

Independent Review

Shared School District Data Management System

For the

State of Vermont
Agency of Education



**Submitted to the
State of Vermont, Office of the CIO
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Final V1.0

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1.0 Executive Summary

This section includes an introduction with a brief overview of the technology project and selected vendor(s), as well as any significant findings or conclusions. Significant findings or conclusions are supported by data provided later in the report.

1.1 Introduction

This Independent Review (IR) was undertaken to evaluate the viability of, and provide a recommendation to proceed or not proceed with respect to, a Shared School District Data Management System (SSDDMS) Project for the State of Vermont's (State's) Agency of Digital Services (ADS) and Agency of Education (AOE). For all Information Technology (IT) activities over \$1,000,000, State statute (or at the discretion of the Chief Information Officer [CIO]) require an IR by the Office of the CIO before the project can begin. This IR began on December 18, 2017, and the presentation of findings is scheduled for February 23, 2018. Up to 8 hours of contract negotiation services will be provided by BerryDunn in March, 2018 if desired by AOE/ADS.

The system being reviewed through this process differs from many other systems reviewed, as it is a collaboration between the AOE and the 62 supervisory unions/districts located throughout the State. As of the timing of this report, a final cost-sharing model has not been finalized; however, the AOE reports that a funding source—in the amount of \$3.1 million—has been appropriated by the State Legislature to fund the implementation and initial operations of the resulting SSDDMS.

Two events have been instrumental in driving the States pursuit of an SSDDMS. First, the passing of Vermont Act 58 of the 2015 legislative session (section E.500.1), which requires that all School Districts implement a UCOA by FY2020 so that financial data is comparable across Districts. Second, on February 10, 2017 the Vermont Association of School Business Officials (VASBO) voted in favor of implementing a central financial management system for District utilization. The detailed project background and objectives can be found in Section 4.0.

Prior to selection of the preferred vendor (PV), the AOE conducted several outreach activities with the Districts, as well as with the vendor community. The objective of these activities was to determine the problems facing the Districts, and how or if the vendor community could address them. The AOE identified two primary challenges facing the Districts: some were using aging financial technology that cannot be reconfigured to support the soon to be adopted Uniform Chart of Accounts (UCOA); and the Districts were employing unique COA, making central reporting of financial data a time-consuming and effort intensive. It is important to note that, though not yet statutorily mandated for use in all Districts, the AOE reports that the intent of the new system is that all Districts would take advantage of its capabilities, resulting in reduced annual costs for the Districts (based on current annual software maintenance and support

expenditures), a common platform for employing the UCOA, and decreased effort and time to generate reports by the AOE.

These activities and identification of issues resulted in the development of a series of functional and non-functional requirements. A cross representation of Supervisory Unions and School Districts (SU/SD), in both size of District as well as by current financial management system vendor, participated in requirement development and prioritization meetings. Similarly, the State involved Districts in the development of a Request for Proposal (RFP) for a common SSDDMS that was published on September 13, 2017. The AOE, ADS, and a selection of SU staff reviewed proposal submissions, conducted evaluations, and selected a PV based on a review of the vendors' technical and cost proposals, as well as vendor demonstrations. All vendors that passed the initial procurement gate for proposal compliance were invited to demonstrate their products.

Of the 11 risks identified during this IR, 4 of them have a high negative impact should they be realized. One of these has a high probability of occurring, while the remaining three have a medium probability of occurring. The highest probability risk with the highest impact is that the PV has not proposed a strong enough method for the data conversion process for participating Districts. Because data conversion is typically one of the most complex tasks in a system replacement project, this risk may have the highest impact on AOE and District staff as each District adopts and transitions to the new SSDDMS. The AOE has a mitigation strategy in place to ensure that there is clarity of, and sufficient support for the Districts as they migrate their data, which BerryDunn deems reasonable.

Two of the medium/high risks are also related to proposed software: support for data exchanges with other systems, and maintaining a common SSDDMS version for all implementations. The AOE and Districts have agreed that a multi-instance implementation of the SSDDMS supports both the centralized reporting and UCOA model, while providing the Districts with the autonomy required to manage the unique financial aspects of their respective Districts. This implementation may take one of two forms: a single, stand-alone instance of the SSDDMS for each District, or a single application instance, supported by unique database instances for each District. The final model has not yet been determined. AOE's risk mitigation strategy for these risks includes a combination of mitigation and acceptance, which seem reasonable to BerryDunn.

The remaining high impact risk is related to the adoption of the common system. If not mandated for use, or there are not significant incentives in place for the Districts to adopt the new SSDDMS, preliminary adoption rate may be low. The AOE is working on developing both incentives, as well as proposing strategies to encourage District use with the goal of 100% adoption. A rate less than 100% may impact the cost savings within a District, across the District, and for the State. The AOE's mitigation strategy for this risk is also acceptable to BerryDunn.

This report was written as a point-in-time report as of January 26, 2018.

1.2 Cost Summary

IT Activity Life Cycle:	6 Years
Total Life Cycle Costs:	\$5,725,459.36
Total Implementation Costs:	\$1,127,514.36
New Annual Operating Costs:	\$1,398,159.36 in Year 1 \$645,077.00 in Year 2 \$890,412.00 in Year 3 \$910,111.00 in Year 4 \$930,401.00 in Year 5 \$951,299.00 in Year 6
Current Annual Operating Costs:	\$2,233,702.27
Difference Between Current and New Operating Costs*:	Not applicable due to adoption rate assumptions in Year 1 Not applicable due to adoption rate assumptions in Year 2 -\$1,343,290.27 in Year 3 -\$1,323,591.27 in Year 4 -\$1,303,301.27 in Year 5 -\$1,282,403.27 in Year 6
Funding Source(s) and Percentage Breakdown If Multiple Sources:	N/A
Implementation: Federal Funds	\$0.00
Implementation: State Special Funds	\$0.00
Operations: State General Fund	\$5,725,459.36
Operations: State Special Funds	\$0.00
Operations: Federal Funds	\$0.00

*The difference between current and new operating costs for Years 1 and 2 have not been identified due to unknown SU/SD adoption rates in those years. Comparative costs were calculated beginning in Year 3, with the assumption that complete (all 62) District participation would be achieved at this point in the project life cycle. The costs identified in the Difference Between Current and New Operating Costs for Years 3 through 6 reflects the assumption of 100% District participation for each of these years. These assumptions were applied by BerryDunn while conducting the Cost Analysis and Model for Benefit Analysis.

1.3 Disposition of IR Deliverables

Deliverable	Highlights From the Review <i>Include explanations of any significant concerns</i>
Acquisition Cost Assessment	Acquisition of the SSDDMS will cost \$5,725,459.36 over a 6-year period.
Technology Architecture Review	The PV's vendor-hosted Software as a Service (SaaS) solution directly aligns with the State's requirement for a fully hosted SSDDMS software solution. The proposed vendor-hosted solution will provide the State and the Districts with future cost savings as the total cost of ownership is lowered. BerryDunn has found no major issues with the proposed system's architecture.
Implementation Plan Assessment	Based on the PV's RFP response reviewed by BerryDunn during this IR process, the proposed implementation plan (including a detailed project schedule) must be more fully elaborated. The implementation planning should occur prior to contract execution; the detailed schedule should be developed immediately upon contract execution.
Cost Analysis and Model for Benefit Analysis*	In our opinion, the benefits of the proposed solution outweigh the costs. Especially compared to the current environment of State and District financial management systems, which restrict standardization of business practices as well as timely consolidation and analysis of data, the SSDDMS will offer statewide improvements across a variety of areas. The State will see an annual average reduction of cost by \$1,313,146.52 over Years 3 – 6.
Impact on Net Operating Costs	Over the six-year project life cycle we are projecting a net cost reduction totaling \$7,676,754.26.

*The annual average reduction of cost noted in the Cost Analysis and Model for Benefit Analysis above, assumes 100% District participation for years 3 forward. This was an assumption applied by BerryDunn while conducting the Cost Analysis and Model for Benefit Analysis.

1.4 Identified High Impact and/or High Likelihood of Occurrence Risks

As a result of this IR, 11 risks were identified. One of these has a high probability of occurring if the mitigation strategy is not employed, or is not effective, with a high impact should it occur. Three of the risks have a medium probability of occurring and a high impact should they occur; two have a medium probability of occurring and a medium impact should they occur; three have

a low probability and a medium impact should they occur; and two have a low probability and a low impact should they occur.

Table 1 (on the following page) provides a summary of each risk and details the risk probability, impact, and overall rating. Table 2 contains the complete narrative for the singular high-probability and high-impact risk. A complete Risk Register, detailing all 11 risks, is in Attachment 2 of this report.

Table 1: Project Risk Summaries and Ratings

Risk ID	Risk Description	Risk Likelihood/ Probability: High	Risk Impact: High	Overall Risk Rating: High
R1	There is a risk that the PV has not proposed a strong enough method for the data conversion process for participating District sites.	High	High	High
R2	There is a risk that the SSDDMS will not be maintained at the same version level across all participating Districts, resulting in possible inconsistencies in reporting capabilities and potential incapacities to maintaining the UCOA.	Medium	High	High
R3	There is a risk that the majority of Districts will not choose to participate in the SSDDMS because participation is neither mandated nor have auxiliary participation incentives been formalized by the State.	Medium	High	Medium
R4	There is a risk that interfaces between the proposed solution and third-party products may be problematic, resulting in the inability for communication between the SSDDMS and other necessary District systems for data management and reporting.	Medium	High	Medium
R5	There is a risk to project scope, schedule, and cost due to the lack of defined deliverables and payment milestones.	Medium	Medium	Medium
R6	There is a risk that the PV's Implementation Plan is based on inaccurate estimations specific to the rate and extent of District participation in the SSDDMS.	Medium	Medium	Medium
R7	There is a risk that the PV's proposed District training will be insufficient.	Low	Medium	Low
R8	There is a risk that participating Districts will use different versions and levels of internet browsers, resulting in the possibility of some Districts being unable to use the proposed solution on laptop computers.	Low	Medium	Low

Risk ID	Risk Description	Risk Likelihood/Probability: High	Risk Impact: High	Overall Risk Rating: High
R9	There is a risk that the proposed solution's response time of 2 – 5 seconds, as noted in the PV's response, will be unacceptable for efficient performance at both the District and AOE level.	Low	Medium	Low
R10	There is a risk that the State's anticipated levels of involvement in the areas of system support and training may not accurately reflect what will be required of AOE, in light of what was proposed by the PV.	Low	Low	Low
R11	There is a risk that the proposed solution may not meet all the elements of the ADS technical response matrix.	Low	Low	Low

Table 2: High Impact and High Likelihood of Occurrence Risk

Risk ID	Risk Description	State’s Planned Risk Response	Reviewer’s Assessment of Planned Response
R1	<p>There is a risk that the PV has not proposed a strong enough method for the data conversion process for participating District sites. As it is currently proposed in the PV’s RFP response, Districts will be supported on a case-by-case basis during the first pass of data conversion. If all 62 Districts participate in the SSDDMS, the PV would need to complete 62 separate data-conversion training exercises. Conversion training has only been proposed to include one vendor-facilitated training session, after which the Districts will be largely accountable for data conversion procedures. Legacy system subject matter experts (SMEs) and extensive business-level work hours will be required to complete data conversions, which may not have been properly allocated for in the current implementation and financial plans of the proposed solution. This risk may result in the project exceeding both project budget and timeline.</p>	<p>The AOE Project Team and ADS enterprise architect (EA) will strategize with the PV as part of developing the implementation deliverables in the contract to identify the agreed-to activities (e.g., site impact analysis, planned conversion, and training). Strategies may include regionalized training for multiple SUs/SDs, additional training dates, recorded sessions, train the State trainer, or other options. The AOE Project Team appreciates this risk being identified and will work to mitigate as part of planning. The State will further plan for District data conversion and strategize with the PV. The call with the PV on 1/23/18 suggested additional potential to support Districts in this area. The project budget is not limited to the initial bid response and life cycle cost model. As of 2/23/18, as a result of negotiations with the State, the PV has agreed to provide unlimited hours to conduct data conversion activities across the districts.</p>	<p>The State has acknowledged the potential risk that the PV’s current Conversion Plan possess and has proposed strategies that will minimize negative impacts to participating Districts. Conducting site impact analysis and providing Districts with additional training during the conversion process are reasonable risk mitigation techniques. During a conference call with the PV, additional details were shared, further clarifying that the proposed standard conversion process has been proven and tested in other states. We would recommend that the contract reflect both what was proposed in the RFP response as well as what was shared during the conference call; outline the data conversion process; and detail all conversion activities with supporting timelines and responsible parties. Additionally, we recommend that standard data cleaning activities at the District level be built into this process.</p>

1.5 Other Key Issues

This section includes a recap of any key issues or concerns identified in the body of the report.

