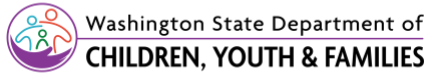


# Washington Health and Human Services Enterprise Coalition



## Integrated Eligibility and Enrollment (IE&E) Modernization Program

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## Technical Architecture & Design (TAD) Definition Phase 2

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### ***Deliverable 5.1: IE&E Roadmap V2***

**Version Number: 1.6**

**Version Date: 11/08/2024**

*This document has been created at the request of the Washington State Department of Social and Health Services (DSHS) on behalf of the Health and Human Services (HHS) Enterprise Coalition. The approaches and considerations included in this document are preliminary drafts and may be further developed based on additional inputs from the HHS Enterprise Coalition.*

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# Document Control

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1.0	07/22/2024	TAD Project team, HHS Coalition Business Lead	Draft deliverable for review and feedback.
1.1	07/22/2024	TAD Project team, HHS Coalition Business Lead	Draft deliverable for review and feedback.
1.2	08/29/2024	TAD Project team, HHS Coalition Business Lead	Updated deliverable after TAD Project leadership review, including updates to the Preliminary Modernization Roadmap ( <a href="#">Figure 9</a> ) and updating figure secondary colors to align with IE&E style guide.
1.3	09/12/2024	TAD Project team, HHS Coalition Business Lead	Updated deliverable after secondary review to verify comments addressed.
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## Document Approvers

Document approvers for this deliverable have been defined in the Deliverable Expectation Document (DED) supporting this deliverable.

# 1 | Introduction

The Washington State Health and Human Services Enterprise Coalition (HHS Coalition) operates over 75 health and human service programs serving over 2.9 million Washingtonians. These programs are supported by a patchwork of IT systems with, at its core, the Automated Client Eligibility System (ACES), a 30-year-old mainframe-based system that has been enhanced and maintained primarily with legacy technologies. Washingtonians who rely on the legacy system for benefits “must navigate multiple online systems with lengthy applications, many of which are not accessible on smartphones”. This reliance on legacy technologies has also introduced vendor lock-in, limited flexibility to respond to evolving regulatory requirements, and brought about an increasing risk of mainframe failure.<sup>1</sup> Failure may prevent benefits access and lead to a shift to labor-intensive manual processes to recover operations.

To address these challenges, the HHS Coalition established a roadmap aimed at achieving a vision for Integrated Eligibility & Enrollment (IE&E) in January 2022. Since then, the HHS Coalition has launched projects guided by the original IE&E Roadmap Report (2022), including IE&E Technical Architecture & Design (TAD) Phase 2, which has the overall aim of building a technical architecture and data management strategy to enable the decommissioning of the ACES system and inform procurement options, in addition to updating the original IE&E Roadmap. The progress achieved since the creation of the roadmap, detailed below, has presented an opportunity to update it, ensuring it more accurately reflects the current state of the IE&E Modernization Program and incorporates lessons learned, such as prioritization of business capabilities based on impact and level of technical complexity. The updated roadmap is presented in this deliverable, which also cumulatively represents the work done throughout TAD Phase 2.

Since the original roadmap was developed in 2022, the IE&E Modernization Program has continued its commitment to stabilizing and investing in current Eligibility & Enrollment IT systems, implementing technologies to improve and streamline customer service processes, and modernizing IT systems to ensure a strong foundation for Washington’s long-term IE&E vision. This commitment is exhibited through the pursuit and completion of numerous activities and projects, including the creation of an HHS Coalition IT strategy, discussed further in [Section 3.1: HHS Coalition IT Strategy](#) below. Decisions by the HHS Coalition Executive Sponsor Committee (i.e., G1) in 2022 accelerated progress towards the vision, moving a number of projects into the IE&E Modernization Program.<sup>2</sup> Of these projects, infrastructure maturity through Mainframe as a Service (MFaaS), updates to ACES Maintenance & Operations (M&O), and the transition from ACES Information Management System (IMS) to DataBase2 (DB2) have been completed, which are further discussed in [Section 5.2: Technology Opportunity](#). The initial phase preceding TAD, Technical Advisory Services (TAS), was completed in 2023, which helped to define the plan for the IE&E Modernization Program’s evolution in line with its expanded scope and facilitation of coordination across M&O and modernization projects going

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<sup>1</sup> Sourced from the original IE&E Roadmap Report (2022). According to the IE&E Modernization Program, through the execution of the Information Management System (IMS) to DataBase2 (DB2) and Mainframe as a Service (MFaaS) projects (discussed further in [Section 5.2: Technology Opportunity](#)), the immediate risk of end-of-life infrastructure for the ACES Complex has been mitigated. The risk will continue to be mitigated through partnership with the new Maintenance and Operations vendor.

