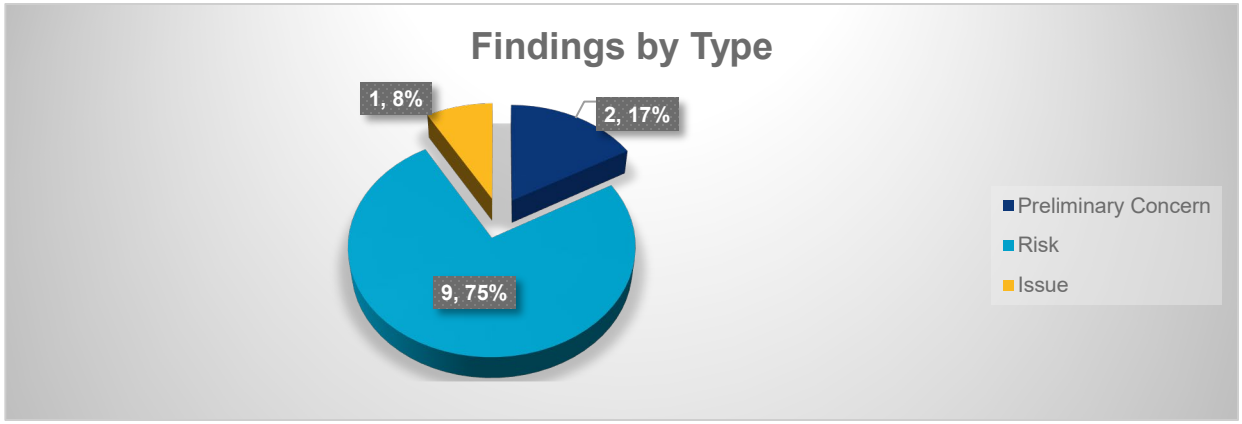
| Jul | Aug | Sep | Category | IV&V Observations |
|---|---|---|---|---|
| M | M | M | Quality Management | The SI has recently implemented a more methodical release process in order to avoid release missteps, however, additional SI rigor in following the new process may be needed in order to prevent unexpected schedule delays due to release management missteps.<br><br>IV&V has opened a new preliminary concern with regards to potentially insufficient test planning that could hinder productive DOE test preparation, and a testing strategy that could reduce the overall quality of upcoming testing phases. 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. The SI has responded by temporarily replacing the SI Test Lead and they are making efforts to find a permanent replacement.<br><br>Due to delays in the development and configuration of interfaces and system security, the project's stated SIT strategy is 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. |

