

Understanding and Approach to M&E Services

Section 4

RFP Reference: 6.3.8.6 Section 4 – Understanding and Approach to M&E Services

The Bidder shall provide a detailed narrative response to the Understanding and Approach topics outlined in Section 5.3. Bidders will respond to the following areas to satisfy or exceed the RFP requirements as described in Section 5 - Requirements, addressing the following topics:

- Sub-Section 5.3.3.1 - Integrated Multi-Contractor Environment
- Sub-Section 5.3.3.2 - Application/Architecture Evolution
- Sub-Section 5.3.3.3 - System Change Requests
- Sub-Section 5.3.3.4 - Innovation
- Sub-Section 5.3.3.5 - Transition-In

By “**coloring outside the lines**” with Deloitte, the CalSAWS Consortium can deliver County-requested changes faster, provide better integration across vendors, and deliver a next-generation CalSAWS’ architecture. To help the Consortium rethink the status quo, we bring a fresh perspective informed by delivering 31 Eligibility and Enrollment (E&E) systems, including California. This experience enables us to **implement improved M&E processes via user-centered design and enabling technologies** (as we have demonstrated on both the BenefitsCal project and the operation of CalHEERS for Covered California).

Helping the Consortium

color
outside the lines



SECTION HIGHLIGHTS

- An M&E approach informed by current E&E delivery projects in 26 states.
- An approach that puts humans in the center rather than technology.
- An evolved CalSAWS architecture that delivers higher levels of responsiveness while retaining stability.
- An approach that helps the Consortium color outside the lines to better serve California Counties.
- Processes and tools that accelerate delivery of System Change Requests (SCRs).

The End Result: The Consortium obtains a responsive, reliable, and innovative vendor that leverages national experience and technical knowledge that supports the Counties with their mission to provide timely health and human services.

Supporting the Most Vulnerable Among Us

The former WCDS, ISAWS, and C-IV Consortia, LA County and now the CalSAWS Consortium have been supporting the Counties in their delivery of HHS services, through multiple systems and contractors over the past two decades. During this journey, Federal and State direction has forced the Counties to consolidate these systems and their own County ancillary systems to utilize the best system they had available. After the final Counties migrate to CalSAWS in October 2023, the Consortium can focus fully on modernizing their system to become a “Best in Class” national solution—one that is responsive to California’s 58 Counties and addresses policy, usability and technology changes that have been pending due to the migration.

Any vendor who steps into managing ongoing M&E needs to understand this fundamental aspect of CalSAWS. CalSAWS was built on the most available system for the migration; however, **CalSAWS’ has a monolithic architecture that has generated years of technical debt with a heavy reliance on outdated COTS products that have been surpassed in the market years ago with newer capabilities. This had led to a solution that has excessive maintenance and operating costs in order to keep it stable, keep it secure and support the evolving business needs of the Counties.** Figure 4-1 below calls out specific concerns the Consortium has going into the next contract.

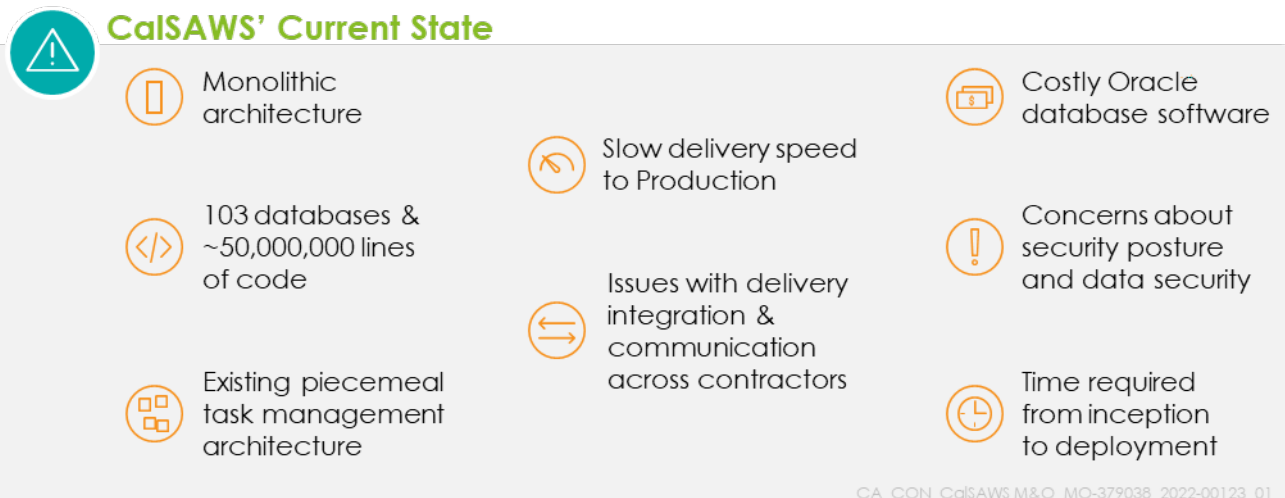


Figure 4-1. CalSAWS' Current State.

Additionally, California's size and County-administered model for HHS delivery adds stakeholder management complexity. It takes a nuanced approach to manage the variety of stakeholders to successfully deliver not only ongoing change, but also ongoing stability. **Deloitte is immersed in the CalSAWS environment today with BenefitsCal and CalWIN ISS. This immersion gives us a unique outside-in perspective that allows us to accelerate impact when we begin the CalSAWS M&E contract.** We're ready to help the Consortium transform CalSAWS to a higher level of responsiveness while retaining the stability required to support California Counties.

Delivering With You

The decision to make a vendor change can be hard when things seem “ok.” It moves you from what you know, to what you don’t (or what don’t know as well). But it enables you to identify opportunities to improve by bringing in new perspectives and experiences. You have been getting reacquainted with Deloitte over the last two and a half years when you selected us over both of your incumbent vendors, and other vendors, to modernize the way that California Counties, Customers, and Community-Based Organizations interact through the implementation of BenefitsCal. In a time like the pandemic, the implementation of BenefitsCal was a more urgent need to bring Counties and Customers together. **The Consortium has delivered a world-class public-facing portal affording the Counties a better way of delivering key services a result of that decision.**

You have seen us in action supporting CalWIN Counties when you also chose us over your incumbent and other vendors to plan and execute their migration. We brought our national experiences to bear which may not always have been what the Consortium, the Incumbent and the Counties were accustomed. For example, through interviews with former C-IV County staff we understood the challenges they encountered with configuring tasks and document routing rules. We initiated an effort to explore how the process for configuring CalSAWS could be simplified to support Counties’ County Prep activities. It required looking at CalSAWS from a different lens, from the outside in—the County lens.

As the CalWIN ISS migration evolved, it became apparent that the Counties needed an opportunity to test their processes, data and configuration prior to production to avoid testing in production. Our team introduced process simulation and County-specific configuration sessions to give the Counties that opportunity so that they can focus on serving Californians and avoid testing in production. CalWIN Counties have noted how the configuration sessions made things “click for them” in understanding CalSAWS and task management complexities. Although the CalWIN Counties are just starting to migrate, **the CalWIN counties are better prepared to migrate to CalSAWS with less challenges than those that migrated before them.**

Over the last two and a half years, we have been working side by side with you not just executing the CalSAWS Project Control Document (PCD) and Operational Working Documents (OWDs) but also augmenting the PCD with new OWDs where new processes were needed (e.g., the newly formed environment management meeting). Together we have worked to take away the gray with honest discussions about where more transparency was needed or where process adjustments needed to take place.

We have worked together to create new ways of engagement (e.g., the Collaboration Model) that required trust from all parties to try something different. Together we created an integrated workplan for the CalWIN counties migration. It came with its challenges, but it is the first venture into truly integrating work across contractors and the Counties.

We worked with the Incumbent Contractor, QA and the Consortium looking at an end-to-end view of performance when challenges arose with Hyland. Our team added additional BenefitsCal performance cycles because it was the right thing to do to make sure that Customers and Counties would not experience performance degradation. We envision that we will continue the momentum that these efforts have produced into the newly formed Delivery Integration Office.

The Consortium challenged us at the beginning of BenefitsCal with not just an aggressive timeline to implement a system built from scratch in 13.5 months, but also challenged Deloitte to **include architectural patterns that led us to your foundational vision for the future of CalSAWS:** a serverless architecture, built with cloud native services, that focuses on protecting customer information while being easy to enhance. You asked us to pivot to integrate with your existing IAM that created opportunities for the Consortium, the incumbent contractor's ForgeRock Team and the BenefitsCal team to push the user stories for how Customers, Counties and Community-Based Organizations access information.

Our BenefitsCal Team worked closely with a broad stakeholder community to jointly define and design new self-service capabilities that transform the way that the Counties and Customers engage that is inclusive and equitable. Given the focus on **putting humans at the center in all of our design efforts**, California's Department of Social Services (CDSS) asked our BenefitsCal Team to work with them, CWDA, the Consortium, and the Advocate Community to redesign the SAR7 paper form and the pre-populated version of the SAR7 paper form. Together we also executed the largest user-centered design-based effort in the State that spanned Customers, Counties, Community-Based Organizations, CWDA, Advocates and State Partners to implement a system that has now been requested by the State of Florida to serve as its customer-facing portal. We did all of this together!



WHAT YOU DID KNOW

BenefitsCal was originally not planned to be serverless or integrate with ForgeRock. Working together with the Consortium, we pivoted to a completely serverless architecture that leveraged, and continues to extend to include cloud native services within the originally planned timeframe. This has resulted in contained cloud costs based on actual usage—which has close to 90K customers, in 42 counties, accessing on a daily basis. If each use saved an average of 15 mins of worker time, that translates to 22,500 hours per day that workers can repurpose to other activities.

Key Features of Our Approach

Table 4-1 below summarizes the key features and benefits of our delivery approach for the Consortium's requested topic:






| M&E Delivery Topics | How Deloitte is Best Positioned to Support the Consortium |
|--|---|
|  Integrated Multi-Contractor Environment | <p>A transition with Deloitte enables the Consortium to challenge the status quo and change the contractor dynamics at CalSAWS. We already know your environment and contractors from BenefitsCal and CalWIN ISS. We are living and breathing this every day from driving a very challenging integrated work plan effort across multiple contractors and the Counties to planning releases and integrated performance testing, engaging with the Service Desk and other Tier 3 contractors to drive problem resolution, and working with the ForgeRock team to integrate authentication and access management. We also have stepped in to take the lead where activities were not defined (i.e., County configuration sessions).</p> |
|  Application/Architecture Evolution | <p>With our experience in cloud engineering and cloud native architecture, the Consortium can transform the CalSAWS application architecture holistically and inclusively to lower operations costs and resource usage, to improve responsiveness, and shorter cycle times to delivery for new features, reducing the cost of and more importantly time to deliver future System Change Requests (SCRs). Evolution does not stop throughout the course of the Agreement otherwise it will end in the same position that it is today leading to lengthy delivery timelines of much needed policy and usability changes for the Counties.</p> |
|  System Change Requests | <p>The Consortium can rethink its SCR process to speed up delivery of SCRs from initiation to production delivery. With BenefitsCal we were able to accelerate changes into production based on the delivery approach and automation used to support the delivery effort. Speed of delivery is not the only consideration. It also involves making sure that the Counties are prepared from a readiness view to address the change. We look at the SCR process from end to end to understand the impact of changes made across systems and processes. We won't just answer the mail. We also look to create more SCR capacity through continuous improvement of our ongoing operations. All too often we see 50/50 or lower splits of operations to enhancement efforts largely due to unnecessary system complexity, environment conflicts tied to release coordination and high rates of incidents.</p> |
|  Innovation | <p>California will benefit by incorporating leading practices and accelerators from the Deloitte HHS network. We are the national leader in innovating with HHS agencies like California, supporting 26 E&E systems. This does not count other HHS domains like health insurance exchanges, child welfare, and others. ALM Intelligence even noted Deloitte as the undisputed leader in innovation strategy. We don't innovate to create products to resell. We innovate to generate real business outcomes.</p> |
|  Transition-In | <p>A proven record of successfully transitioning in and improving large, complex systems nationally as well as in California (CalHEERS). We use a structured and measurable approach that provides the Consortium confidence during the process.</p> |

Table 4-1. Key Reasons Deloitte Is the Right Vendor for M&E.

How the Remainder of this Section is Organized

4.1 Integrated Multi-Contractor Environment

4.2 Application/Architecture Evolution

4.3 System Change Request

4.4 Innovation

4.5 Transition-In



4.1 Integrated Multi-Contractor Environment

RFP Reference: 5.3.3.1 - M&E Understanding and Approach to the CalSAWS Integrated Multi-Contractor Environment

The Consortium improves integration across its contractors by using Deloitte's proven approach in delivering in multi-contractor, complex system environments. We successfully designed and delivered BenefitsCal and jointly drove implementation support with the Consortium for CalWIN counties while collaborating with CalSAWS' contractors. Our ability to deliver transparently and effectively with CalSAWS contractors provides the Consortium with confidence that we can help enable the Delivery Integration it desires. Furthermore, our successful transition of CalHEERS from Accenture demonstrates our ability to collaborate with incumbent contractors to assume successful operations. We will bring the same approach and mindset to the CalSAWS M&E contract.

CalSAWS is a mission critical E&E system used by 41,500+ workers to manage benefits for 18 million customers. It is a complex system that interfaces with County systems, State systems, other CalSAWS systems, Federal Systems all with different stakeholder expectations and priorities. It's a system that needs to continuously evolve to meet business and policy needs or risk putting the most vulnerable Californians in a position of looking elsewhere for help and support. It's a system where users need to influence how it will and won't work for them. It's a system where others need to feel confident that it will be available and perform. Managing such a complex system necessitates clarity in the division of work among contractors with expertise in different domain areas. This is something we have demonstrated on BenefitsCal and CalWIN ISS working with the Consortium, the Incumbent Contractor and other CalSAWS Contractors.



SECTION HIGHLIGHTS

- We coordinate with the Delivery Integration Office to clearly delineate scope of work during transition-in and for new initiatives.
- Demonstrated, successful, multi-contractor collaboration from BenefitsCal, CalWIN and CalHEERS where we work closely with vendors such as Accenture, AWS, ForgeRock, Gainwell, ClearBest and E&Y.
- We actively assess risks that may arise due to a multi-contractor environment and collaborate with the stakeholders to prepare mitigation plans early.
- Proven ability to collaborate in multi-vendor E&E system environments across the US.



Donna Cain
PMO Lead

26 years
Experience in M&O

Helping You Color Outside the Lines

There are many ways to solve a business or technical challenge. We need to listen to ideas, and work together to find the best solutions—color outside the lines—while reaching the end-goal. As your PMO lead, I make sure everyone is on the same page. This enables our joint team to substantiate and qualify ideas, get critical SCRs done on time, and make sure we're delivering for the Counties



Considerations for Your Success

Having E&E domain and system maintenance experience are table stakes as the Consortium has reflected with its evaluation of qualifications being pass or fail. What really differentiates success in a multi-vendor environment is breaking down individual silos and agendas, joint communication and planning to work towards a One Team mindset where the only badge that we wear is the CalSAWS badge.

It requires individuals to be accountable for their respective scopes of work and proactively collaborate with each other. Taking accountability means also driving to closure issues that may arise from software agreements (e.g., Hyland or ForgeRock) although the issues may reside in the SaaS vendors technology. Quickly identifying and raising gaps in work efforts is not enough. Coming to a joint resolution to address the gap is where true collaboration appears. It involves recognizing when another contractor needs to be included as their efforts may be impacted. This means not just looking at our scope of work but taking a holistic view across contractor scopes of work. Continuous reinforcement to our teams of the mission that we are supporting, breeds a culture that never loses sight of the real reason that we are here—to support the Counties and the Customers that they serve.

Table 4.1-1 highlights our key consideration as we refined our approach to working in a multi-vendor environment from what we know of CalSAWS today.

| Consideration | Impact of Our Approach |
|--|--|
| Communication among multiple contractors. | <p>Streamlined communication when multiple contractors and entities that need to collaborate for a complex system similar to CalSAWS can be challenging. With our CalSAWS experience, we envision defining a framework with you and the other CalSAWS contractors that builds upon the current environment and addresses some of its existing challenges:</p> <ul style="list-style-type: none"> • Establishing communication channels at each level in the Delivery Integration Team (DIT): <ul style="list-style-type: none"> ○ Delivery Integration meetings for leadership across contractors to discuss future vision and product roadmap. ○ Joint planning sessions for teams to collaborate on project planning and tasks. ○ Crosswalk sprint meetings for development teams to collaborate during sprints, resolve dependencies, and triage testing issues. ○ Regular production triage meeting for operations teams across the contractors to triage production issues. • Using bi-weekly project management meetings across contractors, with a condensed list of participants, to discuss progress updates and any risks or issues identified. • Using a Standard Operations Procedure (SOP) plan to update existing templates and standardize the cadence for communications. • Establishing points of contact for each contractor to make it easier for team members to reach each other; establishing escalation channels in case of unavailability and agreeing on processes for urgent and non-urgent requests. |
| Getting buy-in. | <p>With multiple contractors, the Consortium, Counties, and numerous stakeholders involved, it can be challenging to get buy-in for new changes or decisions. To help optimize collaboration and consensus, we recommend the framework include:</p> |

| Consideration | Impact of Our Approach |
|---|---|
| | <ul style="list-style-type: none"> • Leveraging the aforementioned communication channels to confirm representation from the Consortium, contractors and other required participants in relevant meetings. • Documenting the decisions and open items in a centrally accessible collaboration tool, Jira, that notifies individuals of decisions made and items pending. • Publishing release and non-release (i.e., maintenance) calendars in advance to proactively communicate upcoming changes by the contractors. • Identifying cross-team dependencies early through periodic meetings for groups to evaluate impact and their scope of work. |
| Managing dependencies and scope with multiple contractors. | <p>It is imperative that each contractor is aware and committed to delivering their scope of work, and that they understand both scope and related timeline dependencies. To help manage scope and dependencies, we recommend the framework include:</p> <ul style="list-style-type: none"> • Documenting scope of duties and timeline for each contractor in the CalSAWS Master Workplan and having the Delivery Integration Office (DIO) monitor the ongoing delineation of scope between contractors. • Defining clear boundaries in scope of management, monitoring, performance, and security SLAs for each vendor. • For areas of joint ownership, defining fine-grained SLA contractor ownership and duties to clarify shared ownership across contractors. • If required, engaging the DIO for conflict resolution in matters of scope of work and responsibility questions. • Establishing and reaching a consensus on the conflict resolution time-bound workflow up front to streamline the resolution process. • Shifting to progress updates that are integrated rather than vendor specific to understand where there potential schedule conflicts or issues. |
| Prompt issue resolution in areas jointly owned by multiple contractors. | <p>In a multi-contractor environment, it is important that the issue triage and resolution process is swift and not delayed due to lack of coordination. To avoid delays in issue resolution, we suggest the framework address:</p> <ul style="list-style-type: none"> • Establishing issue reporting processes up front so that the right contractor can be promptly involved for triaging. • Finalizing issue triage and resolution times for each contractor up front. • Monitoring the issue resolution times and identifying areas of improvements. • Conducting periodic joint issue triage meetings so that different teams can collaborate on issue triage. • Proactively assess risks and develop mitigation plans to avoid widespread issues. |
| Alignment on common tools to support cross-program transparency and contain costs. | <p>Having the right tools in place is also critical. Multiple tools that serve the same purpose unnecessarily drive-up costs and also drive inefficiencies for those that have to use multiple systems. We suggest that the framework include:</p> <ul style="list-style-type: none"> • Moving to a joint instance of JIRA to support Application Lifecycle Management (ALM) efforts across vendors. • Expanding JIRA to provide broader capabilities including issue, risk and decision management |

Table 4.1-1. Considerations for Our Integrated Multi-Contractor Environment Approach.

How the Remainder of this Section is Organized

4.1.1 Managing and Coordinating Scope of Work (ME-UA1)

4.1.2 Collaborating with Infrastructure Contractor (ME-UA2)

4.1.3 Risks and Mitigation Strategies (I-UA3)



4.1.1 Managing and Coordinating Scope of Work (ME-UA1)

RFP Reference: 5.3.3.1 - M&E Understanding and Approach to the CalSAWS Integrated Multi-Contractor Environment

ME-UA1 Describe your approach to managing your scope of work and how you will coordinate with other involved CalSAWS contractors and the CalSAWS Delivery Integration Team to ensure understanding and agreement of the roles and responsibilities of each Contractor and the Consortium.

In a multi-contractor environment, it is important for the parties to come to an agreement on each contractor's scope up front. Further, there needs to be clear agreement on roles and responsibilities of each contractor and the Consortium to avoid conflicts later. With this in mind, the sub-section discusses our approach to managing scope and how we confirm contractor teammates are not just aware of each other's roles and responsibilities but also any dependencies or assumptions that may exist.

4.1.1.1 Scope Management

As the projects and initiatives progress, it is important that the contractors are able to manage their scope of work while collaborating with other contractors. Figure 4.1-1 highlights our approach to managing our scope of work, which begins with understanding the scope during transition-in and then continually managing scope during CalSAWS operation and subsequent enhancements.

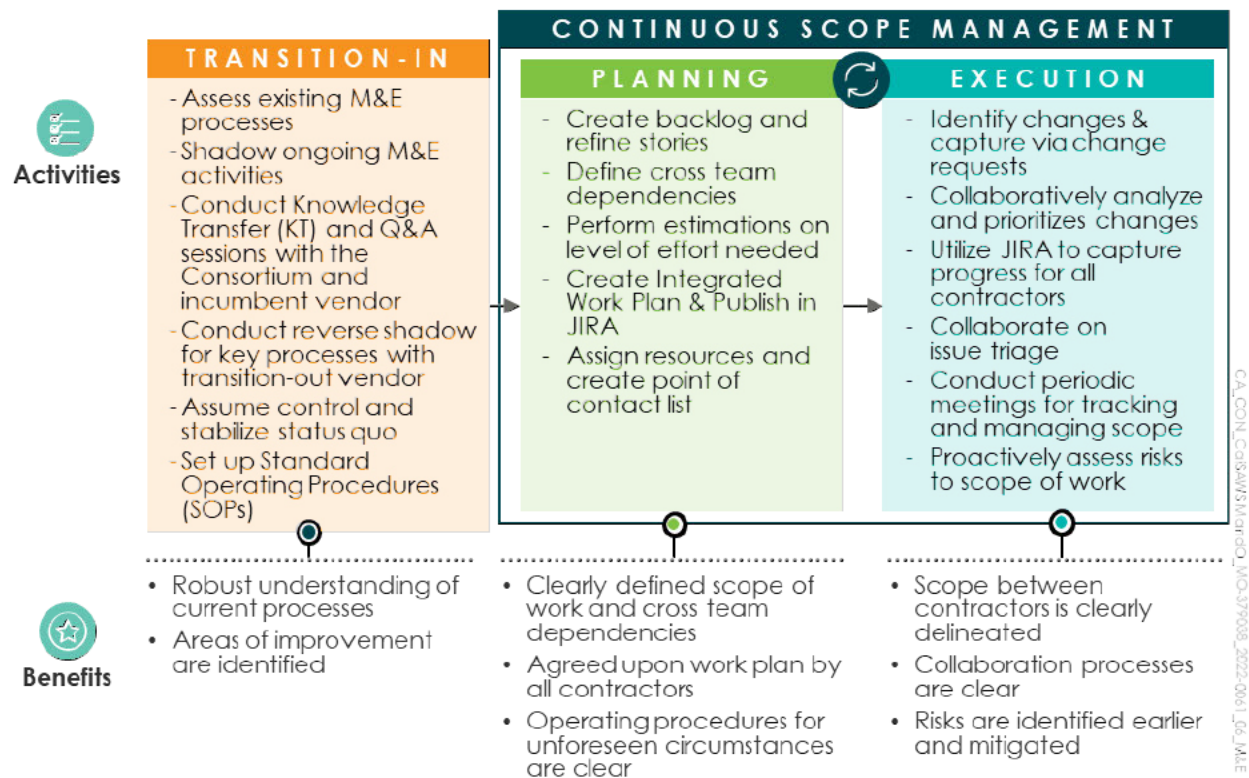


Figure 4.1-1. Approach to Scope Management.

Managing and Coordinating Scope During Transition-In

During the transition-in phase, we focus on creating a baseline of the current state and perform the following activities. These activities are modeled on our multiple E&E system transitions, CalHEERS and also leaning on our current experience with BenefitsCal and CalWIN ISS:

- Set up the DIT along with the Consortium, infrastructure contractor and the other CalSAWS contractors to enable close collaboration on future efforts.
- Analyze existing M&E documentation, identify gaps in documentation and related deliverables to update our understanding of current scope management processes compared to our current experience with BenefitsCal and CalWIN ISS.
- Conduct joint review of M&E vendor transition-in scope, incumbent vendor transitions out scope, and Consortium responsibilities. Review the activities and responsibilities in conjunction with timeline and activities, to determine if there is a gap in scope or schedule misalignment that may cause an impact. Jointly escalate any items to the DIO along with a proposed resolution.
- Conduct detailed review of the existing system documentation to improve our understanding of the functional and M&E components; identify gaps, if any, that need to be addressed.
- Conduct review of release schedule and environment needs to determine if there are also additional environment or technology needs during the transition in period.
- Conduct knowledge transfer sessions and follow-up Q&A sessions with the incumbent contractor and Consortium to understand roles and responsibilities.
- Clearly document and communicate overall scope, roles, and responsibilities of each contractor, which will be used by the DIO for monitoring.
- Establish Operational Level Agreements (OLAs) to clearly identify integrated vendor teams' roles and responsibilities for CalSAWS operations. OLAs document the services provided and scope of tasks of each contractor, timelines for each task, escalation procedures, response times of each task, and reporting and auditing requirements. Figure 4.1-2 depicts a sample list of OLAs that are relevant for CalSAWS and it depicts which contractors are part of those OLAs.

| OLA Contractor Matrix | Infrastructure Contractor | M&E Contractor | Interface Contractors | Cloud Contractor | Print Contractor | Service Desk Contractor | QA Contractor |
|--|---------------------------|----------------|-----------------------|------------------|------------------|-------------------------|---------------|
| Sample Tasks Requiring OLA | | | | | | | |
| Software Upgrades | ✓ | ✓ | ✓ | | | | ✓ |
| Patching | ✓ | ✓ | ✓ | | | | ✓ |
| Capacity Management | ✓ | ✓ | ✓ | ✓ | | | |
| Infrastructure Issue Triage & Service Desk Support | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Release Management | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Deployment | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Disaster Recovery Management | ✓ | ✓ | | | | | |
| Hardware/Software Licensing | ✓ | ✓ | | ✓ | | | |
| Performance and Security Monitoring | ✓ | ✓ | ✓ | | | | |

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Governed By Delivery Integration Office (DIO)

Figure 4.1-2. Sample Tasks Requiring OLAs.

Please refer to *Section 4.5 – Transition-In* for more details on our transition-in activities. Through these activities, we baseline the scope of work for M&E and finalize the roles and responsibilities of stakeholders. This baseline helps us manage our future scope of work by following the change control process for scope items.

Managing and Coordinating Scope During M&E Planning

After establishing a baseline of the current state during the transition-in, including OLAs, we take over the CalSAWS M&E operations and start closely managing scope while integrating with other Consortium contractors. We perform the following activities to plan for various M&E activities:

- Create a work backlog and refine the stories to be implemented by the M&E team; get approval from the stakeholders on the stories before execution.
- Work with other contractors to identify cross-team dependencies and refine the stories requiring joint ownership together.
- Perform estimations on the level of effort needed for each activity.
- Develop a timeline for implementation considering the level of effort and the cross-contractor dependencies.
- Document the approach into a Work Plan accessible by the contractors and stakeholders that will be used as input into the Integrated Work Plan managed by the Consortium.
- Upon prioritization of a change, assign resources and create a point-of-contact list which is shared across contractors. This helps the stakeholders know whom to contact in case there is any cross-team coordination needed.

Through these activities, we clearly define the work to be done by our M&E team and identify cross-team dependencies. These preparations during planning lay a strong foundation for the teams to manage their scope during execution.

Managing and Coordinating Scope During Execution

After successful planning, our focus during execution is to actively manage the scope of our work while collaborating with other contractors for areas of joint ownership. During this phase, we:

- Collaboratively discuss the planned enhancements in the Change Control Board (CCB) meetings and assess priorities. Perform level of effort and impact analysis of prioritized changes along with collaboratively assessing impacts to the Integrated Work Plan that was baselined during planning.
- Utilize a common project management tool, JIRA, to capture progress for contractors. This helps identify any delays or risks to timelines early, which might impact scope of other contractors through rework.
- Provide periodic progress updates at both the team and project level to Consortium leadership.
- Closely collaborate with other contractors and the Consortium for issues identified during execution.
- Proactively assess risks to the scope of work decided during planning. These risks can be identified and managed at a team level or escalated to the leadership at a project level.

Through these activities, we clearly delineate scope of work between contractors and roles and responsibilities of the Consortium and actively manage any changes to the original scope. We also use predefined processes to collaborate with other contractors for areas of joint ownership and accommodate any high priority or unforeseen changes that may be required.

4.1.2 Collaborating with Infrastructure Contractor (ME-UA2)

RFP Reference: 5.3.3.1 - M&E Understanding and Approach to the CalSAWS Integrated Multi-Contractor Environment

ME-UA2 Describe your approach to working and collaborating with the CalSAWS Infrastructure Contractor to perform shared services, such as security, and supporting services such as Service Desk, production operations and system performance.

Across the United States, we have worked with multiple vendors supporting HHS systems spanning Medicaid Management Information Systems (MMIS) vendors, EBT vendors, contact center vendors, analytics vendors, fiscal agents, IV&V, project management, and quality assurance vendors. We have the added benefit in California of having managed the BenefitsCal and CalHEERS systems in collaboration with Consortium contractors. Successful collaboration is a continuous process that informs actions and decisions regarding shared services during every aspect of software delivery.

On BenefitsCal today, our team works with the Incumbent vendor across security, performance, Tier 3 infrastructure services as well as environment planning. As BenefitsCal uses the ForgeRock IAM solution, we worked with the Incumbent to define and integrate account management flows into BenefitsCal. We have also worked jointly to address potential security violations where Deloitte engaged our fraud practice to review system usage associated with incorrectly linked cases. On a daily basis, our team works with the Incumbent contractor reviewing system usage to identify potential changes to account creation and account maintenance functionality. For system performance, the BenefitsCal team has worked hand-in-hand with the Incumbent contractor to refine an end-to-end approach and associated volumetrics to test and monitor end to end system performance. On a weekly basis our teams meet to review ongoing operations and discuss any Tier 3 incidents that are not designated as priority items. For those that are priority, our collective teams engage quickly to try to recreate the issue, sharing log files, validating fixes and coordinating releases into production.

Figure 4.1-3 lists our understanding of the shared services during various phases of software delivery and depicts that the key staff for the M&E team closely collaborate with key staff for Infrastructure through planning, design, development and testing, deployment, and operations for CalSAWS. Further, our M&E team collaborates closely with external interface partners during development and operations.

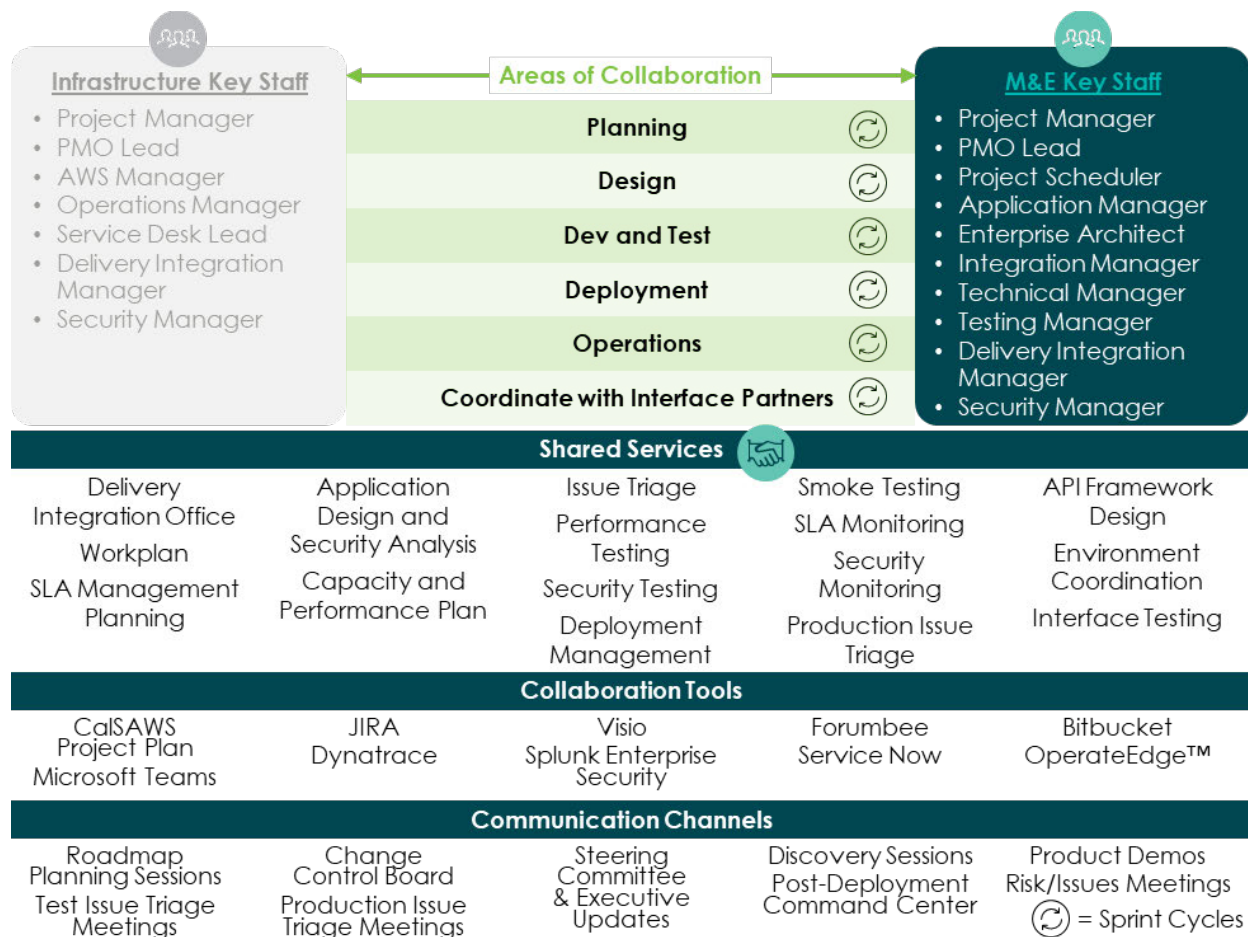


Figure 4.1-3. Cross-Team Collaboration to Deliver Shared Services.

To facilitate this cross-team collaboration, we utilize tools listed in the CalSAWS software inventory. In addition to the tools listed, we recommend using OperateEdge™, Deloitte's IT operations management and service delivery platform. OperateEdge is an accelerator that integrates and extends CalSAWS existing tools including ServiceNow and JIRA and complements Deloitte's Enterprise Value Delivery (EVD) method. It brings together recognized industry standards and leading practices, our proven Operate and Service delivery methods, user-centered design, and cutting-edge Artificial Intelligence (AI) and Machine Learning (ML) innovations. OperateEdge is used to streamline areas such as incident management, transition management, risk management, and release management.

4.1.2.1 Planning Shared Services

During the planning phase, we engage the full complement of our key staff to help with the M&E activities listed in Figure 4.1-4 where there is shared responsibility for success across the Deloitte team and the Infrastructure contractor.

