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September 27, 2022

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

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

Aloha Senate President Kouchi, Speaker Saiki, and Members of the Legislature:

Pursuant to HRS section 27-43.6, which requires the Chief Information Officer to submit applicable independent verification and validation (IV&V) reports to the Legislature within ten days of receiving the report, please find attached the initial assessment received by the Office of Enterprise Technology Services for the State of Hawai'i, Department of Accounting and General Services, Enterprise Financial System Project.

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

Sincerely,

Douglas Murdock (Sep 28, 2022 14:39 HST)

Douglas Murdock
Chief Information Officer
State of Hawai'i

Attachment

BerryDunn

Initial Assessment Report

FOR THE

Hawaii Department of Accounting and General Services

Final

September 26, 2022

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Table i: Version History of the Plan

Version	Delivered Date	Update Reason
DED 1	August 22, 2022	Delivery of Deliverable Expectation Document (DED) by BerryDunn to State of Hawai'i (State) for review and feedback
DRAFT	September 19, 2022	Delivery of draft report by BerryDunn to State for review and feedback
FINAL	September 26, 2022	Delivery of draft report by BerryDunn to State

1.0 Executive Summary

In this section, BerryDunn has provided an overview of the Enterprise Financial System (EFS) Project (EFS Project), current EFS Project Health Status, and BerryDunn's EFS Project findings and corresponding recommendations.

1.1 EFS Project Overview

The EFS Project is designed to modernize and replace many of the State of Hawai'i's (State's) financial management systems for executive branch departments. The State is executing a targeted approach to modernizing systems in core enterprise resource planning (ERP) areas. The State separated the large strategic ERP project originally envisioned into transactional pieces to improve the chance of success with each system. To date, the State has modernized human resources, gross-to-net payroll administration and processing, and time and leave management. The EFS Project, representing the finance dimension of ERP, will be the fourth component under this modernization effort.

On November 21, 2021, the State Office of Enterprise Technology Services (ETS) awarded Labyrinth Solutions, Inc. (invenioLSI) the contract for Solicitation RFP-ERP-2020, an EFS, to implement the proposed system—SAP S/4HANA ERP cloud suite of applications—via a hosted managed service delivery model. The EFS is anticipated to include the following areas:

- Budget/finance
- Accounts payable and purchasing
- Travel and expenses
- Fixed assets
- Project accounting.

The State has selected BerryDunn to perform Independent Verification and Validation (IV&V) services, to assist in the State's efforts to identify and reduce risks and issues, and implement best practices to help ensure successful implementation of the EFS.

1.2 EFS Project Health Status

Table 1-1 below illustrates the individual health ratings BerryDunn used to rate the EFS Project Critical Components (i.e., key areas of the EFS Project that BerryDunn assessed) and Table 1-2 below illustrates the health ratings BerryDunn used to calculate (based on the average of the health ratings for the EFS Project Critical Components) a rating for the EFS Project overall.

Table 1-1: EFS Project Critical Component Health Rating Definitions

Rating	Definition
5 – Excellent	No findings were identified by BerryDunn.
4 – Good	One or a few low severity risk(s)/issue(s), one medium severity risk/issue, and/or watch list items and/or observations were identified by BerryDunn.
3 – Average	Many low severity risks/issues, a few medium severity risks/issues, and/or one high severity risk/issue was/were identified by BerryDunn and not logged in the EFS Project's risk/issue log and/or lessons learned repository—or have been logged but the plans to address them are not resolving them.
2 – Fair	Many medium severity risks/issues and/or a few high severity risks/issues were identified by BerryDunn and not logged in the EFS Project's risk/issue log and/or lessons learned repository—or have been logged but the plans to address them are not resolving them.
1 – Poor	Many medium severity risks/issues and/or many high severity risks/issues were identified by BerryDunn and not logged in the EFS Project's risk/issue log and/or lessons learned repository—or have been logged but the plans to address them are not resolving them.

Table 1-2 below illustrates the overall ratings for the EFS Project that BerryDunn used to determine the health of the EFS Project comprehensively, and their corresponding rating definitions. The overall rating of the EFS Project is reflective of the calculated average of the individual EFS Project Critical Component ratings.

Table 1-2: EFS Project Overall Health Rating Definitions

Rating	Definition
5.0 – 4.5	Excellent health
<4.5 – 4.0	Good health
<4.0 – 3.0	Average health
<3.0 – 2.0	Fair health
<2.0 – 1.0	Poor health

Table 1-3 below shows the initial health ratings BerryDunn determined for the individual EFS Project Critical Components and overall EFS Project, as well as the number of findings BerryDunn identified for each EFS Project Critical Component. BerryDunn was unable to assess several EFS Project Critical Components because the efforts to be assessed for the correlating Task Items (i.e., specific evaluation criteria for each EFS Project Critical Component—see Appendix A) are not yet underway. As a result, these EFS Project Critical Components are marked with a "N/A" in Table 1-3 below.

Table 1-3: EFS Project Initial Health Ratings

EFS Project Critical Components	# of Findings Identified	Initial Rating
EFS Project Management	12	1
Quality Management	1	3
Training	N/A	N/A
Requirements Management	3	2
Operating Environment	N/A	N/A
Development Environment	N/A	N/A
Software Development	2	3
System and Acceptance Testing	N/A	N/A
Data Management	N/A	N/A
Operations Oversight	N/A	N/A
Overall EFS Project Health Rating (Average of EFS Project Critical Component Ratings):	—	2.25
Total # of Findings Identified by BerryDunn:	18	—

1.3 Risk and Issue Findings and Recommendations

In Table 1-4 below, BerryDunn has listed its risks and issues and correlating recommendations for the Initial Assessment in short summary format. These findings and recommendations are described in more detail—along with further background and supporting information—in Section 3 of this report. During the Initial Assessment of the EFS Project, BerryDunn identified 11 issues and 7 risks. For these findings, BerryDunn determined 12 to be of high-level severity, 5 to be of medium-level severity, and 1 to be of low-level severity.

Table 1-4: Risk and Issue Findings and Recommendations

EFS Project Critical Component	BerryDunn's Finding(s)	BerryDunn's Recommendation(s)
EFS Project Management	**Issue 1:** Key initial EFS Project deliverables have either not been delivered by LSI or have been delivered and not been approved by the State on time. **Severity: High**	Prioritize completion and approval of key EFS Project deliverables.
	Issue 2: invenioLSI's deliverables and implementation phases/tasks (and related deadlines/durations) have not yet been confirmed and agreed upon with the State. **Severity: High**	Prioritize completion and approval of the EFS Project Work Plan and Deliverable Description Document.
	Issue 3: The EFS Project's deliverable review and approval process in not effectively moving deliverables through the approval process. **Severity: High**	Assign a State owner to each deliverable who will be responsible for coordinating progression of the deliverable through the review/approval process and expand the deliverable review/approval process to include steps for addressing deliverables of low quality.
	Issue 4: There appears to be misunderstanding in regard to invenioLSI's OCM approach. **Severity: Medium**	Increase visibility into invenioLSI's proposed OCM approach, activities, and deliverables with both the invenioLSI and State OCM lead.
	Issue 5: Initial OCM deliverables and related efforts have not been completed on time. **Severity: High**	Prioritize completion and approval of invenioLSI's proposed OCM deliverables/efforts for the Prepare phase.

EFS Project Critical Component	BerryDunn's Finding(s)	BerryDunn's Recommendation(s)
	Issue 6: There appears to be a misalignment between the EFS Project and Spire Hawaii in regard to EFS Project stakeholder engagement efforts. **Severity:** Low	Work to align the EFS Project team and Spire Hawaii's stakeholder engagement efforts on the EFS Project.
	Issue 7: There appears to be misalignment between the EFS Project, Spire Hawaii, and GFOA in regard to efforts on the EFS Project. **Severity:** Medium	Fully define and document Spire Hawaii's and GFOA's roles and responsibilities on the EFS Project and incorporate them into EFS Project planning/execution efforts and related communications.
	Risk 1: The planned go-live date of November 2023 for the Core Phase might not be achieved. **Severity:** High	Option 1: End the current iteration of the EFS Project to allow the State to take time to regather requirements and fully document State resource constraints and expectations for system implementation vendors in addressing these constraints. OR Option 2: Continue with the current EFS Project approach but extend the Core Phase go-live date.
	Risk 2: invenioLSI Deputy Project Directors might not be able to efficiently execute invenioLSI's EFS Project approach. **Severity:** Medium	Modify the EFS Project decision-making approach to allow for timely responses in the absence of invenioLSI decision makers.
	Issue 8: Initial OCM deliverables and related efforts have not been completed on time. **Severity:** High	Please see BerryDunn's recommendation in Risk 1.

EFS Project Critical Component	BerryDunn's Finding(s)	BerryDunn's Recommendation(s)
	Issue 9: Functional Primaries are minimally available to provide input to the EFS Project due to high vacancy rates. **Severity: High**	Please see BerryDunn's recommendation in Risk 1.
	Risk 3: The EFS Project has developed a Core Phase schedule prior to allocating the expected State resource hours into the EFS Project Work Plan, confirming these expectations with the State, and ensuring State resources are available as agreed upon. **Severity: High**	Continue ongoing efforts to develop a resourcing plan containing details on all resourcing requirements for the EFS Project.
Quality Management	**Issue 10:** The Executive Sponsors and State EFS Project Leadership feel deliverables provided by invenioLSI to date have not met the State's quality expectations. **Severity: High**	Work to define clear deliverable quality expectations/standards in the EFS Project Management Plan and help ensure invenioLSI provides DEDs for each key EFS Project deliverable.
Requirements Management	**Issue 11:** The EFS Project has not yet identified and documented a comprehensive list of EFS end users and system interfaces, and invenioLSI and the State are not aligned on expectations for who will identify them. **Severity: High**	Inventory all systems that will need to interface with the EFS and all end-users that will interact with the EFS.
	Risk 4: Not all the specific needs of departments will be met by standard GovOne functionality and will not be identified or addressed during the Explore and Realize phases. **Severity: High**	Include representation from all State departments in the cycles of demonstrations and subsequent adjustments to the EFS configuration.

EFS Project Critical Component	BerryDunn's Finding(s)	BerryDunn's Recommendation(s)
	Risk 5: The SAP configuration for user security currently planned for the State's implementation might not have the capabilities to meet the State's needs for managing user roles and privileges. **Severity:** Medium	Define and approve the user security requirements during the upcoming Explore phase and select an SAP security solution that best meets those requirements.
Software Development	**Risk 6:** The EFS Project does not have a clear "Definition of Done" for configuration of the EFS. **Severity:** High	Develop a DoD to ensure the EFS Project has a consistent and measurable standard for quality and completeness of the EFS.
	Risk 7: Some invenioLSI EFS Project resources might not be able to efficiently execute invenioLSI's EFS Project approach. **Severity:** Medium	Conduct a meeting with invenioLSI staff to review and discuss the EFS Project approach and expectations.

1.4 Observation, Watch List Item, and Lessons Learned Perspective Findings and Recommendations

In Table 1-5 below, BerryDunn has listed its observations, watch list items, and lessons learned perspectives and correlating recommendations for the Initial Assessment in short summary format. These findings and recommendations are described in more detail—along with further background and supporting information—in Section 3 of this report. During the Initial Assessment of the EFS Project, BerryDunn identified 0 observations, 1 watch list item, and 0 lessons learned perspectives.

Table 1-5: Observation, Watch List Item, and Lessons Learned Perspective Findings and Recommendations

EFS Project Critical Component	BerryDunn's Finding(s)	BerryDunn's Recommendation(s)
EFS Project Management	**Watch List Item 1:** The EFS Project has not documented or communicated its Software Development Life Cycle (SDLC) approach.	Define, document, and socialize the EFS Project's SDLC approach concurrent with the finalization of the Project Management Plan.