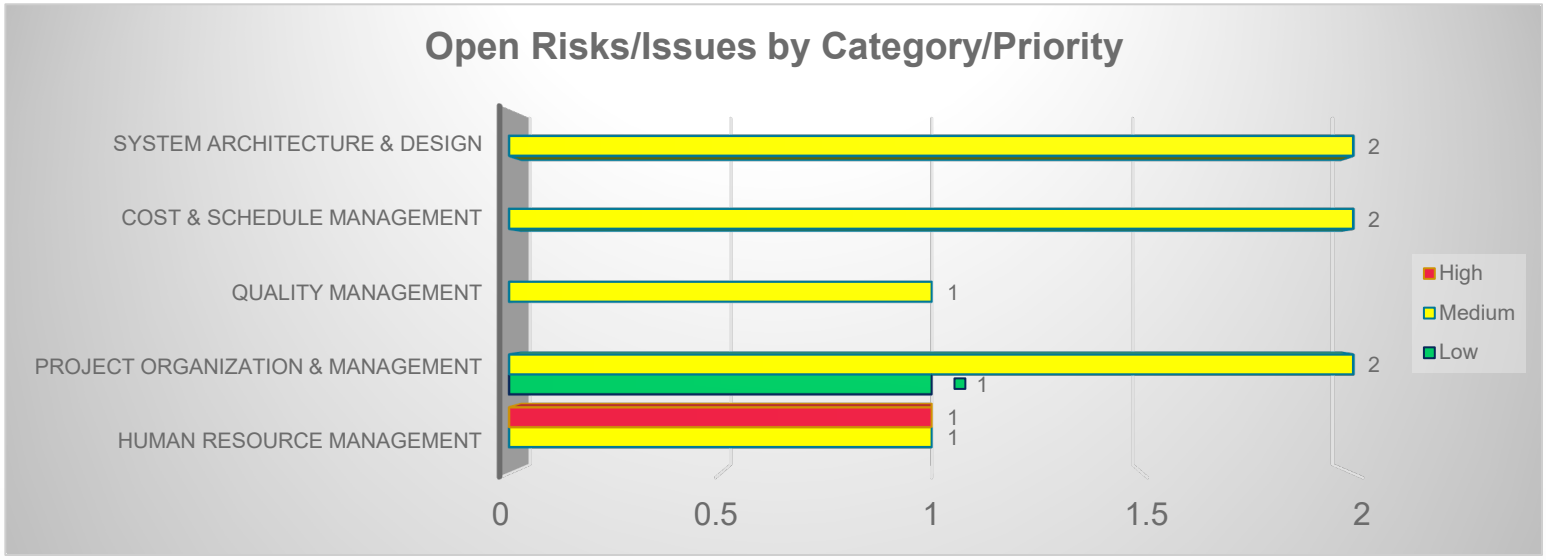
# Executive Summary (cont'd)

| Jun | Jul | Aug | Category | IV&V Observations |
|---|---|---|---|---|
| M | M | M | System Architecture & Design | The project has stated the schedule extension change order will include additional controls to address Oracle Financials (OF) environments 3-week refresh constraints. The project has identified several OF functional limitations that could pose a significant risk to system security and overall useability which could potentially reduce user adoption and stakeholder buy-in. The SI has yet to fully solution or provide a feasible work around for some problematic implementation issues, which has the potential to delay the schedule or pose an Organizational Change Management (OCM) challenge, as some proposed work arounds could be a significant challenge for users.<br><br>The SI has made efforts to better articulate the system security and user provisioning strategy/model by holding a security overview session for DOE security stakeholders. While this has reportedly provided good details of the security framework, DOE leadership remains concerned 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. It remains unclear whether the proposed security model will sufficiently meet DOE needs and provide sufficient organizational internal controls. The SI has stated the model they plan to implement is similar to other customers and remain confident the final model will meet DOE expectations.<br><br>IV&V has opened a new risk that unexpected complications could arise in attempts to integrate with older boundary systems and lead to schedule delays. Many boundary 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 (OS), or other software technology/tools, that are no longer fully supported by the vendor. Many of these systems no longer have DOE system experts because support staff have moved on or retired, and documentation and/or knowledge transfer upon their departure may not have been sufficient. Further, 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. |

# IV&V Findings and Recommendations

*IV&V identified 12 findings (1 Issue, 9 risks, and 2 preliminary concerns) for this reporting period, including 1 new preliminary concern and 1 new risk. 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.** | Low |
| | 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 |
| | Preliminary Concern | 12 | **<NEW> Insufficient testing strategy and planning could lead to poor test quality, including incomplete and invalid test results** | n/a |
| 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 |
| | Preliminary Concern | 9 | **User provisioning and security model complexities could lead to unmet user expectations, unfulfilled business objectives, and schedule delays** | n/a |
| | Risk | 13 | **<NEW> 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.<br>The accelerated schedule could lead to:<br>• Lack of thorough consideration of required business process changes resulting from the new system<br>• 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<br>• Over allocation of project resources and users<br>• Significant OCM and Training efforts with limited time to plan and execute<br>• Project decisions to cut corners to meet milestones and DOE expectation<br>• Unproductive working sessions due to insufficient analysis efforts<br>• Limited time to react to or resolve issues that may arise<br>• Poor system design<br>• A flurry of chaotic stakeholder activity as the project progresses closer to go-live.<br>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.<br>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.<br>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. | Not started |
| • 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 |
| • Prepare and implement a public relations plan to avoid inflammatory media coverage which could negatively impact legislative, board of education, and public support. | Not started |
| • Request the SI accelerate efforts to finalize the PMP and provide a detailed baselined project schedule. | In progress |