<sup>2</sup> Additions included Mainframe as a Services (MFaaS), Automated Client Eligibility System (ACES) Mainframe Stabilization Project, ACES Maintenance & Operations, Master Person Index (MPI), Technical Architecture & Design (TAD), and Customer Experience & Innovation (CXI).

forward. The future state IE&E Platform was also established, developing reusable technical assets for future capabilities and systems to utilize, starting with MyWABenefits (i.e., Product 1).

One example of an ongoing initiative is the Customer Experience & Innovation (CXI) project, which has an expected delivery date of the end of August 2024. CXI targets simplification and alignment of eligibility & enrollment policies across programs, as well as overall improvements to customer experience using human-centered design (i.e., through user research, resulting in pilots and redesigned prototypes).<sup>3</sup>

This deliverable builds upon the foundation and integrates materials from these previous completed efforts, as well as ongoing projects (e.g., CXI, Master Person Index [MPI]). To inform the roadmap, technical deep dives focused on the ACES Complex were conducted. Deep dives on other non-ACES systems in the HHS Coalition (e.g., Barcode, which are summarized in [Section 10: Modernization Roadmap](#)) have yet to be completed but are necessary to determine what can be incorporated as a functionality in the future state IE&E Platform or alternatively developed to be interoperable with the platform. Specific implementation activities calling out the need for these additional technical deep dives, as well as the need to decide which specific functionalities or system components are desirable and feasible to implement on the future state IE&E Platform, have been laid out in [Section 10.4: Detailed Activities](#).

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<sup>3</sup> [Integrated Eligibility & Enrollment Modernization Program, "CXI: Transforming Benefits and Access Delivery"](#), provided by IE&E Deputy Director in discussion 08/01/2024,

## 2 | Executive Summary

The vision of the IE&E Modernization Program (see [Section 4: Vision](#)) and the ultimate goal of this roadmap is to improve the health and human services benefits program eligibility and enrollment process for clients and staff and to identify ways the state can better reduce friction in the eligibility application process for Washingtonians and serve clients more effectively.<sup>4</sup> As the IE&E Modernization Program embarked on the roadmap in 2022, it looked to strengthen the assumptions on the technical feasibility to unwind ACES Complex applications and components, the core eligibility system and system of record for Medicaid (e.g., Classic, MAGI), Food Assistance, and Cash Assistance programs and a key data source for client and demographics data. TAD Phase 2 continued this work, aiming to address technical feasibility concerns by examining the ACES Complex and imagining the future state IE&E Platform architecture collaboratively with impacted groups across the HHS Coalition. This resulted in the updated roadmap presented in this document.

### Work underpinning the refreshed roadmap included:

- Re-alignment on principles between original roadmap and HHS Coalition IT Strategy, with emphasis on interoperability and re-use where possible (see [Section 7: Principles of Modernization](#) for details)
- Analysis of ACES Complex applications, mainframe, and interfaces to consider size, complexity, and dependencies, which informed the roadmap sequence, duration, and timing for modernization and decommissioning of ACES Complex components
- Design of the target state architecture and interim architecture options to determine technical foundation work to include on the roadmap. This informed the modernization approach and degree of change expected to support decommissioning (e.g., no lift and shift of COBOL code, preference for commercial-off-the-shelf [COTS] products where viable, and improving interfaces from batch to real time) (see [Section 8: Future State Architecture](#))
- Definition and prioritization of future state capabilities to drive a modular, incremental modernization approach that better aligns with the needs of the future state (e.g., greater adaptability). This included identifying the functionalities required to support the needs of today (e.g., users, Centers for Medicare & Medicaid Services [CMS] requirements) and advancements for the future (e.g., advanced analytics, AI/ML-supported functions) (see [Section 9: Prioritized Future State Capabilities](#) for list of capabilities and descriptions)
- Identification of program and system dependencies on ACES Complex applications to capture the timing of impacts to programs (e.g., Apple Health, Food, Cash) and catalogue the different impacted groups to engage in design, testing, and training for a more user-centered modernization (see [Figure 10 Section 10.3 Key Milestones and Roadmap Visualizations](#), and [Appendix J: Enterprise Impact Assessment for ACES Modernization](#))