The contract between the State and the PV is only in draft form and is awaiting finalization. Therefore, this report is a point-in-time document that reflects current key issues and concerns. The State may mitigate risks upon contract finalization as a reflection of this report.

All key issues and concerns are identified throughout the body of this report under relevant subheadings.

1.6 Recommendation

This section provides the IR recommendation on whether or not to proceed with this technology project and vendor(s).

Based on our assessment as provided in this report, and assuming that the AOE executes the mitigation strategies as defined in Attachment 2, BerryDunn recommends that the AOE proceed with contract negotiations with the PV. However, should these negotiations stall due to the PV's reluctance to support AOE or their required mitigation strategies, then we recommend negotiations be halted and the AOE consider negotiating with one of the other finalist vendors next, or re-bidding, or halting the procurement altogether.

1.7 Independent Reviewer Certification

I certify that this IR Report is an independent and unbiased assessment of the proposed solution's acquisition costs, technical architecture, implementation plan, cost-benefit analysis, and impact on net operating costs, based on the information made available to me by the State.

Independent Reviewer Signature

Date

1.8 Report Acceptance

The electronic signature below represents the acceptance of this document as the final completed IR Report.

State of Vermont Chief Information Officer

Date

2.0 Scope of this IR

2.1 In-Scope

The scope of this document is fulfilling the requirements of Vermont Statute, Title 3, Chapter 45, §2222(g):

The Secretary of Administration shall obtain independent expert review of any recommendation for any information technology initiated after July 1, 1996, as information technology activity is defined by subdivision (a)(10), when its total cost is \$1,000,000 or greater or when required by the State Chief Information Officer.

The IR Report includes:

- An acquisition cost assessment
- A technology architecture review
- An Implementation Plan assessment
- A cost analysis and model for benefit analysis
- An impact analysis on net operating costs for the AOE carrying out the activity
- An overall risk assessment of the proposed solution
- Procurement advisory services

This IR was developed using this schedule:

- Week of December 18, 2017: Project initiation and meeting for scheduling a discovery request
- Week of January 15, 2018: On-site interviews, draft IR Report and Risk Register development
- Week of January 22, 2018: Interview with the vendor; risk identification and mitigation strategy review with the oversight project manager (OPM); continuation of the draft IR Report
- Week of January 29, 2018: Continuation of the draft IR Report
- Week of February 5, 2018 – February 12, 2018: Submit the initial draft IR Report to OPM; make initial updates to the IR Report and submit the updated draft IR Report to the OPM and CIO
- Week of February 19, 2018: Present the IR Report to the CIO; complete any follow-up work and updates to the IR Report; obtain CIO sign-off via the OPM on the IR Report

2.2 Out-of-Scope

If applicable, this section will describe any limits of this review and any area of the project or proposal that was not reviewed.

This IR Report does include procurement negotiation advisory services, however no draft contract was reviewed as it has not be developed yet.

3.0 Sources of Information

3.1 IR Participants

This section provides a list of individuals who participated in this IR.

Name	Employer and Title	Participation Topic(s)
Rhonda Hardaker	OPM, ADS	<i>Unavailable during week of on-site interviews</i>
Tim Holland	Project Manager, AOE	Kickoff Meeting Project Information Cost Analysis Technical Architecture Review Implementation Plan District Representative Interview Vendor Interview
Brian Townsend	Technical Lead, AOE	Kickoff Meeting Technical Architecture Review Implementation Plan Vendor Interview
Emily Byrne	Project Sponsor, AOE	Kickoff Meeting Executive Sponsor Interview
Sean Cousino	Project Coordinator, AOE	Kickoff Meeting Project Information Cost Analysis Technical Architecture Review Implementation Plan District Representative Interview Vendor Interview
Alena Marand	Project Coordinator/Business Lead, AOE	Kickoff Meeting Project Information Cost Analysis Technical Architecture Review Implementation Plan District Representative Interview Vendor Interview



Name	Employer and Title	Participation Topic(s)
Keith MacMartin	Oversight EA, ADS	Kickoff Meeting Technical Architecture Review Implementation Plan Vendor Interview
Jana Riddle	Technical Lead, AOE	Technical Architecture Review Implementation Plan Vendor Interview
Kathleen Barron	District Representative	District Representative Interview
Lori Bibeau	District Representative	District Representative Interview
Lisa Perreault	District Representative	District Representative Interview
Cheryl Scarzello	District Representative	District Representative Interview
John Stewart	District Representative (Retired)	District Representative Interview
Confidential for the purposes of this report	Chief Customer Officer, PV	Vendor Interview
Confidential for the purposes of this report	Director of Professional Services, PV	Vendor Interview
Confidential for the purposes of this report	Vice President (VP) of Development, PV	Vendor Interview
Confidential for the purposes of this report	VP of Sales, PV	Vendor Interview
Confidential for the purposes of this report	VP of Sales – Northeast Region, PV	Vendor Interview
Confidential for the purposes of this report	Product Manager, PV	Vendor Interview
Confidential for the purposes of this report	Senior Director of Product Tailoring and Data Services, PV	Vendor Interview
Confidential for the purposes of this report	Regional K-12 Executive, PV	Vendor Interview

3.2 IR Documentation

The chart below includes a list of the documentation utilized to conduct this IR.

Document Name	Description	Source
RFP – AOE Shared School District Data Management System 9-13-17	Sealed Bid IT RFP for a SSDDMS Project for AOE	AOE/Tim Holland/Rhonda Hardaker
AOE RFP Shared District Data Mgt-ADDENDUM 1 9-26-2017	Schedule Update for the SSDDMS RFP	AOE/Tim Holland/Rhonda Hardaker
AOE_SSDDMS_-_2018_EPMO_Legislative_Report	SSDDMS Legislative Report	AOE/Tim Holland/Rhonda Hardaker
IT ABC Form – AOE_SSDDMS_-_Signed_ABC_082417	IT Activity Business Case and Cost Analysis	AOE/Tim Holland/Rhonda Hardaker
Benefits of the SSDDMS	Intangible Benefit Analysis of SSDDMS	AOE/Tim Holland/Rhonda Hardaker
BidScoringFINAL	Final Bid Scores for All Vendors	AOE/Tim Holland/Rhonda Hardaker
CostBenefitAnalysis_07272017	Cost-Benefit Analysis Completed to Reflect SSDDMS Costs, Versus District Individualized Data Management Systems	AOE/Tim Holland/Rhonda Hardaker
Letter of Support_statewide software	Letter of Support for SSDDMS From the Vermont Association for School Business Officials (VASBO) to Implement the UCOA	AOE/Tim Holland/Rhonda Hardaker
“Preferred Vendor” Pricing only	PV Pricing Model	AOE/Tim Holland/Rhonda Hardaker
“Preferred Vendor” Response to Vermont RFP	PV Response to RFP	AOE/Tim Holland/Rhonda Hardaker
“Preferred Vendor”_Exhibit C – Functional_Non-Functional Requirements	PV Non-Functional Requirement answers, Excel Format	AOE/Tim Holland/Rhonda Hardaker
SSDDMS Committee Formation	Email From VASBO Outlining SSDDMS Committee Formation	AOE/Tim Holland/Rhonda Hardaker
SSDDMS Vendor Follow-Up Questions Comparison	Vermont AOE RFP Response Follow-Up Questions and Answers	AOE/Tim Holland/Rhonda Hardaker

Document Name	Description	Source
State of Vermont BAFO Cost Proposal "Preferred Vendor"	Best and Final Offer (BAFO) Pricing Model From PV	AOE/Tim Holland/Rhonda Hardaker
UCOA Statute	UCOA Statues Outline	AOE/Tim Holland/Rhonda Hardaker
VASBO Support for SSDDMS	Email of Support for SSDDMS From VASBO	AOE/Tim Holland/Rhonda Hardaker
SOW-AOE_SSDDMS_ExecSummary_FindingsandRecommendations_V1	SSDDMS Findings and Recommendations, Post Vendor-Bid Scoring Process	AOE/Tim Holland/Rhonda Hardaker
AOE_SSDDMS_-_Stakeholder List	Stakeholder Contact List for Scheduling Interviews	AOE/Tim Holland/Rhonda Hardaker

4.0 Project Information

4.1 Historical Background

This section includes relevant background that has resulted in this project.

Vermont Act 58 of the 2015 legislative session (section E.500.1) requires that all School Districts implement a UCOA by FY2020 so that financial data is comparable across Districts. In preparation for this change, the State—with contracted support from BerryDunn—conducted the following project planning activities:

- Surveyed the 62 Districts to understand the current business process and challenges encountered when developing and submitting each of the four primary AOE collections
- Identified the essential and desired requirements of a financial management and human resource (HR) system
- Documented the Vermont Business Rules for implementing the UCOA (VT Business Rules for COA)
- Conducted a cost analysis of options to implement the UCOA statewide
- Outlined a Communications Plan and project timeline for all Districts to be UCOA-compliant by FY2020

Currently, 62 School Districts and supervisory unions in the State maintain school finance data on disparate financial management systems. Throughout the year, the State requires Districts to submit a number of collections—each requiring substantial time and resource investments by the District—performed by end users in order to gather, clean, and export the required data to the State. Given this lack of standardization, statewide data computation is both costly and difficult, and information sharing between Districts is limited.

To address these challenges and to support a UCOA, the State issued a District SSDDMS RFP. The subject of this IR is the planned AOE SSDDMS.

4.2 Project Goal

This section includes an explanation regarding why the project is being undertaken.

The State anticipates that the acquisition of an SSDDMS will result in efficiencies at both state and district levels. Specifically, and as stated in the RFP issued on September 13, 2017, the project is being undertaken in order to achieve the following specific business values:

1. **Cost Savings:** Over the life cycle of the new solution, the total costs of a single shared system will be less than the current solution, which consists of many disparate and

separately managed School District data management systems. By acting now, the State will also be able to leverage dollars budgeted to consolidate existing systems for District and supervisory union mergers.

- 2. Customer Service Improvement:** The new solution will provide improved customer service on a number of fronts. First, centrally managing the unified COA will alleviate business managers' efforts required to implement and maintain metadata to reflect state financial and accounting requirements, as well as the State's (AOE's) burden of monitoring Districts for implementation and ongoing metadata maintenance. Second, capturing the majority of school finance data in a single system, from which AOE may query and report on data directly, will greatly reduce the time and effort that is currently expended by District business managers and their staff to translate and report their school finance and HR data to the state. The ability of AOE to query and report on data direct from Districts' systems will also greatly reduce AOE's time and effort to produce State and federal reporting. It will also make current-year school finance data accessible. Finally, a single School District data management system will allow business managers to share knowledge and best practices associated with their use of the system across School Districts, supervisory unions, and supervisory Districts.
- 3. Risk Reduction:** The new solution will reduce risk to the State in a number of ways: (A) In the process of providing a shared data management solution, the State will replace outdated technology at a number of Districts currently relying on unsupported technology. (B) This solution will improve the quality of financial and HR data by: (i) allowing AOE to centrally manage the UCOA and other standardized metadata, (ii) removing the potential for data input error during finance and staffing data collections, (iii) allowing for improved edit checks with access to inter entity transactional finance data, and (iv) allowing the State to easily access and report on audited financial data in time for federal reporting deadlines.
- 4. Compliance:** The new solution meets previously unmet State and federal financial and accounting compliance requirements, in particular through the implementation of the UCOA. The implementation of a statewide COA is mandated by Vermont Act 58 of the 2015 legislative session (section E.500.1). In addition, this UCOA also accommodates recent changes in federal reporting requirements as outlined in ESSA (Public Law 114-95). As a result, AOE will move from a system where supervisory unions, supervisory Districts, and School Districts map their data given various reporting standards into a single COA after the close of the fiscal year, to a system where School Districts record their transactions in the same COA throughout the school year, consistently across the state. The former process allowed room for various interpretations in data mapping, and often irreconcilable instances where local and State standards do not align, producing variance in data reporting practices. The new process will greatly reduce opportunities for misalignment in interpretation, and will thus decrease overall variance in data reporting practices. Furthermore, movement away from a manual data input and reporting process to an integrated system, in which the State can

query the data directly from the Districts, would greatly increase the data integrity of HR and staffing data used in State and federal reporting. While the State has the ability to compare and validate Districts' reported financial data to its final audits, there is no such verification process for HR data reported by Districts to the State. This new process will also allow AOE to report on audited data, which is currently a significant challenge given the collection time and effort required.