# IV&V Findings and Recommendations (cont'd)

## M 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)

## M 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.<br>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.<br>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)

## M 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 and experienced resources 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.<br>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.<br>The project reported some early insufficient and inefficient project management processes, including:<br>• Insufficient action item tracking and follow-up<br>• Insufficient attention to risk management<br>• Unclear project scope definition<br>• Lack of clear meeting objectives and late delivery of meeting agenda's<br>• Lack of preparation and planning for meetings and work sessions<br>• Insufficient guidance on attendee management and vetting of attendees<br>• Previous SI project manager (PM) had not met project expectations for project leadership, strategic direction, communication, and organization.<br>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. | Low |

# 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.<br>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. | Not started |
| • 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. | Not started |

# 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.<br>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.<br>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.<br>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 | **<NEW>** Preliminary Concern **– 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.<br>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.<br>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.<br>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.<br><br>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. | n/a |

# 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 |

# 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. | Low |

# IV&V Findings and Recommendations (cont'd)

## M System Architecture & Design (cont'd)

| # | Key Findings | Criticality Rating |
|---|---|---|
| 9 | Preliminary Concern **– 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:<br>• Security is too restrictive and hinders their ability to be productive and do their job<br>• Security is overly permissive and privileged information is visible to other groups that do not have a business need for the data<br>• User provisioning maintenance is overly complex and/or labor intensive<br>• The security model has made testing overly complex due to tester user provisioning challenges<br>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. | n/a |

