

STATE OF RHODE ISLAND ENTERPRISE APPLICATIONS STRATEGIC PLAN

DECEMBER 2019



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Executive Summary

Introduction

The Enterprise Applications Strategic Plan is the foundation for Rhode Island's multi-year effort to transform its enterprise technology and business processes to better meet the needs of the State, its residents, and its partners.

The need for a comprehensive Strategic Plan arose from the recognition by Rhode Island leadership that the State must:

- 1) Reduce high risk of process or system failure on certain systems the State relies upon to perform its essential administrative responsibilities
- 2) Provide greater modern functionality to those charged with managing the State's resources, enabling improvements in how work is performed
- 3) Address audit findings (detailed in Appendix V) related to insufficient controls and the lack of a comprehensive approach to replacing aging administrative systems

This report was created in collaboration between the State and Accenture, a consulting firm that the State engaged through a competitive request for proposals (RFP) process.

The Strategic Plan provides a roadmap that will guide the State's transformation from numerous, antiquated, non-integrated business applications to a unified, modern, cloud-based Enterprise Resource Planning (ERP) system. An ERP combines an organization's main resources – its people, money, information, and assets – and merges it into information to strategically guide and manage.

Functionality in-scope of this initiative include:

- Human Resources applications
- Payroll applications
- Finance applications
- Enterprise Support applications

The transformation of Rhode Island's enterprise applications is less an opportunity and more of a necessity. State leaders have critical compliance and performance responsibilities that they cannot feel comfortable in accomplishing with existing processes and technology. They are unanimous in their support of this enterprise applications modernization effort, and in their conviction that the status quo fails to meet Rhode Island's needs. The risks of inaction far outweigh the cost of upgrades in capability. This program or initiative is about targeting the resources we have to make a bigger difference for more people. The list below summarizes a subset of the reasons why Rhode Island must modernize its enterprise applications.

- Decision-makers are unable to receive accurate information in a timely manner
- Rhode Island's systems are outdated – even in comparison to its State government peers
- Current systems are susceptible to single points of failure and security risk
- The handful of experts the State is reliant upon to keep the current systems operational are nearing – or already eligible for – retirement
- Antiquated systems and processes hinder the State's ability to attract the next generation of talent
- Errors and rework resulting from non-integrated systems and duplicate data entry waste time and money

- Enterprise technology powers the State – and has a downstream impact on its ability to serve its residents

Residents now expect public organizations to nimbly anticipate needs and deliver services more efficiently and effectively. Reforms must start in the “back office” – by the leaders responsible for enterprise functions including finance, audit, grants, budget, payroll, and human resources. These functions, and the systems that support them, are the engines of public service value delivery. The current enterprise applications are a constraint to performance. The transformation of these enterprise applications, described in this Strategic Plan, is an enabler to performance. All dates in this document are directional pending funding and approval to proceed

Objectives

Due to the many challenges, the State requires a different future vision – both for completing a successful initiative and for delivering the improvements that an ERP will enable. The program strives to generate the following vision:

Although it may be the smallest state, Rhode Island has once again shown the way for its peers. Its new Enterprise Resource Planning system has allowed the State to transform itself into a model of efficiency. Despite challenges, ranging from constrained budgets to the intricacies of replacing a patchwork of paper processes and aging technology, the State and its partners were up to the task, completing the project on-time and on-budget. But beyond just delivering a successful go-live, the State has delivered real benefits to its taxpayers – millions in savings, reduced risk to the State’s data, improved customer service, and timely and accurate information provided to decision-makers. The new ERP makes it easier for State employees to do their jobs and enables better service to the public.

Target Solution and Timeline

Rhode Island will pursue a Software-as-a-Service (SaaS)/Cloud solution for ERP. In comparison to a traditional, on-premises deployment, this approach offers the following advantages:

1. **Speed:** Speed to deliver, ease of use, and access via mobile devices
2. **Cost reduction:** Reduced demand on in-house IT staff, upgrades are included in service, the State is always on the latest version, reduction in hardware costs
3. **Flexibility and Scalability:** Software is configurable with the ability to grow with the needs and size of the State
4. **Innovation:** Software stays up-to-date with changing technology and leverages the software vendors’ investments in research and development

For core Finance and HR/Payroll functionality, the State will seek proposals that include a single, integrated set of software applications. For functionality outside of the core, the State will allow the vendors, through the RFP process, to propose options to accomplish these functions via their own software or via specialized “best-of-breed” software.

Figure 1 below displays the high-level target solution. Functionality supporting business processes inside the solid-line box, labelled Core Finance and HR, will be acquired as a single instance from a single ERP software vendor. Functionality supporting business processes in the six dotted-line boxes (Grants,

Debt/Investments, Budget, Enterprise Business Intelligence, Time and Attendance, and Talent Acquisition) will be acquired based on the evaluation of vendor proposals.

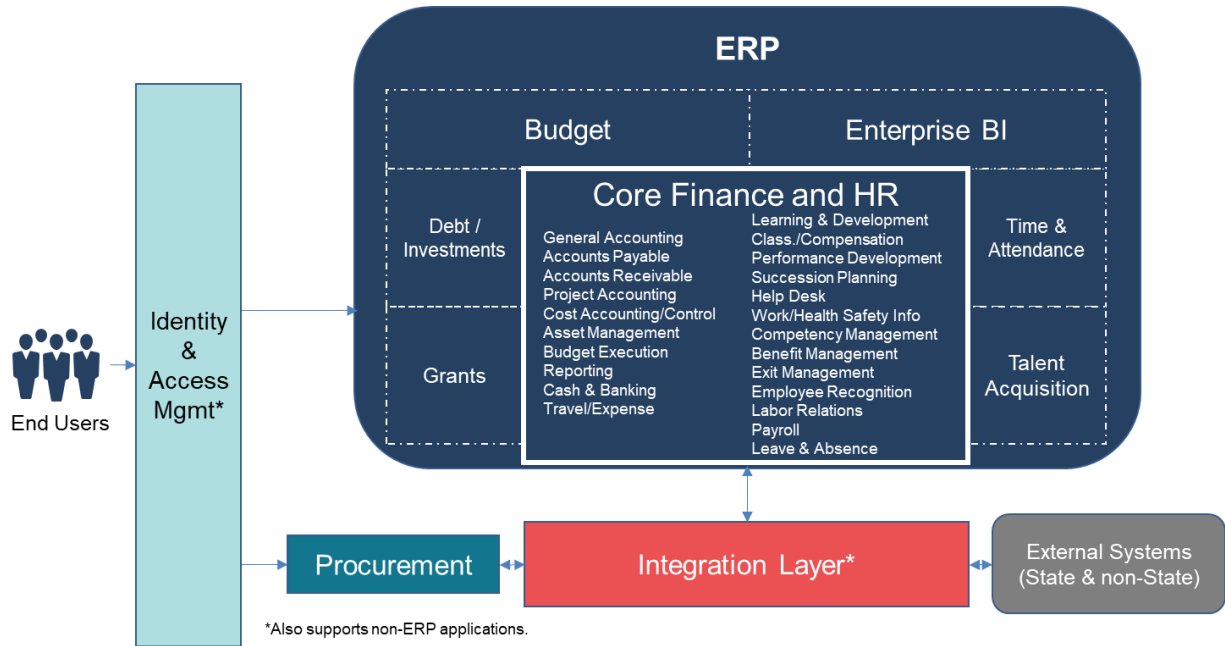


Figure 1: High-Level Solution Architecture

Multiple options were considered for delivering the target solution within a timeframe that allows Rhode Island to maximize speed to business value while minimizing risk. For planning purposes, the State selected a 39-month implementation timeframe, shown below in Figure 2.ⁱ

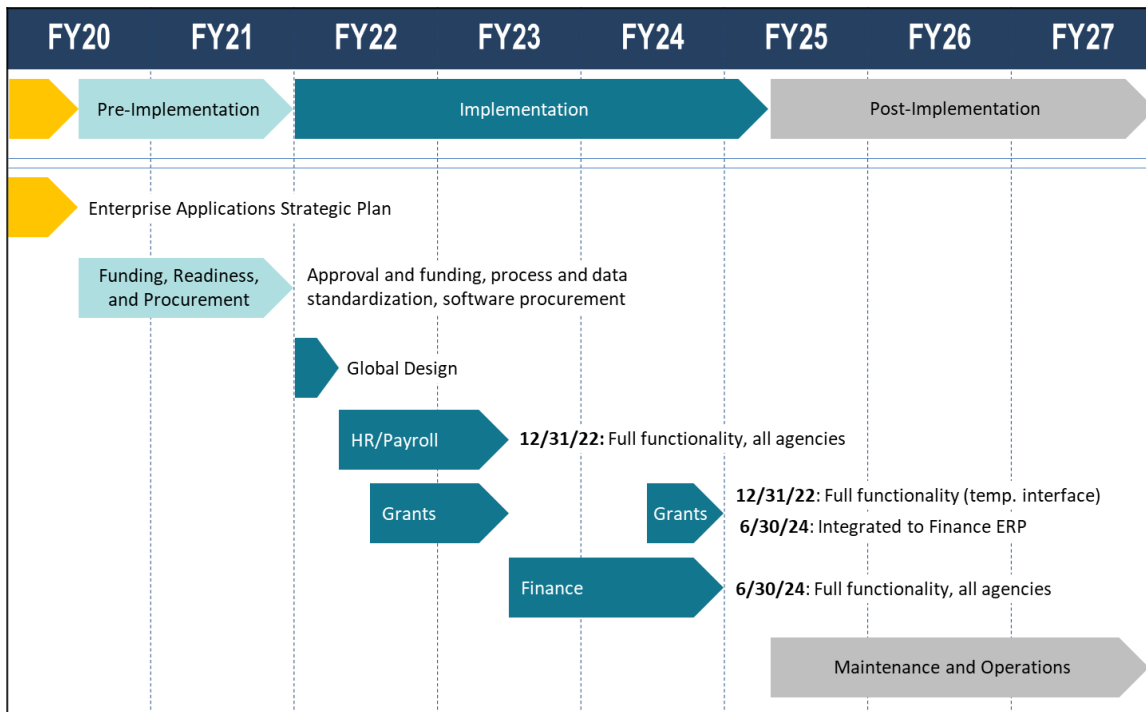


Figure 2: High-Level Program Timeline*

Staffing and Cost

Should this Strategic Plan be approved and funded, the staffing plan includes a combination of existing and new State personnel. During the Pre-Implementation phase, a governance team consisting of State IT, Human Resources, and Finance leadership will be responsible for obtaining approval and funding, overseeing the RFP process, and launching other readiness activities. A core team and extended team support these efforts.

During the Implementation phase, the governance team and core team evolve into the Program Management and Oversight group. A new Project Management team is mobilized. The Implementation team reports to the Project Management team, organized into the HR/Payroll, Grants, Finance, Organizational Change Management, and Technical teams. The State has adopted an integrated team concept, with State employees matched with consultant labor for many of the tasks.

The Post-Implementation phase is made up solely of State resources. The management and governance team will provide guidance and strategy for the ongoing operation of the new enterprise applications. Additionally, HR/Payroll, Grants, and Finance each have an operation and maintenance (O&M) team consisting of State resources supporting end-users for business functionality, technical issues, and ongoing training and Change Management.

The Cost Model below in Figure 3, shows the total budget request for net new resources of \$73.7 million from FY21-FY27.

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Total
State Labor	-	\$2.3M (17.4 FTE)	\$2.3M (18.2 FTE)	\$1.7M (15.0 FTE)	-	-	-	\$6.3M
Consultant Labor	\$1.5M	\$15.7M	\$16.5M	\$16.0M	\$0.6M	-	-	\$50.3M
Software	-	\$2.4M	\$2.5M	\$2.5M	\$2.6M	\$2.7M	\$2.8M	\$15.5M
Other Costs	-	\$0.8M	\$0.4M	\$0.4M	-	-	-	\$1.6M
Total	\$1.5M	\$21.2M	\$21.7M	\$20.6M	\$3.2M	\$2.7M	\$2.8M	\$73.7M

Figure 3: Net New Program Cost by Fiscal Year*

Funding and Financing

The recommended funding approach is a combination of appropriations from the operating budget and capital budget. The recommended financing approach is to issue Certificates of Participation (COPs) to provide the cash for net new resources needed for implementation, combined with reimbursement of debt service and post-implementation costs from stakeholders. Figure 4 below shows the budget requirements by Fiscal Year before financing.

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Total
Operating	\$1.5M	\$3.3M	\$3.3M	\$2.7M	\$2.6M	\$2.7M	\$2.8M	\$18.9M
Capital	-	\$17.9M	\$18.4M	\$17.9M	\$0.6M	-	-	\$54.8M
Total	\$1.5M	\$21.2M	\$21.7M	\$20.6M	\$3.2M	\$2.7M	\$2.8M	\$73.7M

Figure 4: Budget Requirements by Fiscal Year Before Financing*

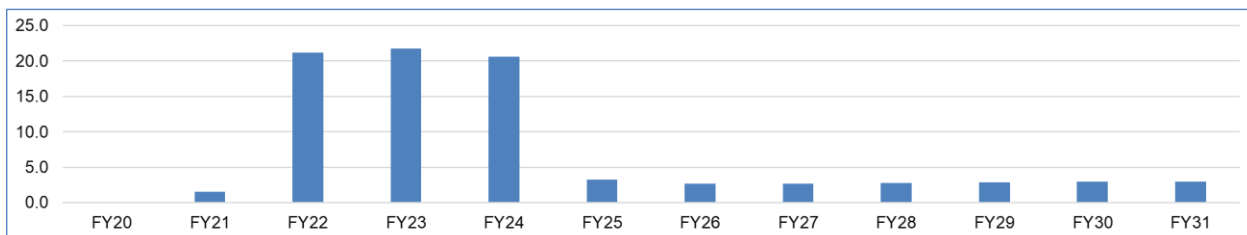
COPs are a tax-exempt financing mechanism used by Rhode Island and other states to finance expenses for large-scale information technology programs. Two rounds of COPs are assumed, one round in FY22 for \$36.3M and a second round in FY24 for \$18.5M. The payment of debt service models a 7-year schedule, thereby extending the timeframe to FY31, which is shown below in Figure 5.

Operating Budget	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	Total
Program expenses, FY21-FY27	\$1.5M	\$3.3M	\$3.3M	\$2.7M	\$2.6M	\$2.7M	\$2.8M	-	-	-	-	\$18.9M
Principal on COPs	-	\$0.5M	\$5.1M	\$5.4M	\$7.8M	\$7.8M	\$7.7M	\$7.7M	\$7.7M	\$2.6M	\$2.6M	\$54.8M
Program expenses and principal on COPs	\$1.5M	\$3.8M	\$8.4M	\$8.1M	\$10.4M	\$10.5M	\$10.5M	\$7.7M	\$7.7M	\$2.6M	\$2.6M	\$73.7M
Interest on COPs	-	\$0.1M	\$0.7M	\$0.7M	\$1.0M	\$1.0M	\$1.0M	\$1.0M	\$1.0M	\$0.4M	\$0.3M	\$7.3M
Ongoing program expenses, FY28-FY31	-	-	-	-	-	-	-	\$2.9M	\$3.0M	\$3.0M	\$3.2M	\$12.1M
Operating Budget Outflows	\$1.5M	\$3.9M	\$9.1M	\$8.8M	\$11.4M	\$11.5M	\$11.5M	\$11.6M	\$11.7M	\$6.0M	\$6.1M	\$93.1M

Figure 5: Operating Budget Outflows*

The net effect of the recommended financing strategy is to “smooth” the cash flow, as compared to a “pay as you go” strategy, which are compared in Figure 6.

Pay-As-You-Go



Financed Cash Flow

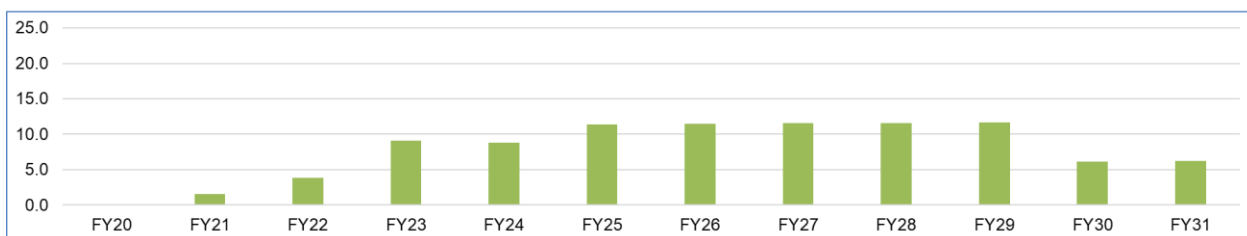


Figure 6: Pay-As-You-Go Compared to Financed Cash Flow*

Benefits

The discussion of benefits is pervasive in the Strategic Plan. Hard dollar benefits refer to directly measurable decreases in expenditures that would result from the implementation of a change or automation to a business process. Soft dollar benefits include process efficiencies and other desirable outcomes that may not immediately impact the State’s bottom line. Both types of benefits are important and are reasons that help justify the cost and effort to execute the Strategic Plan.

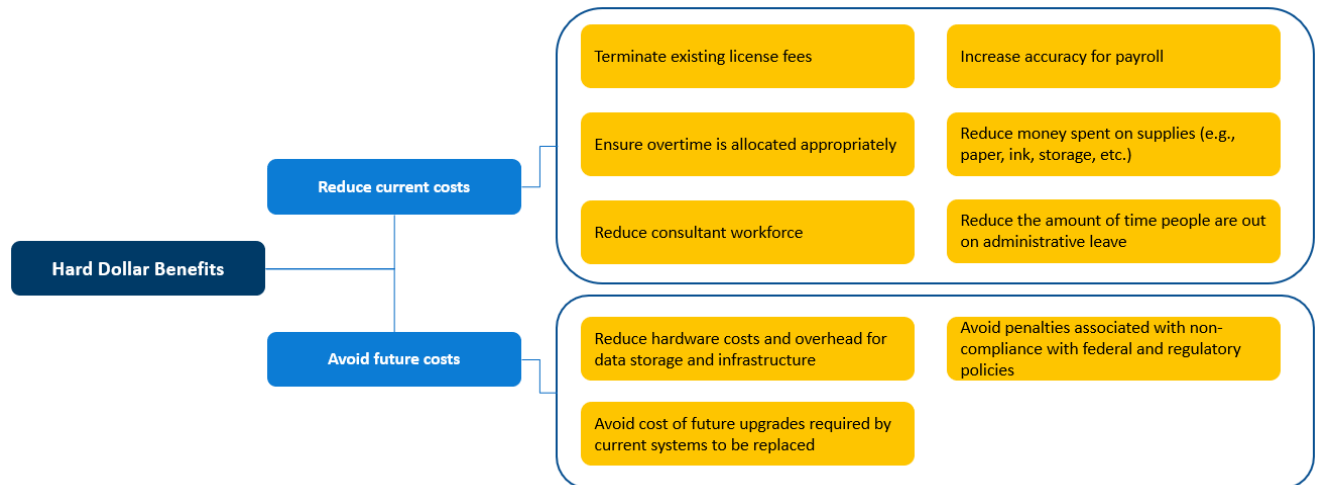


Figure 7: Hard Dollar Benefits

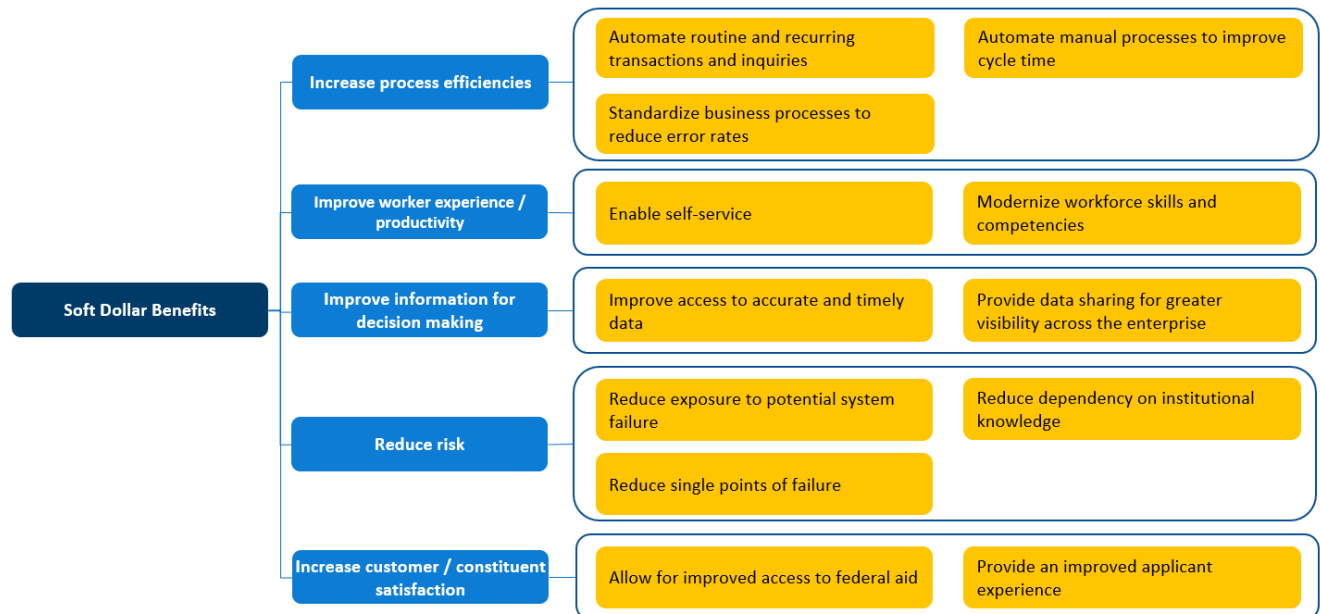


Figure 8: Soft Dollar Benefits

Critical Success Factors and Risk Mitigation

The two greatest risks to the success of this program relate to the State's ability to dedicate sufficient resources.

- **Staffing** – The State is dependent upon a small number of IT and business subject matter experts to both (1) provide the critical knowledge needed to replace current technology with ERP functionality and (2) maintain the current systems and meet the day-to-day needs of the State. Both imperatives cannot be accomplished without hiring more resources to permit these experts to dedicate the requisite time to the program.
- **Funding** – Investments in modern technology will require the State to identify a funding source to pay for costs associated with planning, implementation, and ongoing software maintenance. Large outlays during certain fiscal years could provide a challenge in an era of constrained budgets. The funding and financing strategy aims to mitigate this risk.

Organizational Change Management Approach

The most common mistake that organizations make in implementing an ERP is underinvesting in Change Management. Effective end-user adoption is a critical success factor for the State to realize the business benefits described in the Strategic Plan. Success is defined as not only the software going live but ensuring that end users can deliver better results by putting the power of the new technology fully to work.

The Organizational Change Management approach is based on the following guiding principles.

- 1) Focus on the people who will do the work
- 2) Drive business value for the State
- 3) Communicate early and often
- 4) Implement the organizational change strategy based on data

Integration Approach

The integration approach is based on the following guiding principles.

- 1) Leverage, to the extent feasible, integration functionality that is provided by the ERP software
- 2) Implement an integration solution that is flexible and scalable over time and can be easily maintained by State resources

Data Conversion Approach

The data conversion approach is to store records and data in the new ERP required by law or required for ongoing processing, and not convert (i.e., leave behind in current systems) all other data. The approach benefits the State by reducing the burden for conversion.