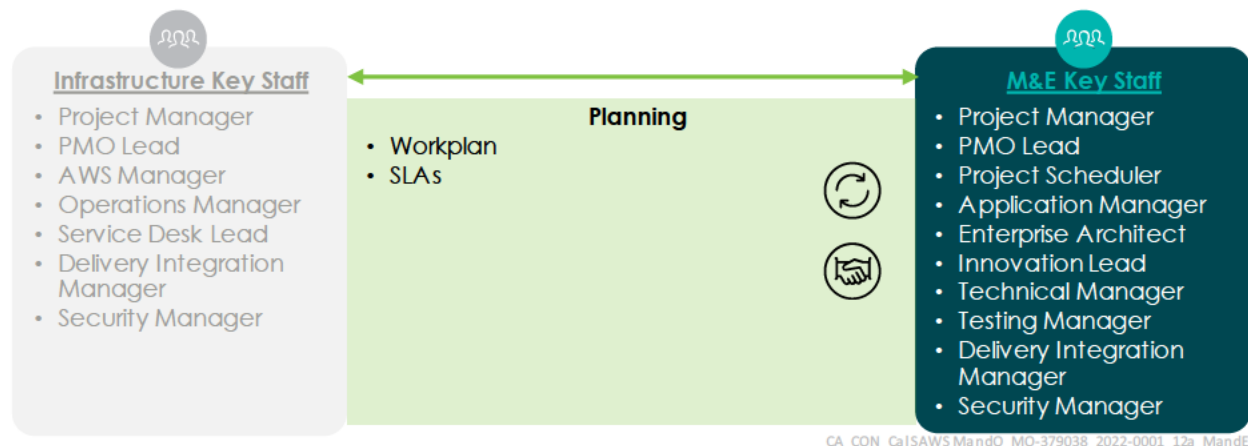


Figure 4.1-4. Shared Planning Activities.

Workplan

The workplan consists of the different tasks that are to be performed and highlights the timeframes for each task. It also highlights various dependencies between the tasks and teams, along with milestones such as dev/test completion, cutover, and deployment. These details help us baseline the plan of execution and are used to track the progress over time. We perform the below tasks to in working with the Infrastructure vendor to define the Work Plan:

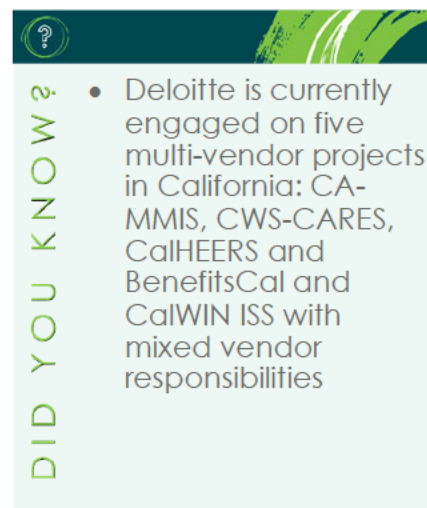
- Conduct project kickoff meetings for new initiatives to align the stakeholders and set expectations for the teams.
- Conduct roadmap planning meetings to develop the product enhancement roadmap and identify cross-team dependencies up front.
- Identify tasks requiring joint ownership and set up a plan for periodic touchpoints for the teams to allow seamless collaboration.
- Set up common timelines and agree on milestones; establish points of contact for the involved stakeholders to ease cross-team communication.

- Document the Integrated Work Plan in a common project management tool and share with the contractors and stakeholders.

SLAs

With multiple contractors owning different areas of the system and operations, it is imperative that we use a collaborative approach to defining and managing SLAs so to avoid any negative impact to the CalSAWS. We perform the below tasks to allow for effective SLA management:

- Clearly delineate the SLAs between Infrastructure and the M&E teams.
- Where possible, break down shared SLAs to delineate the scope of each vendor. For example, desired response time may be 3 seconds for a transaction. We would define one SLA for database response (which Infrastructure contractor controls) and an SLA that is inclusive of that application processing time which our M&E team controls.
- Agree upon shared SLAs needing joint ownership from both the teams and set up communication and conflict resolution processes for management of such SLAs.



Document SLA agreements in JIRA for easy reference during operations Release Planning

Planning for releases requires a great deal of orchestration and coordination from what is contained in the release, to what environments to use to validate the release, to confirm readiness for the release, to assessing if the release met its intended objectives. We perform the following activities to coordinate releases with the Infrastructure vendor:

- Review and confirm release contents based on prioritized requirements, enhancements, and defects.
- Document and confirm environment configuration and delivery timing needed to support the release.
- Define and confirm the key milestones associated with a given release.
- Maintain an integrated environment list which has the application build, infrastructure, and database versions along with data sets identified.
- Publish and maintain a cross vendor production release schedule along with supporting SDLC development and testing schedule.

4.1.2.2 Design

After successful planning, we collaborate with the Infrastructure contractor during design. We engage key staff including the Delivery Integration Manager, Enterprise Architect, Application Manager, and our Security Manager to collaborate with Infrastructure key staff on the activities highlighted in Figure 4.1-5.

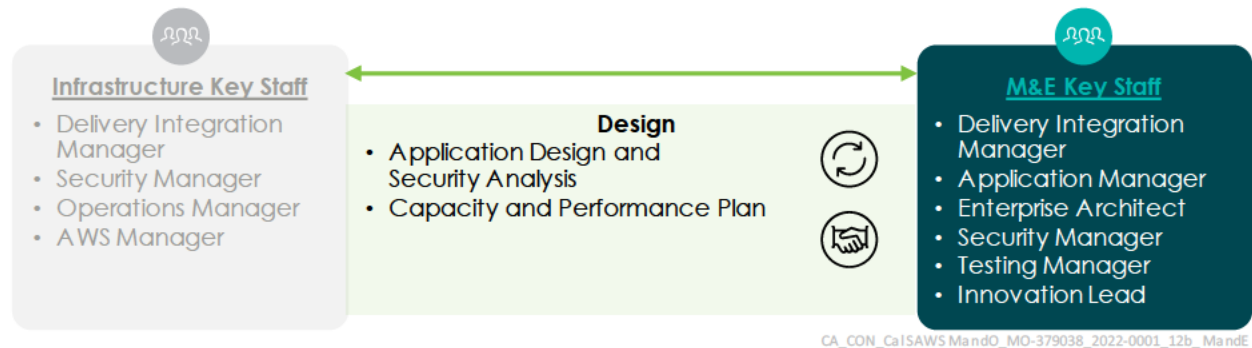


Figure 4.1-5. Shared Design Activities.

Application Design and Security Analysis

Application design can pertain to both the application changes and the technical Infrastructure needed to support the changes. We collaboratively review the application designs with the Infrastructure team for both the application changes that we own, and the infrastructure changes that the Infrastructure team owns. We perform the following tasks to develop designs and identify cross-team impacts early:

- Review application functional and technical design with the Infrastructure team during Discovery sessions. Identify cross-team impacts and any support that may be needed from the Infrastructure team to support application development.
- Review the application technical design and identify infrastructure support needed early on. This early collaboration has been immensely important. For example, on CalHEERS the InfraOps team attends the design session for the changes that have potential impact on the infrastructure usage, architecture, or security. This enables us proactively identify cross-team impacts and plan ahead to support the change during development and testing.
- Conduct a security impact analysis of the proposed design and plan for remediation of any identified security risks.
- Store the technical designs in a central repository and log decisions in JIRA.
- Utilize the change management process for any changes identified during design.

Capacity and Performance Plan

As CalSAWS continues to grow, it needs to always be proactive in managing capacity of its various system components to allow for optimal usage. Further, a system with 50 million lines of code and 50 interface partners needs to have a robust performance management plan to validate that the performance needs of the system and

operations are being met. We perform the below tasks to design effective capacity and performance management plans:

- Perform capacity forecasts with the Infrastructure team to identify Infrastructure requirements the application design needs meet during scope refinement sessions.
- Identify gaps in the performance testing suite against our “Day in a Life” scenario suite. Most vendors focus on doing performance testing of individual system components, or limited testing of the integrated system; we have perfected our testing approach to accurately assess the performance for real-world scenarios.
- Identify the support needed from Infrastructure team for performance testing and plan for execution during development and testing.
- During design, identify areas of potential improvements in performance and work with the Change Advisory Board to prioritize the for future releases.

4.1.2.3 Development and Test Shared Services

Once the design is approved and the tools are set up, we coordinate with the Infrastructure contractor to provide regular support during the development and testing phase. Further, for Infrastructure upgrades, we coordinate with the infrastructure contractor for testing support. We engage the Delivery Integration Manager, AWS Manager, and Security Manager on the activities highlighted in Figure 4.1-6.

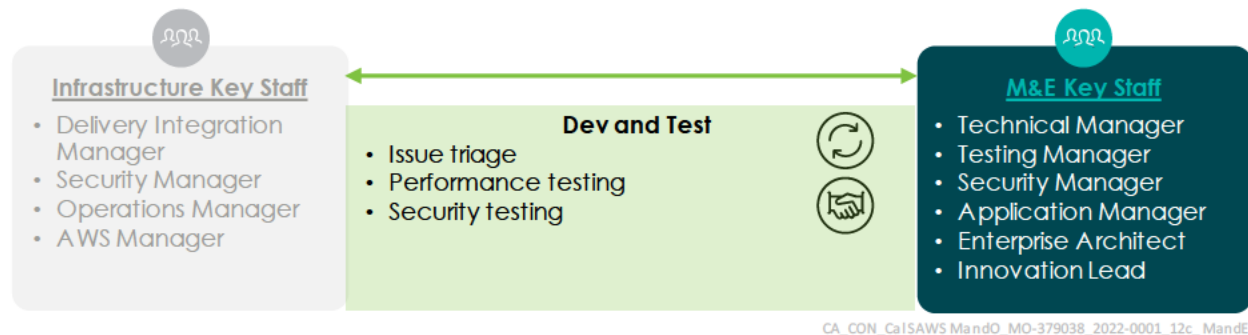


Figure 4.1-6. Shared Development and Testing Activities.

Issue Triage

As the development and testing activities progress, it is expected that some issues need both M&E and Infrastructure team attention for triage and resolution. We perform the below tasks to help support this process:

- Participate in periodic joint scrum meetings with the Infrastructure team to provide updates on the progress of application development and discuss any risks or issues.
- Conduct joint demo sessions for the Infrastructure team and provide demos for the application changes underway. This helps solicit early feedback from both the teams and identify potential issues early.
- Conduct weekly issue triage meetings to perform root cause analysis for identified issues and resolve the issues that are identified to be related to Infrastructure.

- Track issues and progress in JIRA, including decisions, blockers, and next steps. Utilize OperateEdge, which integrates with JIRA and utilizes pre-trained ML models, to produce problem groups across tickets, predict group and root cause for incoming tickets, and provide useful group information to support resolution.
- Use MS Teams for cross-team communication. We also use point-of-contact lists set up during planning to facilitate cross-team communication.
- As issues are fixed and retested, we use Bitbucket for code management and work with the Infrastructure team if there are any issues.

Performance Testing

Given CalSAWS' complex architecture and varied interface design, it is not sufficient to do performance testing only at the end of the testing cycle, as most contractors do. For CalSAWS evolution, we employ an iterative performance testing approach that begins simultaneously with development. This helps identify performance issues early on and minimize rework needed. We perform the below tasks to achieve this goal:

- Coordinate with the Infrastructure team to conduct isolated performance testing that executes performance tests for new features right after development is completed. This helps determine if new features will scale up for expected production loads.
- Coordinate with the Infrastructure team to conduct integrated and incremental performance testing during system integration testing. This enables us to validate the performance of new features is not impacted by other system components, or vice-versa.
- As performance deficiencies are identified, we collaborate with the Infrastructure team to address those issues in subsequent sprints which are then retested as part of the incremental testing.
- Coordinate with the Infrastructure team to conduct a complete 'day-in-a-life' performance testing during hardening to simulate real life and validate performance.
- Conduct load test, stress test, endurance test, and spike test during hardening to validate system performance in varying conditions.

Security Testing

Security is not an afterthought, but an integral part of our approach to securing CalSAWS and supporting its long-term evolution. We perform the below tasks during development and testing to secure CalSAWS:

- Define types of security tests with intent and goal for each type of test.
- Establish findings in severity matrix that will be utilized to define the severity of security issues identified.
- Develop the security scanning and testing schedule.
- Assess the environment needs and tools required. Install identified security test tool to perform upcoming test phases.
- Document automated and manual validation procedures for Consortium approval.

- Define roles and responsibilities for the security testing activities across the phases.
- Identify dependencies on the Consortium, Infrastructure team, and external partners for successful completion of the testing.
- Execute Infrastructure vulnerability scanning including third-party libraries, external APIs, and penetration testing.
- Collaborate with the Infrastructure Team to plan for remediation of identified Infrastructure related security findings from security tests (e.g., web application penetration testing, SAST, DAST).

Please refer to Section 4.3.4 – CI/CD Security Measures (ME-UA12) for more details on our holistic approach to managing CalSAWS security.

4.1.2.4 Deployment

After development completion of development and sign off on testing, the changes are ready to be deployed in production. We engage the Infrastructure team's Operation Manager on the activities highlighted in Figure 4.1-7.

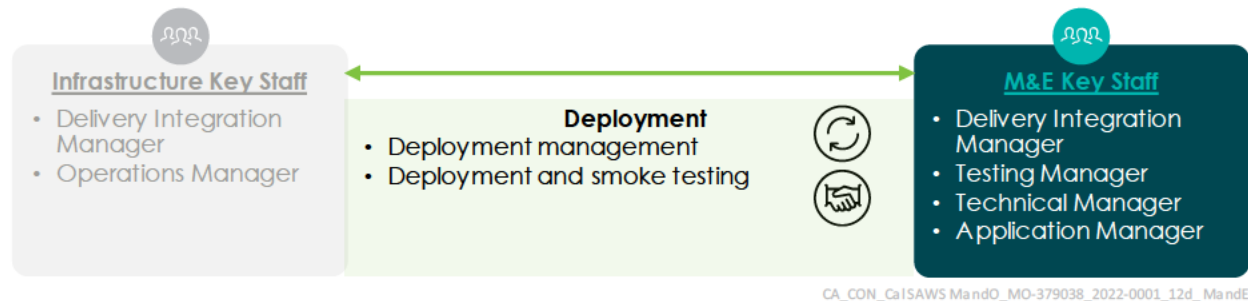


Figure 4.1-7. Shared Deployment Activities.

Deployment Management

A successful deployment requires a detailed plan, which identifies dependencies on the different moving parts of a release and provides details on areas such as operational readiness, interface partner readiness, sequence of deployment steps, and backup plans. We perform the tasks below to plan for a smooth release cutover:

- Conduct extensive release planning with the Infrastructure contractor and other interface partners to identify dependencies and activities required for successful deployment.
- Collaborate with the Consortium stakeholders to confirm that required operational procedures are in place.
- Communicate potential down times to affected system users and interface partners.
- Share release notes with system users to inform them of the upcoming changes.

Deployment and Smoke Testing

Deployment of the changes to Production is a detailed intensive activity that requires coordination across teams. We perform the below tasks to allow for a smooth deployment:

- Host all-day open meetings for deployments to allow the stakeholders visibility into deployment activities and progress.
- Conduct thorough smoke testing with the Infrastructure team after deployment.
- Manage the code versioning in the production branch using Bitbucket code management tool.
- Jointly triage and resolve any issues found during smoke testing.
- Share any steps needed by the users the next day to avoid/mitigate the issue observed during deployment.
- In the event of extenuating circumstances requiring rollback of a deployment, collaborate with the M&E team to conduct the rollback and perform thorough smoke testing to validate the system.

4.1.2.5 Operations

We work closely with the Infrastructure team to allow for smooth operations and ongoing maintenance. We engage multiple Infrastructure team members including the Operations Manager, Service Desk Lead, Security Manager, and AWS Manager to support the activities highlighted in Figure 4.1-8.

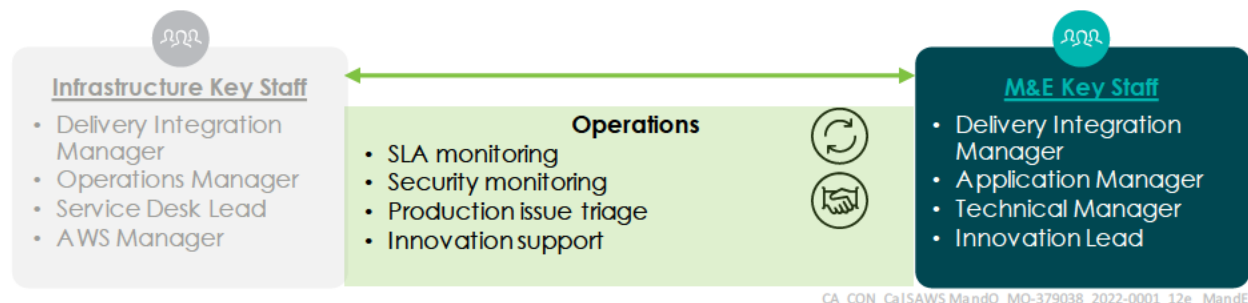


Figure 4.1-8. Shared Operations Activities.

SLA Monitoring

As discussed earlier, we define various performance and security SLAs and their impact to different contractors' responsibilities during planning. As part of operations, we perform the below tasks to measure against these SLAs:

- Continually monitor the SLAs owned by the M&E team using tools such as Dynatrace and Splunk.
- Collaborate with the Infrastructure team to continually monitor the shared SLAs.
- Publish periodic reports on the performance against the SLAs.
- Perform root cause analysis for incidents and share improvement plans with the Consortium.

Security Monitoring

Proactive security monitoring of CalSAWS is required to effectively combat risks facing the Consortium's evolving threat landscape, broadening attack surface, and threat vectors. We demonstrated successful collaboration with the Consortium and CalSAWS Security Teams for BenefitsCal and will bring our lesson learned and accelerators to secure and protect CalSAWS data entrusted to the Consortium by Californians.

For CalSAWS to continuously demonstrate compliance with Minimum Acceptable Risk Standards for Exchanges (MARS-E) 2.0, and other federal and state security compliance requirements, Deloitte will collaborate with the infrastructure contractor to leverage Consortium's enterprise security controls and perform the following activities:

- Understand dependencies between CalSAWS application and the Consortium's enterprise Identity management solution, ForgeRock. Work closely with ForgeRock Team to configure and fine tune authentication authorization rules and policies based on the principle of least privileged access (LPA) to prevent unauthorized access.
- To reduce the dependency and be resourceful of the infrastructure contractor resources, we bring ForgeRock specific API testing kit to independently assess ForgeRock APIs and configurations. This enables Deloitte to identify issues in ForgeRock components or services utilized by CalSAWS application, allowing the ForgeRock Team to invest their time in optimization and modernization of the ForgeRock platform thereby improving the Consortium's overall security posture and user experience.
- Identify and ingest required CalSAWS security audit logs into the Consortium's Security Information and Event Management (SIEM) solution to allow the infrastructure contractor to correlate CalSAWS application and infrastructure logs to conduct proactive security threat monitoring activities. Leveraging our BenefitsCal experience and lessons learned, Deloitte will be efficient and resourceful in managing SIEM solution storage cost by ingesting only the required CalSAWS security audit logs.
- Support during infrastructure upgrades, configuration changes, and security patching for timely identification and remediation of issues impacting CalSAWS application.
- Collaborate to monitor security SLAs for the system. Proactively identify and triage security and system performance issues resulting from changes to CalSAWS enterprise security and identity management solutions.

Production Issue Triage

Production issues often require close collaboration between the M&E and the Infrastructure team for an effective triage. We perform the following activities:

- Participate in weekly issue triage meetings with the Infrastructure team to identify the root causes of production issues and plan for required Infrastructure fixes.
- Utilize ServiceNow to collaborate with the CalSAWS Service Desk team for timely resolution of Infrastructure issues; see *Section 4.4 – Service Desk* for more details on our approach to Service Desk Management.

Innovation Support

Our Innovation Lead is deeply embedded in our operating model to help teams achieve improvements. They aim to introduce innovations such as AI/ML-powered algorithms for faster issue resolution, Robotic Process Automation (RPA) for automation of business tasks, autoscaling of cloud Infrastructure to minimize scaling costs, etc. The Innovation Lead works with the Consortium leadership during planning to identify areas of improvement and prioritize innovations for implementations. They then provide their subject matter expertise during design and development for execution of the identified innovations. Finally, post deployment, they collaborate with the operations team to measure the success of the innovations and use that as feedback for future planning. Please refer to *Section 4.4 – Innovation* for more details on how our team works with other CalSAWS contractors to further innovate CalSAWS.

4.1.2.6 Coordination with Interface Partners

CalSAWS integrates with more than 50 interface partners. In a multi-contractor environment, it is important for the contractors to collaborate while managing these interfaces. Our approach is to work closely with the Infrastructure Contractor to coordinate with interface partners in the areas listed in Figure 4.1-9.

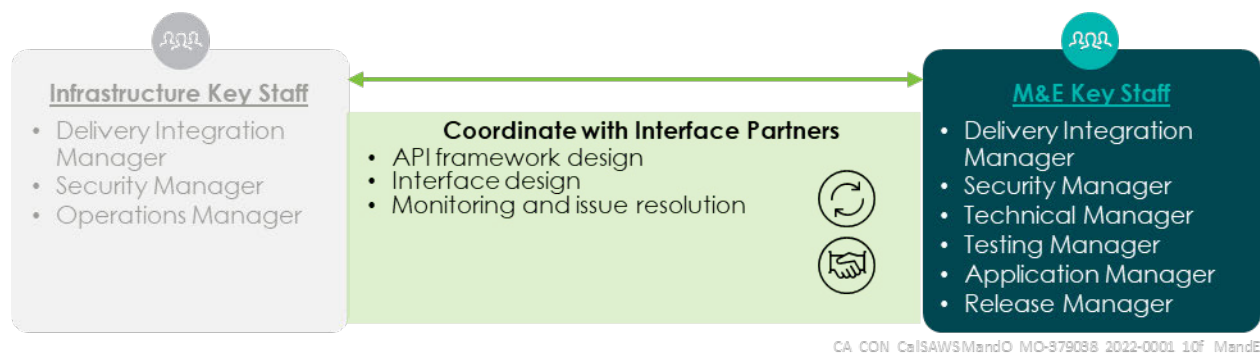


Figure 4.1-9. How We Collaborate with Interface Partners.

API Framework Design

We work closely with our interface partners and the Infrastructure team to create robust API designs that address security, traffic throttling, API discovery and documentation, caching, and monitoring and audit trails.

Environment Coordination

We conduct periodic meetings with the Infrastructure team and Interface partners to identify the environments and interface end points that will be used for the testing activities. In addition, we coordinate with the interface partners to validate that the code versions and test data are always in sync between CalSAWS and connected systems.

Interface Testing

We work with the Consortium and interfacing systems to facilitate early planning with interface testing across partners. We also start interface testing during development itself by utilizing mock services and tools. We share mock API requests/responses with interface partners to perform early validations. We coordinate with the Infrastructure team through these activities

Monitoring and Issue Resolution

We coordinate with the Infrastructure team on monitoring the health of the interfaces by keeping tabs on the expected volume of transactions (number of records); exceptions, errors, and events logged; and success and error reports for interfaces. If any issue is observed, we collaborate with the M&E team and the interface partners to actively triage and resolve it.

4.1.3 Risks and Mitigation Strategies (I-UA3)

RFP Reference: 5.2.3.1 - Infrastructure Understanding and Approach to the CalSAWS Integrated Multi-Contractor Environment

I-UA3 Identify major risks inherent in the Integrated Multi-Contractor Environment and your proposed mitigation strategies.

In a multi-contractor environment, there are various inherent risks. We are experienced in identifying and addressing such risks, as demonstrated in our success at the BenefitsCal and CalHEERS projects, which were implemented in collaboration with multiple contractors. Table 4.1-2 lists key risks and our mitigation plan for them.

| Risks | Mitigation Plan |
|---|--|
| Delay caused when cross-team coordination is required but one team is not able to support the other team's tasks due to limited resources. | Utilize communication channels such as the CCB, to collaboratively prioritize initiatives, keeping the Consortium's best interest in mind. During prioritization, collaboratively decide the timing of implementation so there is sufficient support from the required teams. |
| Rework for a team due to late issues identified by the other contractor during testing. | Work with the M&E team to identify key scenarios and front-load testing of these scenarios to detect key issues early in the testing phase. |
| Delay due to multiple back and forth handoffs when executing projects needing close collaboration between vendors. | Clearly establish dependencies and timelines of dependent tasks during planning phase to minimize delayed handoffs during execution. For example, for a new enhancement, the M&E team is tasked with providing the user personas and details for the new features, and the Infrastructure team is tasked to develop the user load models and accordingly perform capacity planning during design. This upfront identification of dependencies and planning of interdependent tasks can help minimize delayed handoffs. |

| Risks | Mitigation Plan |
|--|--|
| Adverse impact to one team's SLAs if changes are introduced without sufficiently analyzing potential impacts to components and SLAs owned by the other teams. | For any new change, perform impact analysis up front in collaboration with the contractors to identify cross-team dependencies. Share the analysis with the Change Control Board during change prioritization meetings before the changes are formally approved. Through these activities, we can minimize the chances of a change adversely impacting another team's SLAs. |
| Impact to application SLAs due to unplanned urgent patches or configuration changes needed in production by the infrastructure teams. | For any unplanned urgent upgrades (e.g., day zero security patches), coordinate with the contractors to schedule the maintenance during times of minimal use to avoid impacting the SLAs. Further, utilize the communication channels referenced earlier to promptly inform the impacted teams and the Consortium so they can update SLA reports to reflect that the slump was caused by urgent unplanned infrastructure patching/upgrade. |
| Assumptions and dependencies that have not been communicated leading to potential schedule and scope changes. | Planning in silos can lead to dependencies that may lead to schedule delays. As part of CalWIN ISS we leveraged "table reads" to walk through integrated plans that brought to light dependencies that were not previously communicated. We envision using this approach moving forward. |

Table 4.1-2. Risks and Mitigation Plans.

4.2 Application/Architecture Evolution

RFP Reference: 5.3.3.2 - M&E Understanding and Approach to Application Evolution


The Consortium achieves a secure, modern, and resilient CalSAWS by using Deloitte's approach to application evolution that emphasizes inclusive decision making, speed to delivery, and Human-Centered Design (HCD). Human Centered Design goes beyond User Centered Design to involve those that are involved in journey rather than solely engaging system users. We use production-proven, cloud native, modular components, tools, and [REDACTED], and Deloitte's Application Modernization capability, to center our approach.

A key component of the Consortium's strategy to better serve Counties and speed up SCR delivery is to evolve CalSAWS into a **more modular and maintainable** solution. The goal is to use microservices and swap out older and costlier technology stack components to give the Consortium **more agility and speed in releasing new CalSAWS features, including moving to more real-time integration**, to Counties.

As this will be a multi-year process, it must balance program and policy needs (forthcoming needs as well as those that have been put on hold during the CalSAWS migration) with CalSAWS availability/performance and changing priorities. The pandemic and the Great Resignation raised the profile of the need to have an architectural foundation that can be responsive to not just the normal changes but those changes that dramatically transform the way that Counties deliver services, who delivers them and what Customers expect in turn. Those that approach the CalSAWS application and architecture evolution as a pure technology initiative will end up in the same state as a "lift and shift" based cloud migration: wondering what advancements have been made to enable County business and operations.

The Consortium benefits from Deloitte's experience as the only vendor who has successfully transformed a Java application of the same lineage as CalSAWS, specifically CalHEERS. We are proposing a similar approach to modernize CalSAWS. While other approaches may be navigating this modernization for the first time, we have the benefit of knowing where the landmines are so they can be avoided. This enables the Consortium to color outside the lines to deliver a scalable, secure, and modularized CalSAWS. We combine this approach with accelerators and tools from our current E&E network of 26 states, modernization tools, AWS Premier Alliance, and experience working in complex, multi-vendor environments, to bring a **realistic approach to CalSAWS application evolution**.

[REDACTED]



SECTION HIGHLIGHTS

- Network of E&E states to import leading practices, approaches, cloud-native micro-services blueprint, and assets to evolve CalSAWS.
- The undisputed leader in the 2022 Gartner Public Cloud IT Transformation Services Magic Quadrant.
- Winner of the 2021 AWS Global Public Sector Best Migration Solution award.

transition-in. We prioritize migrating the existing Oracle database and transitioning to AWS Aurora PostgreSQL as the first targeted milestone. We then replace Oracle COTS products with select cloud native and open-source components and breakdown the CalSAWS monolithic Java application into microservices. These microservices align CalSAWS key features into independent E&E functional modules and operate as serverless functions or containers. Throughout all of this, we work collaboratively with the Consortium and its stakeholders to identify SCRs from the backlog to align to different application evolution milestones, to expedite much needed changes for the Counties to help with ever increasing workloads.

The end result, shown in Figure 4.2-1, we refer to as:

“CalSAWS^{CN}” – CalSAWS Cloud Native.

CalSAWS operating in an AWS cloud native environment, free of Oracle COTS and fully decomposed into microservices. CalSAWS^{CN} delivers to the Consortium and Counties a secure feature rich system with reduced operating costs, increased scalability, and more flexibility to implement enhancements (SCRs) to meet the CalSAWS vision.



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Figure 4.2-1. Deloitte Delivers a CalSAWS^{CN} that Meets the Consortium's Objective.

How the Remainder of this Section is Organized

4.2.1 Breaking Down the CalSAWS Application (ME-UA4)

4.2.2 Maintaining Legacy Architecture (ME-UA5)

4.2.3 Advancing the DevOps Model (ME-UA6)

4.2.4 Challenges and Risks to Evolving CalSAWS (ME-UA7)

4.2.5 Challenges and Risks to Establishing Our DevOps Approach (ME-UA8)



Lori Olson
Enterprise Architect

25+ years
Experience in IT

Helping You Color Outside the Lines

Throughout my career I have had the opportunity to bring new technologies, processes, and ways of thinking to all of my projects. For the last two years, I have been leading the Application and Architecture Evolution of CalHEERS, which is the basis of our proposed approach. I look forward to bringing in significant lessons learned in application and architecture evolution to delivering CalSAWS^{CN}.



4.2.1 Breaking Down the CalSAWS Application (ME-UA4)

RFP Reference: 5.3.3.2 - M&E Understanding and Approach to Application Evolution

ME-UA4 Describe your strategy and approach to breaking down the large CalSAWS application into feature modules, prioritizing and decoupling the database, and refactoring the application to evolve the application architecture. Describe how this strategy will address security considerations, reduce costs, and improve optimization, scalability, and flexibility.

4.2.1.1 Strategy and Approach

CalSAWS modernization requires careful consideration of policy, operations, technology, and financials. HHS agencies must maintain continuity of services to vulnerable customers, respond to policy and program changes, and enable workers to address increasing caseloads with care and compassion. Deloitte walks this modernization tightrope with the Consortium and its partners to deliver a resilient CalSAWS^{CN}. As the leading public sector AWS partner, as noted in Figure 4.2-1, we deliver cloud native modernization at scale. For example, California now reaps better performance and lower costs for its CalHEERS from our cloud native and modernization leading practices and AWS alliance. BenefitsCal also uses cloud native services that added new features (e.g., Amazon Lex that supports the public facing virtual assistant and Amazon Textract that reads SAR7 images submitted by Customers to identify if changes exist) and is deployed on a completely serverless architecture where increased usage has driven down the overall cloud costs.

LOOKING FORWARD

- Imagine a CalSAWS^{CN} world where individual application components automatically scale to meet user volumes across the mix of transactions.
- The Consortium can make complicated changes to meet complex policy and legislative needs with no impact to the business operations.



Figure 4.2-2. An Industry-Leading Partnership in Your Focus Areas.

Technology Architecture Evolution Guidelines

Our architecture evolution guidelines are continually harvested from modularization engagements of equal complexity in the HHS arena. In Figure 4.2-3, we indicate the “must have” considerations in a cloud native, serverless context with our cloud alliance partner, AWS, retaining responsibility for container platforms, the operating system, virtualization, and hardware. This helps create a shared understanding, leading to good, equitable technology decisions.



Architecture Modernization Principles – Cloud Native Thinking

- **Modularize Business Services** for flexibility and reuse
- Build Serverless Microservices to enable configurability and agility
- Apply the Well Architected Framework to enable best solution and process optimization
- Leverage **Infrastructure as Code (IaC)** for initial and ongoing builds and deployments; to enable automation and reliability
- Optimize compute and operations cost with on-demand elastic scaling
- Zero-trust and Design in Depth policy for **Layered Security Architecture**
- Attain separation of concerns across application and platform
- **Operational Efficiency through Distributed Data** using cloud native databases for better scalability and cost rationalization

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Figure 4.2-3. Guiding Principles for CalSAWS^{CN} Architecture Evolution Roadmap.

The Design Guidelines in Figure 4.2-4 represent how we implement the Guiding Principles during the architecture and design to deliver CalSAWS^{CN}.



Modular E&E Business Services

- Modularize business capabilities into smaller native microservices to optimize cost and maximize on-demand scalability such as:
 - Deploy Appeals and Hearings as a Serverless Function
 - Host Case Management on serverless containers
- Enable reuse of atomic business services (e.g., same case summary service works for both the worker and contact center worker)



Infrastructure as Code (IaC) and DevSecOps

- Leverage Cloud-formation and Terraform scripting with externalized configuration for environment definition
- Create configurable and modular build scripts to enable faster continuous, on-demand deployment cycles
- Integrate code quality, code coverage, and static vulnerability scans as part of build pipeline



Security

- Implement DevSecOps principles with security phase gates defined throughout the application development lifecycle
- Apply principle of least privilege across the layers via policy configurations
- Design and implement security controls to demonstrate compliance with security standards applicable to CalSAWS operations
- Improving security, without diminishing the customer experience through human-centered design



Transform Operational Efficiency

- Refactor and break down large processes into smaller operations to leverage real-time and event streaming to increase throughput
- Implement configuration driven modular workflows (e.g., STEP Functions) to orchestrate operations like task management and tailor these to Counties
- Align data to the processes owning the data to reduce errors and improve data quality

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Figure 4.2-4. Design Guidelines for CalSAWS^{CN} Architecture Evolution Roadmap.

Case Study – Evolving CalHEERS

We recently refined these guiding principles in California, where CalHEERS successfully moved away from operationally rigid and expensive legacy technology to a nimble,

cloud native architecture. CALHEERS completed its transformation in a 2-year timeframe applying the activities in Table 4.2-1.