# IV&V Findings and Recommendations (cont'd)

## M System Architecture & Design (cont'd)

| # | Key Findings | Criticality Rating |
|---|---|---|
| 9 | **<NEW> 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.<br>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 |
|---|---|
| • 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. | Not started |
| • 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. 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 (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 | • 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.<br>• Temporarily re-allocate operational/managerial responsibilities from key resources until project completion.<br>• Consider temporary staff augmentation options to both augment the existing project team and augment the operations staff to offload operational responsibilities from key resources.<br>• Prepare contingency plans in the event that the DOE project team can no longer sustain project and operational activities at the expected pace.<br>• 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.<br>• Assess project team members level of participation in the FMS Mainframe-as-a-Service Migration Project currently schedule for August 2020 and manage their capacity accordingly. | 09/15/20 - DOE project leads have reported that, though the project schedule extension will provide some relief to their overtaxed resources, the workload demand may still exceed their capacity. Still, the potential addition of 6 months to the project timeline could weigh heavily on the morale of the DOE team as their resources will now be constrained working on the project for a longer period of time. The project has recognized that one DOE resource has become the focal point of much of their system design and coordination efforts. While this one resource plays a significant role in providing leadership for many project activities, it appears they have become a bottleneck for some project activities including data and design quality reviews. Overreliance on this individual as well as 3-4 other overtaxed key individuals could lead to significant project disruption in the event of their departure from the project. IV&V is also concerned that the SI project manager is taking over as the project testing lead and may be at risk of becoming overallocated, which could lead to a reduction in quality of project leadership, schedule management, and testing. The SI is making efforts to offload some PM tasks to other SI team members.<br><br>08/17/20 - The project's likely extension of the project schedule may provide some relief to overtaxed SME's and may provide an opportunity to increase their focus on project and system quality. Project leadership has stated their intention to avoid increasing project scope, despite the likely extension, which should help to mitigate this risk. However, project activities assigned to the DOE IT group are slated to increase in the coming months and could leave their resources overallocated and slow activities in the projects critical path. Further, the DOE IT group workload will likely begin work on other projects, including Mainframe as a Service (MFaaS) and the Time & Leave project which is likely to require a significant level of effort by these same key resources that are already overtaxed. DOE SME's currently appear to be managing their operational and other project tasks, but it remains unclear if their workload will be sustainable as the project progresses | Human Resource Management | Risk | 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:<br>•Lack of thorough consideration of required business process changes resulting from the new system<br>•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<br>•Over allocation of project resources and users<br>•Significant OCM and Training efforts with limited time to plan and execute<br>•Project decisions to cut corners to meet milestones and DOE expectation<br>•Unproductive working sessions due to insufficient analysis efforts<br>•Limited time to react to or resolve issues that may arise<br>•Poor system design<br>•A flurry of chaotic stakeholder activity as the project progresses closer to go-live.<br><br>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.<br>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. | • Take steps to assure sufficient OCM planning and activities are performed to prepare users for the significant change taking place at an accelerated rate.<br>• 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).<br>• Leadership take steps to closely monitor project team capacity and assure resources are not overallocated.<br>• 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.<br>• 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.<br>• Prepare and implement a public relations plan to avoid inflammatory media coverage which could negatively impact legislative, board of education, and public support.<br>• Consider employing the role of a Scrum Master whose prime directive is to remove roadblocks to productivity.<br>• SI clearly and often communicate DOE activity prioritization and dependencies and perform risk mitigation planning to avoid schedule slippage.<br>• 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. | 09/15/20 - DOE/SI negotiations for the schedule extension change order are ongoing and the project expects to finalize in early October. Though the schedule is likely to be pushed out by 6 months, the project has stated that the schedule may still be somewhat aggressive given some of the ongoing challenges they have seen with conversion, interfaces, DOE resource constraints, and SI staffing challenges. Efforts are underway to revise the schedule and provide a new critical path; once the schedule is finalized, IV&V will reassess this risk. Any further schedule slippage beyond the potential July go-live could create greater technical complexity given cutover to the new system would not occur at the end of their fiscal year. IV&V recommends that project finalize the project schedule, at minimum the critical path, prior to final approval of the schedule extension change order. IV&V also remains concerned that COVID-19 related budget cuts could hinder funding of critical project budgetary needs.<br><br>08/17/20 - The project Executive Steering Committee (ESC), on 8/17/20, approved a contingency plan to move out the go-live date given the current January 1, 2021 go-live date cannot be met. DOE will now engage with the SI to see if they can negotiate a contract modification for this contingency, and new go-live date, that will likely increase project costs. Project leadership is determined to avoid increasing the scope of baseline functionality, despite the extension, to avoid further contingencies or extensions going forward. However, the project is currently tracking a significant level of change that will be required due to limitations of the Oracle Financials that do not fully meet DOE needs, which could require significant number of work arounds and changes to their existing processes. DOE expectations for SI knowledge transfer have thus far not been met, likely due to the accelerated schedule. IV&V will continue to monitor.