Information Services Strategic Plan

IS Overarching Strategy

The IS Division's overarching strategy for the next ten years is to support EWEB's Strategic Plan by reducing costs, enhancing our role as a trusted technology partner with the business units, and developing the skills of our workforce. This will enable IS to play a critical role in EWEB achieving its 10-Year Strategic Priorities:
1. Emergency Preparedness & Disaster Recovery
2. Electric Supply Resource Choices.

To accomplish the Two Big Ones EWEB will go through the following phases:

Phase	Theme	Method
2017-2020+	Foster Customer Confidence	Focused Performance (Cost, Responsiveness)
2018-2022+	Create Consumption Flexibility	Niche/Segment-Specific Products; Delivery & Infrastructure Flexibility
2020-2026+	Resilient Delivery	Integrate Sources with Flexible Consumption; Resilient Grid and Water Network

This requires us to improve our internal processes and governance model to better manage costs, train our workforce to be prepared for change, anticipate and respond to the needs of the business, and execute our work with them in a professional and effective manner. Creating the headroom needed from both budget and staff needed to support EWEB's strategic objectives

In this plan, foundational technology, security, and business consultancy are the core services that the IS Division provides. The elements of this plan are intended to help prepare IS for success in the years to come. To facilitate this plan, IS has implemented the following Strategic Directives:

IS Strategic Objective 1: Be a Trusted Technology Partner in Business System Decisions
IS will partner with EWEB's business units to choose business requirements for technology that do not drive us into Tier 1 technology solutions.

IS Strategic Objective 2: Increase Capacity While Decreasing Costs
EWEB IS functions will need to gradually reduce and standardize IT delivery systems (i.e. infrastructure) so that fewer people are needed to support a smaller number of technologies. This will reduce O&M activity and increase activity that improves EWEB's service offerings.

IS Strategic Objective 3: Reduce Complexity Through Maturation of and Adherence to Architectural Standards
Simplify and standardize underlying technology with the intent to reduce the expected capital investment in and reduce spending to support IS assets.

IS Strategic Objective 4: Prepare Workforce for the Future
Develop versatility of workforce and depth in each focus area to ensure coverage and enable ability to meet changing future business needs.

IS Strategic Objective 5: Implement a Robust and Transparent Benchmarking System for Services Provided

On routine schedule for replacement/refresh, IS will develop and present valid unit cost data for the related IS service for comparison with 3rd party alternatives for the business to evaluate (ie. show back). Over the plan period, using this show back method, IS and business management will reduce internal IS unit costs.

Major Systems Replacement Cycle & Strategy Overview

As a result of the 2017 EWEB Affordability Initiatives, IS has updated the Major Systems Replacement Cycle and incorporated the Strategic Statements from above. The following updates have been incorporated:

- An Enterprise Resource Planning (ERP) Strategy has been introduce to consolidate Customer Information (CIS), Work & Asset Management (WAM), and Financial Management Systems (FMS) into a single ERP.

- Technical systems will be simplified and sized appropriately for the Utility.

- SCADA will be placed on a standardized platform where possible.