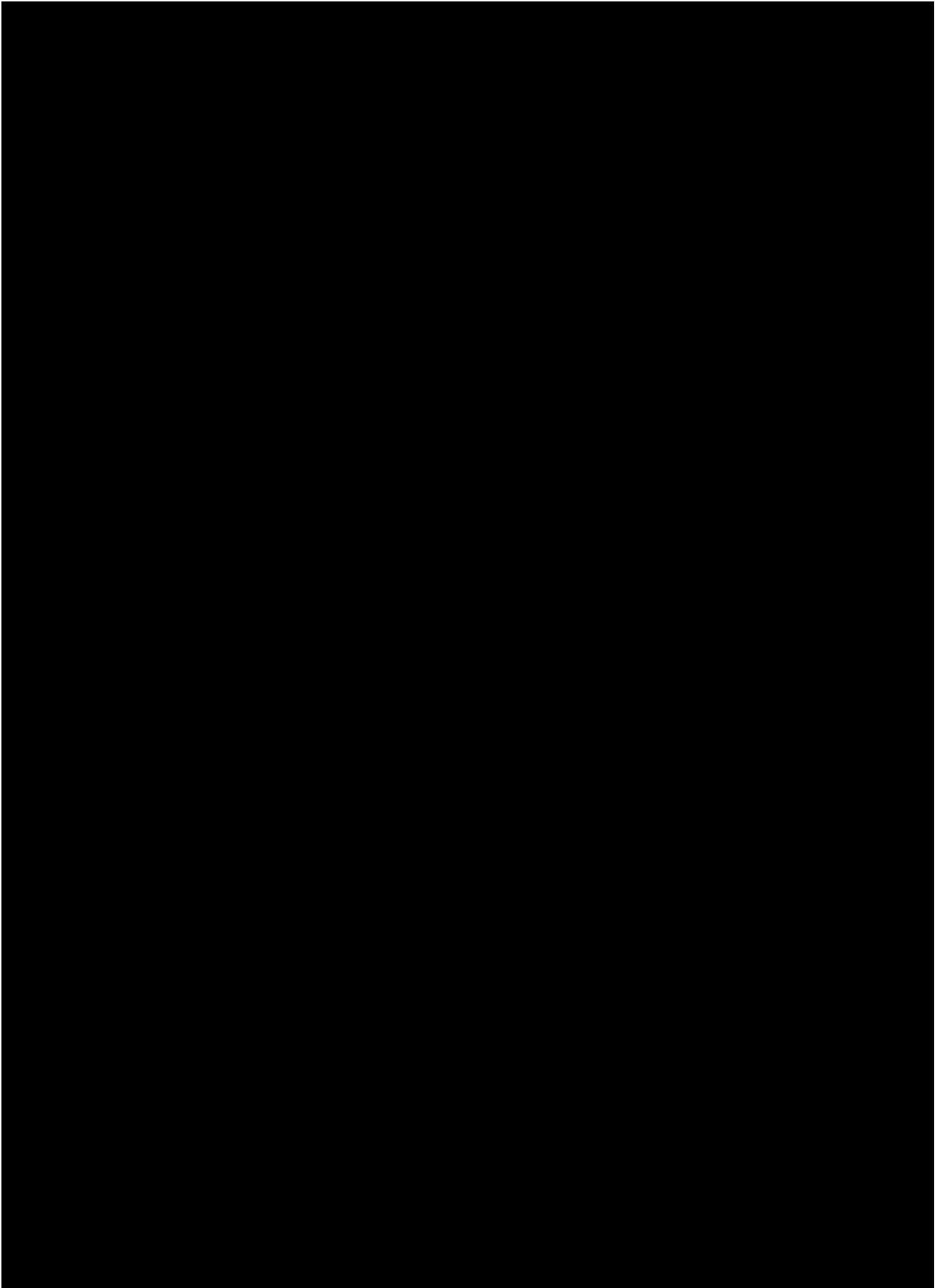
| Our CalHEERS Evolution Activities | How We Delivered Value |
|---|--|
| Migrated Oracle database to Aurora PostgreSQL. | <ul style="list-style-type: none"> Improved database scalability, resilience, and cost-effective resource usage. |
| Rearchitected the existing monolith to lightweight services and replaced legacy COTS (e.g., Oracle) stack with cloud native and open-source software. | <ul style="list-style-type: none"> Reduced implementation and deployment cycle time for functional and policy changes using faster, flexible, minimum to no-downtime deployment end state architecture. |
| Implemented a self-healing and self-recovering OpenShift Container Platform architecture with increased redundancy and fault tolerance. | <ul style="list-style-type: none"> Reduced or eliminated deployment downtime. Introduced rapid system response to user demand. Simplified adoption of innovative, cloud native technologies. |
| Migrated legacy data warehouse to Snowflake data platform. | <ul style="list-style-type: none"> Increased business intelligence and visibility. Introduced rapid change / enhancement cycles. |
| Replaced a legacy security solution with a modern security architecture built on the principles of Zero Trust. | <ul style="list-style-type: none"> Improved the maturity of CalHEERS security program with enhanced security capabilities. Leveraged tools with mature security capabilities (e.g., Palo Alto Prisma Cloud, ForgeRock, Okta, 3-Scale, TrendMicro). |
| Implemented IaC using automation pipelines and tech stack modernization with Snowflake, ForgeRock, Red Hat Fuse, Apache Drools. | <ul style="list-style-type: none"> Provided enhanced security and serverless deployment. Reduced maintenance, operations, and infrastructure costs over time. |
| Implemented an elastically scalable infrastructure to respond to user traffic. | <ul style="list-style-type: none"> Improved system speed and user demand response time, providing a better user experience (UX) and reduced wait times |
| Replaced legacy Java Server Pages (JSP) screens for service center with modern React architecture. | <ul style="list-style-type: none"> Provided responsive UX and equitable access to modern technology across users and stakeholders. |
| Replaced legacy integrations with modernized, standardized, highly secure interfaces between the different partners. | <ul style="list-style-type: none"> Enabled collaboration and cohesive response across partners. |

Table 4.2-1. Application/Architecture Evolution at CalHEERS.

CalSAWS technological complexity is similar, though programs and functions vary. We take a similar journey with the Consortium in modernizing CalSAWS considering the uniqueness of E&E programs.

Organizing CalSAWS into Feature Modules

Distilled from our 31 E&E implementations, we created Deloitte's [REDACTED]. This is a set of clearly defined feature modules that logically organize the business features needed to serve the E&E domain. Shown in Figure 4.2-5 below, it serves as our reference architecture for analyzing CalSAWS and making recommendations for aligning system features, business functions and capabilities into independent microservices. This removes the guess work of about which E&E functions go into which microservices.



Building the Approach to Application / Architecture Evolution Deliverable

Deloitte works with the Consortium to define the CalSAWS^{CN} end state vision through the **Approach to Application / Architecture Evolution deliverable**. Table 4.2-2 lays out the key activities in our approach.

| Activity | Timeframe | Outcomes |
|---|------------------------|--|
| Current State Assessment | Months 1-2 | <ul style="list-style-type: none"> Review current state with stakeholders. Determine architecture modernization priorities and concurrent business technology changes. |
| Automated Source Code Assessment | Months 1-2 | <ul style="list-style-type: none"> Establish cloud native standards with the Consortium. Create a current state baseline from the database and source code using our [REDACTED] Identify conformance to cloud native standards and cloud anti-patterns using StormFury to eliminate technical debt. |
| Establish End-State Vision | Month 3 | <ul style="list-style-type: none"> Establish an end-state vision to guide the evolution journey, using assessment outputs, stakeholder input, production observations, and innovation opportunities. Confirm technologies to support end-state vision (e.g., COTS product replacements for Oracle.) |
| Evaluate Modernization Pathways | Months 3-6 Iteratively | <ul style="list-style-type: none"> Determine the optimal path to modernization for each feature module (e.g., rearchitect, refactor, re-platform, rehost.) Prioritize feature module projects considering County needs, program / policy needs, funding, and return on effort. Calculate the Evolution Impact Score, a rubric to assess progress on select dimensions, and choose optimal modernization sequencing. |
| Prepare Estimates for SCR and TBCR Processes (if applicable) | Months 3-6 Iteratively | <ul style="list-style-type: none"> Consider effort estimates holistically, include detailed design, stakeholder input and review, technology and platform proofs of concept, feature modifications/ rewrites/ evaluations of replacements, and underlying technology platform features. |
| Integrate with Annual Strategic Plan | Months 3-6 Iteratively | <ul style="list-style-type: none"> Establish cloud native baseline modules to determine journey progress to end-state vision. Set up projects that enable the target state vision for the Consortium after the cloud native baseline is established. |

Table 4.2-2. Application Evolution Roadmap from Architecture Through Operations.

As highlighted in Figure 4.2-6, and detailed below, [REDACTED]

• [REDACTED]

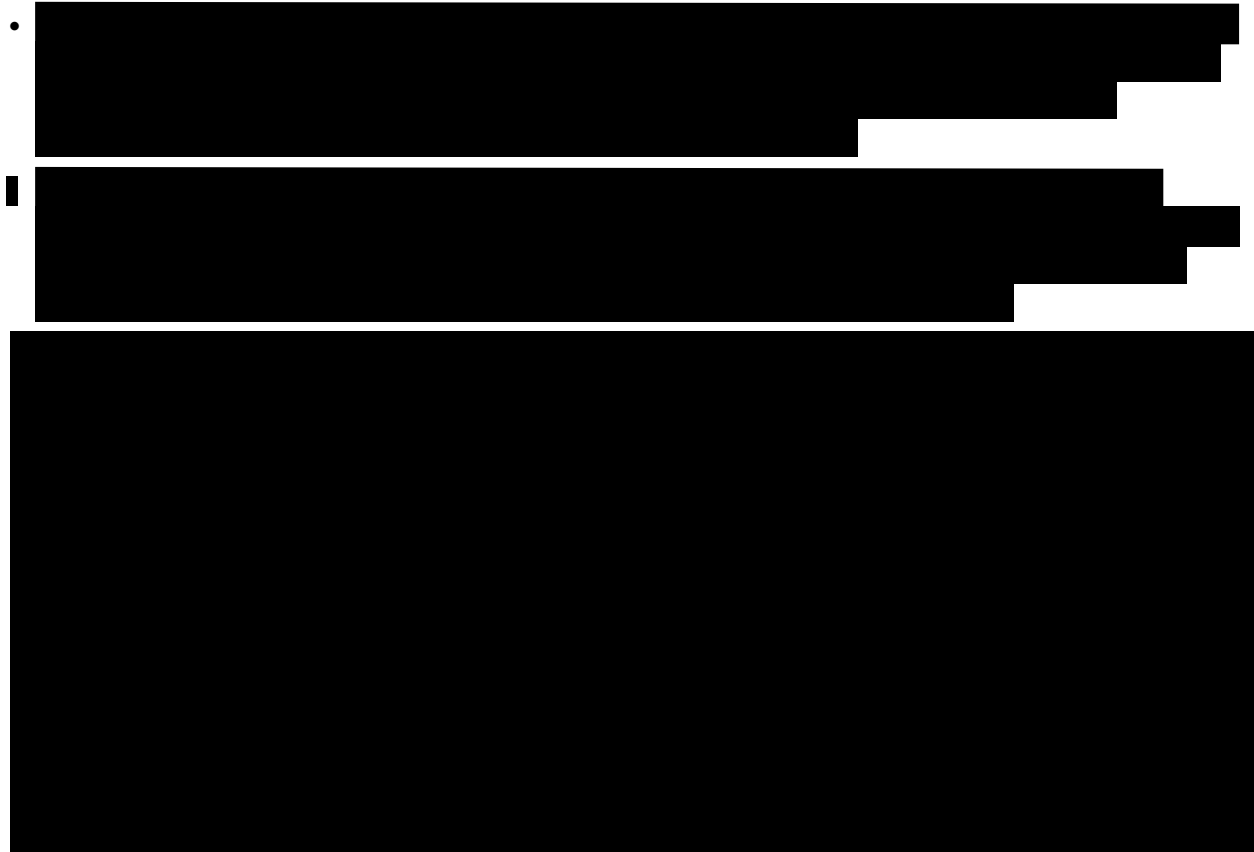


Figure 4.2-6. An Automated Microservices Blueprint Accelerating Modularization.

The insights from the automated source code analysis and the feature modules from the Reference Architecture (Figure 4.2-5) provide microservice candidates and application programming interfaces (APIs) used to finalize the CalSAWS^{CN} architecture.

Evolution Workstream and Sequence Recommendation

The Approach to Application / Architecture Evolution deliverable outlines the sequencing and activities for each phase of the database and application changes to achieve the target state architecture. Our current, high-level recommendations for the sequence of application and database changes are expressed in Figure 4.2-7 on the next page. Deloitte works with the Consortium to confirm or change these recommendations during construction of the **Approach to Application / Architecture Evolution deliverable**.

Each phase of the application / architecture evolution includes the evaluation of which **COTS should be replaced** in coordination with the refactoring of the monolithic Java application. This coordination minimizes risk and accelerates adoption of an overall cloud native architecture that is independent of the technology stack. Additionally, **Batch Modernization** takes place incrementally throughout the phases to minimize risk while providing immediate benefit and improvement. The user interface changes flow along with the service phases after the workflow is completed. This allows CalSAWS users to have improved UX module by module.

Estimation, change request creation, and implementation considerations are resolved via the Consortium's SCR and annual planning processes.

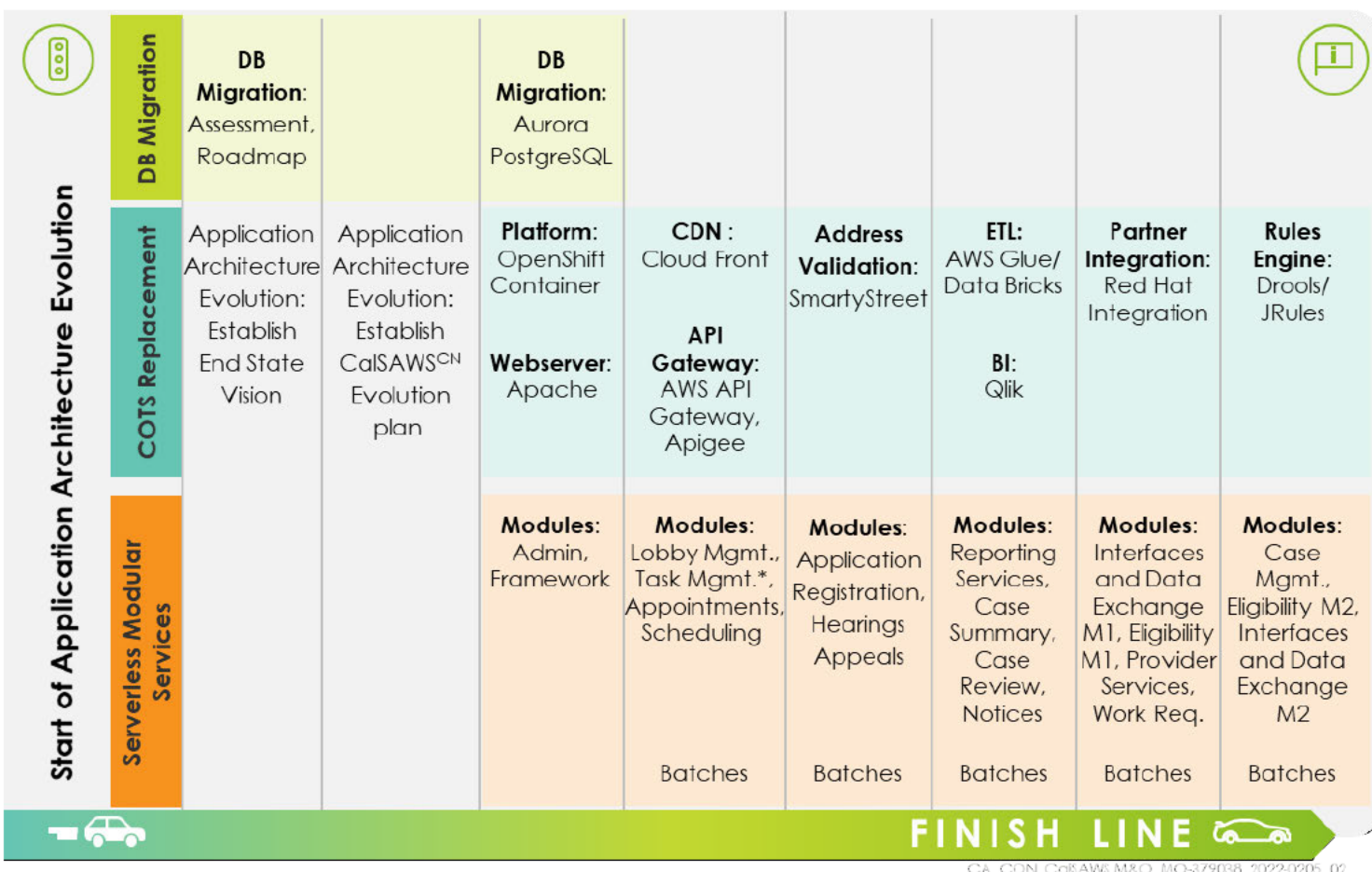


Figure 4.2-7. Journey Towards Serverless Cloud Native Adoption.

Table 4-2.3 describes the value delivered to the Consortium based on our recommended sequence and phasing.


| Workstreams | Phase | How We Deliver Value to the Consortium |
|---|-------|---|
| Application Architecture Evolution – Plan | 1 | <ul style="list-style-type: none"> Faster refactoring which can begin as soon as 6 months after transition starts. |
| Database Migration – Plan and Releases | 1 | <ul style="list-style-type: none"> Provides a complete and transparent plan for DB migration across impacted stakeholders. |
| | 2, 3 | <ul style="list-style-type: none"> Completion of the DB migration in 12 months. Elimination of Oracle database licenses. Provides elasticity, scalability, and dynamic environment capabilities. |
| Application Architecture Evolution – COTS Replacement and Modular Services | 3 | <ul style="list-style-type: none"> Establishes serverless platform to replace Oracle Web Server and WebLogic. Minimizes risk by reviewing all monolithic code and deep automated analysis to confirm functional services. |

| Workstreams | Phase | How We Deliver Value to the Consortium |
|---|--------|--|
| | 4 | <ul style="list-style-type: none"> Provides Task Management changes early and leverages new database. Establishes a new API Gateway that is expanded on in later phases. |
| | 5 | <ul style="list-style-type: none"> Brings in new Address Validation software along with Application Registration. |
| | 6 | <ul style="list-style-type: none"> Improves the flexibility and consistency of Case Views. Replaces Oracle BI Publisher with Qlik leveraging AWS Glue and Lambdas. |
| | 7 | <ul style="list-style-type: none"> Replaces first half of Oracle SOA. Migrates first interfaces, mitigating risk. |
| | 8 | <ul style="list-style-type: none"> Completes Interface refactoring. Completes Oracle SOA replacement. Replaces IBM ODM to reduce cost. |
| Application Architecture Evolution – Batch Modernization | 4 to 8 | <ul style="list-style-type: none"> Addresses batches with performance issues first and most quickly. Improves processing time and improves exception management. |
| Application Architecture Evolution – UX | 4 to 8 | <ul style="list-style-type: none"> Provide opportunities for County workers to receive improved UX with React interfaces created module by module. |

Table 4.2-3. Value Derived from the Application / Architecture Evolution Phases.

Prioritizing and Decoupling the Databases

Deloitte prioritizes migrating the database from Oracle to Aurora Postgres as the first step. We propose to migrate CalSAWS databases incrementally with four waves **over a one-year period** to minimize risk to completion of the migrations and production downtime. Each wave is defined during assessment and planning, by determining which database components can be migrated independently, along with the dependent application changes. Organizing each wave into a workstream translates to independent delivery of each migration wave. The **migration workstream activities overlap, with two workstreams running concurrently** (i.e., testing begins on Wave 1 workstream database as development begins on Wave 2 workstream databases). Concurrent workstreams support accelerated development timeframes, with complete validation and no interference between workstreams.



DID YOU KNOW?

- Deloitte's data migration factory leads the nation in successful migration of Oracle to AWS Aurora Postgres for large complex databases.
- Costs are optimized with on-demand provisioning.
- On-demand replicas can offload data read operations for reporting and batch processing.


Applying Tools and Accelerators

Deloitte uses our production-proven, industrial-strength **Database Migration Factory (DMF) framework** given CalSAWS' large-scale, high-volume databases, the heightened risk due to undocumented code, and the "must not fail" nature of this modernization.

As Deloitte has migrated other clients' systems to Platform-as-a-Service (PaaS) databases, including Aurora PostgreSQL, we've learned the limits of the out-of-the-box AWS tools. Accordingly,

the database migration process to Aurora PostgreSQL. We use these tools, in addition to **AWS out-of-the-box Database Migration Services** tools, to reduce cycle time and increase the quality of the migration. Our DMF tools are aligned to delivering the six phases of the migration approach described in Figure 4.2-8.

DISTINGUISHING FACTORS



- Automated conversions achieve 90+% accuracy and reduced the level of effort by 1/3 over manual approaches
- Launch databases as needed with IaC.
- Hydrate Dev and Test DBs and data using source- controlled IaC and test data.
- Architect databases to be cloneable and sanitized from production.
- Validate batch, API, and partner expectations of migrated data.

| Deloitte Cutover Playbooks | |
|---|--|
| A set of playbooks that leverages our experience and define best practices for database cutover (including production dry runs) and mitigation for known challenges | |

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Figure 4.2-8. Deloitte's DMF Toolset.

As shown in Figure 4.2-9, work begins with a High-Level Migration Assessment and Setup phase to finalize the overall database migration roadmap and migration development and test environments. We group CalSAWS databases logically into the migration waves. We evaluate application integration, data size, archival requirements, and estimate the time to migrate each database.

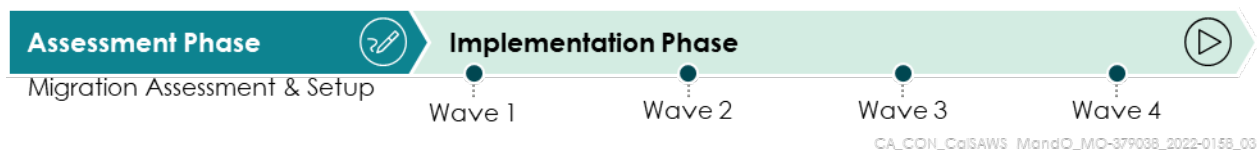


Figure 4.2-9. Incremental Migration Plan.

After the high-level assessment, a series of phases and activities are executed as outlined in Figure 4.2-10. This is done for each database in each Wave. It begins with a deep-dive assessment to confirm the Wave plan and activities and continues until the cutover phase.

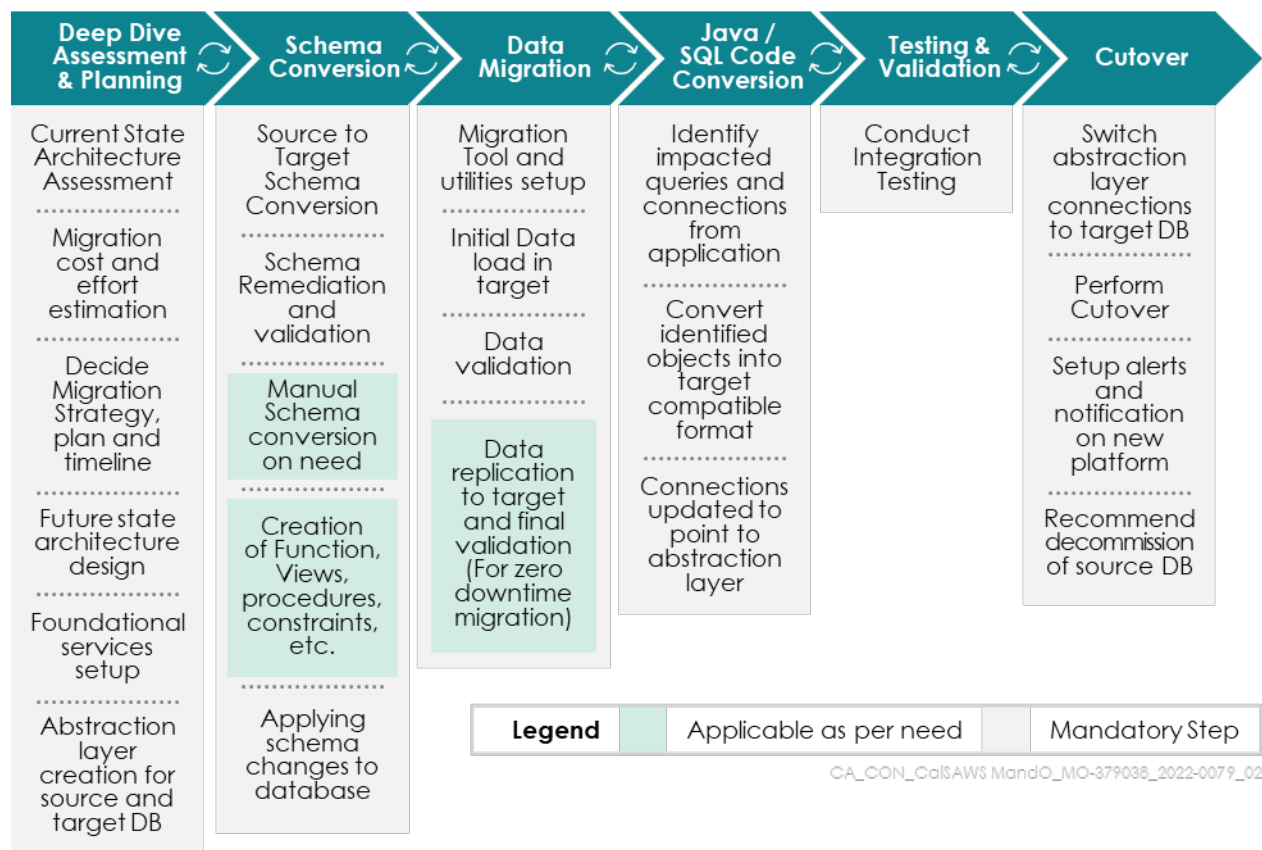


Figure 4.2-10. Migration Approach Built on Deloitte's DMF Framework.

Deloitte's database migration approach results in a stable and elastically scalable CalSAWS^{CN} databases. Once the databases have been migrated to a highly available serverless database engine, the Consortium has a baseline database to support rapid modularization and decoupling activities that result in a refactored, cloud native, stable, and scalable CalSAWS^{CN}.

Refactoring CalSAWS to CalSAWS^{CN}

After we migrate the databases, we turn to refactoring the application and evolving the architecture along three dimensions:

- Modernizing the CalSAWS Technology Stack.
- Modernizing the CalSAWS Monolithic architecture to Microservices.
- Modernizing the Functional Features of CalSAWS.

For each of these dimensions we are highly opportunistic in identifying SCRs from the CalSAWS backlog that can be addressed.

Modernizing the Technology Stack

Our architects are adept at weighing tradeoffs across technology, cost, and features to as the technology stack is modernized. This includes whether full replacement of a technology makes sense or whether or new feature modules should be built using an existing technology. We evaluate and apply these approaches as we iterate through the CalSAWS technology stack. In Table 4.2-4, we outline the technology stack components that we plan to target for the CalSAWS modernization. This aligns to requirement ME-5.1-03 to move from the existing Oracle stack to a new architecture. Replacing these components enable the Consortium to have a lightweight set of microservices which consume fewer resources.

| Software Capability | Current Products | Proposed Product | Replacement Sequence |
|---------------------------|--------------------------------|--|--|
| Database | Oracle RDBMS | Aurora PostSQL | First |
| Application Server | Oracle WebLogic | Java CLI RedHat Runtimes for SpringBoot, Tomcat Lambda | Iteratively as modules are developed |
| HTTP Server | Oracle HTTP | Apache HTTPD | Iteratively with UI updates in React for each module |
| API Gateway | Oracle API Gateway | AWS API Gateway & Apigee | With the first phase of modules |
| Service Bus | Oracle SOA/OSB | Red Hat Integration | Iteratively as modules migrate to the new architecture |
| BI Tools/ Reports | Oracle BI Publisher Tableau | Qlik, Tableau | Aligned with reports for each module developed |

Table 4.2-4. Technology Stack Modernization Targets.

Modernizing the CalSAWS Monolith to Microservices

Organizing the CalSAWS monolith into smaller, microservice-based feature modules enables us to align business boundaries. This improves the flexibility and resource usage of the system. As we define microservices boundaries for feature modules, we work with the Consortium's technology team to confirm the serverless approach. There are two core options: **serverless functions** or **serverless containers**. Table 4.2-5 below, outlines criteria used in making the decision. The BenefitsCal Team went through a similar exercise with the Consortium as part of the BenefitsCal architecture design phase.

| Criteria | Serverless Function (AWS Lambda or Knative) | Serverless Container (AWS Fargate or ROSA) |
|-------------------------------------|---|---|
| Functional/ Use-Case Fit | <ul style="list-style-type: none"> Event-driven applications or jobs; Short asynchronous processes Actions that can be expressed as single functions Activities with spiky traffic patterns and need dynamic scaling | <ul style="list-style-type: none"> Long running compute jobs taking more than 15 minutes Compute jobs that need more than 3GB of memory Jobs with predictable scaling or where longer start times are acceptable |
| Performance | <ul style="list-style-type: none"> Lower startup time (up to 5 secs.) Cold start if no concurrency provisioned Max runtime of 15 minutes | <ul style="list-style-type: none"> Higher startup time – 15-30 seconds Dedicated resources – warm state No max runtime |
| Scalability | <ul style="list-style-type: none"> Auto scale by design Rapid scaling up possible – ideal for use cases with large spikes / unpredictable traffic and low complexity Can scale down to 0 compute instances | <ul style="list-style-type: none"> Configured for auto scaling Scale out and scale in happens pod by pod Cannot scale in / down to 0 compute instances, ideal for use cases with constant demand and medium to high complexity |
| Pricing/AWS Cost | <ul style="list-style-type: none"> Cost calculated per millisecond usage based on number of requests, memory, compute, and network traffic Price per GB-second | <ul style="list-style-type: none"> Cost calculated per second based on allocated memory, vCPUs, OSs, CPU infrastructure, and resources used Price per vCPU-hour + per GB-hour |

Table 4.2-5. Serverless Evaluation Criteria for Modularization.

Figure 4.2-11 illustrates the application of the evaluation criteria above to for select CalSAWS modules.

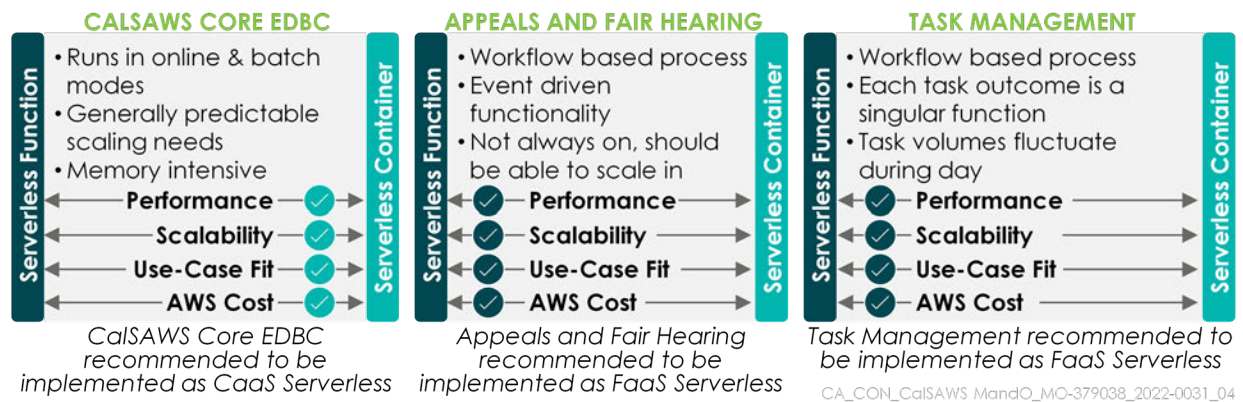
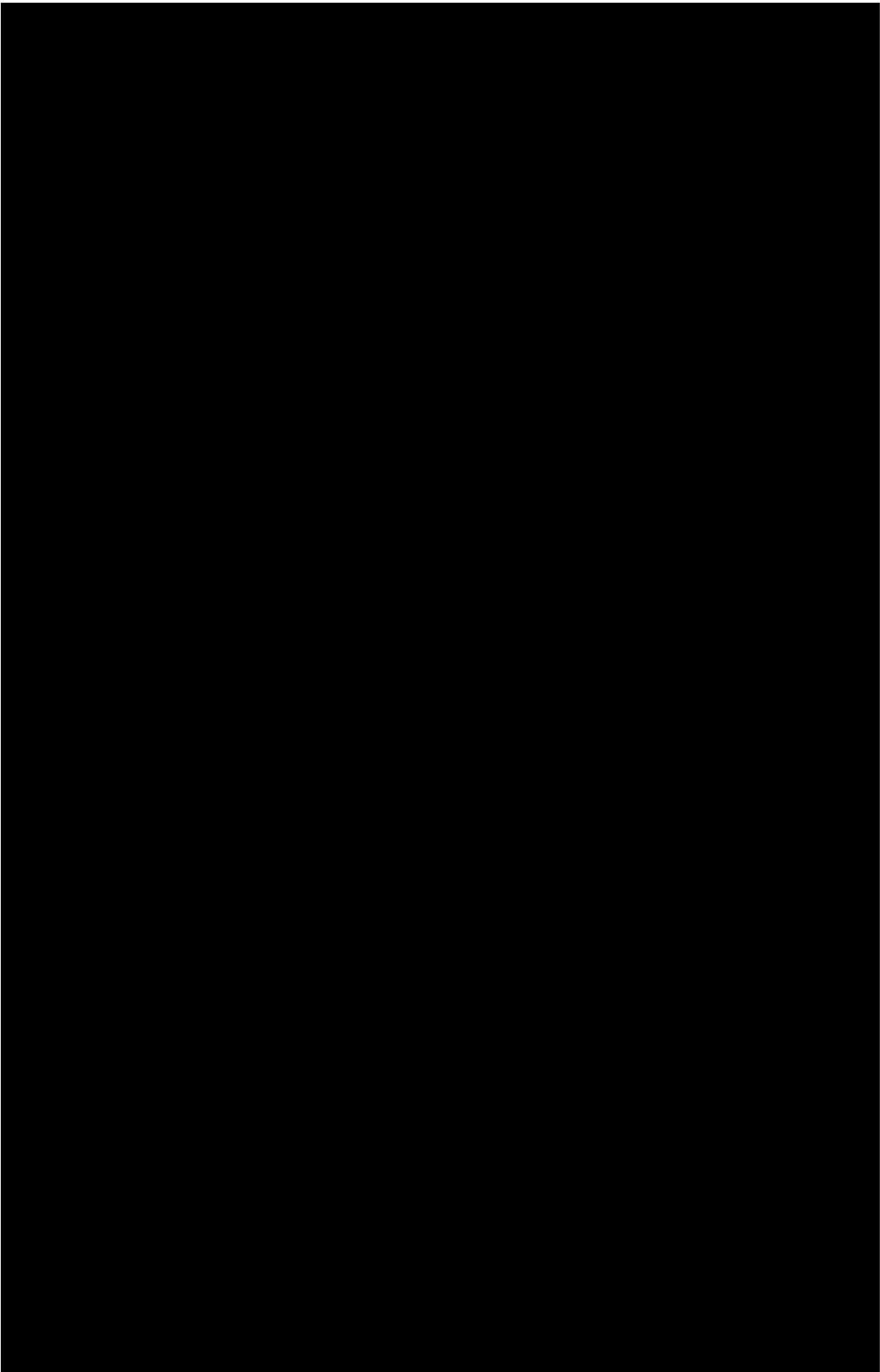


Figure 4.2-11. Possible Serverless Destinations for CalSAWS Modules.

Based on our experience with CalSAWS and other E&E systems, and guided by Deloitte's DSDP Reference Architecture, we recommend modularizing the monolith into microservices in the sequence and phases outlined in Figure 4.2-12. During the transition period this order would be reviewed and finalized with the Consortium as part of the **Approach to Application and Architecture Evolution deliverable**. During planning, the timelines and sizing would be clarified to define which work will be completed in what timeframe based on the fixed capacity defined for the evolution activities.



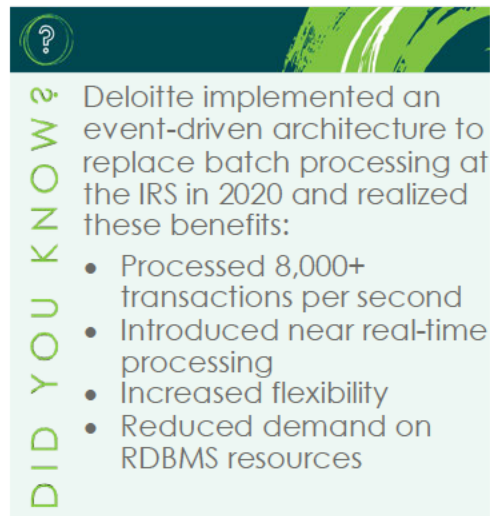
Scaling Batch Operations

One of the first priorities in evolving CalSAWS is modernizing its batch processes. This is particularly important given CalSAWS ongoing challenges with completing batch processing on time, and the increased caseloads it will contain once the CalWIN migration is complete. We replace the batch processing architecture with an event-driven architecture using modern cloud native solutions and serverless containers integrated through batch adapters.

The core differences between the CalSAWS' current batch architecture and our proposed event driven architecture are:

1. The new architecture gathers data incrementally throughout the day in preparation for creating the batches.
2. The database resources usage is reduced by replacing large complex queries.
3. The batch processing window is used only for processing activities that cannot be executed prior to the batch window.

This approach provides flexibility, scalability, and higher throughput capabilities for batch processing resulting in reduced timeframes for processing the same volume of activity. Additionally, the status of the batch processes is more visible and can be more granular, and processes are more reliable (e.g., less errors and exceptions) and more recoverable (e.g., less data loss or repetition).



DID YOU KNOW?