<br><br>07/31/20 - The project continues contingency planning efforts in preparation for possible impacts to the project schedule due in part to constrained DOE resources and some productivity challenges. Due to the lack of clarity around release management, overlapping UAT and training activities, and other planned compromises made to increase the SDLC cadence, the SI has recently agreed to conduct a tabletop exercise to walk through planned upcoming readiness and prerelease activities. The project plans to communicate outcomes of the tabletop exercise to the Steering Committee to | 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.<br>• 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. | 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 they could discover that delayed critical path activities could have already pushed out the new go-live date.<br><br>08/17/19 - DOE has yet to approve the finalized PMP but has deemed the existing PMP as sufficient. Efforts are underway to assess revisions to the project schedule based on contract negotiations to move out the go-live date. SI tabletop exercises were conducted but may have not fully met DOE expectations as contingencies may have not been addressed (e.g. what happens when something goes wrong).<br><br>07/15/2020 - While DOE has deemed that recent drafts of the PMP are adequate, finalization of the PMP appears to be delayed by internal DOE processes (e.g. State Attorney General reviews). As of this reporting period, the schedule has yet to be baselined and finalized and still lacks some important details, sequencing, and dependencies and more importantly a clear/accurate critical path. The project has plans to conduct a tabletop exercise to flush out some of these details and to assess schedule feasibility as well as help SMEs understand how releases will be orchestrated and identify important tasks and sequencing of tasks/activities. | 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.<br>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.<br>• Request the SI make efforts to address time zone challenges with the off-shore technical team.<br>• Request the SI explore augmenting their team with highly capable and experienced resources that could potentially accelerate the project and reduce the burden on constrained DOE SMEs.<br>• DOE consider issuing a corrective action plan for the SI to sufficiently address technical leadership concerns.<br>• 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. | 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 inconsistent information and appear to lack deep system experience given that the bulk of their technical experience lies other Oracle products, not Oracle Financials. The SI PM has taken over as the lead for both Testing and Reporting, as the previous SI leads have not met DOE expectations. The SI is reportedly looking for a skilled resource to permanently replace their previous Testing Lead. DOE SME's continue to report that SI leads are, at times, disorganized, ill-prepared, and appear to operate independently instead of as a cohesive team. DOE continues to report that communications are not always clear and important information (meeting minutes, action items, decisions) is not always documented or tracked. DOE leadership stated their expectation for the SI is to provide strong technical and project leadership which would guide them through this process better, and feel like this lack of guidance is the primary cause of project schedule slippage. The SI has stated they are making efforts to shore up some of these concerns and that they had not expected they would need to provide the level of guidance or "hand holding" that has been required.<br><br>08/17/20 - The SI's recent resource addition to support conversion efforts appears to have improved the productivity and coordination of conversion activities. However, DOE and IV&V continues to raise concerns that the SI does not always appear to be prepared for working sessions. SI has stated this could be due to the accelerated pace they've been asked to perform at. IV&V recommends the SI meet internally before client work sessions to ensure SI members the same page before discussing important topic with DOE. Further, DOE and IV&V have raised concerns that SI functional leads, at times, appears to provide incorrect or inconsistent information to DOE SME's. 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. The SI has stated some of this is likely due to the accelerated schedule but is making efforts to regularly coach their team members to improve quality of delivery and continues to consider staff augmentation or other changes to fill skillset gaps.<br><br>07/15/2020 - DOE SMEs continue to report some unproductive working sessions and | 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.<br>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.<br>• 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.<br>• 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.<br>• 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.<br>• Detail relevant OCM strategies and plans for addressing the impacts of COVID-19 in the project OCM Plan.<br>• Initiate efforts to request furlough exemptions for DOE project team members. | 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.<br><br>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.<br><br>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.<br>• DOE work to procure additional environments as necessary based on SI recommendations that would assure accelerated development cycles. | 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.<br><br>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 grievances. The project is planning on utilizing a separate sandbox environment for users to experiment and learn in as a way to mitigate this risk. The SI has recently indicated they may avoid some customizations that would make the system more usable because these customizations would have to be reimplemented whenever the platform rollouts out its quarterly updates.<br><br>07/15/2020 - Current SI plans include User Acceptance Testing (UAT) to be executed concurrently with end user training, such that UAT fixes will require ongoing changes to the training material that has already been taught and could create some user confusion. OF limitations could make it difficult to accomplish optimal training and UAT objectives. | 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.