Final Report (v3.0)

Prepared for: ODE

Best Value Analysis Process for ITRAS Benchmarking Subscription Services:

State School Fund Modernization Assessment

Prepared by:

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CONSULTING SERVICES

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Executive Summary

The Oregon Department of Education (ODE) serves 197 school districts and 19 education service districts (ESDs) and distributes over $13 Billion through the State School Fund system (SSF). The SSF system is a Mission Critical application within ODE's technology landscape. The SSF system is a complex data system that has been utilized in its current form and technology since the early 2000's. And although this system is highly accurate and completes the work necessary to distribute funding according to payment deadlines, the solution has been evaluated for modernization since 2017.

ITRG completed an Application Assessment (Business and Technology Health) and determined that the health ratings were generally low and not aligned to modern Mission Critical system capabilities and application architecture principles that necessitate modernization. The intent of the future application is that it will likely have a similar 20-year lifespan.

ITRG completed an evaluation of three different Alternatives (In-house and Outsourced models) spanning both the Build project and the on-going Support/Management of the application across a set of scoring criteria. The Alternative that ***ITRG recommends is an In-house Development project for the new SSF Application that will also be Supported and Managed by ODE.***

The primary scoring considerations that differentiated the In-House Alternative selection were:

- Risk and Complexity (20%): 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 and long-term application support, limiting and potential future contractual liability associated with an external service provider, the potential loss of productive work in 2023/2024 based on the effort to prepare and complete an external RFP (could take 12-18 months to complete) and on-going vendor management performance management efforts
- Change Impact (15%): Lowest ODE organizational effort to manage an internal team versus managing an external vendor (which may imply a reduced level of flexibility and responsiveness needed for the SSF application)
- Investment (20%): The total TCO is considered slightly favorable vs. other alternatives over the application's lifespan. The estimated total TCO ranges for all alternatives is approximately +/- 25%.

In addition to the Alternative scoring, ITRG completed an external review (incorporating ODE captured market knowledge) where ITRG knows of another state who is currently using an In-House model to complete their state school funds modernization project.

Major portions of the SSF application still require additional effort to complete Future State requirements definition *(considered 25% complete with the primary focus to date on documenting the current state model)* that would provide an input into Future State technical/architectural decisions based on multiple proof-of-concepts. Ultimately the new SSF application will likely incorporate a set of best-of-breed modular technologies that will be evaluated and decided on as part of the Development lifecycle.

The roadmap defined for the In-House alternative has an approximate 2.5 year time horizon that starts with Funding Approval, Sourcing/Backfilling a new development team and augmenting the support team, and completing Development/Testing and Retiring the current SSF system.

Alternatives Evaluation

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 Knowledge capture process will require a steep learning curve from the outsourcer

The Investment portion of alternative scoring model (20%) considers ODE's overall Investment (one-time and on-going) that was roughly estimated for each Alternative to provide the following 20-year estimated TCO ranges:

Total Cost of Ownership- (20 Year TCO)

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Category	Alt 1 – IN/IN	Alt 2 – OUT/IN	Alt 3 – OUT/OUT	Assumptions/Rationale
Build	$3 - $7 million (range based on scope and speed)	$2.3 - $3.6 million	$2.3 - $3.6 million	Initial Cost incurred for building the SSF application
Ongoing Support	$6 to $11 million (@2% raise at an avg. $150k annual fully loaded costs for 3-4 FTEs)	$6 to $11 million (@2% raise at an avg. $150k annual fully loaded costs for 3-4 FTEs)	$14 to $18 million (Assuming 5%+ of initial build cost/year – conservative estimate)	Includes enhancements, support and maintenance over 20 years including annual inflation at 2 -5% (Also includes estimated expenses for ODE Staff salaries, Vendor management, Training & Documentation)
Infrastructure	$1.5 million (Avg. cost @ $80k / yr.)	$1.5 million (Avg. cost @ $80k / yr.)	Included in Ongoing Support costs (cost recovery)	Includes hardware and software costs & system upgrades over duration
Transition	N/A	$200,000	Included in Knowledge Transfer & Ongoing Support costs	Transitioning to the new system from the outsourced vendor to in-house management
Knowledge Transfer / Learning Curve	Included in Ongoing Support costs	$100,000 (One-time ODE cost)	$300,000 (Requires on-going ODE costs)	Capturing knowledge from the outsourced vendor and transferring it to the in-house team
TCO	**$10 - $18 million**	**$11 - $17 million**	**$17 - $22 million**	

Note: These are approximate and high-level cost estimates based on a variety of estimating methods and practices. Specific assumptions will be validated over time and improved (e.g., changes in economic conditions, vendor estimates provided to ODE, future legislature requests, and technology adoption over time).