Deloitte implemented an event-driven architecture to replace batch processing at the IRS in 2020 and realized these benefits:

- Processed 8,000+ transactions per second
- Introduced near real-time processing
- Increased flexibility
- Reduced demand on RDBMS resources

Modernizing the Functional Features of CalSAWS

Modernizing the technology stack and modularizing CalSAWS enables the Consortium to modernize the business capabilities most visible to CalSAWS users. A key area for business modernization is task management where significant standardization and improvement in workflow for Counties is needed. It is one of the first areas we transform to increase flexibility and meet the operational needs of all Counties. Some tasks as defined today do not require any worker action and are more of an alert. This creates a lot of “noise” and time spent by County workers to determine what they really need to address versus what is just informational.

Our CalWIN ISS Team that has been supporting the CalWIN counties with defining their task configurations have a front row seat to the challenges the current task management functionality has created. Supervisors are challenged with being able to plan for staffing without the right tools. Furthermore, in looking at the task configurations that are available less than half are used by the majority of counties.

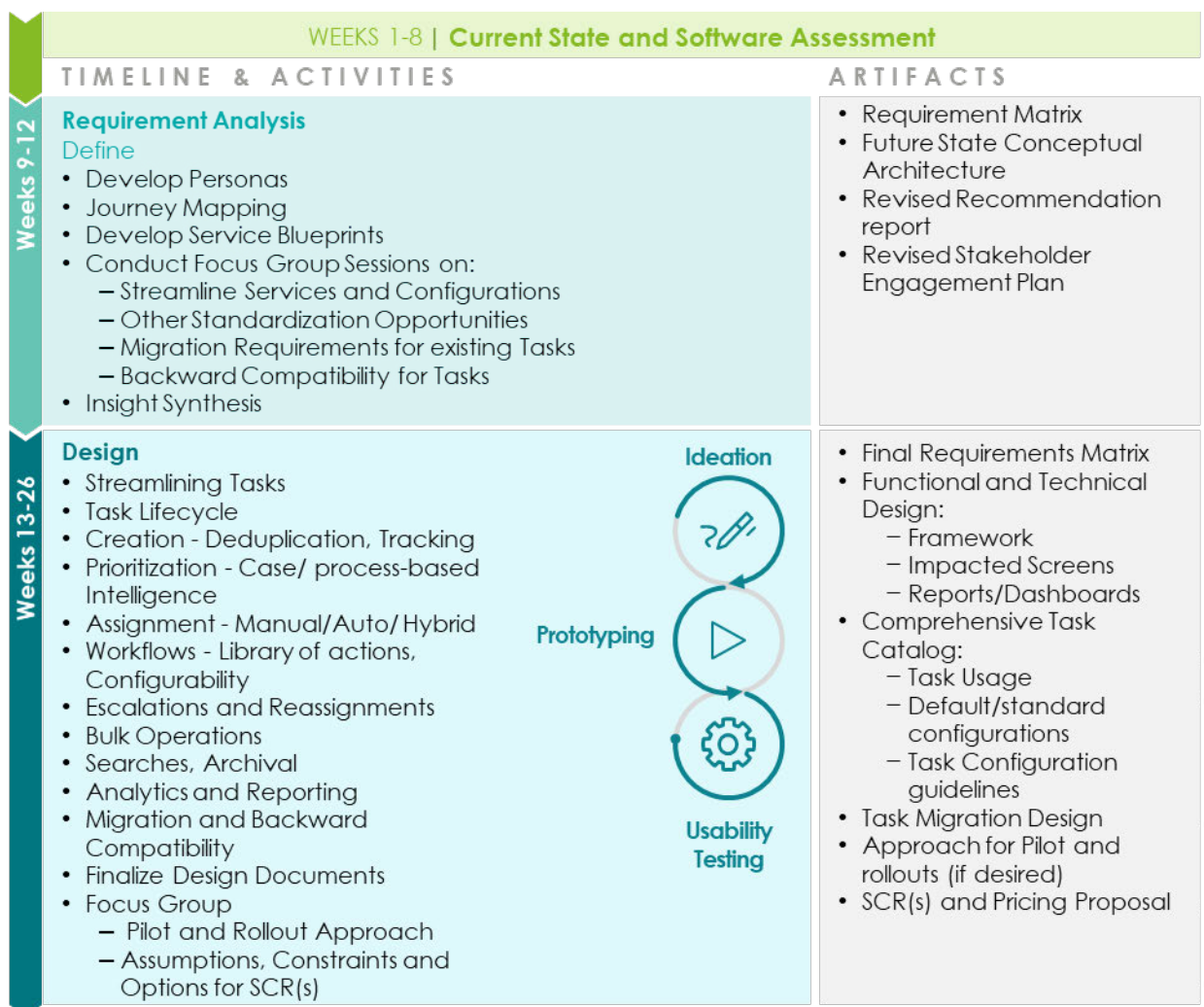
Flexible and Optimized Task Management

As per the RFP, Deloitte prepares the requirements and design to reimagine task management. Table 4.2-6 below highlights key opportunity areas to explore when evolving CalSAWS' task management module.

| Functional | Operational | Analytics | Architecture |
|---|--|--|--|
| <ul style="list-style-type: none"> • Ease of configuration (reduce effort, expertise, and errors) • Intelligent, prioritization with case attributes and County operations models | <ul style="list-style-type: none"> • Work de-duplication • Accounting of work • Automation/closure of tasks • Intelligent work distribution • Lobby management • County configuration flexibility (e.g., large v. small office) • Move to true tasks vs alerts and tasks mixed together | <ul style="list-style-type: none"> • Worker, office, County, and State-level metrics • Quantitative and qualitative analysis | <ul style="list-style-type: none"> • Serverless task creation and updates • Serverless next task to improve system resource allocation to consumption model • Optimization, scalability, and security |

Table 4.2-6. Opportunities to Evaluate and Modernize Task Management.

Our approach for evolving task management aligns with our innovation approach documented in Section 4.4 Innovation. Rooted in HCD principles, it balances equity, stakeholder engagement with repetitive workload reduction. We bring production-proven and leading task management practices from across states and industries to address the Consortium's needs. Figure 4.2-13 provides timelines, high-level activities, and artifacts in our task management redesign approach. The artifacts make up the Task Management Design and Recommendations Report.



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Figure 4.2-13. Proposed Plan for Task Management Redesign.

Following the task management redesign, we integrate task management changes with the CalSAWS^{CN} modularization development plan.

Optimizing with Artificial Intelligence (AI) and Automation

Keeping workers engaged and focused on high-value customer facing activities is the top priority of HHS agencies nationwide. Deloitte effectively uses AI and machine learning (ML) assisted technology to create efficiencies and worker capacity and reduce errors that impede progress toward business outcomes. Figure 4.2-14 illustrates the spectrum of support available through AI/ML.

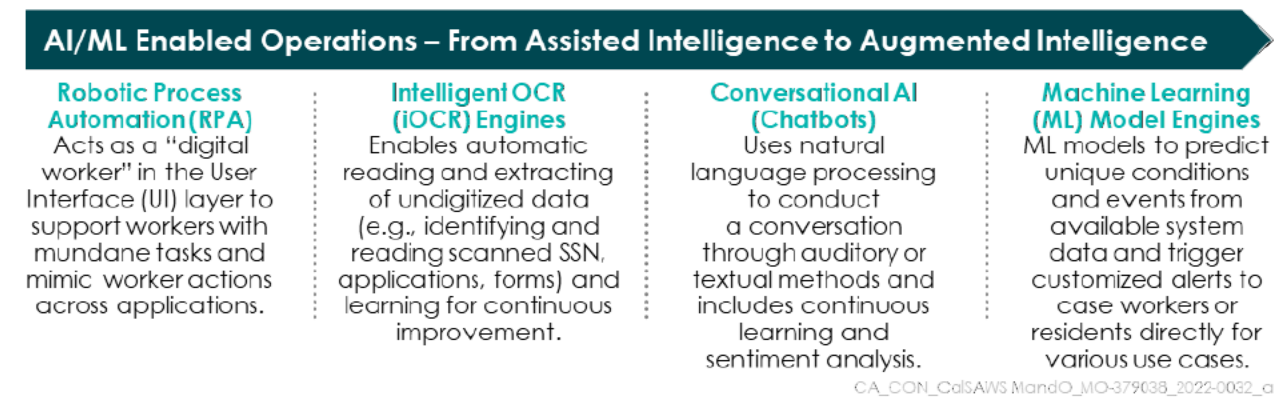


Figure 4.2-14. AI/ML Operations Continuum.

To prepare the **Approach to Automation, Artificial Intelligence and Machine Learning deliverable**, Deloitte elicits automation opportunities using HCD techniques. This enables us to illustrate typical user stories that County workers can use to identify candidate-assisted or augmented intelligence opportunities. This deliverable is accelerated using [REDACTED] which supporting the features in Figure 4.2-15. They are purpose built to drive efficiency, improve capacity, or reduce errors to improve quality.

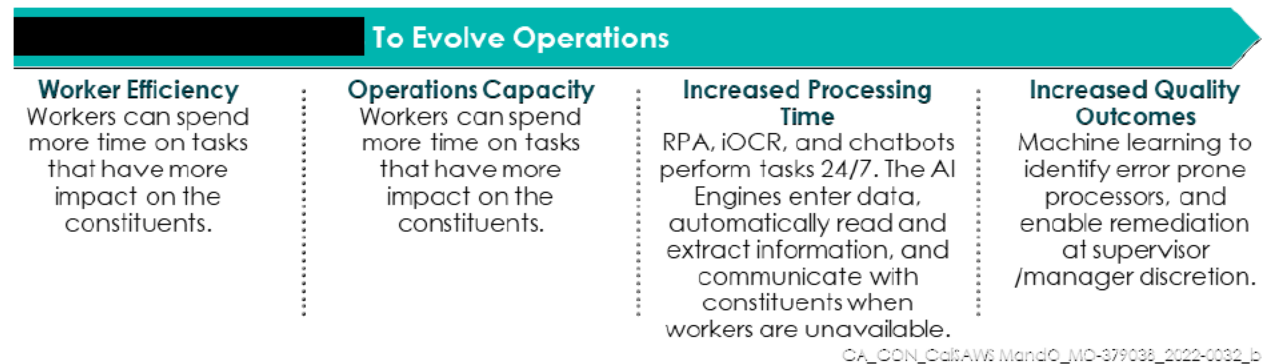


Figure 4.2-15. AI Engines That Can Be Considered.

4.2.1.2 Addressing Security Considerations, Reducing Costs and Improving Optimization and Flexibility

Security Considerations

Our strategic vision for security consists of **three cornerstones** connected by our commitment to secure data for Californians and the Consortium. As part of the application/architecture evolution, we work with the Consortium to prioritize the security considerations strategically.

- **Modernize** – Address security operations through advanced monitoring, cloud native security solutions, and continuous scanning. The increased usage of the cloud platform features reduces the risk of misconfiguration and improves the Consortium's threat monitoring position. Our accelerators include a set of deployment patterns to rapidly implement DevSecOps automation and secure cloud services configuration.

We work with the Consortium to prioritize key capabilities such as Privileged Access Management to reduce the risk of service/non-human accounts and improve the operational security of the solution.

- **Evolve** – Focus on proactively understanding the future needs of the CalSAWS security program. With a **customer-centric focus**, we improve the security posture, leveraging the enhanced authentication and authorization identity platform with password-less authentication, integrated threat modeling, security-by-design, architecture reviews, and continuous application security testing.
- **Fortify** – This addresses CalSAWS' core resiliency. Fortify activities shield and protect CalSAWS against evolving threats and attacks. Together, we prioritize goals for cyber reconnaissance to identify potential security vulnerabilities from an attacker's perspective. We implement Deloitte's Detect and Respond services to focus on advanced threat intelligence, threat hunting, and application security monitoring.

Reducing Costs

The application / architecture evolution to serverless delivers cost savings by fully using AWS Cloud pay for usage and value models. The Consortium gains full transparency into the cost and usage of individual components providing optimized consumption manageability. Design considerations must factor in correct patterns, choice of native services, accurate configurations, and expected transaction volumes. Deloitte uses our Financial Operations (FinOps) practice, highlighted Figure 4.2-16, to review cloud financial management capabilities, address peaks and valleys in spend, foster mid- and long-range planning.

REMEMBER WHEN

- Deloitte optimized cloud spend on BenefitsCal by reviewing service transaction volumes by month and across environments.
- Deloitte helped the Consortium reduce AWS costs by 65% per month.



Our FinOps evangelists passionately enable education and continuous improvement. Their most recent contribution is to the FinOps's Foundation's US Public Sector Playbook, a trusted guide for Government Cloud Engineering teams.

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Figure 4.2-16. Driving FinOps Discipline Nationwide.

Improve Optimization, Flexibility, Scalability

The new CalSAWS^{cn} system architecture optimizes resource usage based on actual user need rather than large, static allocations for peak resource demand. The new CalSAWS^{cn} also takes advantage of the elastic nature of the cloud, enabling scalability for each module to grow and shrink, releasing resources when not needed. This eliminates manual processes and the associated delays in legacy architectures like the current CalSAWS. CalSAWS^{cn} enables resources to be rapidly provisioned in real-time, even for unforeseen peak loads and disproportionate growth such as during natural disasters, seasonal influx, and open enrollment. Lastly, flexibility increases with the ability to deploy individual serverless feature modules maintained, updated, or changed

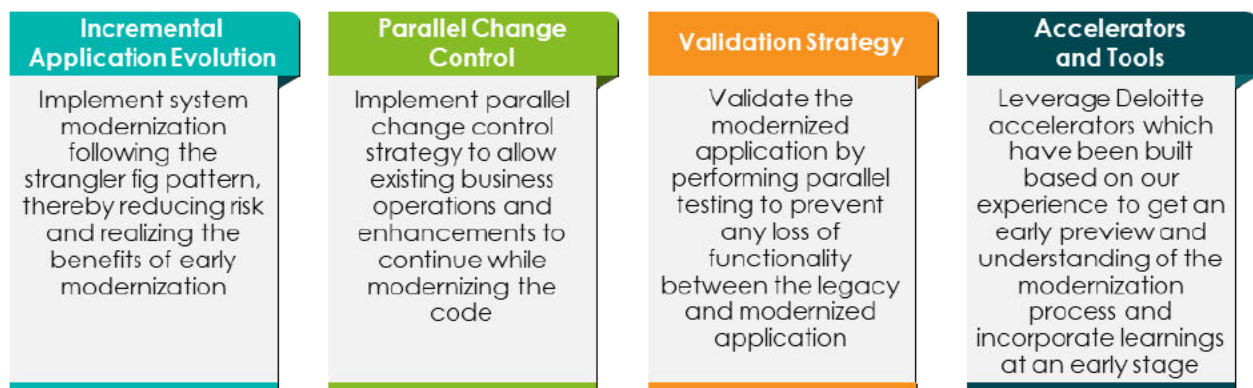
independently. This reduces the time needed to test changes as they are more contained. Features can be added independently and deployed frequently without creating downtime or impacting system performance. This enables the Consortium to deliver more SCRs and deliver them more quickly.

4.2.2 Maintaining Legacy Architecture (ME-UA5)

RFP Reference: 5.3.3.2 - M&E Understanding and Approach to Application Evolution

ME-UA5 Describe how you will maintain the legacy architecture during evolution, how platforms will be kept in-sync, how changes will integrate with existing technologies and networks, how changes will be tested, and any other factors to be addressed, including security.

CalSAWS business continuity is critical throughout the application / architecture evolution. Our strategy and approach allow the legacy and modern solutions to co-exist, keeping the behavior of the platforms synchronized. This enables us to deliver a stable and reliable combined system to the Counties. Deloitte uses the four pillars in Figure 4.2-17 to inject a “no to low disruption” approach while evolving CalSAWS to cloud native, CalSAWS^{CN}.



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Figure 4.2-17. Four Pillars for Evolving and Maintaining Legacy Architecture.

The remainder of this section discusses how first three pillars align to, and support, the Consortium’s objectives outlined in ME-UA5 (i.e., keeping platforms in-sync, integrating existing technologies, testing changes, and security). Details on the accelerators and tools we use were highlighted earlier in Section 4.2.1.1 in Figure 4.2-8.

4.2.2.1 Keeping Platforms Synchronized

Synchronizing the legacy and modern platforms requires an understanding of the end-state architecture and sequence of the application evolution. As we develop each feature module, we apply the first of the four pillars:

Applying Incremental Application Evolution (Pillar 1)

As CalSAWS is transformed into microservices, smart architecture, such as the “strangler fig” pattern, enables incremental change, keeps the platforms synchronized, and does not limit the Counties’ ability to serve customers. In the strangler fig pattern, shown in Figure 4.2-18, we incrementally create the new application side-by-side with legacy.

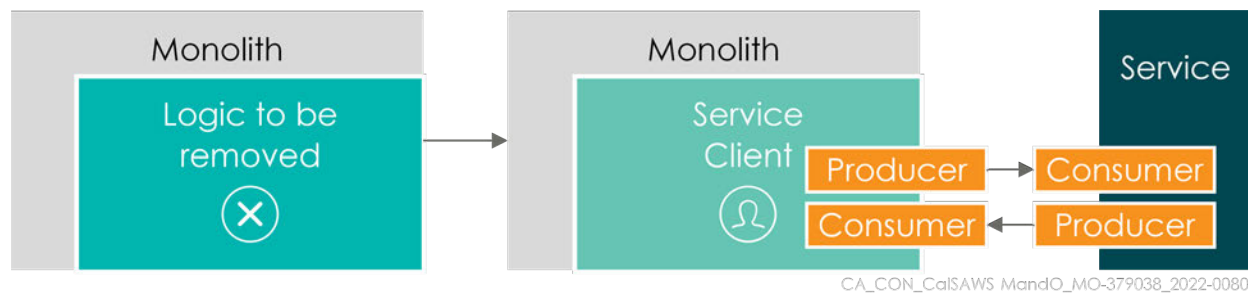


Figure 4.2-18. How We Enable Co-Existence During Evolution with the Strangler Fig.

Business functions are refactored as a new service with a well-defined API. In the legacy application, the old logic is replaced by a wrapper directing requests to the new service. Figures 4.2-19 and 4.2-20 below provide a before and after view of using the strangler fig pattern for Application Registration (AR), Data Collection (DC) and Eligibility Determination (ED) capabilities.

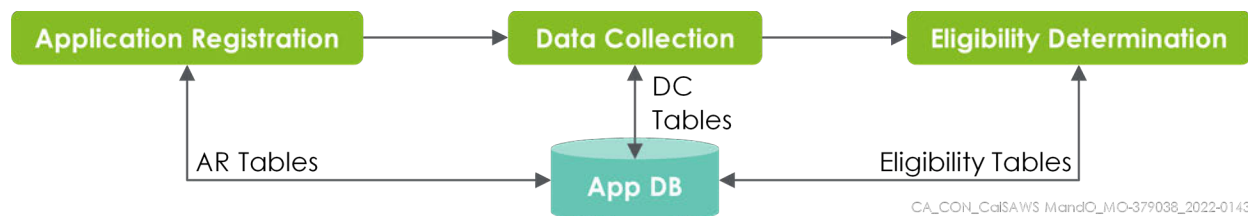


Figure 4.2-19. Example: AR Prior To Strangler Fig.

Figure 4.2-20 below shows how we balance Application Registration services already modernized with Data Collection and Eligibility Determination still running as legacy applications while staying synchronized and integrated.

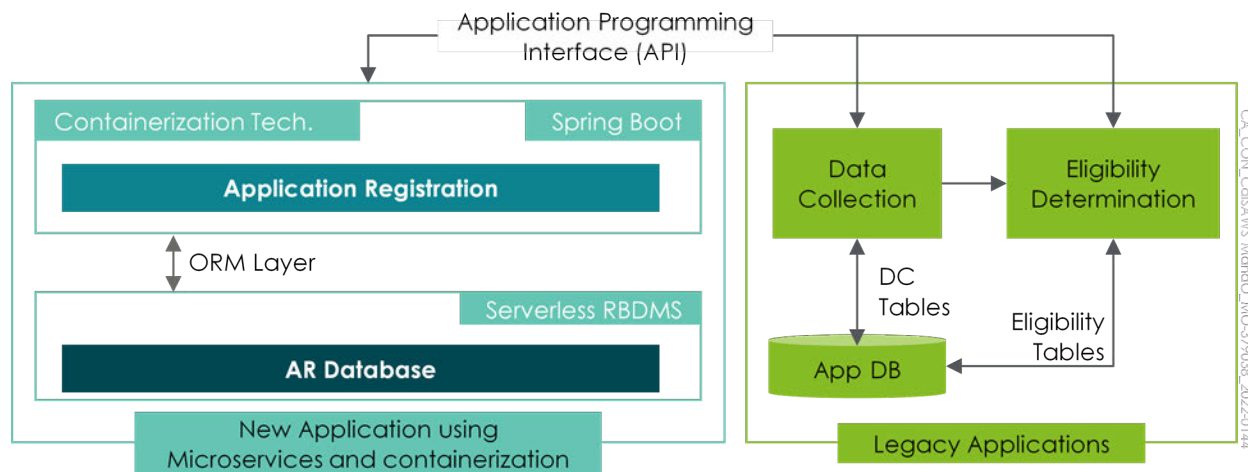


Figure 4.2-20. Example: Co-Existing AR Microservices and Legacy Applications.

4.2.2.2 Integrating with Existing Technologies and Networks

We align with the Consortium's requirement to adhere to the SCR process and regularly deliver SCRs in parallel to CalSAWS^{CN} activities. We evaluate cloud services and open-source software, as well as existing tools and service, to support integration. This includes shared services technologies for accurate logging, monitoring, alerting, and reporting across platforms. To manage integration between existing technologies and networks, and the evolved feature modules, we apply the second pillar: Parallel Change Management.

Applying Parallel Change Management (Pillar 2)

Parallel change management enables M&E work to continue while minimizing the impact of CalSAWS^{CN} application evolution activities. Collaboration between teams, change management that uses grouping and sequencing of similar changes, are facets of this pillar. Parallel change management focuses on controlling code changes and leverages two code streams: a **dedicated legacy code stream** for legacy code and database, and a **CalSAWS^{CN} serverless code stream** modernized code and migrated database. Figure 4.2-21 demonstrates how the legacy code stream supports planned changes (e.g., enhancements, patches) and CalSAWS^{CN} changes for changing Case Management (CM) to use the microservice Application Registration (MS_AR) API calls to replace the legacy Application Registration (Legacy_AR) capabilities while keeping the CalSAWS system operational during evolution.

SECTION HIGHLIGHTS

- Application evolution work is planned considering the SCRs prioritized by the Consortium.
- Impacted application components are identified, sequenced, and developed as microservices in a separate code stream.
- Post validation, microservices are merged into the legacy code stream.
- A single integrated release into production per release calendar.

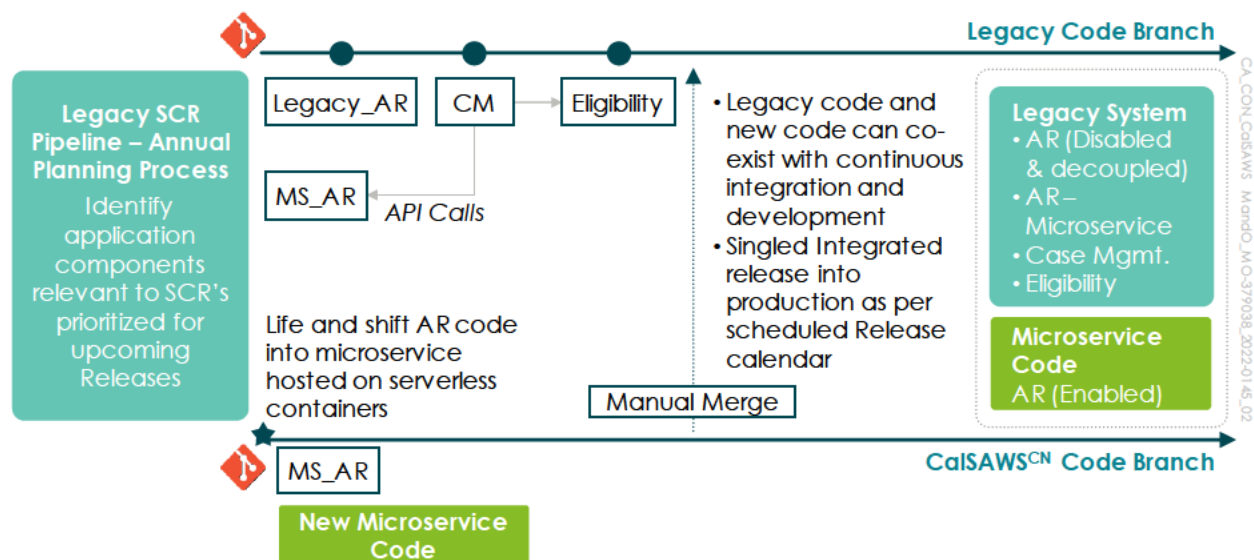


Figure 4.2-21. Example: Parallel Change Management between Legacy Code and CalSAWS^{CN}.

Other considerations for integration are included in Table 4.2-7.

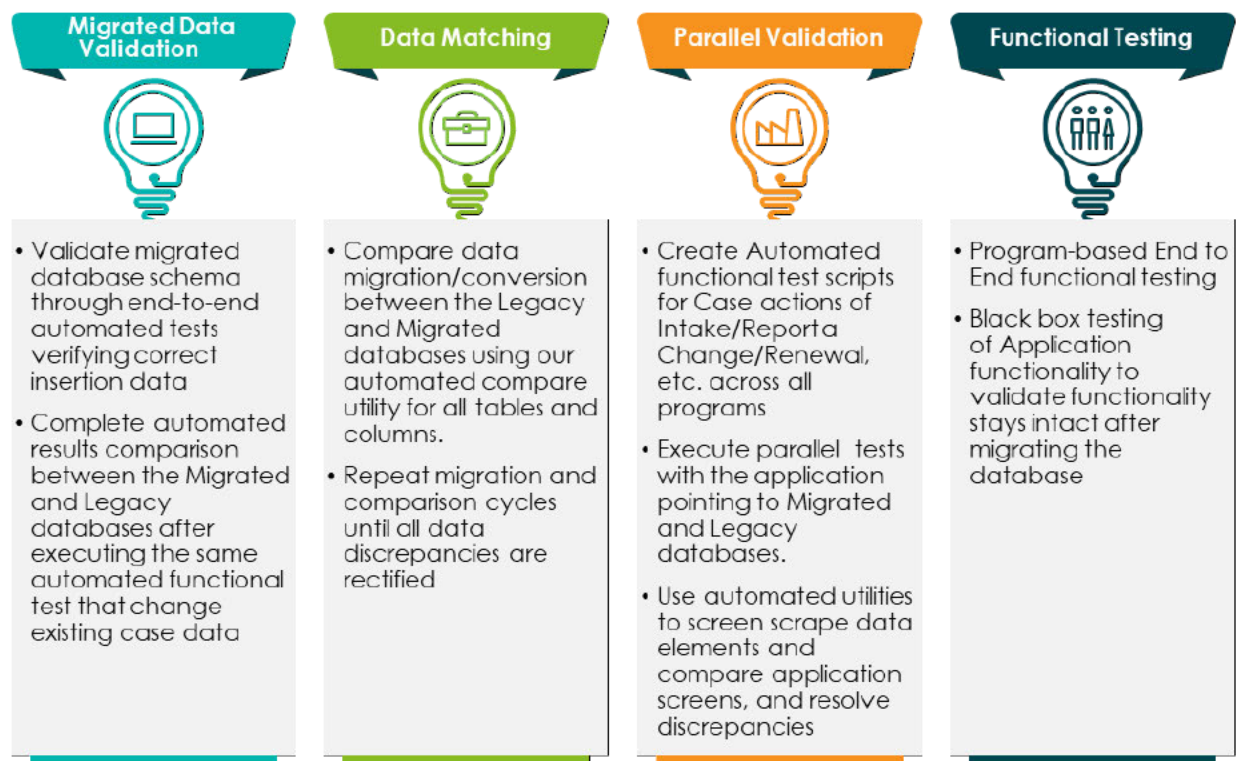
| Services | Technology and Network Considerations |
|---------------------|--|
| Interfaces | Existing inbound and outbound interface end points, including virtual private cloud (VPC) peering for RESTful APIs, WebSocket APIs, and SFTP, are updated in lower environments, tested, and validated before updating in production. |
| Integrations | VPC end points for integrations are updated and tested before the cutover. |
| Logging | The logging from application services is aggregated to the centralized log files by leveraging existing logging tools (e.g., CloudWatch, FluentD). |
| Monitoring | CalSAWS APIs are integrated with CloudWatch to monitor and alert on any application and infrastructure issues. |
| Reporting | Tools such as Grafana, Kibana, Qlik, or AWS native tools are leveraged. |
| Security | Authentication and Authorization through ForgeRock; security monitoring through Splunk; and network security through AWS Network Firewall, CloudFront, WAF, NACLs, Security Groups, etc. are integrated to protect CalSAWS from threats. |

Table 4.2-7. Shared Services Integration Options.

4.2.2.3 Testing Changes

Applying Validation Strategies (Pillar 3)

We use a four-point validation strategy, highlighted in Figure 4.2-22. The first applied to the data migration, with the last two points being applied iteratively throughout the application / architecture evolution journey. Validation is successful if no data loss is sustained during migration, and application functionality remains unimpaired.



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Figure 4.2-22. Validating and Testing the Data and Modules.

A robust validation strategy enables the Consortium to discover application challenges early during database migration and application evolution activities. For instance, we uncover non-standard queries, hardcoded data, or undocumented business rules.

4.2.2.4 Other Factors Including Security Controls

Security controls that include data security, network security, and access controls are implemented to mitigate security risks and threats. These include controls such as:

- Encrypting data in-transit and in-use with a minimum Transport Layer Security (TLS) v1.2 and Advanced Encryption Standards (AES) cipher suites using only trusted digital certificates to enable secure communication between the assets.
- Encrypting data at-rest by the selected AWS database services at the disk level using Federal Information Processing Standards (FIPS) 140-2 guidelines.
- Disabling open ports and blocking unsecure ports to minimize the threat surface area.
- Logging and monitoring database activities for suspicious activity (e.g., repeated invalid login attempts, database instance creations, command errors/exceptions).
- Securing customer managed keys (CMK) with AWS Key Management Service (KMS) with a key management lifecycle to monitor and enforce separation of duties.
- Configuring security groups using the principle of least privilege.
- Segregating data between production and non-production databases with controls applicable to an operations copy of the production database.
- Implementing data retention and archive based on Consortium security policies.

4.2.3 Advancing the DevOps Model (ME-UA6)

RFP Reference: 5.3.3.2 - M&E Understanding and Approach to Application Evolution

ME-UA6 Describe your approach for furthering the DevOps model and the use of Infrastructure as Code within the CalSAWS environment.

The Consortium desires a more integrated and collaborative DevOps model that is highly reproducible, consistent, and responsive to change. This requires improvements in automation for infrastructure management, development, and testing. With an emphasis on IaC, CalSAWS modernization affords a unique opportunity to the Consortium to rethink and accelerate feature development and deployment.

4.2.3.1 Approach to Advance the DevOps Model

DevOps is more than “automating everything in the SDLC.” It must empower people with processes, tools, and knowledge. We scale and sustain mature DevOps using the CALMS model—**C**ulture, **A**utomation, **L**ean thinking, **M**easurement, and **S**haring—combining Continuous Integration (CI), Continuous Deployment (CD), IaC, and Automated Testing. This is highlighted in Figure 4.2-23 below.

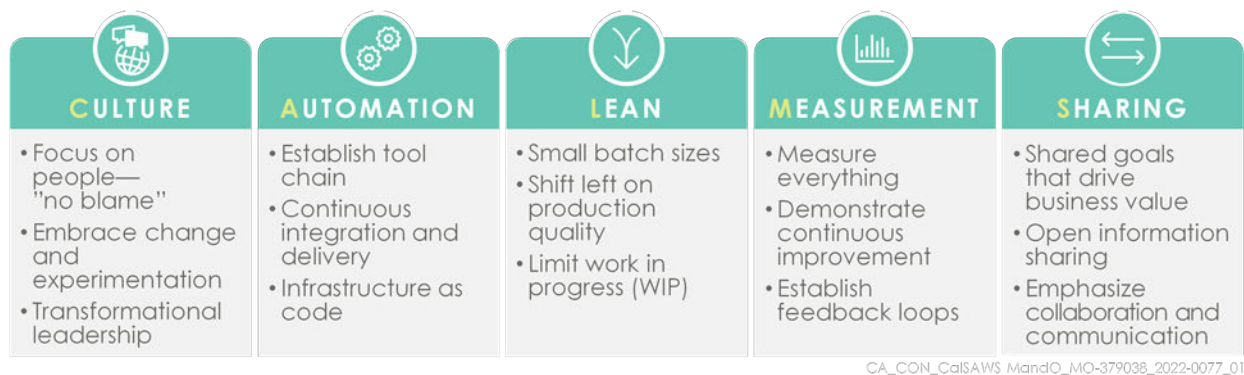






Figure 4.2-23. The CALMS Model for Adopting and Utilizing a DevOps Approach.

The following principles and actions define Deloitte's approach to DevOps:

- Understand the value of technology to deliver and manage operations. The CalSAWS development team creates a culture of automation and drives every SDLC phase with a DevOps mindset.
- Identify repeatable tasks and automate tasks to improve operations flow and quality, decreasing the potential for mistakes.
- Reduce time wasters with Lean thinking and make measurable, incremental improvements using value stream maps, Minimum Viable Products (MVP), and proofs-of-concept.
- Shift security left by integrating security into architecture and design to improve risk-based identification and repair gaps and vulnerabilities.
- Define **measurements** to make progress visible in the DevOps transformation journey. Show the value of changes with key performance indices to impact the future.
- **Share and collaborate** across teams and stakeholders to build trust and a shared-responsibility model, team agility, and to proactively achieve business objectives.

Figure 4.2-24 outlines key activities we perform to deliver DevOps that transforms CalSAWS.

| |  People |  Process |  Technology |  Governance |
|------|--|---|--|---|
| WHAT | Broken down silos that once existed between security and DevOps teams | Orchestrated and integrated process flows for “inline” risk rationalization | Automated security tasks and pipeline hardening | Established compliance controls for the modern development world |
| HOW | <ul style="list-style-type: none"> • Incorporate security staff in DevOps teams • Security teams share current threats, exploits, breaches • Development teams share needs, constraints, pressure from business | <ul style="list-style-type: none"> • “Shift-left,” anticipate security requirements as early as possible; embed requirements into the design • Treat security stories the same as quality and feature stories • Capture security telemetry and feed into incident response | <ul style="list-style-type: none"> • First and foremost, protect your development infrastructure • Implement “Security as Code” (e.g., Open Web Application Security Project (OWASP) Top 10) • Automate “Testing as Code” for recurring security testing • Use tools that reduce the pipeline security footprint | <ul style="list-style-type: none"> • Convert to a “Compliance as Code” mindset • Leverage your developers to turn your ideas into code • Establish shared compliance metrics to evaluate progress • Capture security event and incident management learning to feed into the requirements backlog |
| WHY | <ul style="list-style-type: none"> • Openness, transparency, and ownership | <ul style="list-style-type: none"> • With process and technology improvements, security issues are detected and remediated early, the cost to fix is lower, quality is better, and deployment is faster | | <ul style="list-style-type: none"> • Auditing effort and cost is lower and more predictable |

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Figure 4.2-24. Evolving DevOps to Deliver Improved Security and Stability Outcomes.