4.3 Project Scope

This section describes the project scope and major deliverables.

The scope of the project is included in the RFP issued on September 13, 2017. The RFP describes the need and solution sought, and includes a list of both functional and nonfunctional requirements. Requirements comprise the most definitive list of scope available. In scope are the technology solution, professional services for project management, professional services to provide technical work, hosting-related activities, professional services for maintenance and support, and all relevant project deliverables. As stated in Section 2.0 of the RFP, Scope of Work, the following business needs were outlined:

1. Create a single, shared data management solution that replaces the need for current, supervisory union, supervisory District, and/or District-owned and operated finance, HR, and operations management software. Supervisory union and supervisory District systems that are in scope for this project are listed in Attachment E
2. Reduce development and maintenance overhead created by multiple disparate systems
3. Migrate existing data and data structures to an environment that is integrated and capable of school, District, supervisory union/supervisory District, and State-level reporting needs
4. Capture and store finance, accounting, and personnel data in compliance with State and UCOA requirements
5. Ensure the technical aspects and capabilities of the new integrated system are service-oriented to the business needs
6. Replicate production data in a separate environment for the purpose of disaster recovery, reporting, statistical analysis, and business intelligence efforts

4.3.1 Major Deliverables

Part 5 of Exhibit C of the RFP issued on September 13, 2017, outlined a series of 12 potential SSDDMS deliverables across four project phases.

Table 3: Potential SSDMS Project Phases and Deliverables

Potential Project Phases	Potential Deliverables
Pre-Implementation	<p>D1 – Project Management Methodology: How does the Bidder plan to manage the project?</p> <p>D2 – Gap Analysis Report: How will the proposed solution accommodate the RFP requirements, and will any customization be necessary?</p> <p>D3 – Resource Traceability Matrix (RTM): What will the process be for monitoring and evaluating project progress (to be developed jointly by VT AOE and Bidder)?</p> <p>D4 – Implementation Project Plan: What is the process that the Bidder proposes to follow in order to roll out software installation, data exchange design and development, system configuration, customization needs, testing, training, etc.?</p> <p>D5 – Data Conversion Plan: How will the Bidder manage the process of data migration?</p>
Implementation	<p>D6 – Project Status Reports: What tasks have been completed versus planned, and what needs to happen to move further toward project completion?</p> <p>D7 – Project Milestone Status Reports: Notification and details following the completion of project milestones (e.g., software installation, data exchange design and development, system configuration, system customization, testing)</p>
Ongoing Maintenance and Support	<p>D8 – Support Model: What multi-level support options and support delivery channels will be provided to both the State and end users of the proposed solution? What types of database and monitoring activities will be provided? Please detail response time(s) to include software break/fix response processes.</p> <p>D9 – System Maintenance and Upgrade Approach: Please describe how pre-packaged and/or application-wide upgrades will be provided. How will custom modules and functionality be supported? Please detail any provisioning, managing, and maintaining policies for the proposed solution.</p> <p>D10-Standard Warranty Terms and Period: Provide a description of standard warranty terms and period(s).</p>
Post-Implementation	<p>D11 – Training Schedule/Resources: When and where can users find training opportunities following implementation, and into the future (e.g. refresh training, new employees)?</p> <p>D12 – Issue Log/Help Desk Process Documentation: When and where can users get help with certain kinds of non-training technical issues?</p>

4.4 Project Phases, Milestones, and Schedule

This section provides a list of the major project phases and milestones, as well as a high-level schedule.

The PV’s proposal did not provide a direct response to the 12 deliverables posed as questions in Table 3, nor was the proposal content deliverables-based. Instead, the PV included a high-level project schedule that reflected activities across the six different project phases, with 21 of the 22 milestones planned for the Execution Phase. Table 4 provides a summary view of the PV’s proposed project phases, milestones, and timeframes.

Table 4: PV Proposed Project Phases and Milestones

PV Project Phase	Estimated Dates	Milestone(s)
Planning	1/2/2018 – 2/23/2018	N/A
Discovery	2/5/2018 – 4/27/2018	N/A
Preparation	3/5/2018 – 5/4/2018	<ul style="list-style-type: none"> • System accessible by client admins
Execution	4/9/2018 – 3/29/2019	<ul style="list-style-type: none"> • Budget prep data conversion prepared • Charts of Accounts verified • Employee demographic conversion templates complete • Deduction conversion tables templates complete • HR reference tables templates complete • Vendor file data conversion templates completed • Database refresh • PO test print verified • Database refresh • AP check test print verified • PO test print on final PO form stock • A/P check test print on final check stock • Payroll leave conversion templates complete • Employee pay rates entry complete • Database refresh • Employee gross to net verified • Payroll check test print verified • Direct deposit pre-note verified • Payroll parallel verified • Fund accounting/purchasing • Payroll/human resources
Confirmation	3/4/2019 – 7/1/2019	N/A
Support	7/1/2019 – 7/26/2019	N/A

The lack of direct mapping with the RFP's deliverables is an open and substantial project risk that has been detailed for State mitigation. In order to resolve this risk, the State has developed a risk mitigation strategy that includes working with the PV to clearly identify key milestones and deliverables, based on RFP requirements, and tie deliverables to payments during implementation of the proposed SSDDMS. (See Risk 5 in the Risk Register.) It is BerryDunn's recommendation that this take place before contract execution.

5.0 Acquisition Cost Assessment

This section lists all acquisition costs in the table below (i.e., the comprehensive list of the one-time costs to acquire the proposed system/service). It does not include any costs that reoccur during the system/service life cycle.

Table 5: Acquisition Cost Assessment

Acquisition Costs	Cost	Comments
Hardware Costs	\$0.00	As a fully vendor-hosted solution, the server hardware, server operating system licensing, networking components, and infrastructure security components do not need to be procured or managed by the Districts.
Software Costs	\$0.00	The proposed software is an annual subscription-based solution; the costs include subscription costs and database software license fees. Each cost reoccurs annually from Year 1 through Year 6, and costs are impacted by the number of participating Districts. Please see Section 9.0: Impact Analysis on Net Operating Cost.
Implementation Services	\$314,437	These Implementation Services costs includes: <ul style="list-style-type: none"> • Project Management • Design (Architect Solution) • Development (Build, Configure, or Aggregate)/Testing
Professional Services	\$570,375	Listed as a continuation of Implementation Services, the following Professional Services costs include: <ul style="list-style-type: none"> • Training and System

Acquisition Costs	Cost	Comments
		Configuration <ul style="list-style-type: none"> • Conversion Assistance • Parallel Payroll Assistance • Supervisory Union University Training (Perpetual) • Seminar Training Subscription (Through December 2019) • Office Hours (Through December 2019) • Implementation Support (Through December 2019) • Business Process Review • Reporting and Analytics Services • Fixed Travel Costs
Technical Staff/State Labor for Project Management	\$0.00	At this time, the State does not anticipate the need for an allocated AOE resource for training and system support activities. This has been documented in Risk 7 of the Risk Register.
3% Department of Information and Innovation (DII) Estimated Charge for Enterprise Architect (EA) and Project Oversight	\$32,202	No Comment
Independent Review	\$21,900	No Comment
Total Acquisitions Costs	\$938,914	Does not include ongoing state labor to operate and maintain the system.

Implementation Project Management cost is not included in this table because costs for Technical Staff/State Labor for Project Management were taken from the IT ABC form, which did

not specifically identify the cost for a project manager. We anticipate that project management will be an implementation cost, and not an ongoing cost, for this project.

1. Cost Validation: Describe how you validated the acquisition costs.

- Implementation Services costs come from the BAFO completed by the PV on December 19, 2017 (\$314,437).
- Professional Services costs come from the BAFO completed by the PV on December 19, 2017 (\$570,375).
- 3% DII Estimated Charge for EA and Project Oversight costs were calculated by multiplying the total initial implementation costs (minus the cost of BerryDunn's IR, or \$21,900) by 3% (\$32,202).
- BerryDunn's IR cost (\$21,900).
- During BerryDunn's validation of costs, the following assumptions were used:
 - o Districts will transition to the SSDDMS during the first three years of the project life cycle.
 - o Complete District (all 62) participation will be required in order for the State to fully experience projected cost savings and business value benefits.

2. Cost Comparison: How do the acquisition costs of the proposed solution compare to what others have paid for similar solutions? Will the State be paying more, less, or about the same?

In December 2016, as part of the effort to assist the AOE with its transition to a UCOA, BerryDunn conducted a cost analysis across each of the three options under consideration by the State, designed to achieve compliance with State reporting and UCOA requirements for all Districts.

Research activities supporting our analysis included:

- Web survey to selected peer states and system vendors:
 - o Interviews with peer states (Iowa, Maine, Michigan, and Rhode Island) to identify best practices
 - o Interviews with vendors (SunGard and Tyler Technologies) to determine high-low cost estimates
- Third-party sources (e.g., GovWin)
- Review of current financial operating costs from both AOE and a small sample size of Districts

- Review of FY 2015 – 2016 student enrollment numbers for all SU and SDs

For the purpose of this report, the low-to-high costs determined for Option C, *the costs associated with the State implementing a centrally-operated system that gives all Districts remote access*, will be referenced.

During the cost analysis, one vendor (SunGard) provided a cost structure that was based on the number of enrolled students in each District. The vendor then gave a low and high cost estimate of \$5.00 and \$9.00. Using this information, BerryDunn developed the following equations based on the total number of enrolled students in Vermont.

Table 6: Option C Calculations

Option C Calculations		
Cost Calculated	Logic	Details
State System Costs Low	$85,201 \times \$15.00 \times 0.85$	<ul style="list-style-type: none"> 85,201 represents the total number of enrolled students in Vermont. This number is then multiplied by \$15.00, which considers the \$5.00 low quote from SunGard and adds \$10.00 to account for additional vendor-cost variances. <p>Additionally, this calculation includes multiplication by 0.85 in order to reflect 15% Financial Management System (FMS) savings.</p>
State System Costs High	$85,201 \times \$19.00 \times 0.95$	<ul style="list-style-type: none"> 85,201 represents the total number of enrolled students in Vermont. This number is then multiplied by \$19.00, which considers the \$9.00 high quote from SunGard and adds \$10.00 to account for additional vendor-cost variances. <p>Additionally, this calculation includes multiplication by 0.95 in order to reflect 5% FMS savings.</p>
AOE RFP Costs	N/A	<ul style="list-style-type: none"> Range is based on BerryDunn's knowledge of the RFP process and experience working with State agencies through the RFP life cycle (planning-contract execution).

Following the above calculations, Table 7 captures Option C cost estimates. Please note that the State system cost estimates are based on software costs and do not include implementations costs.

Table 7: Option C Costs

Item	# of Districts Option C Low	# of Districts Option C High	Cost Option C Low	Cost Option C High
AOE RFP Costs			\$75,000.00	\$125,000.00
State System	62	62	\$1,086,312.75	\$1,537,878.05
Total:	62	62	\$1,161,312.75	\$1,662,878.05

It is important to note that a few differences between the PV and Option C costs. The PV outlined software costs across a six-year project life cycle (totaling \$3,579,010), whereas Option C costs fail to identify a timeframe. Additionally, the PV cost model is based on user licenses via a subscription model, and Option C was calculated by number of enrolled students.