A notable paradigm shift from the previous roadmap is the re-framing of the modernization around capabilities. Looking at the modernization through a capability lens allows for a user-centric discovery and design to look across the people, process, and the underlying technology required. From a technical perspective, this also allows incremental modernization of underlying

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<sup>4</sup> Based on discussion with IE&E Modernization Program leadership (02/2024 – 08/2024) and the IE&E Modernization Roadmap Report (2022)

technology (e.g., ACES Complex) to see the benefits of improved maintenance operations behind the scenes. This will enable greater adaptability to legislative changes and opens the door to advanced functionality by removing limitations from legacy technology. Furthermore, anchoring the modernization on capabilities instead of systems better facilitates conversations around the prioritization, re-use, enhancements, or possibility to use COTS solutions for existing solutions, as the focus is on the functionalities of the system, instead of the larger systems themselves.

The twenty-one future state business capabilities were identified and ideated collaboratively with HHS Coalition members (see [Section 9: Prioritized Future State Business Capabilities](#)). The aim of these capabilities is to reflect the functionalities utilized by clients and staff across the eligibility and enrollment process (e.g., Eligibility Application, Benefit Enrollment and Issuance, Case Management), particularly the current state ACES Complex as well as aspirational future capabilities. Through analyses of the ACES Complex application components and interviews with program teams on their process workflows, these capabilities were verified as pieces the modernization could complete over time. The capabilities were refined and prioritized together with 70+ HHS Coalition members against business value (e.g., improving client/staff experience, reducing risk, enhancing IT operations) and technical complexity to support prioritization. The roadmap was updated to sequence these capabilities over time, based on the collaborative prioritization, implementation complexity considerations (i.e., of decoupling ACES Complex applications and data), and minimization of the business disruption and amount of legacy system modifications required to support incremental development.

The refreshed roadmap (see [Section 10: Modernization Roadmap](#)) targets to release modernized capabilities for the eligibility application processes (e.g., Application Input & Changes, Eligibility Determination & Renewals, Screening & Verification) by state fiscal year 2028, then targets improvements to the Case Management and Benefit and Service Issuance and Management capabilities after. Decommissioning of ACES Complex components could begin state fiscal year 2026 as capabilities are developed. These initial releases would provide at minimum parity with existing features in legacy systems. As further discovery and design research is completed for each capability, improvements to existing processes can be identified and prioritized as part of these initial releases to provide more immediate benefits to client, partner, and staff users, including if any features from later planned capabilities should be accelerated in the timeline. Due to the importance of moving off the mainframe before the next end of support deadline (i.e. 4-5 years), the roadmap does emphasize features and programs currently relying on ACES Complex applications. Further discussions and analyses need to be made regarding which programs and other non-ACES systems could be incorporated during the initial releases, based on current process pain points, timing, and availability of resources. As discovery sessions are held, and re-use of services is assessed, programs may determine if the timing is right to integrate or utilize the new capability being developed.

While the roadmap approach has been updated based on additional technical feasibility analysis at a capability-level, further analysis, prioritization, and planning is needed for each capability to define the features and requirements, describe the expected impacts to users, and determine more specific timing for implementation and roll outs. Outside of this report, an operating model and governance structure is being refined and implemented by the IE&E Program to support the modernization, including seeking perspectives on resource needs from HHS Coalition organizations. These resourcing needs will support the cost model and corresponding funding strategies to be submitted as part of biennial decision packages. In addition to the continuous program governance to be established to identify risks and develop

mitigations, the roadmap sequence will be re-evaluated, at a minimum on an annual basis, based on funding, velocity, and resourcing and to address changing priorities, including those based on new user research, legislative requirements, and incorporation of related roadmap efforts impacting the capabilities (e.g., MyWABenefits).