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The estimated ranges for each Alternative is around +/- 25%. It is important to factor this level of estimating precision across all alternatives and consider the overall Investment as only one of a broader set of scoring criteria.

COTS Summary

To assess the COTS alternatives, ITRG completed a review of applications in closest alignment to SSF's current-state and known future-state functional requirements.

The primary research to identify COTS alternatives did not yield a product result with comprehensive functionality to directly support the SSF business process without considerable modifications. To complete the assessment, we reviewed available COTS solutions, in the following software categories:

Category	Rank	Pros	Cons
Scenario Planning	1	• Workflow-enabled with business rules management and high-degree of customization • Provides "what-if" scenario planning/modeling • Supports versioning and audit capabilities. • Dynamic Data Source integration and loading, supporting source input from databases, excel/csv, with adapters built for common ERP, CRM and HRIS systems	• Requires modification to business processes and/or software to align to ODE's needs for SSF • Does not natively support integration into financial payment systems
Grants Management	2	• Workflow-enabled with business rules management and high degree of customization • Supports audit capabilities for financial systems • Supports financial system integration	• Mainly driven by grantee-initiated application process • Requires modification to business processes and/or software to align to ODE's needs for SSF

An alternative to a pure COTS solution is to develop an integrated solution where best-of-breed components (e.g. Business Rules engine, workflow engine, etc.) are leveraged behind the scenes and a custom application is built to facilitate the integration of capabilities provided by the components to accommodate the SSF business processes.

An additional 90-120 day recommendation is to investigate the Microsoft technology stack to assess feasibility of leveraging tools (e.g. Power BI, Power Query, etc.) which may fulfill a considerable set of functional and Mission Critical application requirements. There may also be cost benefits based on ODE's current Office 365 licensing agreement.

External Build Benchmarking Summary

ITRG completed some primary research by utilizing a seasoned group of expert software developers (SME's) to help establish a rough order of magnitude for an externally developed new SSF application:

- Limited scope provided primarily focused on functionality categories (Counts and Units of Measure) and high-level future state requirements
- Completed a SME review discussion to add additional color/context
- SME estimate included full SDLC lifecycle (including post-deployment hyper care).

Estimating Expert	Estimated Cost Range	Degree of Certainty	External Team Size (dependent on project phase)	Estimated Duration
#1	$3,300,000	+/- 30% ($2.3M to $4.3M)	5-9 FTE	~ 1 to 1.25 years
#2	$1,400,000	+25% to 40% ($1.8M to $2M)	4-8 FTE	~ 9 to 12 months
#3	$3,500,000	+/- 25% ($2.7M to $4.4M)	7-9 FTE	~ 1 to 1.25 years
Average	**$2,700,000**	**$2.3M to $3.6M**	**4 to 9 FTE's**	**9 months to 1.25 years**

The industry expert estimates were based a set of smaller custom-development providers (10-50 person development company) would price this type of project. It is very possible that depending on the type of external vendors chosen (e.g. a larger development company) these estimates could be higher.

A second benchmark is a current ITRG client who is approximately 50% complete with a state school funds system project:

Consideration	Details
Technologies	• Leveraging Microsoft development stack (.Net) and Azure platform • Integration of productized business rules engine component

Staffing	• 9-14 FTE
	  ○ Project Manager (1 FTE)
	  ○ Architect (1 FTE)
	  ○ Business Analysts (3-4 FTE)
	  ○ Developers (2-4 FTE)*
	  ○ QA Analysts (2-4 FTE)
	  ○ Business UAT (1 FTE)
	** There is an existing pool of development resources to pull from*

Budget	• Development: $6M (potential range is estimated at $3-$7M to apply within ODE's scope and context) • On-going support: $100K annual estimate
Challenges	• High demand for UAT resources, who are business users of the School Funding processes. The demand for UAT resourcing bleeds into blackout periods, where resources are required to facilitate time-sensitive processes within the existing system/processes that competes with UAT testing priorities/availability. A mitigation for ODE is to increase coordinator institutional knowledge and capacity ahead of the project • High turnover experienced in QA and BA roles

It should be noted that this state may have less/more sophisticated state school funding requirements compared to ODE. The project's scope, approach, solutioning, and timeline will also be different for ODE. This estimate was not intended to be a direct comparison against ODE's SSF scope/investment. Both benchmarking estimates can be used as an ODE input into the project's funding request.

