State School Fund System Replacement/ Modernization Project

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OREGON DEPARTMENT OF EDUCATION

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Contents

Executive Summary

The State School Fund (SSF) is the largest line item in the State's General Fund budget. This investment in education is also the primary source of funding for providing K-12 public education for over 552,000 Oregon students.

As part of the biennial budgeting process, the Oregon Department of Education (ODE), in partnership with the Department of Administrative Services Chief Financial Officer (DAS CFO), Legislative Revenue Office (LRO), and Legislative Fiscal Office (LFO), reviews the projected Average Daily Membership (ADM), and projected state and local revenue to establish the Current Service Level (CSL) for the next biennial appropriation cycle. Through the legislative process, a budget bill is established for the State School Fund to be distributed to School Districts and Education Services Districts (ESD) throughout Oregon. The ODE State School Fund software system is the data and technology system that gathers, stores, calculates, and processes distributions from the State School Fund to Oregon Public Schools and ESDs.

The State School Fund software system is a critical system that currently apportions approximately $7.1 billion each year, comprised of approximately $5.1 billion state funding and approximately $2 billion in local funding. Within any given year, ODE is actively managing over $20 billion in funding that encompasses: the current year, the future (next) year, and the previous year for final reconciliation, pending receipt of school district financial audits.

The SSF software system is a complex data system that has been utilized in its current form and technology since the early 2000's. Although this system enables ODE to distribute funding as required, it depends on an outdated and unsupported version of Microsoft Access along with multiple spreadsheets and manual data manipulation processes that raise the risk of system failure that could prevent the ODE from fulfilling its obligation to disburse funds accurately.

A failure in the State School Fund software system would impact 197 school districts and 19 ESDs and more than 130 public charter schools in turn either directly, or indirectly, impacting approximately 552,000 Oregon students in grades K-12. There have already been several instances when payments were at risk due to the system failing or not working correctly after software updates or changes to the system were made.

Over the course of the last two years, ODE has gone through several reviews of the system both internally and externally. First, ODE internal information technology staff reviewed the software for potential critical failure points. Next, the School Finance unit identified six similar State Education Agencies (SEAs) and inquired about the status of their software model and its design. The results were mixed as some SEAs had internal developments while others could use external software as their funding formula was less complex. To further understand the landscape of potential commercial off-the-shelf solutions (COTS), ODE issued a Request for information (RFI). No vendor responded to the information gathering request.

Finally, ODE hired Info-Tech Research Group (ITRG) to evaluate different development models that included "in-house," outsourced and hybrid development frameworks. Info-Tech's final recommendation to ODE was an in-house development project for a new SSF software system. In addition to the benefits mentioned by Info-Tech, in-house development also provides ODE with an opportunity to apply best practices in architecting and developing the system and resulting programming for the future. Building the SSF software system with best practices will allow ODE to respond to changes in legislative mandates to the SSF software system calculations in a more efficient and timely manner.

ODE estimates the SSF software system modernization project will take 3-4 years with a team that includes: a Project Manager, two Business Analysts, a System Architect, six developers, and two testing and QA analysts, with additional support of other IT and business staff, as well as a manager to take ongoing ownership of the SSF software system. The estimated cost of this project is approximately $7-$8 million and includes the cost of the documenting all requirements, actual design and development, quality assurance, user testing, implementation, and parallel run of the old and new software systems to ensure correct fund distribution to the school districts and ESDs, as well as the support costs through the end of FY2026-27. Dedicated resources to do this work will need to be allocated by the legislature as the internal staffing capacity cannot subsume this project without foregoing other applications that are also critical for other ODE systems.

Background and Purpose

The Oregon Department of Education (ODE) administers the State School Fund, a $10.2 billion line item in the 2023-25 budget, using information system technology that is far beyond its useful life. ODE has determined that this mission-critical system must be replaced and has taken steps to create a major IT project to manage this effort. The Department was directed to use the joint State Chief Information Office (CIO)/Legislative Fiscal Office (LFO) Stage Gate process to document the project's readiness to proceed and to work with DAS (Department of Administrative Services) Enterprise Information Services to develop initiation and planning documents for a new State School Fund system replacement/modernization.