If we assume that the Option C cost reflects what the State would pay for software in a single year and then compare this figure to the PV’s proposed costs for Year 3, which serves all 62 districts, then the PV’s software costs are substantially lower than our Option C estimates.

Table 8: Comparison of System Estimates

	Number of Participating Districts	Software Costs Low	Software Costs High
BerryDunn Cost Analysis for State System Software Costs	62	\$1,086,312.75	\$1,537,878.05
PV SSDDMS Software Costs	62	\$686,625.00 (Year 3)	\$747,512.00 (Year 6)
	Cost Variance:	\$399,687.75	\$790,366.05

3. Cost Assessment: Are the acquisition costs valid and appropriate in your professional opinion? List any concerns or issues with the costs.

Given that the State issued a request for vendor finalists to submit a BAFO, we are in agreement that the acquisition costs are valid and appropriate for the proposed solution.

Additional Comments on Acquisition Costs:

As proposed, the SSDDMS is a hosted, multi-tenant, SaaS, subscription-based cost model. BerryDunn applied the following assumptions when assessing the acquisition and implementation of the SSDDMS:

- Full adoption by all 62 Districts will occur over a three-year period.
- 20 Districts will adopt the SSDDMS during Year 1.
- An additional 20 Districts will adopt the SSDDMS during Year 2.
- The remaining 22 Districts will adopt the SSDDMS during Year 3.
 - o The above rates of district adoption (20 in Year 1, 20 in Year 2, and 22 in Year 3) are not intended to be predictive, but were used in order to calculate potential SSDDMS costs during the first three years of the project. Given that the rate of district adoption is unknown (See Risk 6), the State could anticipate any variety of possibilities, from 0 to 100%.



- The subscription license, originally proposed by the PV for Year 1, is \$637,500 plus a flat rate \$65,000 to provision and utilize the reporting accompanying database, resulting in a total Year 1 software cost of \$702,500.
- We made the assumption that subscription fees would be distributed evenly across all Districts.
- Based on these assumptions, the software costs for Year 1 are estimated to be \$270,645 ($\$637,500 / 62 \text{ total districts} * 20 \text{ adopting districts} + \$65,000 \text{ first-year fee}$).
- For the purposes of this report, we assume that all professional services for implementation would occur during Year 1 because there was no objective model to distribute these costs over the three years of District adoption.

6.0 Technology Architecture Review

After performing an independent technology architecture review of the proposed solution, our review considers the following.

1. State's IT Strategic Plan: Describe how the proposed solution aligns with each of the State's IT Strategic Principles:

- 1) Leverage successes of others, learning best practices from outside the State
- 2) Leverage shared services and cloud-based IT, taking advantage of IT economies of scale
- 3) Adapt the Vermont workforce to the evolving needs of State government
- 4) Apply EA principles to drive digital transformation based on business needs
- 5) Couple IT with business process optimization to improve overall productivity and customer service
- 6) Optimize IT investments via sound project management
- 7) Manage data commensurate with risk
- 8) Incorporate metrics to measure outcomes

The PV's proposed system is a web-enabled hosted solution. The PV will manage the technology infrastructure, and apply patches and upgrades on a schedule to be communicated to the AOE and Districts. The application architecture is n-tier (three-tier), with user interface, application, and database layers. The application is built on ASP.NET and Genero 4GL languages, and it can be accessed using industry-common browsers, including Chrome, Internet Explorer, Edge, and FireFox. The PV requires that these are up to date (latest two versions). The database is Microsoft Structured Query Language (SQL) Server. If utilized by the Districts, the mobile version of the application supports iOS7 and greater, and Android 4 and greater. An ADS representative has reviewed the technical architecture of the proposed system and reports no major risks associated with it.

2. Sustainability: Comment on the sustainability of the solution's technical architecture (i.e., is it sustainable?)

The application is developed using ASP.NET and a 4GL language called Genero, which is a 4GL tool used to develop applications in an open-source environment. The database is Microsoft SQL Server. The only aspect of this environment that may seem non-standard is Genero. However, the fact that the proposed solution is hosted and subscription-based, and that the ADS representative was not concerned by this tool, combined to mitigate this issue.

3. Security: Does the proposed solution have the appropriate level of security for the proposed activity it will perform (including any applicable State or federal standards)? Please describe.

For this hosted solution, the vendor describes multiple levels of security. These include security of the hosting data center itself, data in transit secured through Certificate Authority (CA) secure protocols, and application security secured with role-based security and integration with Microsoft Active Directory Lightweight Data Access Protocol (LDAP) services. Though BerryDunn recommends that the State request and receive security testing results from the vendor prior to signing the contract, these levels seem appropriate.

4. Compliance with the Section 508 Amendment to the Rehabilitation Act of 1973, as amended in 1998: Comment on the solution's compliance with accessibility standards as outlined in this amendment. Reference: <http://www.section508.gov/content/learn>.

The PV's response to the AOE's non-functional requirement A6 ("System should through duration of contract meet all relevant accessibility standards for users with disabilities") was "N" (Not included). This response was challenged during this IR, resulting in the PV's amended response that indicates: "We will work with the DOE to ensure that the software is compatible with the relevant standards as specified on the state's Accessibility Policy, <http://www.vermont.gov/portal/policies/accessibility.php>. For items requiring software modifications, we will work with the DOE to add these items to our development roadmap so that they are included in future releases. We can also work with the state on how best to deploy assistive technologies like JAWS." This response, along with other clarifying responses to requirements that resulted in negative responses, has been provided to the AOE for incorporation into the contract (by reference). BerryDunn is satisfied with this response.

5. Disaster Recovery: What is your assessment of the proposed solution's Disaster Recovery Plan; do you think it is adequate? How might it be improved? Are there specific actions that you would recommend to improve the plan?

The PV's proposed Disaster Recovery and Data Continuity approach seems reasonable. BerryDunn recommends that the State gain access to the Disaster Recovery Plan, and quarterly test results for review prior to contract execution, as well as access to subsequent quarterly tests upon request.

6. Data Retention: Describe the relevant data retention needs and how they will be satisfied for or by the proposed solution.

The PV responded affirmatively to the following requirement: "The system should allow for general ledger and subordinate modules to retain data indefinitely in conformance to configured data retention rules (i.e. data is not archived at year end unless such is configured in the system)." BerryDunn is satisfied that this response meets the data retention needs of the State, as well as the needs of the Districts (if they are different than the State).

7. Service-Level Agreement: What are the post implementation services and service levels required by the State? Is the vendor's proposed service-level agreement adequate to meet these needs in your judgement?

As of this report, the Service-Level Agreement (SLA) is evolving. Sample SLA language has been provided to the State for review, and the PV has indicated a willingness to refine it in collaboration with the State.

8. System Integration: Is the data-export reporting capability of the proposed solution consumable by the State? What data is exchanged and what systems (State and non-State) will the solution integrate/interface with?

The ADS and the AOE report that two key integration points are necessary: The State's Statewide Longitudinal Data System (SLDS) (for security) and the need for the proposed system to interface with legacy District finance systems during the transitional period, when not all Districts are using the new SSDDMS. The PV has indicated that these interfaces will be accommodated.

7.0 Assessment of Implementation Plan

After assessing the Implementation Plan, BerryDunn will comment on each of the following.

1. The reality of the implementation timetable.

The PV's proposed timetable reflects project activities spanning 1.5 years, from January 2018 through July 2019. The project start date assumes contract execution occurring by January 2, 2018, which is not feasible because at the time of this report, contract negotiations with the PV have not yet begun.

Project planning, discovery, and preparation phases are anticipated to be completed within the first five months following kickoff. During these phases, District staff (e.g., project manager, core team, IT) will be required in order to provide the PV with an understanding of District-specific business practices and desired functionality, as well as to assist in the development of training materials. Further District staff will be largely responsible for data conversion activities and verification. Given the heavy reliance on District personnel, as well as the PV's approach to implementing each District on a case-by-case basis, it is unlikely that the projected timetable will be attainable. (Note: Please see Section 12.0: Risk Register for risks associated with the PV's implementation plan and the assumed rate of District adoption.)

2. Readiness of impacted divisions/departments to participate in this solution/project (consider current culture, staff buy-in, organizational changes needed, and leadership readiness).

An overwhelming majority of Districts have expressed the desire to move to a centralized system during VASBO meetings, as well as during fact-finding interviews/surveys with BerryDunn. The State has prepared Districts by developing a business rules document to support the UCOA through shared best practices and District data standardization. With this document and a variety of complimentary State communications (e.g., memos, project website, in-person meetings), Districts are well informed of the UCOA and reporting changes that will be required of both their staff and financial management systems. Some Districts have expressed reluctance to move into the proposed SSDDMS because of recent systems investments. The State anticipates that these non-conforming Districts will migrate into the shared system toward the end of the project life cycle in order to achieve further cost savings.

It is our recommendation that in order to properly assess and support District readiness and participation in the SSDDMS, the State will need to conduct Organizational Change Management (OCM) activities throughout the project life cycle. (Note: Please see Section 12.0: Risk Register for risks associated with the rate and extent of District adoption.)

3. Do the milestones and deliverables proposed by the PV provide enough detail to hold them accountable for meeting the Business needs in these areas:

A. Project Management

The PV has proposed that it will use Project Management Institute (PMI) concepts to manage the implementation of the SSDDMS. Additionally, a remote project manager has been identified by the PV to work with Districts during the implementation of the system. The Standard Contract for Technology Services was included in the RFP. It will be important that the State uses this template in order to confirm the PV's responsibilities regarding project management practices, deliverables, and activity management.

B. Training

The PV's proposal suggested both in-person and electronic (web-based) District training opportunities, taking place during Phases 1 – 4 of the project. The PV conducts training in lab settings and suggests that class sizes do not exceed 20 end users. The number of proposed District trainings is currently unclear, as is the potential need for State training resource involvement. (Note: Please see Section 12.0: Risk Register for risks associated with the PV's proposed training.)

C. Testing

The PV's proposal highlights District responsibility in SSDDMS testing and verification, including the testing of third-party interfaces. It is our recommendation that sample test scripts be shared by the PV, that the PV outlines the process for user acceptance testing (UAT), and that the State clearly identifies acceptance metrics for each project deliverable.

D. Design

The design activities are limited to configuring the SSDDMS to accommodate the State-specific UCOA and reporting requirements. The proposed plan, along with the PV's experience in many other states, seems to adequately address this.

E. Conversion (If Applicable)

The PV's proposed process for data conversion relies on Districts utilizing standard data conversion (Excel) templates in order to import data. The PV will provide Districts with guidance during the first pass of data conversion, after which Districts should be largely self-sufficient. (Note: Please see Section 12.0: Risk Register for risks associated with the PV's conversion process.)

F. Implementation Planning

The high-level Implementation Plan as described in the PV's proposal must be elaborated on, resulting in a detailed Implementation Plan and schedule that can be executed during the implementation period described in a previous section of this report.

G. Implementation

The primary data points available for BerryDunn's assessment of the PV's ability to successfully implement the proposed system for the AOE are the thousands of previous implementations, as well as the recent Arkansas statewide implementation that is cited by the PV in its proposal. Outreach to references has been conducted by AOE staff, with no references reporting major implementation challenges.

4. Does the State have a resource lined up to be the project manager on the project? If so, does this person possess the skills and experience to be successful in this role in your judgement? Please explain.

Yes, the AOE has identified a project manager to manage the implementation of the SSDDMS. The designated project manager has experience with other financial management solutions, and understands the needs and challenges currently facing both the Districts and the State.