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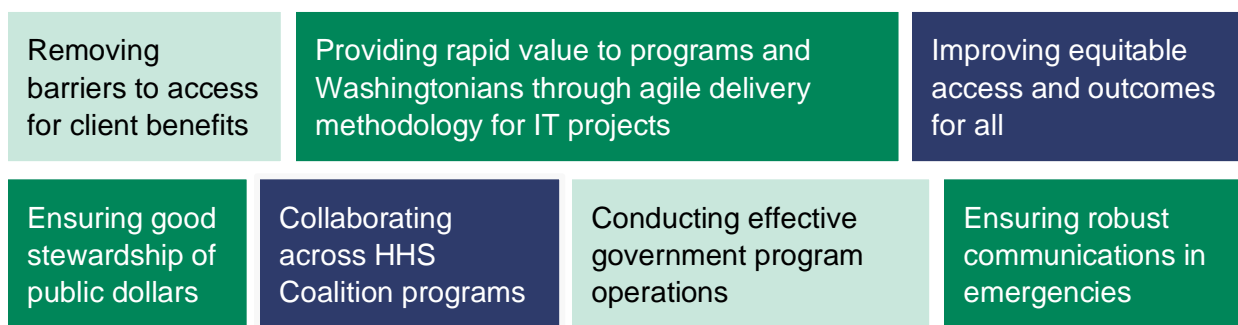
# 3 | Background

## 3.1 HHS Coalition IT Strategy

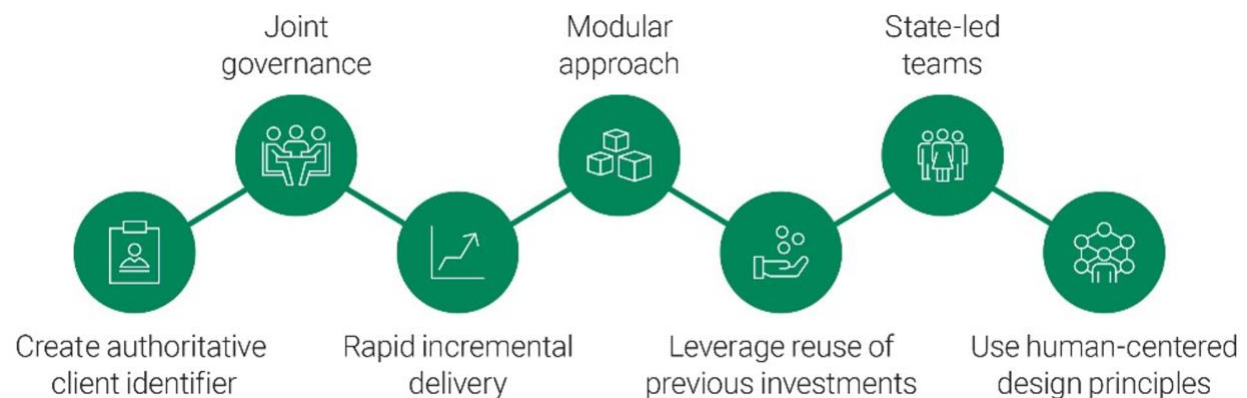
In 2018, to promote service coordination, the leaders of Washington’s state health and human services organizations<sup>5</sup> decided that increased collaboration on IT investments is critical to improving the health and well-being of the people, families, and communities of Washington. The decision established the HHS Coalition as a collaborative to govern IT project investments across Washington’s state HHS organizations, and the Washington Legislature formally recognized the HHS Coalition in the 2019 legislative session.

In summer 2021, the HHS Coalition leaders finalized an IT strategy for 2021 to 2024. This strategy provides a common vision for IT project alignment and direction. The IT strategy includes seven vision goals and seven enabling strategies that guide how the HHS Coalition will frame IT projects, including the development and implementation of the IE&E solution described in this report. This report and the detailed roadmap are grounded in the goals and enabling strategies summarized below.

**Figure 1: HHS Coalition Vision<sup>6</sup>**



**Figure 1: Enabling Strategies**



Source: IE&E Modernization Roadmap Report (2022)

<sup>5</sup> The HHS Coalition includes the Department of Children, Youth & Families (DCYF), Department of Corrections (DOC), Department of Health (DOH), Department of Social and Health Services (DSHS), Health Benefit Exchange (HBE), Health Care Authority (HCA), and Washington Technology Solutions (WaTech). The Office of Financial Management (OFM) is an ex-officio member advising the HHS Coalition on compliance with state financial budget and legislative processes.