The following diagram outlines the schedule for system replacement and refresh projects over the planning period:
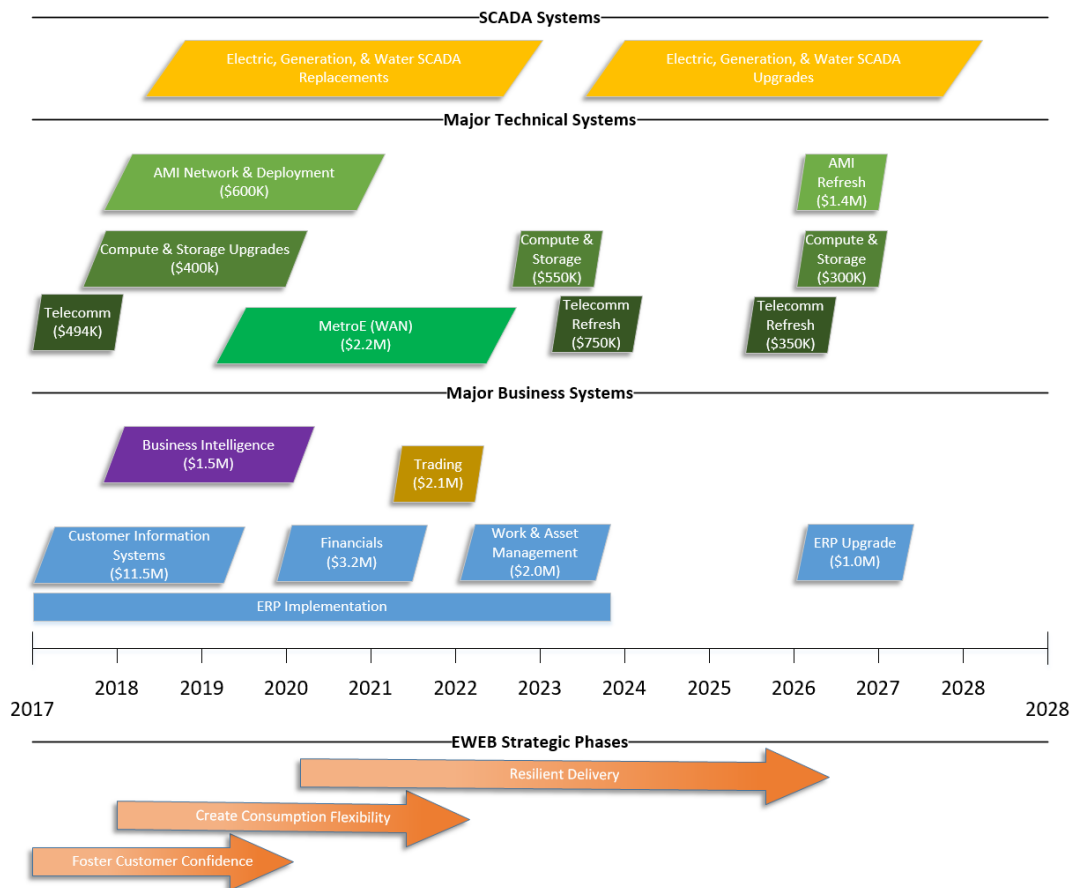
Enterprise Resource Planning (ERP) Strategy

Currently, EWEB's business systems are disparate and loosely coupled by point to point integrations. Developing and maintaining these integrations is costly, complex, and adds time to upgrade/migration projects.

ERP suites are built to collect and organize data from various levels of an organization and connect business activities across departments. A structured approach to ERP can help a company standardize and automate its business processes and improve the efficiency of operations. In 2017 EWEB selected Cayenta to replace its aging Banner system. Cayenta was selected, in part, due to its ERP capabilities.

An ERP system integrates areas such as customer, planning, purchasing, inventory, sales, marketing, finance and human resources. ERP systems typically include the following benefits:
- An integrated system
- Operates in (or near) real time
- A common database that supports all the applications
- A consistent look and feel across modules
- All modules are upgraded at the same time

EWEB's goal is to implement an ERP to consolidate CIS, WAM, & FMS. Once this is complete, all systems can be upgraded at the same time. The current goal is to have an ERP implemented by 2024 with a review of folding in the HCMS in 2025 and a full upgrade in 2026. However, there will be incremental upgrades along the way to keep the system fresh. However, there will be incremental upgrades along the way to keep the system fresh.

Trading Systems Strategy

EWEB maintains a collection of commercial off the shelf software (COTS) and customer developed systems to perform the function of Power Trading. The primary system used to perform trading is Allegro, however there several other systems that enable this function. Additionally, these systems are loosely integrated. Several of the integrations could be considered workarounds that do not follow industry best practices.