Additional Comments on Implementation Plan:

8.0 Cost-Benefit Analysis

This section involves four tasks:

- 1) Perform an independent Cost Benefit Analysis. Information provided by the State may be used, but the reviewer must validate it for accuracy and completeness.
- 2) Provide a Lifecycle Cost Benefit Analysis spreadsheet as an Attachment 1 to this report. A sample format is provided at the end of this report template.
 - A. The cost component of the cost/benefit analysis will include all one-time acquisition costs, on-going operational costs (licensing, maintenance, refresh, etc.) plus internal costs of staffing and “other costs”. “Other costs” include the cost of personnel or contractors required for this solution, enhancements/upgrades planned for the lifecycle, consumables, costs associated with system interfaces, and any costs of upgrading the current environment to accept the proposed solution (new facilities, etc.).
 - B. The benefit side of the cost/benefit will include: 1. Intangible items for which an actual cost cannot be attributed. 2. Tangible savings/benefit such as actual savings in personnel, contractors, or operating expense associated with existing methods of accomplishing the work which will be performed by the proposed solution. Tangible benefits also include additional revenue which may result from the proposed solution.
 - C. The cost benefit analysis will be for the IT activity's lifecycle.
 - D. The format will be a column spreadsheet with one column for each year in the lifecycle. The rows will contain the itemized costs with totals followed by the itemized benefits with totals.
 - E. Identify the source of funds (federal, state, one-time vs. ongoing). For example, implementation may be covered by federal dollars but operations will be paid by State funds.
- 3) Perform an analysis of the IT ABC form (Business Case/Cost Analysis) completed by the Business.
- 4) Respond to the questions/items listed below.

1. Analysis Description: Provide a narrative summary of the cost-benefit analysis conducted. Be sure to indicate how the costs were independently validated.

To perform a cost-benefit analysis, BerryDunn used the IT Reporting Form and the PV's RFP response, which were both provided by the AOE for review. Each cost figure was independently validated using the following methods:

- **Hardware Costs:** Because the proposed solution is based on a hosted SaaS model, no new hardware costs are expected.
- **Software Costs:** The AOE estimated annual software costs to be \$706,809 on the IT ABC Form. The PV's BAFO provides two line items for software costs: Subscription Costs (for the production, operational database), and Database Software License Fees



(for the reporting databases). Additionally, neither the IT ABC Form nor the PV's BAFO considered a gradual adoption of the SSDDMS over a multi-year period. The RFP and PV BAFO costs reflect adoption by all Districts in Year 1. While this is a best-case scenario, AOE reports that a phased approach over several years is more likely to occur.

Table 9: PV Software Costs

Cost Type	IT ABC FORM	PV's BAFO Response
Software Subscription Cost	\$766,809	\$637,500 (Years 1 – 2; Increasing for Years 3 – 6)
Database Software License Fees	\$0	\$65,000 (Year 1) \$30,000 (Annually for Years 2 – 6)
Total Annual Costs	\$766,809	\$702,500 (\$637,500 + \$65,000; Year 1) \$667,500 (\$637,500 + \$30,000; Year 2) \$686,625 (\$656,625 + \$30,000; Year 3) \$706,324 (\$676,324 + \$30,000; Year 4) \$726,614 (\$696,614 + \$30,000; Year 5) \$747,512 (717,512 + \$30,000; Year 6)

Using the adoption rate assumptions listed in Item #2 below, the more likely scenario is that the costs for Years 1 – 2 will be significantly less (e.g., estimated at \$205,645 for Year 1, and \$441,290 for Year 2).

- Training Costs: Training costs for Year 1 are included in a pool line item in the PV's BAFO response for \$570,375, which includes:
 - o Training and System Configuration
 - o Conversion Assistance
 - o Parallel Payroll Assistance
 - o Supervisory Union University Training (Perpetual)
 - o Seminar Training Subscription (Through December 2019)
 - o Office Hours (Through December 2019)
 - o Implementation Support (Through December 2019)
 - o Business Process Review
 - o Reporting and Analytics Services
 - o Fixed Travel Costs

An estimated ongoing training cost is included in the BAFO for Years 2 – 6 at \$15,187 annually.

- Other Costs: Implementation Services: Implementation costs for Year 1 include Project Management (\$94,500), Design (\$204,750), and Development (\$15,187). Also included as a pool line item in the PV's BAFO response is \$570,375, which includes:

- o Training and System Configuration
 - o Conversion Assistance
 - o Parallel Payroll Assistance
 - o Supervisory Union University Training (Perpetual)
 - o Seminar Training Subscription (Through December 2019)
 - o Office Hours (Through December 2019)
 - o Implementation Support (Through December 2019)
 - o Business Process Review
 - o Reporting and Analytics Services
 - o Fixed Travel Costs
- Personnel Costs: The AOE estimates \$248,882.27 is currently being spent on personnel costs to manage and support the current financial systems, including providing central reporting. AOE estimates that fewer staff will be required to support the SSDDMS because it will be centrally managed and maintained by the PV, and will be configured to support the UCOA for use across the Districts. The AOE estimates that \$188,600 is required to support this new model.

A detailed breakdown of these costs can be found in Attachment 1. Overall, the projected life cycle cost for the new SSDDMS (\$5,725,459.36) represents a significant decrease from the existing life cycle cost for the current system (\$13,402,214) over a six-year life cycle.

2. Assumptions: List any assumptions made in your analysis.

The following are the assumptions used when conducting our analysis of the costs and benefits of the SSDDMS:

- Full adoption by all 62 Districts will occur over a three-year period.
- 20 Districts will adopt the SSDDMS during Year 1.
- An additional 20 Districts will adopt the SSDDMS during Year 2.
- The remaining 22 Districts will adopt the SSDDMS during Year 3.
 - o The above rates of district adoption (20 in Year 1, 20 in Year 2, and 22 in Year 3) are not intended to be predictive, but were used in order to calculate potential SSDDMS costs during the first three years of the project. Given that the rate of district adoption is unknown (See Risk 6), the State could anticipate any variety of possibilities, from 0 to 100%.
- The subscription license, originally proposed by the PV for Year 1, is \$637,500 plus a flat rate \$65,000 to provision and utilize the reporting accompanying database for Year 1

(reduced to \$30,000 annually thereafter), resulting in a total Year 1 software cost of \$702,500.

- We made the assumption that subscription fees would be distributed evenly across all Districts.
- Based on these assumptions:
 - o The software costs for Year 1 are estimated to be \$270,645 ($\$637,500 / 62 * 20 + \$65,000$).
 - o The software costs for Year 2 are estimated to be \$441,290 ($\$637,500 / 62 * 40 + \$30,000$).
 - o The software costs for Year 3 are estimated to be \$686,625 ($\$656,625 + \$30,000$).
- For purposes of this report, we assume that all professional services for implementation would occur during Year 1 because there was no objective model to distribute these costs over the three years of District adoption.

3. Funding: Provide the funding source(s). If multiple sources, indicate the percentage of each source for both acquisition costs and on-going operational costs over the duration of the system/service life cycle.

The AOE has secured \$3.1 million for the acquisition and implementation of the SSDDMS. Because the SSDDMS, as proposed by the PV, is a subscription-based model, and the adoption rate by the Districts is still unknown, it remains unclear how long this secured funding will support the SSDDMS (including implementation costs) until additional funding is secured, or the Districts begin paying for the SSDDMS in an apportioned manner.

4. Tangible Costs and Benefits: Provide a list and description of the tangible costs and benefits of this project. A cost is “tangible” if it has a direct impact on implementation or operating costs (an increase = a tangible cost and a decrease = a tangible benefit). The cost of software licenses is an example of a tangible cost. Projected annual operating cost savings is an example of a tangible benefit.

Tangible Costs:

- The PV has proposed a subscription-based cost model, which will result in a cost of \$3,579,010 for licenses over the six-year project life cycle.
- In Year 1 of the project, professional service costs will increase over current professional services costs by \$878,632.09 as initial implementation services and training are conducted. This assumes that all implementation services will be conducted within the

first year. If implementation services are spread over multiple years, this increase would be less.

Tangible Benefits:

- With full district participation in Years 3 – 6, the State will see an average reduction of operating costs by \$1,313,146.52 annually.
- Years 2 – 6 of the project will experience cost savings in the areas of professional services by \$45,095.27 annually. See Table 10 for details.
- The PV’s proposed SSDDMS software costs (acquisition, licensing, maintenance, and support) will result in significant reductions compared to current State/District costs, resulting in a total cost reduction of \$8,329,910.00 over the course of six years.

5. Intangible Costs & Benefits: Provide a list and descriptions of the intangible costs and benefits. It’s “intangible” if it has a positive or negative impact but is not cost related. Examples: Customer Service is expected to improve (intangible benefit) or Employee Morale is expected to decline (intangible cost).

Intangible Costs: None identified.

Intangible Benefits:

- Expansion of common skill sets across all of the SSDDMS participating SU/SDs, resulting in an increased ability for districts to provide support to each other.
- Reduce District costs for ongoing local IT system support. As articulated in the RFP, the implementation of a centralized SSDDMS is anticipated to provide the following intangible benefits:
 - o Increased capacity for business managers and state data analysts to use advanced software tools to integrate school finance, HR, and other related data; apply standards and measures; analyze results; meet State and federal reporting requirements; explore and identify best operational practices; and inform desired finance and operational strategies.
- Ensure better consistency and reliability of data, because the management of data can be automated and reconciled across modules/activities.
- Enable more efficient State reporting on audited data.
- Reduce the potential for data entry error during the creation of finance and staffing data collections.

- Reduce the administrative burden of translating and reporting school finance and HR data to the State.

6. Costs vs. Benefits: Do the benefits of this project (consider both tangible and intangible) outweigh the costs in your opinion? Please elaborate on your response.

Based on AOE estimates for current operational costs for the District-level financial systems, and the BAFO response provided by the PV, it is clear that the ongoing operational costs with the new system will result in significant savings to the Districts/AOE. The primary benefits include the management of standardized metadata (e.g. uniform chart of accounts), centralized reporting, and a hosted SaaS implementation model, all of which allows for lower support costs across the state. All of these benefits assume a 100% adoption rate for the 62 Districts within a reasonable timeframe from initial implementation. (We are estimating a three-year adoption rate to achieve 100% for purposes of the financial analysis provided within this report.)

7. IT ABC Form Review: Review the IT ABC form (Business Case/Cost Analysis) created by the Business for this project. Is the information consistent with your IR and analysis? If not, please describe. Is the life cycle that was used appropriate for the technology being proposed? If not, please explain.

The information in our IR is consistent with the IT ABC form. However, slight variations are present as a result of the State having provided financials for a 10-year life cycle of proposed solution, while our analysis reduced the life cycle down to 6 years in order to be in alignment with the PV's cost structure.

The proposed life cycle for the SSDDMS seems to be aligned with industry standards.

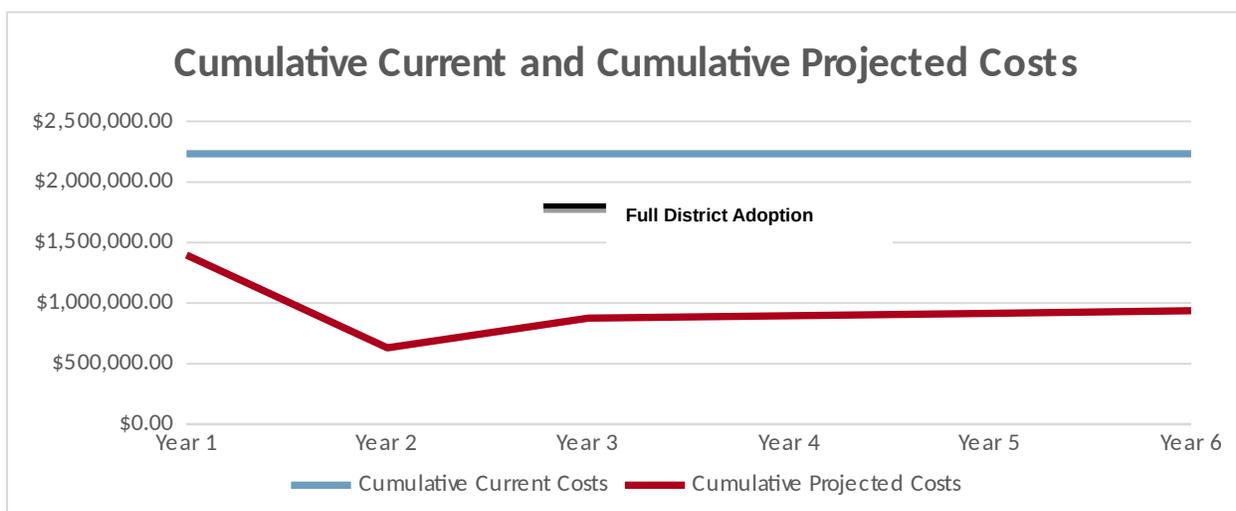
Additional Comments on the Cost-Benefit Analysis:

9.0 Impact Analysis on Net Operating Costs

- 1.) Perform a lifecycle cost impact analysis on net operating costs for the agency carrying out the activity, minimally including the following:
 - a) Estimated future-state ongoing annual operating costs, and estimated lifecycle operating costs. Consider also if the project will yield additional revenue generation that may offset any increase in operating costs.
 - b) Current-state annual operating costs; assess total current costs over span of new IT activity lifecycle
 - c) Provide a breakdown of funding sources (federal, state, one-time vs. ongoing)
- 2.) Create a table to illustrate the net operating cost impact.
- 3.) Respond to the items below.