1.5 Top 3 Findings to Prioritize Addressing

Below, BerryDunn has listed the most urgent findings for the EFS Project to address:

1) The planned go-live date of November 2023 for the Core Phase might not be achieved.
2) Key initial EFS Project deliverables have either not been delivered by LSI or have been delivered and not been approved by the State on time.
3) invenioLSI's deliverables and implementation phases/tasks (and related deadlines/durations) have not yet been confirmed and agreed upon with the State.

Please see the details regarding each of these findings in Section 3 of this report.

2.0 EFS Project Independent Verification and Validation (IV&V) Methodology

In this section, BerryDunn has provided details on our EFS Project IV&V Methodology (i.e., EFS Project Critical Components, EFS Project Rating Methodology, and Fact-Finding Process).

2.1 EFS Project Critical Components

BerryDunn has listed the EFS Project Critical Components below:

- EFS Project Management
- Quality Management
- Training
- Requirements Management
- Operating Environment
- Development Environment
- Software Development
- System and Acceptance Testing
- Data Management
- Operations Oversight.

These EFS Project Critical Components, as well as their corresponding Task Items and Task Numbers, can be found in Appendix A.

2.2 EFS Project Rating Methodology

In Appendix B, BerryDunn has provided definitions for risk, issue, watch list item, observation, lessons learned perspective, and risk/issue-related definitions (i.e., impact, probability, and severity), as well as tables defining the:

- Individual health ratings for the EFS Project Critical Components
- Overall health ratings for the EFS Project
- Levels of risk impact
- Levels of risk probability
- Levels of risk severity
- Common attributes for the levels of risk severity
- Common attributes for the levels of issue severity.

2.3 Fact-Finding Process

The subsections below contain descriptions of the fact-finding activities BerryDunn performed as a part of the Initial Assessment.

2.3.1 Document Review

BerryDunn worked with the State's IV&V Contract Manager to gain access to the EFS Project's SharePoint site for viewing EFS Project documentation. This allowed BerryDunn to better understand the EFS Project's status and processes and identify potential risks, issues, watch list items, observations, and lessons learned perspectives (defined in Appendix B of this report)—as well as developed EFS Project stakeholder interview questions.

2.3.2 Stakeholder Group Interviews

BerryDunn conducted videoconference interview sessions with EFS Project stakeholder groups (identified and grouped through collaboration with the State IV&V Contract Manager) to further investigate areas of concern identified through BerryDunn's document review. During these interview sessions, BerryDunn posed questions to each stakeholder group based on the group's presumed knowledge of the EFS Project (based on roles and responsibilities) and information BerryDunn collected via document review. In Appendix C, BerryDunn listed the EFS Project stakeholder interview groups and the dates of these interviews.

3.0 Detailed Findings and Recommendations

In this section, BerryDunn has included its detailed findings and recommendations for any risk, issue, observation, watch list item, and lessons learned perspective findings we identified through our Initial Assessment. For each risk and issue identified, BerryDunn provided a severity rating (as well as likelihood and impact ratings for each risk). Please note that observations, watch list items, and lessons learned perspectives do not have correlating severity ratings (see Appendix B for the definitions of these finding terms).

3.1 EFS Project Management

Table 3-1: EFS Project Management Issue 1

Issue 1: Key initial EFS Project deliverables have either not been delivered by LSI or have been delivered and not been approved by the State on time.

BerryDunn learned through document review and interview sessions with multiple stakeholder groups that the EFS Project does not have key project planning deliverables completed and/or approved and has been operating to date without the crucial direction and accountability these documents provide. Furthermore, a specified list of key deliverables (and related deadlines) and project phases (and related tasks and durations) have not been identified and agreed upon between the State and invenioLSI. There are also numerous EFS Project documents that contain varying lists of in-scope deliverables, and the terms “plan” and “strategy” are also not used uniformly across the documents, adding to the confusion as to what the full list of in-scope deliverables is and their magnitude (as strategy documents are often less extensive/detailed than plan documents).
According to invenioLSI’s original work plan document (which was never approved by the State and is currently being completely redeveloped by invenioLSI), the items listed below were *expected* to have already been delivered by invenioLSI to the State for review and either approved or rejected with feedback by April 5, 2022:
• Project Charter (in draft status)
• Project Management Plan, consisting of:
  ○ Staff Management Plan/Strategy (pending State approval)
  ○ Scope Management Plan/Strategy (pending State approval)
  ○ Issue and Risk Management Plan (pending State approval)
  ○ Quality Management Plan (pending State approval)
  ○ Communication Management Plan (in draft status)
  ○ Schedule Management Plan (pending State approval)
  ○ Documentation Management Plan (pending State approval)
• Project Work Plan (in draft status)
• OCM Strategy, consisting of:
  ○ Communications Strategy (pending State approval)
  ○ Training Strategy (pending State approval)

Severity: High

BerryDunn rated this issue as High severity due to the critical nature of this incomplete or unapproved documentation.
Recommendation: Prioritize completion and approval of key EFS Project deliverables.
BerryDunn recommends the EFS Project Executive Sponsors and Project Leadership (including both State and invenioLSI) make completing key initial project deliverables an immediate priority, in the following sequence: • Project Charter to document the goals of the EFS Project and form the basis of the EFS Project direction and efforts • Project Work Plan (including all deliverables), taking into account the scope, number of stakeholders, number of system interfaces, staffing constraints, and unknowns/risks associated with the EFS demonstrations and fit-gap approach • Staff Management Plan to determine how identified resources will be managed and assigned roles and responsibilities • Scope Management Plan to define how the scope will be controlled is critical to maintaining the established schedule and resource expectations • Communication Management Plan to ensure that the EFS Project's approach to messaging is defined, and standards are set for project communications • An inventory of systems that will need to interface with the EFS, to better understand the scope/complexity of the EFS Project • An inventory of EFS end users, to better understand the scope/complexity of the EFS Project.

Table 3-2: EFS Project Management Issue 2

Issue 2: invenioLSI's deliverables and implementation phases/tasks (and related deadlines/durations) have not yet been confirmed and agreed upon with the State.
BerryDunn learned through document review and interview sessions with EFS Project Leadership (both State and invenioLSI) and Executive Sponsors that an approved Project Work Plan and Deliverable Description Document are not in place to define invenioLSI's deliverables and implementation phases/tasks (and their related deadlines/durations). The State's approach for procuring and contracting with invenioLSI was to incorporate invenioLSI's proposal by reference (i.e., the State's contract with invenioLSI refers to invenioLSI's proposal as invenioLSI's contractual scope of work) rather than to directly input content from invenioLSI's proposal into the contract, or directly input certain key components of invenioLSI's proposal into the contract (e.g., agreed-upon deliverables and related deadlines, and phases and their durations). invenioLSI's proposal only had examples of potential deliverables for each phase—stating language such as: "please note all work products, assignments and activities are samples only. Actual work products will be finalized during project negotiations and project planning stages." These key planning deliverables have not yet been approved by the State—and in some instances, not been completed by invenioLSI—so there are currently no solidified or agreed upon deliverables/phases and related deadlines/durations and no clear contractual obligations for invenioLSI in regard to such.
Severity: High

BerryDunn rated this issue as High severity as there is currently no approved contractual document by which to hold invenioLSI accountable for specific deliverables/phases and related deadlines/durations.
Recommendation: Prioritize completion and approval of the EFS Project Work Plan and Deliverable Description Document.
BerryDunn recommends both the Executive Sponsors and Project Leadership (including both State and invenioLSI) make completing the EFS Project Work Plan and Deliverable Description Document an immediate priority, which might require extensive working sessions between the Executive Sponsors and Project Leadership. This will help to create clear and binding obligations for LSI and likely help with continuing EFS Project progress. When developing and finalizing the EFS Project Work Plan invenioLSI should take into account the scope, number of stakeholders, number of system interfaces, State staffing constraints, and risks associated with the EFS demonstrations and fit-gap approach (see Issue 11 for more information on this aspect).

Table 3-3: EFS Project Management Issue 3

Issue 3: The EFS Project's deliverable review and approval process in not effectively moving deliverables through the approval process.
BerryDunn learned through document review and interview sessions with multiple stakeholder groups that there is not an effective or timely process for handling deliverables when they are not immediately approved upon submission or initially rejected for minor updates (i.e., when deliverables largely do not meet State quality expectations). BerryDunn also learned through interview sessions with the EFS Project Sponsors and the State PMO that they feel many of the deliverables that have been submitted to them by invenioLSI to-date do not meet their quality expectations and as a result some of these deliverables have been completely halted in the deliverable review process rather than having the perceived quality issues addressed. Another challenge further delaying the deliverable review process is that comments and questions on deliverables are being submitted by a large group of reviewers, some of whom do not always appear to be familiar with the deliverable topic/purpose (i.e., some deliverable reviewers appear to not have the context and expertise to provide relevant and on-topic feedback). As a result, invenioLSI is receiving feedback that is not always pertinent to and/or viable for the deliverables being reviewed.
Severity: High
BerryDunn rated this issue as High severity due to the critical nature of the documents pending approval and the negative impact these delays have had on the EFS Project overall.
Recommendation: Assign a State owner to each deliverable who will be responsible for coordinating progression of the deliverable through the review/approval process and expand the deliverable review/approval process to include steps for addressing deliverables of low quality.
BerryDunn recommends assigning ownership of the State's deliverable review/approval process to one State staff member, which might vary according to the deliverable and the subject matter expertise required, who will then compile input from relevant stakeholders as needed (removing or addressing edits/comments that are not relevant or can be immediately addressed by the State deliverable owner)

before providing any deliverable feedback to invenioLSI. BerryDunn also recommends the State deliverable owner be made responsible for tracking and progressing their assigned deliverables through the deliverable review/approval process to help ensure the State and invenioLSI meet the agreed upon review/feedback/approval timelines. BerryDunn also recommends the EFS Project add additional steps to the "Deliverable Acceptance Procedure for LSI" document to include details on the procedures/steps and related time frames for addressing deliverables that are rejected due to failure to meet quality expectations, which might require deliverable working sessions between the State and invenioLSI.

Table 3-4: EFS Project Management Issue 4

Issue 4: There appears to be misunderstanding in regard to invenioLSI's OCM approach.
BerryDunn learned through interview sessions with the invenioLSI OCM lead that they did not seem to be aware of the scope of work for invenioLSI's OCM efforts, as detailed in invenioLSI's proposal. BerryDunn believes this is likely a communication/onboarding issue between the invenioLSI EFS Project Director and the invenioLSI OCM Lead (as the invenioLSI OCM Lead is new to invenioLSI and joined the EFS Project a few months after it had started) and that this has likely (in part) contributed to a lack of progress in some of the planned OCM activities/deliverables in invenioLSI's proposal (see Issue 5 for more information on this aspect).
Severity: Medium
BerryDunn rated this issue as Medium severity due to the importance of beginning OCM activities early on in a project.
Recommendation: Increase visibility into invenioLSI's proposed OCM approach, activities, and deliverables with both the invenioLSI and State OCM lead.
BerryDunn recommends invenioLSI's Project Director increase visibility into invenioLSI's proposed OCM approach, activities, and deliverables with both the invenioLSI and State OCM lead. This will help allow resources directly involved in completing OCM tasks to have a better understanding of the planned OCM approach, deliverables, tasks, and related deadlines and who is responsible for each.

Table 3-5: EFS Project Management Issue 5

Issue 5: Initial OCM deliverables and related efforts have not been completed on time.
BerryDunn learned through document review and interview sessions with Executive Sponsors, Project Leadership, and the invenioLSI OCM Lead that key OCM deliverables/efforts have not been completed on time. BerryDunn learned through the interview session with the invenioLSI OCM lead that, from their perspective, these deliverables could not be completed due to not having all information regarding the EFS Project scope and stakeholders and delays to completion of these key dependencies were not being logged as issues in the EFS Project Issue Log. Based on a review of the "2022-05-12 Deliverable Schedule With RACI_working copy" spreadsheet, invenioLSI was to have completed the OCM Blueprint by June 20, 2022 and has not done so yet.