<sup>6</sup> Source: IE&E Modernization Roadmap Report (2022)

## 3.2 Integrated Eligibility & Enrollment (IE&E) Background

The HHS Coalition has been working for several years to develop an approach for a health and human services integrated eligibility and enrollment solution. IE&E systems are defined as follows:

Integrated eligibility [and enrollment] systems (IESs) are the enabling technology behind state-level Medicaid and human services programs in the United States. The core of an IES is automated rules and a case management and workflow system that encodes logic to enable timely and accurate eligibility determinations for Medicaid and other human services programs.<sup>7</sup>

The specific implementation of IE&E solutions will vary from state to state and can have different technical components and staffing models. A driving goal for these solutions is to facilitate eligibility determinations and benefits enrollment for multiple programs in a streamlined fashion due to the overlap in program eligibility for many low-income individuals and families. The use of these systems allows states, “to avoid duplication of effort for case workers as well as individuals and families applying for such programs, reduce duplicative administrative costs, and ensure program integrity<sup>8</sup>.” The opportunities for Washington in implementing an IE&E solution are further described in [Section 5: Statement of Need](#).

The HHS Coalition dedicated its focused effort to delivering the original roadmap in response to Engrossed Substitute Senate Bill 5092 (2021).<sup>9</sup> The HHS Coalition established a cross-organization collaboration to develop the original roadmap, including multiple workgroups that focused on business and IT visioning as well as supporting procurement and resourcing strategies. The workgroups were guided by a cross-organization team of executive champions.

Washington State has been studying approaches to IE&E for a number of years. The HHS Coalition considered the analysis and recommendations from past studies conducted in Washington for the original roadmap. This includes the following<sup>10</sup>:

- 1) U.S. Digital Response. Washington State Department of Social and Health Services ACES Upgrade Plan Third Party Review. 2020.
- 2) Washington State Health and Human Services Enterprise Coalition. *Washington HHS Coalition Roadmap to Integrated Eligibility: Phase 1*. 2020.
- 3) Cognosante, LLC for Washington State Department of Social and Health Services. *RFP Writer for Business and Information Technology Transformation Business Case*. 2018.
- 4) Elyon Strategies for Washington State Office of the Chief Information Officer. *Transformation Strategy for Eligibility and Authorization Phase 2*. 2016.
- 5) Public Consulting Group for Washington State Office of Financial Management. *Medical and Public Assistance Eligibility Study Alternative Options and Recommendations Report*. 2014.

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<sup>7</sup> McKinsey & Company, “[Insights into better integrated eligibility systems](#),” 2019

<sup>8</sup> [Washington State Health and Human Services Enterprise Coalition, “HHS Coalition IT Strategy 2021-2024,”](#) 2021,

<sup>9</sup> The initial IE&E Modernization Roadmap Report (2022) has been updated and replaced with IE&E Technical Architecture & Design (TAD) Phase 2 [Deliverable 5.1: IE&E Roadmap V2 in 2024](#).

<sup>10</sup> List would also include the previous IE&E Modernization Roadmap Report (2022), which serves as the basis for the updated roadmap provided in this document.

The original roadmap reflected the current vision for the journey towards IE&E as of the time it was submitted. The HHS Coalition did not expect the roadmap to stay static; instead, it was imagined as a living document that would be maintained and updated continually, capitalizing on lessons learned, business opportunities, technological advances, and other developments along the way. The HHS Coalition will maintain and update the roadmap continually, and the established governance process in the IE&E Modernization Program will guide the ongoing governance of this document.

The original roadmap was also informed by and aligned with other Washington state initiatives, including those led by the Poverty Reduction Work Group<sup>11</sup>, the Executive WorkFirst Task Poverty Reduction Oversight Task Force<sup>12</sup>, and Washington Technology Solutions (WaTech).<sup>13</sup> The original IE&E roadmap, as well as the updated version offered in this deliverable, supports the goals outlined in these related initiatives below.<sup>14,15</sup>

### **Blueprint for a Just & Equitable Future: The 10-Year Plan to Dismantle Poverty in Washington**

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- **Strategy 2:** Make equal space for the power and influence of people and communities disproportionately affected by poverty and inequality in decision making
- **Strategy 6:** Build an integrated human service continuum of care that addresses the holistic needs of children, adults, and families

### **Washington Enterprise IT Strategic Plan 2023-2025**

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- **Goal #1:** Create a government that leaves no community behind
- **Goal #3:** Innovative technology solutions create a better Washington

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<sup>11</sup> Washington State Poverty Reduction Work Group, "[Blueprint for a Just and Equitable Future: The 10-Year Plan to Dismantle Poverty in Washington](#)," 2020