1. Insert a table to illustrate the net operating cost impact.

Figure 1: Current and Project Costs Over Project Life Cycle



2. Provide a narrative summary of the analysis conducted and include a list of any assumptions.

As proposed, the SSDDMS is a hosted, multi-tenant, SaaS, subscription-based cost model. The following assumptions were used when assessing the acquisition and implementation of the SSDDMS:

- No cost increase or replacement to current model over a six-year period based on our review of the IT ABC form.
- Full adoption by all 62 Districts will occur over a three-year period.

- 20 Districts will adopt the SSDDMS during Year 1.
- An additional 20 Districts will adopt the SSDDMS during Year 2.
- The remaining 22 Districts will adopt the SSDDMS during Year 3.
 - o The above rates of district adoption (20 in Year 1, 20 in Year 2, and 22 in Year 3) are not intended to be predictive, but were used in order to calculate potential SSDDMS costs during the first three years of the project. Given that the rate of district adoption is unknown (See Risk 6), the State could anticipate any variety of possibilities, from 0 to 100%.
- The subscription license, originally proposed by the PV for Year 1, is \$637,500 plus a flat rate \$65,000 to provision and utilize the reporting accompanying database for Year 1 (reduced to \$30,000 annually thereafter), resulting in a total Year 1 software cost of \$702,500.
- We made the assumption that subscription fees would be distributed evenly across all Districts.
- Based on these assumptions:
 - o The software costs for Year 1 are estimated to be \$270,645 ($\$637,500 / 62 * 20 + \$65,000$).
 - o The software costs for Year 2 are estimated to be \$441,290 ($\$637,500 / 62 * 40 + \$30,000$).
 - o The software costs for Year 3 are estimated to be \$686,625 ($\$656,625 + \$30,000$).
- For purposes of this report, we assume that all professional services for implementation would occur during Year 1 because there was no objective model to distribute these costs over the three years of District adoption.
- The AOE provided estimated annual costs to maintain the current financial systems, currently in use at the 62 Districts. The majority of these costs are borne by the Districts, and not by the State. These costs include two primary components: Annual Software Maintenance (\$1,984,820) and Professional Services (or District and AOE support resources) (\$248,882.27). The sum of these result in an AOE-estimated annual operational cost of \$2,233,702.27. This estimate is across all Districts and the AOE, and does not specifically describe the operational costs borne solely by the State.



- Our analysis of the impact on net operating costs differs from other IRs in that we assessed the overall impact to operating costs, regardless of whether they are State costs or District costs.
- Based on the PV BAFO, and the AOE's estimates of current operational costs, the Districts and AOE will experience a positive impact on net operating costs, starting in Year 3 of the phase-in implementation of the SSDDMS.
- The difference in operating costs in Years 1 – 2 are difficult to assess because the Districts are likely to adopt the SSDDMS in stages. The last row in Table 10 is provided to compare the anticipated operational costs (based on provided assumption) with the current operational costs (provided by the AOE during this IR). The Baseline Current Cost row remains consistent throughout all years to enable this comparison. Though there is anecdotal evidence to support an assertion that the SSDDMS implementation will have a positive impact on net operating costs starting in Year 1, this assertion is difficult to prove definitively, or without making many assumptions that may not be valid. There is even a possibility that the impact on net operating costs may increase for the first two years of implementation, if additional support personnel are required to support the multiple financial systems, and duplicate software maintenance costs (to support redundant systems) are required.

3. Explain any net operating increases that will be covered by federal funding. Will this funding cover the entire life cycle? If not, please provide the breakouts by year.

Our cost analysis did not identify any costs that will be covered by federal funding.

4. What is the break-even point for this IT activity (considering implementation and on-going operating costs)?

Please see Item #2 above. Based on the AOE's estimate of current operating costs and the PV's BAFO cost model, it is clear that the combination of Districts and AOE will see a positive impact on net operating costs, starting as late as Year 3 of the SSDDMS implementation and possibly earlier. At the time of this report, the funding model for the SSDDMS remains unclear. If the State decides to fully support the SSDDMS costs for a period of time, then the Districts may see a positive impact on net operating costs, while the State may see an increase in net operating costs. If a funding model is implemented that apportions the SSDDMS costs to the Districts, then the Districts should still see a reduction in their net operating costs as they adopt the SSDDMS, while the AOE should see no impact on net operating costs. However, in the latter scenario, the AOE should be able to redirect some personnel time away from SSDDMS support to add value in other areas of the AOE. Since the adoption rate is unknown, as is the impact of specific District adoption on the overall operational costs (i.e., how much the current operational costs would decrease based on specific Districts adopting the system), determining a break-even point for this IT activity is not feasible.

Table 10: Estimated Impacts on Operating Costs

Estimated Net Impact on Operating Costs							
Impact on Operating Costs	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	6-Year Totals
Professional Services (Non-Software Costs)							
Current Costs	\$248,882.27	\$248,882.27	\$248,882.27	\$248,882.27	\$248,882.27	\$248,882.27	\$1,493,293.62
Projected Costs	\$1,127,514.36	\$203,787.00	\$203,787.00	\$203,787.00	\$203,787.00	\$203,787.00	\$2,146,449.36
Software Acquisition, Maintenance, Support, and Licenses Costs							
Current Costs	\$1,984,820.00	\$1,984,820.00	\$1,984,820.00	\$1,984,820.00	\$1,984,820.00	\$1,984,820.00	\$11,908,920.00
Projected Costs	\$270,645.00	\$441,290.00	\$686,625.00	\$706,324.00	\$726,614.00	\$747,512.00	\$3,579,010.00
Baseline Current Cost	\$2,233,702.27	\$2,233,702.27	\$2,233,702.27	\$2,233,702.27	\$2,233,702.27	\$2,233,702.27	
Baseline Projected Costs	\$1,398,159.36	\$645,077.00	\$890,412.00	\$910,111.00	\$930,401.00	\$951,299.00	
Cumulative Current Costs	\$2,233,702.27	\$4,467,404.54	\$6,701,106.81	\$8,934,809.08	\$11,168,511.35	\$13,402,213.62	
Cumulative Projected Costs	\$1,398,159.36	\$2,043,236.36	\$2,933,648.36	\$3,843,759.36	\$4,774,160.36	\$5,725,459.36	
Net Impact on Professional Services	\$878,632.09	(\$45,095.27)	(\$45,095.27)	(\$45,095.27)	(\$45,095.27)	(\$45,095.27)	\$653,155.74

Estimated Net Impact on Operating Costs							
Impact on Operating Costs	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	6-Year Totals
Net Impact on Software Acquisition, Maintenance, Support, and Licenses Costs	(\$1,714,175.00)	(\$1,543,530.00)	(\$1,298,195.00)	(\$1,278,496.00)	(\$1,258,206.00)	(\$1,237,308.00)	(\$8,329,910.00)
Net Impact on Operating Costs:	N/A due to adoption rate assumptions	N/A due to adoption rate assumptions	(\$1,343,290.27)	(\$1,323,591.27)	(\$1,303,301.27)	(\$1,282,403.27)	(\$7,676,754.26)

Sources and Assumptions (Please see Section 8.2 for additional assumptions used in the analysis of net impact on operating costs).

- 1 The State's current costs will be the same over the next six years if the current environment is maintained.
- 2 Projected costs in Years 1 – 2 assume a rate of District adoption of 20 per year.
- 3 Full District adoption (62 of 62) will be achieved in Year 3 of the project.
- 4 Maximum cost savings and business benefits will be realized when all Districts are participating in the SSDDMS. It is only once this happens that a true comparison can be made to the current environment costs, where all Districts maintain disparate financial management systems.
- 5 Because assumptions have been made regarding the number of Districts participating in the SSDDMS in Years 1 – 2, the resulting net impacts on operating costs for those years are speculative.
- 6 Additional costs will result in Year 1 of the project as Districts transition to the SSDDMS while others maintain existing systems.

10.0 Risk Assessment & Risk Register

Perform an independent risk assessment and complete a Risk Register. The assessment process will include performing the following activities:

- A. Ask the independent review participants to provide a list of the risks that they have identified and their strategies for addressing those risks.
- B. Independently validate the risk information provided by the State and/or vendor and assess their risk strategies.
- C. Identify any additional risks.
- D. Ask the Business to respond to your identified risks, as well as provide strategies to address them.
- E. Assess the risks strategies provided by the Business for the additional risks you identified.
- F. Document all this information in a Risk Register and label it Attachment 2. The Risk Register should include the following:

- Source of Risk: Project, Proposed Solution, Vendor or Other
- Risk Description: Provide a description of what the risk entails
- Risk ratings to indicate: Likelihood and probability of risk occurrence; Impact should risk occur; and Overall risk rating (high, medium or low priority)
- State's Planned Risk Strategy: Avoid, Mitigate, Transfer or Accept
- State's Planned Risk Response: Describe what the State plans to do (if anything) to address the risk
- Timing of Risk Response: Describe the planned timing for carrying out the risk response (e.g. prior to the start of the project, during the Planning Phase, prior to implementation, etc.)

1. Reviewer's Assessment of State's Planned Response: Indicate if the planned response is adequate/appropriate in your judgment and if not what would you recommend.

Additional comments on risks:

The risks identified during this IR can be found in the Risk Register in Attachment 2 of this report. The timing of the provided risks is either "prior to contract execution", or "subsequent to contract execution", with a few also reflecting a combination with "parts mitigated prior to contract execution and parts subsequent still (ongoing mitigation)." For those for which a "prior to contract execution" timing is recommended, BerryDunn suggests that the entire contract be reviewed by a team of professionals with experience in reviewing contracts. This review can be multi-faceted: one team could focus on the legal components of the contract (i.e., the terms and conditions); a separate team could be engaged to review the statement of work, schedule, milestones, and deliverables described within the contract. These reviews could be

accommodated using AOE staff with contract experience, by engaging ADS, or by leveraging an external firm.

11.0 Attachment 1 – Life Cycle Cost-Benefit Analysis

IR of the AOE SSDMS								
Description	Initial Implementation	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Total
Fiscal Year	FY 2018	FY2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	
Hardware								
Server Hardware	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Desktop Hardware	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Hardware Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Software								
Subscription Cost	\$0	\$205,645	\$411,290	\$656,625	\$676,324	\$696,614	\$717,512	\$3,364,010
Database Software: License Fees	\$0	\$65,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$215,000
Software Total	\$0	\$270,645	\$441,290	\$686,625	\$706,324	\$726,614	\$747,512	\$3,579,010
Training								
Training	\$570,375	\$0	\$15,187.00	\$15,187.00	\$15,187.00	\$15,187.00	\$15,187.00	\$646,310
Training Total	\$570,375	\$0	\$15,187.00	\$15,187.00	\$15,187.00	\$15,187.00	\$15,187.00	\$646,310
Other								
Implementation Services	\$314,437	\$0	\$0	\$0	\$0	\$0	\$0	\$314,437
Other Total	\$314,437	\$0	\$0	\$0	\$0	\$0	\$0	\$314,437
Personnel – Additional								
Technical Staff/State Labor for Project	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0



IR of the AOE SSDMS								
Description	Initial Implementation	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Total
Fiscal Year	FY 2018	FY2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	
Management								
3% DII Estimated Charge for EA and Project Oversight	\$32,202	\$0	\$0	\$0	\$0	\$0	\$0	\$32,202
IR	\$21,900	\$0	\$0	\$0	\$0	\$0	\$0	\$21,900
State Labor to Operate and Maintain the Solution	\$188,600	\$0	\$188,600	\$188,600	\$188,600	\$188,600	\$188,600	\$1,131,600
Personnel Total	\$242,702	\$0	\$188,600	\$188,600	\$188,600	\$188,600	\$188,600	\$1,185,702
Total	\$1,127,514	\$270,645	\$645,077	\$890,412	\$910,111	\$930,401	\$951,299	\$5,725,459

Sources and Assumptions

1 Assumes 20 of 62 Districts adopt

2 Assumes 40 of 62 Districts adopt

3 These assumptions are based on flat-line annual cost divided by 62, then multiplied by 20 and 40 respectively; not taking into consideration District size.