<br>The project reported some early insufficient and inefficient project management processes, including:<br>☒ Insufficient action item tracking and follow-up<br>☒ Insufficient attention to risk management<br>☒ Unclear project scope definition<br>☒ Lack of clear meeting objectives and late delivery of meeting agenda's<br>☒ Lack of preparation and planning for meetings and work sessions<br>☒ Insufficient guidance on attendee management and vetting of attendees<br>☒ Previous SI project manager (PM) had not met project expectations for project leadership, strategic direction, communication, and organization.<br>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.<br>• Monitor and provide regular feedback on PM processes and implement continuous process improvement processes to assure consistent and effective project management.<br>• Integrate risk management practices into existing processes (e.g. Review important deadlines in weekly working sessions).<br>• 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. | 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 overallocated, which could further reduce the quality of PM practices. The SI is making efforts to offload some PM tasks to other SI team members as well as coach their leads to provide improved rigor in their PM tasks.<br><br>08/17/2020 - The SI appears to be making additional efforts to improve their project management processes. The SI's recent addition to their team appears to be making efforts to organize and add rigor to their processes and procedures. However, IV&V observed gaps during this reporting period including inconsistent tracking of action items, decisions, and meeting minutes during work sessions. DOE SME's have made the SI aware, explaining how this further strains their already constrained resources if these things are not logged or if important decisions, action items and other information are forgotten by the SI. The SI leadership appears to have made some efforts to collect SME feedback and address their concerns.<br><br>07/15/2020 - IV&V has observed some risk management processes that may be insufficient. For example, project team members have indicated they are not always informed of project task priorities or dependencies that are required to meet the current schedule. IV&V also noted that many project risks documented in the project risk log have no clear risk response strategy or mitigation steps that can be tracked or that would give the project visibility into mitigation progress. The SI does not appear to be making extensive efforts to drive activities on the critical path that are approaching slippage. The SI has acknowledged some of these challenges and reports that they understand their responsibilities with regard to informing and offering additional support to DOE stakeholders who are struggling with tasks that may be close to slipping. The SI has noted that they are operating an abridged version of their | Project Organization & Management | Risk | Low | 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:<br>☒Security is too restrictive and hinders their ability to be productive and do their job<br>☒Security is overly permissive and privileged information is visible to other groups that do not have a business need for the data<br>☒User provisioning maintenance is overly complex and/or labor intensive<br>☒The security model has made testing overly complex due to tester user provisioning challenges<br>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.<br>• Make early OCM efforts to manage expectations based on potential limitations of the security model as they relate to business objectives.<br>• DOE establish clear controls with regard to segregation of duties and least privilege permissions. | 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 proposed security model will sufficiently meet their needs and provide adequate internal controls. The SI has stated the model they plan to implement is similar to other customers and remain confident the final model will meet DOE expectations.<br><br>08/17/2020 - The SI has noted they are confident they can meet DOE security needs, however, DOE has concerns that auto user provisioning could be complex and that there are some use cases that the existing security model may not be able to support. DOE has stated (and IV&V has observed) that the SI has thus far not been able to effectively articulate the security strategy or the security model they plan on implementing, which makes it difficult for DOE to validate whether it will meet their needs or whether user provisioning will be difficult for them to maintain. The SI has recently assigned an additional resource to assist their single security resource with managing the security effort. | System Architecture & Design | Preliminary Concern | n/a | 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.<br>• Institute rigorous checklists and code freeze communications prior to customer demonstrations. | 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.<br><br>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 demonstrate functionality that was important to users. The SI stated this was likely due to their offshore team making changes between the dry run the day before and the demo. There appears to be a lack of rigorous SI release management practices and/or established release management processes that has already impacted the project. The SI has stated they are making efforts to refine their release/change management practices. IV&V is elevating this finding to an issue. | 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.<br>• 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.<br>• 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.<br>• 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. | 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 |
| 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.<br>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.<br>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.<br>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.<br><br>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.<br><br>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.<br>• Develop and implement a robust regression test methodology. | | Quality Management | Preliminary Concern | n/a | Open | 9/15/2020 |

| Id | Short Desc | Title / Summary | Finding Description | Analysis and Significance | Recommendation | Updates | Category | Type | Priority | Status | Identified Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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.<br>• Consider prioritizing patching and system upgrades to stabilize boundary systems.<br>• Perform early discovery and due diligence to identify potential complications with integrating with older systems.<br>• Consider implementing early, basic proof of concept interfacing with older systems to assure integration is feasible and to vet optimal interface solutions. | | System Architecture & Design | Risk | Medium | Open | 9/15/2020 |