Enterprise Data Management Integration Readiness Plan for Phase 0

FINAL

6/18/2020

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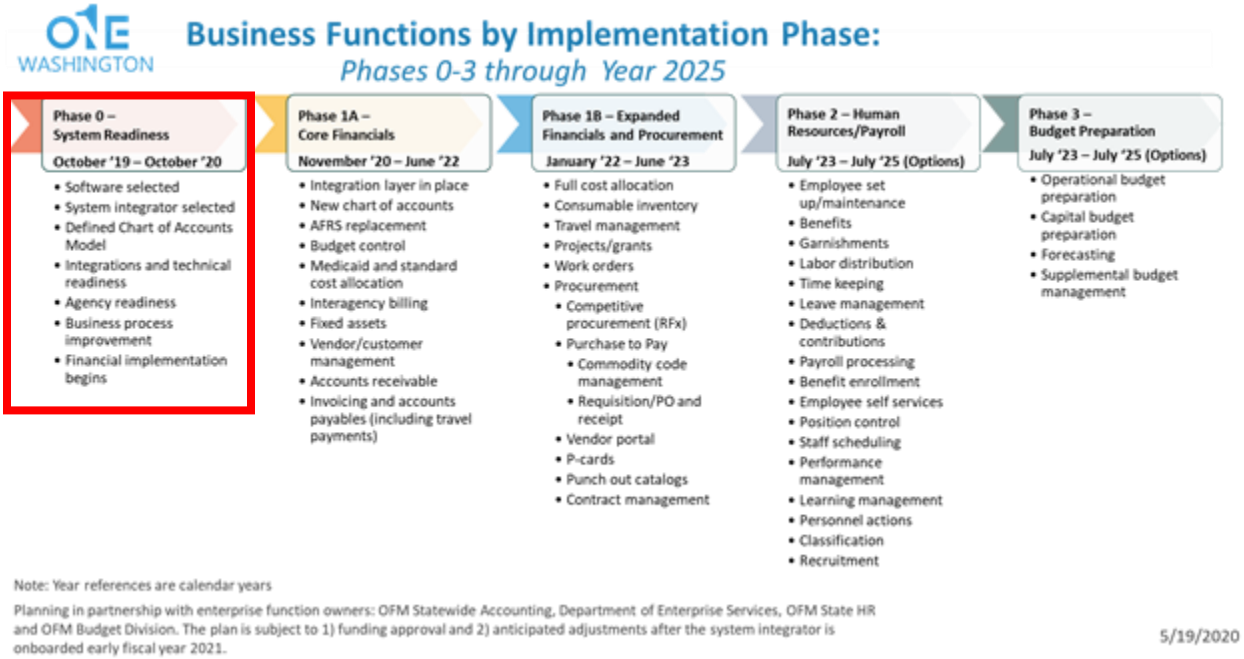
Overview

The Enterprise Data Management Integration Readiness Plan (EDMIRP) for Phase 0 is specifically geared toward increasing the technical readiness of the Office of Financial Management (OFM) Enterprise Data Management Team, and inform agencies impacted by the build out of the OFM IT integration platform that supports the One Washington (OneWa) program's integration strategy.

The EDMIRP is intended to address integration work in order to support OneWa **Phase 0: System Readiness**, with a focus on preparing for Phase 1A: Core Financials. It includes risks identified that may impact the transition to the new ERP solution as well as lessons learned from other ERP implementations. This plan includes all the work needed to be completed by the OFM integrations team by **January 1, 2021**. Future phases of work will be addressed in a separate plan. For more information about the scope and timeline for OneWa, please refer to the diagram below:



Purpose and audience

The purpose of the EDMIRP is to:

- Define the goals, objectives, guiding principles, scope, assumptions, timeline, resources, and roles and responsibilities for the Integration Readiness Project.
- Provide a summary of the research and analysis gathered by the project team and OneWa Program in the pre-implementation analysis.

The EDMIRP is intended for use as an internal guiding document for OFM and OneWa. This document will also be shared with partnering agencies to provide a high-level understanding of OFM's planned approach in its support of the OneWa Program. This is not meant to be an action plan for guiding the work that will need to be completed by agencies.

Familiarization with the OneWa program and its integration strategy is crucial for understanding this plan. It is recommended that readers have read and understood this background information.

Goals and objectives

The goals and objectives of the Integration Readiness Project are as follows:

- Establish the OFM team and their related skill sets to use the OFM Informatica platform in support of the OneWa Program.
- Deploy the required modules and capabilities of the OFM Informatica platform to support the objectives as defined in the OneWa Integration Strategy.
- Reduce the overall integration complexity, from both data and technical perspectives, and define standardized AFRS integration endpoints for both the ERP system integrator and OFM's state agency customers.
    - Identify all necessary agency interfaces for core financials and provide analysis on each.
    - Determine future interface needs and requirements.
    - Implement all standard interfaces needed for initial readiness by January 1, 2021 based on analysis and recommendations (*complex integrations may take longer and not be complete by this date*).
    - Modernize technologies necessary to support OneWa program, while supporting legacy systems so agencies can continue to send and receive data without requiring major modifications to their line of business systems where possible.
    - Lay a strong, scalable foundation and minimize implementation risks.
    - Reduce overall footprint and associated costs related to integrations.
    - Reduce, and eliminate where possible, unique interfaces or exceptions for agencies.
    - Minimize potential impacts to other state agencies and eliminate rework by agencies.

Guiding principles

The guiding principles specific to this plan include:

- Use common, standard interfaces wherever possible
- Promote reusability
- Reduce data redundancy
- Always reflect data as represented in the source system

Scope

In scope	Out of scope
• Configuration and implementation of the Informatica platform components. • Alignment with OneWa and OFM IT technical strategies and plans. • Development of a comprehensive plan to migrate select agency interfaces to standard integration points by January 2021. • Implementation of standardized interfaces to support core financials.	• Modifications to current OFM systems, such as the TALS, TEMS, Solomon Accounts Receivable, Financial Toolbox, and HRMS GAP files* and other batch jobs. • Other enterprise data management activities in support of OneWa. • Future nonstandard integrations, such as API and ERP-specific connectors. • Unique, one-off, nonstandard interfaces.