Also, based on invenioLSI's proposal the following OCM deliverables/efforts were to have been completed during the Prepare phase and prior to beginning the current Explore phase (i.e., the point at which the EFS Project currently is), but have not yet been completed:

- Stakeholder Current Assessment
  - Change Management Strategy
  - Change Management Plan, including sections on the following:
    - Risk and Readiness Management
    - Leadership Mobilization and Alignment
    - Stakeholder Engagement and Communication
    - Workforce Preparation
    - Organizational and Policy Impact Management
- Stakeholder Engagement Strategy
- Leadership Alignment and related Workshops
- End User Training Assessment.

BerryDunn also identified the following OCM deliverables that were to be completed at this point in the EFS Project according to the original EFS Project Work Plan, which lists a set of OCM deliverables to be completed that is different than the deliverables listed above. Based on invenioLSI's original EFS Project work plan, the following OCM deliverables/efforts were to have been completed by April 12, 2022 (or sooner) but have not yet been completed:

- Communication Strategy
- Knowledge Transfer Strategy
- User Readiness Assessment Strategy
- Project Team Training Strategy
- Project Team Skills Development Strategy.

BerryDunn learned through interview sessions with the EFS Functional Primaries and Spire Hawaii that the lack of an established OCM plan has contributed to confusion about the goals and scope of the EFS Project and the roles of and impact to departments and end users. BerryDunn also acknowledges that a lack of defined scope and stakeholders has also severely contributed to this confusion (see Issue 6 for more information on this aspect).

Severity: High

BerryDunn rated this issue as High severity given the high number of stakeholders impacted by, and the level of process changes that will occur as a result of, the EFS Project.

Recommendation: Prioritize completion and approval of invenioLSI's proposed OCM deliverables/efforts for the Prepare phase.

BerryDunn recommends the EFS Project complete the Prepare phase OCM deliverables/efforts based on the approach provided by invenioLSI in its proposal. If there is EFS Project information that is needed as an input for OCM deliverables/efforts, the invenioLSI OCM Lead should work with EFS Project resources to identify this information. If there are delays to completion of key EFS Project Management dependencies (e.g., defining scope), BerryDunn recommends the invenioLSI OCM lead log these as issues in the EFS Project Issue Log. However, BerryDunn believes the invenioLSI OCM Lead can develop and complete many of the deliverables listed above—or at least a baseline that can be updated in the future as more impacting factors are determined, as OCM deliverables are often living documents that evolve based on changes in a project and stakeholder engagement/analysis.

The EFS Project's stakeholders will benefit from Prepare phase OCM deliverables/efforts being completed and providing additional clarity on the project goals, required involvement, and assessment findings.

Table 3-6: EFS Project Management Issue 6

Issue 6: There appears to be a misalignment between the EFS Project and Spire Hawaii in regard to EFS Project stakeholder engagement efforts.
BerryDunn learned through interview sessions with multiple stakeholder groups that Spire Hawaii has discussed with State agencies how the Uniform Chart of Accounts (UCOA)— which Spire Hawaii has previously supported the State in developing—should be applied to the EFS. Some of these State agencies had not previously been made aware of the EFS Project and their involvement, and Spire Hawaii's outreach does not appear to have been discussed or coordinated with the EFS Project. While outreach to State agencies that will either use or need to integrate with the EFS is necessary and needs to occur early in the EFS Project, conducting informational communications to EFS Project stakeholders is an effort that should be closely managed and coordinated by the EFS Project to align with their strategy, methodology, and time frames. These uncoordinated efforts appear to be causing confusion among the EFS Project staff and stakeholders and might be causing duplicated/unnecessary stakeholder engagement efforts.
Severity: Low
BerryDunn rated this issue as Low severity due to minimal negative consequences to the EFS Project to-date and the ability of the EFS Project to mitigate this easily to address any past miscommunications and prevent further impacts resulting from this issue.
Recommendation: Work to align the EFS Project team and Spire Hawaii's stakeholder engagement efforts on the EFS Project.
BerryDunn recommends the EFS Project continue to discuss, document, and monitor Spire Hawaii's role and responsibilities (if any) for stakeholder engagement, to help ensure EFS Project stakeholder engagement is in alignment with the EFS Project strategy, methodology, and time frames and that EFS Project stakeholders are receiving a unified message from the EFS Project staff. This will also help avoid duplicated/unnecessary stakeholder engagement efforts and prevent conflicting messaging from being sent to EFS Project stakeholders.

Table 3-7: EFS Project Management Issue 7

Issue 7: There appears to be misalignment between the EFS Project, Spire Hawaii, and GFOA in regard to efforts on the EFS Project.
BerryDunn learned during interview sessions with Project Leadership, invenioLSI teams, and EFS subcontractors as well as review of "EFS Roles and Responsibilities DRAFT v0.1" that Spire Hawaii and GFOA's roles on the EFS Project have not been fully defined/documented and that there is

confusion among the EFS Project team on Spire Hawaii's and GFOA's roles and responsibilities. Spire Hawaii and GFOA appear to be working independently and/or at the direction of the State agencies that hired them (DAGS for Spire Hawaii and the Budget and Finance Department [B&F] for GFOA), with minimal coordination with the EFS Project. As a result, Spire Hawaii and GFOA do not have visibility into the EFS Project's overall strategy, methodology, and time frames and how Spire Hawaii and GFOA does/can support and align with these plans. For example, Spire Hawaii worked with State resources to identify and verify EFS requirements for the UCOA Spire previously helped the State develop. However, Spire Hawaii did not appear to be aware the EFS Project was no longer planning to use formalized requirements to develop the EFS configuration, and instead would be using a demonstration-based fit-gap approach to iteratively modify the GovOne solution to meet the State's needs.
Severity: Medium
BerryDunn rated this issue as Medium severity due inefficiencies resulting from misalignment of efforts with the EFS Project.
Recommendation: Fully define and document Spire Hawaii's and GFOA's roles and responsibilities on the EFS Project and incorporate them into EFS Project planning/execution efforts and related communications.
BerryDunn recommends the EFS Project work with DAGS, B&F, Spire Hawaii, and GFOA to fully define and document Spire Hawaii's and GFOA's roles and responsibilities on the EFS Project and incorporate Spire Hawaii and GFOA resources into EFS Project planning/execution and related communications, as they are acting as functional area consultants/experts for DAGS and B&F. BerryDunn also recommends the EFS Project factor Spire Hawaii and GFOA resources into the Project Working Plan and related staff allocation plans, as the State hired these firms to assist with augmenting their State resources and expertise. Bringing these resources into close communication with the rest of the EFS Project will help ensure that unified goals and consistent communication are shared by all stakeholders and help to avoid misaligned efforts.

Table 3-8: EFS Project Management Risk 1

Risk 1: The planned go-live date of November 2023 for the Core Phase might not be achieved.
BerryDunn learned through document review and interview sessions with multiple stakeholder groups that the EFS Project has experienced several major challenges that have contributed to a general lack of progress to-date, including the following: • State resources do not understand the EFS requirements due to the approach taken to gathering and approving them • State resourcing shortages limit their ability to provide input • Uncertainly over ownership of project responsibilities between State and invenioLSI • Multiple changeovers of the invenioLSI Project Director position • Multiple proposed changes to the implementation approach • Delays to the creation and/or approval of key planning deliverables.

While current challenges are being addressed and the EFS Project Leadership is developing a new detailed and resource-loaded schedule, BerryDunn does not believe the current scope of Core Phase for the EFS Project can be successfully completed by November 2023 due to the following:

- The EFS Project has adopted an iterative, demonstration-based fit-gap approach to developing and validating EFS requirements and configuration to accommodate for limited availability of State resources. However, BerryDunn believes this new approach will likely not result in a quicker approval process than the originally proposed approach because this approach will require multiple cycles of extensive demonstrations and subsequent adjustments to the EFS configuration in order to cover all processes, subprocesses, and exceptions.
- The EFS Project has developed a Core Phase schedule prior to allocating the expected State resource hours into the EFS Project Work Plan, confirming these expectations with the State, and ensuring State resources are available as agreed upon (see Risk 3 for more information on this aspect). As a result, BerryDunn believes it is likely that State resources might not have the expected availability to support the EFS Project at the times and at the number of hours required to complete the planned tasks and deliverables within the current time frame.
- The EFS Project has developed a Core Phase schedule prior to identifying the interfaces required for and end-users of the EFS (see Issue 11 for more information on this aspect). As a result, BerryDunn believes it is unlikely that the EFS Project schedule accurately reflects the level of effort needed to address State interface requirements and end-user needs (e.g., outreach, training, unique business process requirements, and post go-live support).
- Numerous initial planning deliverables still need to be completed and approved, which will likely further delay the EFS Project's ability to effectively work on Explore Phase tasks (see Issue 1 for more information on this aspect).
- The EFS Project has made little progress in comparison to original plans. While past progress does not always correlate with future progress, BerryDunn believes it is often a strong indicator.
- The current EFS Project Sponsors are expecting and likely to transition out of their roles with the upcoming administration change. As a result, BerryDunn believes there will be delays to approving EFS Project deliverables and additional effort required to provide context to future incoming EFS Project Sponsors.

Severity: High

BerryDunn calculated the severity of this risk, using the Table 6-6: Risk Severity Matrix (see Appendix B), as 20 – High.

Probability: 5 – Near Certainty

BerryDunn rated this risk as Near Certainty probability of occurring.

Given the amount of progress made since the start of the EFS Project and the number of challenges it still faces, BerryDunn does not expect the EFS Project to be able to complete the remaining tasks for the Core Phase in a quality manner within the time frame currently proposed.

Impact: 4 – Significant

BerryDunn rated this risk as Significant impact.

While missing an originally planned go-live date is not fatal to the eventual completion of the EFS implementation, unexpectedly missing a planned go-live date would likely negatively impact stakeholder confidence in the EFS Project and its leadership and overall stakeholder satisfaction.

Recommendation:

Option 1: End the current iteration of the EFS Project to allow the State to take time to regather requirements and fully document State resource constraints and expectations for system implementation vendors in addressing these constraints.

OR

Option 2: Continue with the current EFS Project approach but extend the Core Phase go-live date.

BerryDunn recommends the EFS Project select one of the following options to plan a viable path forward:

Option 1: End the current iteration of the EFS Project to allow the State to take time to regather requirements and fully document State resource constraints and expectations for system implementation vendors in addressing these constraints.

If the State chooses this option, BerryDunn recommends the State take the following immediate next steps:

- End the current iteration of the EFS Project.
  - Potential benefit: This will provide the opportunity to start over and address or avoid the issues that led to the current state of the EFS Project.
  - Risk: Once the current iteration of the EFS Project is ended, DAGS might not obtain approval to restart the EFS Project given the sunk costs, unknown priorities of the new administration, and minimal progress made on the EFS Project to-date.
  - Implication: There are likely to be legal involvement/ramifications.
- Define and document the in-scope departments and end users of the EFS and necessary interfaces with the EFS.
  - Potential benefit: This will help ensure that a new scope will be clear and comprehensive and that end users will be identified for requirements gathering.
  - Implication: These efforts will require significant State resources.
- Complete a requirement gathering process to identify requirements for all affected departments, systems, and end users. This should include creating an inventory of interfaces currently used and indicating which are expected to be replaced by the EFS.
  - Potential benefit: This will help ensure a detailed and accurate depiction of scope from all stakeholder perspectives.
  - Implication: These efforts will require significant State resources and/or hiring outside consultants.
  - Risk: There is a high likelihood that creating a new set of requirements will necessitate re-procurement of an EFS, as this could be considered a major change in scope under State statutes/rules.
- Draft and publish a new RFP for the EFS that requests vendors provide: a definitive list of deliverables to be provided and related deadlines (including payment milestones and all work required to be completed as part of each payment milestone), a definitive work breakdown structure for the tasks to be completed and related durations (including detailed State resource

expectations), and a detailed plan for accommodating the State's resource availability (which will require that the State include detail information on State resource availability and any blackout dates [i.e., periods State resources are completely unavailable to provide input on the EFS Project] in the RFP).