The data conversion approach is based on the following guiding principles.

- 1) Store all historical data and records that the State is legally required to retain and report in ERP
- 2) Convert data necessary for ongoing processing and reporting
- 3) Test thoroughly to ensure that data is converted accurately
- 4) Review and clean-up data that will be converted into the new system prior to conversion

Master Data Management Approach

Like other enablers of successful enterprise processes, properly executed Master Data Management (MDM) is a critical success factor. Master data is the State's "single source of truth" for basic business data used across multiple applications and processes. The approach must provide clear, well-defined standards and processes for governing master data.

The Master Data Management approach is based on the following guiding principles.

- 1) Establish an effective governance and management process
- 2) Include all relevant business owners (i.e., Finance, Human Resources, Procurement, Budget)
- 3) Follow this governance and management process through the Implementation and Post-Implementation phases

Security Approach

Robust and effective security is a foundational aspect of the Strategic Plan. It is imperative that new enterprise applications protect the State's assets. This means the security approach must prevent unauthorized access and protect privacy. At the same time, it must balance efficiency objectives, such as making data available and access easy for end users.

The security approach is based on the following guiding principles.

- 1) Adopt a multi-dimensional security approach, including people, process, and technology
- 2) Comply with Federal, industry standards and State policies
- 3) Leverage existing and planned Rhode Island security related solutions and initiatives
- 4) Leverage security features and functionality inherent in the modern SaaS/Cloud ERP software
- 5) Embed security as a priority in each phase of the program

Executive Summary Conclusion

So why did we create this Strategic Plan? The answer, in a single sentence, is to help Rhode Island in the pursuit of excellence in the accomplishment of its administrative functions. New and modernized enterprise applications are a means to the end goal: delivering top quality services to the public.

The Strategic Plan includes sample benchmarks and Key Performance Indicators aligned with State government leading practices. These are included in Appendix I. This list is indicative, not exhaustive, and provides examples of potential starting points for measuring the program's success in delivering business value.

The current generation of Rhode Island leaders has an opportunity to become the group who succeeded in making the shifts that will help the State become more of a performance organization that puts the mission at its core; makes achievement of results and delivery of value consequential; assures accountability for meeting and exceeding the expectations of those being served; puts more control in the hands of those closest to the work; and creates a culture that empowers high performance. The Enterprise Applications Strategic Plan charts the path and is further evidence of the State's commitment to revolutionize the delivery of public service for the future. The next step is for us to undertake that journey and bring Rhode Island forward to achieve its potential.

Guide to this Document

The Enterprise Applications Strategic Plan includes eight chapters. Each chapter is designed to answer one or two central questions.

Section	Central Question Addressed
I. Introduction	Why is the status quo unsustainable?
II. Objectives	How do we envision a different future and what will guide us?
III. Target Solution and Timeline	How do we propose to transform our enterprise applications to enable that vision and when will we do it?
IV. Staffing and Cost	What will it take to enable this transformation?
V. Funding and Financing	How will we pay for it?
VI. Benefits	What benefits will our stakeholders receive as a result?
VII. Critical Success Factors and Risk Mitigation	What potential pitfalls would prevent us from achieving these benefits, and how do we plan to mitigate them?
VIII. Conclusion	How will we know that we have been successful in meeting our objectives?

I. Introduction

This section describes the purpose of the Enterprise Applications Strategic Plan, current challenges the Strategic Plan aims to address, and how this document is organized.

What is the Enterprise Applications Strategic Plan?

The Enterprise Applications Strategic Plan is the foundation for Rhode Island’s multi-year effort to transform its enterprise technology and business processes to better meet the needs of the State, its residents, and its partners. This document is the capstone of an initiative to address the strategic questions the State encountered as it considered options for modernizing its statewide administrative applications – focusing on Human Resources, Payroll, and Finance – and importantly, ensuring that investments in new technology deliver genuine business value and long-term results.

The need for a comprehensive Strategic Plan arose from the recognition by Rhode Island leadership that the State must:

- 1) Reduce high risk on certain systems the State relies upon to perform its essential administrative responsibilities
- 2) Provide greater modern functionality to those charged with managing the State’s resources, enabling improvements in how work is performed
- 3) Address audit findings (detailed in Appendix V) related to insufficient controls and the lack of a comprehensive approach to replacing aging administrative systems

This report was created in collaboration between the State and Accenture, a consulting firm that the State engaged through a competitive request for proposals (RFP) process.

The Strategic Plan provides a roadmap that will guide the State’s transformation from numerous, antiquated, non-integrated business applications to a unified, modern, cloud-based Enterprise Resource Planning (ERP) system. The Strategic Plan describes a schedule of near-term and long-term activities to meet this objective in a practical and cost-effective manner. It also includes staffing and cost estimates to allow the State to begin resource planning. All dates in this document are directional pending funding and approval to proceed.

What Are Enterprise Applications, and Which Are In-Scope for the Strategic Plan?

“Enterprise Applications” refer to technology-enabled tools that support business processes common across State agencies. In certain cases, and in many States, public higher education institutions, municipalities, and the non-Executive branches of government also use these applications.

While their missions vary widely, each state entity must perform certain essential functions. Examples include hiring and managing personnel; paying staff, vendors, and grant recipients; tracking time and attendance; scheduling workers and managing leave requests; developing and managing budgets; and accounting and reporting for the use of state funds. These “enterprise processes” include the broad areas of finance, human resources, payroll, procurement, and budget development.

If each agency were to develop its own tools and procedures for accomplishing these activities, the result would be an arrangement that duplicates significant effort at a higher cost. It would render tasks that require an enterprise view, such as statewide reporting and strategic sourcing, difficult if not impossible. The individual requirements of specific agencies may differ in some areas, but the broader

principle remains the same: support essential functions which are common across State government via an enterprise approach and a shared ERP system.

The Strategic Plan focuses on business process areas that have been prioritized for modernization. Certain areas are more advanced than others, and some initiatives are already underway, such as the deployment of Ocean State Procures, a new statewide eProcurement system. In the long-term, the State may consider its options for unifying these systems. The in-scope applications are summarized below.

- Human Resources applications, including functionality associated with:
 - Time Administration
 - Leave and Absence Management
 - Workforce and Competency Planning
 - Talent Acquisition
 - Benefits Management
 - Classification and Compensation
 - Performance Evaluation
 - Employee Recognition
 - Learning and Development
 - Succession Planning
 - Exit Management
 - Work, Health and Safety Information
 - Labor Relations
 - Help Desk and Employee/Manager Self-Service
 - HR Statutory Reporting
 - HR Performance Reporting and Analytics

- Payroll applications, including functionality associated with:
 - Payroll Administration
 - Payroll Tax Administration
 - W-2 Reporting
 - Garnishments
 - Direct Deposit
 - Time and Attendance Tracking
 - Payroll Statutory Reporting
 - Payroll Performance Reporting and Analytics

- Finance applications, including functionality associated with:
 - General Accounting
 - Budget Execution
 - Accounts Payable
 - Accounts Receivable
 - Project Accounting
 - Cost Accounting and Controlling
 - Asset Management
 - Audit and Compliance, Internal Controls, and Risk Management
 - Grants Management

- Treasury functions (Cash and Banking, Investment, and Debt Management)
 - Budget Development
 - Travel and Expense
 - Statutory Reporting
 - Enterprise Performance Reporting and Analytics
- Supporting Applications, including functionality associated with:
 - Business Intelligence and Reporting
 - Integration

An Enterprise Resource Planning system is a suite of integrated applications which perform most of the business processes listed above, and exchanges data with other specialized systems for those functions it does not perform, allowing for a holistic view of the enterprise. ERPs pull together an organization's main resources – its people, money, information, and assets – and combine it into information to strategically guide and manage. Moving to a unified, cloud-based ERP represents the best opportunity for Rhode Island to modernize its enterprise applications.

What is the Case for Change?

While the State leaders and staff consulted in the creation of the Strategic Plan varied in many ways – by level, agency, functional specialty, tenure with the State – they were uniform in their conviction that the status quo fails to meet Rhode Island's needs. Current IT staff and business users manage information via a hodge-podge of systems, workarounds, and manual processes, including paper-based transactional activities. Doing so is not viable long-term.

Given the complexity associated with large-scale IT transformation projects, concern for the project risks and general apprehension is understandable. Later in the Strategic Plan, a chapter is dedicated to identifying risks and approaches to mitigate them. As noted in recent Auditor General reports, detailed in Appendix V, the reality is that the current enterprise application landscape already puts the State at significant risk.

The risks inherent in any large technology project must be weighed against the risk of inaction. The risks of maintaining the status quo will grow with time. The long-term consequence of underperformance is potentially even more damaging. The list below summarizes a subset of the reasons why Rhode Island must modernize its enterprise applications.

Decision-makers are unable to receive accurate information in a timely manner. The ability to draw actionable insights from data is a primary benefit of a modern ERP. Multiple stakeholders singled out payroll data as necessitating frequent, time-intensive efforts to standardize and properly format in order to support analysis.

Rhode Island's systems are outdated – even in comparison to its state government peers. Rhode Island is one of twelve states that lack a modern Enterprise Resource Planning system. Of these twelve, six are already underway in their ERP implementations. With over 15,000 employees and a \$9 billion annual budget, Rhode Island still relies on paper timesheets. The State lacks a coherent Human Resources system, which presently consists of a patchwork of mainframe legacy systems, niche applications, and paper-based processes. The State's finance systems, RIFANS and RIDOT FMS, are over a decade old, and the vendor community is focusing its investment in more innovative products. Separate applications for

finance, human resources, and payroll prevent the State from gaining the benefits of an integrated, centralized view of the State's resources.

Current systems are susceptible to single points of failure and security risk. The more touchpoints, the more opportunities for malicious actors to exploit weaknesses. Greater complexity also increases the potential for integration failures and other security issues. A breach of HR, payroll, or financial data has massive economic and reputational costs and consequences. Single points of failure – whether the result of aging technology or critical processes dependent upon one person – can interfere with several vital outcomes: paying employees, vendors, municipalities, and beneficiaries; producing timely financial reports, thus jeopardizing the State's credit rating; or complying with State and Federal laws.

The handful of experts the State is reliant upon to keep the current systems operational are nearing – or already eligible for – retirement. In addition to the risk of this institutional knowledge loss, some critical systems have been in operation for decades and are coded in languages which are no longer common in the job market. Developers able to code in these languages are rare and increasingly expensive to hire.

Antiquated systems and processes hinder the State's ability to attract the next generation of talent. Rhode Island's outdated technology also threatens its ability to attract and retain new workers. Consider the experience of a new budget analyst with exceptional analytics skills who spends most of their time hunting for data instead of analyzing it – or that of their supervisor who must explain that standard information needed for a routine budget projection does not exist. Or an aspiring HR leader who joins the State from the private sector to find that processing a personnel change requires the use of a typewriter with multi-carbon forms. Recent graduates working for the State fear that their skills are already atrophying. These are all real examples cited by current employees. Modern technology will help the State become an employer of choice, growing the skills of its workforce.

Errors and rework resulting from non-integrated systems and duplicate data entry waste time and money. The need to enter the same information in more than one place is pervasive, produces errors, and undermines data quality. The result is hours spent reconciling figures from disparate sources and lower employee job satisfaction. With modern tools, the current workforce could focus on analysis instead of processing transactions.

Enterprise technology powers the State - and has a downstream impact on its ability to serve its residents. There is sometimes a reluctance to dedicate resources to initiatives perceived as “general government operations.” This view is shortsighted. Delays in hiring and onboarding staff lead to overstretched employees in critical human service programs. The public has expectations which are shaped by the private sector – that solutions are easy, intuitive, always available – and government needs to keep up.

II. Objectives

This section defines the vision for the program's success and the operating principles that the team responsible for delivering it will follow.

What Would Success Look Like?

Given the many challenges that Rhode Island faces due to its existing enterprise applications, the State requires a different future vision – both for completing a successful initiative and for delivering the improvements that an ERP will enable. If a news article is written several years in the future describing its outcome, this is the vision that the program strives to generate:

Although it may be the smallest state, Rhode Island has once again shown the way for its peers. Its new Enterprise Resource Planning system has allowed the State to transform itself into a model of efficiency. Despite challenges, ranging from constrained budgets to the intricacies of replacing a patchwork of paper processes and aging technology, the State and its partners were up to the task, completing the project on-time and on-budget. But beyond just delivering a successful go-live, the State has delivered real benefits to its taxpayers – millions in savings, reduced risk to the State's data, improved customer service, and timely and accurate information provided to decision-makers. The new ERP makes it easier for State employees to do their jobs and enables better service to the public.

What Are the Principles that Will Guide Us?

Operating principles define an organization's purpose, accountability, incentives, culture, and control. Over the course of this program, the team responsible for its delivery will encounter tough questions with important outcomes for Rhode Island and its partners. This list will serve as the guiding principles for the program.

PURPOSE: WHAT DIFFERENCE DO WE WANT TO MAKE FOR THE PEOPLE WHO LIVE AND WORK IN RHODE ISLAND?

WHAT CONSTITUTES SUCCESS AND HOW WILL WE KNOW?

- Deliver service that meets or exceeds the expectations of those we serve
- Embrace feedback from those we serve
- Measure our performance against external benchmarks
- Continue to improve how we work and the results we deliver

ACCOUNTABILITY: TO WHOM AND FOR WHAT ARE WE ACCOUNTABLE? HOW DO WE EXPERIENCE ACCOUNTABILITY?

- Deliver high-quality services to our stakeholders
- Ensure compliance to laws, regulations, and policies on behalf of the people of Rhode Island
- Act transparently
- Get direct and immediate feedback from those we serve and use it to continuously improve
- Act as effective guardians of Rhode Island's resources (natural, financial, intellectual, reputational) for the next generations

INCENTIVES: HOW DO WE MOTIVATE PEOPLE TO ACHIEVE THE RESULTS THAT WE SEEK?

- Offer opportunities for development and encourage continuous improvement
- Recognize and reward when results exceed expectations
- Ensure employees appreciate the impact of their work

CONTROL: WHO MAKES WHAT DECISIONS? HOW ARE AUTHORITY, RESPONSIBILITY, AND ACCOUNTABILITY ALIGNED?

- Delegate authority to the extent possible, consistent with appropriate law, regulation, and risk
- Set clear expectations on who is responsible and accountable for results
- Achieve compliance through performance measurement, feedback and enforcement
- Perform activities and make decisions in a timely way

CULTURE: WHAT ARE THE UNWRITTEN RULES THAT DRIVE BEHAVIOR IN OUR ORGANIZATION?

- Trust and empower people
- Foster diversity and inclusion
- Learn from the past to innovate for the future
- Nurture flexibility, transparency, and collaboration
- Promote a customer service mindset
- Provide opportunities for professional and personal growth
- Inspire pride in public service

III. Target Solution and Timeline

This section describes the high-level solution for Rhode Island’s enterprise applications and the activities the State will perform during the Pre-Implementation, Implementation, and Post-Implementation phases of the program.

Scope of Functionality

The Strategic Plan addresses the business processes common across State government and the technology which supports them, focusing on HR/Payroll and Finance. The two major objectives for modernizing enterprise applications are (1) to reduce risks and resolve constraints with current systems, and (2) to enable improvements which translate into better service for decision-makers, employees, and residents. A modern, integrated ERP is the leading practice for accomplishing these objectives.

There are several benefits to pursuing a unified approach to ERP, whereby the State acquires, implements, and supports a single instance of a suite of software from a single vendor. These advantages include:

- Satisfying cross-module technology dependency
- Simplifying training and Change Management
- Reducing integration work
- Providing a common user interface
- Providing a consistent security model
- Providing a common data model
- Facilitating enterprise reporting and analytics
- Simplifying pricing and reducing total cost of ownership

However, designing a future-state solution must consider Rhode Island’s current reality:

- The State has made recent investments in certain applications to meet its needs in specific areas, including eProcurement and budget development
- ERP functionality does not address all of the State’s needs for Grants Management, which will also require a commercial-off-the-shelf (COTS) solution
- Time-tracking software is required for payroll and grant accounting, but requirements for complex scheduling by “24/7” agencies may not be met by some ERP software vendors
- ERP software vendors provide solutions that simplify integration and aggregate data from multiple sources
- Treasury currently uses industry-standard software for Debt and Investment Management, and it is not apparent that other solutions would materially improve on these current systems

The target solution balances the advantages of a unified approach with the advantages of a specialized, “best-of-breed,” approach by (1) supporting common business processes via a single instance of ERP software and (2) supporting specialized business processes via separate software when there is a compelling reason, such as an unmet need from ERP. The target solution reflects a unified “core” for Finance and HR/Payroll, supplemented by potential ancillary systems for some candidate processes.

For core Finance and HR/Payroll functionality, the State will ask the vendors for proposals that include a single, integrated set of software applications.

The high-level target solution is represented in Figure 9. Functionality supporting business processes inside the solid-line box, labelled Core Finance and HR, will be acquired as a single instance from a single ERP software vendor.

This approach gives the State the advantage of testing the vendor marketplace through the RFP process for the best solution, while keeping its options open to make single, multiple, or no awards, based on the proposals from the vendors.

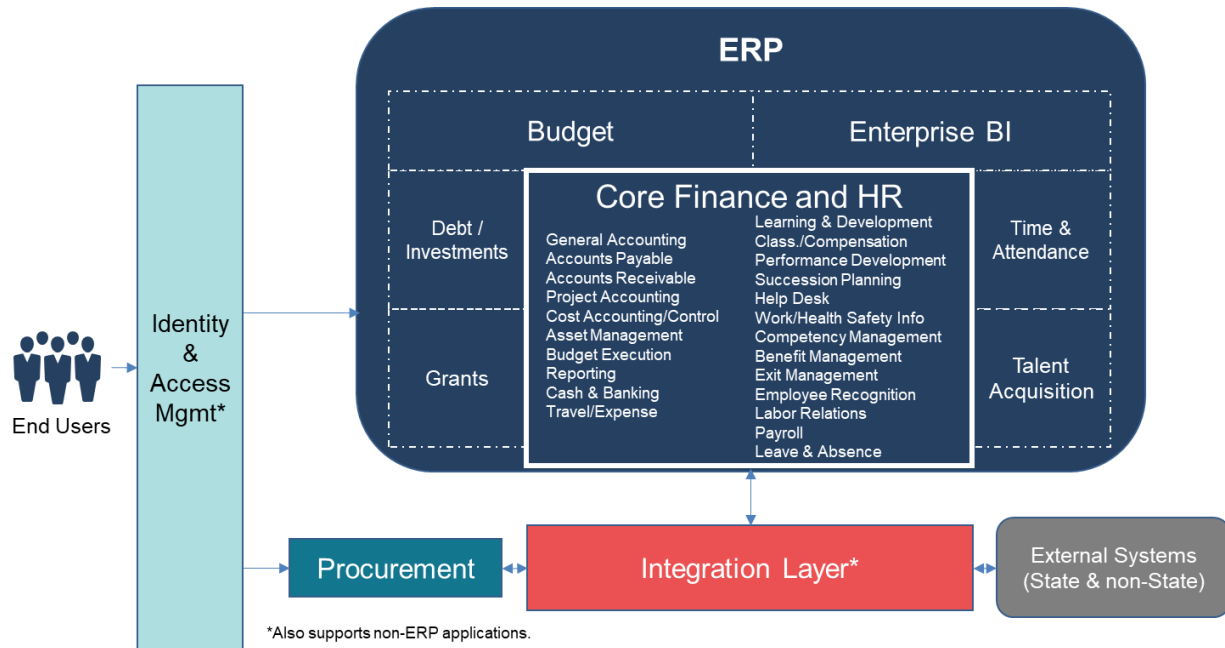


Figure 9: High Level Solution Architecture

Required Core Finance and Human Resources

Business processes considered part of the core are fundamental to satisfying the requirement of cross-module interdependency and are performed with native functionality by all major ERP software vendors. As defined below, the State will address the following Finance functions as part of core ERP functionality:

- **GENERAL ACCOUNTING** - Definition of the chart of accounts, payee file, customer file and the accounting of transactions to the general ledger.
- **ACCOUNTS PAYABLE** - Review and approval of requests for payment, including the matching of purchases to receipt to invoice for vendors and approval for payment and disbursement.
- **ACCOUNTS RECEIVABLE** - For all types of revenue from sources other than taxes, the chain of activities from the revenue event (determination of amount), through billing, collections, or write off from both external and internal entities.
- **PROJECT ACCOUNTING** - Specialized accounting for projects, which could relate to contracts, interdepartmental work orders, capital projects, and grants.
- **COST ACCOUNTING AND CONTROLLING** - Specialized accounting for various categories of cost, such as allocations of overhead, equipment, labor and other costs across projects of other dimensions of the chart of accounts.

- **ASSET MANAGEMENT** - The management and accounting of fixed and capital assets, such as land, buildings, and equipment.
- **BUDGET EXECUTION** - The mechanisms, at both the departmental and enterprise levels, to manage and control actual operations to conform to the approved budget.
- **REPORTING** - Financial reporting required by law and gaap including reporting on key performance indicators for programs and priorities.
- **CASH AND BANKING MANAGEMENT** - Inflows and outflows of banking accounts for all depository and disbursement accounts, centralized and decentralized.
- **TRAVEL AND EXPENSE** - Submitting, reviewing and approving requests to pay and/or reimburse allowable expenses in compliance with travel and expense policies.

In the area of HR/Payroll, the core ERP software will perform at minimum the following functions:

- **CLASSIFICATION AND COMPENSATION** - The definition of individual jobs and job families, and the associated compensation so that position descriptions have consistency of definition and compensation across business units within the enterprise.
- **COMPETENCY MANAGEMENT** - The assessment of knowledge, skills, behaviors and experience against role/objectives requirements and competency models, in order to create individual development plans to increase capability to perform and potential for career progression.
- **BENEFIT MANAGEMENT** - Design of employee benefits programs and plans, managing enrollment and eligibility processes, managing vendors delivering benefit programs, administering pensions, performing program cost/benefit analysis and benchmarking.
- **PAYROLL** - The administration and processing of employee earnings, calculation of gross, deductions, and net pay, audit activities and providing the payroll cost to the financial system.
- **LEAVE AND ABSENCE MANAGEMENT** - Encompasses the regulated or unregulated programs that provide employees extended time for personal events by assisting employees and managers with eligibility determination, time off pay, benefits and leave expiration administration.
- **PERFORMANCE DEVELOPMENT** - Establishing employee goals and objectives, programs and techniques to accomplish those goals with mechanisms such as feedback and measurement, periodic review, and rating.
- **LEARNING AND DEVELOPMENT** - Design and delivery of employee development and learning activities, including management of training registration and post-evaluation.
- **SUCCESSION PLANNING** - Identification of a succession pipeline or pool of suitable candidates for critical roles in the organization's value chain and key leadership roles.
- **EMPLOYEE RECOGNITION** - Programs to define, develop, and manage employee engagement using recognition to achieve a higher performing workforce.
- **LABOR RELATIONS** - Union contract negotiations, collective bargaining, employee grievances, settling of workplace disputes under various employment-related statutes, and assisting in the settlement of collective agreements, arbitration, mediations, work stoppages and strikes.
- **HELP DESK AND EMPLOYEE/MANAGER SELF-SERVICE** - Support and administrative activities to address inquiries related to HR/Payroll from employees, supervisors, agencies, or others.
- **WORK/HEALTH SAFETY INFORMATION** - Supporting the workforce with prevention, management and measurement of occupational health and safety issues to assist in maintaining a safe and incident free workplace and driving workplace productivity.