This report is to provide you with a project status and a projection of what's next as the project moves forward. With focus on the following:

- Project governance, management, staffing
- Project scope, schedule, and budget
- Current or planned procurements/contracts
- Risks and challenges, and any proposed mitigations
- Independent quality management services/findings
- Additional information regarding the status of the project

Project Governance

Project governance will follow the Project Management Institute's (PMI's) standard project roles and responsibilities but will be flexible and modified as needed by the sponsor and steering committee.

Roles and Responsibilities

Project Sponsor

- Role
    - Provides strategic direction for the project.
    - Provides project oversight.
- Responsibilities
    - Champion for the project
    - Advocating for the project's priority within the ODE project portfolio
    - Approver of the project charter
    - Owner of the project's business case
    - Accountable throughout the lifespan of the project deliverable

Steering Committee & Project Management Office

- Role
    - Provides operational direction.
    - A supervisory board within the governance structure accountable for managing business issues, monitoring risk, quality, and project timelines.
- Responsibilities
    - Determines how the project goals and objectives are measured.
    - Approves the project management, implementation plan and metrics.
    - Monitors & controls the project to ensure alignment with the charter.
    - Escalation points for any project deviations
    - Creates consistency about project and program governance.
    - Lessons learned, best practices.
    - Provides traceability for Project Portfolio Management (PPM) governance.

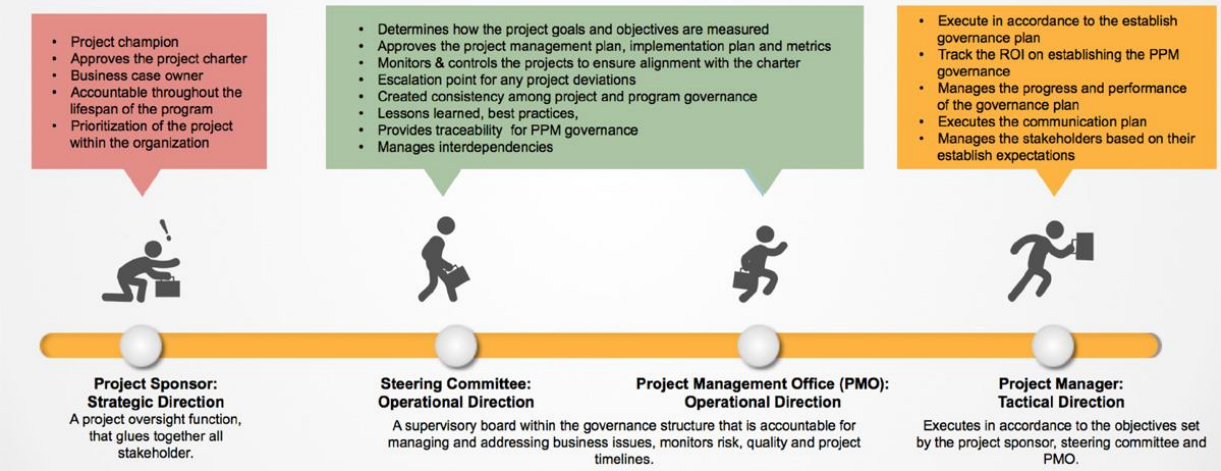
Project Manager

- Role
    - Provides tactical direction.
    - Executes in accordance with the objectives set by the project sponsor, steering committee and Project Management Office (PMO).
- Responsibilities
    - Executes the project in accordance with the established governance plan.
    - Track the Return on Investment (ROI) on establishing the PPM governance.
    - Manages the progress and performance of the governance plan.
    - Manages the stakeholders based on their established expectations.