Option 2: Continue with the current EFS Project approach but extend the Core Phase go-live date.

If the State chooses this option, BerryDunn recommends the State take the following immediate next steps:

- When developing an updated EFS Project Work Plan, develop, review, and approve an updated EFS Project timeline that factors in the current state of tasks and deliverables, resource constraints (including the year-end close period at the end of each fiscal year when staff are largely unavailable to support the EFS Project), time to address potential requirement gaps and interface needs that will be determined during fit-gap analysis, and comprehensive/reasonable end user training requirements.
    - Potential benefit: This will provide the EFS Project with a more probable estimate for the Core Phase go-live date. Once this estimate is determined, the EFS Project can then work with end users and other impacted State agencies to identify time periods that will allow for an effective go-live with minimal disruption to operations.
    - Implication: The Core Phase go-live date and EFS Project overall will be extended (which will require elongated efforts) and therefore EFS Project functionality will be delayed.
- When developing an updated EFS Project Work Plan, add additional time to complete key project planning deliverables, identify all project stakeholders, conduct OCM stakeholder analysis and generate initial OCM communications, determine scheduling and resourcing needs for the Explore phase working sessions, and allow stakeholders to prepare any necessary artifacts and/or information needed for the Explore phase working sessions.
    - Potential benefit: This will provide the EFS Project with a more probable estimate for the Prepare Phase. Once this estimate is determined, the EFS Project can then work with end users and other impacted State agencies to identify time periods that will allow for minimal disruption to operations.
    - Implication: The Prepare Phase will be extended.
- When developing an updated EFS Project Work Plan, add additional time to the Explore phase to allocate sufficient time and resources to ensure all stakeholders have participated in the demonstrations, agreed to fit-gap decisions, and approved requirements.
    - Potential benefit: This will provide the EFS Project with a more probable estimate for the Explore Phase. Once this estimate is determined, the EFS Project can then work with end users and other impacted State agencies to identify time periods that will allow for minimal disruption to operations.
    - Implication: The Explore Phase will be extended.
- When developing an updated EFS Project Work Plan, add additional time to the Realize Phase to demonstrate completed increments of work,
    - Potential benefit: The State will have the opportunity to view and understand the expected functionality and provide feedback during the development sprints that will

help ensure the quality and completeness of the EFS features meet stakeholder expectations and fulfills end-user needs. This will also provide the EFS Project with a more probable estimate for the Realize Phase. Once this estimate is determined, the EFS Project can then work with end users and other impacted State agencies to identify time periods that will allow for minimal disruption to operations. ○ Implication: The Realize Phase will be extended.

Table 3-9: EFS Project Management Risk 2

Risk 2: invenioLSI Deputy Project Directors might not be able to efficiently execute invenioLSI's EFS Project approach.
BerryDunn learned through document review and interviews sessions with EFS Project Leadership, invenioLSI Project Leadership, and EFS Project Leadership Subcontractors that invenioLSI has subcontracted with DataHouse and eWorld to fill invenioLSI PMO Deputy Project Director roles. Based on these interviews, BerryDunn understands these Deputy Project Directors are not familiar with invenioLSI's typical approach to managing and executing SAP implementations. Being new to invenioLSI's approach and to SAP solution implementation projects might create a certain learning curve that leads to less efficient execution of invenioLSI's implementation approach. Also, because the Deputy Project Directors are new to invenioLSI's approach and to SAP solution implementation projects, their authority to make decisions on the EFS Project is therefore somewhat limited and reserved for the invenioLSI Project Director. We also understand that the invenioLSI Project Director is not allocated to the EFS Project full-time, which creates risk that the EFS project might not be able to receive timely decisions that need to be escalated to the invenioLSI's EFS Project Director.
Severity: 6 – Medium
BerryDunn calculated the severity of this risk, using the Table 6-6: Risk Severity Matrix (see Appendix B), as 6 – Medium.
Probability: 3 – Likely
BerryDunn rated this risk as Likely probability. While BerryDunn has not observed or received any feedback from interviews regarding the invenioLSI Project Director's responsiveness to making decisions, we understand the complexity and scope of large system implementations such as the EFS Project require many decisions to be made on a nearly constant basis, particularly once project planning activities have been completed. While BerryDunn has not observed or received any feedback from interviews regarding the abilities of the Deputy Project Directors, they are new to invenioLSI's approach and SAP implementations, which we believe creates inherent risk to efficient execution of the implementation efforts.
Impact: 2 – Minor
BerryDunn rated this risk as Minor severity.

While delays of a few hours or days might at first seem insignificant, the number of decisions that will need to be made on the EFS Project will continue to increase once key EFS Project planning documents have been completed and approved. Many decisions might also need to occur during working sessions to continue to effectively achieve the anticipated objectives on time, and it might not always be possible for the invenioLSI Project Director to be present in these sessions. Given the delayed progress the EFS Project has made to date, it is important to foresee and mitigate potential future sources of delays.
Recommendation: Modify the EFS Project decision-making approach to allow for timely responses in the absence of invenioLSI decision makers.
BerryDunn recommends the invenioLSI Project Director provide extensive training (if this has not already occurred) on SAP's activate methodology and other processes or tools used by invenioLSI. BerryDunn also recommends the EFS Project discuss and document a decision-making approach for if the invenioLSI Project Director is unable to provide timely responses on decisions that require being addressed immediately or can be confidently decided upon by another invenioLSI representative familiar with the EFS Project and invenioLSI's processes, standards, and approach. BerryDunn recommends the EFS Project consider invenioLSI's Operations Lead/Manager being able to make decisions that will not impact the overall scope or schedule of the EFS Project in circumstances where an immediate response from invenioLSI Project Director cannot be reached. This might help minimize delays for situations that require decisions from invenioLSI that can be confidently made by other members of invenioLSI's team.

Table 3-10: EFS Project Management Issue 8

Issue 8: The Functional Primaries are now unable to validate the EFS requirements because they were not involved in requirements gathering and had minimal involvement in reviewing the requirements prior to their posting in the State's EFS RFP.
BerryDunn learned through interview sessions with multiple stakeholder groups that the process for gathering RFP requirements for the EFS was largely based on a requirement gathering efforts that occurred approximately 10 years ago for a past EFS RFP, with additional requirements added from a recent RFP for the State Department of Education. BerryDunn also learned during interview sessions with the Functional Primaries that they were provided minimal time to review and propose revisions prior to the RFP being released. As a result of not being involved in a conventional requirement gathering process, the Functional Primaries were unable to validate requirements when asked to do so by invenioLSI.
Severity: High
BerryDunn rated this issue as High severity given the importance of Functional Primaries being able to validate requirements for the EFS prior to configuration.
Recommendation:

Option 1: End the current iteration of the EFS Project to allow the State to take time to regather requirements and fully document State resource constraints and expectations for system implementation vendors in addressing these constraints. **OR** **Option 2: Continue with the current EFS Project approach but extend the Core Phase go-live date.**
Please see BerryDunn's recommendation in Risk 1.

Table 3-11: EFS Project Management Issue 9

Issue 9: Functional Primaries are minimally available to provide input to the EFS Project due to high vacancy rates.
BerryDunn learned during interview sessions with the Functional Primaries that they do not have the bandwidth to provide any dedicated resources to the EFS Project due to high job vacancy rates Statewide. As a result, the EFS Project has modified its approach from a conventional approach (i.e., refine/validate requirements, configure the EFS according to the requirements, and test against the requirements) to using an iterative, demonstration-based fit-gap approach—that is likely to require multiple cycles of extensive demonstrations and subsequent adjustments to the baseline GovOne configuration setup. These changes in approach have resulted in delays to the EFS Project. BerryDunn is also concerned that the minimal amount of State input could result in further delays to the EFS Project.
Severity: High
BerryDunn rated this issue as High severity due to delays caused by the proposed change in approach.
Recommendation: **Option 1: End the current iteration of the EFS Project to allow the State to take time to regather requirements and fully document State resource constraints and expectations for system implementation vendors in addressing these constraints.** **OR** **Option 2: Continue with the current EFS Project approach but extend the Core Phase go-live date.**
Please see BerryDunn's recommendation in Risk 1.

Table 3-12: EFS Project Management Risk 3

Risk 3: The EFS Project has developed a Core Phase schedule prior to allocating the expected State resource hours into the EFS Project Work Plan, confirming these expectations with the State, and ensuring State resources are available as agreed upon.
BerryDunn learned during document review and interview sessions with the EFS Project Leadership and Functional Primaries that the EFS Project has yet to identify the following regarding resourcing:

- The total number of resources needed from both the State (including contracted resources from Spire Hawaii and GFOA) and invenioLSI
- The specific resources needed from both the State (including contracted resources from Spire Hawaii and GFOA) and invenioLSI
- Roles and required tasks that need to be performed by each parties' resources and when these resources need to be made available
- Periods in which resources will unavailable (e.g., the months following year-end close).

As a result, BerryDunn believes it is unlikely that the EFS Project schedule accurately reflects the level of effort needed to address State interface requirements and end-user needs (e.g., outreach, training, unique business process requirements, and post go-live support).

Severity: High

BerryDunn calculated the severity of this risk, using the Table 6-6: Risk Severity Matrix (see Appendix B), as 15 – High.

Probability of Occurrence: 5 – Near Certainty

BerryDunn rated the probability of this risk as 5 – Near Certainty due to the unlikelihood that the EFS Project schedule accurately reflects the level of effort needed to address State interface requirements and end-user needs without matching anticipated levels of effort with necessary resources.

Impact of Occurrence: 3 – Moderate

BerryDunn rated the impact of this risk as 3 – Moderate because realization of the risk will extend the EFS Project schedule. This will likely negatively impact stakeholder confidence in the EFS Project and its leadership and overall stakeholder satisfaction.

Recommendation: Continue ongoing efforts to develop a resourcing plan containing details on all resourcing requirements for the EFS Project.

BerryDunn recommends both invenioLSI and the State continue working to develop a resourcing plan containing details on all resourcing requirements for the EFS Project (including planned future availability of subcontractors, EFS end users, and other stakeholders outside of the EFS Project team). This plan should state the roles and responsibilities of each individual resource based on their confirmed availability, capabilities and knowledge areas, and their anticipated number of hours available at each stage of the EFS Project. Once these expectations of the resources involved and dedicated to the EFS Project have been agreed upon, the draft resource-loaded EFS Project plan can be adjusted to comply with the constraints identified for each planned resource.

Table 3-13: EFS Project Management Watch List Item 1

Watch List Item 1: The EFS Project has not documented or communicated its Software Development Life Cycle (SDLC) approach.
BerryDunn learned through document reviews and stakeholder interviews that the EFS Project teams for both the State and invenioLSI have conflicting understandings of the EFS Project's SDLC approach. Some teams stated that they will be following the SAP Activate methodology (which is based on the Agile methodology), some teams stated that the EFS Project will follow Waterfall methodology, and some teams stated that the EFS Project will follow a Hybrid methodology. This disparity in understanding is likely due to the changes in the EFS Project's proposed approach and Project Management Plan not having been finalized. BerryDunn classifies this item as a watch list item because it might become a risk if an SDLC approach is not defined, approved, and socialized. An SDLC defines the framework for the design, development, verification, delivery, and maintenance phases of a software project. SDLC phases provide structure for the tasks that must be completed to help drive a project's success. Lacking a definitive SDLC methodology, the EFS Project teams might become misaligned with respect to deliverables, dates, and criteria for the entry and exit of EFS Project phases and the roles and responsibilities of the EFS Project teams. Misunderstanding of EFS Project tasks, dates, roles, and responsibilities might result in incomplete tasks or missed delivery dates.
Recommendation or Guidance/Consideration: Define, document, and socialize the EFS Project's SDLC approach concurrent with the finalization of the Project Management Plan.
BerryDunn recommends the EFS Project clearly communicate the SDLC approach to the EFS Project team. The SDLC approach will help provide the structure and tasks for the EFS Project teams and will define the entry criteria required to begin each phase of the EFS Project and the exit criteria that must be met to close the phase.