- **EXIT MANAGEMENT** - The coordination of a series of actions required when employment ends, including steps to ensure distribution of final pay, updating of employment data and records, collection of the organization's assets, and revocation of access and privileges.

Desired Functionality Outside the Core

Grants Management

Grants Management capabilities will be sought in conjunction with ERP functionality, allowing vendors to either propose alone, or in partnership with the ERP vendor.

Advances in commercial-off-the-shelf (COTS) systems make a coordinated ERP and Grants Management System (GMS) system approach both desirable and feasible. The market will respond with options from which the State can choose: an integrated ERP-GMS solution or an ERP and GMS (two independent solutions) which the State can then integrate during the ERP implementation period. The rationale for this approach is as follows:

1. Current Grants Management functionality from the major ERP vendors does not provide all the capabilities that Rhode Island requires, particularly to manage and report on sub-recipient activities
2. Numerous COTS Grants Management solutions are offered in the market that could address Rhode Island requirements with varying levels of functionality
3. To compensate for gaps in the major ERP solutions, States typically use a COTS GMS solution as a base and other special-purpose tools (e.g., DUNS, validation/registration) to meet specialized legislative or administrative requirements
4. These COTS solutions use bi-directional integration techniques (such as APIs and flat files) with ERP to enable end-to-end processing
5. Leveraging a COTS GMS minimizes technical cost associated with a custom application built by the State
6. Combining the implementation of ERP and GMS in a concurrent timeframe expedites speed to business value and saves cost by minimizing effort spent on temporary interfaces

COTS Grants Management systems address the business needs of grant program managers that are not provided by the major ERP solutions:

- Applicant and grantee portal with ability to upload grant applications, progress reporting, and submit electronic invoices
- Single-sign-on and/or integration of security roles with ERP
- Built-in internal controls and segregation of duties
- Refund process for grantee for disallowed costs
- Key Performance Indicators (KPIs), performance management, and pre-built dashboards
- Closeout process for audit activities and adjustments after the grant termination date
- Document management with archiving

Time and Attendance

As it currently does not have a statewide solution, the State will require time and attendance software, whether provided via core ERP software or via separate, best-of-breed software. The primary consideration will be the extent to which ERP functionality can meet the needs of both agencies with

standard workweeks, as well as “24/7” agencies with more complex workforce scheduling needs all while connecting to Human Resources, Payroll, and Finance.

Talent Acquisition

Rhode Island currently uses a modern, cloud-based system for talent acquisition. As part of its procurement of ERP software, the State will evaluate the ERP software’s talent acquisition functionality and will either maintain and integrate its current solution, replace it with ERP software, or replace it with separate, best-of-breed software.

Debt and Investment Management

The State currently uses industry-standard applications for debt management and investment management. As part of its evaluation of ERP software, the State will consider how changes to its enterprise applications impact debt and investment management and will decide to either replace this functionality with ERP software or maintain and integrate its current solutions.

Budget Development

Rhode Island currently uses a modern, cloud-based system for budget development (BDS), which has been in production for three budget cycles. As part of its procurement for ERP software, the State will evaluate the ERP software’s budget development functionality and will either maintain and integrate its current solution or replace it with ERP software.

Integration Layer

The State will evaluate the Integration Platform-as-a-Service (iPaaS) functionality proposed by ERP software providers. iPaaS is a cloud platform that allows customers to develop and manage integrations and applications. If the selected vendor’s proposed integration layer does not meet the State’s needs, a separate procurement for an integration solution remains an option.

Enterprise Business Intelligence

The State will evaluate the business intelligence solution proposed by ERP software vendors. Many modern ERPs provide native reporting and analytics functionality which allows users to ingest and analyze data from multiple sources, both internal and external to ERP. If the selected vendor’s proposed business intelligence platform does not meet the State’s needs, a separate procurement remains an option.

Procurement

Procurement is not planned for replacement in the Strategic Plan. Ocean State Procures, the State’s eProcurement system that also includes invoice processing through matching and approval, will be an important integration touchpoint for ERP. In the long-term, maintaining separate systems for Finance and Procurement is not preferred, and the State will consider its options for unifying these systems.

Identity and Access Management

Provisioning an Identity and Access Management (IAM) solution is not planned to be provided in the Strategic Plan. A current initiative is underway to deploy an IAM solution to State employees, and ERP will leverage this solution to manage user credentials and provide a common user access model.

Deployment Method

There are two main approaches to deployment of a new ERP system.

1. "Software-as-a-Service" (SaaS) in which the software is provided to the customer by the vendor on a subscription licensing model.
 - Software is not locally installed and owned; it is accessed through the web or mobile applications
 - Software customization (rewriting of the computer code to meet an individual state's requirements) is very limited; but the applications are generally highly configurable (turning on or off individual features, formatting, etc.) to achieve the same result
 - Limiting customization makes it relatively easy to update, allowing users to always have the latest version and most up-to-date functionality
 - Most SaaS software involve a concept of "multi-tenancy" – sharing of infrastructure, maintenance, and software code across multiple customers while preserving privacy and security – allowing for higher levels of service and quality at lower costs

2. "Traditional" ERP model in which software is purchased with a perpetual license by the organization, allowing for customizations where needed. Installing allows/requires:
 - Focusing on detailed requirements and processes
 - Freedom to customize the software
 - Flexibility to perform technical hosting activities either internally or outsourced to a service provider
 - Managing ongoing maintenance changes and upgrades
 - Developing specialized technical skills for a proprietary toolset to perform upgrades and maintain the software

Rhode Island has opted for a SaaS/Vendor-Hosted/Cloud solution for the reasons below:

1. **Speed:** Speed to deliver, ease of use and access via mobile devices
2. **Cost reduction:** Reduced demand on in-house IT staff, upgrades are included in service, the State is always on the latest version, reduction in hardware costs
3. **Flexibility and Scalability:** Software is configurable with the ability to grow with the needs and size of the State
4. **Innovation:** Maintains updates to changing technology and leverage the software vendors' investments in research and development

Digital Capabilities and Intelligent ERP

As part of its efforts to improve accuracy, cycle times, and the opportunity for more meaningful work, the State is interested in exploring functionality associated with Intelligent ERP. This includes new, digital technologies such as Robotic Process Automation (RPA), Virtual/Augmented Reality, Artificial Intelligence (AI), and Blockchain. In the RFP process, vendors will be asked to showcase their capabilities in these areas. Figure 10 below describes potential areas where RPA and AI might provide benefit to the State and reduce the need for employees to conduct duplicative, transactional tasks.

Potential Use Cases for Robotic Process Automation or Artificial Intelligence		
<ul style="list-style-type: none"> Automation of reports with voice-activated prompt Reviewing and acting on e-mails Project portfolio status dashboard self-service High priority tickets and relevant date Identifying and follow up on year-end closing tasks that are overdue 	<ul style="list-style-type: none"> Invoice entry Cash management and forecasting Co-share payment posting Automation of new hire paperwork into HRIS Employee transfers Staff time management / time off requests Researching vendor payment delays 	<ul style="list-style-type: none"> Enhanced self-service HR Chat bots Automating forms required by agency legacy systems Provision and deprovision accounts and licensing Equipment provisioning and deprovisioning Managing duplicate data entry into legacy systems Reconciling daily cash balances

Figure 10: Potential RPA and AI Use Cases

Timeline

Multiple options were considered for delivering the target solution within a timeframe that allows Rhode Island to maximize business value while minimizing risk. Each option included the Pre-Implementation, Implementation, and Post-Implementation phase to account for the multi-year program. In all options, the Pre-Implementation phase was the same 19-month duration; the Implementation phase varied, from a more aggressive approach of 27 months duration to a less aggressive approach of 39 months. For planning purposes, the State selected this 39-month implementation timeframe. It should be noted, as part of the RFP process, vendors might propose an implementation approach which could be different.

Key Details	
HR/Payroll 	<ul style="list-style-type: none"> 18-Month implementation for full HR/Payroll functionality System in production for Calendar Year 2023
Grants 	<ul style="list-style-type: none"> 12-Month implementation (temporary finance interfaces) 6-Month Finance ERP integration
Finance 	<ul style="list-style-type: none"> 21-Month implementation begins after HR/Payroll & Grants deploy System in production for FY24

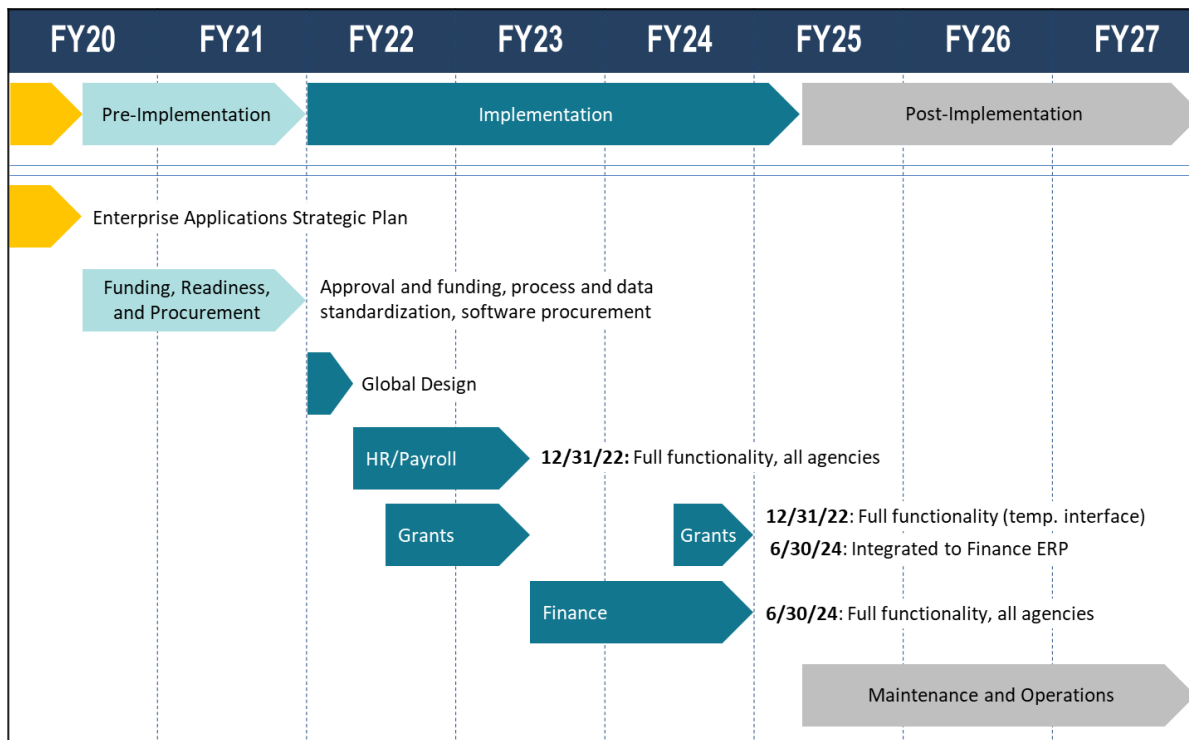


Figure 11: High-Level Program Timeline*

In the option with a 27-month duration for implementation, the workstream for HR/Payroll ran concurrent with the workstreams for Grants Management and Finance. In comparison, the 39-month implementation timeline, selected by the State, sequences the Finance workstream after the HR/Payroll and Grants (Release 1) workstreams. This approach offers the following advantages:

1. Relatively less risk, as sequential workstreams put less pressure on State resources

- Potential resource contention for State subject matter experts is reduced as the work is sequential, not concurrent
- Degree of change for end users is spread across a longer timeframe, with time for end users to become comfortable and proficient with new HR/Payroll and Grants applications before adopting a new Finance system

2. Avoids a spike in funding requirements by spreading implementation costs across multiple fiscal years

- While overall costs are slightly higher, the budget requests are spread across three rather than two fiscal years
- “Quick wins” and other successes from HR/Payroll and Grants will foster confidence for the Finance workstream

3. Delivers HR/Payroll and Grants in the current Administration

- Addresses all pain points and business/technical risks with calendar year go-live for HR/Payroll and fiscal year go-live for Finance

- Executive sponsorship and support by the current Governor and executive team through the most critical, early stages of the program

4. Technology could improve and mature

- ERP software is constantly being enhanced, so by deferring implementation of the Finance application, the software is likely to be more mature and advanced

Pre-Implementation

The Pre-Implementation phase begins upon acceptance of the Strategic Plan in December 2019 and continues until software and services vendors are contracted in July 2021. The primary activities of this phase consist of obtaining program approval, conducting procurement activities, and performing readiness work. These activities are presented in Figure 12.

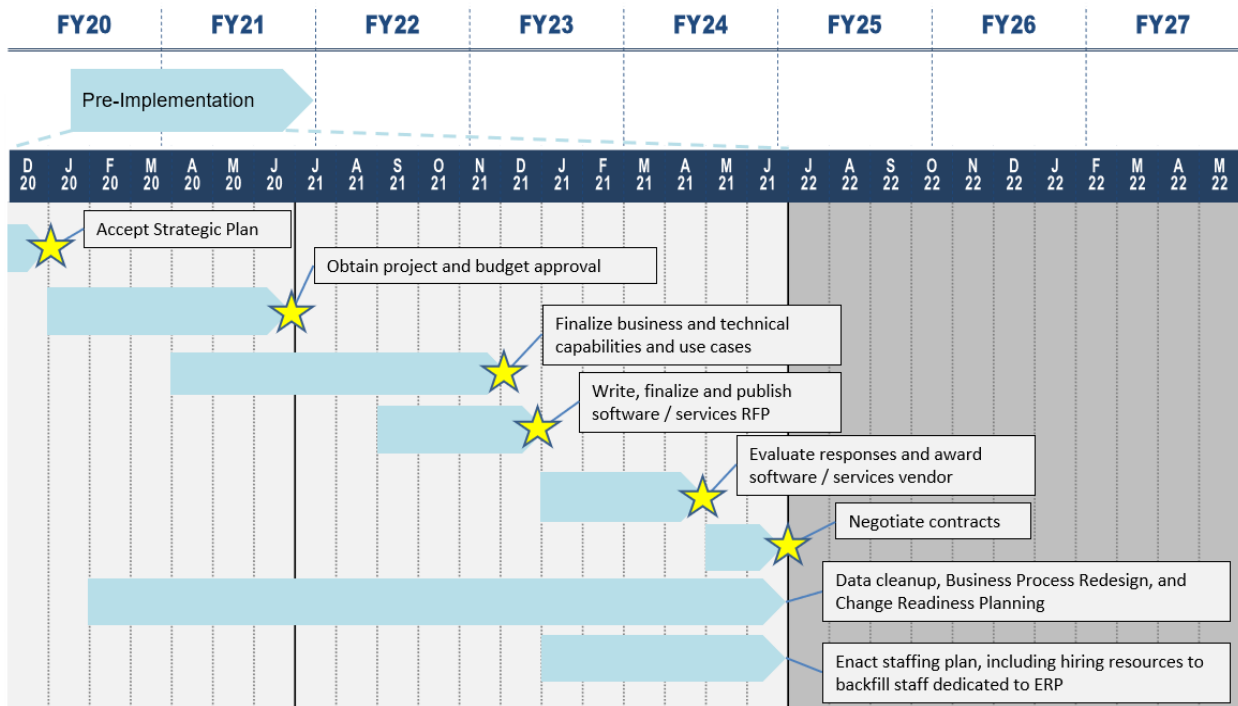


Figure 12: Pre-Implementation Timeline*

The activities which will occur during the Pre-Implementation phase include the following:

- Obtain program approval
- Obtain program funding and financing authorization
- Conduct business process analysis and redesign for areas which will be impacted by ERP; this could include:
 - Documenting “as-is” and “to-be” business processes for HR, Payroll, Benefits, Grants (grantor and grantee), and Finance, such as:
 - Employee and manager time and attendance
 - Updated workflow tracking grantee applications
 - Governance process for Master Data Management

- Develop business and technical requirements and use cases to include in the software/services RFP for:
 - Core HR/Payroll
 - Core Finance
 - Grants
 - Time and Attendance
 - Talent Acquisition
 - Business Intelligence
 - Budget Development
 - Debt Management
 - Investment Management
 - Systems Integrator
- Write and publish RFP document and evaluate proposals
 - Mobilize sourcing team (consisting of ETSS, Purchasing, HR, Grants, Finance, and agency representation)
 - Incorporate technical, administrative, and cost requirements (from above)
 - Define evaluation metrics
 - Write RFP document and publish
 - Vendors prepare and submit proposals
 - Evaluate responses
- Down-select software and services vendor for Core HR and Core Finance and other software
- Negotiate contract(s) with down-selected vendor(s)
- Perform data cleanup and standardization, which may include areas such as:
 - Standardizing the chart of accounts
 - Standardizing job catalogs (i.e., employee groups, titles, position management, etc.)
 - Standardization and clean-up of compensation (i.e., job families, compensation structure, etc.)
- Enact staffing plan, lining up necessary resources to launch the implementation team
- Establish facilities to co-locate State and vendor implementation teams

Implementation

The Implementation phase begins in July 2021 following the contracting with the software/services vendor(s). The Implementation phase includes deployment of HR/Payroll and Grants Management functionality by December 31, 2022 (mid-FY23), followed 18 months later by Finance functionality go-live by June 30, 2024 (commencement of FY25) and reintegration of Grants Management software to the new finance ERP.

The Global Design, HR/Payroll and Grants (Release 1) workstreams are shown in Figure 13.

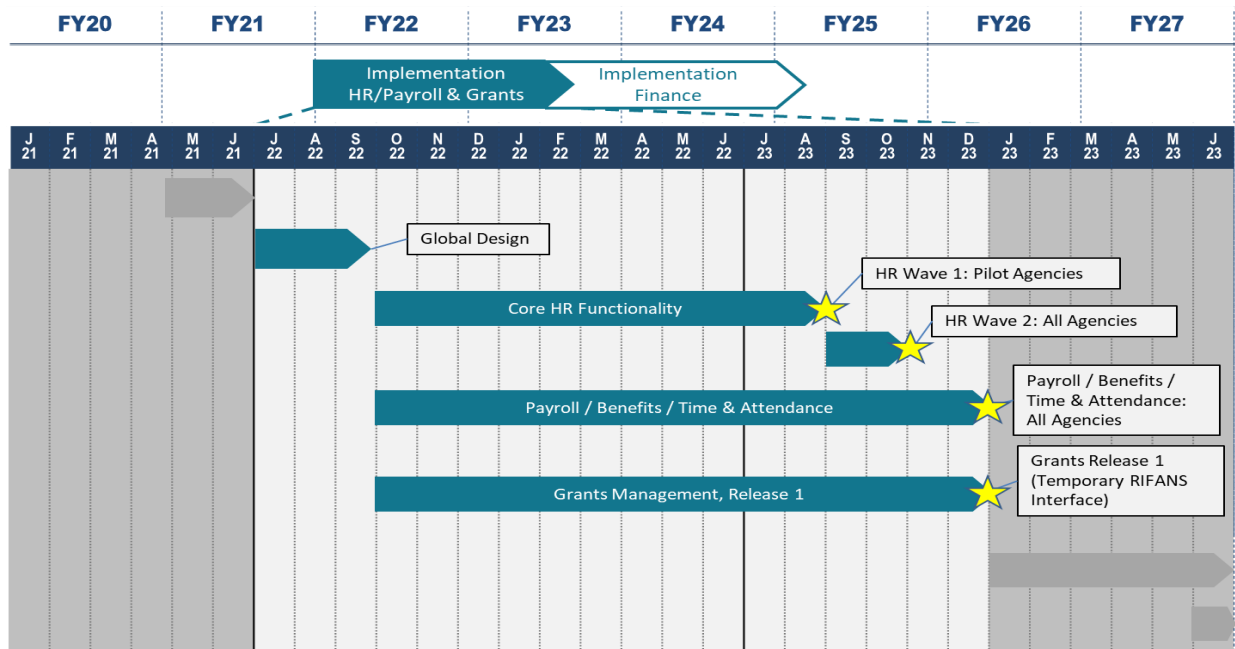


Figure 13: Implementation Timeline - HR/Payroll and Grants*

The first step of the Implementation phase is a three-month global design. Activities occurring during this global design include:

- Mobilize Project
- Define chart of accounts and other master data definition, including conversion of legacy chart of accounts
- Confirm Change Management strategy
- Begin stakeholder engagement and core user training
- Conduct Conference Room Pilots (CRP) for HR/Payroll, Grants, and Finance
- Conduct process and sub-process CRP workshops to confirm business scenarios (e.g., future-state process flows)
- Confirm implementation approach
- Approve data, application, and information distribution strategies
- Finalize implementation project plan to set the course for delivery

HR/Payroll functionality will be delivered via two releases and reflects an agency wave approach:

Release 1: Core HR Functionality for Classification/Compensation, Competency Management, Help Desk, Talent Acquisition, Learning/Development, Performance Development, Succession Planning, Work/Health Safety, Exit Management, Employee Recognition, Labor Relations, and related Business Intelligence. Wave 1 go-live to pilot agencies on 9/1/22. Wave 2 go-live to all agencies on 11/1/22.

Release 2: Payroll and Benefits - includes Payroll, Leave and Absence, Time and Attendance, and Benefit Management with go-live and full functionality to all agencies on 12/31/22.

Grants Management functionality will be delivered via two releases:

Release 1: Full Grants Management functionality integrated to the new HR/Payroll ERP and temporary integration to the State’s current finance systems, and related Business Intelligence with go-live and full functionality to all agencies on 12/31/22.

The Finance and Grants (Release 2) workstreams are shown in Figure 14.

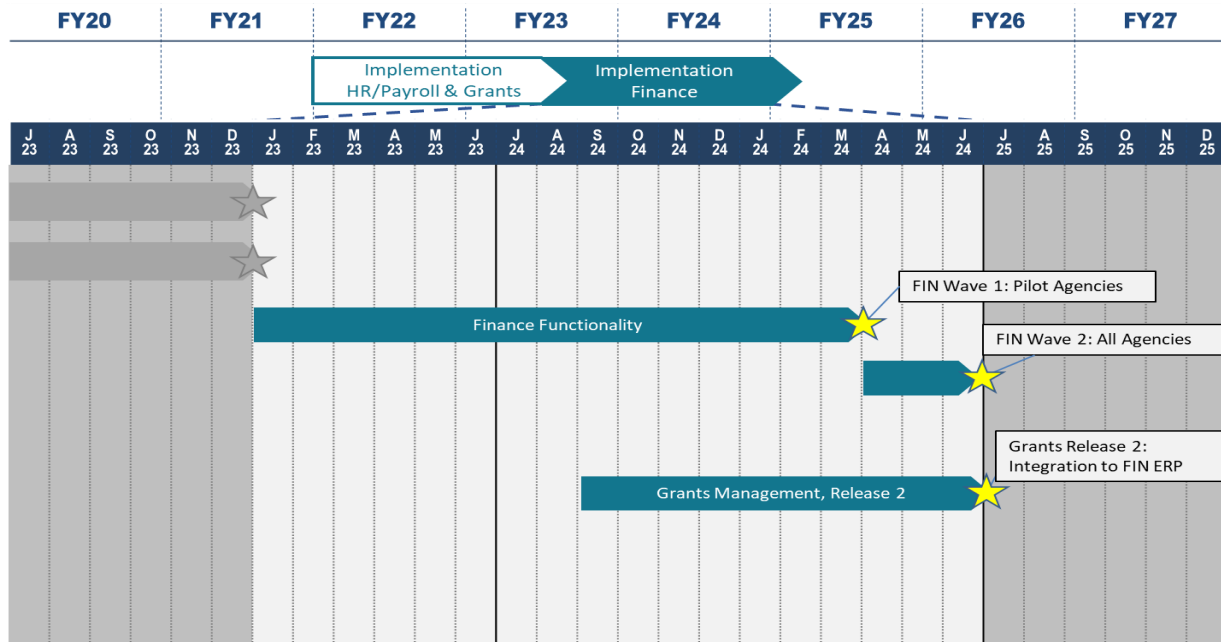


Figure 14: Implementation Timeline - Finance and Grants Release 2*

Finance functionality will be delivered via one release and reflects an agency wave approach:

Core Finance functionality for General Accounting, Accounts Payable, Accounts Receivable, Cost Accounting/Control, Asset Management, Budget Execution, Cash and Banking, Travel and Expense, Project Accounting, Budget Development (if applicable), Debt Management (if applicable), Investment Management (if applicable), and related Business Intelligence. Wave 1 go-live to pilot agencies and functionality on 4/1/24. Wave 2 go-live with full functionality to all agencies on 6/30/24.