DevOps Focus Areas for CalSAWS

We identify activities to include in the **Approach to Application/Architecture Evolution deliverable** to drive improvement and accelerate development and feature delivery. These activity areas, and their benefits, are noted in Table 4.2-8 below.

| Key Activity Areas | Benefits |
|---------------------------------------|---|
| Standardize Build Process | <ul style="list-style-type: none"> • Provides a consistent, repeatable, security-compliant build process • Eliminates inconsistent builds and application misconfiguration • Improves application quality |
| Enable Tooling for CI/CD | <ul style="list-style-type: none"> • Enables smaller, more frequent releases using automation • Integrates developer changes earlier and more frequently • Delivery of code to environments faster and with greater reliability |
| Grow Security-First Thinking | <ul style="list-style-type: none"> • Views security holistically • Shifts left on security for security requirements, threat modeling, coding guidelines, and code reviews • Automates vulnerability testing activities aligned to industry standards such as OWASP and NIST |
| Automate Performance Tests | <ul style="list-style-type: none"> • Automates application performance testing in DevOps pipeline • Enables performance testing with each build |
| Reduce Environmental Footprint | <ul style="list-style-type: none"> • “Spins up” environments just in time to reduce cost • Streamlines provisioning |

| Key Activity Areas | Benefits |
|--|---|
| Prepare for Continuous Monitoring and Logging | <ul style="list-style-type: none"> Increases visibility across infrastructure and applications Improves root-cause analysis and problem resolution Enables stable operations |
| Govern DevOps | Defines and guides the DevOps process and implementation with the CalSAWS ARB. |

Table 4.2-8. DevOps Activity Areas Delivering Superior Operations Outcomes.

4.2.3.2 Approach to Using Infrastructure as Code

Our objective in using IaC is to be able stand-up environments and make changes to resources in a quick and automated manner, eliminating cost and errors. For example, during the continuous integration process IaC can build the code, build the environment, deploy, and test the code and then delete the environment in a single process. Environments can be created on demand at the push of a button. They also be removed quickly when not in use to manage resources wisely.

Our approach to IaC aligns with the CALMS model. It begins with an assessment, using our DevOps best practices and value stream maps, to identify IaC automation priorities based on time savings, accuracy, resource management, and current Consortium pain points. Areas of assessment include Infrastructure-as-a-Service (IaaS) deployment and management, PaaS and Software-as-a-Service (SaaS) services allocation and reservation, and service configuration. Table 4.2-9 outlines key activities we across 7 focus areas we explore with the Consortium to implement IaC.

REMEMBER WHEN

Deloitte delivered BenefitsCal with 100% IaC mindset.

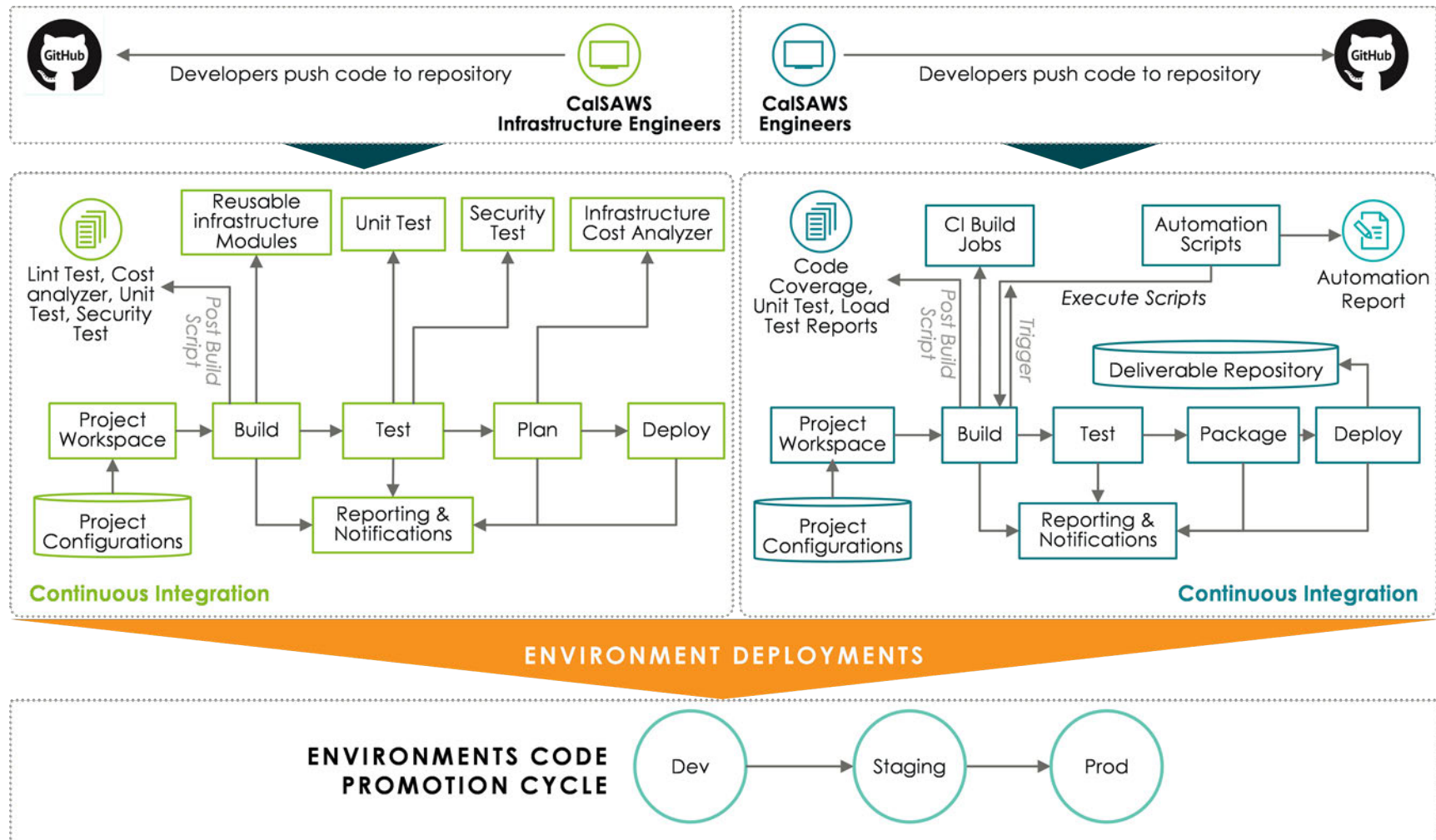
- All environments spun up and shutdown with IaC.
- New environment provision time less than an hour.
- More than 50 lambdas created in each environment.

| Focus Area | Approach |
|---------------------|---|
| Culture | <ul style="list-style-type: none"> Educate teams on IaC best practices and tools. Create an IaC-first approach (e.g., stories include infrastructure code changes with functional code changes). |
| Automation | <ul style="list-style-type: none"> Automate environment definition and deployment, creating consistency from development through production environments. Create on-demand and self-service capabilities for environments. Enhance security with quality gates to increase operational efficiency. Establish IaC for environments and eliminate manual management. Enforce standards for tools, versions, and resource usage through IaC. Focus on business value, improved time to value, and better outcomes. |
| Reduced Cost | <ul style="list-style-type: none"> Eliminate redundant and orphaned resources. Reduce resource overallocation through right sizing and monitoring. Apply continuous integration and evolve to continuous currency. |

| Focus Area | Approach |
|---------------------------------|---|
| Reusability | <ul style="list-style-type: none"> • Define a plug-and-play approach to integrate multiple tools. • Modularize use of tools to allow easy swap or replace of tools in the pipeline to support new tools or new versions. |
| Secure | <ul style="list-style-type: none"> • Integrate and automate security activities within CI/CD for proactive, timely remediation of security vulnerabilities. • Reduce security complications with consistent images and configurations. |
| Scalability | <ul style="list-style-type: none"> • Build on-demand, scalable infrastructure through IaC configurations that work elastically, scaling out during peak times and in during off-peak hours. |
| Self-Healing Application | <ul style="list-style-type: none"> • Include automation for self-healing environments, including multiple availability zone deployments, cross-region failover, and alerting mechanisms for highly available applications and incident recovery. |

Table 4.2-9. IaC Focus Areas Increasing Robustness and Reliability.

In our Deloitte Software Factory, we are constantly building automation templates to meet the security and operations. We use our IaC templates to make the changes rapidly, and establish a disciplined DevOps pipeline for infrastructure, as illustrated in Figure 4.2-25. Adopting IaC standards reduces costs by reducing proliferation of environments and idle resources through automated provisioning and integrated validation tests. The environment categories of Dev, Test, Staging, and Production can have independent rules and quality gates based on the category or with more granularity specific the environment.



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Figure 4.2-25. Code and IaC Pipelines.

4.2.4 Challenges and Risks to Evolving CalSAWS (ME-UA7)

RFP Reference: 5.3.3.2 – M&E Understanding and Approach to Application Evolution

ME-UA7 Identify key challenges and risks to evolving the CalSAWS core databases, middleware, and other components to align with the existing AWS architecture.

Table 4.2-10 below identifies potential risks and how we mitigate them in our approach.

| Challenge or Risk | How we mitigate project risks |
|---|---|
| CalSAWS application behavior in production does not align with the documented functional and technical design. | As part of the transition, we review functional and technical documentation to identify and mitigate gaps between documentation and actual application behavior. We use automated tools to help uncover business rule differences and issues with functionality in the production application. |
| Poor CalSAWS code quality and/or lack of code documentation increases the need for research of current state. | Despite best intentions legacy solution components often do not follow established patterns, are stove piped, are highly stateful. We production-proven accelerators (e.g., Storm Fury, Data Fury, innoWake Discovery and Mining) that identify dependencies, redundancies, and anti-cloud design patterns. This enables better evolution decisions and mitigates the risk of unanticipated concerns with legacy code. |
| Delivering SCRs and functional business changes concurrently with modernization/ evolution activities. | Often the incumbent's performance history has prevented timely implementation of SCRs to support operational business needs in parallel to application / architecture modernization without introducing the risk of interrupting business operations. We use parallel testing (A/B tests), leveraging a feature management tool (LaunchDarkly) that allows validation of new changes with smaller set of users before rolling out to all users. We feature strangler fig accelerators from our CalHEERS implementation that enable parallel operations until each underlying component is migrated, with no impact to workers or customers. |
| Increased rework during modernization. | Adding new functionality and evolving the architecture in parallel can affect the quality of feature releases if there is a lack of understanding of how both work streams impact the code together. Our experience with multiple clients with interweaving and sequencing the modernization and new development work gives us tools and practices to create early warnings for such conflicts and additional validations to prevent poor quality. |
| CalSAWS performance and availability issues not detected during testing of modernized solution. | Documentation and shared understanding of usage scenarios, periodic peaks, and incremental end user needs may not be readily available or discovered late. We use a multi-part validation strategy coupled with stakeholder interviews to supplement automated code analysis as a safeguard. |

| Challenge or Risk | How we mitigate project risks |
|--|---|
| Current elevated access to CalSAWS components and sensitive data. | We establish security roles, groups, and user privileges based on principle of least privileges and segregation of duties. We implement hardening standards based on AWS Well-Architected Framework. We also integrate CalSAWS security role testing as part of DevOps to evaluate non-compliance. Lastly, we use periodic re-certification processes to eliminate unnecessary CalSAWS access. |
| Loss of modernization momentum due new competing priorities. | CalSAWS ^{CON} provides the Consortium a more economical, scalable, and extensible application model. The complex tradeoffs between scope, value, budget, and business operations can delay realizing value from modernization. We use dedicated teams for performing modernization and implementing ongoing SCRs, and our modernization approach minimizes the impact on Consortium resources. Lastly, we can bring additional resources from our broad HHS practice as required to support new needs and not divert resources dedicated to modernization to other priorities. |

Table 4.2-10. Addressing Challenges with Evolving the Database and Application.

4.2.5 Challenges and Risks to Establishing Our DevOps Approach (ME-UA8)

RFP Reference: 5.3.3.2 - M&E Understanding and Approach to Application Evolution

ME-UA8 Identify key challenges and risks to establishing your DevOps approach.

Table 4.2-11 below identifies potential risks and how we mitigate them in our approach.

| Challenge or Risk | How we mitigate project risks |
|--|---|
| Reduced CalSAWS availability from over reliance on manual infrastructure vendor activities. | <ul style="list-style-type: none"> Collaborate on IaC usage standards with third-party infrastructure vendor. Set up roles and permissions for IaC and infrastructure DevOps pipeline to function accurately. |
| Significant rework of current build scripts, legacy application, and build processes delaying IaC adoption. | <ul style="list-style-type: none"> Automate test data and data modernization processes first. Create validations and full automation of legacy application IaC. Externalize configurations from legacy application. Establish standards for new code and feature modules. Build IaC for modernized platform from the outset. |

Table 4.2-11. Addressing DevOps Challenges While Evolving CalSAWS.

4.3 System Change Requests

RFP Reference: 5.3.3.3 - M&E Understanding and Approach to System Change Requests

The CalSAWS Consortium delivers SCR faster, gets more holistic and collaborative design of those SCR, and more flexibility in scheduling them by coloring outside the lines with Deloitte. Our approach combines our EVD software delivery method with proven UCD to manage SCR with the Consortium. Aided by leading practices and assets from our national network of 26 E&E systems we support, we enable the Consortium to deliver impactful CalSAWS functionality quickly to meet Counties' needs to support Californians.

The Consortium, Counties and State Partners have all voiced their concerns about the length of time that SCR take from inception (whether a County Enhancement Request or a policy-driven change) to deployment into production. There are a number of factors that drive how quickly a change is introduced, stemming from policy clarifications/finalization, available capacity, the governance process for reviews and approval, dependencies across systems, delivery approach and considerations of where in the business a change should be introduced. Often overlooked but critical to consider is also the impact the change will have on Counties and Customers.

Our team has experiences adapting to the Consortium's SCR processes, as well as, bringing innovative ideas around design, development, and implementation with security and privacy considerations at each phase. Our experience in California, as well as in other states, enables us to bring the best solutions the first time to meet the Consortium's needs. Our team aligns with the Consortium's vision of working closely with the Delivery Integration Office (DIO) and the Project Management Office (PMO). Our M&E Delivery Integration Manager works closely with other contractors through the SCR process, as directed by the Consortium, to assess, prioritize, and manage the SCR pipeline to meet Counties' needs quickly and efficiently.



SECTION HIGHLIGHTS

- Early stakeholder engagement for SCR by extending BenefitsCal's UCD process to CalSAWS.
- Impactful SCR process improvements based on our experience with CalSAWS' CCB processes.
- A flexible, common-sense planning and prioritization approach for SCR.
- Built in SCR activities that foster both process and technical innovation to help CalSAWS color outside the lines.
- A "one-team" approach across Deloitte, the Consortium, Counties, the DIO, and other stakeholders driven by business value, consensus, and end-to-end transparency.



Elisabeth Bayard-Arthur
UX Lead

Area: User Center
Design Experience

Helping You Color Outside the Lines

Elisabeth has worked on the BenefitsCal project to engage the student user in the design phase from the beginning. Students were engaged during discovery research, for the Deloitte team to gain a deep understanding of their needs and motivations related to benefits. User stories, system requirements, and the actual designs were thoughtfully crafted based on insights gained during the research. User engagement throughout the design life cycle produced functionality that truly benefited our target population.

Student user involvement and input created direct impact to their experience when testing new functionality:



- Student User #1:** "It's like every question I had when I applied is answered right here on the page!"
- Student User #2:** "I totally hesitated to apply for benefits so I'm glad there is encouragement and reassuring words on the page to convince me to apply."

Considerations for Your Success

The SCR process for CalSAWS is a process that includes many stakeholders as well as other levers that impact how fast a system change gets into the hands of a CalSAWS user or impacts a customer. Table 4.3-1 compiles these considerations and the impacts to improving the SCR process and aligning with the Consortium vision of the SCR process.

| Consideration | Impact of Our Approach |
|---|--|
| Identifying and expediting delivery SCRs with quality and consistency. | We work closely with the Consortium, Counties, end users, policy, and other stakeholders to collect continuous feedback regarding system changes. This continuous information exchange translates into delivering changes quicker to Counties. |
| Balancing CalSAWS architecture evolution with County SCR priorities and needs. | We prioritize architecture modernization with the greatest business value and positive user impacts. The CalSAWS technology stack plays an oversized role in the current ecosystem for prioritizing changes. Technology/architectural constraints need review and evaluation prior to SCR prioritization. |
| Pace of policy decisions and supporting CalSAWS' dynamic policy and program environment. | Policy decisions are a process and can take time to complete due to various approval processes. This does impact planning and scheduled timelines. We work with the Consortium and policy staff to during this process and provide flexibility in capacity management in each release plan to support the Consortium's dynamic nature. |
| Collaborating with a large number of CalSAWS stakeholders with very different needs. | We closely collaborate to keep stakeholders well-informed about the progress and timeline for delivery of critical changes and involves them in the prioritization process. |
| Effectively prioritizing both small and large SCRs given capacity constraints. | We provide detailed up-front analysis for end-to-end design for the SCRs based on the scale of the change and complexity of programs in CalSAWS. |
| Overuse of "add-on" SCRs due to poor scoping and estimation of initial change requests. | Utilize UCD and the voice of the customer in planning requirements and design for enhancements early in the SCR process. This reduces the need for additional change requests and enables us to fit user needs and expectations better. |
| Measuring quality for a functionally complex system like CalSAWS. | Well-structured testing process for SCR confirms quality for the final product and avoid disruptions to Counties' daily operations. |

Table 4.3-1. Considerations for Our SCR Approach.

How the Remainder of this Section is Organized

4.3.1 SDLC Methodology for CalSAWS Changes (ME-UA9)

4.3.2 Improving Existing CalSAWS SCR Processes (ME-UA10)

4.3.3 Improving the Existing CalSAWS Approach to UCD (ME-UA11)

4.3.4 CI/CD Security Measures (ME-UA12)

4.3.5 Risks and Mitigation Strategies (ME-UA13)



4.3.1 SDLC Methodology for CalSAWS Changes (ME-UA9)

RFP Reference: 5.3.3.3 - M&E Understanding and Approach to System Change Requests
ME-UA9 Describe the SDLC methodology you will use to deliver CalSAWS changes.

Deloitte has significant experience helping clients strategically identify operational efficiencies, implementing and enhancing complex Health and Human Services (HHS) technology solutions. We work with the Consortium to establish a prioritization process with the meetings at a project-determined cadence to review items in consideration to optimize the value of slotted changes scheduled for a release. To deliver optimal value for stakeholders, including Consortium, Counties, state policy, and external stakeholders, the prioritization efforts include representation from key stakeholder groups. Our understanding of the Consortium's stakeholder environment is depicted in Figure 4.3-1.

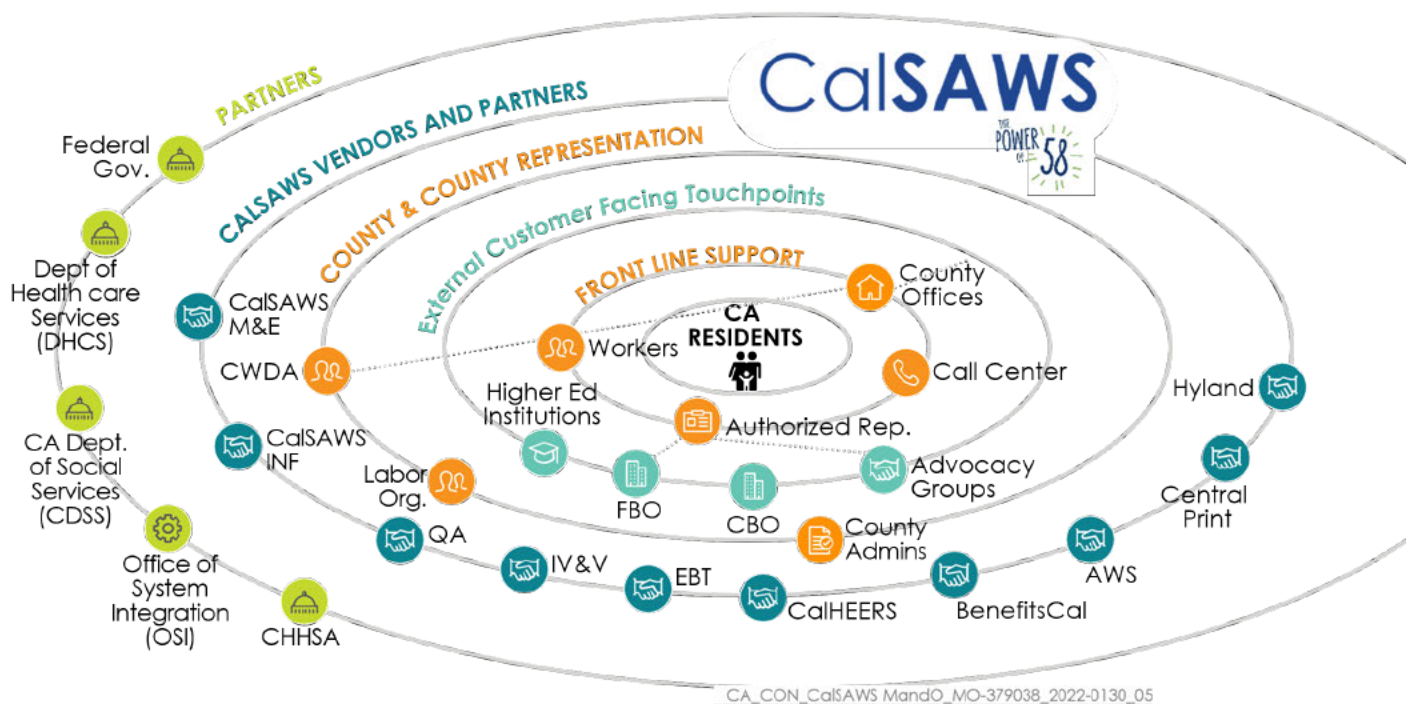


Figure 4.3-1. CalSAWS Stakeholder Ecosystem.

As part of our EVD methodology and our incorporation of User Center Design (UCD) we use on BenefitsCal, we coordinate with stakeholders on aspects of CalSAWS SCRs, including status, accomplishments, and schedule of system changes. The complexity and importance of engaging the large number of stakeholders in the SDLC process (e.g., Consortium, end users, Counties, advocates, other program vendors, customers, community partners, providers) requires an understanding of the business and tools used to build alignment. Our approach uses UCD techniques to create a common goal on which groups can focus, improving the lives of Californians.

4.3.1.1 EVD Hybrid Agile Benefits and Phases

Deloitte brings a full spectrum of agility when it comes to SDLC methodology. Across our diverse HHS portfolio of projects, we have successfully maintained, operated, and enhanced systems using traditional Waterfall techniques with a predefined scope and specialized team composition. We have also used Waterfall, Hybrid-Agile, and Agile SDLC methodologies depending on the need for flexibility and the ability to revise priorities. One of the key benefits of our methodology is its flexibility to support the spectrum of agility (Figure 4.3-2), allowing us to leverage best practices from both Waterfall and Agile approaches.

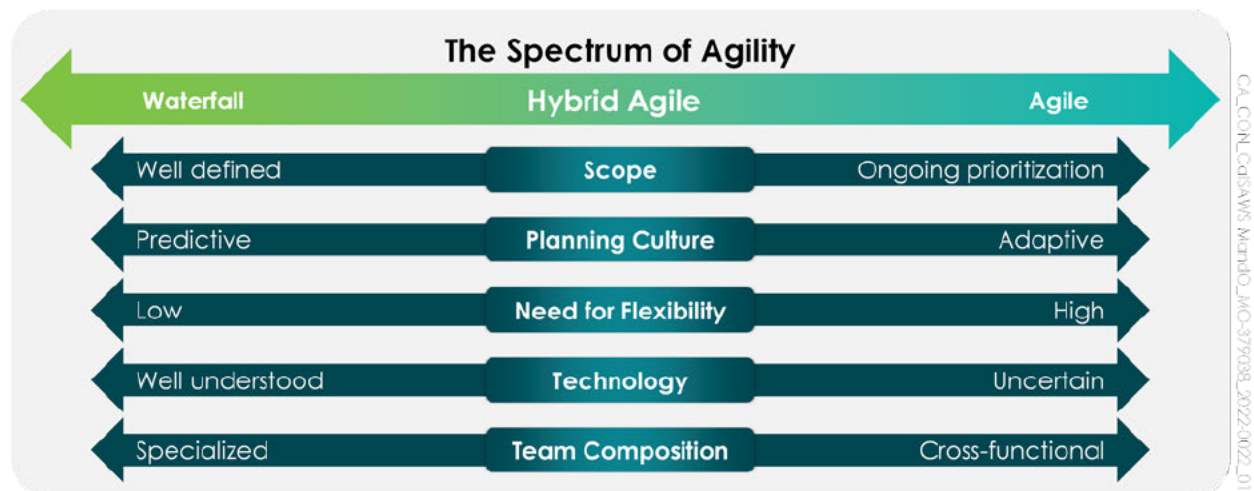


Figure 4.3-2. The Spectrum of Agility.

Our team brings domain knowledge for both Waterfall and Agile processes; additionally, we have experience with Hybrid Agile, which continues to align with Waterfall traditional process and focus Agile processes on enhancements that need more flexibility, such as SCRs requested by Counties, to improve user processes or capabilities.

We propose using a EVD's Hybrid Agile SDLC methodology for CalSAWS. We have used Hybrid Agile on E&E system projects for over 30 years, including most recently in our deliver of Arkansas's new E&E system ARIES, and maintaining Pennsylvania's E&E and HHS systems. It is an effective SDLC methodology for delivering an elevated human experience through UCD; producing high quality faster; and managing complexity, unpredictability, and change through continuous visibility, inspection, adaptation, and input from key stakeholders.

CalSAWS current SDLC processes increases overall cost and time to implement. This is due to a number of reasons, including delays in policy decisions, lack of holistic

KEY BENEFITS

Hybrid Agile

- Continuous feedback throughout reduces risk of additional requirements and slowdown of the CR
- Brings users' voice throughout the phases and continuous feedback/adjustments
- Best practices that reduce overall timeline and effort for development and delivery while maintaining quality

estimation of changes, multiple stakeholder approval points, and overuse of “add-on” SCRs As Figure 4.3-3 shows, over time, this creates challenges to planning, budget, resource allocation, availability, and ultimately user trust in the system.

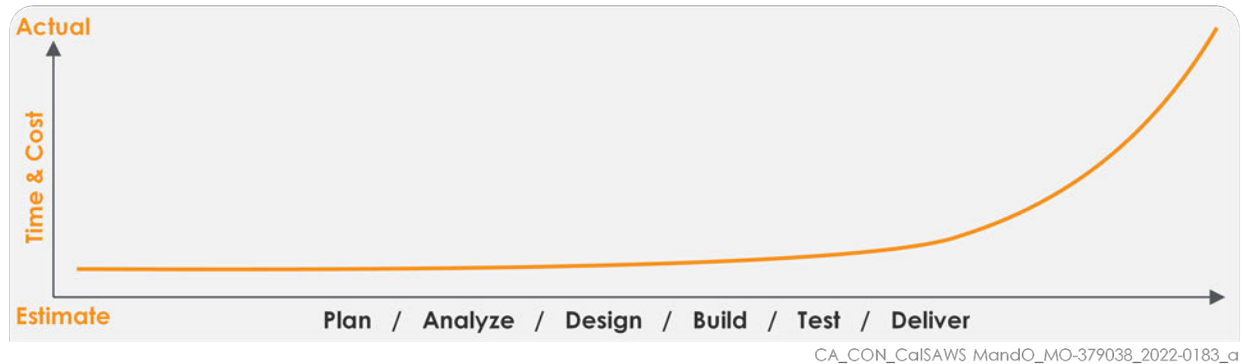


Figure 4.3-3. Current CalSAWS Traditional SDLC Flow.

Our team’s approach to Hybrid Agile streamlines the processes and brings flexibility, improved responsiveness to end-user demands, and stabilizes the estimated cost and time for each SCR. Figure 4.3-4 represents the time and cost over the phases, which closely aligns with the estimate and actual to the SCR process when following the Hybrid Agile methodology.

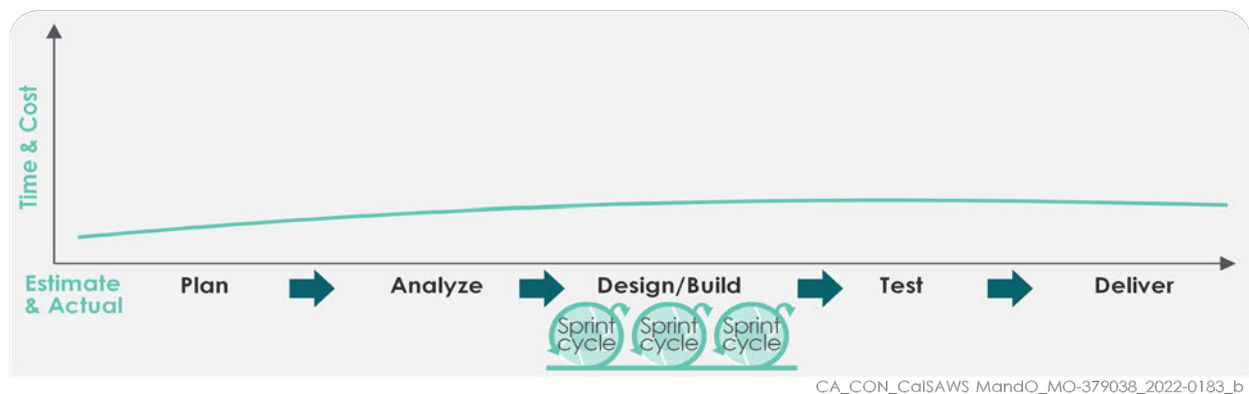


Figure 4.3-4. Time and Cost Benefits from Hybrid Agile.

Our Hybrid Agile methodology balances the structure and predictability of a traditional Waterfall approach with the flexibility and responsiveness of a pure Agile approach. This allows us to simultaneously structure activities in a predictable manner, optimize resources, and remain flexible in case of changes due to shifting business priorities.

Hybrid-Agile and Alignment with CalSAWS SCR Process

Our EVD’s Hybrid Agile SDLC methodology’s activities are defined further below. Each of these phases and activities are designed to define and refine the requirements for the SCRs, which address the Consortium’s and Counties’ business objectives. Those requirements are brought to life, validated, and maintained through highly iterative Configure, Test, and Deploy activities. This approach aligns the current SCR process and brings innovation to the process (see Tables 4.3-2 through 4.3-5, below).

Plan Phase

| Areas | Activities that Align with CalSAWS SCR Process |
|---|--|
| Discover and Define | <ul style="list-style-type: none"> • Capture and incorporate voices from the field/County user observations and SCR ideas as an input for SCR prioritization. • Collaborate and identify with Counties' recommendations and proposed timeline for changes that increases benefits to the users and continue to align CalSAWS with UCD and benefit County users. |
| Develop Project Schedule | <ul style="list-style-type: none"> • Develop, implement, and maintain SCR Production Release Schedule. • Coordinate end-to-end planning for the release schedule/capacity for changes affecting other systems. • Annual adjustments to SCR production schedule per Consortium requests. • Obtain SCR approval from the Consortium prior to initiating SCR activities. |
| Conduct Current State Overview | <ul style="list-style-type: none"> • Collaborate with the Consortium Design Team to review and perform a system and cross-functional impact analysis. • Validate accuracy of cost estimates. • Utilize the SCR automated template for current assessments: detailed description of current design; detailed description of the requested change; supporting design artifacts such as functional design documents for correspondence, ICDs for interfaces. • Complete estimate of changes; create lists of the functional areas impacted. • Create assumptions; review/update regression test plans. |
| Develop Future Capability Wishlist | <ul style="list-style-type: none"> • Recommend and implement improvements to the existing SCR processes. • Intended outcomes: changes are more quickly promulgated to the Production environment, maintaining a quality delivery. |
| Conceptual System Architectures | <ul style="list-style-type: none"> • Review system architecture and any constraints or required changes/updates to align with enhancement requests. • Work with the DIO for any cross-vendor changes that are required due to enhancement impact multiple platforms and/or applications. |

Table 4.3-2. Activities for Planning.

Discovery Phase

| Areas | Activities that Align with CalSAWS SCR Process |
|--|--|
| Interactive Sessions with Customers | <ul style="list-style-type: none"> • Perform requirements capture and validation activities: <ul style="list-style-type: none"> ◦ Cooperation and coordination with Consortium, stakeholders, users, and other contractors as applicable. ◦ Stay consistent with the M&E Services Plan and the associated OWDs. • Meet with users and review current business processes and the impact to these based on requested changes. • Collect the voice of the users at the beginning of the process through workshops, focus groups, surveys, and/or innovation labs. • Information collection is not a "one size fits all" activity; customize gathering user inputs based on the client's preference and consider the type of change being requested to bring additional ideas to the discussions. |

| Areas | Activities that Align with CalSAWS SCR Process |
|----------------------------------|---|
| Perform High-Level Design | <ul style="list-style-type: none"> Perform design specification and validation activities, in conjunction with the Consortium and other contractors, consistent with the M&E Services Plan and the associated OWDs; the voice of the user aligns with the design, and we continuously work creating the UCD component to requested enhancement. Adopt, enhance, maintain, and deliver the M&E General Design Document; Deliverable: M&E General System Design Document. Confirm that updates to the M&E General System Design Document trace back to the requirements and are kept current with the CalSAWS design in the Project's MDM solution. Adopt, enhance, maintain, and deliver the ICD for each external interface; Deliverable: M&E Interface Control Document (ICD). Develop, deliver, maintain, and execute an Interface Agreement for each entity, including federal, State, and County partners, with which CalSAWS interfaces; Deliverable: M&E Interface Agreement. Adopt, enhance, and maintain the M&E MDM solution(s), which provides an automated and auditable single source for critical CalSAWS data. |
| Focus Group Discussions | <ul style="list-style-type: none"> Our team works with the Consortium, stakeholders, Counties, and other users of the CalSAWS application to review and discuss SCRs. These focus groups have a target audience that has requested and/or is impacted by the change. The discussion feedback drives the design and is continuous throughout the entire SDLC, including implementation and post-implementation. Focus groups can also be utilized to routinely meet with County user groups to continuously collect and gain feedback on the system and past enhancements to create a continuous improvement plan and align with upcoming and emerging new technologies and tools for users. |
| Experience Measurement | <ul style="list-style-type: none"> Deloitte utilizes different methods to collect measurements from stakeholders, Counties, and other users to collect feedback on each SCR enhancement release experience. This can include the experience of the SDLC participation and/or the outcome of the changes post-implementation. |
| Define User Stories | <ul style="list-style-type: none"> Capture functional and technical requirements that serve as the basis for the SCR design and development change(s). Perform security impact analysis of the SCR and define security requirements to mitigate any identified security risks. Work to define these user stories to capture these voices and align with the channels for which these voices represent. Record and keep current requirements in the requirements traceability and verification tool(s), which is part of the project's MDM solution. Update and deliver the RTM and any unresolved traceability issues; Deliverable: Requirements Traceability Matrix (RTM) and Report. |
| Perform Sprint Planning | <ul style="list-style-type: none"> Partner with the Consortium and external interface entities to plan, engage, and collaborate in the design and testing of the interfaces and/or interface file changes. Plan with Counties and identify end users to participate during each phase activities and reviews. |

Table 4.3-3. Activities for Analyzing, Designing and Building Changes.

Deliver Phase

| Areas | Activities that Align with CalSAWS SCR Process |
|--------------------------------------|---|
| Develop Design Specifications | <ul style="list-style-type: none"> • Implement each interface between CalSAWS and each external system in accordance with the ICD for that interface. • Deliver translation services for CalSAWS correspondence in the State-approved threshold 21 languages and other languages added. <ul style="list-style-type: none"> ○ Support Translation review, validation, and approval processes. ○ Develop translated materials with native speakers of languages. • Develop and implement modification to CalSAWS application in accordance with the Consortium's core automation principles, ADA Standards for Accessible Design, and Compliance with Section 508 of the Rehabilitation Act. • Develop prototypes for end users to review and provide feedback. |
| Configure and Code | <ul style="list-style-type: none"> • Perform required code and configuration changes to implement the prioritized system changes. |
| Conduct Unit Test | <ul style="list-style-type: none"> • Perform unit testing and quality assessment for the code and configuration changes applied for the prioritized system changes. |
| SIT, Security Testing | <ul style="list-style-type: none"> • Perform requirement and environment validations and required Security testing for each release. |
| Coordinate UAT | <ul style="list-style-type: none"> • Support Consortium and Counties for testing: <ul style="list-style-type: none"> ○ Deloitte provides additional support for counties to aide in testing processes to reduce impact to counties daily activities, while participating with validations. ○ Support translation actives during testing include innovative solutions for efficient testing correspondences and forms. ○ Execute quality assurance/validation process on these materials. |
| UAT Support | <ul style="list-style-type: none"> • Recommend effective and efficient process for County testers to document in JIRA County scenarios, test execution results, and creation and tracking of testing incidents to disposition. • Define the need for a UAT phase and create process for integrating UAT into the testing schedule. • Provide the Consortium's UAT support for UAT user access, remote support, environment validation and smoke testing, design walkthroughs, training on testing tools or processes, incident analyst and defect fix activities, support batch execution, date shift, data refresh, and deployments. • Develop automation UAT regression test scripts and assist with the integration of scripts into the automate regression test tool. • Attend UAT support meetings. |

Table 4.3-4. Activities for Testing.