3.2 Quality Management

Table 3-14: Quality Management Issue 10

Issue 10: The Executive Sponsors and State EFS Project Leadership feel deliverables provided by invenioLSI to date have not met the State's quality expectations.
BerryDunn has learned through interview sessions with EFS Project Leadership and Executive Sponsors that they feel some key deliverables that have been provided by invenioLSI to the State to date do not meet the State's quality expectations. BerryDunn understands the "2022-04-13 Deliverable Description Document Draft v1.0" provides some information on the expected content for some of the deliverables invenioLSI is tasked with delivering but this document is not finalized and does not provide detailed quality expectations for EFS Project deliverables.
Severity: High
BerryDunn rated this issue as High severity due to the critical nature of this incomplete or unapproved documentation.

Recommendation: Work to define clear deliverable quality expectations/standards in the EFS Project Management Plan and help ensure invenioLSI provides DEDs for each key EFS Project deliverable.
BerryDunn recommends the State and invenioLSI agree upon and document general expectations for the quality of all key EFS Project deliverables. BerryDunn has attached a Sample Deliverable Quality Checklist in Appendix D of this document and recommends the EFS Project consider using the checklist as a starting point for general deliverable expectations (i.e., quality expectations that are applicable to all deliverables). If feasible, it might also be prudent for the State to develop deliverable-specific quality expectations/standards (i.e., quality expectations that are only applicable to a specific type of deliverable). BerryDunn also recommends that invenioLSI provide DEDs to the State for each key EFS Project deliverable (that depict the layout of the deliverable and describe the expected content for each section of the deliverable), prior to beginning work on the deliverable, for review and approval. This should help align invenioLSI and State expectations for the layout and content of each deliverable prior to their delivery and help increase the likelihood of deliverable approval.

3.3 Requirements Management

Table 3-15: Requirements Management Issue 11

Issue 11: The EFS Project has not yet identified and documented a comprehensive list of EFS end users and system interfaces, and invenioLSI and the State are not aligned on expectations for who will identify them.
BerryDunn learned during interview sessions with multiple stakeholder groups that the extent of State departments and end users who will implement the EFS system has not yet been identified or agreed upon and that responsibility for identifying impacted departments and end users and their requirements has not been clearly assigned between invenioLSI and the State. Given the decentralization across the State of many accounting functions there are many departments whose requirements will either need to be included in the current EFS Project scope or for whom a plan must be made for a system interface with the EFS as part of the implementation. BerryDunn also learned during interview sessions that certain initial project deliverables are on hold pending identification of the full scope of the EFS Project, including all impacted departments and end users. BerryDunn has concerns that once all parties are identified, previously unknown requirements might also be identified and will require additional time and resources in the Explore and Realize phases.
Severity: High
BerryDunn rated this issue as High severity due to its impact on current planning processes and its potential impact on the overall EFS Project timeline and cost.
Recommendation: Inventory all systems that will need to interface with the EFS and all end-users that will interact with the EFS.

BerryDunn recommends the EFS Project inventory all systems that will need to interface with the EFS, and all end-users that will interact with the EFS, to better understand the scope/complexity of the EFS Project.

Table 3-16: Requirements Management Risk 4

Risk 4: Not all the specific needs of departments will be met by standard GovOne functionality and will not be identified or addressed during the Explore and Realize phases.
BerryDunn learned through document review and during interview sessions with multiple stakeholder groups that many departments included in the EFS implementation are not planned to be included in demonstrations and fit-gap sessions during the Explore phase or testing during the Realize phase. BerryDunn is concerned that not all the specific needs of departments—including exception scenarios—will be met by standard GovOne functionality and will not be identified or addressed during these phases without representation of all departments.
Severity: 16 – High
BerryDunn calculated the severity of this risk, using the Table 6-6: Risk Severity Matrix (see Appendix B), as 16 – High.
Probability of Occurrence: 4 – Highly Likely
BerryDunn rated the probability of this risk occurring as 4 – Highly Likely due to the improbability that the needs of all departments that will use the EFS will be identified and addressed without their direct involvement.
Impact of Occurrence: 4 – Significant
BerryDunn rated the impact of this risk as 4 – Significant because realization of the risk will result in an EFS that does not fully meet the needs of all end users.
Recommendation: Include representation from all State departments in the cycles of demonstrations and subsequent adjustments to the EFS configuration.
BerryDunn recommends that the EFS Project include representation from all State departments in the cycles of demonstrations and subsequent adjustments to the EFS configuration to help ensure that all their specific needs are met.

Table 3-17: Requirements Management Risk 5

Risk 5: The SAP configuration for user security currently planned for the State's implementation might not have the capabilities to meet the State's needs for managing user roles and privileges.
BerryDunn learned through multiple interview sessions that the currently expected security solution for the SAP implementation will be single sign-on (SSO) and expressed concern that SSO might not meet the State's needs and expectations for managing roles and privileges. For example, the SAP SSO

functionality provides limited granularity for specifying access to functionality and data and does not provide user provisioning capabilities.

BerryDunn learned through interview sessions with multiple stakeholder groups that the requirements for user security, including the expected complexity of roles and privileges for the SAP implementation, have not been documented and that roles and business processes (both Statewide and department-specific) are undocumented and unclear. Without this documentation, the EFS Project will be at risk of selecting and implementing a user security configuration that will be inadequate for managing and maintaining the State's security needs.

Severity: 12 – Medium

BerryDunn calculated the severity of this risk, using the Table 6-6: Risk Severity Matrix (see Appendix B), as 12 – Medium.

Probability: 3 – Likely

BerryDunn rated this risk as 3 – Likely probability based on the current absence of user security requirements and supporting documentation (e.g., roles, business processes, data access needs, and data privacy regulations). invenioLSI is planning to work with the State to analyze and define user access and security requirements during the Explore phase. However, the limited time allocated to the Explore Phase increases the probability that the necessary security details might be not fully discovered and refined to allow for a complete understanding of the State's security needs and expectations.

Additionally, given the complexity of configuring user roles and permissions, invenioLSI will not be able to demonstrate user security until User Acceptance Testing. The requirements for user security will need to be a separate endeavor from the EFS demonstrations planned for the Explore phase.

Impact: 4 – Significant

BerryDunn rated the impact of this risk as 4 – Significant because realization of the risk will result in:

- Unauthorized access to functionality or data due to incorrect user roles and permissions
- The EFS failing to meet State or federal compliance requirements or data privacy regulations
- Workarounds or exceptions to force the EFS to meet the State's needs
- Incomplete or unreliable tracking and recording of user verification, approval, and access required for accountability and auditing purposes
- Negative impacts to employee productivity for resources using the EFS as well as those maintaining it.

Recommendation: Define and approve the user security requirements during the upcoming Explore phase and select an SAP security solution that best meets those requirements.

BerryDunn recommends the EFS Project:

- Include sufficient time and appropriate resources from all departments during the Explore phase to analyze and determine the user roles and permissions requirements

- Define and document business process flows, including the roles responsible for the activities and the data permissions and access required to complete the activities within the processes—to help ensure that EFS access and data privacy will be incorporated into the design
- Develop naming conventions for roles and permissions to help ensure consistency and prevent misunderstandings between State departments and the EFS Project
- Analyze the State's user security governance and maintenance requirements such as user provisioning (i.e., assigning permissions based on roles and events an account's life cycle) or automation through integration with Active Directory
- Document and approve user security requirements and use these to ensure the selected implementation aligns with the State's user security needs.

3.4 Software Development

Table 3-18: Software Development Risk 6

Risk 6: The EFS Project does not have a clear "Definition of Done" for configuration of the EFS.
BerryDunn learned through document reviews and interview sessions with multiple stakeholders that the EFS Project does not have a "Definition of Done" (DoD). A DoD specifies the criteria and standards that determine that the implemented solution completely and correctly meet the requirements. Failing to define a DoD introduces the risk that EFS Project teams will assume that their understanding of quality and completeness matches that of EFS stakeholders and Executive Sponsors. Without a DoD, the EFS Project may not be able to determine if the EFS is acceptable and the EFS Project is complete.
Severity: 16 – High
BerryDunn calculated the severity of this risk, using the Table 6-6: Risk Severity Matrix (see Appendix B), as 16 – High.
Probability: 4 – Highly Likely
BerryDunn rated this risk as 4 – Highly Likely probability due to the need to develop the DoD during the Explore phase (which is limited in time and heavy in number of EFS Project tasks that must be completed before the phase is closed). The DoD must be done in the Explore phase to help ensure it is complete before development begins in the Realize phase because developing a correct and acceptable DoD requires collaboration between the multiple departments, project teams, and the executive sponsors. Ensuring all participants have availability to collaborate on the DoD may be challenging and may hinder the ability of the EFS Project to create a complete and comprehensive DoD.
Impact: 4 – Significant

BerryDunn rated this risk as 4 – Significant severity because—without a clear, consistent, and agreed-upon DoD—invenioLSI will not know the standards for quality and completeness that the EFS must meet. Without a DoD, stakeholders will also be able to increase scope by clarifying or expanding their expectations of quality, and the final EFS will likely be incomplete, unstable, or fail to meet user needs.
Recommendation: Develop a DoD to ensure the EFS Project has a consistent and measurable standard for quality and completeness of the EFS.
BerryDunn recommends that the EFS Project develop a DoD during the upcoming Explore phase to help ensure the DoD is approved by EFS Project Executive Sponsors and socialized to the EFS Project team and stakeholders before development begins in the Realize phase. Once the DoD is approved, BerryDunn recommends the EFS Project make the DoD transparent and available across the EFS Project to help ensure the EFS Project resources, stakeholders, and Executive Sponsors have a consistent and mutual understanding of the standards that the EFS Project will use to verify EFS quality and completeness. BerryDunn recommends the EFS Project develop the DoD collaboratively to ensure alignment and agreement across the EFS Project of the criteria for evaluating requirements, increments, modules, and the EFS as a whole are “done”. Collaboration will ensure that the DoD contains unified language and defines standard terms to ensure the shared understanding of the DoD across the EFS Project. BerryDunn recommends the EFS Project create a DoD that describes the minimum work required to meet the agreed-upon level of functional quality and completeness and addresses both technical and functional requirements. BerryDunn also recommends the EFS Project validate the DoD against State or federal core values or principles (e.g., security and accessibility). While the DoD should be complete and comprehensive, the definition should be concise to prevent splitting the EFS Project team’s attention. Ideally, the DoD should be in the form of a checklist, with each task on the checklist having its own specific acceptance criteria (e.g., the DoD may specify that a deliverable must be complete, but the acceptance criteria for the deliverable is specified separately). BerryDunn recommends the EFS Project communicate to the EFS Project resources, stakeholders, and Executive Sponsors that until all the criteria defined in the DoD is met, the requirement, increment, module, and the EFS Project overall is not done.