The second release for Grants is as follows:

Release 2: Integration of Grants Management system to new Finance ERP with go-live and full functionality to all agencies on 6/30/24.

Post-Implementation

The Post-Implementation phase follows the stabilization of all new ERP software. The major activities during this phase include the ongoing maintenance and operation activities associated with a SaaS/Cloud ERP software solution. These include:

- Post-Go-Live Support, including Tier 1 Help Desk

- Conduct ongoing user training
- Analyze software updates and make decisions to accept
- Regression testing of interfaces and existing RICEFW objects
- Adjust and/or build RICEFW objects, if needed
- Deploy software updates
- Resolve defects and prioritize enhancements

IV. Staffing and Cost

This section of the Strategic Plan addresses the personnel and financial resources required to deliver the target solution in the proposed timeline.

The staffing plan and cost model were developed with information gathered from State subject matter experts and experience from similar public sector ERP implementations. The staffing plan includes existing and new State staff and consultant labor. The cost model builds upon the staffing plan; it adds additional costs for software and administrative expenses. The assignment of existing State staff is an important assumption in the cost model. The additional resources not yet funded are referred to as “net new resources needed.”

The staffing plan and cost model have a start date of January 2020, an end date of June 2027, and include the three phases of the program: Pre-Implementation, Implementation, and Post-Implementation. For detailed descriptions of the roles referenced in this section, please reference Appendix II.

Staffing Plan

The staffing plan is based on the following guiding principles.

1. Use the estimated effort in the detailed program plan as the basis to drive the detailed staffing plan; thus, the effort required for each activity matches the State and/or consultant staff assigned to that activity.
2. Account for each role with a start and end date. This provides the State with detailed guidance on when people need to be assigned, what types of people (based on the role) need to be assigned, and when people can roll off.
3. Indicate if the role is planned to be performed by an existing State employee or a new employee. This helps the State determine whether to recruit new people or reassign existing people to fulfill the staffing plan.
4. To the extent possible, support continuity of roles so people can easily move from role to role across activities and workstreams.
5. Evolve the program organization structure to align with the nature of the activities in the phase; the staffing for the Pre-Implementation phase is primarily existing State employees; the staffing for the Implementation phase is a combination of State and consultant labor; the staffing for the Post-Implementation phase is entirely State employees.

The activities for each phase are described in detail in Section III, Target Solution and Timeline. During the Pre-Implementation phase, a Governance Committee consisting of State IT, Human Resources, and Finance leadership will be responsible for obtaining approval and funding, overseeing the RFP process, and launching other readiness activities. A Core Team and Extended Team support these efforts. The staffing plan and organizational structure for the Pre-Implementation phase is shown in Figure 15.



Figure 15: Staffing for Pre-Implementation

The staffing plan and organizational structure for the Implementation phase is shown in Figure 16. The Governance Committee and Core Team evolve into the Program Management and Oversight group. A new Project Management team is mobilized. The Implementation team reports to the Project Management team, organized into the HR/Payroll, Grants, Finance, Organizational Change Management and Technical teams. The State has adopted an integrated team concept, with State employees matched with consultant labor for many of the tasks. This integrated approach is a leading practice, with many advantages:

- Improved productivity as the State brings unique knowledge of State policies/procedures and the vendor brings detailed knowledge in the ERP software and implementation methodology
- Lower cost as State resources typically cost less per hour than consultants
- Improved knowledge transfer so the State can manage and operate the new enterprise applications successfully after the consultant labor is gone

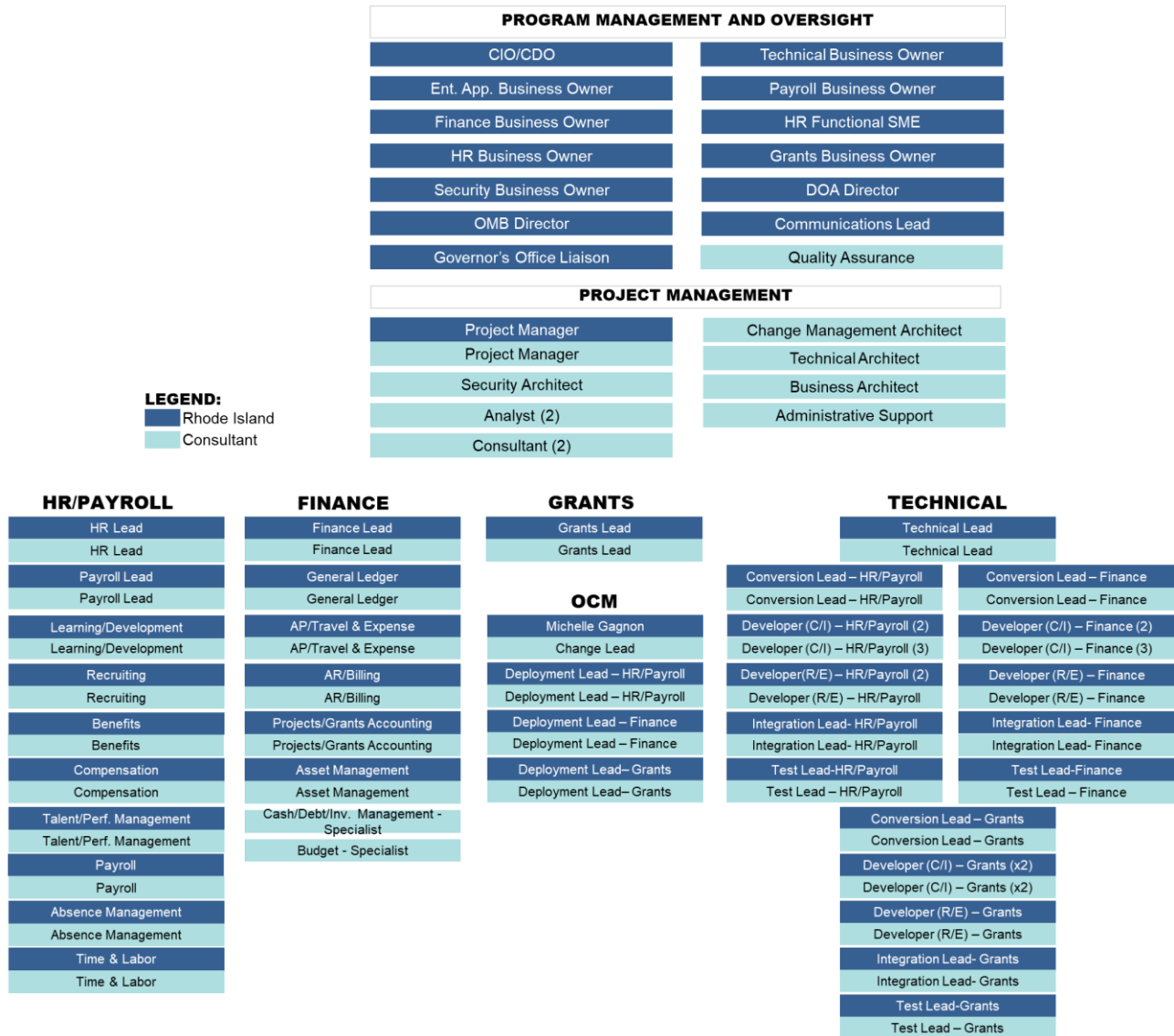


Figure 16: State and Consultant Integrated Implementation Team

The Post-Implementation phase is made up solely of State resources, however, the team configuration retains a similar structure with fewer personnel. The management and governance group will provide guidance and strategy for the ongoing operation of the new enterprise applications. Additionally, HR/Payroll, Grants, and Finance each have an operation and maintenance (O&M) team consisting of State resources supporting end-users for business functionality, technical issues, and ongoing training and Change Management.

This team is shown in Figure 17.

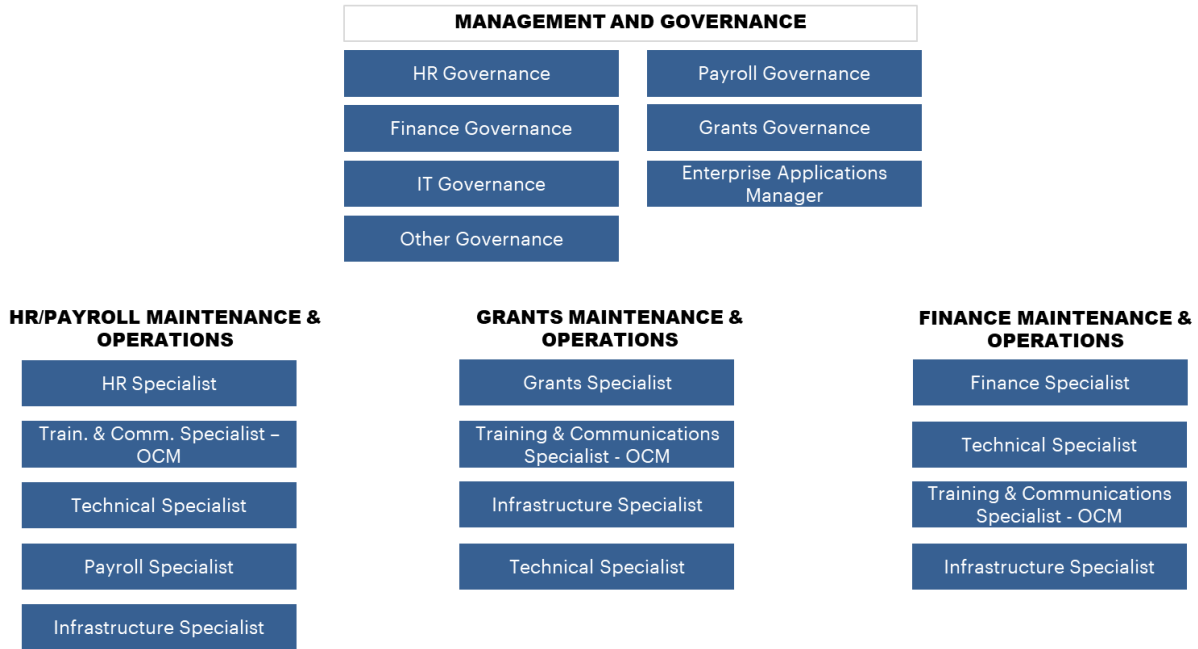


Figure 17: Staffing for Post-Implementation

The staffing plan shifts the balance of State and consultant labor over the course of the program, as shown in Figure 18.

	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
State	100%	62%	44%	49%	52%	91%	100%	100%
Consultant	0%	38%	56%	51%	48%	9%	0%	0%

Figure 18: State vs. Consultant Labor by Fiscal Year*

Cost Model

The cost model is based on the following guiding principles.

1. Itemize Total Cost of Ownership and the net new resources needed by phase and by fiscal year for the entire program.
2. Present costs by the State’s cost categories.
3. Organize the procurement of software and services and implementation approach most likely to yield advantageous pricing.
4. Provide a reserve for contingency that is controlled by the explicit approval of the Program Management and Oversight group. This is a leading practice.

The Cost Model shows the total budget request for net new resources as \$73.7M.

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Total
State Labor	-	\$2.3M (17.4 FTE)	\$2.3M (18.2 FTE)	\$1.7M (15.0 FTE)	-	-	-	\$6.3M
Consultant Labor	\$1.5M	\$15.7M	\$16.5M	\$16.0M	\$0.6M	-	-	\$50.3M
Software	-	\$2.4M	\$2.5M	\$2.5M	\$2.6M	\$2.7M	\$2.8M	\$15.5M
Other Costs	-	\$0.8M	\$0.4M	\$0.4M	-	-	-	\$1.6M
Total	\$1.5M	\$21.2M	\$21.7M	\$20.6M	\$3.2M	\$2.7M	\$2.8M	\$73.7M

Figure 19: Net New Program Cost by Fiscal Year*

Figure 20 below lists the assumptions for the cost model.

Cost Model Assumptions
<ol style="list-style-type: none"> 1. SaaS ERP software costs derived from information provided by major ERP software providers. 2. ERP software costs assume an annual price growth rate of 3% per year. 3. ERP software includes native Business Intelligence. Additional BI software is assumed to be not necessary. 4. State labor rates assumed to increase 2% per year. 5. Consultant labor rates assumed to increase 2% per year. 6. Project team training is needed for HR/Payroll, Finance, and Grants during implementation. 7. The estimates assume that RIDOT will utilize the ERP solution. 8. Benefits for State employees are calculated with a factor of 59% of annual salary. This percentage was provided by the State. 9. Labor rates per hour for State staff are based on the RI compensation and classification schedules for IT, Finance, and HR. 10. After a 3-month implementation stabilization period, consultant resources will transition their responsibilities to State resources. 11. The cost of an expanded identity and access management (IAM) solution is not included in the estimate. 12. Costs for expanded connectivity infrastructure are not included in the estimate. 13. The integration software is included. The labor to implement this functionality is included. 14. End users are assumed to have proper devices (e.g., computers) to use the new system and costs for additional devices are not included in the estimate. 15. Costs associated with decommissioning/remediating agency systems are not included. 16. Costs for RI agency resources contributed "in-kind" (for example, agency change liaisons) are not included.

Figure 20: Cost Model Assumptions

V. Funding and Financing

This section describes the funding and financing strategy for Rhode Island to pay for the implementation of the Strategic Plan. The recommended funding approach is a combination of appropriations from the operating budget and capital budget. The recommended financing approach is to issue Certificates of Participation (COPs) to provide the cash for net new resources needed for implementation.

The funding and financing strategy is based on the following guiding principles:

1. Account for the Total Cost of Ownership (TCO) and net new resources (Budget Request).
2. Organize the funding and financing for the TCO and net new for the entire program.
 - a. Pre-Implementation phase: the detailed planning and software/services procurements
 - b. Implementation phase: the design and deployment of the new enterprise applications
 - c. Post-Implementation phase: the operation and management of the new enterprise applications
3. Select the strategy most economically advantageous to the State.
4. Make the connection between the business value stakeholders receive and the amount stakeholders will contribute via cost reimbursement.
5. Align with the new standards from the Governmental Accounting Standards Board.
6. To the extent feasible, “smooth” the cash flow requirements for the State.

Numbers in the funding and financing strategy are organized in categories and defined as follows:

- *Total Cost of Ownership*: includes resources and costs for the entire program
- *Existing resources*: State labor and support costs that exist and are already funded
- *Net new resources needed*: the difference between TCO and Existing (i.e., the budget request for additional resources)
- *Labor*: the fully-loaded (i.e., inclusive of salary and fringe benefits) cost per hour times the number of hours dedicated to the program from both the State and vendors
- *Software*: subscription-based license fees for application software
- *Support costs*: other administrative costs supporting the project team, for example facilities, telephones, office supplies, computers, and project team training

Please Note: the target solution for enterprise applications is described in Section III, the cost and staffing plan is described in Section IV, and the benefits and offsetting cost reductions are described in Section VI.

Funding Strategy

Existing resources (State employees and support costs) are already identified and included in the operating budget. The Strategic Plan includes the important assumption that these resources will continue to be available and funded, hence are not included in the net new budget request. Specifically, the Pre-Implementation team and Post-Implementation team is composed of predominantly existing State resources.

The recommended funding approach is a combination of authorizations from the operating budget and capital budget. The net new requirements are displayed by fiscal year in Figure 21.

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Total
Operating	\$1.5M	\$3.3M	\$3.3M	\$2.7M	\$2.6M	\$2.7M	\$2.8M	\$18.9M
Capital	-	\$17.9M	\$18.4M	\$17.9M	\$0.6M	-	-	\$54.8M
Total	\$1.5M	\$21.2M	\$21.7M	\$20.6M	\$3.2M	\$2.7M	\$2.8M	\$73.7M

Figure 21: Budget Requirements by Fiscal Year Before Financing*

The combination of operating and capital budgeting has several advantages:

- Reduces the pressure for competing priorities in the operating budget for the implementation funding
- Takes advantage of a common approach favored by other States to amortize capital expenses over a longer timeframe
- Aligns to the forthcoming guidance from the Governmental Accounting Standards Board (GASB) on capitalizing subscription-based information technology agreements (i.e., Software-as-a-Service applications)
- Lends itself to packaging with attractive cost reimbursement options

Financing Strategy

The recommended financing approach is to issue Certificates of Participation (COPs) to provide the cash for net new resources needed for implementation.

COPs are a tax-exempt financing mechanism used by Rhode Island and other states to finance expenses for large-scale information technology programs. As mentioned above, GASB is in the process of promulgating new accounting standards for subscription-based information technology agreements (i.e., SaaS applications) with an effective date of June 15, 2021. Pursuant to this guidance, Rhode Island may capitalize the implementation costs. It is assumed the State would capitalize vendor and software license implementation costs (State labor and support costs are reflected in the operating budget). It is also assumed the COPs would incur interest expense of 3% and be paid over 7 years, a timeframe common to other states. Also, two rounds of COPs are assumed, one round in FY22 for \$36.3M and a second round in FY24 for \$18.5M. The payment of debt service, when added to the operating budget above, is depicted in Figure 22.

Operating Budget	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	Total
Program expenses, FY21-FY27	\$1.5M	\$3.3M	\$3.3M	\$2.7M	\$2.6M	\$2.7M	\$2.8M	-	-	-	-	\$18.9M
Principal on COPs	-	\$0.5M	\$5.1M	\$5.4M	\$7.8M	\$7.8M	\$7.7M	\$7.7M	\$7.7M	\$2.6M	\$2.6M	\$54.8M
Program expenses and principal on COPs	\$1.5M	\$3.8M	\$8.4M	\$8.1M	\$10.4M	\$10.5M	\$10.5M	\$7.7M	\$7.7M	\$2.6M	\$2.6M	\$73.7M
Interest on COPs	-	\$0.1M	\$0.7M	\$0.7M	\$1.0M	\$1.0M	\$1.0M	\$1.0M	\$1.0M	\$0.4M	\$0.3M	\$7.3M
Ongoing program expenses, FY28-FY31	-	-	-	-	-	-	-	\$2.9M	\$3.0M	\$3.0M	\$3.2M	\$12.1M
Operating Budget Outflows	\$1.5M	\$3.9M	\$9.1M	\$8.8M	\$11.4M	\$11.5M	\$11.5M	\$11.6M	\$11.7M	\$6.0M	\$6.1M	\$93.1M

Figure 22: Operating Budget Outflows*

Implementation of the new enterprise applications means some existing cost will be eliminated as the old systems are decommissioned. These cost savings help offset the economic impact to the State. In

addition, there are many stakeholders who receive significant and demonstrable business value from the new enterprise applications, and it is fair and reasonable to assume some of these funding sources will absorb some of the cost of implementation and ongoing operations. There are several advantages to this approach:

- Provides a revenue inflow to the General Fund
- Makes the case that new business value to the stakeholder is commensurate to the degree of cost reimbursement
- Aligns with common practices favored by other States

The effects of such cost savings and absorption of costs by funding sources are depicted in Figure 23.

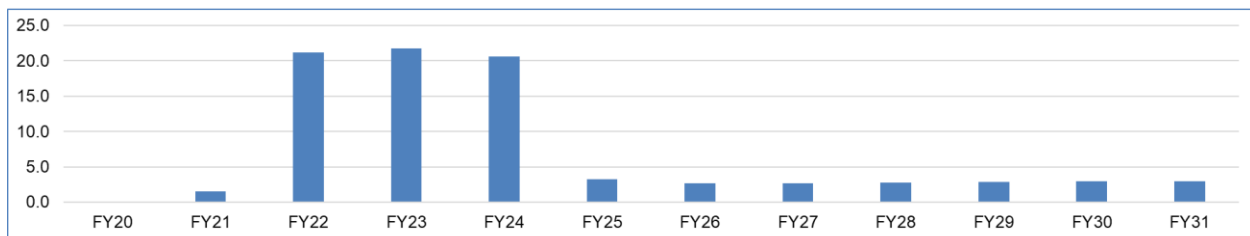
	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	Total
Total - Costs	\$1.5M	\$3.9M	\$9.1M	\$8.8M	\$11.4M	\$11.5M	\$11.5M	\$11.6M	\$11.7M	\$6.0M	\$6.1M	\$93.1M
Savings - GR portion	-	-	(\$1.1M)	(\$2.2M)	(\$3.5M)	(\$3.6M)	(\$3.7M)	(\$3.9M)	(\$4.0M)	(\$4.1M)	(\$4.2M)	(\$30.3M)
Savings - non-GR portion	-	-	(\$0.2M)	(\$0.5M)	(\$0.9M)	(\$0.9M)	(\$0.9M)	(\$1.0M)	(\$1.0M)	(\$1.0M)	(\$1.1M)	(\$7.4M)
Subtotal – Costs (Savings)	\$1.5M	\$3.9M	\$7.8M	\$6.2M	\$7.0M	\$6.9M	\$6.9M	\$6.8M	\$6.7M	\$0.9M	\$0.8M	\$55.3M

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	Total
Net Cost (Savings) by Funding Source												
General Revenue	\$1.5M	\$3.9M	\$7.0M	\$4.3M	\$4.3M	\$4.1M	\$4.1M	\$4.0M	\$4.0M	(\$1.8M)	(\$1.9M)	\$33.3M
Federal	-	-	\$0.6M	\$1.3M	\$2.0M	\$2.0M	\$2.0M	\$2.0M	\$2.0M	\$2.0M	\$2.0M	\$15.8M
Restricted Revenue and Other Funds	-	-	\$0.3M	\$0.5M	\$0.8M	\$0.8M	\$0.8M	\$0.8M	\$0.8M	\$0.7M	\$0.7M	\$6.2M
	\$1.5M	\$3.9M	\$7.8M	\$6.2M	\$7.0M	\$6.9M	\$6.9M	\$6.8M	\$6.7M	\$0.9M	\$0.8M	\$55.3M

Figure 23: Outflows from Funding Sources

Accounting for General Revenue and non-General Revenue savings, the cost is reduced from \$93.1M to \$55.3M. Moreover, accounting for Federal Funds and Restricted Revenue and Other Funds, the projected total cost to the State is \$33.3M. The effect of the recommended financing strategy is to “smooth” the cash flow, as compared to a “pay-as-you-go” strategy. This is depicted in Figure 24.