**The Human Resource Management System (HRMS) is the enterprise HR and Payroll system for Washington State. HRMS captures and distributes statewide personnel, payroll, and financial data, and processes payroll. HRMS data definitions are on the OFM website. These definitions are focused on data integrity and consistency for reporting and analysis of workforce data. HRMS and AFRS work interdependently through integrations to process state employee payroll. Modifications to the existing HRMS integrations, including gap files, is out of scope for this integration readiness work. However, in order to successfully implement core financials, OneWA will spearhead a separate readiness project to support the new ERP system and its data needs from HRMS. OFM State Human Resources and OFM Statewide Accounting will be consulted during this work before any changes are made.*

Assumptions

- Integration work after January 1, 2021 will be included in the OneWa system integrator work plan to ensure alignment with the ERP implementation for Phase 1a: core financials.
- Any other interfaces that are not related to AFRS will addressed in the corresponding phase's integration plan.
- There are no more specialized interfaces or exceptions for agencies.
- Leverage standard data elements to move away from the AFRS 950 transactional format.

Background to the Integration Strategy

Currently, agency systems are not integrated efficiently with enterprise systems. Many agency systems rely on point-to-point integrations or pre-built reports used to integrate with enterprise administrative systems like AFRS. In addition, interfaces with agency systems often contain different interface layouts and formats and require extensive effort by enterprise and agency staff to maintain. For example, there are currently 142 unique enterprise interfaces being maintained.

One of the guiding principles of the OneWa program is to provide a unified system of record (SOR) for finance, procurement, budget, human resources, and payroll. To support this guiding principle, OneWa and OFM IT will incorporate leading ERP implementation best practices to consolidate and standardize the interfaces to and from the ERP solution. The streamlining of integrations will ensure quality and consistency of data integration between the ERP solution and agency systems, thereby providing a unified SOR. A unified SOR will provide the following benefits for agencies:

- Accurate, more comprehensive, and timely data for decision makers
- Reduced risk of major system failure
- More staff time devoted to delivering the mission rather than maintaining systems
- Critical business capabilities maintained without having to own all the technology
- Increased process efficiencies as many routine supporting tasks are automated

Interface patterns, types, and usage

Below are definitions of some common interface patterns, types, and usage by OFM:

Publish/subscribe: Data from a source is published to a staging area. Staged data is used to create subscriptions to customers. Subscriptions can be scheduled or triggered. This pattern ensures the same data is extracted once and the same data from the source is distributed multiple times.

Near-real-time: With respect to the frequency of an interface, can be almost instant or a scheduled near-real-time (e.g., hourly) and contains incremental or transactional changes only.

Batch: With respect to the frequency of an interface, is typically for a high volume of records and is done on a regularly cadence (e.g. once a day or once a week).

Transactional: An interface containing a single record.

Application Protocol Interfaces (APIs)/Services: A modern method of integration, REST or SOAP-based. APIs are consumable and have exposed addresses or endpoints. APIs can be designed to either send or retrieve data and have signatures describing what a request must look like and what the response will look like. APIs are intended for transactional integrations, not batch-volume integrations.

Secure File Transfer (SFT): OFM uses Axway, the service managed by WaTech. SFT consists of folder structures, typically managed by an application portfolio. This mechanism allows for the movement of secure data via files placed and retrieved from the SFT. This method is typically used for batches.

One Washington Integration Strategy

The integration strategy will ensure data quality and consistency between the ERP software solution and agency line-of-business applications, thereby providing interoperability. Consolidation and standardization of interfaces also provides the following benefits to the state:

- Reduced overall integration complexity
- Improved transactional visibility with the system of record (SOR)
- Central control of interface management with the SOR
- Improved security of data transmissions

The integration strategy is based on the methodology of service-oriented architecture (SOA) to provide automated real-time interfaces. SOA would allow agencies to send and receive data in a variety of formats and methods supporting standard specifications. The standard specifications for integrations with the ERP software solution will be further defined during the implementation phases of the OneWa program.

For OFM to successfully execute and implement this integration approach, it is necessary to understand the scope of interfaces and conversion. The approach includes the following:

- Implementation of a middleware integration layer to maximize flexibility.
- Identification of all legacy applications currently interfacing with AFRS and a determination made to retire, replace or integrate with the ERP software solution.
- Determination of required interfaces and data conversions.
- Identification and documentation of roles and responsibilities of agencies during implementation.

OFM has an existing integration platform currently in use and has purchased additional components for ERP implementation, to include data quality management tools. The integration platform is comprised of various components in the Informatica ecosystem. Some of these components are new and will require training for OFM staff members, while others are used today throughout the data management process. The core platform is hosted and operated by OFM. Additionally, there are elements leveraging Informatica's cloud-based platform, hosted by the vendor in the cloud.

OFM Integration Platform	
Component Name	**Description**
Data Integration Hub	Publish and subscribe service for data integration
PowerCenter	Core ETL engine
PowerExchange adapters: VSAM and SAP	Interface modules for mainframe and SAP applications and PowerCenter for the on-premise tools
Change Data Capture	Change notification service on the mainframe
Proactive Monitoring	System monitoring service
Cloud Application Integration	Cloud-based data aggregation and integration
Cloud Data Integration	Cloud-based data processing at scale
Cloud API Management/Portal	Cloud-based API gateway service
Enterprise Data Catalog	Data catalog and discovery service
Axon	Data governance module
Data Quality	Data quality and assurance module

Pre-implementation analysis

As part of the initial agency readiness framework developed in early 2019 by OneWa, technology-related readiness activities were identified and included integration readiness outlined in the OneWa integration strategy. OFM, in preparation for the OneWa ERP implementation, is performing a holistic analysis of the transmission of data passing between OFM, state agencies, and higher education institutions.

Individuals from OFM's enterprise data management unit, including the integration team, began this effort by conducting five weeks of 'deep-dive' analysis sessions of the Agency Financial Reporting System (AFRS) interfaces to align with the OneWa phased implementation approach.