Table 3-19: Software Development Risk 7

Risk 7: Some invenioLSI EFS Project resources might not be able to efficiently execute invenioLSI’s EFS Project approach.
BerryDunn learned through interview sessions with invenioLSI’s EFS Project teams that some of these resources were unaware of invenioLSI’s planned implementation approach (e.g., plans for an iterative fit-gap approach for refining and validating system configuration, and invenioLSI’s role in conducting testing, training, OCM, and stakeholder outreach with State agencies). BerryDunn believes this is due to many factors, including the number of changes that have been made to the planned implementation approach to accommodate State resource availability, key EFS Project planning documents not being complete and approved, and several resources being new to invenioLSI and/or the EFS Project.

Severity: 6 – Medium
BerryDunn rated this issue as 6 – Medium severity due to the importance of invenioLSI's resources understanding of the EFS Project's approach and being able to share this information with other resources accurately.
Probability: 2 – Unlikely
BerryDunn rated this risk as 2 –Unlikely probability. BerryDunn does not expect that invenioLSI resources will remain unaware of the EFS Project's approach once the EFS Project's proposed changes to the implementation approach are approved and finalized.
Impact: 3 – Moderate
BerryDunn rated this risk as 3 – Moderate severity because if this risk were realized, it might result in confusion over the implementation approach and inefficiencies.
Recommendation: Conduct a meeting with invenioLSI staff to review and discuss the EFS Project approach and expectations.
BerryDunn recommends invenioLSI's Program Director connect with the entire invenioLSI staff and subcontractors involved on the EFS Project and conduct a review session based on the content provided in the "2022-09-02 EFS All-Hands Meeting" presentation and other relevant materials. During this meeting, BerryDunn recommends the invenioLSI Program Director explain the expectations and importance of all invenioLSI having a clear and up-to-date understanding of the planned EFS Project approach and helping to provide clarity to State resources as needed. This conversation can help to identify and clarify points of misunderstanding with the team, allow the rest of the invenioLSI resources to provide feedback on the planned approach, raise concerns over the planned approach and develop mitigation plans accordingly, and further develop an understanding of the roles and responsibilities between the different groups.

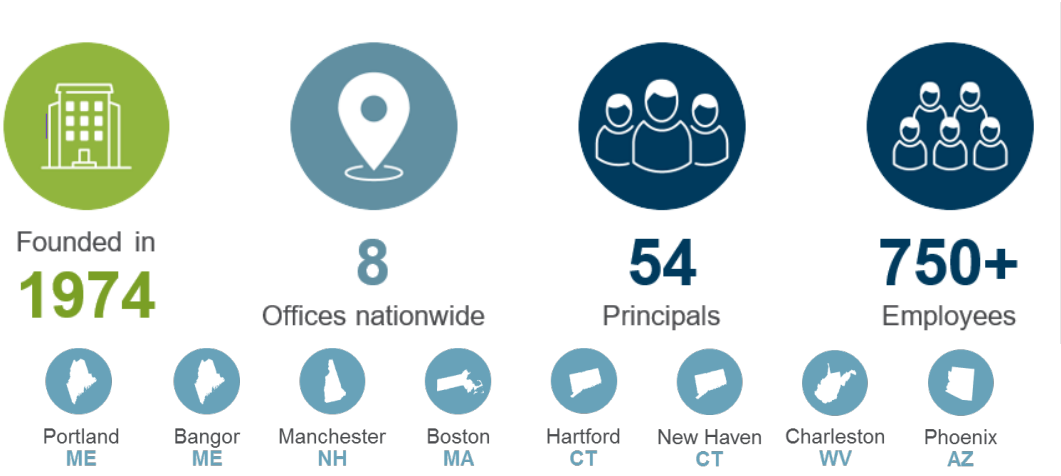
4.0 BerryDunn

BerryDunn is a national consulting and certified public accounting firm with a Government Consulting Group dedicated to serving state and local government agencies. BerryDunn was formed in 1974 and has experienced sustained growth throughout its 48-year history. Today, BerryDunn employs 750+ personnel with headquarters in Portland, Maine—and office locations in Arizona, Connecticut, Massachusetts, New Hampshire, and West Virginia. The firm has experienced professionals who provide a full range of services, including IT consulting; management consulting; and audit, accounting, and tax services.

BerryDunn's State Government Practice Group provides a variety of independent services to state agencies in need of understanding the health and effectiveness of their programs and processes. To assist in these efforts, BerryDunn provides an independent and proven audit methodology—in conjunction with state-established processes, tools, and templates—which includes a clear and actionable mitigation strategy.

BerryDunn regularly performs IV&V Services for state IT and business organizations. Independent audits and project assessments are core to our consulting practice, and our project teams have conducted enterprise-wide strategic risk assessments, project audits, and project health assessments for public-sector clients for more than 32 years.

Figure 4--1: BerryDunn Overview



5.0 Appendix A: EFS Project Critical Components

Below in Table 5-1 is a list of all EFS Project Critical Components, and their related task numbers and descriptions, BerryDunn is using to assess the EFS Project throughout its engagement period.

Table 5-1: EFS Project Critical Components, and Related Task Numbers and Descriptions

EFS Project Task Item	Task #	Task Description
EFS Project Management		
EFS Project Sponsorship	PM-1	Assess and recommend improvement, as needed, to assure continuous executive stakeholder buy-in, participation, support and commitment, and that open pathways of communication exist among all stakeholders.
EFS Project Sponsorship	PM-2	Verify that executive sponsorship has bought-in to all changes which impact EFS Project objectives, cost, or schedule.
Management Assessment	PM-3	Verify and assess EFS Project management and organization, verify that lines of reporting and responsibility provide adequate technical and managerial oversight of the EFS Project.
Management Assessment	PM-4	Evaluate EFS Project progress, resources, budget, schedules, workflow, and reporting.
Management Assessment	PM-5	Assess coordination, communication, and management to verify agencies and departments are not working independently of one another and following the communication plan.
EFS Project Management	PM-6	Verify that an EFS Project Management Plan is created, has been accepted, and is being followed. Evaluate the EFS Project management plans and procedures to verify that they are developed, communicated, implemented, monitored, and complete.
EFS Project Management	PM-7	Evaluate EFS Project reporting plan and actual EFS Project reports to verify EFS Project status is accurately traced using EFS Project metrics.
EFS Project Management	PM-8	Verify milestones and completion dates are planned, monitored, and met.
EFS Project Management	PM-9	Verify the existence and institutionalization of an appropriate EFS Project issue tracking mechanism that documents issues as they arise, enables communication of issues to proper stakeholders, documents a mitigation strategy as appropriate, and tracks the issue to closure. This should include but is not limited to technical and development efforts.
EFS Project Management	PM-10	Evaluate the system's planned life-cycle development methodology or methodologies (waterfall, evolutionary spiral, rapid prototyping,

EFS Project Task Item	Task #	Task Description
		incremental, etc.) to see if they are appropriate for the system being developed.
Business Process Reengineering	PM-11	Evaluate the EFS Project's ability and plans to redesign business systems to achieve improvements in critical measures of performance, such as cost, quality, service, and speed.
Business Process Reengineering	PM-12	Verify that there engineering plan has the strategy, management backing, resources, skills, and incentives necessary for effective change.
Business Process Reengineering	PM-13	Verify that resistance to change is anticipated and prepared for by using principles of change management at each step (such as excellent communication, participation, incentives) and having the appropriate leadership (executive pressure, vision, and actions) throughout their engineering process.
Risk Management	PM-14	Verify that an EFS Project Risk Management Plan is created and being followed. Evaluate the EFS Projects risk management plans and procedures to verify that risks are identified and quantified and that mitigation plans are developed, communicated, implemented, monitored, and complete.
Change Management	PM-15	Verify that a Change Management Plan is created and being followed. Evaluate the change management plans and procedures to verify they are developed and communicated,
Communication Management	PM-16	Verify that a Communication Plan is created and being followed. Evaluate the communication plans and strategies to verify they support communications and work product sharing between all EFS Project stakeholders; and assess if communication plans and strategies are effective, implemented, monitored, and complete.
Configuration Management	PM-17	Review and evaluate the configuration management (CM) plans and procedures associated with the development process.
Configuration Management	PM-18	Verify that all critical development documents, including but not limited to requirements, design, code and JCL are maintained under an appropriate level of control.
Configuration Management	PM-19	Verify that the processes and tools are in place to identify code versions and to rebuild system configurations from source code.
Configuration Management	PM-20	Verify that appropriate source and object libraries are maintained for training, test, and production and that formal sign-off procedures are in place for evaluating acceptability of and approving deliverables.

EFS Project Task Item	Task #	Task Description
Configuration Management	PM-21	Verify that appropriate processes and tools are in place to manage system changes, including formal logging of change requests and the review, prioritization, and timely scheduling of maintenance actions.
Configuration Management	PM-22	Verify that mechanisms are in place to prevent unauthorized changes being made to the system and to prevent authorized changes from being made to the wrong version.
Configuration Management	PM-23	Review the use of CM information (such as the number and type of corrective maintenance actions over time) in EFS Project management.
EFS Project Estimating and Scheduling	PM-24	Evaluate and make recommendations on the estimating and scheduling process of the EFS Project to ensure that the EFS Project budget and resources are adequate for the work- breakdown structure and schedule.
EFS Project Estimating and Scheduling	PM-25	Verify the schedules to assure that adequate time and resources are assigned for planning, development, review, testing, and rework.
EFS Project Estimating and Scheduling	PM-26	Examine historical data to determine if the EFS Project/department has been able to accurately estimate the time, labor, and cost of software development efforts.
EFS Project Personnel	PM-27	Examine the job assignments, skills, training, and experience of the personnel involved in program development to verify that they are adequate for the development task.
EFS Project Personnel	PM-28	Evaluate the staffing plan for the EFS Project to verify that adequate human resources will be available for development and maintenance.
EFS Project Personnel	PM-29	Evaluate the State's personnel policies to verify that staff turnover will be minimized.
EFS Project Organization	PM-30	Verify that lines of reporting and responsibility provide adequate technical and managerial oversight of the EFS Project.
EFS Project Organization	PM-31	Verify that the EFS Project's organizational structure supports training, process definition, independent Quality Assurance, Configuration Management, product evaluation, and any other functions critical for the EFS Project's success.
Subcontractors and External Staff	PM-32	Evaluate the use of subcontractors or other external sources of EFS Project staff (such as IS staff from another State organization) in EFS Project development.
Subcontractors and External Staff	PM-33	Verify that the obligations of sub-contractors and external staff (terms, conditions, statement of work, requirements, standards, development milestones, acceptance criteria, delivery dates, etc.) are clearly defined.

EFS Project Task Item	Task #	Task Description
Subcontractors and External Staff	PM-34	Verify that the subcontractors' software development methodology and product standards are compatible with the system's standards and environment.
Subcontractors and External Staff	PM-35	Verify that each subcontractor has and maintains the required skills, personnel, plans, resources, procedures, and standards to meet their commitment. This will include examining the feasibility of any offsite support of the EFS Project.
Subcontractors and External Staff	PM-36	Verify that any proprietary tools used by subcontractors do not restrict the future maintainability, portability, and reusability of the system.
State Oversight	PM-37	Verify that State oversight is provided in the form of periodic status reviews and technical interchanges.
State Oversight	PM-38	Verify that the State has defined the technical and managerial inputs the subcontractor needs (reviews, approvals, requirements, and interface clarifications, etc.) and has the resources to supply them on schedule.
State Oversight	PM-39	Verify that State staff has the ultimate responsibility for monitoring EFS Project cost and schedule.
Quality Management		
Quality Assurance	QA-1	Evaluate and make recommendations on the EFS Project's Quality Assurance plans, procedures, and organization.
Quality Assurance	QA-2	Verify that QA has an appropriate level of independence from EFS Project management.
Quality Assurance	QA-3	Verify that the QA organization monitors the fidelity of all defined processes in all phases of the EFS Project.
Quality Assurance	QA-4	Verify that the quality of all products produced by the EFS Project is monitored by formal reviews and signoffs.
Quality Assurance	QA-5	Verify that EFS Project self-evaluations are performed and that measures are continually taken to improve the process.
Quality Assurance	QA-6	Verify that QA has an appropriate level of independence; evaluate and make recommendations on the EFS Project's Quality Assurance plans, procedures, and organization.
Quality Assurance	QA-7	Evaluate if appropriate mechanisms are in place for EFS Project self-evaluation and process improvement.
Process Definition and	QA-8	Review and make recommendations on all defined processes and product standards associated with the system development.