Pay-As-You-Go



Financed Cash Flow

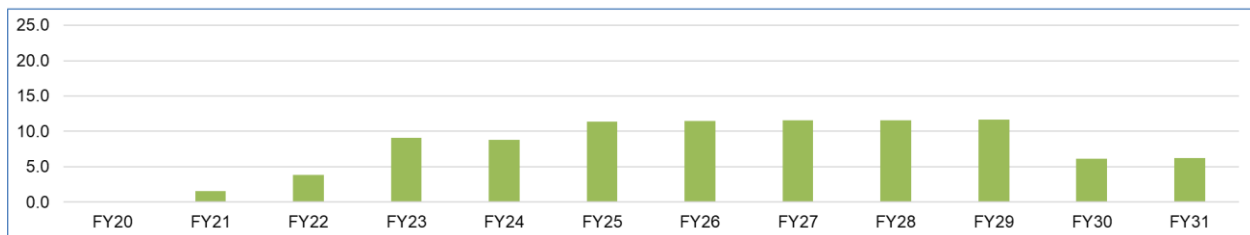


Figure 24: Pay-As-You-Go Compared to Financed Cash Flow*

VI. Benefits

This section describes the benefits to be realized from modernizing Rhode Island’s enterprise applications.

The discussion of benefits is pervasive in the Strategic Plan, occurring in several sections. For example, benefits are part of the case for change described in Section I Introduction. Benefits are referred to in Section V Funding and Financing. Section VI Critical Success Factors and Risk Mitigation further elaborates on the topic by assigning the responsibility to the Organizational Change Management team to develop and manage the Benefits Realization Plan. Appendix I includes a template for defining metrics to measure benefits.

For convenience, a master list of benefits is aggregated in this section, but the concept applies across all sections of the Strategic Plan.

The value tree framework is employed to organize and categorize the many types of benefits. This framework is shown in Figure 25.

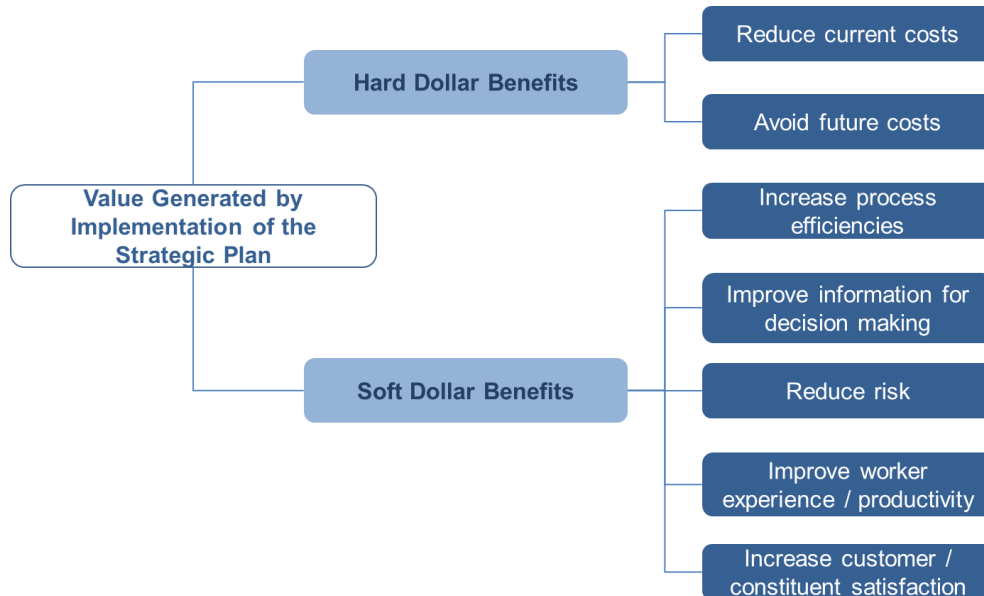


Figure 25: Framework to Identify and Categorize Benefits

The following guiding principles were used to develop a master list of benefit opportunities.

1. Hard dollar benefits refer to directly measurable decreases in expenditures that would result from the implementation of a change or automation to a business process. These benefits are described in quantitative terms, usually in dollars.
2. Soft dollar benefits include process efficiencies and other desirable outcomes that may not immediately, directly impact the State’s bottom line. These benefits are described in qualitative terms, usually in narrative.
3. Both types of benefits are important. Both hard and soft dollar benefits are reasons that help justify the cost and effort to execute the Strategic Plan.

Hard Dollar Benefits

A broad group of potential opportunities which could result in reduction in current costs or avoidance of future costs were considered for the Strategic Plan. Each opportunity was evaluated and prioritized. These opportunities are summarized in Figure 26.

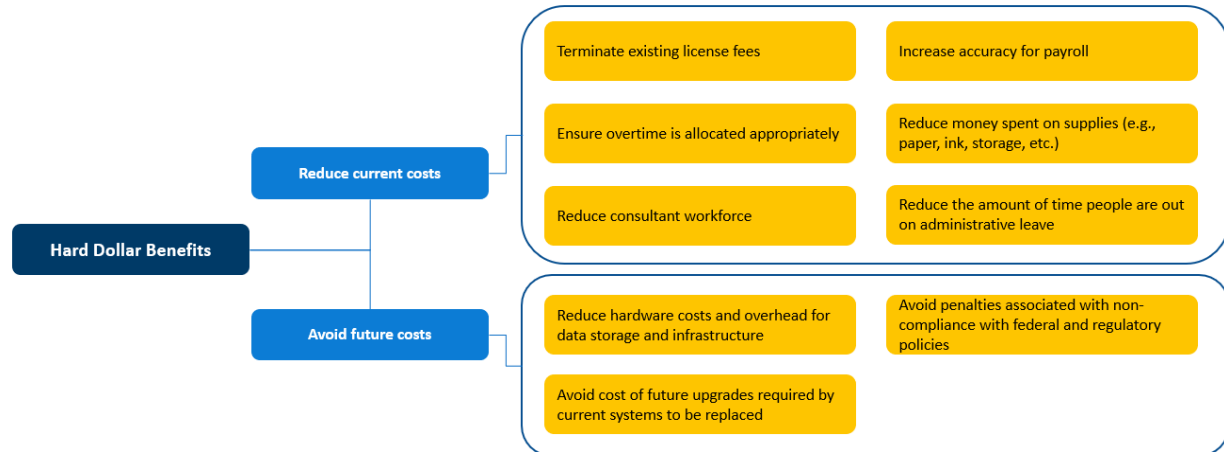


Figure 26: Hard Dollar Benefits

Information Technology

The hard dollar benefits in the IT area are straightforward. When the current HR/Payroll system is replaced with new SaaS/Cloud applications, it could potentially allow the State to decommission the mainframe, thus generating cost savings. When the current financial systems are replaced with the new SaaS/Cloud applications, there will be cost savings from decommissioning RIFANS and FMS, as well as avoided costs related to future software upgrades.

By retiring the mainframe, the State would save slightly less than \$1.4M in annual operation costs and an additional \$500K in overhead. Additionally, the personnel currently supporting the mainframe (with total annual cost of \$1.5M) can be redeployed.

There is an estimated \$1.7M spent annually on the ongoing maintenance and support of RIFANS and FMS. This includes \$1.4M in maintenance license fees and approximately \$320K on overhead. Starting in FY25*, these costs can be eliminated, and the staff currently supporting RIFANS and FMS (annual cost of \$380K) can be redeployed to support the new Finance ERP.

Software upgrades, and the related hardware, are necessary from time to time to keep the software viable and continue maintenance support from the software vendor. The cost of an upgrade is based on factors such as the degree of customization, and typically fall in the \$3M-6M range. Without a new financial application, it would be necessary for the State to upgrade its current RIFANS and FMS software. With the replacement of RIFANS and FMS, planned for July FY24*, this cost will be avoided, as an upgrade is unnecessary. There is also cost avoidance associated with eliminating the dependency on single-agency solutions. The procurement, implementation, and ongoing costs associated with these systems can potentially cost the State millions. Based on the planned decommissioning of the mainframe system, DHS, DMV, Motor Pool applications currently on the mainframe will have to be re-

platformed. The DMV and Motor Pool applications are minor applications. These applications will be re-platformed through a separate project.

Human Resources

Human Resources is another area with hard dollar benefits. Some of these benefits include reducing the money spent on administrative leaves, reducing the dependency on a consultant workforce, creating more efficiencies in leave management, reducing paper, and curtailing overtime.

Administrative leaves occur for a variety of reasons. One of the most common reasons is to remove an employee from the work environment while an investigation is conducted. During this period, the employee is still entitled to normal pay and benefits until a conclusion is made and the investigation is closed. There are many factors that determine the length of time an employee is on administrative leave, some of which are mandated by law (for example, notice to an employee). In FY19, there were a total of 93 State employees out on administrative leave for an average time of 56 days (Note: some of these employees began their leaves in FY18). One of the most time-consuming factors is the ability to gather evidence to come to a determination that will withstand scrutiny if the outcome is adverse. Today it is very difficult for investigators to gather information without having to go to multiple sources. This adds time to the length of the employee's administrative leave, which is costly to the State. The office that conducts investigations today is short-staffed, and by redeploying resources that are no longer needed for transactional work, they will be able to better dedicate the time and staff necessary to more quickly conduct investigations. A modern ERP will increase the investigative capabilities of the State, therefore reducing time spent on administrative leaves. Since cost savings associated with administrative leaves are subject to many variables, a specific hard dollar benefit has not been quantified.

Consultants, employees hired on an as-needed basis (for example, contractors, freelancers, etc.), are one mechanism used by the State to help support the cumbersome, manual processes required of staff today. In FY19, the Division of Human Resources spent \$81,488 on contractors hired through a staffing agency. By eliminating transactional work and manual data entry, the need for contingent labor could be reduced, resulting in another cost savings.

Avoiding possible penalties, for example arising from non-compliance to requirements of the Family and Medical Leave Act (FMLA), the Fair Labor Standards Act (FLSA), and the Occupational Safety and Health Act (OSHA), is another cost savings/avoidance opportunity. Effective in January 2019, the United States Department of Labor increased the civil monetary penalties for violating federal minimum wage, overtime, posting, and safety requirements. Part of the new HR application is modern leave management software, which includes the administration of FMLA. This software will help to better manage employees on leave and enforce policies. In a study conducted by the Society of Human Resources Management (SHRM), the average number of employees in an organization that utilizes FMLA annually is 8%.

Paper-intensive processes generate supply-related costs which an ERP would eliminate, such as the cost of printing – and storing – paper timesheets for the State's 15,000 employees each pay period. While the hard dollar benefit of reducing the State's supply expenses may seem small in comparison to other benefits, it is not trivial, and is consistent with the State's efforts to limit its environmental impact. There are obvious additional benefits from digitizing information that today is recorded on paper. Any process

which requires a person to transmit data from a physical form to a digital form is a risk to produce errors and undermine data quality. Also, when analysis is required into a specific transaction, it is difficult when the only backup is a paper form locked in a filing cabinet. These issues, and their associated cost, would be effectively mitigated by a modern ERP.

Reduction of overtime costs is an opportunity for cost savings. Another module of the new HR application is modern time and attendance/workforce scheduling software. This software includes functionality for predicting and scheduling complex workforces that run twenty-four hours per day, seven days per week. The inability to predict staffing required to accomplish mandatory shift coverage is a significant driver of overtime. For example, health facilities need to cover all shifts with employees having specific credentials such as nurses and doctors. When one of these employees is absent, often the on-site employees are extended to cover the shift, and paid overtime. With sophisticated workforce scheduling software, staffing can be predicted and managed to optimize shift coverage with less reliance on overtime. Studies by software companies indicate the prospect of overtime reduction in the range of 10%. Additional data and analysis are needed to quantify the potential overtime savings for Rhode Island.

Payroll

Identifying and correcting errors in the payroll is a time-consuming task, and errors not detected translate to overpayments. Studies by software companies suggest that payroll error rates in the 0.5-1.5% range are common. Such a risk exists with the obsolete and complicated payroll system in Rhode Island. Again, additional data and analysis are needed to quantify the potential savings from reduction of payroll errors for Rhode Island.

Soft Dollar Benefits

A broad group of potential opportunities which could result in process efficiencies, better information, reduced risk, and other qualitative benefits were also considered. These opportunities are summarized in Figure 27.

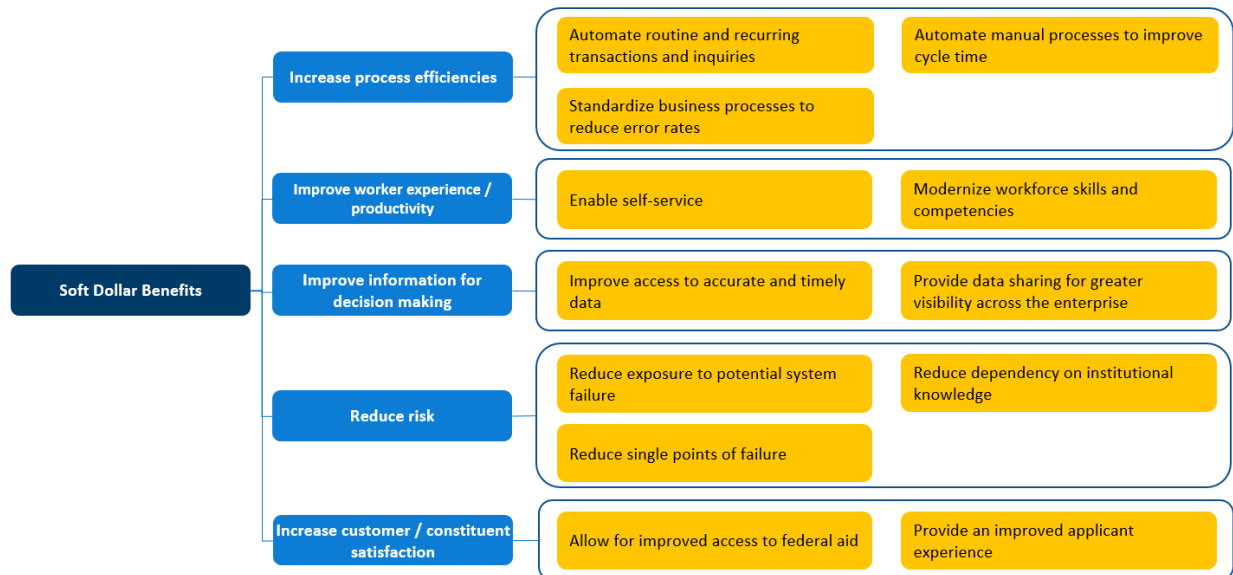


Figure 27: Soft Dollar Benefits

Enable employee and manager self-service. There are many examples of personnel-related transactions that could be more effectively handled via self-service, such as updating addresses. In addition, the inaccessibility of reporting in current systems requires IT personnel to produce reports on behalf of other departments. Business-led reporting is a key advantage of a modern ERP, allowing users to input common business terminology in place of coding language to answer their own questions about their data. Customers and constituents will also reap the benefits of quicker turnaround times and advanced capabilities in fulfilling external data requests.

Standardize data definitions and business processes, reducing error rates and cycle times. Today, many common processes differ across agencies. When personnel move between agencies, they must often learn new techniques to achieve the same outcome. Transitioning to a shared ERP encourages standardization across the State and affords advantages from reduced errors and faster processing times.

Reduce overreliance on institutional knowledge. While employees are an organization's most valuable asset, no one employee should be irreplaceable. The current IT infrastructure, featuring custom-built systems and offline manual processes, relies upon a handful of people with deep institutional knowledge of current processes and workarounds. Transitioning to a modern, cloud-based ERP will decrease the incidence that the only way to get the right answer is to know the right person to call.

Share data to enable visibility across the State. Central decision-makers, analysts, and auditors find it challenging to obtain insight across the enterprise and must burden agency managers with frequent requests for information. Once they receive the information, they often face cumbersome data reconciliation and question data accuracy. With properly defined permissions, improved data sharing between agencies can save time, improve quality and identify valuable insights without sacrificing controls.

Reduce staff turnover. Given the high cost of hiring and training a new employee, reducing staff turnover would be a major benefit. In a study by the Center for American Progress, it was found that the cost to replace an employee can range anywhere from 16-213% of their annual salary depending on the level and skillset required of the role. Improvements to technology can improve employee satisfaction, and thus their likelihood to remain employed with the State. Additionally, an integrated human resources system provides a view into the employee lifecycle from initial application through offboarding. Some modern ERP systems provide enhanced functionality for advanced employee analytics, which can identify characteristics of employees who may be most likely to leave, providing opportunities for impact assessments, planning, and targeted interventions.

Redeploy staff time currently spent maintaining legacy systems. Currently, a great deal of IT personnel are tasked with the operation and maintenance of legacy systems. With the implementation of a modern ERP, these resources can be redeployed to other, value-added functions. Additionally, much of the IT department spends time helping departments gather information from legacy systems to run reports or analyses. A modern ERP will automate this function and will enable end-users to run reports and provide access to a level of business intelligence not currently available. This has a double effect by giving time back to the IT personnel as well as preventing time loss for departments seeking information. While the cost of this benefit is difficult to calculate, the benefit is immense. By freeing people from manual and tedious labor and allowing them to spend time on higher-level tasks, productivity and end-user experience can increase dramatically.

Increase data security. Another benefit of a modern ERP is to improve security and reduce the risk of a data breach or unauthorized access. IBM reports that as of July 2019 the average cost of a data breach is \$3.92 million, an approximate 12% increase over the past five years. Cloud-based systems benefit from continuous improvements in data protection and integrity, whereas current legacy systems do not. Risk is further increased since personally identifiable information such as social security numbers are stored and entered manually on a routine basis. A modern ERP will help protect the State's informational assets.

Reduce dependency on obsolete and sunseting technology. A modern ERP will also reduce the State's current dependency on obsolete and sunseting technology. Current systems are not benefiting from the software market's research and development. By remaining stagnant, the State is creating a greater dependency on technology that is increasingly hard to maintain, repair, and operate. This risk is increased as the talent pool for individuals skilled with these legacy systems shrinks, as most IT professionals focus their skill development on the latest technology.

Improve disaster recovery and business continuity. Another benefit is reducing the risk of a critical system failure that could occur as the result of a disaster or simply the age of the system. The improved data recovery and business continuity that the State will receive is immeasurable when compared to the cost of a critical failure. Being unable to pay State employees, vendors and municipalities could do irreparable harm to the State. Additionally, business continuity is essential for a state entity during an emergency. The State must be able to rely on critical business systems so personnel can focus on providing service.

Provide accurate and timely data to drive hiring decisions. A modern ERP will reduce the time spent on the administrative and transactional tasks, allowing human resources to spend time actively recruiting, which will lead to a more advanced and competitive applicant pool. Combined with a modern HR application, the result will be a more streamlined experience for applicants, from their initial search for opportunities all the way through to onboarding. The State will see improvements in time-to-hire as a result of more transparency for applicants and hiring managers, quicker turnaround times, a more streamlined applicant experience, and automation of the workflow. This will increase the State's chances of receiving first-choice candidates for hard-to-fill roles.

Provide transparency for planning employee leaves. When employees can easily and readily understand their accrued balances, they will be able to plan leave with more knowledge of the potential impact to their leave bank. Today, this functionality is unavailable to them.

VII. Critical Success Factors and Risk Mitigation

The State encounters many risks today due to outdated technology. As Rhode Island undertakes this initiative to modernize its enterprise applications, like any major initiative that requires enterprise-wide coordination, there will be new risks whose mitigation will require careful planning, engagement with a diverse group of stakeholders, and incorporating best practices learned from similar efforts. This section provides an overview of multiple approaches and enabling activities that are necessary for producing the business transformation described in the Strategic Plan.

The two greatest risks relate to the State's ability to dedicate sufficient resources.

- **Staffing** – The State is dependent upon a small number of IT and business subject matter experts to both (1) provide the critical knowledge needed to replace current technology with ERP functionality and (2) maintain the current systems and meet the day-to-day needs of the State. Both imperatives cannot be accomplished without hiring more resources to permit these experts to dedicate the requisite time to the program. The mitigation plan for this risk is provided in the Section IV Staffing and Cost.
- **Funding** – Investments in modern technology will require the State to identify a funding source to pay for costs associated with planning, implementation, and ongoing software maintenance. Large outlays during certain fiscal years could provide a challenge in an era of constrained budgets. The mitigation plan to smooth outflows via a financing strategy is provided in Section V Funding and Financing.

This section provides an overview of new risks and the appropriate mitigation in the following critical areas:

- **Organizational Change Management**
- **Integration**
- **Data Conversion**
- **Master Data Management**
- **Security**

Organizational Change Management Approach

The single greatest mistake that organizations make in implementing an ERP is underinvesting in Change Management. Effective end-user adoption is a critical success factor for the State to realize the business benefits described in the Strategic Plan. Success is defined as not only the software going live but ensuring that end users can deliver better results by putting the power of the new technology fully to work.

The replacement of current enterprise applications in HR, Payroll, Finance, and a new Grants Management system will significantly impact the State's processes in these areas. For example, many of these processes involve manual paper forms and outdated technology, including typewriters. It is not uncommon for an HR employee's full-time role to be data entry of paper forms, such as a Personnel Action Change Form (commonly known as the "CS-3") into the current system. In the new ERP, it will be possible for all employees to perform similar tasks themselves (such as a change of address) via a self-service portal. The HR employee is no longer entering data from a paper form – instead they are asked to conduct an analysis on the most frequent change requests submitted, so the HR department can

work to make that process more seamless for employees. This is merely one example of how end users will adapt their way of working upon the implementation of a modern ERP and how critical training and teaching new skillsets will be in the coming years.

The Organizational Change Management (OCM) approach is based on the following guiding principles.

- *Focus on the people who will do the work.* The end user in the example above will be the central focus of the overall change effort. They should be engaged throughout the implementation and their voice should be heard in all aspects of change planning and execution, to ensure that they feel a sense of ownership in the change taking place.
- *Drive business value for the State.* Work with stakeholders from the very beginning to identify what the desired business outcomes are and refer to those often. Document and capture business value in the current-state to allow benchmarking against this information in the future-state.
- *Communicate early and often.* There is no such thing as “too much” communication in a large and complex transformation.
- *Implement the OCM strategy based on data.* Use surveys to identify agencies and functional areas that might benefit from additional change resources. The OCM approach will use analytical tools, not just anecdotes, so that each change intervention can be personalized to the needs of end users.

The OCM approach engages end-users and leadership early in the process, so new enterprise applications are widely adopted and embraced as the solution to achieve business benefits identified by the State. An Organizational Change Management team (see Section IV for details on Staffing) is dedicated to successfully executing the Change Management Approach. The OCM methodology includes four components: Value Realization, Change Readiness and Culture, Communications, and Training.

Component 1: Value Realization

The start of a large-scale initiative, such as Rhode Island’s transformation to new enterprise applications, begins with the case for change. The degree to which the benefits that justified the program will be achieved is the key indicator of success. As part of the OCM approach, the State will identify, articulate, and communicate early on the shared vision of the ERP. Part of this process includes establishing metrics and KPIs to measure baseline performance to compare against target performance for the future. These KPIs will be measured and tracked in a benefits realization plan. Some examples of KPIs that other states have used include:

- 100% of bank reconciliations accomplished within three days of period closing
- Percentage of job requisitions filled in line with the State’s target time-to-hire
- Number of internal control weaknesses identified during annual audit

The State will set a strategic direction for leading practice adoption and formalize steps to continue to move Rhode Island forward in providing best-in-class service to partners and employees. A key responsibility of the OCM team will be continuously measuring the realization of benefits.