Alternatives Scoring Summary

		Raw Scoring			Scored Alternatives		
Criteria	**Criteria Weight**	**Alt 1 (IN/IN)**	**Alt 2 (OUT/IN)**	**Alt 3 (OUT/OUT)**	**Alt 1 (IN/IN)**	**Alt 2 (OUT/IN)**	**Alt 3 (OUT/OUT)**
Alignment with Business Strategy & Needs	**30%**	5	5	5	1.5	1.5	1.5
Risk and Complexity	**15%**	5	3	1	0.75	0.45	0.15
Industry Alignment & Future Proof	**20%**	4	5	5	0.8	1	1
Change Impact	**15%**	5	3	1	0.75	0.45	0.15
Investment	**20%**	5	3	1	1	0.6	0.2
Total					**4.8**	**4**	**3**

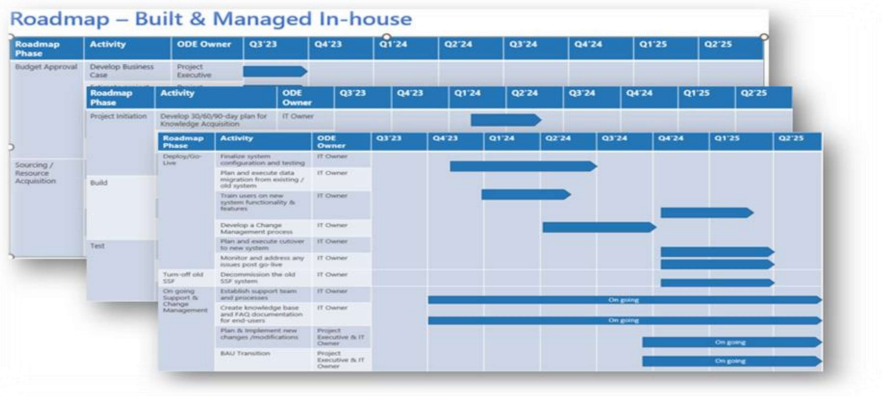
Recommendation Roadmap for Recommended Alternative

- Timeline:

Approvals: 3-6 months (Q3 to Q4 2023)

Sourcing: 3 - 6 months (Q1 to Q2 2024)

Build & Transition: 18 months (Q3 2024 to Q4 2025) +/- 25%



Note: - A Detailed Roadmap will be shared as a separate deliverable

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Alternatives Evaluation & Scoring

Alternatives Assessment Framework- Scoring Criteria and Weighting

Alignment with Business Strategy & Needs

30%

Future State SSF application meets business needs to best support the achievement of ODE's and the State's long-term goals and purpose (Governor's Strategic Plan & IRM). Provide effective functional and operational fit.