Project Stakeholders (End Users for this project)

- Role
    - Subject Matter Experts providing requirements for the desired end-to-end process.
- Responsibilities
    - Take an active role in developing business requirements with the business analysts.
    - Develop test cases (test scenarios) to validate the business requirements.
    - Execute the test cases within the new SSF software system to validate the new SSF software system works as needed for the ODE.

The Management and Governance of this project will follow the model in figure 1 and may be adjusted in accordance with the Steering Committee if needed.



Graphic courtesy of the Project Management Institute

Figure 1

Project Staff

- Project Manager (1)
- Business Systems Analyst (2)
- Systems Architect (1)
- Back-end Application Developers (2)
- Front-end Developers (4)
- User Experience /User Interface Designer (1)
- Quality Assurance Analyst (1)
- User Acceptance Testers (1)
- SSF IT Manager (1)

Note: The project manager and one of the business analysts have been hired to perform pre-project activities. Additionally, a few of the above roles are not dedicated to the project but will require the existing IT staff to complete the project successfully, e.g., Network Systems Administrator, etc.

Project Scope, Schedule, and Budget

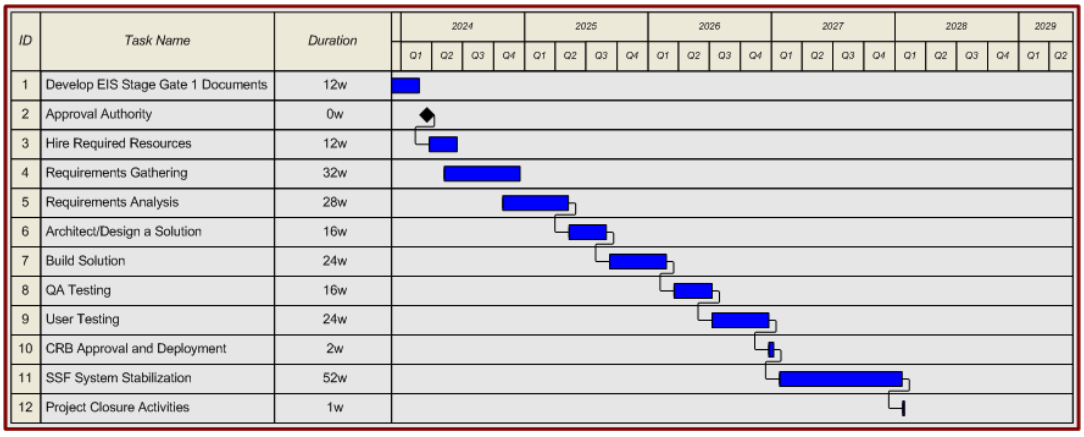
Project Scope

In Scope - The scope of this project is to replace the aging SSF software system. This includes all processes that calculate and disburse funding to each of the 197 school districts and 19 ESDs and the tools needed for estimating payments and reporting.

Out of Scope - Any and all proposed requirements that are outside of the scope for calculating and processing the disbursement of payments to the school districts and ESDs and any proposed requirements outside the tools required for estimating payments and generating reports for the school districts.

Proposed High-Level Schedule

This high-level schedule is a representation of the high-level tasks (Figure 2) for completing a complex project, like modernizing the SSF software system. It should be noted, these tasks represent what needs to be accomplished; however, critical details as to what the end solution is and how it integrates with the ODE IT Roadmap are unknown and require time for the project team to work with business operations and the end users to solidify requirements for the new system.



ID	Task Name	Duration
1	Develop EIS Stage Gate 1 Documents	12w
2	Approval Authority	0w
3	Hire Required Resources	12w
4	Requirements Gathering	32w
5	Requirements Analysis	28w
6	Architect/Design a Solution	16w
7	Build Solution	24w
8	QA Testing	16w
9	User Testing	24w
10	CRB Approval and Deployment	2w
11	SSF System Stabilization	52w
12	Project Closure Activities	1w

Figure 2

Proposed Budget

The estimated cost of the project through the two biennia is approximately $7 - $8 million, which also falls within the amount estimated by Info-Tech in their recommended option. This budgetary estimate includes the cost of documenting all requirements, actual design and development, quality assurance, user testing, implementation, and parallel run of the old and new systems to ensure correct fund distribution to the school districts and ESDs. Also included is all the support cost through the end of FY 2026-27. Dedicated resources to do this work will need to be allocated by the legislature as the internal staffing capacity cannot subsume this project without foregoing other applications that are also critical for other ODE systems.