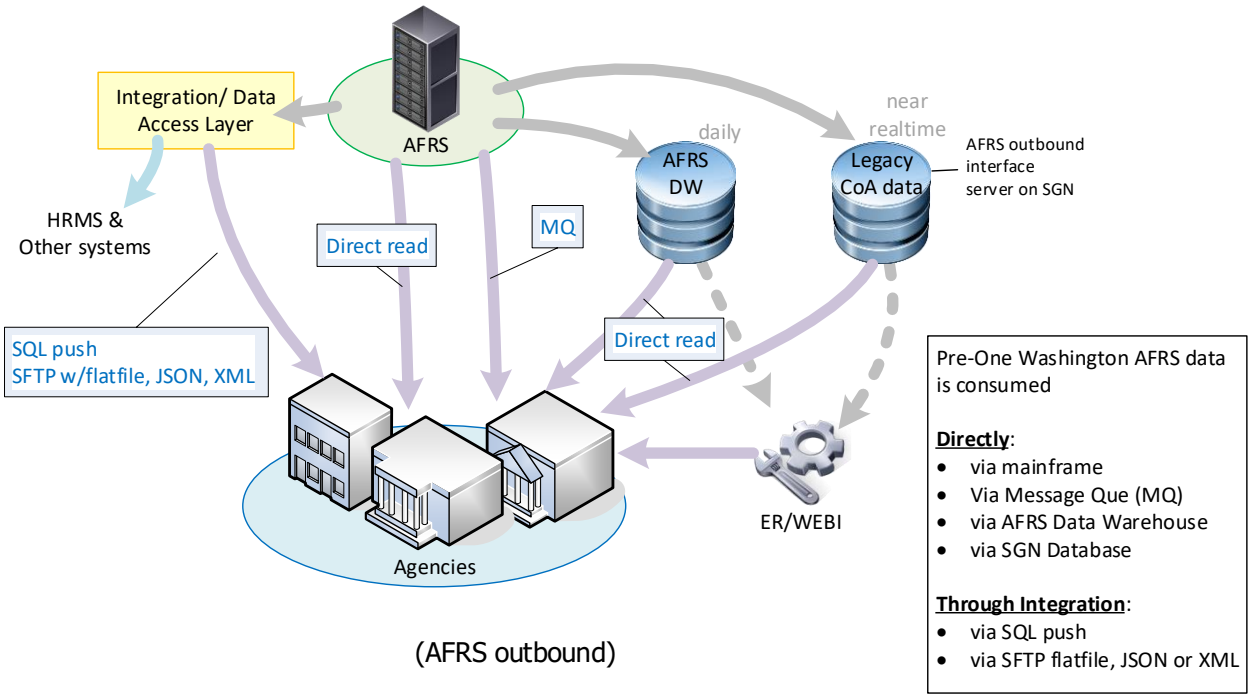
However, if phase 0 dependencies are discovered related to other core enterprise systems, additional work may be required.

While the deep-dive analysis sessions have been mainly focused around the AFRS and the mainframe, there could be some secondary impacts to other nonfinancial enterprise systems, such as HRMS. AFRS subject matter experts (SMEs) from OFM's statewide accounting have been working closely with the integration team during the analysis and the team will need SMEs from other functional areas to conduct similar analysis.

In summary, inbound and outbound AFRS transaction interfaces are received on a daily, weekly, and monthly basis via the following methods:

- Secure File Transfer Protocol (SFTP)
- File Transfer Protocol (FTP)
- Mainframe to Mainframe Transaction (file drops)
- IBM Message Queue (MQ) Series
- AFRS outbound interface server

Figure 1 - Current AFRS outbound connections



Impact assessment

During the AFRS original five weeks' interface analysis sessions, the team reviewed **63 AFRS interfaces**, which included both simple interfaces and complex interfaces. None of these interfaces related to HRMS or HRMS GAP interfaces. Upon the completion of these analysis sessions, the team determined, based on commonalities, it could be possible to reduce the original 63 interfaces into the following interfaces:

Inbound AFRS interfaces

- New AFRS standard inbound interface
- IBM Message Queue (MQ) interface
- Mainframe to mainframe interface
- Accounts receivable interface from Solomon

Outbound AFRS Chart of Accounts (COA) and payee information interface (reference tables only)

- AFRS Outbound Interface Server (*including agencies currently using ER and Webl*)

Outbound AFRS transactions interface

- New AFRS standard outbound transaction interface
- IBM Message Queue (MQ) interface
- Enterprise reporting (data warehouse)
- ADDS agency interface (*if unable to convert to new standard*)
- FAST agency interface *(if unable to convert to new standard*)

During these AFRS interface analysis sessions, the team expressed concerns related to **complex integrations** requiring additional coordination with agencies using third-party supported integrations. IBM Message Queue (MQ) is a message-oriented middleware product from IBM. This vendor-specific messaging application is used by some agencies for system integrations, such as ProviderOne. The team received a request from DSHS to understand their MQ interfaces and started the creation of a consolidated MQ list which specifies locations and maps queue names to processes. The list of agencies with MQ connections was sent to the OneWa team for scheduling additional conversations with these agencies. This list included:

- Health Care Authority (HCA)
- Labor and Industries (LNI)
- Department of Retirement Systems (DRS) - *plans to be off MQ by summer 2020*
- Washington Technology Solutions (WaTech)
- Office of Financial Management (OFM)
- Department of Social and Health Services (DSHS)

Upon completion of the AFRS interface analysis sessions, the team started working closer with the OneWa team to integrate data collected from agency inventories. This combined analysis effort started with all the financial interfaces reported by agencies and synchronizing it with the information OFM has available. The OneWa summary-level agency system impact analysis is posted on the OCIO dashboard. Any gaps identified were input into the detailed individual assessment draft agency-level reports to be used to facilitate follow-up conversations with agencies to address the gaps. Meetings with agencies are ongoing and currently scheduled through the end of June 2020.