Risk & Complexity

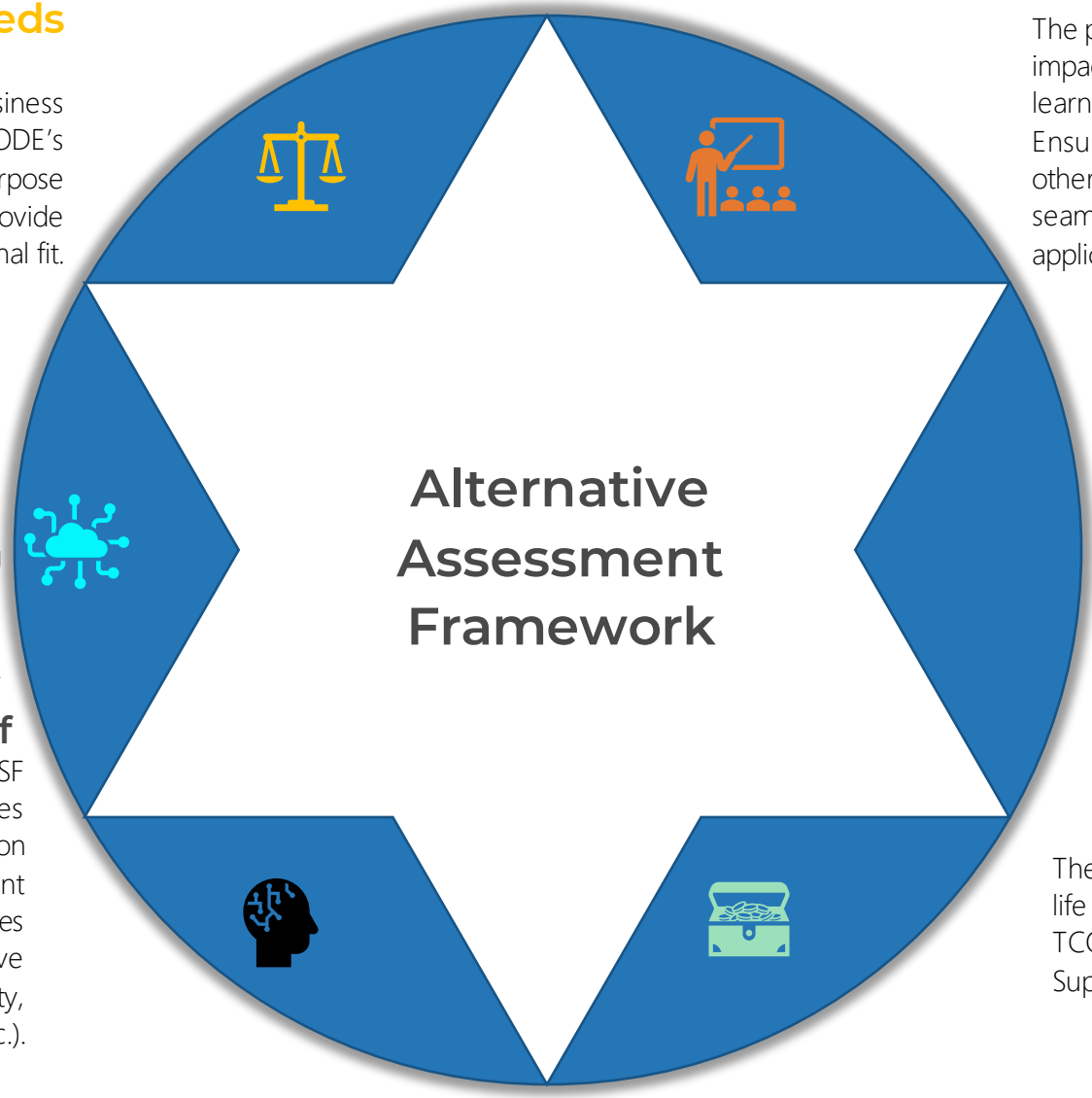
15%

Spans a variety of Risks to include forecasting accuracy, functional/operational risk, execution risk, contractual risk, and on-going support/management risk and proper controls to manage complexity across the organization.

Industry Alignment & Future Proof

20%

Improved alignment between future SSF Guiding Principles and ODE's IT services /systems management requirements (Mission Critical System). Future State SSF alignment with key technology and architecture principles that enable future changes in a cost effective manner (maintainability, testability, extensibility, upgradability, adaptability, etc.).



Change Impact

The potential alternative's level of change impact on internal teams (including the learning curve to full productivity). Ensure minimal impact to SD's, ESD's an other SSF application stakeholders with a seamless transition to the new SSF application

15%

Investment

The level of investment required over the life of the new SSF Application from a TCO perspective (Build and Support/Manage).

20%

Alternatives Evaluation

Weightage	Criteria	Alt 1 (IN/IN)	Alt 2 (OUT/IN)	Alt 3 (OUT/OUT)	Measures
30%	Alignment with Business Strategy & Needs	• 5 • Brand new application to be built-to-suit • The new SSF application build will be strategically aligned	• 5 • Brand new application to be built-to-suit • Business involvement through development process	• 5 • Brand new application to be built-to-suit	• Scale – 1 to 5 • High: depicts that it meets most of the needs, • Medium: means that it is meeting some business needs, and • Low: means that it is meeting very few business needs.
20%	Industry Alignment & Future Proof	• 4 • Potentially lower future proofing based on the ability to hire / acquire talented technology skills	• 5 • Potential to higher future proofing due to access to global talent pool & technical expertise	• 5 • Potential to higher future proofing due to access to global talent pool & technical expertise	• Scale – 1 to 5 • 5 equates to highest industry alignment and future Proofing • All scores lower are decremented based on the same criteria