Component 2: Change Readiness and Culture

It is important that end-users feel that they are a part of the change itself, and not someone that change is simply happening to. The OCM team will engage end-users and stakeholders early and often, ensuring

their voices and concerns are heard and considered. They will embed themselves in the design and development of business processes in the new enterprise applications to ensure the voices of impacted employees are represented. One mechanism that Rhode Island has used successfully in the past is designated Change Leads for each agency. These Change Leads would work closely with the OCM team to ensure that considerations specific to each agency are addressed, and that the value and benefits realized are effectively communicated to agencies.

Component 3: Communications

The OCM team will develop a comprehensive communications plan which will define the target audiences, key messaging, methods of delivery, timing, and frequency of communications. The target audiences will be comprised of end users and other stakeholders such as leadership and oversight agencies. Just as individuals learn differently, the ways in which individuals consume and digest information are also unique. Accordingly, communication methods are tailored for respective audiences. The team will think beyond e-mail, using methods that have been successful for communication with Rhode Island employees in the past, such as webpages designated for project updates and regular status calls that are open to interested end users. The OCM team will also implement methods such as surveys, live polling, focus groups, and event feedback mechanisms. By using a variety of methods and providing communication regularly throughout the implementation life-cycle, all who are impacted will have an opportunity to engage with and understand the initiative.

Component 4: Training

As illustrated by the example of the HR employee who will no longer be manually entering CS-3 data into the system, it is expected that there are many jobs that will be changing significantly upon the implementation of the Strategic Plan. These changes are illustrated in Figure 28 below.

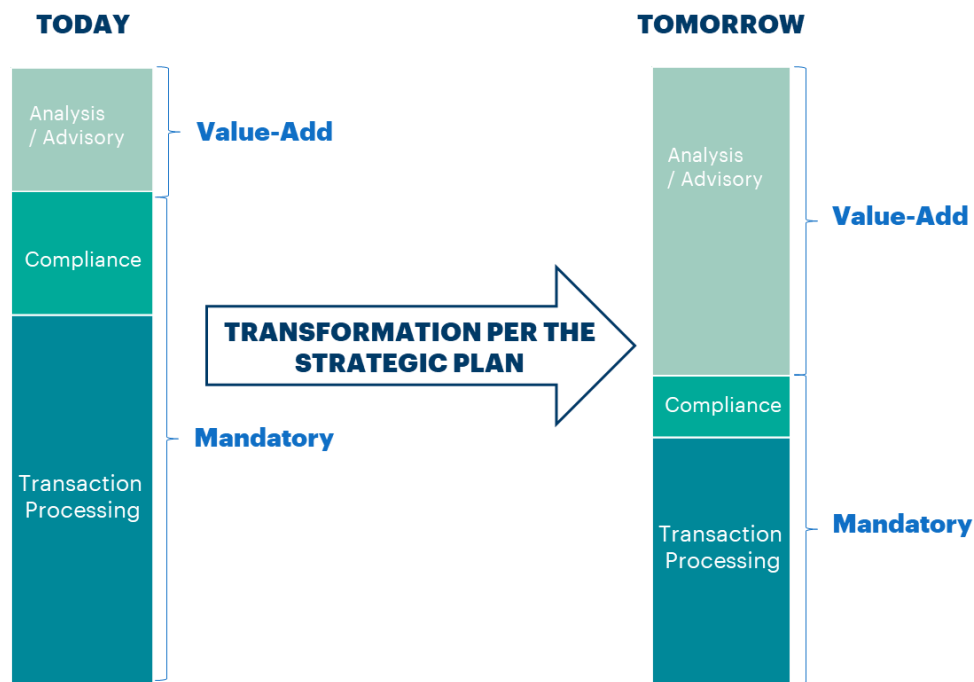


Figure 28: Role Transformation from Today to Tomorrow

In other words, the roles and jobs for many State employees will change. There are numerous benefits to the State as employees shift from manual, transactional, compliance-driven activities to strategic, analytical, and value-driven activities. Despite these advantages, often the first reaction of those who are impacted is negative. They can feel overwhelmed, threatened, and nervous about learning and applying a new skillset. This concern is amplified by the fact that many Rhode Island processes and procedures have not changed for decades. The training approach and strategy to redeploy these employees in their new roles is imperative to the success and overall adoption of the new enterprise applications. There are many different methodologies that will be used that go beyond a traditional classroom, instructor-led environment. Rhode Island will adopt many of these practices based on the unique needs identified by users, including:

- One-on-one trainings
- Webinars and e-learning
- Written job aids, standard operating procedures, and step-by-step documentation
- Assessments and questionnaires
- Games and activities
- Train-the-trainer strategies in which each agency has two designated “experts”

Integration Approach

One of the significant risks with the State’s current applications is the ability to easily, effectively, and safely accomplish data exchange and smooth operations between different systems. There are hundreds of current interfaces, both inbound and outbound, to the current enterprise applications. Furthermore, the current integration landscape relies heavily on point-to-point and file transfer protocols. This situation poses several risks:

- Critical processes and systems could be missed
- Duplicate functionality
- Unnecessary complexity
- Failure to achieve the benefits of eliminating duplicate systems and data entry
- Reliance on specialized knowledge by a handful of IT experts

The integration approach is based on the following guiding principles.

1. Leverage, to the extent feasible, integration functionality that is provided by the ERP software vendors
2. Implement an integration solution that is flexible and scalable over time
3. Implement an integration solution that can be easily maintained by State resources

Integration Planning

As part of its procurement of ERP software, the State will evaluate the Integration Platform-as-a-Service (iPaaS) solution proposed by responding ERP software providers. iPaaS is a cloud platform that allows customers to develop and manage integrations and applications. If the selected vendor’s proposed integration layer does not satisfy the State’s needs, a separate procurement for an integration layer remains an option.

Pursuing this approach provides the following benefits to Rhode Island:

- ERP solutions provide pre-built integrations with their preferred iPaaS solution that allow for easier data mining and management of data references, ensuring consistency and quality
- Pre-built integrations reduce time-consuming and costly development cycles required to integrate with ERP, and allow Rhode Island to focus on integration effort that involves legacy data crosswalks and transformation
- The State will be able to leverage lessons learned, bug fixes, and software updates to its integration platform from other organizations or industries
- An integration layer could also provide a solution for:
 - Business needs not met with ERP software
 - Data processing that has complex functions, rules, or requirements
 - Interfaces that require complex functions or calculations
 - ERP applications that do not deliver an API function for integration purposes

The Department of Administration currently maintains multiple resources that will facilitate the process of identifying systems impacted by the replacement of current HR, payroll, and finance applications with a modern ERP. Per statutory requirement, Enterprise Technology Strategy and Services (ETSS) tracks an inventory of approximately 450 active IT systems, identifying key attributes and system owners. ETSS also maintains a detailed system landscape diagram tracking the interchange of data between enterprise applications, relevant offline processes, and external systems. These resources provide the starting point for integration analysis, identifying candidate systems that will either interface with ERP or would be considered for retirement.

A more detailed integration plan will be defined after the ERP software and the systems integrator has been selected. Working in conjunction with the vendors, the State will conduct a more detailed analysis of impacted systems, in collaboration with agency system experts, and assess each system. This system impact analysis is described in Figure 29 below.

System Impact Analysis Questionnaire
<ul style="list-style-type: none"> • Which agency/agencies use this system? • Who are the Functional and IT business owners? • What is the interface file name? What type of interface? What is the interface job name? How often is the interface run (daily, monthly)? What data is included in the interface? • What business process does the system support, and does it meet current needs? • Does the system support current regulatory requirements and legal mandates? • Who are the current users of the system? How many current users? • What other systems does this system integrate with? • Is there limited or no integration with other systems that prohibits full functionality or results in data input duplication? • Indicate the ease with which it is possible to change (e.g., current or new requirements, configuration changes) this system and the effect this will have on other programs. • Does the agency have the skills required to support/develop improvements to this system? • What technologies are used to build and support the system? • What is the current phase in lifecycle of the technology (Sunset, Declining, Mature, Invest)? • When was the last time the interface was reviewed?

Figure 29: System Impact Analysis Questionnaire

Applications to “keep” are likely integration points to ERP. These are the applications to be included in the ERP design and development phases. Applications likely to “keep” include agency systems that are line-of-business oriented and will integrate with the new ERP. Applications to “replace” would be decommissioned as part of the ERP implementation; these are likely systems with data that will be converted into the new ERP. Applications likely to “replace” include systems that currently perform business functions similar to those of Rhode Island’s new ERP (e.g., mainframe for HR/Payroll, RIFANS, RIDOT FMS), and systems that were created for agencies for reporting or other purposes.

Integration Development

The implementation lifecycle for interfaces will be proposed by the vendor that will partner with the State during implementation. As guidance, the high-level approach shown in Figure 30 represents a common method for integration development. The process takes an interface item through the functional and technical specifications, then through the development and testing phases, and lastly to deployment. Each phase of the implementation lifecycle will include a stage gate process that will include review, feedback, quality assurance, and validation.



Figure 30: Integration Development Process

1. **Functional Specifications:** Functional specifications document the logic behind the interfaces to be developed and communicate to functional business owners how an interface or conversion item will impact their functional area. This process was initiated during the development of the Strategic Plan, and it will continue as an ongoing activity.
2. **Technical Specifications:** Technical specifications document how interfaces will be developed and how they will impact the ERP from a technical point of view. These specifications expand upon the functional specifications and provide the technical specifications that are used by the developers during the build phase.
3. **Development:** The development process will use the functional and technical specification documents to build the interfaces based on these specifications, including both inbound and outbound.
4. **Unit Test:** After development of an interface item is complete, initial unit testing is conducted by the development team before it can be moved to system test. The unit test is done with a small sample of production-like data, by the developer, to ensure quality. Agencies will be responsible for completing their own unit testing for modifications performed on their systems.
5. **System Test:** The system test process ensures data coming in from interfaces is mapped appropriately and meets the needs of end-to-end business scenarios.
6. **Parallel Test:** After system testing, parallel testing is commonly associated with payroll functionality. This involves running payroll in the old system, running the same payroll in the new system, and comparing the two results to ensure a match.

7. **User Acceptance Testing (UAT):** User Acceptance is the last phase of testing performed by end users. This effort validates that the final solution aligns to defined business capabilities. UAT will simulate the entire business process as if it was being run in production.
8. **Deploy:** At this point in the development life cycle, components have been rigorously tested in end to end scenarios with production-like data and are ready to be deployed to the production environment. Prior to the release to the production environment, a deployment plan will be created for final validation.

Data Conversion Approach

One of the many benefits of a modern ERP is its ability to store and analyze large volumes of data. The State’s current systems (both paper and technology-based) hold a multitude of records and data. Some of these records and data the State must retain in order to remain compliant with State and Federal regulations. The risk is that inaccurate or unnecessary data is converted.

The data conversion approach is to store records and data in the new ERP required by law or required for ongoing processing, and not convert (i.e., leave behind in current systems) all other data. The data conversion approach is based on the following guiding principles.

1. Store all historical data and records that the State is legally required to retain and report in ERP
2. Convert data necessary for ongoing processing and reporting.
 - a. For example, current General Ledger (GL) balances will be converted for ongoing processing. Data not converted and stored in the new ERP will remain in its current system or some other repository for historical reporting purposes.
3. Test thoroughly to ensure that data is converted accurately.
4. Review and clean-up data that will be converted into the new system prior to conversion.

Example of data likely for conversion are listed in Figure 31.

Human Resources and Payroll	Finance and Budget
<ul style="list-style-type: none"> • Employee and payroll data • Time and attendance data • Accrual balances • Organizational structure • Benefits and retirement data • Job classification data • Employee training data 	<ul style="list-style-type: none"> • General Accounting: GL balance, GL journals, cash balance, fund balance • Accounts Payable: YTD 1099 summary, open payables, active vendor records, active travel reimbursements • Accounts Receivable: open receivables, active customer records • Asset Management: active assets/inventory • Grant Management: active grants, grant balance, grant-billed amounts • Project Accounting: open projects, fund distribution, hours, and balance • Budget: allotment budgets, enacted budgets, active capital projects budgets, commitment control, active performance measures

Figure 31: Candidate Conversion Data

Data Conversion Process

The process for data conversion is depicted in Figure 32 below:

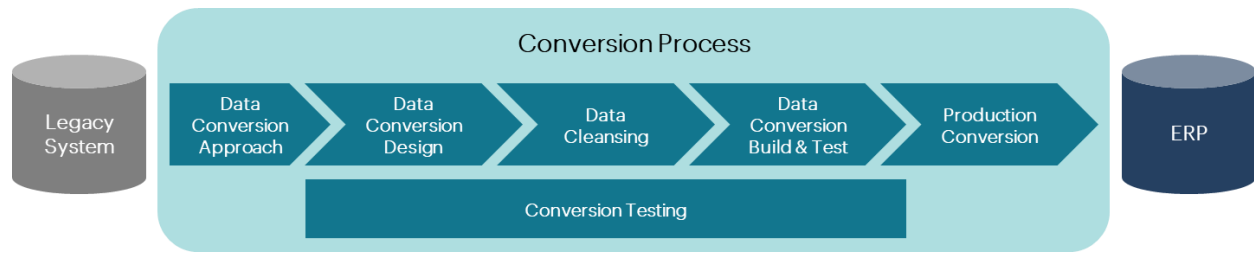


Figure 32: Data Conversion Process

1. **Define the Data Conversion Approach:** The majority of HR/Payroll data would be converted from the existing legacy HR/Payroll systems, and the majority of Finance data would come from the State's existing Finance system, RIFANS. For both HR/Payroll and Finance there are side systems that also host data that may need to be converted. The next step is further analysis to develop a comprehensive list of data to be converted.
2. **Data Cleansing:** As noted in the guiding principles above, data clean-up activities are integral to successful data conversion. During the Pre-Implementation phase, the State has planned for six-months of data clean-up with dedicated resources to conduct these activities.
3. **Data Conversion Build and Test:** This is where unit testing of the automated data conversion program designed in Step 2 will occur, an important step for conducting quality assurance.
4. **Mock Conversion:** Multiple mock conversions are conducted to ensure that the automated data conversion program is working as expected and identify areas where further data clean-up for maintaining quality is required.
5. **Final Conversion:** The final step is conversion of historical data into the production environment.

Master Data Management Approach

Like other enablers of successful enterprise processes, properly executed Master Data Management (MDM) is a critical success factor. It is evident when absent, usually in the form of poor data quality and an inability to produce accurate and complete reporting. To avoid these risks, an approach to MDM must provide clear, well-defined standards and processes for governing master data.

The Master Data Management approach is based on the following guiding principles.

- Establish an effective governance and management process
- Include relevant business owners (Procurement, Budget, Finance, Human Resources)
- Follow this governance and management process through the Implementation and Post-Implementation phases

Identifying Master Data

Master data is the State's "single source of truth" for basic business data used across multiple applications and processes. "Master data element" refers to an attribute of a transactional record where defining the subset of possible values for the given attribute into a finite, centrally-governed list is necessary to maintain quality and consistency for reporting.

To illustrate, “Payee Name” is an example of a master data element, while “City of Providence” is an example of a possible value for Payee Name. Other entries in the Finance system might also include “Providence, City of” or “Providence”, all in reference to the same real-life entity. If a decision-maker asked, “How much did the State issue in payments to Providence last fiscal year?” they likely want all payments to the Payee Name, whether it is “City of Providence” or “Providence, City of”. It is therefore vital to have a process in place to centralize and standardize the governance of important data.

During the creation of the Strategic Plan, IT subject matter experts identified several master data elements that are currently used by enterprise applications. They are summarized in Figure 33 below.

Human Resources and Payroll	Finance and Budget	Procurement
<ul style="list-style-type: none"> • Position • Class Code • Employee • Pay Group • Union Group • Health Care Plan Identifier • Benefit Info • Equal Employment Opportunity Category • Employee Status • Education Code • Accrual Rule • Time Code • Exception-Hour code 	<ul style="list-style-type: none"> • Chart of Accounts Data <ul style="list-style-type: none"> ○ Fund ○ Fiscal Year ○ Agency ○ Line Sequence ○ Account Source ○ Natural Account ○ Project • Cost Center • Payee • Customer • Invoice • Grant • Grantee • Grantor • Expenditure Type 	<ul style="list-style-type: none"> • Supplier/Vendor • Item Code • Buyer • Address • Location • Requisition • Purchase Order • Accounting Distribution • Contract

Figure 33: Current Examples of Rhode Island Master Data Elements

Not all data used by critical business applications is master data. A clear understanding and agreement on how to identify master data versus non-master data is a foundational task that needs to be carried out in the early stages of the program.

Master Data Governance

During the deployment of the new ERP, a formal master data governance process will be implemented, including the definition of business owners for each process area. The steps required to effect a change will vary depending on the master data element. For example, while adding a new Location Code may be subject to governance to promote the benefits of standardization and uniformity, it may require few (if any) approvals before being updated in the system. In contrast, a change which has broader impact across the enterprise, such as requesting creation of a new chart of accounts value, would follow the formal governance process described in Figure 34 below:



Figure 34: Process for Changes to Governed Master Data

1. **User Change Request:** User initiates request for change to or creation of a coding element.
2. **Coordination Team Review:** Coordination Team evaluates change request for need and compliance with master data guidelines. If request meets need standard and guidelines, forward to Oversight Committee for evaluation.
3. **Oversight Committee Approval:** Reviews and approves change request or reviews and disapproves change request. If approved, notifies the change implementor to proceed with the requested change. If disapproved, notifies the requester with the rationale for rejection.
4. **Change Implemented:** Implements approved change and notifies requesting department when complete. If needed, provides input to update the accounting manual to reflect the change.

Security Approach

Robust and effective security is a foundational aspect of the Strategic Plan. Stated another way, a potential pitfall that would prevent us from accomplishing the objectives for new enterprise applications is insufficient security. It is imperative that new enterprise applications protect the State's assets. This means the security approach must prevent unauthorized access, protect privacy, and eliminate data breaches. At the same time, the security approach must balance efficiency objectives, such as making data available and access easy for end users.

The target solution for enterprise applications (described in Section III) will facilitate the recommended security approach. The unified ERP strategy will have fewer integration touchpoints, decreasing the opportunities for malicious actors to exploit weaknesses. Also, with the modern SaaS/Cloud ERP deployment model, the responsibility for maintaining infrastructure security, and to a certain extent managing the data, is shared by the vendor.

The security approach is based on the following guiding principles.

1. Adopt a multi-dimensional security approach, including people, process, and technology. Security is more than just a technology issue. The security approach includes the people dimension, for example training end users to follow sound security practices such as avoiding phishing attacks. It also includes processes, for example rigorous internal controls to assign and manage access privileges. And it includes the technologies to enable and execute the applications.
2. Comply with federal and industry standards and State policies. This includes standards from the National Institute for Standards and Technology (NIST), System and Organizational Controls (SOC) Type 2 auditability, Federal Risk and Authorization Management Program (FedRAMP), and State policies such as Network Communications Security, Security Planning Policy, and Mobile

Device Security. Most modern SaaS/Cloud ERP applications already meet these standards and policies.

3. Leverage existing and planned Rhode Island security-related solutions and initiatives. The Strategic Plan assumes Rhode Island capability for single sign-on and identify and access management will be leveraged by new enterprise applications.
4. Leverage security features and functionality inherent in the modern SaaS/Cloud ERP software.
5. Embed security as a priority in each phase of the program.
6. Assess security at regular intervals to identify gaps and areas of improvement or efficiencies.

Key Security Considerations

The detailed security approach will be defined after ERP software vendor and systems integrator have been selected. Working in conjunction with the vendors, the State will coordinate current and planned security capabilities with changes to enterprise technology to address the following key considerations.

- Multi-factor authentication and remote access: coordinate with the State's solution for multi-factor identification to all State virtual private network (VPN) users
- Managing role-based access: coordinate service desk management functions
- Network security and firewalls: use existing firewalls and create new firewalls as needed; also leverage the State's Secure Incident Event Monitoring (SIEM) capability with logging performed by the State security operations center
- Application security: leverage the SaaS/Cloud ERP role-based security functionality; this will include roles for various types of end-users, super-users, and system administrators; configuration of role-based security will be done by the State and/or vendor using tools in the new ERP software

Role of Security in the Overall Program

The Strategic plan includes staffing and activities for State and vendor security subject matter experts who will be engaged for each phase of the program. As mentioned above, this engagement by the State's security staff will be multi-dimensional and address people, process and technology dimensions.

During the Pre-Implementation phase, the Chief Information Security Officer (or designee) is included in the business and technical capabilities definition to assure the appropriate security requirements are included in the RFP for ERP software and services. Security SMEs also participate in the proposal evaluation process.

During the Implementation phase, security SMEs are engaged in all aspects of the system development lifecycle from design through configuration to testing and deployment. The organizational chart includes security resources at the program oversight level, as well as the project implementation teams. It is important to note that the security specialists, while hosted in the technical team, will interlock with the functional and Change Management teams.

Maintaining and sustaining the security approach continues during the Post-Implementation phase. Like the new enterprise applications themselves, the security strategy is to continuously improve performance and add value, protecting Rhode Island's information resources.

VIII. Conclusion

This section describes how the State will measure the degree to which it has been successful in meeting its objectives.

So why did we create this Strategic Plan? The answer, in a single sentence, is to help Rhode Island in the pursuit of excellence in the accomplishment of its administrative functions. The business transformation it proposes is about more than reducing paper-based processes and retiring antiquated systems. New and modernized enterprise applications are a means to the end goal: delivering top quality services on behalf of the public.

Residents now expect public organizations to nimbly anticipate needs and deliver services more efficiently and effectively. Reforms must start in the “back office” – by the leaders responsible for enterprise functions including finance, audit, budget, payroll, and human resources. These functions, and the systems that support them, are the engines of public service value delivery. As described earlier, the current enterprise applications are a constraint to performance. The transformation of these enterprise applications, described in this Strategic Plan, is an enabler to performance.

The Strategic Plan is based on six guiding principles.

1. Bring to life the vision. State leaders have developed a vision that defines the future to be accomplished with new enterprise applications. This vision is guided by principles in the areas of purpose, accountability, incentives, control, and culture that are described in detail in Section II.
2. Provide a realistic and actionable plan to accomplish this vision. This is detailed in Section III, the Target Solution and Timeline.
3. Address the constraints of human and monetary resources. This is described in Section IV, Staffing and Cost.
4. Create a plan that is affordable. This is described in Section V, Funding and Financing.
5. Document the promised benefits. This is described in Section VI, Benefits.
6. Identify critical success factors to manage risks. This is described in Section VII, Critical Success Factors and Risk Mitigation.

According to an old saying, people respond more to what one inspects rather than what one expects. The Strategic Plan includes sample benchmarks and Key Performance Indicators aligned with State government leading practices. These are included in Appendix I. This list is indicative, not exhaustive, and provides examples of a starting point for achieving benefits realization.

The transformation of Rhode Island’s enterprise applications is less an opportunity and more of a necessity. The State is not being enticed by the allure of Federal funding. The modernization effort cannot be described as a “nice-to-have.” State leaders have critical compliance and performance responsibilities that they cannot easily accomplish with existing processes and technology. They are unanimous in their support of this enterprise applications modernization effort. Deferred maintenance has persisted too long; the risks of inaction at this point far outweigh the cost of upgrades in capability. These risks have been described throughout the Strategic Plan and are also highlighted in the repeat audit findings cited in detail in Appendix V, where the FY18 State Single Audit indicated that the current environment results in “business continuity risk, decreased efficiency and effectiveness, and control weaknesses.”