Note that the agencies identified in the detailed interface plan below are based on the best currently available information. The project team is working to create a tracking mechanism similar to the Wall of Success used by the OneWa program to communicate with agencies.

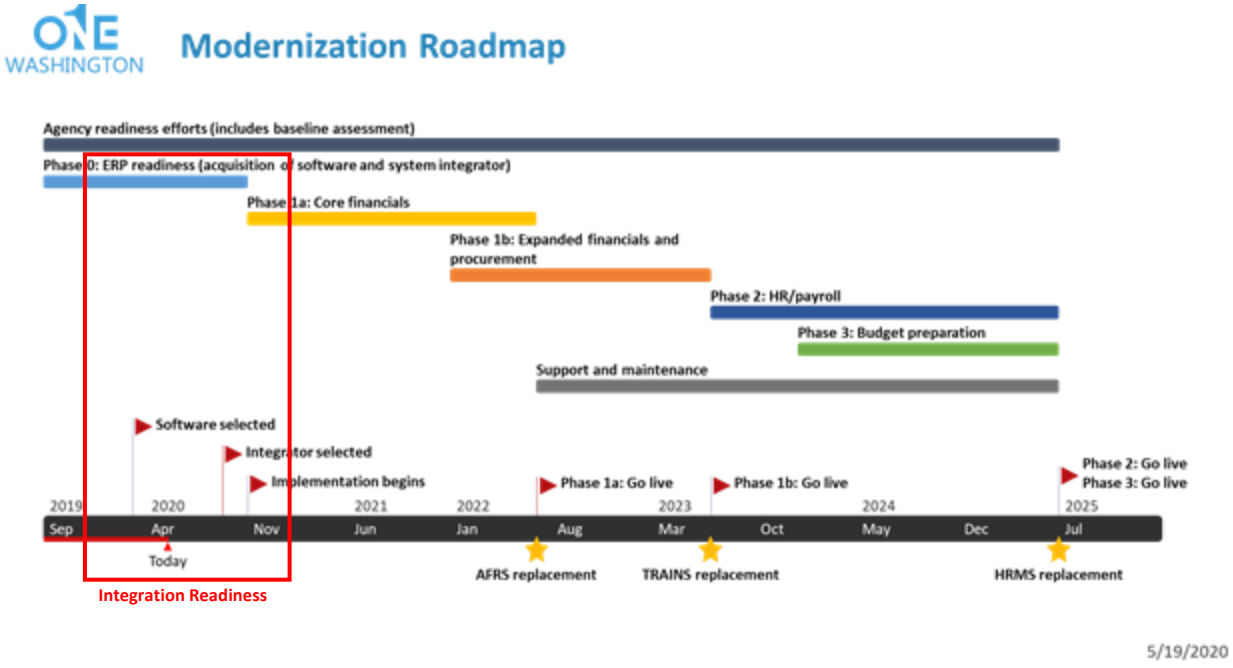
Key risks

Some key risks that were identified during analysis and are being tracked through the OneWa risk and issue register include:

- Many agencies lack detailed or any complete **documentation** of their current interfaces, limiting the team's ability to complete detailed analysis without having several meetings with agency technical staff and creating uncertainty around proposed solutions.
- Agencies residing outside of the **state government network** (SGN), as defined by WaTech Network Core, may not be able to use standard interfaces.
- Some agencies currently use Enterprise Reporting (ER) and/or Web Intelligence (WebI) as **undocumented interfaces**, causing their integration needs and requirements to not be accounted for or addressed by this plan. There is no way to selectively stop users from setting up reoccurring reports or queries in ER and WebI for non-reporting use cases.
- If the project is unable to hire, on-board, and train its team with **qualified staff** members by the mid-June start date, the project will likely not have enough resources to complete the integrations readiness plan by January 2021. The inability to fill these critical integration staff positions in a timely manner, or not at all, could be caused by general COVID-19 impacts to staffing and long-term budgeting, and/or the general scarcity of highly-qualified technical applicants.
- Other technical initiatives and projects may divert required **resources** from this project, due to competing priorities and resource constraints, could affect the overall schedule. This risk is applicable to both agencies and OFM.
- Agencies with **complex and/or third-party interfaces** will require additional collaboration and coordination, causing the standardization of these interfaces to extend past the 1/1/2021 project deadline.
- Reduced productivity of project team due to impacts of **COVID-19** and the requirement to work virtually.

Detailed Interface Plan

OFM, in preparation for the OneWa project, is performing a holistic analysis of the transmission of data passing between OFM, State Agencies, and Higher Education. The initial analysis has identified the following ways OFM is planning for future state of how OFM receives and disseminates data. The approach is to prioritize the standardization of financial related interfaces based on the OneWa modernization roadmap and readiness timeline.



Due to the complexity of the work and limited resources available, the team is recommending an adaptive approach to implement the integration plan. An adaptive approach will allow the project team to adjust based on the uncertainty from not working directly with agencies and the technical complexity of the work. By leveraging an adaptive approach, the team can obtain feedback on unfinished work to improve or modify as needed and produce smaller finished deliverables within a given time increment.

The integration readiness project will develop a product backlog and create a release plan based on appropriate iterations and agency's ability to adapt.

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*For this document, all references to interfaces are from the OFM perspective. Therefore an **inbound interface** is an interface where data is sourced from agencies and moves to OFM and an **outbound interface** is an interface where data is sourced from OFM and is available for agencies.*

Inbound AFRS transaction (to OFM) interfaces

For inbound AFRS transaction interfaces to OFM, the team will first focus on converting all current Secure File Transfer (SFT) interfaces to AFRS. This will require **no changes by agencies** but the project team will make the work transparent to agencies.

The internal OFM team will define and document a repeatable process for implementing the new standard AFRS inbound SFT interface:

- Agencies will submit their transaction data files into their designated SFT folder.
- SFT routing rules will move and rename the data files to a designated standard integration folder.
- Integration team will pull the data files, prepare the data for AFRS consumption, and put the data files into another SFT folder for AFRS to consume.
- The modified AFRS processes will pull all agencies' transaction data files from the standard integration SFT folder.