Alternatives Evaluation

Weightage	Criteria	Alt 1 (IN/IN)	Alt 2 (OUT/IN)	Alt 3 (OUT/OUT)	Measures
15%	Risk and Complexity	• 5 • Lowest risk • Single integrated business, development & support team • No potential commercial liability/ contractual risks • Lower complexity based on no organizational effort to accelerate 3rd party learning curve • No hand offs between outsourced provider & ODE • Additional new resources can learn the application and increase overall ODE institutional knowledge over time	• 3 • Incorporating a vendor to build the application adds complexity and risk for in-house support and management after transition	• 1 • Including a vendor supporting and managing the application increases the complexity and risk based on service level performance	• Scale – 1 to 5 • Spans a variety of Risks to include forecasting accuracy, functional/ operational risk, execution risk, contractual risk, and on-going support/management risk and proper controls to manage complexity across the organization
20%	Investment	• 5 • This is the cheapest long-term TCO based on Support/ Manage costs • New SSF application has the potential to leverage existing resource capacity that reduces incremental support & manage costs (above current state)	• 3 • Cheaper than Alt 3 • Extra effort to transition internal support/manage for any changes in future • ODE owns all future enhancements which requires ODE development capability	• 1 • Most expensive especially with 20 year Support/Manage activities (Potential for higher Dev costs, enhancements take longer/cost, etc.)	• Scale – 1 to 5 • Scored Highest to Lowest based on total TCO (Build and Support/Manage)

Alternatives Evaluation

Weightage	Criteria	Alt 1 (IN/IN)	Alt 2 (OUT/IN)	Alt 3 (OUT/OUT)	Measures
15%	Change Impact	• 5 • All Alternates are essentially equal with no planned External Change Impact • Lowest change impact to support and manage the system, resolve issues and ensure timely payments • Build development capacity inside of ODE	• 3 • Significant learning curve to educate vendor on SSF • Still requires ODE to develop build capability to Support/Manage the system over lifespan • Equal to Alternative 1 with regards to change impact to support and manage the system, resolve issues and ensure timely payments	• 1 • Significant learning curve to educate vendor on SSF for Build Support/Manage: • Issue identification is challenging • Push & pull-on accountability(ping pong effect on Issue Identification) • Dependency on vendor for urgent / immediate changes	• Scale – 1 to 5 • High • Med • Low

Alternatives Analysis – Scoring Summary

		Raw Scoring			Scored Alternatives		
Criteria	**Criteria Weight**	**Alt 1 (IN/IN)**	**Alt 2 (OUT/IN)**	**Alt 3 (OUT/OUT)**	**Alt 1 (IN/IN)**	**Alt 2 (OUT/IN)**	**Alt 3 (OUT/OUT)**
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Investment	20%	5	3	1	1	0.6	0.2
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Roadmap

Primary Research/Benchmarking Estimating

ITRG solicited input from a seasoned group of expert software developers to help establish a rough order of magnitude for an externally developed new SSF application:

- Limited scope provide focused on Functionality (counts and Units of Measure) and future state high-level requirements
- Completed a review discussion to add additional color/context
- Estimate included Full SDLC lifecycle including their recommended range for post-deployment hypercare
- SME's completed estimate

Estimating Expert	Estimated Cost Range	Degree of Certainty	Team Size (dependent on project phase)	Estimated Duration
#1	$3,300,000	+/- 30% ($2.3M to $4.3M)	5-9 FTE's	~ 1 to 1.25 years
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Average	**$2,700,000**	**$2.3M to $3.6M**	**4 to 9 FTE's**	**9 months to 1.25 years**

Rationale for Recommended Alternative

- The in-house alternative was selected due to its lower risk, lower change impact, and favorable total cost of ownership (TCO) when compared to other alternatives.

- An external review and examination of other state examples also support the in-house model.

- Future state requirements and technology decisions will be made during the development lifecycle, with a focus on incorporating best-of-breed modular technologies.