EFS Project Task Item	Task #	Task Description
Product Standards		
Process	QA-9	Verify that all major development processes are defined and that the defined and approved processes and standards are followed in development.
Process Definition and Product Standards	QA-10	Verify that the processes and standards are compatible with each other and with the system development methodology.
Process Definition and Product Standards	QA-11	Verify that all process definitions and standards are complete, clear, up-to-date, consistent in format, and easily available to EFS Project personnel.
Training		
User Training and Documentation	TR-1	Review and make recommendations on the training provided to system users. Verify sufficient knowledge transfer for maintenance and operation of the new system.
User Training and Documentation	TR-2	Verify that training for users is instructor-led and hands-on and is directly related to the business process and required job skills.
User Training and Documentation	TR-3	Verify that user-friendly training materials and help desk services are easily available to all users.
User Training and Documentation	TR-4	Verify that all necessary policy and process and documentation is easily available to users.
User Training and Documentation	TR-5	Verify that all training is given on-time and is evaluated and monitored for effectiveness, with additional training provided as needed.
Developer Training and Documentation	TR-6	Review and make recommendations on the training provided to system developers.
Developer Training and Documentation	TR-7	Verify that developer training is technically adequate, appropriate for the development phase, and available at appropriate times.

EFS Project Task Item	Task #	Task Description
Developer Training and Documentation	TR-8	Verify that all necessary policy, process and standards documentation is easily available to developers.
Developer Training and Documentation	TR-9	Verify that all training is given on-time and is evaluated and monitored for effectiveness, with additional training provided as needed.
Requirements Management		
Requirements Management	RM-1	Evaluate and make recommendations on the EFS Project's process and procedures for managing requirements.
Requirements Management	RM-2	Verify that system requirements are well-defined, understood and documented.
Requirements Management	RM-3	Evaluate the allocation of system requirements to hardware and software requirements.
Requirements Management	RM-4	Verify that software requirements can be traced through design, configuration and test phases to verify that the system performs as intended and contains no unnecessary software elements.
Requirements Management	RM-5	Verify that requirements are under formal configuration control.
Security Requirements	RM-6	Evaluate and make recommendations on EFS Project policies and procedures for ensuring that the system is secure and that the privacy of client data is maintained.
Security Requirements	RM-7	Evaluate the EFS Project's restrictions on system and data access.
Security Requirements	RM-8	Evaluate the EFS Project's security and risk analysis.
Security Requirements	RM-9	Verify that processes and equipment are in place to back up client and EFS Project data and files and archive them safely at appropriate intervals.
Requirements Analysis	RM-10	Verify that an analysis of client, State and federal needs and objectives has been performed to verify that requirements of the system are well understood, well defined, and satisfy federal regulations.
Requirements Analysis	RM-11	Verify that all stakeholders have been consulted to the desired functionality of the system, and that users have been involved in prototyping of the user interface.

EFS Project Task Item	Task #	Task Description
Requirements Analysis	RM-12	Verify that all stakeholders have bought-in to all changes which impact EFS Project objectives, cost, or schedule.
Requirements Analysis	RM-13	Verify that performance requirements (e.g., timing, response time and throughput) satisfy user needs.
Requirements Analysis	RM-14	Verify that user's maintenance requirements for the system are completely specified.
Interface Requirements	RM-15	Verify that all system interfaces are exactly described, by medium and by function, including input/output control codes. data format, polarity, range, units, and frequency.
Requirements Analysis	RM-16	Verify those approved interface documents are available and that appropriate relationships (such as interface working groups) are in place with all agencies and organizations supporting the interfaces.
Requirements Allocation and Specification	RM-17	Verify that all system requirements have been allocated to either a software or hardware subsystem.
Requirements Allocation and Specification	RM-18	Verify that requirements specifications have been developed for all hardware and software subsystems in a sufficient level of detail to ensure successful implementation.
Reverse Engineering	RM-19	If a legacy system or a transfer system is or will be used in development, verify that a well-defined plan and process for reengineering the system is in place and is followed. The process, depending on the goals of the reuse/transfer, may include reverse engineering, code translation, re-documentation, restructuring, normalization, and re- targeting.
Operating Environment		
System Hardware	OE-1	Evaluate new and existing system hardware configurations to determine if their performance is adequate to meet existing and proposed system requirements.
System Hardware	OE-2	Determine if hardware is compatible with the State's existing processing environment, if it is maintainable, and if it is easily upgradeable. This evaluation will include, but is not limited to, CPUs and other processors, memory, network connections and bandwidth, communication controllers, telecommunications systems (LAN/WAN), terminals, printers, and storage devices.
System Hardware	OE-3	Evaluate current and EFS Projected vendor support of the hardware, as well as the State's hardware configuration management plans and procedures.

EFS Project Task Item	Task #	Task Description
System Software	OE-4	Evaluate new and existing system software to determine if its capabilities are adequate to meet existing and proposed system requirements.
System Software	OE-5	Determine if the software is compatible with the State's existing hardware and software environment, if it is maintainable, and if it is easily upgradeable. This evaluation will include, but is not limited to, operating systems, middleware, and network software including communications and file-sharing protocols.
System Software	OE-6	Current and EFS Projected vendor support of the software will also be evaluated, as well as the State's software acquisition plans and procedures.
Database Software	OE-7	Evaluate new and existing database products to determine if their capabilities are adequate to meet existing and proposed system requirements.
Database Software	OE-8	Determine if the database's data format is easily convertible to other formats, if it supports the addition of new data items, if it is scalable, if it is easily refreshable and if it is compatible with the State's existing hardware and software, including any on-line transaction processing (OLTP) environment.
Database Software	OE-9	Evaluate any current and EFS Projected vendor support of the software, as well as the State's software acquisition plans and procedures.
System Capacity	OE-10	Evaluate the existing processing capacity of the system and verify that it is adequate for current statewide needs for both batch and on-line processing.
System Capacity	OE-11	Evaluate the historic availability and reliability of the system including the frequency and criticality of system failure.
System Capacity	OE-12	Evaluate the results of any volume testing or stress testing.
System Capacity	OE-13	Evaluate any existing measurement and capacity planning program and evaluate the system's capacity to support future growth.
System Capacity	OE-14	Make recommendations on changes in processing hardware, storage, network systems, operating systems, COTS software, and software design to meet future growth and improve system performance.
Development Environment		
Development Hardware	DE-1	Evaluate new and existing development hardware configurations to determine if their performance is adequate to meet the needs of system development.

EFS Project Task Item	Task #	Task Description
Development Hardware	DE-2	Determine if hardware is maintainable, easily upgradeable, and compatible with the State's existing development and processing environment. This evaluation will include, but is not limited to, CPUs and other processors, memory, network connections and bandwidth, communication controllers, telecommunications systems (LAN/WAN), terminals, printers and storage devices.
Development Hardware	DE-3	Current and EFS Projected vendor support of the hardware will also be evaluated, as well as the State's hardware configuration management plans and procedures.
Development Software	DE-4	Evaluate new and existing development software to determine if its capabilities are adequate to meet system development requirements.
Development Software	DE-5	Determine if the software is maintainable, easily upgradeable, and compatible with the State's existing hardware and software environment.
Development Software	DE-6	Evaluate the environment as a whole to see if it shows a degree of integration compatible with good development. This evaluation will include, but is not limited to, operating systems, network software, CASE tools, EFS Project management software, configuration management software, compilers, cross-compilers, linkers, loaders, debuggers, editors, and reporting software.
Development Software	DE-7	Language and compiler selection will be evaluated with regard to portability and reusability (ANSI standard language, non-standard extensions, etc.).
Development Software	DE-8	Current and EFS Projected vendor support of the software will also be evaluated.
Software Development		
High-Level Design	SD-1	Evaluate and make recommendations on existing high-level design products to verify the design is workable, efficient, and satisfies all system and system interface requirements.
High-Level Design	SD-2	Evaluate the design products for adherence to the EFS Project design methodology and standards.
High-Level Design	SD-3	Evaluate the design and analysis process used to develop the design and make recommendations for improvements. Design standards, methodology and CASE tools used will be evaluated and recommendations for improvements made.
High-Level Design	SD-4	Verify that design requirements can be traced back to system requirements.

EFS Project Task Item	Task #	Task Description
High-Level Design	SD-5	Verify that all design products are under configuration control and formally approved before detailed design begins.
Detailed Design	SD-6	Evaluate and make recommendations on existing detailed design products to verify that the design is workable, efficient, and satisfies all high-level design requirements.
Detailed Design	SD-7	The design products will also be evaluated for adherence to the EFS Project design methodology and standards.
Detailed Design	SD-8	The design and analysis process used to develop the design will be evaluated and recommendations for improvements made.
Detailed Design	SD-9	Design standards, methodology and CASE tools used will be evaluated and recommendations made.
Detailed Design	SD-10	Verify that design requirements can be traced back to system requirements and high-level design.
Detailed Design	SD-11	Verify that all design products are under configuration control and formally approved before coding begins.
Job Control	SD-12	Perform an evaluation and make recommendations on existing job control and on the process for designing job control.
Job Control	SD-13	Evaluate the system's division between batch and on-line processing with regard to system performance and data integrity.
Job Control	SD-14	Evaluate batch jobs for appropriate scheduling, timing and internal and external dependencies.
Job Control	SD-15	Evaluate the appropriate use of OS scheduling software.
Job Control	SD-16	Verify that job control language scripts are under an appropriate level of configuration control.
Code	SD-17	Evaluate and make recommendations on the standards and processes currently in place for code development.
Code	SD-18	Evaluate the existing code base for portability and maintainability, taking software metrics including but not limited to modularity, complexity, and source and object size.
Code	SD-19	Code documentation will be evaluated for quality, completeness (including maintenance history) and accessibility.
Code	SD-20	Evaluate the coding standards and guidelines and the EFS Project's compliance with these standards and guidelines. This evaluation will include, but is not limited to, structure, documentation, modularity, naming conventions and format.

EFS Project Task Item	Task #	Task Description
Code	SD-21	Verify that developed code is kept under appropriate configuration control and is easily accessible by developers.
Code	SD-22	Evaluate the EFS Project's use of software metrics in management and quality assurance.
Unit Test	SD-23	Evaluate the plans, requirements, environment, tools, and procedures used for unit testing system modules.
Unit Test	SD-24	Evaluate the level of test automation, interactive testing and interactive debugging available in the test environment.
Unit Test	SD-25	Verify that an appropriate level of test coverage is achieved by the test process, that test results are verified, that the correct code configuration has been tested, and that the tests are appropriately documented.
System and Acceptance Testing		
System Integration Test	ST-1	Evaluate the plans, requirements, environment, tools, and procedures used for integration testing of system modules.
System Integration Test	ST-2	Evaluate the level of automation and the availability of the system test environment.
System Integration Test	ST-3	Verify that an appropriate level of test coverage is achieved by the test process, that test results are verified, that the correct code configuration has been tested, and that the tests are appropriately documented, including formal logging of errors found in testing.
System Integration Test	ST-4	Verify that the test organization has an appropriate level of independence from the development organization.
Pilot Test	ST-5	Evaluate the plans, requirements, environment, tools, and procedures for pilot testing the system.
Pilot Test	ST-6	Verify that a sufficient number and type of case scenarios are used to ensure comprehensive but manageable testing and that tests are run in a realistic, real-time environment.
Pilot Test	ST-7	Verify that test scripts are complete, with step-by-step procedures, required pre-existing events or triggers, and expected results.
Pilot Test	ST-8	Verify that test results are verified, that the correct code configuration has been used, and that the tests runs are appropriately documented, including formal logging of errors found in testing.
Pilot Test	ST-9	Verify that the test organization has an appropriate level of independence from the development organization.
Interface Testing	ST-10	Evaluate interface testing plans and procedures for compliance with industry standards.