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*There will be **no modifications** to OFM systems, including the Human Resource Management System (HRMS), the Allotment System (TALS), Solomon Accounts Receivable (AR), and Financial Toolbox.*

After all current SFT interfaces have been converted to the new standard and the process has been documented, the team will shift to converting mainframe-to-mainframe (file drops) and File Transfer Protocol (FTP) interfaces into the new AFRS standard inbound interface using SFT. This will require some agencies to make minor changes to their existing interfaces in order to switch to SFT.

The current list of agencies impacted includes:

- Office of the State Treasurer (OST)
- Department of Corrections (DOC)
- Department of Revenue (DOR)
- Employment Security Department (ESD)
- Department of Labor and Industries (LNI)
- Utilities and Transportation Commission (UTC)
- Department of Natural Resources (DNR)
- Department of Licensing (DOL)
- Department of Retirement Systems (DRS)
- Department of Ecology (ECY)
- State Health Care Authority (HCA)
- Department of Children, Youth, and Families (DCYF)
- Department of Social and Health Services (DSHS)

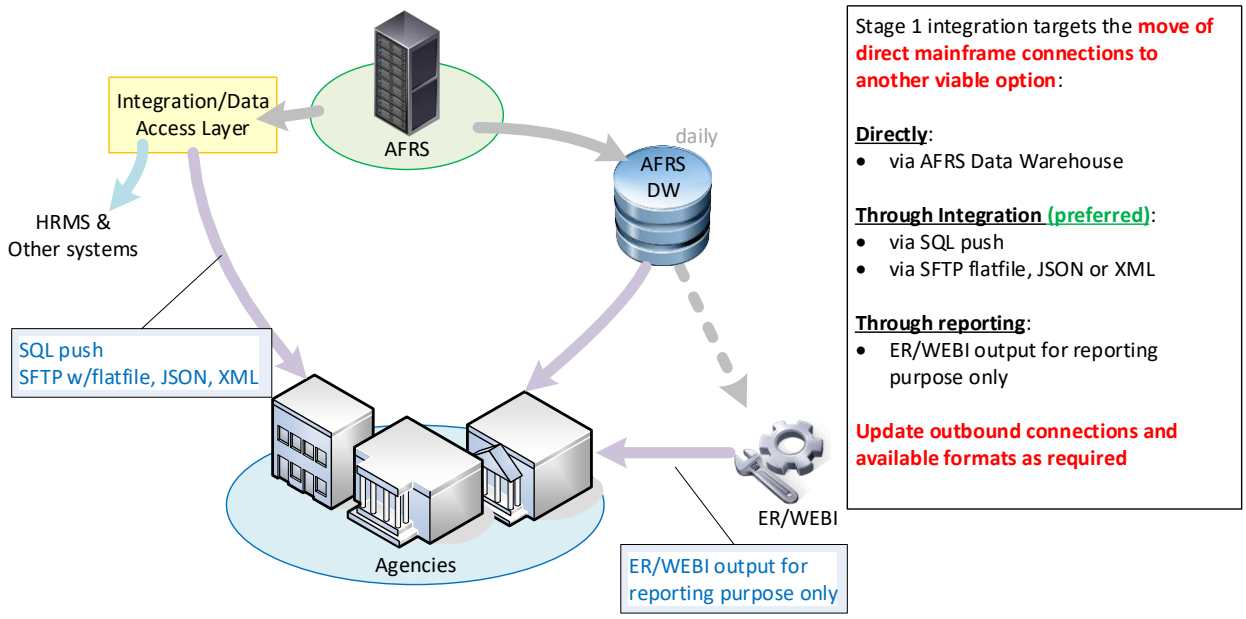
The project team will focus on trying to minimize the impacts on agencies to the best extent possible but changes to OFM inbound transaction interfaces will require some modifications by agencies.

Outbound AFRS transaction (from OFM) interfaces

The AFRS outbound transaction interfaces to OFM will use the Publish/Subscribe service for data integration:

- Daily posted transaction data from AFRS to requesting agencies.
- Standard list of data elements for all agencies to receive. They will be able to select which elements they need for their internal systems.

Figure 2 - Implementation AFRS transaction outbound



(AFRS transactional outbound)

The project team is working with early adopter agencies to develop and document a new standard outbound transaction interface. Several agencies have already volunteered and include:

- State Auditor's Office (SAO)
- Department of Labor and Industries (LNI)
- Department of Social and Health Services (DSHS)
- Department of Fish and Wildlife (DFW)

The project team is working to document the process for the new outbound transaction interfaces before implementing the process with the remaining agencies which currently have an AFRS transaction outbound interface. This includes capturing lessons learned and creating a knowledgebase for best practices and frequently asked questions. After reporting out on the successful implementation, the team will begin offering the new service to other agencies, such as:

- Department of Corrections (DOC)
- Department of Licensing (DOL)
- Department of Revenue (DOR)
- Department of Transportation (DOT)
- State Lottery Commission (LOT)
- Department of Ecology (ECY)
- Employment Security Department (ESD)
- State Health Care Authority (HCA)
- Department of Children, Youth, and Families (DCYF)

The project team will work with agencies schedules and technical staff to implement these standard interfaces as part of the implementation phase scheduled to start in the early fall.

Outbound AFRS Chart of Accounts (COA) and payee information interface

OFM will notify all agencies within the SGN to switch to the AFRS outbound interface server available on the SGN no later than January 1, 2021.

Agencies concurrently identified as needing to switch to the AFRS outbound interface server include:

- Department of Natural Resources (DNR)
- Department of Transportation (DOT)
- Office of the State Treasurer (OST)
- Administrative Office of the Courts (AOC)
- Department of Health (DOH)
- Department of Ecology (ECY)

The following agencies have completed a **partial** move to the AFRS outbound interface server:

- Department of Social and Health Services (DSHS)
- Employment Security Department (ESD)

The following agencies are **currently** working to move to the AFRS outbound interface server:

- Office of the Attorney General (ATG)
- State Lottery Commission (LOT)

The following agencies have **completed** the move to the AFRS outbound interface server:

- Department of Commerce (COM)
- Department of Corrections (DOC)
- State Health Care Authority (HCA)
- State Auditor's Office (SAO)
- Department of Fish and Wildlife (DFW)
- Department of Licensing (DOL)
- Department of Labor and Industries (LNI)

An additional consideration for moving agencies to the AFRS outbound interface server by January 1, 2021 includes agencies identified as using Enterprise Reporting (ER) and Web Intelligence (WebI) for scheduled pulls of the AFRS SW titles and COA tables, creating undocumented interfaces. These agencies were instructed to move to the AFRS outbound interface server but some agencies cannot move due to being outside of the SGN.