Rhode Island's residents — like those across the U.S. — want better service and performance from government for every dollar they are paying in taxes. Inaction cannot deliver that result because they focus on what government is spending, not on how government works. To deliver what people want, the agenda must shift to productivity, which requires state government to deliver more value per dollar spent and re-invest to build a better government that can foster economic growth. At the heart of this productivity agenda are two key shifts that deliver more value:

- **Shift from reacting and remediating to anticipating and preventing.** Preventing problems is less expensive than fixing them after they have occurred. At present, Rhode Island lacks in key areas, such as Human Resources, the information needed to anticipate and prevent problems. With modern enterprise applications, State leaders will be able to move from data to information, from information to insight, and from insight to action.
- **Shift to public sector management that significantly automates transaction processing and compliance, thus enabling leaders to focus on delivering results and fostering economic growth.** For Rhode Island, this would entail new enterprise applications that enable Rhode Island government to attract and retain talent who want to learn modern technology and use it to make Rhode Island more welcoming and helpful to businesses.

The current generation of Rhode Island leaders has an opportunity to become the group who succeeded in making these shifts that will help the State become more of a performance organization that puts the mission at its core; makes achievement of results and delivery of value consequential; assures accountability for meeting and exceeding the expectations of those being served; puts more control in the hands of those closest to the work; and creates a culture that empowers high performance. The Enterprise Applications Strategic Plan charts the path and is further evidence of the State's commitment to revolutionize the delivery of public service for the future. The next step is for us to undertake that journey and bring Rhode Island forward to achieve its potential.

Appendix

Appendix I: Example Key Performance Indicators for HR/Payroll and Finance

Example Key Performance Indicators for HR/Payroll

Name	KPI
Workforce & Competency Planning & Strategy	<ul style="list-style-type: none"> 95% of role descriptions and competencies are reviewed and compared to industry trends every 3 years 99% of role descriptions and competencies are available via online systems
Talent Planning & Strategy	<ul style="list-style-type: none"> 50% or more of high performers are working in the organization 5 years later Leadership evaluation assessments achieving 30% or more as “excellent” 60% or more of potential job seekers describe the organization as “desirable” or “highly desirable” as an employer of choice
Organization, Culture, and Change Planning & Strategy	<ul style="list-style-type: none"> 90% accomplishment of the entities span of control guidelines Accomplishment of 75% or more on employee engagement scores for “engaged” or “highly engaged”
Learning & Development Planning & Strategy	<ul style="list-style-type: none"> 75% of course design completed by established timelines within budget 95% of the program objectives are met as evidenced by level 1 and 2 surveys 100% of the training and development curriculum is reviewed and compared to industry trends every 2 year
Sourcing, Selection and Deployment	<ul style="list-style-type: none"> 99% accomplishment of the entities timely recruitment policy e.g. 80% of open recruitments result in job offer within 60 business days 70% or more of new joiner’s subsequent performance evaluation is “exceed” or “significantly exceeds” 100% of employees have access to the tools and resources needed on Day 1 90% or more of new hires are evaluated as meeting or exceeding expectations by the time of a 6-month review
Competency Management	<ul style="list-style-type: none"> 50% of the employees complete a competency self-assessment annually 60% or more of the employees are evaluated in their role as “proficient”, “advanced” or “expert” annually (on a scale from novice-proficient-advanced-expert)

Classification & Compensation	<ul style="list-style-type: none"> • 90% of job descriptions and job families are reviewed and updated every three years • 10% or less of management job titles exhibit salary compression
Performance Evaluation	<ul style="list-style-type: none"> • 75% performance rating above a 3 for all employees on a scale of 1-5
Employee Recognition	<ul style="list-style-type: none"> • 100% of rewards and recognition programs are reviewed and compared to industry trends every 3 years • 90% or more of the employees describe the employee recognition and reward programs as “satisfied” or “highly satisfied” • 70% of managers leverage the rewards and recognition platform to recognize (financially or non-financially) employee contributions
Development and Learning	<ul style="list-style-type: none"> • 90% accomplishment of employee feedback scores of “satisfied” or “highly satisfied” for professional development events • 50% of courses are deliverable online and available through mobile and tablet devices
Succession Planning	<ul style="list-style-type: none"> • 90% of successors identified and targeted on progression plan annually
Employee Mobility	<ul style="list-style-type: none"> • 100% of mobile workers are appropriately provisioned (e.g. computer connectivity etc.) within 7 business days • 95% of supervisors and managers complete training to effectively supervise remote workers
Employee Help Desk	<ul style="list-style-type: none"> • 90% accomplishment of customer feedback scores of “satisfied” or “highly satisfied” for inquiries and service requests • 100% of the employees are informed about how to ask an HR question or concern
Employee, Government, and Labor Relations	<ul style="list-style-type: none"> • 90% of all grievances are resolved within 180 days • 10% decrease (year over year) in grievances related to employees appraised as “high performers” • 10% decrease (year over year) in grievances that lead to arbitration
Work, Health and Public Safety Info	<ul style="list-style-type: none"> • 10% decrease (year over year) in work related injuries • 100% of all health and safety metrics are reviewed and compared to industry trends every 3 years

Time Administration	<ul style="list-style-type: none"> 95% of time entries are compliant to the entities time administration policy prior to communication to the patrol process (e.g. prior approval for overtime and vacation)
Payroll	<ul style="list-style-type: none"> 100% accomplishment of the entities payroll policy e.g. 99.95% of employees paid accurately with no errors 99% or more of the employees receive pay via electronic funds transfer (i.e. direct deposit)
Benefit Management	<ul style="list-style-type: none"> 95% of employee benefit selections are done with self-service and online tools 99% accomplishment of the entities benefits policies (e.g. accuracy of employee enrollment into various benefit programs)
Exit Management	<ul style="list-style-type: none"> 99% accomplishment of the entities exit management policy 10% decrease (year over year) in unmanaged turnover related to employees appraised as “high performers”
Leave & Absence Management	<ul style="list-style-type: none"> 85% of leave request are processed within the scheduled timeframe 99% accomplishment of the entities Paid Time Off policy with less than 1% unplanned and unapproved absences
Statutory Reporting	<ul style="list-style-type: none"> 100% production of required reports in accordance with the required production schedule
HR Reporting and Analytics	<ul style="list-style-type: none"> 100% production of standard reports in accordance with the agreed upon production schedule 100% completion of ad hoc report requests within 7 business days 80% or more report users report “satisfied” or “highly satisfied” in surveys focused on procurement reports
HR Performance Reporting	<ul style="list-style-type: none"> Executive leaders are surveyed every three years to ask what HR metrics and performance reporting they would find beneficial 90% of “mission critical” operations of the enterprise use HR reporting and/or analytics to monitor, manage, plan and continuously improve operations
Enterprise HR Data Governance and Architecture	<ul style="list-style-type: none"> 100% of critical HR data sources are covered by a comprehensive data management plan, which describes, for each dataset, the data owner, users and steward This data management plan is updated on an annual basis

	<ul style="list-style-type: none"> • 100% of critical HR data is accounted for in the overall enterprise HR data architecture • The HR data architecture is updated on an annual basis
Enterprise HR Information Creation & Distribution	<ul style="list-style-type: none"> • 100% of critical HR data has an established and documented creation and distribution process • The established creation and distribution process is reviewed at least annually to cull reports that are unused, redundant, or out of date
Enterprise HR Technology Platform, Integration, and Process Architecture	<ul style="list-style-type: none"> • As needed, documented agreements describing the operations and management of the HR technology platform (e.g. agreements that describe the business and technical owners of these systems) • 100% of activities and processes required to support the HR technology platform and integration are inventoried and reviewed for business value and technology relevance at least once every two years • The business process model is aligned with the inventory of digital and technology enabled systems, applications, and tools at least once every two years
Enterprise HR Technology Service Management	<ul style="list-style-type: none"> • 100% of service management operations are covered by enforceable service level agreements (SLAs) • SLAs are updated at least annually • SLAs provide 99% platform availability

Example Key Performance Indicators for Finance

Name	KPI
Enterprise Performance Planning & Management	<ul style="list-style-type: none"> • 90% or more of all agencies have a documented and approved strategic plan used to monitor and report performance • 100% of all strategic plans show evidence of stakeholder input and feedback • 75% of business processes and/or programs in the strategic plan have metrics which are reported on and monitored regularly • For enterprise performance metrics trending in an adverse direction, 90% of such metrics are subject to a specific follow up and corrective action plan • The Finance organization utilizes IT platform to monitor and report performance indicators and share performance data with organization leaders and/or the public

	<ul style="list-style-type: none"> • The budget organization uses analytics for data driven program evaluation and planning/forecasting
Enterprise Budget Development	<ul style="list-style-type: none"> • 90% of the dollar value and 75% of the number of the Executive investment priorities proposed in the budget are approved by the Legislature • 95% of the agencies meet the deadlines in the budget development process • 80% of the stakeholders when survey about satisfaction with the budget process report “satisfied” or “highly satisfied” • The Budget organization uses analytics to derive historical budget performance and develop evidence-based budgets
Audit & Compliance Management	<ul style="list-style-type: none"> • 90% of all external audit findings are resolved within the next two audit cycles • 90% of all questioned costs are resolved within the next two audit cycles
Internal Controls	<ul style="list-style-type: none"> • Annual audit with zero internal control weaknesses. • 95% of all internal control plans are updated annually • 90% of internal audit findings are resolved within 270 days • Use automation tools and analytics to identify and implement segregation of duties
Budget Execution	<ul style="list-style-type: none"> • Adjustments to the annual operating budget (i.e., deficiencies and supplementals, excluding acts of god such as blizzards and hurricanes) are less than 1% of the initially enacted budget • Revenue, rates, caseload, and other drivers used for budget development are 95% consistent compared to actuals • The Budget organization uses analytics for data driven budgetary controls and program evaluation
General Accounting	<ul style="list-style-type: none"> • Successful period end closing within 7 business days • Details in all subsidiary and ancillary ledgers are reconciled within 15 days of period closing • 90% or more of all payees are managed in a centralized and unified payee file • For non-tax revenue, 90% or more of all customers are managed in a centralized and unified customer file • Finance uses RPA capabilities to automate journal entries and improve productivity

	<ul style="list-style-type: none"> • Finance uses AI capabilities to further reduce closing time by automating period closing activities
Accounts Payable	<ul style="list-style-type: none"> • 99% accomplishment of the entities accounts payable policy (e.g., 2% discount is paid in 15 days, net payment in 30 days, and 0 late penalty interest) • Zero payments made to vendors who are also delinquent in accounts receivable (AP/AR netting) • Finance leverages analytics to better manage spending, identify potential savings, and capture early payment discounts to increase efficiencies and lower costs • Finance uses analytics to identify potential duplication or error and actively manage and optimize days payable outstanding • Finance leverages RPA capabilities to perform auto-matching, matching hold resolutions, approval routing and to auto-schedule payments
Revenue Cycle Management – Non-Tax	<ul style="list-style-type: none"> • Customers comply voluntarily in 90% or more of all revenue non-tax events • Actual revenues collected in a fiscal period are within 95% of amounts initially forecasted • 99% accomplishment of the entities accounts receivable policy, e.g. 99% of receivables billed within 30 days • 99% of uncontested accounts receivable are collected within 90 days
Project Accounting	<ul style="list-style-type: none"> • 80% or more (for both dollar volume and number of projects) of all capital projects employ detailed project accounting • Less than 10% of all projects report overages or overruns compared to initially approved project budget
Grants Management	<ul style="list-style-type: none"> • As grantee, actual amounts planned for matching or maintenance of effort are with 95% of initial estimate • Actual amount expended by grantee to accomplish the grant purpose is within 95% of initial estimate • As grantor, 100% recovery of overpayments • As grantor, less than 1% of expenses are identified as “questioned costs”
Cost Accounting & Controlling	<ul style="list-style-type: none"> • 90% of all cost allocation plans are evaluated and updated as needed not less than every three years • 99% of actual indirect costs are recovered through approved cost allocation plans

	<ul style="list-style-type: none"> • Less than 0.5% of cost allocation plans are subject to post facto adjustment as identified via audits
Travel & Expense Processing	<ul style="list-style-type: none"> • 100% accomplishment of the entities travel reimbursement policy e.g. 99% of employee travel reimbursements paid within 10 business days • 90% of all travel and expense reimbursement requests are submitted to the system within 2 pay periods
Asset Management	<ul style="list-style-type: none"> • 10% decrease in emergency and/or unplanned repairs • 10% decrease in the number and/or value of assets reported as stolen or missing • FA team reduces paper by use of email based processes and uses RPA capabilities to increase productivity • The finance organization uses Internet of Things for asset inventory control and leakage
Cash & Banking Management	<ul style="list-style-type: none"> • 99% of employee payroll and expense payments made via EFT • 75% of vendor payments are made via EFT • 100% of Bank reconciliations accomplished within 3 days of period closing • Increases productivity of cash and banking team by automating reconciliation and exception resolution of all types of transactions • Forecasting of inflow and outflow of cash using analytics
Investment Management	<ul style="list-style-type: none"> • Interest earned (by investment category) compares favorably to within 10% of industry benchmarks
Debt Management	<ul style="list-style-type: none"> • A debt affordability analysis is performed on an annual basis or prior to issuance of new bond issues • Debt service is not more than 10% of the operating budget
Enterprise Statutory Reporting	<ul style="list-style-type: none"> • All standard management reports delivered within 5 days of period closing • 100% of senior leadership supported by custom dashboards showing desired financial information • CAFR is published within 180 days of fiscal year end • Obtaining the Certificate of Achievement for Excellence in Financial Reporting by the Government Finance Officers Association or similar agency

	<ul style="list-style-type: none"> • Finance and Accounting uses AI capabilities to perform period and year end activities and to produce statutory reports
Enterprise Analytics	<ul style="list-style-type: none"> • 90% of “mission critical” operations of the enterprise use analytics to monitor, manage, plan and continuously improve operations
Enterprise Financial and Performance Data Governance & Architecture	<ul style="list-style-type: none"> • 100% of critical financial data sources are covered by a comprehensive data management plan, which describes, for each dataset, the data owner, users and steward • This data management plan is updated on an annual basis • 100% of critical financial data is accounted for in the overall enterprise financial data architecture • The financial data architecture is updated on an annual basis • Leverage analytics for data driven analysis
Enterprise Financial Performance Information Creation & Distribution	<ul style="list-style-type: none"> • 100% of critical financial data has an established, documented creation and distribution process • The established creation and distribution process is reviewed at least annually to cull reports that are unused, redundant or out of date
Enterprise Financial and Performance Technology Strategy & Roadmap	<ul style="list-style-type: none"> • At least once every two years, the CIO and the Controller jointly develop a financial technology vision, strategy, and budget
Enterprise Financial and Performance Technology Platform, Integration & Process Architecture	<ul style="list-style-type: none"> • As needed, documented agreements describing the operations and management of the financial technology platform (e.g. agreements that describe the business and technical owners of these systems) • 100% of activities and processes required to support the financial technology platform and integration are inventoried and reviewed for business value and technology relevance at least once every two years • The business process model is aligned with the inventory of digital and technology enabled systems, applications, and tools at least once every two years
Enterprise Financial and Performance Technology Service Management	<ul style="list-style-type: none"> • 100% of service management operations are covered by enforceable service level agreements (SLAs) • SLAs are updated at least annually • SLAs provide 99% platform availability • Chatbots (conversational UI) used to address frequently asked questions and execute routine tasks

Appendix II: Role Descriptions for Program by Phase

Role	Description	State/ Vendor	Phase
Absence Management	Responsible for supporting the HR Lead in integrating the Absence Management Module of the ERP	Both	Implementation
Accounts Payable/Travel & Expense	Responsible for supporting the Finance Lead in integrating the Accounts Payable and the travel and expense portions of the ERP	Both	Implementation
Accounts Receivable/Billing	Responsible for supporting the Finance Lead in integrating the Accounts Receivable and billing portions of the ERP	Both	Implementation
Administrative Support	Responsible for supporting the Program Management team by coordinating logistics and administrative responsibilities	Vendor	Implementation
Agency Representative	Responsible for ensuring the individual requirements of their represented agencies are being met by the new ERP, and acting as the primary point of contact for that agency	State	Pre-Implementation
Asset Management	Responsible for supporting the Finance Lead in integrating the physical asset management portion of the ERP	Both	Implementation
Benefits	Responsible for supporting the HR Lead in integrating the benefits module of the ERP	Both	Implementation
Budget – Specialist	Responsible for providing specialized knowledge of State Budgeting and in integrating State Budget information into the ERP	Vendor	Implementation
Business Architect	Responsible for the development and execution of the benefits realization process	Vendor	Implementation
Cash/Debt/Investment Management – Specialist	Responsible for providing specialized knowledge of Cash/Debt/Investment Management and in integrating this information into the ERP	Vendor	Implementation

Change Lead	Responsible for supporting the Change Management Architect and leading the operational Change Management effort for the HR/Payroll transformation process	Both	Implementation
Change Management Architect	Responsible for the design, development and plan for execution to oversee the Change Management and training efforts with the program management team	Vendor	Implementation
Communications Lead	Responsible for supporting the communications component of the Change Management effort by providing specialized knowledge of State communications policies, procedures, and practices	State	Pre-Implementation /Implementation
Compensation	Responsible for supporting the HR and Payroll lead in integrating the compensation portions of the ERP	Both	Implementation
Conversion Lead	Responsible for leading the data conversion effort from the old systems to the new ERP for a specific portion of the project	Both	Implementation
Data Clean-up Specialist	Responsible for ensuring that all data on the current system is ready for conversion	Both	Implementation
Deployment Lead	Responsible for working with various agencies and stakeholders to ensure overall readiness for the new ERP implementation and delivering training and communications	Both	Implementation
Deployment Lead	Responsible for working with various agencies and stakeholders to ensure overall readiness for the new ERP implementation and delivering training and communications	Both	Implementation
Developer – Conversion/Integration	Responsible for the development and programming of data conversion and integration from the current system to the new ERP	Both	Implementation

Developer – Conversion/Integration	Responsible for the development and programming of data conversion and integration from the current system to the new ERP	Both	Implementation
Developer - Reports/Extensions	Responsible for the development and programming of reports and extensions in the new ERP	Both	Implementation
Developer - Reports/Extensions	Responsible for the development and programming of reports and extensions in the new ERP	Both	Implementation
DOA Director	Accountable for the Department of Administration, Enterprise Strategy and Services, Accounts and Control, Office of Management and Budget and HR Division and key stakeholder in the successful implementation of a new statewide ERP system	State	Pre-Implementation /Implementation
Purchasing	Responsible for ensuring the best interests of the State financially and contractually in the procurement and contracting of software and services related to the new ERP	State	Pre-Implementation
Enterprise Applications Business Owner	Accountable for the successful overall implementation of ERP Applications and continuity of IT services to the business	State	Implementation
Enterprise Applications Business Owner	Accountable for the successful overall implementation of ERP Applications and continuity of IT services to the business	State	Implementation
Enterprise Applications Lead	Responsible for overseeing the ongoing operations maintenance and support functions of the ERP Applications once they have been deployed and stabilized	State	Post-Implementation
Facilities Specialist	Responsible for ensuring that the physical space needed by the various teams for the ERP implementation is sufficient and set-up with the resources required for a successful implementation	State	Pre-Implementation
Finance Business Owner	Accountable for the successful implementation of the Finance	State	Implementation

	components of the ERP and ensuring continuity of financial services to the business		
Finance Functional Lead	Responsible for leading the functional Finance components of the ERP and providing continuity of Financial services to the business	State	Pre-Implementation
Finance Governance	Responsible for overseeing and providing strategic direction and management to the continued operations of the finance portion of the ERP once deployed	State	Post-Implementation
Finance Lead	Responsible for the successful overall implementation of the finance portion of the ERP project and ensuring that the day-to-day implementation activities are being met	Both	Implementation
Finance Specialist	Responsible for providing specialized knowledge of Finance and ensuring that the ERP continues to meet the Finance Requirements of the ERP	State	Pre-Implementation
Functional Analyst	Responsible for supporting the functional teams in analysis, data management, and overall project support	Vendor	Implementation
Functional Consultant	Responsible for supporting the functional teams in the design and overall implementation of their designated area of the ERP	Vendor	Implementation
General Ledger	Responsible for supporting the Finance Lead in integrating the General Ledger portion of the ERP	Both	Implementation
Governor's Office Liaison	Responsible for acting as the key point of contact for the Governor's office for the duration of the project and keeping the Governor apprised of the progress being made	State	Pre-Implementation /Implementation
Grants Business Owner	Accountable for the successful implementation of the Grants components of the ERP and ensuring continuity of Grants	State	Implementation

	Management services to the business		
Grants Governance	Responsible for overseeing and providing strategic direction and management to the continued operations of the Grants portion of the ERP once deployed	State	Post-Implementation
Grants Lead	Responsible for the successful overall implementation of the Grants portion of the ERP project and ensuring that the day-to-day implementation activities are being met	Both	Implementation
Grants Specialist	Responsible for providing specialized knowledge of Grants Management and ensuring that the ERP continues to meet the grants requirements of the business	State	Post-Implementation
HR Business Owner	Accountable for the successful implementation of the Human Resources (HR) components of the ERP and ensuring continuity of HR services to the business	State	Implementation
HR Functional Lead	Responsible for leading the functional Human Resources (HR) components of the ERP and providing continuity of HR services to the business	State	Pre-Implementation
HR Functional SME	Responsible for serving as a subject matter expert in the area of Human Resources and assisting with design and implementation	State	Implementation
HR Governance	Responsible for overseeing and providing strategic direction and management to the continued operations of the Human Resources (HR) portion of the ERP once deployed	State	Post-Implementation
HR Lead	Responsible for the successful overall implementation of the Human Resources (HR) portion of the ERP project and ensuring that the day-to-day	Both	Pre-Implementation /Implementation

	implementation activities are being met		
HR Specialist	Responsible for providing specialized knowledge of Human Resources (HR) and ensuring that the ERP continues to meet the HR requirements of the business	State	Post-Implementation
Infrastructure Specialist	Responsible for providing specialized knowledge of IT infrastructure and ensuring the ongoing maintenance and support of the ERP system continues once deployed	State	Post-Implementation
Integration Lead	Responsible for leading the integration of all components of the new ERP for each component of the project	Both	Implementation
IT Governance	Responsible for overseeing and providing strategic direction and management to the continued operations of the and maintenance for the ERP once deployed	State	Post-Implementation
Learning/Development	Responsible for supporting the HR Lead in integrating the Learning/Development module of the ERP	Both	Implementation
Legal Representative	Responsible for ensuring legal compliance and acting upon the best interest of the State of Rhode Island during the procurement and contracting of software and services for the ERP implementation	State	Pre-Implementation
OMB Director	Accountable for the Office of Management and Budget (OMB) and key stakeholder in the successful implementation of the budget components of a new statewide ERP system	State	Pre-Implementation /Implementation
Other Governance	Responsible for helping to support the Management and Governance team after ERP deployment	State	Post-Implementation

Payroll	Responsible for supporting the Payroll Lead in integrating the Payroll module of the ERP	Both	Implementation
Payroll Business Owner	Accountable for the successful implementation of the Payroll components of the ERP and ensuring continuity of payroll services to the business	State	Implementation
Payroll Governance	Responsible for overseeing and providing strategic direction and management to the continued operations of the Human Resources (HR) portion of the ERP once deployed	State	Post-Implementation
Payroll Lead	Responsible for the successful overall implementation of the Payroll portion of the ERP project and ensuring that the day-to-day implementation activities are being met	Both	Pre-Implementation /Implementation
Payroll Specialist	Responsible for providing specialized knowledge of Payroll and ensuring that the ERP continues to meet the payroll requirements of the business	State	Post-Implementation
Project Manager	Responsible for ensuring that all day-to-day operations are being met and that the overall project is delivered on time and on budget while meeting all stakeholder expectations	Both	Pre-Implementation/Implementation
Projects/Grants Accounting	Responsible for supporting the Finance Lead in integrating the Projects/Grants Accounting components of the ERP	Both	Implementation
Quality Assurance	Provide program management, oversight, ensure high quality SOW deliverables, timelines met	Vendor	Implementation
Recruiting	Responsible for supporting the HR Lead in integrating the Recruiting module of the ERP	Both	Implementation
Security Architect	Responsible for designing the ERP system in a way that will meet all agreed upon security standards	Vendor	Implementation
Security Business Owner	Accountable for the successful implementation of the Security	State	Implementation

	components of the ERP and ensuring continuity of IT Security services to the business		
Staffing Specialist	Responsible for coordinating, sourcing (when applicable), and deploying the people resources needed for the implementation of the new ERP	State	Pre-Implementation
Talent/Performance Management	Responsible for supporting the HR Lead in integrating the Talent/Performance Management module of the ERP	Both	Implementation
Technical Analyst	Responsible for supporting the technical teams in the design, build, integration, and deployment of the ERP	Vendor	Implementation
Technical Architect	Responsible for the development of the technical design of the ERP to ensure that all business requirements are being met	Vendor	Implementation
Technical Business Owner	Accountable for the successful implementation of the Technical components of the ERP and ensuring the technical needs of the business are still being met	State	Implementation
Technical Consultant	Responsible for supporting the technical team in the design, development and integration of their designated area of the ERP	Vendor	Implementation
Technical Lead	Responsible for the successful overall implementation of the Technical components of the ERP project and ensuring that the day-to-day implementation activities of the technical team are being met	Both	Pre-Implementation
Technical Specialist	Responsible for providing specialized knowledge of the technical components of the ERP and ensuring that the ERP continues to meet the specialized requirements of their designated business area	State	Post-Implementation
Test Lead	Responsible for designing, implementing and deploying a test plan that will ensure the	Both	Implementation

	new ERP is meeting all the agreed upon requirements		
Time & Labor	Responsible for supporting the HR Lead in integrating the Time and Labor module of the ERP	Both	Implementation
Training & Communications Specialist	Responsible for providing specialized knowledge and ensuring that the ERP continues to meet the training and communications requirements of the business	State	Post-Implementation

Appendix III: Methodology

The Strategic Plan was created in an 18-week timeframe from August through December 2019. The approach was inclusive, interactive, agile, and leveraged Accenture assets and experience.