In 2021 a project is schedule to replace our current trading system. The intent of this project is to take a holistic look at the portfolio of applications and integrations and find a COTS offering which can support the Trading Function as well as provide the required controls and financial information as the subsidiary ledger of record. Ideally, this will be a hosted or cloud vendor with contract support for the Trading Floor. In other words, the vendor will be responsive enough to meet Trading's often complex and time based needs.
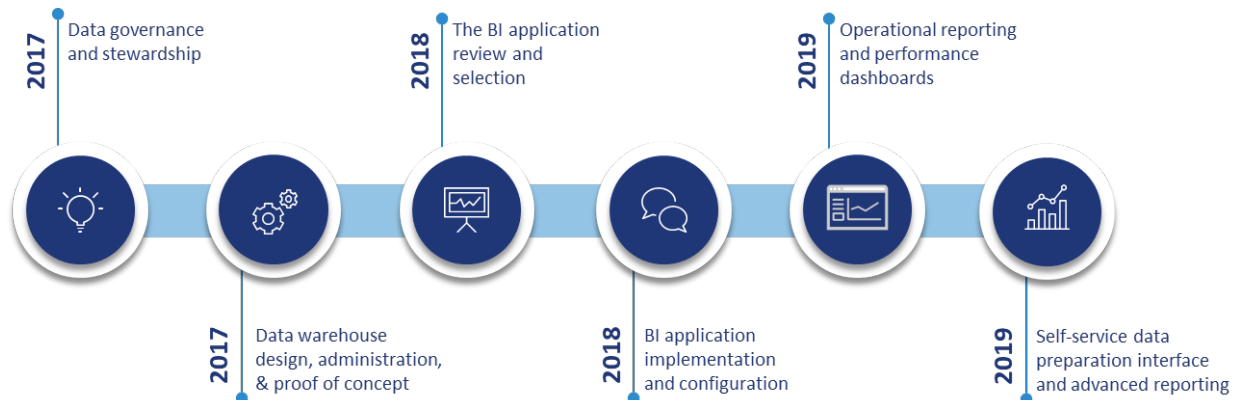
Business Intelligence Strategy

EWEB operates ~150 individual applications and supporting databases that support various operational work practices around the utility. Few provide access to data for analytic capabilities and fewer still allow for correlation of activities across systems. For example, today it is not possible to determine how many interactions we have with a customer across CIS, outage management, eweb.org, conservation, claims, etc.

Our strategy is to determine an effective means of consolidating data (typically through data warehousing) and allowing for end-user driven, self-help analytic queries (typically through Business Intelligence tools), independent of a single operational system.

The following timeline outlines the BI Initiative:

2017 Data governance and stewardship

2018 The BI application review and selection

2019 Operational reporting and performance dashboards

2017 Data warehouse design, administration, & proof of concept

2018 BI application implementation and configuration

2019 Self-service data preparation interface and advanced reporting

Technical Systems Strategy

In summary, the Technical Systems Strategy is to simplify and standardize EWEB's technology stack. This will provide the following benefits:
- Reduced Operation & Maintenance Costs for both Labor and Non-Labor
- Increased flexibility in system configuration
- Incremental replacements to smooth Capital spending

Networking Systems
EWEB currently maintains a broad and disparate mix of networks. Examples include; JungleMux Fiber, MetroE, point to point Ethernet radio, on-campus wired and wireless, and microwave. As these networks are refreshed or replaced, Engineering and IS should partner to consolidate network technologies where possible. Additionally, IS will evaluate third party networks where appropriate similar to how we leverage Verizon today.

The majority of this simplification and standardization work will begin in 2019 and continue on through 2023. After 2023 smaller refreshes will occur on five year cycles.

Computer and Storage Systems
In 2017 Information Services standardized its compute platform on Cisco's Unified Computing System (UCS) as EWEB's primary compute platform. At the same time, NetApp was selected to replace the legacy IBM Storage Area Network (SAN) as the standard storage platform. Ongoing incremental investments in this technology will continue through the planning period.