12.0 Attachment 2 – Risk Register

Data Element	Description
Risk #	Sequential number assigned to each risk to be used when referring to the risk.
Risk Probability/Impact/ Overall Rating	Two-value indicator of the potential impact of the risk if it were to occur, along with an indicator of the probability of the risk occurring. Assigned values are <i>High</i> , <i>Medium</i> , or <i>Low</i> .
Source of Risk	Source of the risk, which may be the Project, the Proposed Solution, the PV, or Other.
Risk Description	Brief narrative description of the identified risk.
State's Planned Risk Strategy	Strategy the AOE plans to take to address the risk. Assigned values are <i>Avoid</i> , <i>Mitigate</i> , <i>Transfer</i> , or <i>Accept</i> .
State's Planned Risk Response	Risk response the State plans to adopt based on discussions between State staff and BerryDunn reviewers.
Timing of Risk Response	Planned timing for carrying out the risk response, which may be <i>Prior to Contract Execution</i> or <i>Subsequent to Contract Execution</i> .
Reviewer's Assessment of State's Planned Response	Indication of whether BerryDunn reviewers feel the planned response is adequate and appropriate, and recommendations if not.

Risk #: R1	Risk Likelihood/Probability: High	Risk Impact: High	Overall Risk Rating: High
Source of Risk: Interviews With AOE Staff			
<p>Risk Description: There is a risk that the PV has not proposed a strong enough method for the data conversion process for participating District sites. As it is currently proposed in the PV's RFP response, Districts will be supported on a case-by-case basis during the first pass of data conversion. If all 62 State Districts participate in the SSDDMS, the PV would need to complete 62 separate data conversion training exercises. Conversion training has only been proposed to include one vendor-facilitated training session, after which the Districts will be largely accountable for data conversion procedures. Legacy system SMEs and extensive business-level work hours will be required to complete data conversions, which may not have been properly allocated for in the current implementation and financial plans of the proposed solution. This risk may result in the project exceeding both project budget and timeline.</p>			
State's Planned Risk Strategy: <i>Mitigate</i>			
<p>State's Planned Risk Response: The AOE Project Team and the ADS EA will strategize with the PV as part of developing the Implementation Deliverables in the contract to identify the agreed-to activities (e.g., site impact analysis, planned conversion, and training). Strategies may include regionalized training for multiple SUs/SDs, additional training dates, recorded sessions, train the State trainer, or other options. The AOE Project Team appreciates this risk being identified and will work to mitigate as part of planning. The State will further plan for District data conversion and strategize with the PV. The call with the PV on 1/23/18 suggested additional potential to support Districts in this area. The project budget is not limited to initial bid response and life cycle cost model. As of 2/23/18, as a result of negotiations with the State, the PV has agreed to provide unlimited hours to conduct data conversion activities across the districts.</p>			

Risk #: R1	Risk Likelihood/Probability: High	Risk Impact: High	Overall Risk Rating: High
Timing of Risk Response: <i>Prior to Contract Execution</i>			
<p>Reviewer’s Assessment of State’s Planned Response: The State has acknowledged the potential risk that the PV’s current Conversion Plan possesses and has proposed strategies that will minimize negative impacts to participating Districts. Conducting site impact analysis and providing Districts with additional training during the conversion process are reasonable risk mitigation techniques. During a conference call with the PV, additional details were shared, further clarifying that the proposed standard conversion process has been proven and tested in other states. We would recommend that the contract reflect both what was proposed in the RFP response as well as what was shared during the conference call; outline the data conversion process; and detail all conversion activities with supporting timelines and responsible parties. Additionally, we recommend that standard data cleaning activities at the District level be built into this process.</p>			

Risk #: R2	Risk Likelihood/Probability: Medium	Risk Impact: High	Overall Risk Rating: High
Source of Risk: Interviews With the Vermont AOE Staff			
<p>Risk Description: There is a risk that the SSDDMS will not be maintained at the same version level across all participating Districts, resulting in possible inconsistencies in reporting capabilities and potential incapacities to maintaining the UCOA. Currently, the PV’s response does not sufficiently detail how patches and version updates would be applied across all participating Districts. Because each participating District will acquire its own unique instance of the PV’s data management system, it is possible that configurations will not be synchronized across the state. Additionally, potential future turnover of business staff at the District level would enhance this risk, as maintenance of the system version control could be overlooked during changeover. A variance of versions across participating Districts could make it difficult, or even unfeasible, for AOE to retract data from the UCOA and other reporting metrics, resulting in issues of noncompliance with legislative Statute 16 V.S.A. § 164.</p>			
State’s Planned Risk Strategy: <i>Mitigate</i>			
<p>State’s Planned Risk Response: The AOE Project Team and EA will strategize with the PV to design and implement an architecture that minimizes or eliminates this risk, such as a single application instance (i.e., single application instance instead of many data instances that can result from a multi-tenant environment). The PV may also have a new version of the proposed solution soon that will further mitigate and/or eliminate this risk while still meeting States requirements. In addition, AOE will establish policy in collaboration with a Change Control Board (yet to be established) to address this. The PV has said that even in a multi-tenant environment architecture, it can push out its updates to all or some subsets at once to further minimize this risk.</p>			
Timing of Risk Response: <i>Prior to Contract Execution</i>			
<p>Reviewer’s Assessment of State’s Planned Response: The State’s mitigation strategy to form a Change Control Board in order to guide and establish system version and maintenance policies is well advised. Regardless of a single application instance or many, agreeing to a process of version control with the PV, as well as the Districts, will be critical to minimizing this risk. System maintenance and versioning practices should be detailed in the contract to reflect best practice policies in order to ensure consistency for all participating Districts and PV accountability.</p> <p>Additionally, the following clarification provided by the PV helps to minimize and eliminate the risk of inconsistent SSDDMS versioning, and as such we recommend it is included in the contract with the State: <i>“The Preferred Vendor’s software will be installed in our multi-tenant, hosting environment. Critical software patches and maintenance releases including the year-end release will be installed for all VT Supervisory Unions at the same time. When upgrading to a new version of the Preferred Vendor’s software, a test instance will be installed first so that training can occur and the users can become familiar with the new features prior to implementing in production. We recommend a phased approach for implementing the new version in production for all Districts.”</i></p> <p>This risk and mitigation response also addresses Risk 3 from the State’s Project Charter that <i>local SMEs fail to fully</i></p>			

Risk #: R2	Risk Likelihood/Probability: Medium	Risk Impact: High	Overall Risk Rating: High
<i>participate in implementation.</i>			

Risk #: R3	Risk Likelihood/Probability: Medium	Risk Impact: High	Overall Risk Rating: Medium
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Source of Risk: Interviews with the Vermont AOE Staff

Risk Description: There is a risk that the majority of Districts will not choose to participate in the SSDDMS because participation is neither mandated nor have auxiliary participation incentives been formalized by the State. District participation is required for the State to achieve the projected future cost savings of a centralized data management system. Given the lack of a legislative mandate, Districts may elect to maintain/modify current systems and/or replace systems with other vendors in order to be in compliance with UCOA updates and State reporting requirements. This potential lack of District participation creates a future environment that is most closely aligned with the one in place in the state today, where Districts utilize a handful of financial management system vendors and products, each at varying points in the system use of life. This impacts the State's ability to lower costs, as the current financial management system environment is financially disadvantageous to Vermont as a whole. This risk is in alignment with and now supersedes the following risks from the State's Project Charter: Risk 1, fewer SUs opt-in than expected and Risk 4 legislature could fail to fully fund the ongoing cost of operating the SSDDMS.

State's Planned Risk Strategy: *Mitigate and Accept*

State's Planned Risk Response: The AOE sponsor and executive sponsor will discuss this risk with legislators to engage them in mitigation strategies, reporting the risks associated with various rates of district adoption. AOE will also work to engage SUs/SDs in order to develop strategies that are intended to minimize impacts of transitions, incentivize the SUs/SDs to lower associated costs wherever possible (at least for the State in general), and communicate the benefits while providing the training and transition support needed to quickly realize the improvements targeted through continued OCM-related activities/involvement/communications. If the legislature does not fund on-going costs of the project off the top of the Ed fund, the AOE could establish a charge-back formula to the SUs/SDs. The amount charged back to SUs/SDs would still be expected to be lower than the amounts otherwise budgeted locally. The funding formula for the cost of ongoing operations for this project will be finalized by the end of the legislative season (approx. May 2018). As of 2/23/18, the AOE completed a survey of the SUs/SDs, and the results indicate 50% SU/SD participation in Year 1. Additionally, the AOE is working on a Memorandum of Understanding (MOU) to gain more definitive commitment, along with defining what adopters would receive.

Timing of Risk Response: *Prior to Contract Execution*

Reviewer's Assessment of State's Planned Response: The State's plan to further engage legislators in efforts to mandate District participation in the SSDDMS is an acceptable mitigation strategy and will likely reduce or eliminate this risk. Given that a legislative mandate is not guaranteed, the additional State communication strategies already in place are effective in minimizing (or accepting) the risk of low District participation, and include: development of a web page to publish project-related information, including soon-to-be-published Frequently Asked Questions (FAQs), so impacted staff can stay updated; and a memorandum detailing a rollout approach that not only accommodates the SUs/SDs that are not ready to transition just yet, but also aligns with the PV's flexibility in the pace of the rollout. We recommend that the State continue to develop clear project communications, in conjunction with a Communication Plan and/or OCM Plan, utilizing a variety of mediums (e.g., electronic, video, face-to-face) in order to encourage and support District SSDDMS participation.

Risk #: R4	Risk Likelihood/Probability: Medium	Risk Impact: High	Overall Risk Rating: Medium
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Source of Risk: Interviews With the Vermont AOE Staff



<p>Risk Description: There is a risk that interfaces between the proposed solution and third-party products may be problematic, resulting in the inability for communication between the SSDDMS and other necessary District systems for data management and reporting. In a response to follow-up questions from the State, the PV stated that its “proposed solution includes standard upload/download interfaces for AESOP, Kronos, TimeClock+ and external applicant tracking systems. However), interfaces for other third-party products would require further discussion and if needed, would be treated as custom programming in which additional costs may be applicable.” This ambiguity poses risk in the ability for future interfaces with the proposed solution, which could impact or prohibit AOE’s reporting abilities and District ability to interface with other systems currently in use.</p>
<p>State’s Planned Risk Strategy: <i>Mitigate and Accept</i></p>
<p>State’s Planned Risk Response: As part of initial planning and readiness assessment/inventory, the State will evaluate and identify where continued integration is required, where it exists, and potential interface issues. For example, if a SU/SD transitions to the SSDDMS, there may not be a need to continue supporting its payroll in a separate system, eliminating the need for both that system and an interface. If an SU/SD has not transitioned, we believe we are able to import data from the SU/SD into the new system. We will further plan for how best to support Districts as third-party interfaces are needed and strategize with the PV. A call with the PV on 1/23/18 suggested additional potential to support Districts in this area.</p>
<p>Timing of Risk Response: <i>Prior to Contract Execution</i></p>
<p>Reviewer’s Assessment of State’s Planned Response: The State’s strategy to conduct a readiness assessment and inventory of District-specific third-party products is an acceptable approach to mitigate and accept this risk. The AOE has indicated that a District inventory may already be available, and if so, would utilize this information to determine the extent of future interfaces. We recommend that the State discuss all potential interfaces with the PV prior to contract execution in order to determine the impacts to project cost and schedule.</p>