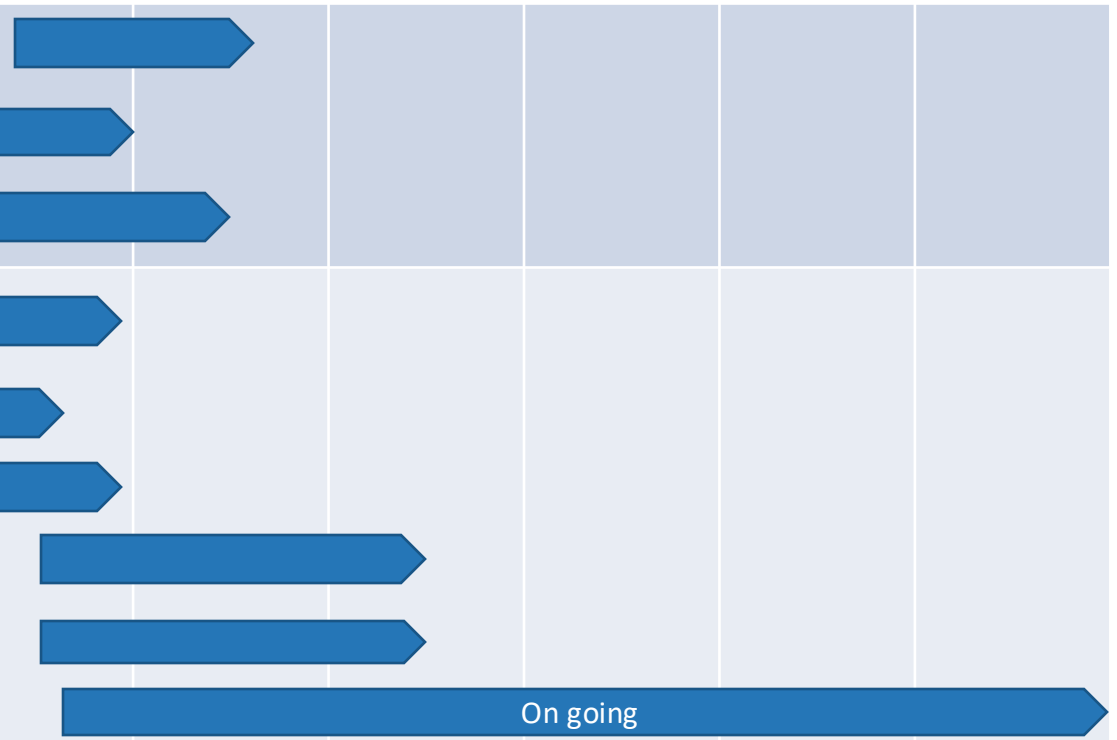
- The roadmap for the in-house alternative includes a 2.5-year time horizon that starts with funding approval and involves sourcing a new development team, completing development, and testing, and retiring the current system.

Roadmap – Built & Managed In-house

Roadmap Phase	Activity	ODE Owner	Q3'23	Q4'23	Q1'24	Q2'24	Q3'24	Q4'24	Q1'25	Q2'25
Budget Approval	Develop Business Case	Project Executive								
	Estimate project costs	Project Executive								
	Develop Budget Proposal	Project Executive								
	Complete Approvals	Project Executive								
Sourcing / Resource Acquisition	Requirements to 75%	Current Staff								
	Define key experience and skills for each role	IT Owner								
	Develop initial Job Description and Post Role	IT Owner								
	Interview, Offer, and Onboarding	IT Owner								

Roadmap – Built & Managed In-house

Roadmap Phase	Activity	ODE Owner	Q3'23	Q4'23	Q1'24	Q2'24	Q3'24	Q4'24	Q1'25	Q2'25
Project Initiation	Develop 30/60/90-day plan for Knowledge Acquisition	IT Owner								
	Requirements- Complete additional requirements	IT Owner								
	Solution Design- Complete top 5 Proof-of-concepts	IT Owner								
Build	Define project scope and requirements	IT Owner								
	Select and configure technology stack	IT Owner								
	Assemble resources and assign roles	IT Owner								
Test	Develop and test new system features & functionality	IT Owner								
	Conduct UAT, Identify and address any bugs /issues	IT Owner								
	Create user documentation / knowledge base	IT Owner								



Roadmap – Built & Managed In-house

Roadmap Phase	Activity	ODE Owner	Q3'23	Q4'23	Q1'24	Q2'24	Q3'24	Q4'24	Q1'25	Q2'25
Deploy/Go-Live	Finalize system configuration and testing	IT Owner								
	Plan and execute data migration from existing / old system	IT Owner								
	Train users on new system functionality & features	IT Owner								
	Develop a Change Management process	IT Owner								
	Plan and execute cutover to new system	IT Owner								
	Monitor and address any issues post go-live	IT Owner								
Turn-off old SSF	Decommission the old SSF system	IT Owner								
On going Support & Change Management	Establish support team and processes	IT Owner								
	Create knowledge base and FAQ documentation	IT Owner								
	Plan & Implement new changes /modifications	Project Executive & IT Owner								
	BAU Transition	Project Executive & IT Owner