EFS Project Task Item	Task #	Task Description
Acceptance and Turnover	ST-11	Acceptance procedures and acceptance criteria for each product must be defined, reviewed, and approved prior to test and the results of the test must be documented. Acceptance procedures must also address the process by which any software product that does not pass acceptance testing will be corrected.
Acceptance and Testing	ST-12	Verify that appropriate acceptance testing based on the defined acceptance criteria is performed satisfactorily before acceptance of software products.
Acceptance and Turnover	ST-13	Verify that the acceptance test organization has an appropriate level of independence from the subcontractor.
Acceptance and Turnover	ST-14	Verify that training in using the contractor-supplied software will be on-going throughout the development process, especially If the software is to be turned over to State staff for operation.
Acceptance and Turnover	ST-15	Review and evaluate implementation plan.
Data Management		
Data Conversion	DM-1	Evaluate the State's existing and proposed plans, procedures and software for data conversion.
Data Conversion	DM-2	Verify that procedures are in place and are being followed to review the completed data for completeness and accuracy and to perform data clean-up as required.
Data Conversion	DM-3	Determine conversion error rates and if the error rates are manageable.
Data Conversion	DM-4	Make recommendations on making the conversion process more efficient and on maintaining the integrity of data during the conversion.
Database Design	DM-5	Evaluate new and existing database designs to determine if they meet existing and proposed system requirements.
Database Design	DM-6	Recommend improvements to existing designs to improve data integrity and system performance.
Database Design	DM-7	Evaluate the design for maintainability, scalability, upgradable, concurrence, normalization (where appropriate) and any other factors affecting performance and data integrity.
Database Design	DM-8	Evaluate the EFS Project's process for administering the database, including backup, recovery, performance analysis and control of data item creation.
Operations Oversight		

EFS Project Task Item	Task #	Task Description
Operational Change Tracking	OO-1	Evaluate system's change requests and defect tracking processes.
Operational Change Tracking	OO-2	Evaluate implementation of the process activities and request volumes to determine if processes are effective and are being followed.
Customer and User Operational Satisfaction	OO-3	Evaluate user satisfaction with system to determine areas for improvement.
Operational Goal	OO-4	Evaluate impact of system on program goals and performance standards.
Operational Documentation	OO-5	Evaluate operational plans and processes.
Operational Processes and Activity	OO-6	Evaluate implementation of the process activities including backup, disaster recovery and day-to-day operations to verify the processes are being followed.

6.0 Appendix B: IV&V Methodology

Table 6-1 illustrates the individual ratings for the EFS Project Critical Components that BerryDunn used to determine the health of the EFS Project, and their corresponding rating definitions, for the Initial Assessment Report.

Table 6-1: EFS Project Critical Component Health Rating Definitions

Rating	Definition
5 – Excellent	No findings were identified by BerryDunn.
4 – Good	One or a few low severity risk(s)/issue(s), one medium severity risk/issue, and/or watch list items and/or observations were identified by BerryDunn.
3 – Average	Many low severity risks/issues, a few medium severity risks/issues, and/or one high severity risk/issue was/were identified by BerryDunn and not logged in the EFS Project's risk/issue log and/or lessons learned repository—or have been logged but the plans to address them are not resolving them.
2 – Fair	Many medium severity risks/issues and/or a few high severity risks/issues were identified by BerryDunn and not logged in the EFS Project's risk/issue log and/or lessons learned repository—or have been logged but the plans to address them are not resolving them.
1 – Poor	Many medium severity risks/issues and/or many high severity risks/issues were identified by BerryDunn and not logged in the EFS Project's risk/issue log and/or lessons learned repository—or have been logged but the plans to address them are not resolving them.

Table 6-2 below illustrates the overall ratings for the EFS Project BerryDunn used to determine the health of the EFS Project comprehensively, and their corresponding rating definitions, for the Initial Assessment Report. The overall health rating of the EFS Project reflects the average of the individual ratings for all the EFS Project Critical Components ratings.

Table 6-2: EFS Project Overall Health Rating Definitions

Rating	Definition
5.0 – 4.5	Excellent health
<4.5 – 4.0	Good health
<4.0 – 3.0	Average health
<3.0 – 2.0	Fair health
<2.0 – 1.0	Poor health

Table 6-3, below, provides definitions for risk and issue (and all risk/issue-related definitions—i.e., impact, probability, and severity), watch list item, observation, and lessons learned perspective that BerryDunn used to identify and rate findings for the Initial Assessment Report.

Table 6-3: Finding-Related Definitions

Term	Definition
Risk	An uncertain event or condition that, if it occurs, has a positive or negative effect on one or more EFS Project objectives. A risk is therefore an event or condition that might occur in the future.
Issue	An event or condition that is occurring in the EFS Project and having a negative effect on its objectives, standards, and/or requirements. An issue is therefore an event or condition that is currently occurring.
Impact	The effect that a risk will have on the EFS Project if it occurs or the effect that an issue is having on the EFS Project.
Probability	The likelihood of risk impact occurring on the EFS Project.
Severity	A measurement of an EFS Project risk (that considers the impact and probability) or issue that demonstrates the potential or actual effect on the EFS Project.
Observation	An event or situation in the EFS Project that might be noteworthy. Should the event or situation continue to occur, the observation might then be escalated and recorded as a watch list item.
Watch List Item	An event or situation in the EFS Project that might warrant monitoring to determine its potential impact (if any). These events or situations should be scrutinized and analyzed to determine if the item might need escalation to a risk or an issue, or if the watch list item resolves on its own.
Lessons Learned Perspective	Additional perspective(s) from BerryDunn on the EFS Project's lessons learned, including recommendations/guidance/considerations.

Table 6-4 below provides definitions for the different levels of risk impact ratings that BerryDunn uses for the Initial Assessment Report.

Table 6-4: Risk Impact Rating Definitions

Risk Impact Rating	Definition
5 – Severe	Very significant impact on the EFS Project.
4 – Significant	Significant impact on the EFS Project.
3 – Moderate	Some impact in key areas of the EFS Project.
2 – Minor	Minor impact overall on the EFS Project.
1 – Slight	Minor impact on secondary areas of the EFS Project.

Table 6-5 provides definitions for the different levels of risk probability ratings that BerryDunn used for the Initial Assessment Report.

Table 6-5: Risk Probability Rating Definitions

Risk Probability Rating	Definition
5	Near Certainty (80% – 100%)
4	Highly Likely (60% – 80%)
3	Likely (40% – 60%)
2	Unlikely (20% – 40%)
1	Remote (0% – 20%)

The Risk Severity Matrix in Table 6-6 illustrates the method BerryDunn used to determine risk severity (i.e., probability rating multiplied by impact rating), for any risks BerryDunn identified for the Initial Assessment Report.

Table 6-6: Risk Severity Matrix

Risk Severity Level (Probability x Impact)					
Probability	**Impact**				
—	**1 – Slight:**	**2 – Minor:**	**3 – Moderate:**	**4 – Significant:**	**5 – Severe:**
1 – Remote:	**1 – Low**	**2 – Low**	**3 – Low**	**4 – Low**	**5 – Medium**
2 – Unlikely:	**2 – Low**	**4 – Low**	**6 – Medium**	**8 – Medium**	**10 – Medium**
3 – Likely:	**3 – Low**	**6 – Medium**	**9 – Medium**	**12 – Medium**	**15 – High**
4 – Highly Likely:	**4 – Low**	**8 – Medium**	**12 – Medium**	**16 – High**	**20 – High**
5 – Near Certainty:	**5 – Medium**	**10 – Medium**	**15 – High**	**20 – High**	**25 – High**

Table 6-7 on the following page provides common attributes for the different levels of risk severity ratings (from Table 6-6 above) that BerryDunn used for the Initial Assessment Report.

Table 6-7: Risk Severity Rating Common Attributes

Risk Severity Value	Risk Severity Rating	Common Attributes
15 – 25	High	• Major disruption to EFS Project likely • Change in EFS Project approach required • Mitigation to EFS Project risk required • Management attention toward EFS Project risk required
5 – 12	Medium	• Some disruption in EFS Project • Consider an alternative EFS Project approach • Mitigation to EFS Project risk recommended • Management attention toward EFS Project risk recommended
1 – 4	Low	• Minimal disruption to EFS Project likely • Oversight required to help ensure EFS Project risk remains Low • Mitigation to EFS Project risk may not be necessary • Monitor the EFS Project risk

Table 6-8, below, provides common attributes for the different levels of issue severity ratings that BerryDunn used for the Initial Assessment Report.

Table 6-8: Issue Severity Rating Common Attributes

Issue Severity Rating	Common Attributes
High	• Major disruption to EFS Project occurring • Change in EFS Project approach required
Medium	• Medium disruption to EFS Project occurring • Consider an alternative approach in remediating EFS Project issue
Low	• Minimal disruption to EFS Project occurring • Oversight required of EFS Project issue • Remediation tasks recommended to help ensure EFS Project issue impact remains Low

7.0 Appendix C: Stakeholder Group Interview Sessions and Date

Table 7-1 illustrates BerryDunn's stakeholder group interview sessions and date.

Table 7-1: BerryDunn's Stakeholder Group Interview Sessions and Date

Interview Date	Stakeholder Group Name
September 6, 2022	Organizational Change Management
September 6, 2022	invenioLSI Project Leadership
September 6, 2022	invenioLSI Finance
September 7, 2022	Government Finance Officers Association (GFOA)
September 7, 2022	invenioLSI Development and Security
September 7, 2022	EFS Project Leadership
September 8, 2022	Spire Hawaii LLP
September 8, 2022	invenioLSI CEO
September 8, 2022	EFS Project Leadership Subcontractors
September 9, 2022	invenioLSI Technical Hosting
September 9, 2022	Functional Primaries
September 12, 2022	EFS Project Executive Sponsorship

8.0 Appendix D: Sample Deliverable Quality Checklist

Table 8-1 illustrates a sample format the State can use to provide direction and alignment on quality expectations with 3rd parties involved in the delivery of any EFS Project deliverables. BerryDunn recommends the EFS Project consider using the below checklist as a starting point to use when communicating deliverable expectations. These checklist items are intended to be applicable to more EFS Project deliverables and can be supplemented with deliverable-specific considerations.

Table 8-1: Universal Project Deliverable Review Checklist

Deliverable Review Area	Overall Purpose for Assessing Deliverable Review Area
Completeness	◢ Are all expected documents included and complete? ◢ Are all expected sections within documents included and complete?
Clarity	◢ Is the deliverable purpose clear? ◢ Is the content clearly written and presented?
Submission Format	◢ Are the documents readily accessible to the reviewers (e.g., named clearly and correctly, and in a common file format)? ◢ Is the content, including diagrams, legible? ◢ Is the document free of basic spelling, grammatical, and formatting errors?
Consistency	◢ Is the content consistent within the document and between related documents? ◢ Is the content provided at a consistent level of detail within and between documents?
Comprehensiveness	◢ Is the material presented at the expected level of detail given the phase of the project? ◢ Does the content include inputs from all relevant sources such as existing system documentation, federal guidance, and the RFP? ◢ Does the approach follow best practices and industry standards?
Accuracy	◢ Is the material accurate based on State business and project needs?
Contractual Compliance	◢ Does the deliverable satisfy the RFP and/or contractual requirements?
Regulatory Compliance	◢ Is the deliverable consistent with State and federal regulations and guidance? ◢ Is traceability to State and federal laws, regulations, and guidance demonstrated?