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*This project depends on OFM management support to set a **hard deadline for all agencies.** Otherwise agencies will not give this work high priority to complete. There is no way to selectively stop users from setting up reoccurring reports or queries in ER and WebI for non-reporting use.*

For agencies outside of the SGN, the technical team will work with these agencies to develop use cases and develop viable technical solutions. Once feasible options are identified, OFM Statewide Accounting will determine a date for the end of life of legacy outbound AFRS tables interfaces.

*A **small percentage of organizations** that have AFRS interfaces are outside the SGN. Examples of agencies outside of the SGN includes some higher education, counties, cities, tribes, law enforcement agencies, and courts. Scenarios for these organizations will be assessed on a case-by-case basis to determine an appropriate technical solution.*

Complex inbound and outbound AFRS interfaces

Due to the complexity with MQ, the OneWa and OFM IT staff will work with the DSHS MQ Coalition to discuss the plan for replacing MQ for ProviderOne agencies. OFM IT has requested adding a resource to this workgroup. The agencies identified as using MQ are listed in the pre-implementation analysis section of this document.

Agencies with FAST system inferences will also require additional planning and coordination in transitioning to the new standard inbound and outbound interfaces.

The integration work for MQ and agencies with third-party system integrations with AFRS will likely continue past the January 1, 2021 deadline.

Nonstandard AFRS interfaces

For nonstandard interfaces not included in the inbound and outbound interfaces described above, we recommend decommissioning the following interfaces through an SWA directive:

- Department of Social and Health Services (DSHS): AFRS Master Index table upload process
- Department of Social and Health Services (DSHS): AFRS error correction process
- Department of Children, Youth, and Families (DCYF): AFRS error correction process

High-level timeline

The high-level timeline for implementing standard inbound and outbound interfaces with agencies is as follows:

Milestone	Target date
New outbound transaction standard interface publication developed and available	07/31/2020
Inbound AFRS transaction standard interface for SFT agencies	09/30/2020
All agencies move to AFRS outbound interface server	12/31/2020
All agencies move to new inbound AFRS standard transaction interface	12/31/2020
All agencies subscribe to outbound standard transaction interface	12/31/2020
Integration readiness project complete	01/01/2021
Complex integrations for MQ and third-party system interfaces	**TBD**

Resource requirements

The project team will consist of the following resources:

FTE	Position	Considerations
1.25	Project Manager	One Project Manager from OFM IT with assistance from OneWa Project Manager for communications and coordination with agencies.
1.5	Business Analysts	One dedicated and one half-time Business Analyst from OFM IT. OneWa will fill a Business Analyst position and may be able to support some of the integration readiness work with complex MQ and FAST agencies.
5	Integration Developers	OFM IT currently has two integration developers and will be hiring three additional integration developers for OneWa. These positions are senior/specialist level.
1.5	Integrations Architects	OFM IT currently has one integration architect and will be hiring one additional, who will also be the supervisor for the integration developers.
1	Data Solutions Architect	OFM IT has one dedicated data solutions architect dedicated to OneWa.
2	Data Management Support	OFM IT plans to provide two database administrators to offer the team general data management and testing support.
-	Enterprise Architecture	As needed, to provide general guidance and align with OFM IT enterprise architecture guidance.
-	Information Security	As needed, to provide security design guidance and advice.
-	Agency resources	As needed, for developer and testing resources.
-	Finance SME	As needed, from Statewide Accounting.
-	OCM	As needed, from OneWa OCM Team.

For more information about the roles and responsibilities for these resources, see the appendix below.

Dependencies

- The integration readiness project will closely collaborate with OneWa and external agencies to accomplish this endeavor.
- The OneWa project team has a dependency on the network bandwidth to function at a level supportive of working remotely due to Covid-19 in order to leverage:
    - Skype
    - Teams
    - SharePoint
    - VPN
- Hiring qualified integration developer FTEs, including onboarding and training.
- Project managers from OFM IT, OneWa, and WaTech will continue to meet on a weekly basis to collaboration on planning and communication.

References

Interface plan definitions

This next section outlines the guiding principles and definitions used in this plan. For other definitions, please refer to the OCIO technology dictionary.

1. **Interface**: the movement of data between disparate applications (both in-bound and out-bound), e.g., between a non-OFM owned, non-enterprise application to an OFM owned, enterprise applications.
2. **Inbound interface**: an interface where data is sourced from agencies and moves to OFM.
3. **Outbound interface**: an interface where data is sourced from OFM and is available to agencies.
4. **OFM standard interface**: an interface OFM has determined to meet the "global" needs of agencies, where the layout and fields are static and every agency interacts using the same layout/format. The intent is to reduce the amount of customization, point-to-point integrations, and maintenance support as well as to encourage common language and terminology between OFM and all agencies.
5. **Integration layer**: the layer of tools owned and managed by OFM. The integration layer is worked, managed, and accessed by OFM staff. The data access layer provides interfaces and data for agencies to consume.
6. **Data access layer**: These are endpoints populated by OFM for agencies to be able to connect to and consume data. Agencies will connect to the data access layer using their own internal tools.
7. **Enterprise data source endpoint**: available in the data access layer, can be in a variety of methods such as direct SQL connection, web services, APIs, and files via SFT. The endpoint type is determined by examining each interface and determining what method is the best fit for the data considering payload size/volume and category of data.
8. **AFRS 950 transactional format**: all AFRS transaction information sent to and from AFRS must conform to a 950-character layout. The transaction data in the layout is used to properly post to the general ledger, chart of accounts (COA), and make payments if required.
9. **Secure file transfer**: a secure version of File Transfer Protocol (FTP), which facilitates data access and data transfer over a Secure Shell (SSH) data stream. It is part of the SSH Protocol. This term is also known as SSH File Transfer Protocol.
10. **File transfer protocol**: an extension to the FTP protocol for Secure Socket Layer (SSL)/Transport Layer Security (TLS)-based mechanisms/capabilities on a standard FTP connection. It mainly enables performing or delivering standard FTP communication on top of an SSL-based security connection. FTPS is also known as FTP Secure.
11. **Message Queue**: a message-oriented middleware product from IBM. MQ is a vendor specific messaging application used by some agencies for system integrations, such as ProviderOne.