Deploy Phase

| Areas | Activities that Align with CalSAWS SCR Process |
|--|--|
| Continuous Alignment with Voices from the Field/Conduct End User Training | <ul style="list-style-type: none"> • Coordinate end-to-end system validations across impacted systems with County policy, County staff, Consortium, QA, and partner systems. • Align with training requirements for each Target Release Schedule based on change request impacts to Counties and their business processes (Subtask 3.6 Change Management and Training requirements). • Continuously review and recommend effective and creative training methods and processes; our team is experienced in creating excellence in training delivery and brings this to the Consortium. |
| Production Readiness and Green Light Activities | <ul style="list-style-type: none"> • Coordinate go/no-go decision meeting, staging validation, and deployment activities that align with Subtask 3.7 Production Readiness and Green Light requirements. • Work with the Consortium and Counties to confirm each step of validations has been completed to their satisfaction and all deployment activities are ready and scheduled, including smoke testing. • Schedule go/no-go decision meeting with the Consortium and Counties to verify that all activities for SCRs have been completed and the release is ready to move to the production environment. |
| Execute Production Deployment | <ul style="list-style-type: none"> • Manage deployment activities consistent with the M&E Service Plan. • Deliver and certify each production release via Deliverable: Certification of Successful Production Release. |
| Implementation Validations | <ul style="list-style-type: none"> • Support Consortium and County validation processes. • Provide staff to support County validations. |
| Perform Sprint Retrospective | <ul style="list-style-type: none"> • Schedule and host post-deployment conference calls and webinar support for end users and stakeholders, focusing on the changes introduced with the production release. • Solicit and document end user concerns and feedback provided during post-deployment support conference calls or webinars. |

Table 4.3-5. Activities for Deployment.

4.3.2 Improving Existing CalSAWS SCR Processes (ME-UA10)

RFP Reference: 5.3.3.3 - M&E Understanding and Approach to System Change Requests

ME-UA10 Describe your approach to improving the existing CalSAWS SCR process. Include solutions to deliver changes more quickly to end users, including improving processes, tools, RWR and test methodology improvements. Explain how your staffing levels defined within **Attachment B13 – M&E Staffing Worksheet** align with your approach. Justification for staffing levels below the current efforts described in Section 3 must be strongly supported.

4.3.2.1 Deliver Changes More Quickly to End Users

Changes that impact the CalSAWS users are among the most requested enhancements. These enhancements can be a significant difference to caseworkers' daily workload and/or improving the process to get benefits into the hands of the individuals that need them. Traditional delivery can be perceived as large narrow processes without any room for adjustments during the cycle. We utilize a continuous delivery pipeline process which aligns with Agile methodologies as highlighted in Figure 4.3-5.

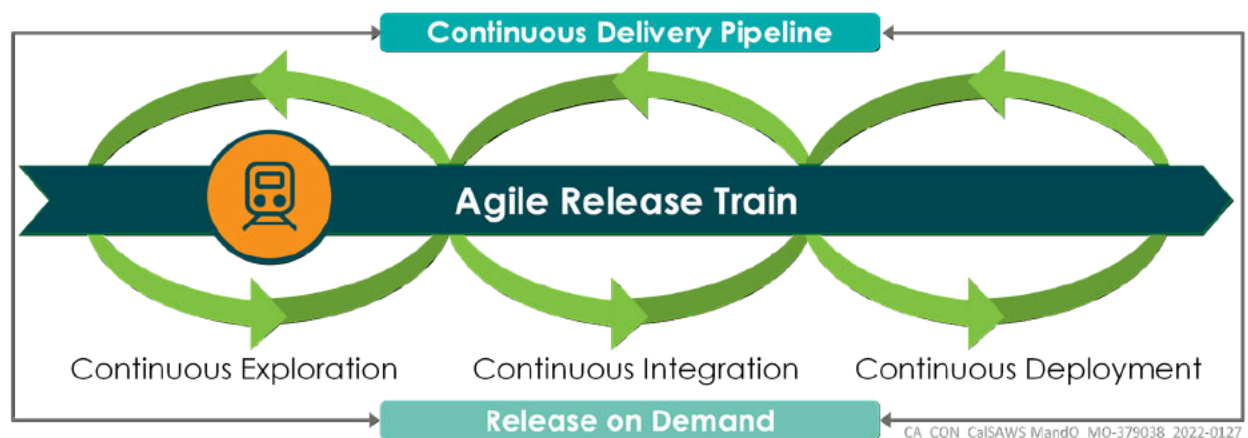


Figure 4.3-5. Continuous Delivery Flow.

Our continuous delivery process utilizes the Hybrid Agile approach and a UCD focus, which enables us to continuously listen, explore, and incorporate voice of the customer/end-user to SCR lifecycle. It also helps determine the downstream impacts of an SCR to existing CalSAWS-supported business processes early and translates smaller chunks in the delivery process, where certain CalSAWS features can be delivered quicker to the end user and only to end users that have requested the changes. These processes, explained in Table 4.3-6 below, help improve the current Release When Ready (RWR) process to still deliver quickly and support the delivery of small batches of new functionalities, which are then released to fulfill end user demand.

| Aspects | Description and Benefits |
|------------------------------------|--|
| Continuous Exploration (CE) | During CE, enhancements requested by the users are reviewed to fully understand the voice of the customer (i.e., end user, requester) to identify the right solution to meet that need. Exploration includes reviewing the existing solution architecture and current system features that should be modified. Based on this information, the solution identified, and changes required are reviewed to verify this meets the end user needs. |
| Continuous Integration (CI) | Our team focuses on reviewing enhancements requested by users to design a user story map. We conduct review and focus sessions with customers that use the features requested to clearly understand the requirements and define downstream impacts to existing business processes. These changes are completed, tested end to end, and then validated through a staging environment. Completed work is scheduled to release in production. |
| Continuous Deployment (CD) | Features are continuously verified and monitored in a lower environment before production deployment. They are deployed and released to the end user after being tested. These changes can also be user and/or County specific upon release. |
| Release on Demand (RoD) | This process enables changes to be made available at once or through stages (e.g., one County, and then to other counties). This allows the end user to validate in production in a smaller grouping, which reduces the risk associated to the release and preserves system stability. |

Table 4.3-6. Aspects of Continuous Delivery.

Testing Improvements

Creating those continuous checks of current system functionality and identifying the right data and the right testers provide a smoother flow of validations. Our proposed testing approach updates processes and reduces old/siloed processes between counties and the Consortium. Our approach to improve testing through different methods and processes are detailed in Table 4.3-7.

| Testing Approach | Details |
|--|--|
| Regression testing automation | Automation regression strengthens the Continuous Integration/Continuous Deployment (CI/CD) process for delivering end user enhancements quicker and with quality. We create and maintain a suite of test scripts that cover everyday functionality to be validated in every release. This helps us confirm each new code implementation does have an unexpected impact CalSAWS and, if one does occur, it can be fixed prior to production deployment. |
| Create an End-2-End (E2E) testing plan each release across Consortium vendors | We coordinate with other Consortium vendors to streamline E2E testing once, not multiple times, to fit different schedules. Deloitte works with the DIO and PMO when this is required for an enhancement. Creating a common schedule allows testing to be completed at the same time for all vendors across different enhancements that are in flight. |

| Testing Approach | Details |
|--|---|
| Create base data setup for each release | We maintain a base of test data that aligns to typical scenarios which are processed daily in CalSAWS. This test data setup is repeatable each release and saves time from finding data to test. This includes loading and maintaining masked production test case data that aligns with the specific test and change for that release. This reduces the need to store, track, and protect a large amount of test data. |
| Having the right users for testing | We want users to buy-in during requirements and design, including usability and policy compliance considerations. We identify early on actual end users to pull into not only design but testing and validation before moving to Production. |

Table 4.3-7. Testing Improvements.

Our CI/CD processes uses regular review and innovation to improve the release processes. The testing methodology and required testing support activities are also part of this continuous analysis to identify improvements to better support the Consortium, end users, and stakeholders via these validations processes.

4.3.2.2 Alignment to M&E Staffing Worksheet

Staffing is key for supporting the SCR process and activities we have proposed in this response and to align to existing activities conducted by the Consortium, counties, and Stakeholders. Typical vendors often over rely on developer staff as their approach is less user centric. This causes more defects and iterations of coding change, testing failures, and often, requirement changes as the basic user needs were not fully understood. Our approach relies less on developer resources then other key phases of the SDLC. Figure 4.3-6 below demonstrates our staffing levels in comparison to a typical vendor.

M&E Staffing Approach Hours to M&E Additional Staffing Support

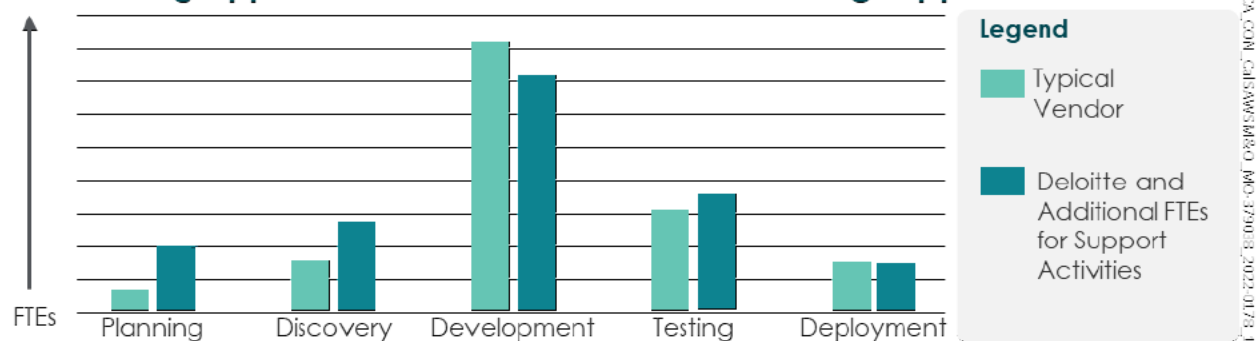


Figure 4.3-6. Additions for Resource Capacity.

In our approach, additional FTEs are added to our staffing to perform the following added activities to benefit the overall SCR process:

- Conducting and supporting UCD activities that are further described in **Section 4.3.3 - Improving the Existing CalSAWS Approach to UCD**. These UCD experienced team members do more thorough Discovery then typical vendors, and also make recommendations for continuous process improvement and innovation for usability and user experience testing.

- Conducting more upfront policy clarifications prior to requirement and design sessions so the full need is understood to cut down on 'add on' SCRs.
- Planning and facilitating usability/user experience research and testing.
- Providing additional support to Counties to identify needed and/or valuable CalSAWS changes and representing these needs during SCR prioritization and approval processes.
- Providing staff to support County validations for releases.


4.3.3 Improving the Existing CalSAWS Approach to UCD (ME-UA11)

RFP Reference: 5.3.3.3 - M&E Understanding and Approach to System Change Requests

ME-UA11 Describe how you will improve the existing CalSAWS approach to UCD and the overall User experience as part of the SDLC.

We have directly engaged with state government clients using our UCD approach in Texas, Pennsylvania, Tennessee, Kentucky, Wisconsin, New Mexico, and others. Our design capabilities leverage commercial best practices while remaining sensitive to the unique nuances of agencies' different customer bases. We research customer's expectations of government services to have a clear perspective on the needs, expectations, and pain points of today. For example, similar to BenefitsCal, we have recently modernized integrated portals for human services customers in Colorado and Kentucky and went live with the first release of the Texas.gov My Government My Way application—a bold initiative to provide a one-stop-shop for Texas government service.

UCD is a concept that resonates with the individuals that use the applications in their day-to-day roles and Californians who receive eligibility through CalSAWS. The users of CalSAWS with hands on experience provide feedback and proposed changes that can create efficiencies and timeliness and reduce mistakes when processing cases. BenefitsCal is a key example of the success of our UCD approach. Our approach to improving CalSAWS UCD processes is based on extending what we have seen work already with the Consortium with BenefitsCal. In our approach, Counties' feedback and enhancement recommendations are continuous and not a one-time observation. Table 4.3-8 below describes the framework to improve the existing CalSAWS UCD approach and the overall user experience.



WHAT YOU DID KNOW

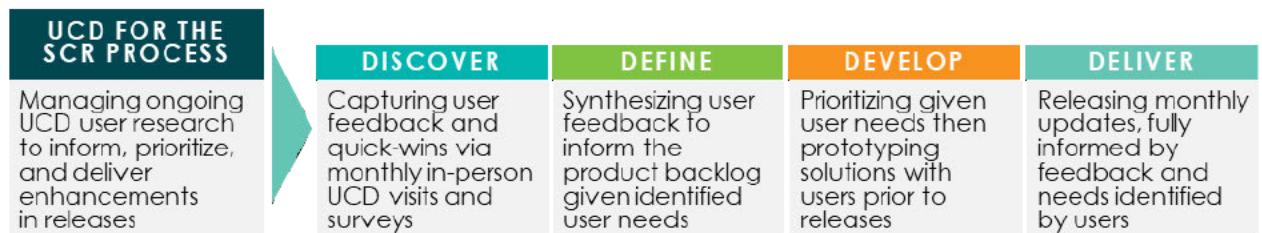
As part of BenefitsCal, the Deloitte team in the past year has:

- Established and engaged end users throughout the project phases
- Created relationships and transparencies
- Streamlined user feedback and created a continuous process to collect the user input

| Improvement Areas | Implementing Improvements | Benefits for UCD and User Experience |
|--|---|---|
| Collect and incorporate more County and user feedback | Capture County user observations and SCR ideas via in-person UCD visits. Also continuously review and collect user experience after SCR implementation. | Better prioritization and identification of improvement aligned to CalSAWS user needs throughout the entire SDLC process. |
| Analysis of system data | Review County-level data to identify possible automations and/or areas to streamline processes based on County needs. | Provides individual Counties ideas for improvements for their users, without creating SCRs that impact other Counties. |
| Utilizing feedback to improve SCR prioritization | Feedback and requested changes by Counties and end-users need to be part of the prioritization and planning of SCRs. | Better prioritization of SCRs and higher County satisfaction with CalSAWS and the Consortium's prioritization processes |
| End-User participation throughout SDLC | For each phase of the SDLC process that impact counties/end users, the SDLC phases include review sessions with the end-users. | Aids in delivering the change as requested. Users can see prototypes, test the changes, and help provide feedback to adjust prior to go live. |

Table 4.3-8. Implementing Improvements to Benefit UCD and User Experience.

To improve Counties' experience during the SDLC process, we rely on continuous avenues of feedback to help prioritize and deliver the right solutions to benefit the County user experience, as seen in Figure 4.3-7. Our team has experience in creating effective and transparent communication with CalSAWS and the Consortium from our BenefitsCal project to help more quickly implement these feedback channels for the Consortium.



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Figure 4.3-7. Continuous Avenues of Feedback.

Collecting feedback is completed in a couple of different processes. First, the Deloitte team creates a series of virtual focus groups across Counties to establish a baseline understanding of common and unique needs, goals, and constraints. Each County can utilize this activity to baseline their needs and requests, and to build onto this list with utilizing periodic focus groups, for example after each major release. Additionally, our team creates and collects CalSAWS user surveys. The surveys quickly capture current experiences and pain points and serve as a source of quantitative data for deeper analysis.

4.3.4 CI/CD Security Measures (ME-UA12)

RFP Reference: 5.3.3.3 - M&E Understanding and Approach to System Change Requests

ME-UA12 Describe your approach to strengthening security measures associated with the application prior to release, including the CI/CD process, proactive security controls and testing.

An increased need to protect public trust, manage reputational risks, and avoid regulatory scrutiny have now placed a greater focus on security functions. This is particularly true for a data expansive system like CalSAWS, with PII information on 18+ million Californians. Security is an integral part of Deloitte's EVD-based delivery approach, and it is at the top of everything we do on a project like CalSAWS. When faced with the challenge of managing ever-evolving IT security risks, the Consortium should have the benefit of working with an organization that has "been there and done that." Its delivery vendor should be an organization that can match its pace and demonstrate an understanding of its needs and challenges. That vendor is Deloitte.



DISTINGUISHING FACTORS

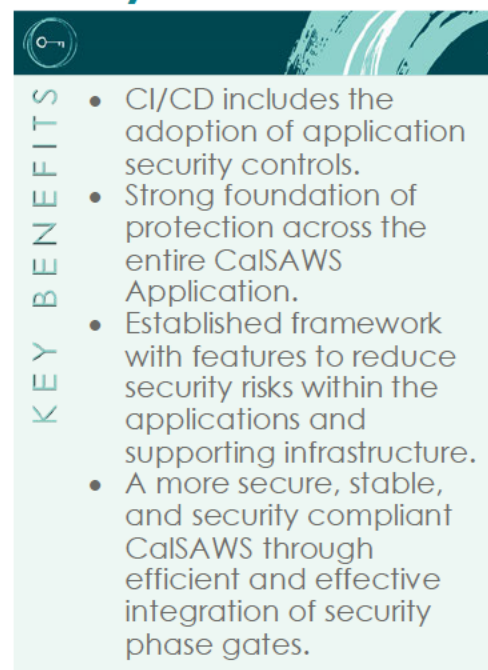
A Leader in Cybersecurity

- Ranked #1 globally in Security Consulting Services for the 11th consecutive year based on revenue by Gartner
- Named a global leader in Cybersecurity Incident Response Services by Forrester. Source: Forrester Research.
- Named a global leader in Cybersecurity Consulting by ALM for the 6th consecutive year.

4.3.4.1 Approach for Proactive Security Controls

Deloitte integrates security activities throughout the SDLC, enabling timely, risk-based identification and remediation of gaps and security vulnerabilities. Our DevSecOps approach provides a holistic view of security activities to enhance CalSAWS security posture, including development of security requirements, threat modelling, design principles, coding guidelines, code reviews, and vulnerability testing activities aligned to industry standards, such as Open Web Application Security Project (OWASP) and National Institute of Standards and Technology (NIST) security standards. The security controls implemented to safeguard CalSAWS are documented in the system security plan.

Figure 4.3-8 provides an overview of the security culture, practices, and technology we use while managing CalSAWS application development and operations to protect Californian's data.



KEY BENEFITS

- CI/CD includes the adoption of application security controls.
- Strong foundation of protection across the entire CalSAWS Application.
- Established framework with features to reduce security risks within the applications and supporting infrastructure.
- A more secure, stable, and security compliant CalSAWS through efficient and effective integration of security phase gates.

PEOPLE & CULTURE

| | | Integrated Teams | Constant Communication | Blameless Postmortems | Continuous Learning and Innovation | Shared Business Objectives | Well Documented Roles and Responsibilities |
|---------------------|---------------------|---|--|---|---|---|--|
| | | Project Planning and Discovery <i>Establish integrated operations and baseline security capabilities</i> | Delivery <i>In-line automated security testing prior to code commit</i> | Deploy <i>Risk rationalized checks before, during, and after code is deployed</i> | Continuous Delivery <i>Continuous process to prevent threats and issues</i> | Monitor <i>Continuous process to detect threats and issues</i> | |
| Security Activities | | <ul style="list-style-type: none">• Approved code base• Security service inventory• Embedded security architecture review• Threat modeling | <ul style="list-style-type: none">• Risk evaluation of change• Focused SAST/DAST (OWASP 10/SANS 25)• Security unit tests (positive and negative) | <ul style="list-style-type: none">• Risk-based release strategy and associated security tests• Production controls hardening | <ul style="list-style-type: none">• Manage production security controls• Perform fault injection• Continuous active exploitation• Cross-training | <ul style="list-style-type: none">• Capture and monitor telemetry• Continuous scanning and compliance operations | |
| | DevSecOps Toolchain | <ul style="list-style-type: none">• Pipeline architecture and management• Access controls• Source code management | <ul style="list-style-type: none">• IDE plug-ins• Integrated build orchestration• Break the build criteria | <ul style="list-style-type: none">• Integration of security tools into release gate | <ul style="list-style-type: none">• Cross-training• Patching and health monitoring | <ul style="list-style-type: none">• Establish normal usage patterns• Capture and monitor telemetry integrated incident mgmt. tools | |

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GOVERNANCE & ORCHESTRATION

| Security Policies and Procedures | Risk-Scored Asset Inventory and Management | Shared Metrics and Reporting | Rationalized Compliance Framework | Recursive Training | Integrated Incident Response |
|----------------------------------|--|------------------------------|-----------------------------------|--------------------|------------------------------|
|----------------------------------|--|------------------------------|-----------------------------------|--------------------|------------------------------|

Figure 4.3-8. Overview of Deloitte Approach for DevSecOps.

Security Controls in Our CI/CD and Testing Processes

Producing high-quality, secure code and executables is a critical success for managing CalSAWS. To accomplish this goal, security tools are integrated within the CI/CD pipeline with continuous security checks executed early in the development cycle at various levels of the system architecture. The primary goal is to proactive identification of security. Our development methodology provides flexibility in gathering requirements to enable developers to accelerate tasks and activities without compromising application security.

As highlighted in Figure 4.3-9 on the next page, Deloitte's objective is to enhance code quality and application security by designing and implementing appropriate security controls. We propose to integrate controls as specific security phase gates. Gates include such things as secure code reviews, software composition analysis, and application security testing. These are added in a continuous and automated manner throughout the development lifecycle within the CI/CD pipeline as shown in Figure 4.3-9. In Table 4.3-9, we detail each of the security controls shown in Figure 4.3-9.

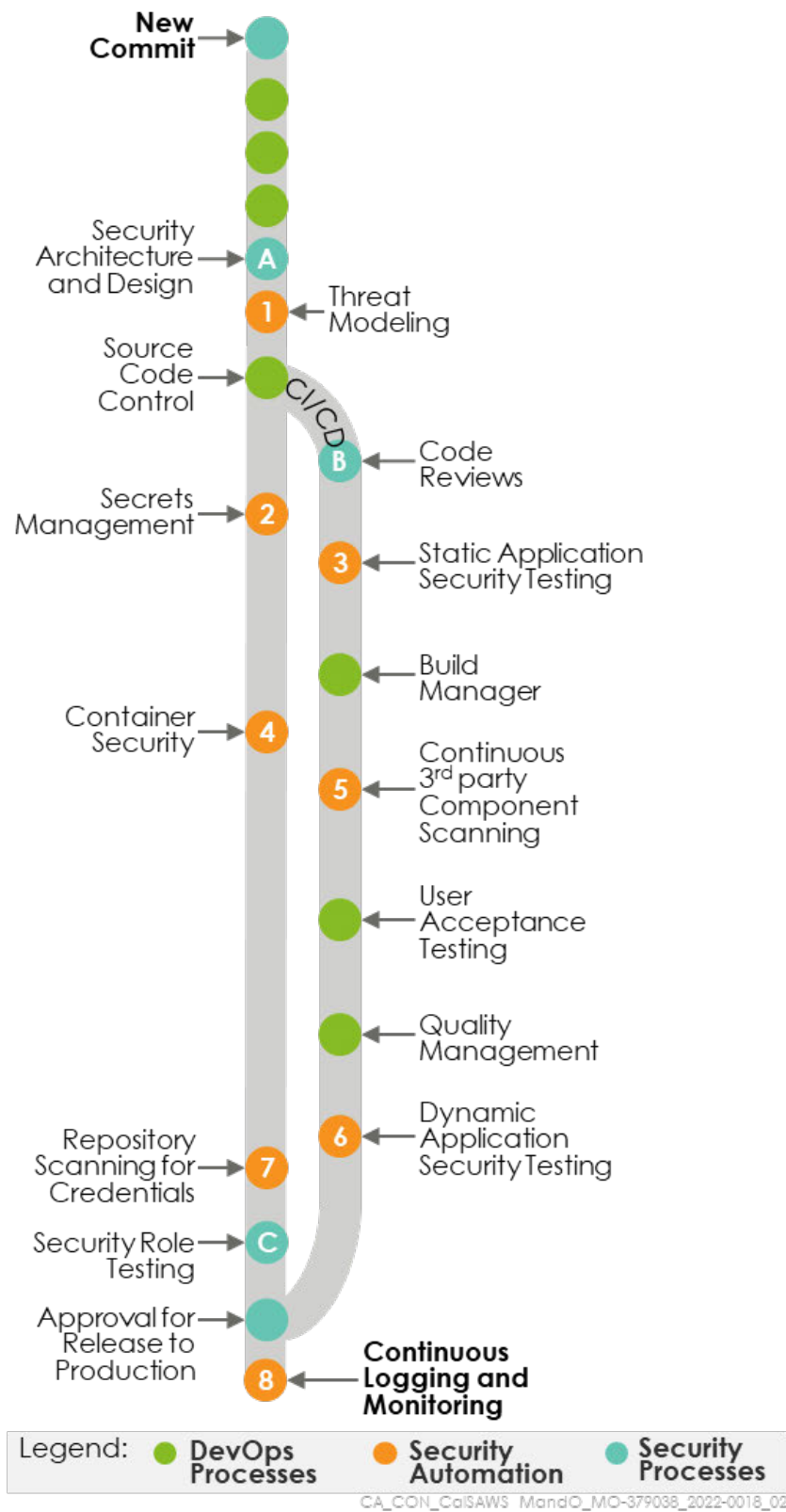


Figure 4.3-9. Security Activities Integrated within CI/CD Pipeline.

| # | Security Activity | Description |
|-----|--|--|
| A | Security Architecture Design | Integrate security in architecture and design to reduce an application's attack surface and embed appropriate controls before development starts; includes manual security architecture review and threat modeling exercises. |
| A.1 | Threat Modeling | Threat modeling to identify potential threats, such as structural vulnerabilities, so they can be identified, prioritized, and avoided using a hypothetical attacker's point of view. |
| B | Code Reviews | Peer code reviews to improve integrity of the code change prior to check-in. |
| 2 | Secrets Management | Protects secrets needed to access your applications, services, and IT resources. Enables users to easily rotate, manage, and retrieve database credentials, API keys, and other secrets throughout their lifecycle. |
| 3 | Static Application Security Testing (SAST) | Analyzes application source code, byte code, and binaries to detect vulnerabilities; Integration of SAST tool Microfocus Fortify Static Code Analyzer (SCA) directly into the development environment. |
| 4 | Container Security | Provides visibility and control over containerized environments, with tight runtime security controls, image assurance, and intrusion prevention capabilities. |
| 5 | Continuous Third-Party Component Scanning | Software Composition Analysis (SCA) is performed using Black Duck to automatically identify open-source components in the product and gives real-time alerts of security vulnerabilities in open-source and third-party components implemented at CalSAWS. Helps in maintaining licenses for 3rd party components. |
| 6 | Dynamic Application Security Testing (DAST) | Assess application behavior during test/Quality Assurance (QA) by using the Runtime Application Self-Protection (RASP) agent, which instruments software and DAST to introduce attacks. DAST tools (Microfocus Fortify WebInspect and Burp Suite Pro) are integrated directly in the CI/CD pipeline and the application is tested for security vulnerabilities during application runtime, enabling developers to detect vulnerabilities earlier in the development cycle as new code is recompiled. |
| C. | Security Role Testing | Review and test the user roles, groups, and profiles for adherence to principle of least privileges and segregation of duties. Identify any misconfigurations which can lead to users having excessive and unauthorized access to other user's data. |
| 7 | Repository scanning for credentials, PII | Scan Git repositories for secrets, keys, and credentials as part of SAST. The entire commit history and branches are scanned, to catch any secrets accidentally committed. This is done by either scanning for keywords or calculating Shannon entropy of strings. |
| 8 | Continuous Monitoring and Logging | Automates the collection, indexing, and alerting of real-time machine critical data. SIEM tool helps with correlating the events to identify security incidents and alerts the security teams. |

Table 4.3-9. Key Security Controls We Integrate Into our CI/CD Processes.

4.3.5 Risks and Mitigation Strategies (ME-UA13)

RFP Reference: 5.3.3.3 - M&E Understanding and Approach to System Change Requests

ME-UA13 Identify the challenges and risks associated with implementing SDLC, UCD and SCR improvements and present your proposed risk mitigation strategies.

Table 4.3-10 outlines the top five risks and challenges to implementing our SDLC, UCD, and SCR improvements and our proposed risk mitigation strategies.

| Challenges/Risks | Proposed Risk Mitigation Strategies |
|---|--|
| Counties feel their needs are not being equally considered in decisions. | We work with CalSAWS stakeholders to continuously review and explore enhancement requests to guide priorities across stakeholder groups, business cycles, and milestone events (e.g., impending federal and State policy implementation dates.). This helps align and reduces ongoing conflicts between stakeholders. Additionally, we work with users from Counties, large and small, help align the voice of the customer with the enhancements they have requested. |
| SCR design delays by not balancing County needs with standardization required in using one statewide system. | Throughout this response we have identified improvements for quicker delivery of SCRs to end-users, deploying features and enhancements to specific users and/or Counties, and activities to collect the users' voice and incorporate into each change based on their needs. |
| Completing comprehensive impact assessments for each SCR while supporting CalSAWS' dynamic policy and program environment. | Deloitte thoroughly reviews new SCRs to confirm dependencies across CalSAWS stakeholder environment, including vendors owning different components of CalSAWS. This includes dependencies across various tracks /components, business partners, and interfacing systems. This enables us to provide a thorough impact analysis up front. We work with the DIO and PMO for changes and coordination impacts that are cross-vendor. |
| Delivering both small and large SCRs given environment constraints, scheduling, and resource capacity across SDLC phases for each release. | This also affects the ability to handle last minute, "emergency" SCRs that need to follow an expedited process (e.g., federal or State mandates) We mitigate this challenge by having a robust resource management framework to enable resources to work across different teams and to add personnel to the team to handle surge demands. We also reserve resource capacity to support last minute critical items and work to avoid overcommitting of resources. |
| Overuse of 'add on' SCRs due to poor scoping and estimation of initial change requests. | We use UCD scope changes to modify or adjust to better fit user needs and expectations, and, as part of SCR planning, to help confirm if the cost is sufficient to the impact and meets the size of number of individuals the changes help in the future. |

Table 4.3-10. Challenges and Proposed Mitigation Strategies.

4.4 Innovation

RFP Reference: 5.3.3.4 - M&E Understanding and Approach to Innovation

In collaboration with the Consortium, Deloitte builds sustained innovation into our CalSAWS M&E approach. Innovation is more than just “shiny objects” and tasks in a Statement of Work. It does not flourish without proper discipline based upon proven practices and integration into a project’s culture. Without the proper process and tools, innovation becomes highly dependent on individual talent, difficult to measure, and not integrated into actual operations or aligned to stakeholders needs. Deloitte has the innovation frameworks, tools, and methods that work in Eligibility and Enrollment (E&E) environments as evidenced by our long-term relationships with our E&E clients (some over 20+ years). It enables us to help the Consortium to quickly color outside the lines to improve the CalSAWS experience for Counties and Customers and do things better and more efficiently.


SECTION HIGHLIGHTS

- A demonstrated E&E innovation record across 31 states over 40 years, and 26 current clients.
- A global leader in innovation supporting over 2,000 innovation programs around the globe.
- 9 research centers with more than 120 full-time staff, producing publications and hosting immersive events on emerging trends across industry verticals.

Innovation is core to our culture at Deloitte. Deloitte is recognized as a trail blazer nationally year over year by organizations such as American Public Human Services Association (APHSA), IT Solutions Management (ISM), State Scoop, and National Association of State Chief Information Officers (NASCIO). As noted in Figure 4.4-1, the federal Food and Nutrition Service (FNS) has recognized our E&E clients for their innovation. Our innovation is grounded in User-Centered Design (UCD) practices which incorporate Policy, Counties, County-designated support organizations and Customers throughout our processes. Just as we have demonstrated with BenefitsCal, we stand up repeatable practices to proactively explore, identify, analyze, and implement innovations. This decreases the risk of failed innovations and helps the Consortium focus on ideas that yield the greatest impact.

Figure 4.4-1. Deloitte is the leader in delivering innovation to organizations like CalSAWS.

Deloitte is a leader in helping states **Color Outside the Lines**

All of FNS' 2022 SNAP Process and Technology Improvement Grant (PTIG) State awardees were **Deloitte E&E clients**.

Colorado Department of Human Services
Automated Call Center with Workflows

Montana Department of Public Health and Human Services
SNAP E&T System Implementation and DPHHS Data Access (Service Now)

New Hampshire Department of Health and Human Services
Persona-Driven Digital Adoption and Outreach

Every year for the past decade **Deloitte E&E clients** have been recognized for **technology innovation** via the PTIG awards.

A large-scale system such as CalSAWS has many moving parts with a variety of functions and technology layers supporting multiple stakeholders. This requires a disciplined innovation approach to consistently enhance the experience for CalSAWS users. Our innovation teams work collaboratively across infrastructure and maintenance and enhancements contracts to provide a well-rounded approach to innovation activities and evaluating new technologies.

The BenefitsCal and CalWIN ISS projects provide us with an in-depth understanding of the Consortium's technology, program, and stakeholder landscape. In addition, our broad national Health and Human Services (HHS) network along with our global innovation programs provide us with the ability to bring and shape high-quality new ideas with proven success.

QUOTE

I don't believe that the amount of innovation we've been able to achieve would be possible without them (Deloitte).

*Karmela Martinez,
Income Support Division Director,
New Mexico Human Services Dept.*



We were intrigued to see that innovation is a separate task for the CalSAWS M&E scope of services, and not included in the infrastructure scope of services. At Deloitte we don't necessarily think of innovation as an initiative that is done separately, but rather baked in to how we execute day to day. This is how we approached BenefitsCal. As we made changes to BenefitsCal we look for new ways of solving a problem that drives improvements. The Consortium experienced this with the introduction of an AI-based document extraction service that supports the identification of changes for periodic reports for better routing in CalSAWS. We also pivoted to introduce a chat feature to support screening that forms the foundation of a new way for Customers to get information when offices are closed, contact centers are overwhelmed or generally if they prefer interacting differently. Delivering with innovation is an expectation that we have for how our teams execute.

To confirm our innovation approach is aligned with the Consortium's ambitions, we **start by defining goals and outcomes** we hope to achieve together. We ground these goals and objectives in the needs of Policy, Consortium staff, County staff, Customers, and Community Based Organizations by hosting focus groups, interviews and looking at what the data in CalSAWS is telling us. Often times more impactful ideas come from the marriage of qualitative input and quantitative data. This is fundamental towards the way we have executed User-Centered Design. After laying the foundation for what success looks like, we work closely with the Consortium to **drive operational and technology innovations leveraging our proven business processes**. We document these processes to promote sustainable innovation for the Consortium over the long-term.

Considerations for Your Success

The Consortium expects its CalSAWS vendors to apply a structured approach for continually improving the CalSAWS infrastructure, applications, and supporting processes through innovative technologies and methods. The Consortium currently uses a quarterly “Shark Tank” process where the Consortium, Counties, and CalSAWS contractors pitch ideas and concepts. Those with merit are selected to move into a Proof of Concept (POC) or Pilot phase, as appropriate. However, the process is standalone. Innovation activities that are not integrated into enterprise operations risk may not translate into meaningful change.

Deloitte has evolved the Shark Tank, first presented at APHSA ISM in 2012, to drive innovation through the lens of elevating the human experience through user centered design. As we don’t have an agenda to build products to sell to others in the market, it removes constraints that others may have to innovate quickly. With Deloitte the Counties and Customers will see change happen faster as you have experienced with BenefitsCal. The Consortium has the opportunity to enhance its innovation processes to realize benefits more quickly by establishing a systematic approach to innovation that will help it:

- Manage its priority innovation areas as portfolios of investments that are complementary and coordinated, and balance risk, reward, and time to enable execution delivery of more “bold plays” that transform service delivery.
- More effectively define and refine requirements for emerging capabilities.
- Identify, evaluate, select, develop, pilot, and scale ideas more quickly and efficiently.
- Gain buy-in from the end users of innovative solutions by involving them as co-creators across the innovation life cycle.
- Streamline organizational operations by equipping Consortium staff with the tools and skills to innovate more efficiently.