Risk #: R5	Risk Likelihood/Probability: Medium	Risk Impact: Medium	Overall Risk Rating: Medium
Source of Risk: BerryDunn			
<p>Risk Description: There is a risk to project scope, schedule, and cost due to the lack of defined deliverables and payment milestones. The RFP did not specifically allocate payments with project and/or system deliverables. This could result in a contract that is unclear in regards to the schedule of payments and their association with deliverables.</p> <p>In a deliverables-based contract, payment and schedule should be structured to incentivize the PV to provide working hardware and configured software, and minimize payments for nonsoftware-related deliverables (such as project management deliverables). The PV’s RFP response did describe a series of deliverables, but did not tie the payment structure to these deliverables (specifically during the implementation period).</p> <p>Additionally, the PV’s RFP cost structure assumes that all Districts will transition to the SSDDMS within the first year of the project, which will not be the case. If the contract is not changed to address this, the State would pay more than it should in the first few years of the contract. *See the subscription price model noted below, as the PV clarified its pricing during a conference call on 1/23/18.</p> <p>This risk is in alignment with and now supersedes Risk 2 from the State’s Project Charter that <i>the vendor does not deliver on time.</i></p>			
State’s Planned Risk Strategy: <i>Mitigate</i>			
<p>State’s Planned Risk Response: Perform inventory and needs assessment of the current environment as noted above, and work with impacted SUs/SDs to strategize a plan, and then negotiate a rollout strategy with clearly defined deliverables per site, timing, and associated payment schedule (likely including retainage). A graduated rollout and corresponding cost structure was discussed with the PV on 1/23/18, which seemed agreeable to both the PV and the State.</p>			
Timing of Risk Response: <i>Prior to Contract Execution</i>			
<p>Reviewer’s Assessment of State’s Planned Response: The State’s strategy to continue engaging the PV in discussing a system rollout and complementary cost structure is acceptable for mitigating this risk. As discussed on</p>			



Risk #: R5	Risk Likelihood/Probability: Medium	Risk Impact: Medium	Overall Risk Rating: Medium
1/23/18, the PV is proposing a subscription pricing model that bases payment of system subscriptions according to the amount of Districts on boarded each year. We recommend that prior to contract execution, the PV's cost structure be updated to reflect subscription pricing. In addition, we recommend associating project deliverables in the contract with payment milestones and outlining the State's acceptance criteria (per deliverable), as well as detailing a review and approval/modify/rejection process.			

Risk #: R6	Risk Likelihood/Probability: Medium	Risk Impact: Medium	Overall Risk Rating: Medium
Source of Risk: Interviews With the Vermont AOE Staff			
Risk Description: There is a risk that the PV's Implementation Plan is based on inaccurate estimations specific to the rate and extent of District participation in the SSDDMS. The PV's RFP response and cost structure assumes that all Districts will transition to the SSDDMS within the first year of the project; however, it is likely that integration by all 62 Districts will be achieved over an approximate two-to-three-year timeframe. Districts have not formally committed to if or when they will transition to the proposed solution, and without this information, it will be difficult to forecast the number of participating Districts year to year. This will impact the project budget and the PV's proposed cost structure.			
State's Planned Risk Strategy: <i>Mitigate</i>			
State's Planned Risk Response: As stated above, perform inventory and needs assessment of the current environment, work with impacted SUs/SDs to strategize a plan, and then negotiate a rollout strategy with clearly defined deliverables per site, timing, and associated payment schedule (likely including retainage). The State will need to provide clear expectations to both the PV (in contract) and the SUs/SDs (resource commitments), as well as a funding model that supports the plan. The call with the PV on 1/23/18 demonstrated a greater understanding of graduated District participation and the PV's ability to tailor the Implementation Plan accordingly. The AOE is currently performing a survey of SUs/SDs to assess likelihood and timing of adoption, as well as motivational criteria and local concerns associated with the project.			
Timing of Risk Response: <i>Parts Mitigated Prior to Contract Execution and parts Subsequent Still (ongoing mitigation)</i>			
Reviewer's Assessment of State's Planned Response: The State's strategies for mitigating this risk are acceptable.			

Risk #: R7	Risk Likelihood/Probability: Low	Risk Impact: Medium	Overall Risk Rating: Low
Source of Risk: Interviews With the Vermont AOE Staff			
Risk Description: There is a risk that the PV's proposed District training will be insufficient. The training proposed in the PV's Implantation Plan lacks clarity for how virtual and in-person trainings will be conducted, as well as how knowledge transfer with system users will be achieved, and places significant responsibility on District staff for the development of District-specific training materials. Without a strong Training Plan in place, there is a risk that the SSDDMS will not be properly utilized by the Districts, and that centralized data may be compromised. Additionally, an unclear vendor Training Plan could result in a need for additional AOE resources allocated to training and system support activities.			
State's Planned Risk Strategy: <i>Mitigate</i>			
State's Planned Risk Response: Like other areas previously noted, obtaining a clear understanding of the training required to use and support the new system—as well as an inventory to match the number of users at each location with the appropriate training required and timing of training—needs to be developed and factored into the rollout strategy and contract deliverables (i.e., defined acceptance criteria). Strategies may include training for multiple SUs/SDs, additional training dates, recorded sessions, train the State trainer (e.g., HR or ADS professional training), Learning Management, or other options (specifically the State's planned response for R1).			

Risk #: R7	Risk Likelihood/Probability: Low	Risk Impact: Medium	Overall Risk Rating: Low
Timing of Risk Response: <i>Parts Mitigated Prior to Contract Execution and parts Subsequent Still (ongoing mitigation)</i>			
Reviewer's Assessment of State's Planned Response: The State's mitigation strategies for this risk would be acceptable for diminishing negative impacts on participating Districts. Because the number of training opportunities and approaches are still to be defined, we recommend the State gain specifics from the PV in order to determine cost and the potential need for supplemental training resources. Only with these details will the State be able to identify the best mitigation approach from a cost, timeline, and resource perspective.			

Risk #: R8	Risk Likelihood/Probability: Low	Risk Impact: Medium	Overall Risk Rating: Low
Source of Risk: Interviews with the Vermont AOE Staff			
Risk Description: There is a risk that participating Districts will use different versions and levels of internet browsers, resulting in the possibility of some Districts being unable to use the proposed solution on laptop computers. In the PV's response, it was stated that Microsoft Windows laptops need functionality to run Internet Explorer 11, the latest two versions of Firefox, the latest two versions of Edge, or the latest two versions of Chrome in order to enable operation with the proposed solution. Additionally, Mac OS X laptops need functionality to run the latest two versions of Safari, the latest two versions of Firefox, and the latest two versions of Chrome in order to enable operation with the proposed solution. Because the AOE does not have jurisdiction to mandate the level of internet browsers throughout the Districts, there is a risk that some Districts may not update browser levels due to outdated hardware or software, and consequently would be unable to use the proposed solution.			
State's Planned Risk Strategy: <i>Mitigate and Accept</i>			
State's Planned Risk Response: As part of the inventory and impact assessment noted above, we will work to understand where any gaps (i.e., the specific issues and functionalities that need to change) exist, and develop strategies with the SUs/SDs and the PV where applicable to address these gaps. We will also proactively provide the SUs/SDs with the version information to assist their local technical support staff in order to help ensure staff are using an approved version.			
Timing of Risk Response: <i>Parts Mitigated Prior to Contract Execution and parts Subsequent Still (ongoing mitigation)</i>			
Reviewer's Assessment of State's Planned Response: The State's mitigation strategy is acceptable for mitigating and accepting this risk.			

Risk #: R9	Risk Likelihood/Probability: Low	Risk Impact: Medium	Overall Risk Rating: Low
Source of Risk: Interview With the PV			
Risk Description: There is a risk that the proposed solution's response time of 2 – 5 seconds, as noted in the PV's response, will be unacceptable for efficient performance at both the District and AOE level. During a phone conference between BerryDunn, the State AOE Project Team, and the PV, the PV noted that the response time of 2 – 5 seconds was calculated based on averages, taking into consideration factors that could be out of its control. However, because there are no current strategies to ensure the proposed solution's response time is up to the necessary standard when factors are within the PV's control, there is still a risk that the system will be too slow, and the State to will lack leverage to ensure system pace functionality is addressed.			
State's Planned Risk Strategy: <i>Accept</i>			
State's Planned Risk Response: State UAT will evaluate and identify unacceptable slowness. Slowness may be limited to a local SU/SD and not experienced by all. We can also leverage the use of throughput/bandwidth tools to pre-evaluate sites. If not acceptable or correctable with focused effort, the State has the option of cancelling the			

Risk #: R9	Risk Likelihood/Probability: Low	Risk Impact: Medium	Overall Risk Rating: Low
contract.			
Timing of Risk Response: <i>Prior to Contract Execution</i>			
Reviewer’s Assessment of State’s Planned Response: The State’s approach to testing system slowness in order to eliminate or accept this risk is acceptable. While the PV has provided additional detail to explain how response time measurements are based on averages, with customers typically experiencing much better response times, it would still be in the State’s best interest to have acceptable and unacceptable response times noted in the contract.			

Risk #: R10	Risk Likelihood/Probability: Low	Risk Impact: Low	Overall Risk Rating: Low
Source of Risk: Interviews With the Vermont AOE Staff			
Risk Description: There is a risk that the State’s anticipated levels of involvement in the areas of system support and training may not accurately reflect what will be required of AOE, in light of what was proposed by the PV. If increased involvement is required of AOE, there will be budgetary impacts, as funds will need to be reallocated or additional funds requested to meet additional training and system support needs.			
State’s Planned Risk Strategy: <i>Mitigate</i>			
State’s Planned Risk Response: Evaluate levels of support further with the PV to better understand involvement required of the State AOE Project Team and determine if this is not in line with State expectations. Where applicable to the administration of patch/version upgrades, policy will need to define State/AOE involvement (i.e., Change Control Board). Where an extension of technical support is required, the State will determine the best path forward (e.g., negotiate different terms with the PV, shift staff responsibilities at AOE/ADS, add staff, or pursue a potential blend of some of these or other options).			
Timing of Risk Response: <i>Prior to Contract Execution</i>			
Reviewer’s Assessment of State’s Planned Response: The State’s mitigation strategy for this risk is acceptable. We recommend that further discussion take place with the PV in order to determine the extent of potential AOE involvement in the areas of system support and training.			

Risk #: R11	Risk Likelihood/Probability: Low	Risk Impact: Low	Overall Risk Rating: Low
Source of Risk: Interviews With the Vermont AOE Staff			
Risk Description: There is a risk that the proposed solution may not meet all the elements of the ADS technical response matrix. The PV indicated “no” to five of the non-functional technical requirements. While the non-functional requirements listed in the RFP may not be essential for the SSDDMS, any “no” responses can increase risk to the project. Specifically, if the PV’s solution does not include fraud detection, as noted for non-functional requirement S14, the system is at risk of user error and user fraud.			
State’s Planned Risk Strategy: <i>Mitigate</i>			
State’s Planned Risk Response: Where some of the non-functional requirements have already been discussed with the PV in order to identify acceptable alternatives for any of the unmet requirements, the State will need to accurately document these agreements (i.e., add a column in the requirements next to “no” answers for information about alternative steps going forward), which will be memorialized as part of the contract with the PV. Where gaps still exist, the State will determine tolerance for acceptance (which has already occurred to some degree prior to sending the Letter of Intent to the PV).			
Timing of Risk Response: <i>Prior to Contract Execution</i>			
Reviewer’s Assessment of State’s Planned Response: The proposed mitigation strategy is acceptable for mitigating and eliminating this risk. The recent requirements matrix submitted on 1/26/18 by the PV includes			



Risk #: R11	Risk Likelihood/Probability: Low	Risk Impact: Low	Overall Risk Rating: Low
<p>additional detail for each of the requirements where a “no” response was previously indicated. With this documentation, the State will be able to identify where true system gaps exist. Specific to S14, the PV has provided the following detail: “further discussion required in order for us to understand the requirements. We will work with the state to ensure these items are covered.”</p>			