Roles and Responsibilities

Project Team

Role	Responsibilities
Enterprise Data Manager	• Provide IT resources • Conduct IT personnel actions, including interviews and hiring • Contract manager for Informatica, coordinate implementation and training • Prioritize work
Project Manager	• Create project plan and schedule • Gather updates and report status • Document project risks & issues • Develop risk response and contingency plans • Escalate issues unable to be resolved by project team
Senior Integration Architect	• Technical lead on Informatica integrations • Technical resource to help to explain to agencies how they can consume endpoints and data in the data access layer
Integration Developer(s)	• Complete Informatica training • Develop and manage OFM-provided interfaces as outlined by plan for enterprise data using OFM integration tools and platforms • Provide status updates, report and solve risks/issues, support change requests • Help to facilitate data being available in the data access layer • Coordinate with OFM business experts (SMEs) and business analysts to interpret business requirements • Provide technical documentation on OFM-provided endpoints for which for integrations built
Data Solutions Architect	• Technical lead on Data solutions • Technical resource to explain to agencies how they can consume data in the data access layer
OFM Chief Enterprise Architect	• Review plan and provide inputs as requested • Consulted on architectural decisions
Data Management Developers	• Develop solutions as outlined by plan • Provide status updates, report and solve risks/issues, support change requests • Help to facilitate data being available in the data access layer • Provide technical documentation on OFM-provided endpoints for which for integrations built
Business Analyst	• Gather and document requirements for interfaces • Understand what the business goal is for each interface • Document business process flows

Role	Responsibilities
OFM SME (portfolio/functional area subject matter expert)	• Identify integrations needed to come in and out of the ERP so portfolio needs are met • Identify data elements needed to be available in the data access layer • Provide business rules around interfaces, defining the datasets and required fields within a unit of work, and indicated desired frequencies • Work with agencies to understand the business processes, both current and future • Understand all interfaces coming in and out of their functional areas
System Integrator	• Develop crosswalks to translate data between AFRS and the ERP • Develop custom, non-standard interfaces

OFM

Role	Responsibilities
TSFP	• Create and manage OFM-provided endpoints for enterprise data - Could include APIs, writing to SQL, writing files to SFT • Coordinate with OFM business experts to interpret business requirements • Help to facilitate data availability in the data access layer • Produce technical documentation on the OFM-provided endpoints (e.g., what is the endpoint, what data is required for the input (if any), what data is in the output)
Business function SMEs	• Identify integrations needed to come in and out of the ERP • Provide business rules around interfaces, defining the datasets and required fields, desired frequencies • Work with agencies to understand the data and business rules • Produce documentation regarding data and business rules
One Washington	• Provide guidance and strategy based on advice from ERP expert partners for the overall direction of OneWa program • Coordinate and communicate with OFM IT, OneWa governance and oversight bodies • Facilitate collaboration with agency partners with a state enterprise perspective

Agencies

Role	Responsibilities
Developers	• Develop methods for providing data, consuming OFM-provided services, and consuming data from the data access layer using whatever tools/technology available in-house • Integrate enterprise data from OFM between its own agency systems.
Business Analysts	• Understand impacts to internal systems • Work with agency technical staff and developers to understand requirements to develop against
Business function SMEs	• User acceptance testing for interface changes on agency-side to validate data • Provide agency use cases and requirements

Additional Application Information

The Agency Financial Reporting System (AFRS) is Washington State's central hub for accounting information. It gives users the ability to pay agency bills, receive payments, reimburse travel and accomplish many other business financial processes. This system interfaces with numerous budget and accounting systems, and is one of the most widely used applications by Washington state agencies and higher education institutions. Most system users update accounting information daily.

The Cost Allocation System (CAS) creates cost allocation plans using data in the state-owned accounting system called the Agency Financial Reporting System (AFRS).

Enterprise Reporting (ER) supports reporting needs for the State of Washington. We collaborate with state agencies to ensure they have the reporting platforms, tools, and support necessary to perform their work more efficiently and effectively. A financial reports inventory is available. Both of the Enterprise Reporting and Web Intelligence reporting tools are available to agencies on the SGN or through WaTech's SecureAccess Washington (SAW) service.

The AFRS outbound interface server was created to assist agencies, within the SGN, access to Statewide Title and Agency Descriptor tables from AFRS/CAS. This solution provides Agencies the ability to query data and then create their own unique outbound interfaces using this SGN server. Once an agency creates their new AFRS outbound interface, the team will request any existing agency outbound interface jobs be removed from AFRS. However, many agencies have not begun leveraging this solution and the team believes it must set a hard date for the end of life of legacy agency jobs in favor of migrating to this solution for outbound interfaces.

The financial toolbox is a web-based application users prepare a batch of transactions on a Microsoft Excel spreadsheet and send them directly to AFRS. The financial toolbox is used for recurring payments, cost distributions and many other types of transactions, and allows users to obtain immediate notification of their AFRS transactions. This product is offered free of charge to all agencies. Please reference the financial toolbox manual for additional information.

The Enterprise Accounts Receivable System (AR) tracks and manages monies owed to an agency by its customers. Invoices created by the system electronically update the general ledger balances in the Agency Financial Reporting System (AFRS) and payments received are then applied to outstanding invoices. The system also has tools available for handling varying degrees of delinquent balances including reports, assessment of interest charges and collection letters. Please refer to the Accounts Receivable System User Documentation for more information.