Table 1

Specialty	Classification	Proposed start date	Proposed LD End Date**
Project Manager	ISS-7 (LD)*	10/1/2023	6/30/2027
Business Analyst	ISS-7 (LD)*	10/1/2023	6/30/2027
IT Program Manager	Information Technology Manager 2	7/1/2024	NA
Business Analyst	ISS7	8/1/2024	NA
UX/UI Designer	ISS4 (LD)	8/1/2024	6/30/2027
Front end developer (2)	ISS-6 (LD)	9/1/2024	6/30/2027
Backend developer	ISS-7 (LD)	2/1/2025	6/30/2027
Backend developer	ISS-8	2/1/2025	NA
QA and unit/system testing	ISS-4	3/1/2025	NA
Front end developer (2)	ISS-7	3/1/2025	NA
Systems analyst/architect	ISS-8	4/1/2025	NA
UA Tester	OPA-2	5/1/2025	NA

Estimated total personnel cost: $1.75 million in 2023-25; $4.13 million in 2025-27

* Positions have been authorized and filled.

** Could be extended if the project goes beyond estimated end date.

Current or Planned Procurements/Contracts

Before ODE can begin planning any procurement or begin contract discussions, the project team needs to complete research/requirements and analysis, with business operations and end users, to document what currently encompasses the SSF software system. When the solution design has been completed, it will be clear what is needed and presented to the Steering Committee for approval before planning any procurements or entering discussions with vendor(s) regarding contracts.

Legacy System & Data Conversion Planning /Activities

The current SSF software system will not be turned off until the new SSF software system is validated. After the new SSF software system has been validated, the data will not be migrated to the new SSF software system. Business operations will still have access to the information via the current SSF system. It should also be noted that business operations use three years of data to estimate the budget for the next year. If business operations need to rely on data from the previous year, it will already be in the new SSF software system since the plan is to have both systems running in parallel, for a year, to validate the complete functionality of the new SSF software system.

Risks and Challenges

Table 2

Risk	Mitigation
Funding is not approved for this project to move forward.	ODE IT Governance committee will review the project and if approved, then ODE internal resources will be redirected from other mission critical core systems and reallocated to prioritize the development of a new State School Fund Software System. This will affect ODE's ability to support and maintain those mission critical core systems and impact data collections and reporting requirements.
The current SSF software system fails.	To the extent possible, other resources from the IT section of ODE will try to resolve issues with the current system. However, in case of current system total failure, the SSF modernization project team members may be required to assist in the immediate remediation efforts, which would negatively impact the timeline.
Defining the scope of the project without detailed understanding of the SSF software system.	Gather requirements from a perspective of 360 degrees to ensure business operations, end users and technical team are included in the process and store the documents where everyone has access to them.
Loss of institutional knowledge; due to retirement, attrition, etc.	Intensify requirements gathering workshops and sessions as soon as the Legislature approves the project. Hire a second business analyst.

Table 3

Challenges/Constraints	Consequences or mitigations
The limited institutional knowledge of this system.	Reach out to current and past sources who have worked or operated the system to obtain any information they have, especially when new information is uncovered.
Complexity of the State School Fund calculation.	Rely on business operations and official rules to ensure all calculations are correct.
Availability of technical and business resources.	Work with supervisors and directors to keep them up to date with the project's progress and review and update resource needs.
Additional legislated requirements of the SSF software system are introduced during the project timeline, delaying the project.	If there are new calculations or rules introduced during the project the priority is to update the current SSF software system based on the legislative implementation timeline. Then introduce the changes into the new SSF software system. This may cause a delay in delivering the new SSF software system.
Current permanent ODE resources do not have the capacity to develop a solution.	Additional resources as outlined in the Project Staff section above need to be hired.
Retaining sufficient knowledgeable resources for the project's duration due to turnover, difficulty hiring the required skills, etc.	Work closely with project sponsor and steering committee to mitigate any potential staffing issues and ensure adequate staffing for the project's completion.
There are limited SSF staff to work on the project and each has ongoing work that must be balanced.	Work closely with SSF staff for scheduling time and ask if there are other resources within the SSF staff that could assist the project.