Successful innovation is about more than creativity and expecting an organization's staff to “just innovate.” As we developed our CalSAWS innovation approach we considered the items in Table 4.4-1 and impact to our approach.

| Consideration | Impact of Our Approach |
|---|--|
| The Consortium has a large stakeholder ecosystem. | We focus on stakeholder engagement, through facilitated collaboration to bring diverse voices to the table during innovation activities. We use facilitation techniques that promote equity and inclusion and keeps the users at the center of influence. |
| California has varying needs across its 58 Counties. | We will create solutions to pilot/scale that are flexible and configurable. This enables the 58 Counties to adopt and tailor solutions to best meet the needs of their unique customer base and business processes. Through the use of our feature management tool, supported by LaunchDarkly, change can be targeted to a specific user group or County to allow for Counties more time to adapt to the change. |

| Consideration | Impact of Our Approach |
|--|--|
| CalSAWS Innovation has often had a product/technology first lens. | We take a holistic approach to innovation to identify new opportunities within end-to-end CalSAWS processes because true innovation not only looks at new technology, but also the underlining business processes and stakeholder impact. |
| County staff and customers most pressing needs should drive focus. | We innovate to resolve specific, real-world needs identified through stakeholder engagement and UCD research. A return on investment starts with identifying the right problems for which to innovate. |
| Innovation is not a task...it is a way of thinking and operating. | We challenge our teams to challenge what may be the easy path and look to new ways to solve challenges; all with the intent of better equipping the Counties in serving their customers. Our team members are actually measure on their ability to think creatively and look for opportunities to not just identify opportunities to improve but execute against those improvements. |
| The Consortium is looking for a vendor who will self-fund innovation efforts. | We create discipline and drive creativity. Through our methods, tools, and partnerships we fund upfront costs and proof of concepts to pilot. We also collaborate with the Consortium to apply for federal grants to take pilots to production. |

Table 4.4-1. Considerations for Our Innovation Approach.

How the Remainder of this Section is Organized

4.4.1 Why Choose Deloitte to Deliver Innovation?

4.4.2 Approach to Evaluating Innovations and Formulating Recommendations (ME-UA14)

4.4.3 Examples of Successful Innovation Programs (ME-UA15)

4.4.4 Participating and Supporting the Existing CalSAWS Innovation Team (ME-UA16)



4.4.1 Why Choose Deloitte to Deliver Innovation?

Deloitte has the experience and tools to enable the Consortium to design and institutionalize a better innovation process. We bring the key capabilities to position the Consortium to modernize CalSAWS and accelerate California into a new era that puts people at the center of change.

4.4.1.1 Our Demonstrated E&E Innovation Record

No other vendor has been as innovative as Deloitte in E&E. For over 40 years we have continuously led in helping clients like the Consortium innovate. Shown to the side are just a few of our **notable “Firsts in E&E Delivery.”** And this list does not include our record of firsts in child welfare, child support, and other HHS domains. We also **bring multi-decade E&E innovation program records in multiple states (DE, FL, IN, NH, MI, WI, PA)** that demonstrate our ability to collaborate with our clients to innovate and renew legacy technology consistently and incrementally. Deloitte has, and will continue to, invest substantially in advanced technologies and management processes to retain our leadership position in E&E, which benefits our clients and their stakeholders. By collaborating with Deloitte, **the Consortium gains access to national experience in designing and implementing innovative solutions** that help it serve Californians better.

4.4.1.2 Cutting Edge Centers of Insight Across Industries

In addition to our HHS network and innovation record, Deloitte brings leading research on trends in government and technology. For example, we have published our Tech Trends in Government, illustrated in Figure 4.4-2. For 14 years, spotlighting technologies that are changing how we live and work. Deloitte also funds a variety of centers that keep our professionals up to date on leading technologies and policies, and how they are disrupting business as usual; key research centers like our Center for Government Insights, Center for Health Solutions, Center for the Edge, and Deloitte AI Institute for Government (to name a few), are another advantage the Consortium gets by working with Deloitte to do things differently.

Lastly, we are also an integrated firm spanning public sector and commercial industries. Commercial entities tend to be five to seven



FIRSTS IN E&E DELIVERY

- [REDACTED]
- First serverless self-service portal (2021)
- [REDACTED]
- First chatbot integrated with IVR (2020)
- [REDACTED]
- First E&E system hosted on AWS (2019)
- First Software-as-a-Service E&E system (2019)
- First use of Robotic Process Automation in E&E (2018)
- [REDACTED]
- First Medicaid/SNAP mobile app (2016)
- First J2EE statewide E&E system (2009)
- First E&E self-service portals in .NET (2001) and J2EE (2003)
- First E&E system using a relational database (1992)
- First eligibility system (1977)



Figure 4.4-2. Deloitte's 2022 Tech Trends Report.

years ahead of government agencies when it comes to adopting technology. By working with Deloitte, the Consortium gains access to opportunities to be innovative faster than with other vendors.

4.4.1.3 Our Expansive E&E Support and HHS Network

One of the advantages of working with Deloitte is access to accelerators, innovative functional solutions, and even program and policy ideas, through our **HHS Network and HHS Nerve Center**. California recently just served as the source of innovation to another state, Florida, that is transferring BenefitsCal to modernize Florida's existing portal which supports more than 90% of Florida application submissions. Deloitte has SMEs across our HHS nationwide portfolio that we engage via internal team structures, recurring calls, client webinars, and more. Figure 4.4-3 highlights our internal Request for Information process where we can quickly engage our HHS Network across the nation for questions, feedback, and support. Our HHS network enables us to bring approaches that accelerate impact to the Consortium. **Receiving E&E solutions and leading practices across 45+ HHS agencies we serve (including 31 E&E systems) is incredibly valuable.**

For example, in 2022, Louisiana wanted to integrate text messaging into its E&E system (LaMEDS) to **improve customer service while tracking worker interactions with clients**. Our Louisiana team was able to send a "Request for Information" to our HHS Network for experience with both the technology and uses cases which accelerated our team's ability to provide real examples from other states and pull in their expertise to help inform the Louisiana solution. We have dedicated personnel leading our HHS Nerve Center who drive operational coordination across our HHS projects encompassing more than 4,000 Deloitte practitioners across hundreds of projects.

Both at the start of the COVID-19 pandemic and in preparation for the unwinding of the COVID-19 Public Health Emergency (PHE) policies, the Nerve Center has been coordinating across our HHS project teams to share best practices, lessons learned, and innovations to help our clients serve their end users effectively.

Our E&Es network enables us to give the Consortium better information to make decisions and deliver innovation faster to the Counties.

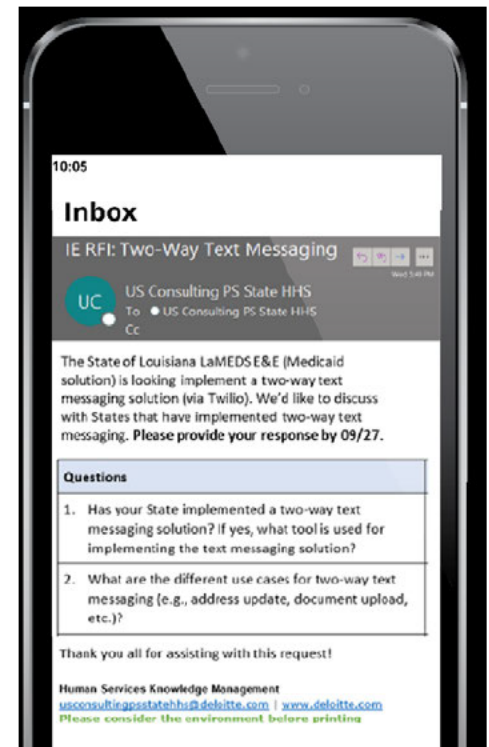


Figure 4.4-3. Example HHS RFI.



4.4.1.4 Analyst Acclaimed, Dedicated Innovation Practice

Deloitte, through its integration of Doblin and Monitor (leading companies specializing in innovation), has a dedicated practice that specializes in helping our clients anticipate and apply technology to problems. Doblin's suite of methodologies and frameworks pull from the expertise of global innovation leaders and commercial best practices with the sole purpose of helping public sector organizations stand-up and operate effective innovation programs. Over the last 5 years, over 250 organizations across four continents have come to us for support with their innovation programs and initiatives, including 35 public sector organizations in the last year alone.

Our designers, researchers, and strategists approach challenges with diverse perspectives, balancing strategy with exploration, discipline with creativity, and practicality with ambition. We are one of the few innovation firms that go beyond opportunity analysis and portfolio management by also working with our clients to generate and build new offerings and businesses. Our firm's powerful combination of sophisticated design-thinking methods and cutting-edge approaches to change management and strategic implementation extends our ability to help the Consortium move more seamlessly through an integrated innovation process.

4.4.1.5 Our Proven Innovation Framework

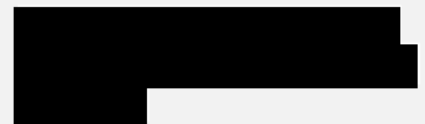
Deloitte's innovation framework and accelerators help clients assess and enhance their innovation capabilities based on both research and experience. Our Total Innovation Framework – a set of twelve building blocks across four domains – is a model that has been proven across industries and helps organizations to reduce organization's reliance on "luck", the talent of specific individuals, or external factors for innovation success. Elements of our framework are based on International Society for Professional Innovation Management (ISPIM) research. This research has been combined with our **experience supporting over 2,000 innovation programs across the globe** to create the Total Innovation Framework and its 12 elements.

Our work includes:

Designing, launching, and operating innovation programs for organizations including:



Michigan, Department of Health & Human Services (MDHHS)



U.S. Postal Service (USPS Informed Platform Program)

Federal Deposit Insurance Corporation (FDITECH)

Colorado, Governor's Office of Information Technology

Deloitte Alliance Partners

We bring alliances and partnerships with over 110 companies to support our clients. The Consortium benefits by having better access to qualified staff and solutions to meet its innovation and technology needs.

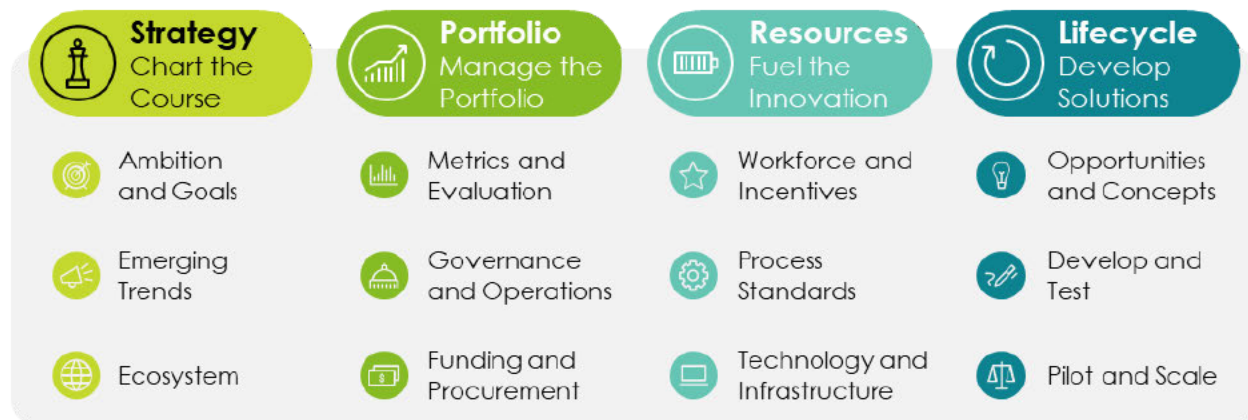


ForgeRock servicenow



Adobe

Our approach is designed around implementation. As seen in Figure 4.4-4, the four pillars of our framework are **Strategy**, **Portfolio**, **Resources**, and **Lifecycle**. Without setting the strategy and determining the appropriate portfolio approach—you'll be unable to properly set and assess impacts towards goals for innovation. This also allows for ideas selected to be grounded in strategic choices to avoid falling into the pitfall of running after the latest “shiny object.”



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Figure 4.4-4. Total Innovation Framework.

The latter pillars (Resources and Lifecycle) provide structured methods and tools to confirm ideas can quickly turn into proof of concepts to test, and eventually scale. There is a science and method to establishing an organizational structure that allows for ideas to be properly vetted and promotes the ability to move from concept to pilot quickly.

Simply Stated: The Consortium is able to innovate faster and better with Deloitte's innovation and knowledge capabilities, and the Total Innovation Framework

QUOTE

Deloitte's practice boasts multidisciplinary design, insight, technology, strategy, and product expertise. It has grown its innovation practice substantially...

Forrester Research, The Forrester Wave™: Innovation Consulting Services, Q2 2021

4.4.2 Approach to Evaluating Innovations and Formulating Recommendations (ME-UA14)

RFP Reference: 5.3.3.4 - M&E Understanding and Approach to Innovation

ME-UA14 Describe your approach to proactively explore, identify, analyze, evaluate technology innovations, and formulate recommendations for potential inclusion to the CalSAWS application. Describe how you will:

- Coordinate with the Consortium to evaluate emerging technologies,
- Propose integration of selected innovation, technologies into the CalSAWS platform,
- Evaluate value and impact to business operations and develop strategies for implementation.

Our approach to innovation for the Consortium centers on five guiding principles, illustrated in Figure 4.4-5. These guiding principles will drive strategy, influence management of innovation activities, and inform resourcing needs and solution development.



Figure 4.4-5. Innovation Guiding Principles.

4.4.2.1 Explore and Identify Innovations

Deloitte is constantly seeking, identifying, and assessing new use cases and innovations to bring forward to our clients and our work. We start with a broad range of ideas, collected through scouting activities and user research. We begin to narrow down ideas, in collaboration with key stakeholders and Consortium staff, leveraging our evaluation and analysis methodologies. As innovation solutions are selected to be developed into proofs of concept and piloted, their performance is monitored to identify which solutions should be scaled to meet CalSAWS technology and County business process needs. Throughout this process, illustrated in Figure 4.4-6, we establish feedback loops to rapidly iterate and enhance innovation solutions.

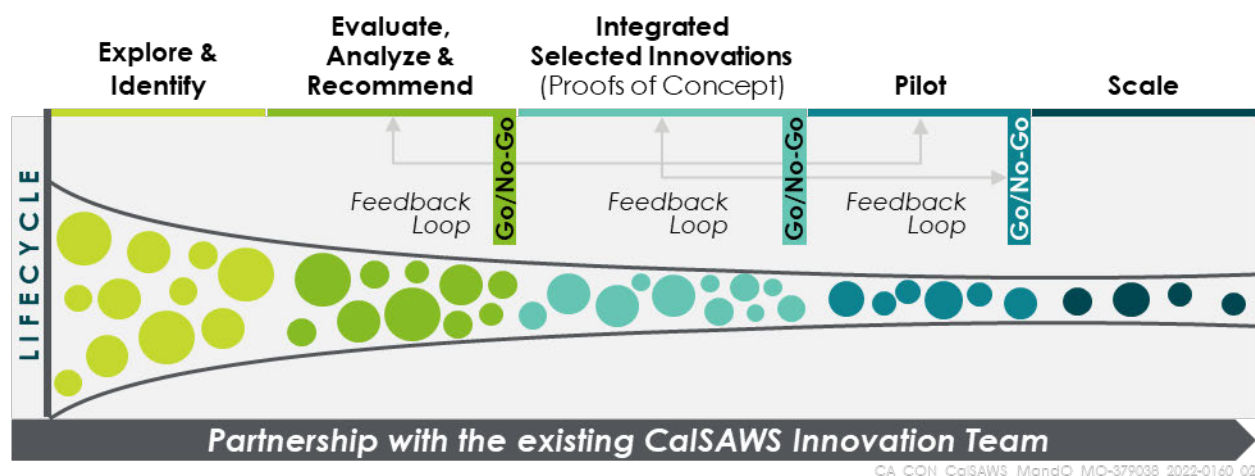


Figure 4.4-6. Our Innovation Process Starts Broad and Narrows Based on Value.

Continuous Tech Scouting and Sensing

The Consortium understands that the emergence of new technologies will likely impact the mission of County staff and the Customers they serve; it is important to stay ahead of the curve. But it can be difficult to have a clearly defined vision for new technology usage. We help the Consortium prioritize which emerging technologies and trends warrant the use of often limited funding and resources. Deloitte is a leader in identifying trends within technology and innovation. We have created **Innovation and Technology Centers** and our **HHS Nerve Center** that utilize our cumulative expertise to push the limits of our ideas, drive insights, and identify. It enables us to bring a wide range of perspectives, knowledge, and insight focused on specific industries and issues. It enables to identify opportunities and cases for the adoption of emerging technologies.

Forward-thinking governments need to understand the technological forces that surround them to anticipate and look for ways to harness them for the benefit of Customers. Working with Deloitte brings national **HHS experience spanning 40+ years** and our transformation capabilities to help you manage technology (e.g., cloud, robotic process automation) on the scale that is the State of California. This wealth of knowledge drastically improves the technology and trend discovery process through leveraging **other states accelerators at the micro and macro level** (operations, policy, and technology). This enables our clients to take advantage of new emerging trends and the opportunities to pilot more rapidly.



Gathering User Input

On Day One we begin to establish listening and sensing channels. These channels include:

- **Always-on surveys:** Develop and configure an always-on survey to collect user feedback on their overall experience.
- **User experience surveys:** Develop and launch a user pulse check survey to gain feedback periodically.
- **Stakeholder idea channel:** Develop and configure an idea channel (e.g., survey, prize challenge) for stakeholders to share their ideas on system and business process improvements. We solicit feedback and ideas from a large, often virtual group of participants to identify potential solutions to a specified problem. Prize challenges can be particularly cost effective when dealing with a diverse group of participants across many regions, such as the case for California.
- **Monitor business metrics:** Collect and monitor key business metrics, such as days to process an application and call waiting times, to observe areas for improvement.
- **Hackathons:** create a unique environment for participants to work together to solve a specified problem in an environment that promotes creativity, collaboration, and a focus on concrete solutions utilizing the emerging technologies/innovations.
- **Workshops:** bring participants together, usually in-person and in a way to remove unintentional bias or perceived hierarchy, to identify stakeholder's most pressing problems and make recommendations on innovative solutions.

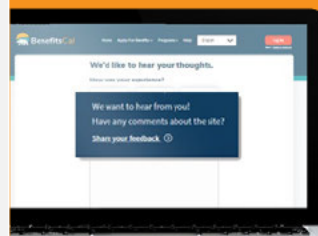
Through these channels we 1) collect data on CalSAWS' user experiences and system performance; 2) identify user needs, pain points, and challenges; and 3) elevate problems for solutioning through innovation activities.

Deloitte utilizes accelerators and engages our industry and state clients to continuously source leading-edge solutions. Given we know HHS and the California landscape well, our team is prepared to present ideas that we know work for you on day one. As we continue to gather new ideas and grow our list of solutions that advance the Consortium, we look internally to identify how best to take advantage of these solutions. We use our team expertise and the expertise of Consortium, County and CWDA staff through collaborative ideation activities such as workshops, hackathons, and crowdsourcing to select the best solutions and ideas with which to move forward

User Research and User-Centered Design

Deloitte's innovation services are grounded in the principles of **UCD which emphasizes the need to bring diverse perspectives** and ideas into CalSAWS from both California's broad HHS ecosystem and other states. UCD puts stakeholders (in California's case, workers, and Customers) at the center of a solution, considering their complex behaviors, mental modes, and needs. By understanding users desires, needs, behaviors, and motivations, we can identify unmet needs and create innovative solutions to address them. One such way of gathering user input is through user listening channels.

Always-On survey deployed in California, BenefitsCal, allows continuous feedback to drive future innovations





BUILDING TRUST

Innovation Partnerships & Accelerators

Deloitte has developed relationships and stood up capabilities with the express purpose of constantly looking for the very best solution providers in the world (ranging from big tech firms to start ups) to bring their innovative solutions to our clients. This enables the Consortium to tap into relevant innovation solution providers it may not have otherwise known about, stay abreast of, and be exposed to emerging trends relevant to its mission space (e.g., cloud, process automation, machine learning, gamification) and save time and money. We do this by:

- **Leveraging our long-standing relationships with former HHS leaders** (e.g., previous Medicaid Directors, legislators, and policy makers) and former federal agency decision-makers to better forecast the HHS landscape and invest in new innovation accelerators that are more likely to achieve adoption and support.
- **Establishing partnerships with technology incubators and research firms** throughout the “innovation ecosystem” to pilot new solutions relevant to our client landscapes and expose our clients to new thinking and/or use cases relevant to their mission.

- [REDACTED]

4.4.2.2 Evaluate, Analyze, and Recommend Technologies

We perform detailed product assessments and use our technology company alliances to gain knowledge and considerations to present to the Consortium. The assessment balances risks, County preferences, technical feasibility, policy, cost, and Consortium needs operational. We do this while we continuously scout new technologies and assess user-needs through a variety of listening channels and user-centered research activities noted on the previous page. We regularly consolidate our findings and report recommendations with which to move forward. These reports are delivered to the Innovation team to drive collaboration

with the Consortium and allow thoughtful reflection on the best emerging technologies that should move from idea to concept. Reflections should consider the concept ability to resolve County pain points and/or improve County operations.

Comprehensive Alliances to Support Innovation

Our innovation is informed by our extensive alliances (over 110 companies) with the vendor community, including leading platform vendors such as ServiceNow; leading content management platform vendors such as Adobe; cloud vendors such as AWS, Google, and Microsoft; and an expansive ecosystem of specialized “best-of-breed” vendors. Our strategic technology partnerships provide our team with an unmatched level of support to work with you to deliver the desired outcomes from our innovation efforts.

4.4.2.3 Coordinating with the Consortium to Evaluate Technologies

Bringing together diverse perspectives is critical to sustained innovation. This is particularly important for a state such as California, where the landscape is vast, and Counties have acute wants and needs for their local staff and customers. The Consortium's Innovation team is central to helping us bring together diverse opinions and expertise to the table. This includes customers, County staff, and Consortium staff. We use different tools and forums coordinate feedback on technologies. This includes surveys, demonstrations, webinars, and examples of technology in use from other States. Additionally, we work through are alliances and software vendors contact to coordinate demonstrations of technologies as needed. Through all this we manage and weigh the diverse opinions in an equitable manner, so it is considered in the evaluation. This enables the Consortium to make well-reasoned decisions on where it invests its time and energy on innovation.

4.4.2.4 Integration of Selected Innovations and Technologies into CalSAWS

Our approach to integrating innovation includes three key steps: 1) conducting a business and technology impact assessment, 2) developing a solution proof of concept, and 3) identifying funding strategies for scaling the innovation. They are explained below:

AWS Graviton

Deloitte is the leading Consulting partner for AWS and share a commitment to continuous innovation. At CalSAWS we delivered a fully serverless, zero downtime customer experience via BenefitsCal. Beyond architecture innovation, we became early adopters to prove out Graviton technology, and delivered significant operating expense reductions. This, without adding implementation risk or negatively affecting production systems that serve vulnerable Californians.



Business and Technology Impact Assessment

We conduct business and technology impact assessments to further articulate the use case and innovation concepts we plan to utilize in collaboration with the Consortium. This assessment includes analyzing the software, hardware, and platform needs to bring the innovation concept to life. Our evaluations focus on functional and non-functional criteria across multiple assessment categories. The criteria are prioritized and weighted for accurate comparison and assessment of the current state versus future expectations, while providing insights on impacts of the innovation to CalSAWS modules. The details of each evaluation component are documented in the Innovation Assessment Report.

Previous impact assessments in other states have led to deliver more than [REDACTED]

[REDACTED]

[REDACTED]




Figure 4.4-7. Deloitte's AI Engines Deployed Across the Nation.

The Innovation Assessment is conducted based on the following steps in Table 4.2-2:





-  **Identify Scope.** We confirm the scope of the innovation with Consortium Innovation Team staff and other appropriate CalSAWS stakeholders. The scope determines the domains that are analyzed, for example middleware, security, Infrastructure, applications, and databases. Focusing the scope to key impact areas enables targeted analysis by the team and helps conclude the assessment in line with stakeholder expectations.
-  **Confirm Requirements.** We conduct a requirements session to confirm and document the technical and business requirements of the innovation. For example, technical requirements for a new technology required for an innovation cover compatibility with other integrated software, browser compatibility, and tech support, whereas the business requirements focus more on the functional impacts to CalSAWS users. Functional impacts may be business specific, such as a higher benefit adoption rate or better outreach to individuals resulting from a typical mobile platform solution.
-  **Identify High Level Dependencies.** We identify the systems that may be impacted by the innovation or technology. Our team uses the as-is CalSAWS system architecture model, system inventory list, and tools to identify dependencies of various CalSAWS software and systems relevant to the change. This helps identify the system owners/stakeholders that are to be consulted while doing the detailed analysis. Also, the to-be architecture is visualized by integrating the new solution/product in the architectural landscape, helping the architects get a holistic view of the change.
-  **Comprehensive and Detailed Assessment.** Once impacted systems/modules are identified, we work with the respective owners to do a detailed analysis of impacts to each system. Impacts such as screen changes, integrations, trainings, deployments/installations, and configuration changes are evaluated as part of this effort. Assumptions related to the assessment are documented in the final report.

Table 4.4-2. Innovation Assessment Steps.

We provide a pre-defined assessment framework along with a standard assessment template to drive consistency for the technology and business assessment process. The template provides placeholders for documenting impacts across key elements, such as design, configurations/coding, testing, deployments, training. We collaborate with Consortium stakeholders to finalize the template and the key components of the Innovation Assessment framework.

Solution Development and Proof of Concepts

Promising solution concepts must be explored as proofs-of-concepts to provide confidence and mitigate risks before further piloting or scaling can take place. Deloitte supports the Consortium in executing a repeatable Agile and design-based process for turning promising emerging technology solutions into proof-of concepts. In this process we work with the Consortium to determine/refine business requirements and create mock-ups or concept illustrations to validate our understanding and further refine requirements. After bringing concepts to life, we gather users and other key stakeholders for testing and demonstration to provide their thoughts, reactions, feedback, and pressure test our assumptions. This process confirms our creations are grounded in both research and input from key stakeholders.

For each solution concept, Deloitte also develops a testing and refinement plan. The Innovation Team, including Consortium and County staff, are invited to test the innovation solutions and engage in feedback sessions to further refine the solution concept during this plan. We also gather the necessary policy, legal, and technical requirements for compliance and integration of the solution into the CalSAWS technology architecture. Following revisions to the proofs of concept, Consortium leaders are invited to see a version of the concept to make a go/no-go decision around providing additional funding for piloting and ultimate scaling of the solution.

Innovation Funding Strategies

Deloitte has a proven record of helping State agencies to obtain additional federal funding to advance new ideas. This enables clients like the Consortium to focus State funds on other activities. Some of these funding opportunities include pursuing federal grants, such as the SNAP Process and Technology Improvement (PTIG) grant and securing American Rescue Plan Spending (ARPA) through business case development for submission to the federal government. In addition to pursuing additional grants and funds from the federal government, we are well-versed in running cost-allocation scenarios to help state agencies stretch funding dollars farther (e.g., utilizing Medicaid 90/10 funding in appropriate scenarios).

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Robotic Process Automation (RPA) – Return Mail Auto Indexing

In 2021, Deloitte worked with the State of Florida to develop and implement a bot to read and decipher the contents of returned notices that are scanned into the ACCESS Florida System Document Imaging System and automatically index them using iOCR and RPA technologies. This significantly reduced manual work so workers could focus on other priority tasks. The solution automizes indexing for over 1M documents yearly.



SNAP PTIG Grant Funding

Every year for the past decade Deloitte E&E clients have been recognized for technology innovation via the SNAP PTIG awards. These awards have funded a range of new innovations from automated call center workflows in Colorado, to persona-driven digital adoption and outreach in New Hampshire.





LOOKING FORWARD

Feature Management

Deloitte works with unleash, a product/tool that allows us to develop the ability to hyper target pilot groups, reduce risk by testing new features and gathering user input early, and effectively measure pilot and control population performance. The ability to manage feature performance and access through piloting reduces stress, increases success, and sets the stage for tailored scaling.



4.4.2.5 Evaluating Value and Impact to Business Operations

A structured approach is needed for piloting and scaling innovations, especially as more organizations pivot toward data-driven decision making. A structured, data-driven approach is particularly important for a state like California which is made up of 58 very diverse counties. There is also a need for flexibility within concept development and scaling, as “one size may not fit all” across the County staff and customer base. For this reason, we work with the Consortium to identify the scale of the pilot needed depending on the innovation or technology being evaluated.

Bringing concepts to scale cannot happen in a silo and requires collaboration throughout each phase of the innovation process. This process is iterative by nature and should involve stakeholders who weigh in on concept design prior to any lengthy development processes. There are many feedback loops throughout the innovation process, as depicted in Figure 4.4-5. Innovation Process in **Section 4.4.2.1 Explore and Identify Innovations**. We see these user feedback loops during ideation, concept development, and piloting.

Piloting Innovations

When piloting innovations, it is important to identify the appropriate test and control groups that will demonstrate the impact of a concept to operations. Our in-depth understanding of the California landscape makes us well equipped to advise the Consortium on the best pilot and control locations. It also enables us to design concepts for piloting in a flexible manner to allow Counties to have a choice over which pilots they move forward with and how we can tailor concepts to better meet their staff and/or Customer needs. The Consortium has 58 Counties, and a degree of flexibility must exist in solution and pilot design to allow for scale.

Scaling Innovations

Once a pilot is complete the next step is scaling the innovation to the remaining Counties and/or customers. We structure the scaling process in an efficient and repeatable manner that is conducive to scale and document it in a deployment/data collection plan for each pilot. We work together to acknowledge design considerations for each pilot, depending on the type on innovation we intend to roll out, and demonstrate how to keep track of these considerations. We also build a time-bound roadmap for integration, working closely the Consortium and Counties impacted. The roadmap is formulated based on County criteria, Customer data, the stakeholder environment, and other factors. The roadmap articulates timeframes, critical milestones, and dependencies to minimize disruptions to existing operations while promoting parallel implementation of other mandatory business priorities.

Metrics and Reporting

What gets measured gets accomplished. While measuring innovation is nuanced, it is a critical element of making innovation sustainable over time. We work with the Consortium on our approach to innovation, which is designed to help public sector organizations, like the Consortium, assess the impact of their projects, the status of their portfolios, the health of their innovation pipeline, and whether the Consortium is performing in a manner that supports innovation.

Innovation inherently involves a degree of risk, and evaluating innovation projects, portfolios, and even programs can prove challenging. For example, “failed” projects are not necessarily a bad thing if they were taken as strategic risks and something was learned from them, while more disruptive projects can sometimes take time before they begin to show results. We both determine specific metrics for the Consortium to utilize and standardize an approach for capturing metrics such as increase in digital adoption by customers, increase in worker productivity, accurate policy compliance, and strengthened program integrity to assess the effectiveness of CalSAWS projects.



BUILDING TRUST

Deloitte and New Mexico's Human Services Department contributed to an article that was recently published in FastGov, an editorial partnership between Deloitte Government and Public Services and Fast Company.

New Mexico's surprising – and effective – approach to human services highlights how Deloitte and New Mexico's Human Services Department **used first of its kind gamification in HHS to further enhance worker productivity, promote social impact, serve the community, and transform lives.**



4.4.3 Examples of Successful Innovation Programs (ME-UA15)

RFP Reference: 5.3.3.4 - M&E Understanding and Approach to Innovation

ME-UA15 Describe how your firm successfully developed and implemented a similar Innovation program on a previous engagement.

As noted previously, innovation is engrained in the way we deliver so not all of our projects have a separate innovation program. We have down selected four engagements to represent our experience with implementing innovation programs. In Figures 4.4-8 through 4.4-11, we describe our Innovation activities for the State of Colorado, [REDACTED], Ginnie Mae, and the [REDACTED] and the results of strategic Innovation programming to illustrate how we have developed and implemented Innovation work.

4.4.3.1 Colorado Department of Human Services Program Eligibility Application Kit (PEAK) and Colorado Benefits Management (CBMS)

Like other states, the Colorado Department of Human Services faced issues with policy and funding changes, confidence in government, increasing financial pressure, and rising expectations which impacted its ability to provide an effective benefits experience for its residents through the eligibility and benefits management system. Deloitte transitioned in and took over CBMS from an incumbent. We supported Colorado DHS to evolve the Colorado's PEAK as well as provided maintenance and operations services for CBMS, a state-wide integrated eligibility system used to assess and issue government benefits to Coloradans. Deloitte teamed with the state of Colorado to establish an innovative culture across multiple facets including strategy, people, process, data, and technology to turn ideas into reality.

In order to systemize innovation and turn ideas into actions Deloitte:

- Conducted user research including surveys, interviews, and focus groups across Colorado's 64 counties, speaking with PEAK users, county workers, and community teammates who support Colorado residents
- Conducted a 2020 vision session with the Office of Information Technology (OIT) to "reimagine government" and created action statements for top trends to carry these initiatives forward
- Piloted the Agile methodology, allowing Colorado to remedy the issue of constant struggle with late identification or clarification of requirements and leading to decreased costs, risks and increased product quality
- Consolidated the state platform to migrate to the cloud, enhancing management of hardware/software and licensing costs as well as providing access to hardware resources that can expand Colorado's infrastructure

As a result of these efforts Deloitte was able to deliver a:



Modernized Self-service Portal

129% increase in overall usage

40% decrease in call center interactions



Dynamic and Secure Online Application

for residents that lead to decreased case worker workload correcting errors and more accurate eligibility determinations, with fewer appeals



System that aligns with the State's overall vision

of migrating systems to cloud based solutions to save on hardware and licensing maintenance costs



Responsive Chatbot

integrated into a benefits portal (one of the first in the country)

Figure 4.4-8. Colorado HHS PEAK and CBMS.

4.4.3.3 Ginnie Mae Innovation Program



The Government National Mortgage Association, also known as Ginnie Mae, is charged with supporting affordable homeownership and rental housing through evolving its programs, products, and services for the 21st Century. Ginnie Mae lacked a standardized process for identifying, selecting, and developing innovative solutions. The organization requested Deloitte's support in designing, launching, and operating an innovation function, "the Lab," which allowed Ginnie Mae to systematize innovation across the enterprise, helping to bring to life more high-impact solutions than ever before.

In order to systemize innovation and turn ideas into action Deloitte:

- Developed an Innovation Program Blueprint, articulating key elements of the Lab's operations such as processes, governance, idea intake and prioritization, and metrics and reporting
- Designed a Year One calendar for the Lab's activities, including vendor demonstration, technology scouting activities, idea generation activities, trainings, and schedule of white papers
- Assembled the Lab's physical and testing space to be conducive to collaboration and creativity and supported the selection of complementary technology tools

As a result of this effort Deloitte was able to deliver:

5 Proofs-of-concept on promising tech solutions and the testing process for employees
including demonstrations of Microsoft Teams, Narrative Science, ThoughtSpot, and IdeaScale



Externally-facing Blogposts function



Two White Papers on lab operations and emerging technology topics such as **Blockchain**



Two Innovation training sessions for over 60 employees



Two crowdsourcing challenge campaigns

Figure 4.4-10. Ginnie Mae Innovation Program.

4.4.4 Participating and Supporting the Existing CalSAWS Innovation Team (ME-UA16)

RFP Reference: 5.3.3.4 - M&E Understanding and Approach to Innovation

ME-UA16 Describe how you will participate with and support the existing CalSAWS Innovation Team relative to your overall Innovation strategy.

We work with the Innovation Team to identify areas of growth and potential to expand innovation efforts throughout the Consortium to reach beyond “innovation theater.” Sustaining innovation for the Consortium has much to do with the teams driving the operations. Where we have established innovation programs, we have found establishing an Innovation Team that takes a holistic, reflective, and applied approach to overseeing innovation efforts will ultimately lead to more successful solutions. We work with the Consortium leadership to use what is working well within the current Innovation Team and refresh the structure, scope of practice, and formalize an enhanced Innovation Team. Figure 4.4-12 below summarizes key responsibilities we see of the Innovation team. These are validated with the Consortium during transition-in along with an overall review of innovation processes on CalSAWS.