The AFRS 950 documentation is on the OFM website.

The Human Resource Management System (HRMS) data definitions are on the OFM website.

Potential technical issues

Some potential technical issues identified in the analysis and impact assessment are included to provide additional context to the complexity of this initiative.

Agencies outside of the state government network

The first potential issue the team came across in its analysis was finding solutions for standard integrations with agencies residing outside of the state government network (SGN), as defined by WaTech's network core. Currently, these agencies will not be able to access the AFRS outbound interface server as a standard interface for COA and payee information interface. Higher education institutions are an example of agencies residing outside of the SGN and would require an alternative solution, such as a virtual private network (VPN) or SecureAccess Washington (SAW).

Viable technical solutions must address technical networking issues and authentication for security. The financial SME would like to create a frequently asked questions (FAQ) sheet for agencies outside of the SGN, to include options for viable methods of accessing the data. Some potential solutions include:

- **Public facing website,** while recognizing the agency has no previous experience offering this type of solution. All information, except for the vendor files, are public data. There was much discussion regarding a published data source available for agencies to retrieve versus the currently typical point-to-point integrations.
- Leverage **SAW** as a possible solution for agencies to access the SGN to access data, as the Secretary of State has taken this approach. This would require additional technical conversations to better understand the solution. The team believes agencies outside the SGN could leverage SAW to access SFT folders and files.
- A **VPN tunnel** is used by some agencies to get into the SGN, which may be the most practical solution.

Based on these conversations, the project team has reached out to WaTech to obtain a list of agencies outside of the SGN and engage follow-up conversations with these agencies. It is important to note being outside of the state Active Directory Federation Services (ADFS) is not the same as agencies being outside of the SGN, a security and identity management versus networking and Internet Protocol point of view. As OneWa and OFM IT are working with WaTech to get a final list of agencies and their network, WaTech identified there are actually three logical networks (SGN, IGN, and PGN) within the state's Network Core. WaTech has a service ticket open to answer these questions and bi-monthly have been established.

Any new solution will also likely drive updates to interagency data sharing agreements. The team will need to tie these use cases to the other scenarios (direct access versus agencies outside SGN using SFT to pick up a file) but **SFT file pickup appears to be the best option in the interim**.

Regardless of the solution, the team will need to work with Office of Cyber Security (OCS) and the Office of the Chief information Officer (OCIO) to review security use cases at the detailed level, which will require additional conversations with network and security teams.

AFRS Financial Toolbox

The team also analyzed updates to the AFRS Financial Toolbox but this effort was put on hold until further notice. The request to change the old multistep process of getting transactions to AFRS to a standard SFT process ended up not being as easy as the team had originally expected. Information on how the Financial Toolbox was developed is no longer available within OFM and several other risks identified during the planning of modernizing the Financial Toolbox have a negative effect on the estimated level of work and schedule for this effort. The team decided, since the Financial Toolbox would be decommissioned at the same time as AFRS, it best to leave as is. A similar approach decision was made with the Enterprise Accounts Receivable (AR) system, also referred to as Solomon AR.

Mainframe re-hosting

The finance business owner would like to prioritize both inbound and outbound transmissions for mainframe interfaces. This was identified as a priority due to the WaTech mainframe re-hosting project, currently scheduled to take place during the last quarter of 2020. By aligning the integration readiness effort with WaTech's migration of the existing mainframe environment to a new Mainframe as a Service (MFaaS) environment, the team feels it eliminates unnecessary interfaces and helps going forward by removing some of the duplicity. For example, OFM IT would be able to remove 40 financial mainframe batch jobs and replace them with the new standard integrations. Additionally, the team identified some interfaces that should have already been decommissioned.

The WaTech mainframe re-hosting project is seeking to move the current mainframe environment to an MFaaS solution. The MFaaS did guarantee agencies all software will be available on new mainframe environment; however, it made more sense not to convert the mainframe batch jobs in favor of building new standard integrations. While HRMS currently has jobs on mainframe scheduled to be retired, they do not relate to provided AFRS or GAP data.

Other considerations

Other organizational and environmental factors taken into consideration included:

- This project will leverage the preexisting platforms and solutions already reviewed by OCS. Therefore, we are not anticipating any of the proposed standard interfaces will require an additional security design review. The team will work closely with OFM enterprise architecture and information security to assess any potential concerns.
- Four out of the five developer full time equivalents (FTEs) need to be recruited, hired, on-boarded, and trained. This may have significant impacts on the team's ability to implement the standard interfaces. Exemptions to the hiring freeze have been submitted for approval and are being actively tracked in the issue register.

- Other OneWa activities, such as the system integrator evaluation, data management initiatives, and ERP implementation planning will use the same resources identified for this project.
- Complex integrations leveraging third-party solutions will require additional planning and coordination. These integrations will likely not be complete by January 1, 2021.
- Some agencies may need to make minor changes to their interfaces.
- No modifications to unique Office of the State Treasury (OST) system interfaces will take place during the integration readiness project. We are recommending OST use the standard AFRS outbound interface server.
- OFM has tried getting agencies to switch to standard interfaces previously but has not had wide success due to competing agency priorities. The team feels, without strong support from OFM management and enforcement of hard deadlines, agencies will not make this work a high priority and cause the schedule to slip, leading to potential schedule slip impacts to the OneWa ERP implementation.

Best practices & lessons learned

An important part of our work is evaluating and improving how we do our work. As we complete this work effort, it is OFM's best practice for project teams to participate in a "retrospective" meeting.

- The retrospective meeting is a tool for identifying successes and what went well.
- It is a tool for sharing and hearing honest feedback and identifying areas for improvement as we begin to engage in working the subsequent modules.
- This is a "**safe**" environment and we focus on constructive feedback and being solution oriented.

Three questions are asked as part of the retrospective:

- What went well?
- What didn't go so well?
- How can we improve?

This retrospective will be for phase 0 work efforts outlined in this plan and will be used to improve work completed in future phases.