Independent Quality Management Service

Independent Quality Management Services have not been assigned or contracted. If the decision is made to move this project forward and all EIS Stage Gate 1 documents have been completed and reviewed, the appropriate independent QA vendor will be assigned to the project in accordance with Standard DAS/EIS procedures through the competitive solicitation or using an existing DAS contractual agreement.

Development Options

Over the course of the last two years ODE has gone through several reviews of the system both internally and externally. First, ODE internal information technology staff reviewed the software for potential critical failure points. Next, the School Finance unit staff identified six similar State Education Agencies (SEAs) and inquired about the status of their software model and its design. The results of this fact gathering effort with SEAs were mixed as some SEAs had internal developments while others could use external software as their funding formula were less complex. To that end and to further understand the landscape of potential commercial off the shelf solutions (COTS), ODE issued a request for information (RFI) in OregonBuys as a market scan for potential vendors, to which no vendor responded to the information gathering.

ODE also hired, through the competitive process, Info-Tech Consulting Services[1] to evaluate different development models that included "in-house," outsourced and hybrid development frameworks. Info-Tech's final recommendation was for ODE to develop the new SSF software system in-house. Support for this recommendation was based on factors that included:

- Risk - "in-house" was considered the lowest risk based on current institutional knowledge and accelerated learning curves, improved flexibility based on an internal integrated team to build the system and provide long-term application support, limiting any potential future contractual liability associated with an external service provider, the potential loss of productive work based on the effort to prepare and complete an

[1] A division of Info-Tech Research Group

external RFP (which could take 12-18 months to complete) and on-going vendor management efforts.

- Change impact – lowest ODE organizational effort to manage an internal team vs. managing an external vendor.
- Investment – the Total Cost of Ownership (TOC) is considered slightly favorable vs. other alternatives of the application lifecycle.

Table 4

Development Options

Consideration	Alternative 1: Built and Managed "In-house"	Alternative 2: Built by Outsourcer & Managed In-house	Alternative 3: Built & Managed by Outsourcer
Build	• Build team can accelerate, support team's learning curve	• Access to a larger talent pool who can utilize the latest technologies	• Ability to amortize the total investment over longer-duration contract terms • Access to a larger talent pool who can utilize the latest technologies
	• May require salary exception approvals	• Potential for substantial time lag (12-18 months) to contractually engage with a vendor • Requires significant ODE effort to develop RFP and complete knowledge transfer with vendor (incl. potential contractual risk) • Potential execution and organizational risks	• Potential for substantial time lag (12-18 months) to contractually engage with a vendor • Requires significant ODE effort to develop RFP and complete knowledge transfer with vendor (incl. potential contractual risk) • High cost and potential execution and organizational risks • Highest costs compared to the other alternatives
Support/Manage	• Lowest ongoing costs • Highest degree of flexibility to manage future enhancements, support/manage efforts, and service levels	• Knowledge capture process from vendor will require a steep ODE learning curve within the organization	• Some Support/Manage flexibility may be lost with a vendor • ODE investment of time/effort and knowledge capture process will require a steep learning curve from the outsourcer

Options to purchase Commercial-Off-The-Shelf (COTS) software products were also considered but none were found that could be installed and configured to replace the SSF software system without significant development effort.

In their report to the ODE, Info-Tech recommended replacing the existing SSF software system by using “in-house” resources for developing the new SSF software system, based on institutional knowledge of the current system and processes and in turn retaining the knowledge of the new system after the project closes. This also provides ODE with an opportunity to apply best practices in architecting and developing the system and resulting programming for the future. Building the SSF software system with best practices will allow ODE to respond to changes in legislative mandates to the SSF software system calculations in a more efficient and timely manner.