Industrial Control (SCADA) Systems Strategy

Similar to our networking systems, which supports SCADA, EWEB maintains many SCADA to support the various business functions. At the time of this writing EWEB maintains the following:
- Electric T&D SCADA
- Water Treatment SCADA
- Water Distribution SCADA
- Generation SCADAs
- Building Automation for HQ
- Building Automation for ROC

As these control systems are refreshed or replaced, Engineering, Operations, and IS should partner to consolidate network technologies where possible. Additionally, support across SCADA platforms should be evaluated for common and best practices.

The majority of this simplification and standardization work will begin in 2017 and continue on through 2023. After 2023 smaller refreshes will occur on five year cycles.

Cyber Security Strategy

As EWEB progresses through Information Services 10 Year Master Plan our systems will become more interconnected and we will increase our dependence on the information they provide. However, the modern threat landscape works directly against that goal. Almost daily, there is a new and more sophisticated threat designed to interrupt, destroy, or hold hostage our systems.

The Cyber Security Strategy seeks the following objectives:
- Safeguard EWEB's Corporate and Industrial Control Systems and their associated data by averting threats
- Harden critical infrastructure through detective and protective measures
- Prepare for recovery from attack
- Enable usability while ensuring security by effectively implementing controls and proper risk evaluation

Beginning with Stuxnet in 2010 many modern threats now target Industrial Control Systems with the intent of interrupting operations. This has resulted in industry best practices and regulations that mandate we treat these systems differently from our Corporate Systems.

While many of these best practices apply to our corporate network the primary difference is connection to the Internet. Industrial Control Systems will not be connected to the Internet. These systems should be 'air-gapped' either physical or logically to prevent the potential of infection.

Digital Business Strategy

In the 10 year plan period, the Internet of Things (IoT) is expected to mature across EWEB's customer base and service territory, vastly increasing the number of sensors that provide data and introducing technologies that can be disruptive by causing fundamental shifts in customer behaviors and expectations. EWEB will need to develop a strategy to adapt and integrate with technologies that customers are procuring that affect their interaction with EWEB.

In addition, EWEB will need to work with other utilities and regulators to integrate and network with external data providers without compromising critical infrastructure protection (ie. NERC/CIP security protocols).   One IoT technology that appears to potentially be very disruptive to the electric industry is in-home battery storage.

10 Year Operations & Maintenance Budget Forecast

To support the EWEB Strategic Plan and associated Affordability Initiative, IS will continue to manage and control its ongoing Operations and Maintenance (O&M) budget. The O&M Budget is split between Labor and Non-Labor.

As EWEB replaces, consolidates, or depreciates its systems IS has the greatest opportunity to positively influence the Non-Labor O&M Budget. Selecting systems that match both EWEB and IS Strategies will provide an opportunity to find savings. Not surprisingly, system consolidation and depreciation will provide the greatest savings.

IS will continue to evaluate its workforce size and continue to prepare its workforce for the future as EWEB moves through the strategic phases. Work done during the *Foster Customer Confidence* phase is shown below through 2020 where IS labor slightly decreases. In 2020 IS will evaluate its labor projections for the *Create Consumption Flexibility* phase.

Phase	Foster Customer Confidence ⇒			Create Consumption Flexibility ⇒			Resilient Delivery Intergration ⇒			
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Labor	$ 6,747,050	$ 6,669,462	$ 6,737,945	$ 6,952,684	$ 7,173,864	$ 7,401,680	$ 7,636,331	$ 7,878,020	$ 8,126,961	$ 8,383,370
Non Labor	$ 3,723,526	$ 3,797,997	$ 3,873,956	$ 3,951,436	$ 4,030,464	$ 4,111,074	$ 4,193,295	$ 4,277,161	$ 4,362,704	$ 4,449,958
Total	$10,470,576	$10,467,458	$10,611,902	$10,904,119	$11,204,329	$11,512,754	$11,829,626	$12,155,181	$12,489,665	$12,833,328