Figure 4.4-12. CalSAWS Innovation Team Roles and Responsibilities.

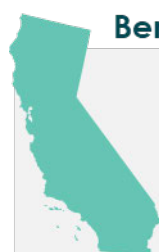
4.4.4.1 Extending the Reach of the CalSAWS Innovation Team

There are several models the Consortium could explore when it comes to innovation. However, based on the Consortium stakeholder environment, scale, and system dependencies, we recommend reimagining and growing the existing Innovation Team. To achieve desired results, the Innovation Team should be made up of a diverse set of representatives across Counties, Consortium, CalSAWS contractors, CWDA, Advocates (for public facing efforts) and Customers. We use lessons learned and best practices from the BenefitsCal collaboration model, illustrated in Figure 4.4-13, to inform our Innovation Team.

A portion of the Innovation Team should be considered dedicated staff to focus on innovation activity execution, reporting, and stakeholder/leadership engagement. To provide value back to the Consortium, the Innovation Team:

- Connects innovation efforts to organizational-level goals and objectives.
- Facilitates stakeholder and technology connections across projects and systems because it is not tied to one division or function.
- Provides innovation expertise and culture building for the agency.
- Develops an approach focused on integrating a diversity of perspectives by bringing together subject matter experts and stakeholders.
- Facilitates decision-making for new ideas and gain buy-in for piloting/scaling through focused stakeholder and leadership engagement efforts.

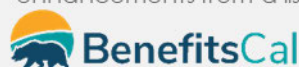
The Consortium would benefit from identifying Innovation Champions—current innovators and innovation supporters—to participate in the Innovation team. By leveraging the skills and interest of Innovation Champions, the Consortium can jump-start the innovation process and establish “innovative thinking” as a valued trait among staff. The composition of the Innovation Team should also represent a diverse set of stakeholders and functional areas, including County workers, regional representatives, State teammates, advocates, infrastructure, imaging, and BenefitsCal. Diverse representation drives innovations that are effective across stakeholders’ needs. As required, we may provide supplemental training on innovation processes and practices to the Innovation Team.



BenefitsCal Collaboration Model

Deloitte worked with the Consortium to stand up the BenefitsCal Collaboration Model (CM) to make recommendations to Consortium Leadership on which BenefitsCal enhancement (i.e. backlog items) to prioritize and implement.

The CM kicked-off in April 2022 and is comprised of 38 individuals representing customers, Counties, six California regions, State teammates, advocates, CBOs, and relevant vendors. By September 2022 the Collaboration made its first recommendation to implement enhancements from a list of 400+ items.



CA_CON_CalSAWS MandO_MO-379038_2022-0167_01

Figure 4.4-2. BenefitsCal Collaboration.

4.5 Transition-In

RFP Reference: 5.3.3.5 - M&E Understanding and Approach to Transition-In

The Consortium challenges the status quo and sets itself up for success over the next decade by transitioning CalSAWS to Deloitte's stewardship. Deloitte is the vendor with the right experience, people, approach, and proven track record of taking over M&E services of comparable size and complexity as CalSAWS. We have also demonstrated our ability to complete a transition from your incumbent contractor, including their subcontractors—in California, Texas, and Colorado—and deliver superior results post-transition.

Executing a transition of a system in which more than 18 million Californians rely on to eat, cover money for work-related activities and receive health care requires not just a methodology on paper, but individuals that have lived through multiple transitions. While transitions may share common approaches, each one is unique. The CalSAWS M&E transition-in requires deep knowledge of not only the CalSAWS system itself, but its ecosystem, and the stakeholder environment. The Consortium needs a vendor with experience completing an M&E transition like CalSAWS, while doing so with minimal disruption to ongoing operations. Deloitte is that vendor.

A successful transition-in is important but is the bare minimum to be expected. Your vendor should deliver increased value and improved outcomes. Deloitte plans to transition CalSAWS with minimal disruption to service delivery, while finding ways to make incremental improvements. We deliver a safe and secure transition in line with the Consortium's specified focus areas in the RFP and noted in Table 4.5-1.




| | | |
|---|---|--|
|  | Timeliness | We have delivered all past HHS system transitions on time, or earlier than expected. This includes Maine's E&E system in 2021, Arkansas E&E system in 2016, and CalHEERS in 2020. We use a detailed, repeatable approach that enables us to meet this key Consortium focus area. |
|  | Risk Management & Mitigation | We have detailed specific risks in Section 4.5.3 which is informed by successful transition of 7 E&E systems in the past 12 years. We proactively anticipate and mitigate risks with the Consortium from Day One. |
|  | Leadership & Collaboration | We know CalSAWS people and processes from delivery of BenefitsCal and CalWIN migration. We build on what you have today and improve integration, build relationships, and serve Counties' needs, and it starts during transition. |

Table 4.5-1. The Consortium's Focus Area is Front and Center to Our Approach.



SECTION HIGHLIGHTS

- Track record of timely transitions that help clients challenge the status quo.
- Takeover experience with 20+ similar systems.
- A team experienced in other transitions, CalSAWS, CalHEERS, other E&E systems.

M&E Transition-In Approach

Our Transition-In Approach is proven and standard across both Infrastructure Operations and M&E. From Day 1, we work with the CalSAWS incumbent contractor to define an approved Transition-In Master Plan (TIMP) that aligns with their Transition-Out Plan. We know from our transition experience that our TIMP and the incumbent's transition plan must be complementary and that key milestones need to be shared. This setup drives accountability for both vendors and allows the Consortium to incrementally measure transition readiness.

Deloitte defines the exit criteria of each transition phase, and they are mutually agreed upon between the Consortium, Deloitte, and the incumbent contractor and their subcontractors with review by the Consortium's QA vendor. We establish a master **Plan**, **Execute** Knowledge Transfer (KT), **Verify** the knowledge we've acquired, and **Cutover** the M&E services and functions as shown in Figure 4.5-1.

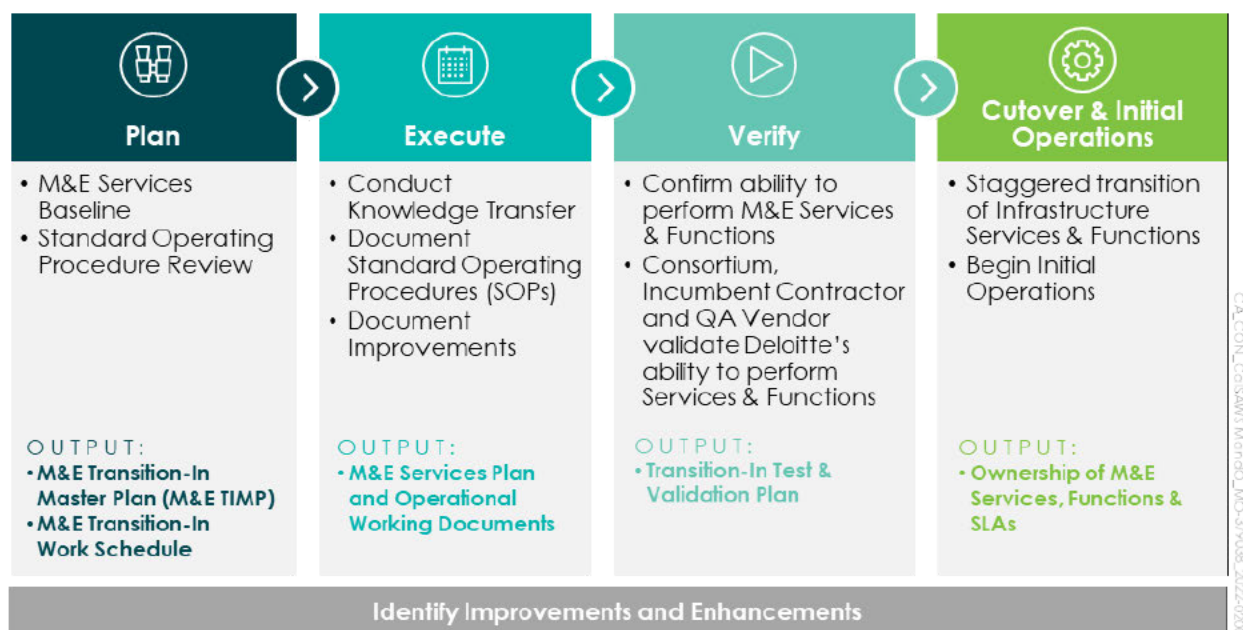


Figure 4.5-1. A Proven and Repeatable Transition-In Approach.

How the Remainder of this Section is Organized

4.5.1 Experience with Transitions (ME-UA17)

4.5.2 Transition Manager's Experience (ME-UA18)

4.5.3 Risks and Mitigation Strategies (ME-UA19)



4.5.1 Experience with Transitions (ME-UA17)

RFP Reference: 5.3.3.5 - M&E Understanding and Approach to Transition-In

ME-UA17 Describe how your firm approached and accomplished one or more transitions from one (1) company or contract to another in a cloud-based environment and the corresponding outcomes.
Include the system components and services that were transitioned as well as the transition timeline.
Describe the key best practices you will bring to the CalSAWS engagement as recommendations for the M&E transition.

Transitioning between vendors is always a key worry for an agency. With Deloitte it does not need to be. We have the people and methodology to deliver a low-risk CalSAWS transition. Each time we have taken over a large government system like CalSAWS, we have maintained operational continuity and quickly improved operations. As highlighted in Figure 4.5-2, Deloitte has transitioned into the role of M&O vendor for 20 large, complex enterprise-level federal, state, local, and commercial systems—most recently taking over E&E systems in Arkansas, Maine, and Wyoming with a recent intent to award in Washington. Together, we energize new client teams by stabilizing their systems, helping them achieve quick wins, and working toward a more proactive approach to management of their environments.

QUOTE “Deloitte did a tremendous job in successfully transitioning the HHS suite of applications from our previous maintenance and operations vendor. They were **proactive** in their approach, **transparent** with their methods, and **collaborated effectively** with our business, application, and incumbent teams, overcoming obstacles, and ensuring a **successful transition**.”

Jeff Dean
CIO, State of Arkansas,
Dept. of Health Services

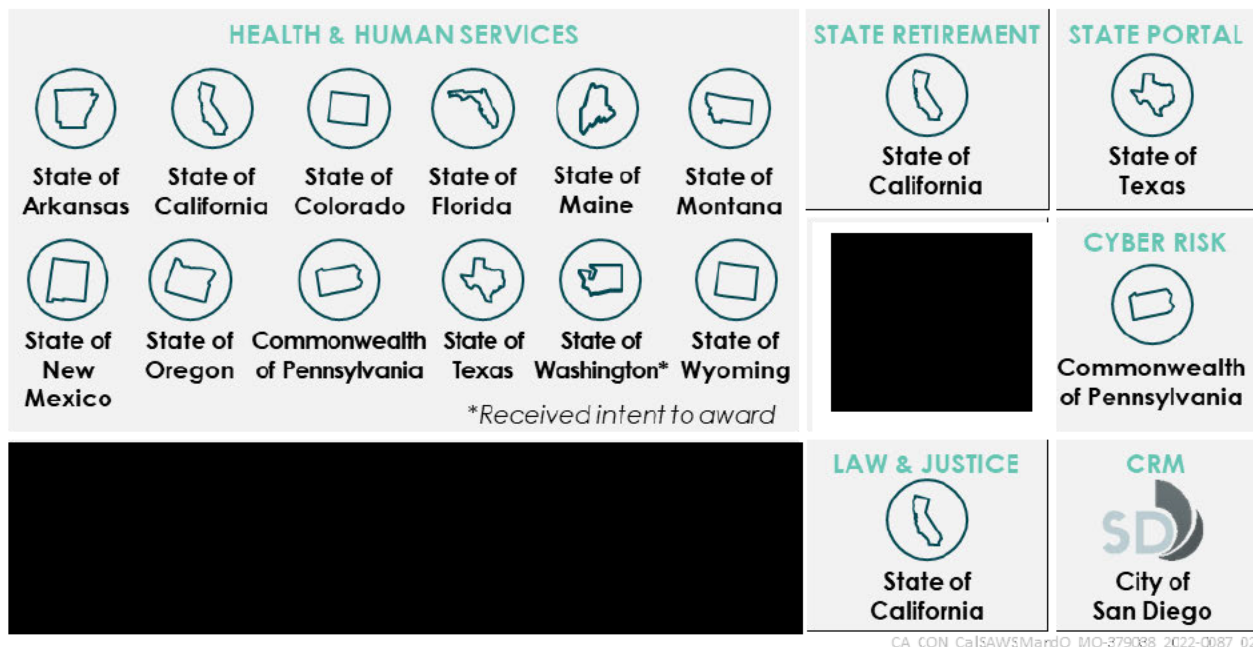
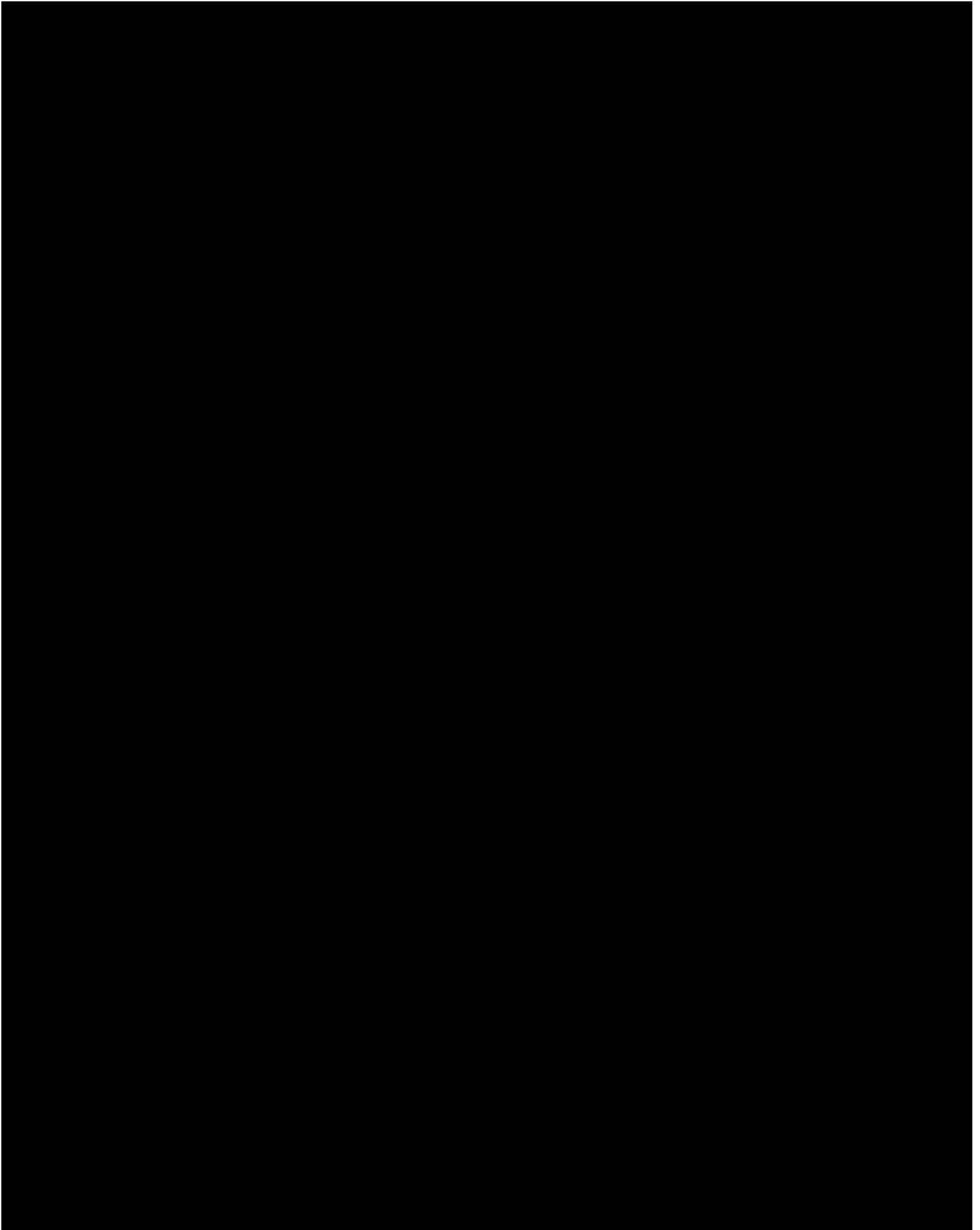


Figure 4.5-2. We Bring a Diverse Record of Transitioning Complex Systems Across Industries.



- Completed transition with minimal disruption to the plan members and initiated steady state **without disruption to the stakeholders.**

- [REDACTED]

- [REDACTED]

- [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

System Components and Services Transitioned

For the 2021 transition, the transition of cloud operations from the incumbent to Deloitte included all aspects of AWS services. It also included services covering all the core task areas of the CalSAWS M&E and Infrastructure RFPs. The transition also included OpenShift Container Platform on AWS with over 1,000 nodes supporting the containerized workload for EH.

- Over 10,000+ EC2 (or its equivalent)
- Over \$5,000,000+ AWS Consumption per month
- Ramp up of 160+ resource in 2 months
- Conducted 4000+hr of training during transition
- Resolved over 500+ tickets during reverse shadow with no help from the incumbent

Key Best Practices We Will Bring to CalSAWS

Some key aspects of our approach that allowed us to be successful included the following:

- We deployed resources in key positions with significant experience in domain-specific business processes and relevant technologies which helped to reduce knowledge transfer time.
- We negotiated subcontractor agreements with select incumbent vendor staff to mitigate key system or operations knowledge gaps.
- We used our EVD for Transition and Operation as the base method for transitioning, including relevant transition-in checklists and workplans.
- We incorporated implementation resources, such as architects, functional requirement SMEs, developers, and testers, into the core transition. This incorporation gave them the ability to launch development and implementation as soon as steady state delivery began.

Client and System:
California Office of System
Integration, CalHEERS

Incumbent Contractor:
Accenture

Transition Duration:
9 months

Transition Timeline:
Sept 2019 to June 2020

Complexity Level:
Very High

Delivered On Time:
Yes

Transition Timeline

The CalHEERS transition was organized into six phases: Plan, Execute, Verify, Cutover, Final Review, and Initial Operations as illustrated in Figure 4.5-4. The transition scope included the equivalent of both the CalSAWS Infrastructure and Maintenance & Enhancement contracts and was completed in **nine months**. This effort included not only a transition of the services and functions from the Transition-Out Vendor (Accenture) to Deloitte, but also complex parallel initiatives during the transition-in period, including a migration of the CalHEERS infrastructure from On-Prem to Cloud.

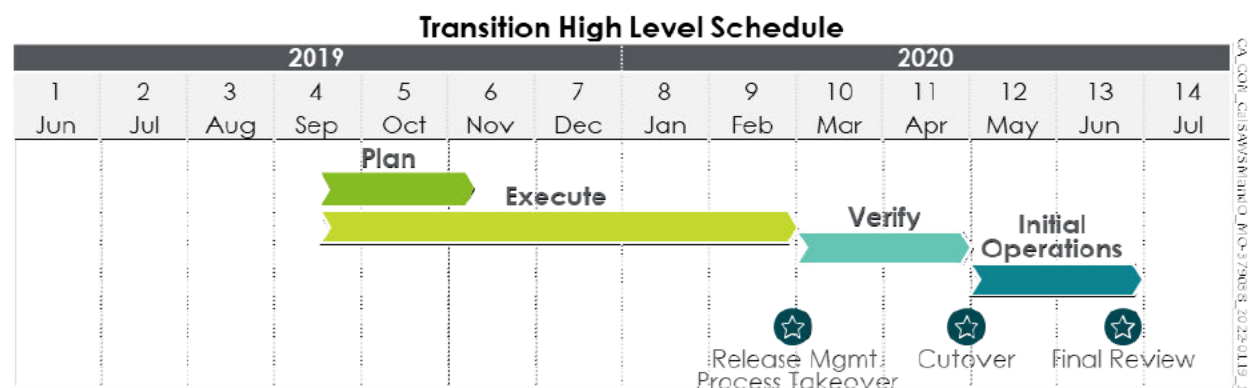


Figure 4.5-4. CalHEERS Transition Timeline.

Outcome

The CalHEERS transition was not only successful, but also was widely regarded by OSI, the Department of Healthcare Services (DHCS), and Covered California as setting a new standard for how to execute a transition successfully while implementing significant improvements to operations during the transition. CalHEERS proved that you can remain stable through a large system transition while making sure that by the end of transition the project is already operating at a higher plateau than before transition.

Deloitte began adding value immediately at CalHEERS and did not wait to make improvements until the transition was complete. The team instituted ongoing improvements during transition-in before the Incumbent vendor transitioned out. The team struck a balance between minimizing disruptions to ongoing operations and implementing significant changes to existing processes, while finding ways to realize immediate productivity gains, reduce technical debt and costs, improve the overall performance of the infrastructure and M&E services before the transition was complete. Deloitte was also tasked with implementation of accelerated modernization programs, including migration to and optimization within an AWS Cloud environment, delivery model transformation (Agile/DevOps), and workforce transformation. The AWS migration was completed in April of 2021. Our experience and knowledge from the CalHEERS project positions us to successfully support the M&E services of the CalSAWS contract.

System Components and Services Transitioned

Deloitte's takeover of CalHEERS included both the CalSAWS equivalent Infrastructure Operations as well as Maintenance & Enhancements (M&E). There were eight (8) total workstreams across the CalHEERS Transition.

- Maintenance & Enhancement (M&E)
- Enterprise Tools
- Project Management Office (PMO)
- Org. Change Mgmt., Training and Sponsor & Stakeholder Engagement (SSE)
- Strategic Planning & Innovation
- Infrastructure Operations
- Security
- Policy & Audit Support

Key Best Practices We Will Bring to CalSAWS

The following are examples of best practices from CalHEERS to the CalSAWS transition-in.

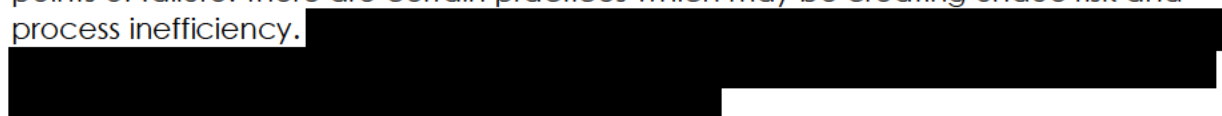
Identifying Technical Debt Reductions – Deloitte identifies opportunities to quickly remediate technical debt, including improvements that can easily be made during knowledge transfer. For example, we identified long-running CalHEERS database queries, determined the root cause for why they were running so long, and optimized these queries to execute more quickly. Another issue we identified was related to database compression that occurred during backups. We were able to diagnose the root cause and quickly remediate the issue.

Identifying Gaps in Existing Monitoring Processes – We inventory monitoring processes, to identify scans that are supposed to be running. At CalHEERS, some had stopped inadvertently. No one noticed this, and parts of the infrastructure were not being proactively monitored. It was unclear when or why these alerts were disabled, but our team identified the issue and re-enabled those alerts to improve system monitoring. We will take this same comprehensive view of CalSAWS infrastructure and monitoring and determine how to bolster overall infrastructure health.

Reviewing Environment Topology and Usage – An additional best practice our team brings to CalSAWS is conducting a review of the overall environment topology and identifying areas of underutilization and lost efficiency. At CalHEERS, we identified current environment usage and historical patterns to identify several environments that were either underutilized or not used at all as we conducted our review of the CalHEERS infrastructure. After conducting the appropriate due diligence, we were able to recommend decommissioning the unused system and tool environments, resulting in improved infrastructure hygiene and real cost savings to the CalHEERS project.

Conducting Full Audit of Tools and Look for Efficiency Gain – Our team conducts a full review and audit of the enterprise tools being used on CalSAWS. On CalHEERS, we completed a thorough N-1 analysis and identified many tools that were not up to date with current versioning. Our team put a remediation plan in place to update the tools and to keep tool versioning up to date on an ongoing basis.

Reviewing Service Account Usage – Deloitte reviews the usage of service accounts tools to create a more federated model for tool management and eliminating single points of failure. There are certain practices which may be creating undue risk and process inefficiency.



Inventorying Service Desk Processes – Deloitte conducts a full review of the current service desk software and processes to confirm it aligns with industry-standard practices, such as Information Technology Infrastructure Library (ITIL), as we begin transitioning the Service Desk. As we began transition planning for CalHEERS we realized the Transition-Out vendor had a custom, non-industry standard configuration of

ServiceNow (SNOW). As part of our transition, we conducted a full review of Service Desk tools and processes and confirmed alignment with industry-standards.

4.5.2 Transition Manager's Experience (ME-UA18)

RFP Reference: 5.3.3.5 - M&E Understanding and Approach to Transition-In

ME-UA18 Describe your proposed Transition Manager's experience with one or more like transitions managing the successful transition of large and complex IT Systems from one (1) company or contract to another on at least two (2) separate Projects. Describe the outcomes of the transition and what key best practices the Transition Manager will bring to the CalSAWS engagement.

Our proposed Transition Manager, **Mike Henry**, has almost 20 years' experience in leading large-scale transitions in State and federal governments. Mike's record of leading successful transitions establishes him as an ideal candidate for CalSAWS. His many years of delivering complex engagements in California and nationally provide a unique blend of experiences and demonstrated record of success which establish him as an ideal candidate for CalSAWS transition. His detailed resume and experience can be found in Attachment B-11.

Below we specifically spotlight his experience managing two transitions. One at **CalHEERS** and the [REDACTED]. Although the nature of the transitions Mike has led are slightly different, the approach and methodology applied are consistent. Both the CalHEERS and [REDACTED] transitions were large-scale, complex transitions, like CalSAWS. Mike's success on the CalHEERS transition demonstrates he understands the CalSAWS landscape, will be able to quickly establish rapport and credibility with the Consortium and the Counties, and deliver exceptional results on CalSAWS, like those that he delivered on [REDACTED] and CalHEERS.

4.5.2.1 California Healthcare Eligibility, Enrollment & Retention System (CalHEERS)

In 2019, Mike was designated Transition Manager for Deloitte's transition of the CalHEERS system described in-depth in Section 4.5.1.2. earlier in this section. He led the **9-month transition in 2019** from the Incumbent contractor. He was responsible for all aspects of transition-in planning, management, reporting, execution, and verification.

Outcomes of the Transition and Key There are very few systems that compare to CalSAWS in terms of complexity, size, and scale—serving more than 18 million Californians. There are also very few stakeholder environments that compare to CalSAWS, serving 58 counties and working with State partners OSI, DHCS, and CDSS, and CWDA. CalHEERS is among the only systems in the nation that could be truly considered comparable to CalSAWS. In addition to the comparable size and scale, CalHEERS also serves much of the same population that is served by CalSAWS and works across the same State partners. Finally, the former Incumbent contractor of CalHEERS is also the current Incumbent vendor of CalSAWS. Making a transition is an extremely consequential decision. They decided to transition from their former

Incumbent to Deloitte after reviewing their options for their Infrastructure Operations and Maintenance and Enhancement (M&E). The transition exceeded expectations due to a variety of reasons. First, it was collaborative and completed on schedule. Second, we also identified risks as we did transition and made improvements to processes and procedures that improved system security, system availability, and a variety of other system management areas. Due to our timely delivery and building trust with CalHEERS management staff, we had strong momentum to elevate their operations and service delivery after transition. Overall satisfaction with the system, efficiency of operations, and enrollment have improved markedly year-over-year since the transition to Deloitte.

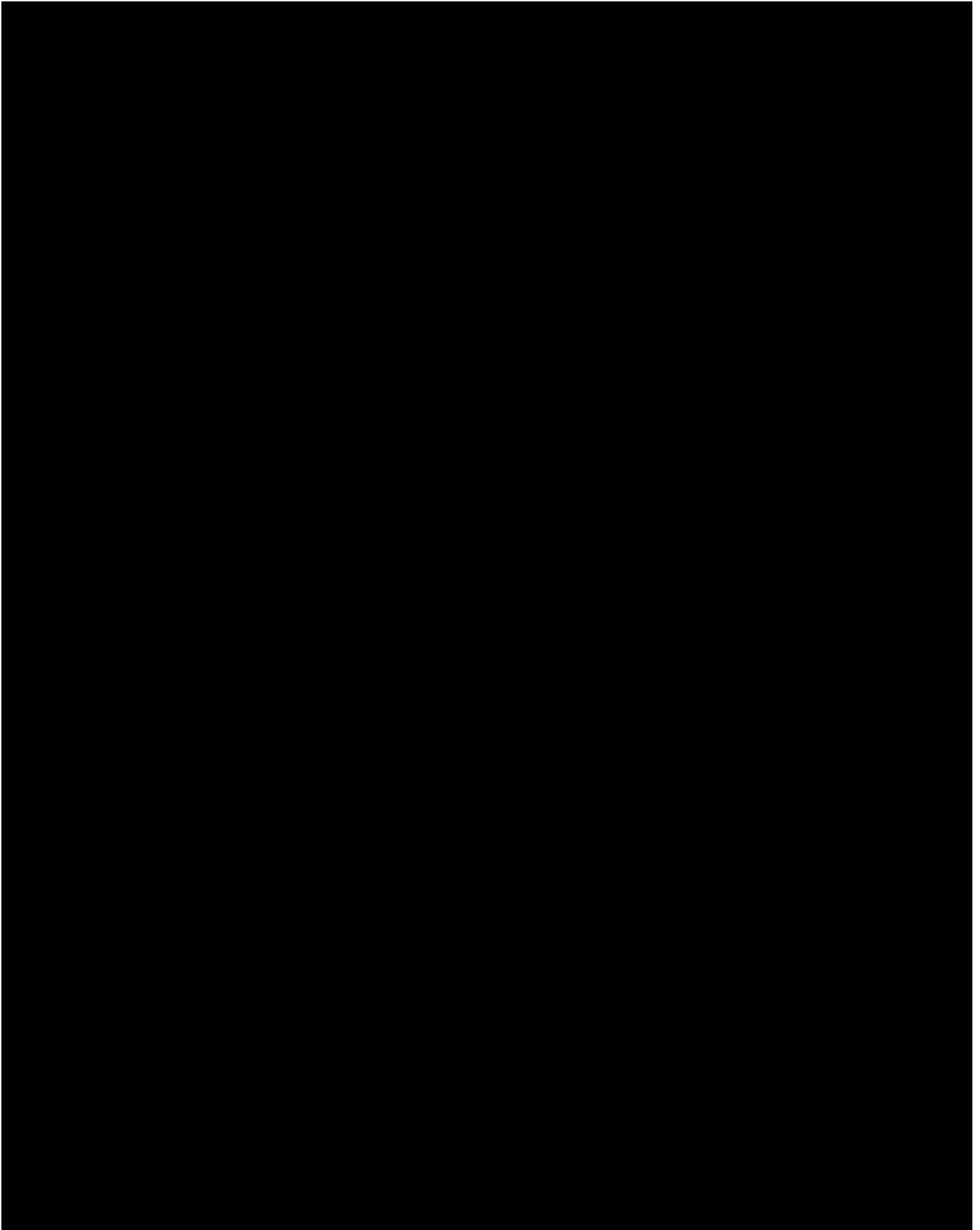
For these reasons, there is no better “proof point” that Deloitte can successfully transition CalSAWS and leave the Consortium and Counties in a better place following this transition than looking at the transition of CalHEERS. There is also no better transition manager to lead your transition than the leader who led the CalHEERS transition—Mike Henry. In addition to leading the CalHEERS transition, Mike has led multiple transitions nationally over his almost 20 years of leadership in state health and human services and eligibility and enrollment.

Outcomes of the Transition and Key Best Practices

Each of the best practices and outcomes highlighted in the earlier CalHEERS' **Best Practices and Measures of Transition Success** sub-section are specific examples from the CalHEERS transition, led by Mike, and are directly applicable to CalSAWS. They include:

- Reduce technical debt
- Identify gaps in existing monitoring processes
- Review environment topology and usage
- Conduct full audit of tools and look for efficiency gain
- Improving operational maturity
- Improve service desk processes

Failure is not an option for the CalSAWS transition. You need a leader that understands eligibility and enrollment, California, your stakeholders, and State partners, CWDA and your Incumbent contractor. Mike Henry understands these things intimately. He is the most capable and qualified leader for this incredibly important effort. He has done it before with CalHEERS and will deliver the same exceptional results for CalSAWS.



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

4.5.3 Risks and Mitigation Strategies (ME-UA19)

RFP Reference: 5.3.3.5 - M&E Understanding and Approach to Transition-In

ME-UA19 Please identify the greatest risks inherent with the overall transition effort, and those risks associated with each transition area along with your planned mitigation measures to confirm no disruption to CalSAWS services.

We have described the potential risk, the impact of that risk, and the mitigation plan to address that risk in Table 4.5-2.

| Risk | Mitigation Plan |
|---|---|
| The transfer of roles and responsibilities between vendors can lead to inadequate project communications, unclear or forgotten ownership of tasks, and delay in decision-making. | <ul style="list-style-type: none"> • We collaborate with the Consortium and Accenture to delineate clear roles and responsibilities to confirm we do not overlook any responsibility currently fulfilled by Accenture. • Throughout KT, we adopt and utilize the processes already set in place by Accenture and the Consortium to avoid paralysis caused by sudden change. • We evaluate each process for effectiveness and share the results and recommendations for change with the Consortium. • We introduce identified changes in a phased manner and at a comfortable pace for adoption. |
| Missing or out-of-date documentation can result in misunderstanding of practices, inefficiencies in KT, and mistakes in versioning of project materials. | <ul style="list-style-type: none"> • An assessment is conducted during the Plan phase in which we identify gaps in documentation and prioritize investigation. • We document gaps identified during the KT. We also review the document storage structure, versioning practices, and breadth of documentation to determine if there are vulnerabilities and establish recommendations. • We conduct KT activities with Accenture if documentation is unavailable or incomplete. We also reverse engineer and shadow to identify items that are not documented but are essential to the day-to-day operations of CalSAWS. |

| Risk | Mitigation Plan |
|--|---|
| The untimely access to CalSAWS applications, tools, and document storage can result in delay during project startup activities, affecting the schedule and inefficiencies in work. | <ul style="list-style-type: none"> • We requested access to project-related tools, collaborative sites, and applications with a corresponding description of the use and user roles prior to contract execution. • We provide information for on-boarding in advance of contract execution to the project with associated approvals and requests for access. • We bring staff who have experience in contracting with the CalSAWS hardware/hosting and software vendors. |
| Disruption to systems uptime and monitoring of system processes due to the additional activities required to support transition. | <ul style="list-style-type: none"> • Perform detailed planning for transition activities and identifies safe time blocks to perform complex activities. • Setting up multiple environments to prevent disruption of day-to-day activities and reduce Accenture dependencies. |
| There are many changes in motion during transition in personnel and the actual system. This creates a heightened risk of a cybersecurity incident or delayed response to incidents. | <ul style="list-style-type: none"> • Deloitte mandates onboarding security and compliance training tailored to the requirements of CalSAWS for our incoming personnel and compliance training, as required by the Consortium. • We collaborate with the Consortium and Accenture to define the security management plan regarding transition to allow for a smooth and safe transition. |
| Key members of Accenture's Operations Team may represent a "single-point-of-failure." Deloitte might not have the requisite knowledge required to run that specific query. | <ul style="list-style-type: none"> • Deloitte works with the Consortium to try to identify these potential "single points of failure" within the existing Accenture operations team. • If those areas are identified, the Consortium and Deloitte will confirm there is a plan to transfer the related knowledge before the end of the Execute phase and test that knowledge during the Verify phase. |
| Undocumented tools can impact operations. | <ul style="list-style-type: none"> • Accenture should document end-to-end configurations of all Accenture enterprise tools and/or other configurations (e.g., ServiceNow) and provide that comprehensive documentation to Deloitte before the Plan phase of transition ends. |

Table 4.5-2. Risks and Mitigation Strategies.