- Inclusive: a combination of State personnel and Accenture worked on strategic issues to make decisions and establish direction
- Interactive: a preponderance of work was accomplished in a co-creation manner through workshops and interviews; this also included several vendor briefings
- Agile: workshops, interviews, and vendor briefings addressing the strategic issues were sequenced in a “building-block” manner, allowing rapid and iterative review cycles
- Accenture assets: numerous tools, techniques, and intellectual property was used as the basis to guide the discussions and decisions in the workshops and interviews

Appendix IV: Acronym Dictionary

Term	Acronym
Artificial Intelligence	AI
Certificates of Participation	COPs
Commercial-off-the-Shelf	COTS
Conference Room Pilots	CRP
Enterprise Resource Planning	ERP
Enterprise Technology Strategy & Services	ETSS
Fair Labor Standards Act	FLSA
Family and Medical Leave Act	FMLA
Federal Risk and Authorization Management Program	FedRAMP
General Ledger	GL
Governmental Accounting Standards Board	GASB
Grants Management System	GMS
Identity and Access Management	IAM
Integration Platform-as-a-Service	IPaaS
Key Performance Indicator	KPI
Master Data Management	MDM
National Institute for Standards and Technology	NIST
Occupational Safety and Health Act	OSHA
Operation and Maintenance	O&M
Organizational Change Management	OCM
Personnel Action Change Form	CS-3
Project Management	PM
Reports, Interface, Conversion, Enhancements, Forms, and Workflow	RICEFW
Robotic Process Automation	RPA
Secure Incident Event Monitoring	SIEM
Society of Human Resources Management	SHRM
Software-as-a-Service	SaaS
Subject Matter Expert	SME
System and Organization Controls	SOC
Third-Party Advisor	TPA
Total Cost of Ownership	TCO
User Acceptance Testing	UAT
Virtual Private Network	VPN
Year-to-Date	YTD

Appendix V: Inventory of Relevant Audit Findings From the Rhode Island State Single Audit Report, FY18

State of Rhode Island – Fiscal 2018 Single Audit Report - Schedule of Findings and Questioned Costs
Section II – Financial Statement Findings Office of the Auditor General

Finding 2018-001 (significant deficiency – repeat finding – 2017-001 and 2017-025)

STRATEGIC AND BUSINESS CONTINUITY PLANNING FOR CRITICAL FINANCIAL AND ADMINISTRATIVE COMPUTER SYSTEMS

The State lacks a strategic plan to (1) coordinate needed replacements/enhancements to its key statewide financial and administrative systems and (2) ensure that critical legacy financial systems, such as the payroll system, which pose a business continuity risk, will be available to support State operations. Without a comprehensive plan, there is substantial risk that the intended integration of various components may not be achieved.

Background: The State is currently addressing needed functionalities within its centralized financial and administrative systems by implementing various independent software solutions rather than modules within the Oracle E-Business Suite – the original platform for the State’s Enterprise Resource Planning (ERP) system. The intent of an ERP system is to optimize integration thereby enhancing efficiency. The State has moved towards a piecemeal approach of installing separate software solutions without a comprehensive plan for achieving a fully integrated ERP system.

The State is currently working towards the implementation of a new procurement and payables system and the State is reviewing options to replace its antiquated payroll system. The need for these replacements/enhancements is undisputed and the allocation of resources to these projects is encouraging. However, failure to develop a comprehensive plan to guide these projects and ensure their intended integration remains a significant concern. Without a comprehensive plan, there is substantial risk that the intended integration of various components may not be achieved. In fact, the State has already experienced such integration issues. The State halted work on a time and effort reporting system project due to an inability to interface the system with other State information systems after expending approximately \$2 million through fiscal 2017. During fiscal 2018, the State terminated the implementation of a Grants Management System due to the vendor’s inability to meet the functionalities required from the software. The State had expended approximately \$974 thousand (software vendor and consulting services) on the Grants Management System at the time the project was terminated towards the end of fiscal 2018. The State posted another RFP for an Enterprise Grants Management System in November 2018.

A comprehensive plan is critical to ensure that the various software solutions align at some future point to meet the State’s overall financial management needs. When separate software solutions are used to accomplish multiple objectives, the responsibility of ensuring data connectivity and integration falls more to the user.

Examples of the desired integration among these functionalities include:

- time and effort information flows to the payroll system which supports allocation of personnel costs to federal grants through grants management software;

- budget preparation is aided by information flows from the payroll system and the centralized accounting system which contains actual expenditure data; and
- the procurement system easily interfaces with the accounts payable module to optimize controls and streamline payment processing.

The financial statements for the Intermodal Surface Transportation (IST) Fund are prepared primarily from the State's RIFANS accounting system; however, a significant amount of financial reporting data is derived from RIDOT's Financial Management System (FMS). Because these two accounting systems were not designed to easily share data, preparation of annual financial statements for the IST Fund is unduly complex.

The State began developing a Request For Proposals (RFP) during fiscal 2018 to contract with a consulting partner for the development of an Enterprise Applications Strategic Plan to address this issue. The RFP was posted in January 2019 to solicit proposals. Responses have been received and are being evaluated.

Criteria: Management is responsible for establishing and maintaining internal control over financial reporting to ensure accurate and complete reporting of transactions in accordance with generally accepted accounting principles. This responsibility includes well-designed financial systems that support internal control over financial reporting.

Condition: Important functionalities are currently met either through legacy systems or through multiple departmental processes without the intended integration and efficiencies. This results in business continuity risk, decreased efficiency and effectiveness, and control weaknesses. Some of the State's critical systems utilize outdated technology which makes these operations vulnerable from a business continuity and systems security perspective. Certain legacy systems utilize software that is no longer supported and the availability of skilled personnel to work on the systems is limited.

Many of the functionalities either pending implementation or contemplated are interdependent. The risk of failed integration is increased due to the long-term implementation timeline that could likely transcend multiple administrations.

Use of two computer systems to account for the activities of the Intermodal Surface Transportation (IST) Fund is unduly complex and weakens controls over financial reporting. The RIDOT FMS contains detailed project-level data which loses its project character when transmitted to RIFANS; however, the project-level data is needed for financial reporting purposes. When the project-level RIDOT FMS data is used, it must be reconciled and adjusted to conform to RIFANS accounting conventions. Various supplemental manual and reconciliation processes have been implemented to provide the information needed for financial reporting. While recording transactions in two accounting systems is inherently duplicative, this process would be less challenging if the configuration and accounting conventions were the same.

Cause: The State's current accounting and financial reporting system lacks the integration and functionality of a comprehensive ERP system. The State owns multiple modules (and continues to pay annual licensing fees for modules that are not utilized) within the Oracle-E-Business Suite but has decided to explore separate software solutions for many of the ERP functionalities which will require interfacing those solutions with the State's Oracle general ledger and related modules. The State is

attempting these implementations without first developing a comprehensive strategic plan to address these issues through an integrated ERP solution.

The RIFANS and RIDOT FMS accounting systems were not designed with compatible account structures yet certain critical tasks are required to be executed through RIFANS. RIDOT's FMS system is more comprehensive in scope and is designed to meet RIDOT's project-based accounting focus and federal program compliance requirements while RIFANS is used for financial reporting, budgetary control, and vendor payment processing.

Funding for the various information technology enhancements to be identified and addressed through the strategic plan is constrained. The Information Technology Investment Fund has been created to address this need but lacks a consistent and adequate dedicated funding stream. Currently, the proceeds from land sales are dedicated to this effort. However, such proceeds are intermittent and insufficient, considering the scope of work anticipated.

Effect: Business continuity risks and deficiencies in internal control over financial reporting exist and are exacerbated due to the lack of an integrated ERP system. Normal RIDOT accounting operations require extensive reconciliation and duplicate processing which adds significant complexity to the financial reporting process and diminishes the effectiveness of controls over financial reporting.

RECOMMENDATIONS

2018-001a Develop and implement a comprehensive strategic plan to address the integration approach and business continuity risks for planned and contemplated replacements/enhancements to critical statewide financial system functionalities.

2018-001b Re-evaluate the continued operation of two separate accounting systems to support financial reporting for the IST Fund as part of the State's preparation of a strategic plan for its core accounting and administrative functions.

2018-001c Propose an additional dedicated funding source to be committed to the Information Technology Investment Fund to support the anticipated enhancements to critical financial and administrative computer systems identified through the implementation of the strategic plan.

From the Rhode Island State Single Audit Report, FY17

State of Rhode Island – Fiscal 2017 Single Audit Report - Schedule of Findings and Questioned Costs
Section II – Financial Statement Findings

Finding 2017-001 (significant deficiency – repeat finding – 2016-001)

STRATEGIC AND BUSINESS CONTINUITY PLANNING FOR CRITICAL FINANCIAL AND ADMINISTRATIVE COMPUTER SYSTEMS

The State lacks a strategic plan to (1) coordinate needed replacements/enhancements to its key statewide financial and administrative systems and (2) ensure that critical legacy financial systems, such as the payroll system, which pose a business continuity risk, will be available to support State operations. Without a comprehensive plan, there is substantial risk that the intended integration of various components may not be achieved.

Background: The State is currently addressing needed functionalities within its centralized financial and administrative systems by implementing various independent software solutions rather than modules within the Oracle E-Business Suite – the original platform for the State’s Enterprise Resource Planning (ERP) system. The intent of an ERP system is to optimize integration thereby enhancing efficiency. The State has moved towards a piecemeal approach of installing separate software solutions without a comprehensive plan for achieving a fully integrated ERP system.

The State has implemented new budget preparation software and will soon implement grants management software. Both are independent software solutions that require integration with the State’s existing Oracle-based financial reporting platform. A new procurement system is being planned and the State is reviewing options to replace its antiquated payroll system. The need for these replacements/enhancements is undisputed and the allocation of resources to these projects is encouraging. However, failure to develop a comprehensive plan to guide these projects and ensure their intended integration remains a significant concern. Without a comprehensive plan, there is substantial risk that the intended integration of various components may not be achieved. In fact, the State has already experienced such integration issues. It has halted work on a time and effort reporting system project due to an inability to interface the system with other State information systems. The State has expended approximately \$2 million (\$1.1 million to software vendor and \$900,000 of internal allocated personnel costs) on that project to date.

A comprehensive plan is critical to ensure that the various software solutions align at some future point to meet the State’s overall financial management needs. When separate software solutions are used to accomplish multiple objectives, the responsibility of ensuring data connectivity and integration falls more to the user. Examples of the desired integration among these functionalities include:

- time and effort information flows to the payroll system which supports allocation of personnel costs to federal grants through grants management software;
- budget preparation is aided by information flows from the payroll system and the centralized accounting system which contains actual expenditure data; and
- the procurement system easily interfaces with the accounts payable module to optimize controls and streamline payment processing.

Criteria: Management is responsible for establishing and maintaining internal control over financial reporting to ensure accurate and complete reporting of transactions in accordance with generally accepted accounting principles. This responsibility includes well-designed financial systems that support internal control over financial reporting.

Condition: Important functionalities are currently met either through legacy systems or through multiple departmental processes without the intended integration and efficiencies. This results in business continuity risk, decreased efficiency and effectiveness, and control weaknesses. Some of the State's critical systems utilize outdated technology which makes these operations vulnerable from a business continuity and systems security perspective. Certain legacy systems utilize software that is no longer supported and the availability of skilled personnel to work on the systems is limited.

Many of the functionalities either pending implementation or contemplated are interdependent. The risk of failed integration is increased due to the long-term implementation timeline that could likely transcend multiple administrations.

The incomplete implementation of the RIFANS ERP system is the underlying cause for other control related issues as more fully described in Finding 2017-004 where control weaknesses, in part, result from Treasury personnel recording receipt/revenue and other transactions in the general ledger. Other RIFANS system functionalities to record receipts/revenue haven't been implemented.

Cause: The State's current accounting and financial reporting system lacks the integration and functionality of a comprehensive ERP system. The State owns multiple modules (and continues to pay annual licensing fees for modules that are not utilized) within the Oracle-Business Suite but has decided to explore separate software solutions for many of the ERP functionalities which will require interfacing those solutions with the State's Oracle general ledger and related modules. The State is attempting these implementations without first developing a comprehensive strategic plan to address these issues through an integrated ERP solution.

Effect: Business continuity risks and deficiencies in internal control over financial reporting exist and are exacerbated due to the lack of an integrated ERP system.

RECOMMENDATION

2017-001 Develop and implement a comprehensive strategic plan to address the integration approach and business continuity risks for planned and contemplated replacements/enhancements to critical statewide financial system functionalities.

Finding 2017-025 (significant deficiency - repeat finding - 2016-021)

FINANCIAL REPORTING – INTERMODAL SURFACE TRANSPORTATION FUND – USE OF RI DEPARTMENT OF TRANSPORTATION FINANCIAL MANAGEMENT SYSTEM (FMS) AND RIFANS ACCOUNTING SYSTEM

Use of two computer systems to account for the activities of the Intermodal Surface Transportation (IST) Fund is unduly complex and weakens controls over financial reporting.

Background: The financial statements for the Intermodal Surface Transportation (IST) Fund are prepared primarily from the State’s RIFANS accounting system; however, a significant amount of financial reporting data is derived from RIDOT’s Financial Management System (FMS). Because these two accounting systems were not designed to easily share data, preparation of annual financial statements for the IST Fund is unduly complex.

Criteria: Management must maintain effective controls over financial reporting to allow preparation of accurate and complete financial statements for the IST Fund.

Condition: The RIDOT FMS is an integrated, multi-module system intended to meet RIDOT’s comprehensive project accounting needs, including purchasing, billing, construction management and general ledger functions. While the majority of RIDOT financial transactions originate in the FMS, the State’s accounting systems are used to process cash disbursements to vendors and for employee payroll. A significant interrelationship exists between the two systems requiring each system to generate and transmit data files to complete various processing cycles. By design, all financial transactions (some in summary) are intended to be replicated within the State’s RIFANS accounting system.

The RIDOT FMS contains detailed project-level data which loses its project character when transmitted to RIFANS; however, the project-level data is needed for financial reporting purposes. When the project-level RIDOT FMS data is used, it must be reconciled and adjusted to conform to RIFANS accounting conventions. Various supplemental manual and reconciliation processes have been implemented to provide the information needed for financial reporting.

While recording transactions in two accounting systems is inherently duplicative, this process would be less challenging if the configuration and accounting conventions were the same. For example, RIDOT establishes purchase orders for the entire project duration; while RIFANS reflects only the amount expected to be expended during that fiscal year. Fiscal year-end payables and other accruals are recorded in RIFANS for financial reporting purposes but not to the same extent in RIDOT FMS. RIDOT FMS and RIFANS each utilize separate and distinct account structures, which necessitates mapping to “crosswalk” the two charts of accounts. Timing differences exist and must be identified as part of the reconciliation process.

RIDOT has implemented a process of reconciling RIDOT FMS to RIFANS monthly, as a control, to ensure both systems accurately reflect RIDOT activity. Specific areas of the reconciliation process have been automated but the cause of differences must be manually identified and corrected in the appropriate system.

Cause: The two accounting systems were not designed with compatible account structures yet certain critical tasks are required to be executed through RIFANS. RIDOT’s FMS system is more comprehensive

in scope and is designed to meet RIDOT's project based accounting focus and federal program compliance requirements while RIFANS is used for financial reporting, budgetary control, and vendor payment processing.

Options include better aligning the design and configuration of the two systems or alternatively using the RIDOT FMS for financial reporting purposes rather than RIFANS. Further integration of the two systems would require additional investment.

Ultimately, the continued use of both systems to meet RIDOT and the State's financial reporting requirements should be addressed within the recommended strategic plan for the State's accounting and administrative systems as more fully outlined in Finding 2017-001.

Effect: Normal accounting operations require extensive reconciliation and duplicate processing which adds significant complexity to the financial reporting process and diminishes the effectiveness of controls over financial reporting.

RECOMMENDATION

2017-025 Reevaluate the continued operation of two separate accounting systems to support financial reporting for the IST Fund as part of the State's preparation of a strategic plan for its core accounting and administrative functions. Consider using the RIDOT FMS for financial reporting.

From the Rhode Island State Single Audit Report, FY16

State of Rhode Island – Fiscal 2016 Single Audit Report - Schedule of Findings and Questioned Costs
Section II – Financial Statement Findings Office of the Auditor General D-4

Finding 2016-001 (significant deficiency – new finding)

STRATEGIC AND BUSINESS CONTINUITY PLANNING FOR CRITICAL FINANCIAL AND ADMINISTRATIVE COMPUTER SYSTEMS

The State lacks a strategic plan to (1) coordinate needed replacements/enhancements to its key statewide financial and administrative systems and (2) ensure that critical legacy financial systems, such as the payroll system, which pose a business continuity risk, will be available to support State operations. Without a comprehensive plan, there is substantial risk that the intended integration of various components may not be achieved. The State has signaled, through a series of recent actions, that it intends to address needed functionalities within its centralized financial and administrative systems by implementing various independent software solutions rather than modules within the Oracle E-Business Suite – the original platform for the State’s Enterprise Resource Planning (ERP) system. The intent of an ERP system is to optimize integration thereby enhancing efficiency.

Currently, the State is (1) implementing a time and effort reporting system, (2) selecting a grants management software solution, and (3) contemplating a budget preparation system, procurement system, and options to replace its outdated payroll system. The need for these replacements/enhancements is undisputed and the allocation of resources to these projects is encouraging. However, failure to develop a comprehensive plan to guide these projects and ensure the intended integration is a significant concern. Without a comprehensive plan, there is substantial risk that the intended integration of various components may not be achieved.

A comprehensive plan is critical to ensure that the various software solutions align at some future point to meet the State’s overall financial management needs. When separate software solutions are used to accomplish multiple objectives, the responsibility of ensuring data connectivity and integration falls more to the user. Examples of the desired integration among these functionalities include:

- time and effort information flows to the payroll system which supports allocation of personnel costs to federal grants through grants management software;
- budget preparation is aided by information flows from the payroll system and the centralized accounting system which contains actual expenditure data; grants management software provides information on grant awards available; and
- the procurement system easily interfaces with the accounts payable module to optimize controls and streamline payment processing.

Many of the functionalities either pending implementation or contemplated are interdependent. The risk of failed integration is increased due to the long-term implementation timeline that could likely transcend multiple administrations. A significant amount of resources, both financial and personnel, will be deployed in implementing these systems.

A comprehensive plan should include the following critical elements:

- identification of stakeholders and system users and how design and implementation will reflect their needs; identification of planned common data elements to be exchanged between the various component systems including data definitions and data imports and exports of the various component systems;
- a coordinated timeline which sequences critical completion targets that impact other project components;
- internal staff or vendors who will ensure the integration of components;
- resources needed (personnel and dollars) during implementation and ongoing support;
- identification and coordination of how the various software solutions will address the State's overall internal control objectives; and
- address the business continuity risks associated with critical systems that utilize outdated technology and are challenging to replace.

Important functionalities are currently met either through legacy systems or through multiple departmental processes without the intended integration and efficiencies. This results in business continuity risk, decreased efficiency and effectiveness, and control weaknesses. Some of the State's critical systems utilize outdated technology which makes these operations vulnerable from a business continuity and systems security perspective. Certain legacy systems utilize software that is no longer supported and the availability of skilled personnel to work on the systems is limited.

The State's payroll system is a key example of a critical computer system that results in business continuity risk. The payroll system processes payroll for over 14,000 employees totaling more than \$1 billion in fiscal 2016 and accommodates the provisions of 100 separate collective bargaining agreements, health and pension benefit plan contributions and other withholdings. The payroll system utilizes outdated technology and is maintained by a very small group of employees. It still utilizes an outdated legacy account structure and external support for the system would largely be unavailable. Documentation of the system has not been maintained consistent with current information technology (IT) standards further heightening business continuity risks and complicating development of a replacement system.

Implementing a new payroll system that meets current information technology standards would be a significant challenge and undertaking; however, planning for that eventuality is necessary. Further, conversion to a modern platform is needed to allow other integrated functionalities to progress, such as grants and project management and cost allocation – again highlighting the need for a comprehensive plan.

The importance of these functionalities to overall State operations and the State's control structure as well as the significance of the amount of resources that will be deployed in improving the State's centralized systems requires that a comprehensive strategic plan be developed to guide this effort. External resources to assist in developing the plan and providing an objective view of the planned approach should be considered.

RECOMMENDATION

2016-001 Develop and implement a comprehensive strategic plan to address the integration approach and business continuity risks for planned and contemplated replacements/enhancements to critical statewide financial system functionalities.

ⁱ *All dates are directional pending funding and approval to proceed.