Do Nothing (Status Quo)

Doing nothing is no longer an option for ODE, as the risk of system failure increases the longer the SSF software system continues to operate. Built around outdated, and unsupported (MS Access), limited institutional knowledge, complexity of the system combined with ad hoc solutions (the use of spreadsheets) to support the SSF calculations will continue to elevate the risk of failure for the SSF software system.

When, not if, the SSF software system does fail all payments to the 197 school districts and 19 ESDs will not occur on time, and subsequent payments will also be affected and require more time and additional resources to build any processes (using spreadsheets most likely) to replicate the complex calculations of the aging SSF software system and making payments to school districts and ESDs. Using spreadsheets also creates increased potential for human error resulting in the disbursement of incorrect payments.

The way the SSF software system was developed in the early 2000’s using common Office productivity tools would not be considered as an option today due to the level of complexity of the SSF software system. Modernizing the SSF software system cannot be accomplished with the tools or practices of the 2000's to align with the ODE 2023-2027 IT Strategy. This

modernization will focus on innovation, software development “Best Practices” and enterprise IT strategies to create a system that is reliable, easily maintainable and includes disaster recovery capabilities.

Consequences of Failure to Act

Not acting on the state of the SSF software system is not an option. If the SSF software system were to fail, it would put ODE’s ability to calculate and distribute funding to school districts and ESDs throughout Oregon at risk. Outdated and unsupported technology will continue to degrade (MS Access), resulting in future disruptions and failures of the system.

ODE finance staff will continue to use manual processes that are time-consuming and introduce risk of errors. Additionally, substantial time will continue to be spent on error research and resolution due to lack of system transparency.

System technology (MS Access) will not be supported by vendors through upgrades and patches. This will increase the number of issues with technology and increase the need for ODE IT to resolve issues. The system’s designer and original developer have long retired and therefore the current ODE IT staff are supporting a system that is not well documented. With thousands of SQL procedures pulling and pushing data from various data sources, it is challenging to make changes without causing additional issues. Investigating changes needed and consequences of making changes will continue to be time consuming. Finance staff will continue to access multiple applications (MS Excel, MS Access, SQL Server) and multiple proprietary in-house tools and applications to complete work, rather than using a unified user interface.

Recommendation

ODE endorses the recommendations found in Info-Tech's final report in replacing the SSF software system using "in house" resources. To prevent any potential failure of the SSF system, this project must move forward as soon as possible. Failure of the SSF software system is inevitable if the system is not re-designed and developed using modern software development principles and technologies, as well as incorporating tools developed by operations outside of the current SSF software system into a single inclusive system that can be supported by a vendor and ODE IT.

The in-house approach is recommended because of the lower risk of project failure, lower organizational change impact, and favorable total cost of ownership when compared to other development approaches. In addition to lower risk for project failure, an external review and examination of solutions implemented by peer SEAs also support the in-house approach. This also provides flexibility for future needs and allows technology decisions that focus on incorporating best-of-breed modular technologies.

A goal for the new SSF software system will be to increase transparency in the funding process by making budget information the State already collects from districts accessible and easier to understand. By doing so it achieves the Governor's desire to ensure district partners and the public have the same budget information the State does, strengthening transparency and improving customer service to Oregonians.

ODE's estimate for modernizing the SSF software system is about 3–4 years with a team that includes: a Project Manager, two Business Analysts, System Architect, six developers, two testing and QA analysts, with additional support of other IT and business staff, as well as a manager to take ongoing ownership of the SSF software system. The estimated cost of this project is approximately $7-$8 million and includes the cost of documenting all requirements, actual design and development/build, quality assurance, user testing, implementation, and parallel run of the old and new software systems to ensure correct fund distribution to the school districts and ESDs, as well as the support costs through the end of FY2026-27.