<sup>12</sup> Washington Legislative Executive WorkFirst Task Poverty Reduction Oversight Task Force, "[WorkFirst Poverty Reduction Oversight Task Force, Legislative-Executive](#)," 2021

<sup>13</sup> Washington State Office of the Chief Information Officer, "[Statewide Information Technology Strategic Plan 2021-2025](#)," 2021

<sup>14</sup> Other ongoing initiatives that may impact the IE&E modernization include EngageOne, HHS Coalition Master Person Index (MPI), MyWABenefits (Eligibility and Enrollment Status Tracker), Identity & Access Management enterprise solution development (Secure Access Washington and Okta), the CXI project, and Document Management deployment. Further information – including impact on modernization activities – is included in [Section 10: Modernization Roadmap](#).

<sup>15</sup> Source: IE&E Modernization Roadmap Report (2022)

## 4 | Vision

**The HHS Coalition envisions a world in which** Washingtonians tell their story one time, as the new system and underlying business processes securely guide them through the possibilities. This vision will be made possible by:



**An integrated, familiar experience** for Washingtonians that is personalized, welcoming, and comprehensive.



**An accessible experience for all** that addresses physical barriers, such as internet and device access, and social barriers, such as sex, gender identity, race, ethnicity, disability, and language.



**An easier experience for Washingtonians** in the eligibility and enrollment process, so they feel empowered, while also fully supported.



**An improved user experience** that better meets client and community-based assistor needs, designed in collaboration with Washingtonians using human-centered design practices.



**An improved experience** for Washington State's eligibility staff and case workers that better supports securely connecting eligible clients to the benefits and services they need.

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**The HHS Coalition envisions a world in which** HHS Coalition organizations can quickly respond to program, partner, client, and legislative needs, aided by improved technology and business processes, made possible by:



Designing processes and technology with an **eye toward state ownership and self-service**.



**Enabling modernization** while being mindful of the impact on security, systems, and programs.



Continuously integrating **new and updated software** through more frequent code delivery.



**Engaging employees** in the identification of streamlined business processes.

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## 5 | Statement of Need

More than 75 health and human services programs in Washington deliver vital services supporting almost three million Washingtonians in reaching their full human potential through cash assistance, child care subsidy, food assistance, health insurance programs, immigrant and refugee assistance, and medical assistance. Washington state agencies, public-private partnerships, and community, vendor, and contractor partners deliver the programs, which expend approximately \$17 billion annually. In addition, public health programs and services improve population health for all Washingtonians.

Of those almost three million Washingtonians, over one million are served by programs in at least two of the HHS Coalition organizations and more than 200,000 are served by at least three of the organizations. Clients, particularly those served by multiple organizations, are faced with providing the same information to multiple organizations through lengthy applications that are not all currently available online, in mobile-responsive formats, or additional access limitations (e.g., accessibility, language).

The experience of poverty is not shared equally by all people. The challenges described in this section, among others faced by the HHS Coalition's clients, disproportionately impact Black, Indigenous, and People of Color communities as well as other groups, including women, children, seniors, individuals with disabilities, single parents, rural communities, the LGBTQ+ community, and immigrants and refugees. The overarching HHS Coalition vision and the IE&E vision described in the sections above highlight the HHS Coalition's deep commitment to equitable access to services.

This crucial network is supported by a complex, interrelated web of IT systems that support a range of functions, including eligibility; case management; benefit issuance; provider payments; public health activities; analytics; and other functions used by program beneficiaries; case workers; service providers and organizations; and program staff. Although they represent only a small portion of program expenditures, the spending on these systems amounts to tens of millions annually, supported by significant federal funding investments. Maintaining supportable hardware and software for the legacy mainframe-based system is an ongoing challenge; while the IE&E Modernization Program recently resolved a major end-of-life concern, this presents an important opportunity to modernize the system over time, as represented in this updated IE&E roadmap.<sup>16</sup>

This section describes in greater detail the business and technology opportunities that demonstrate the need for improvements to processes and systems that support the variety of benefits that HHS Coalition organizations administer.

### 5.1 Business Opportunity

The HHS Coalition serves around three million Washingtonians (at least one in three Washingtonians) to provide health and human services. More than 45% of clients are shared and served by at least two HHS Coalition organizations. IE&E modernization aims to better

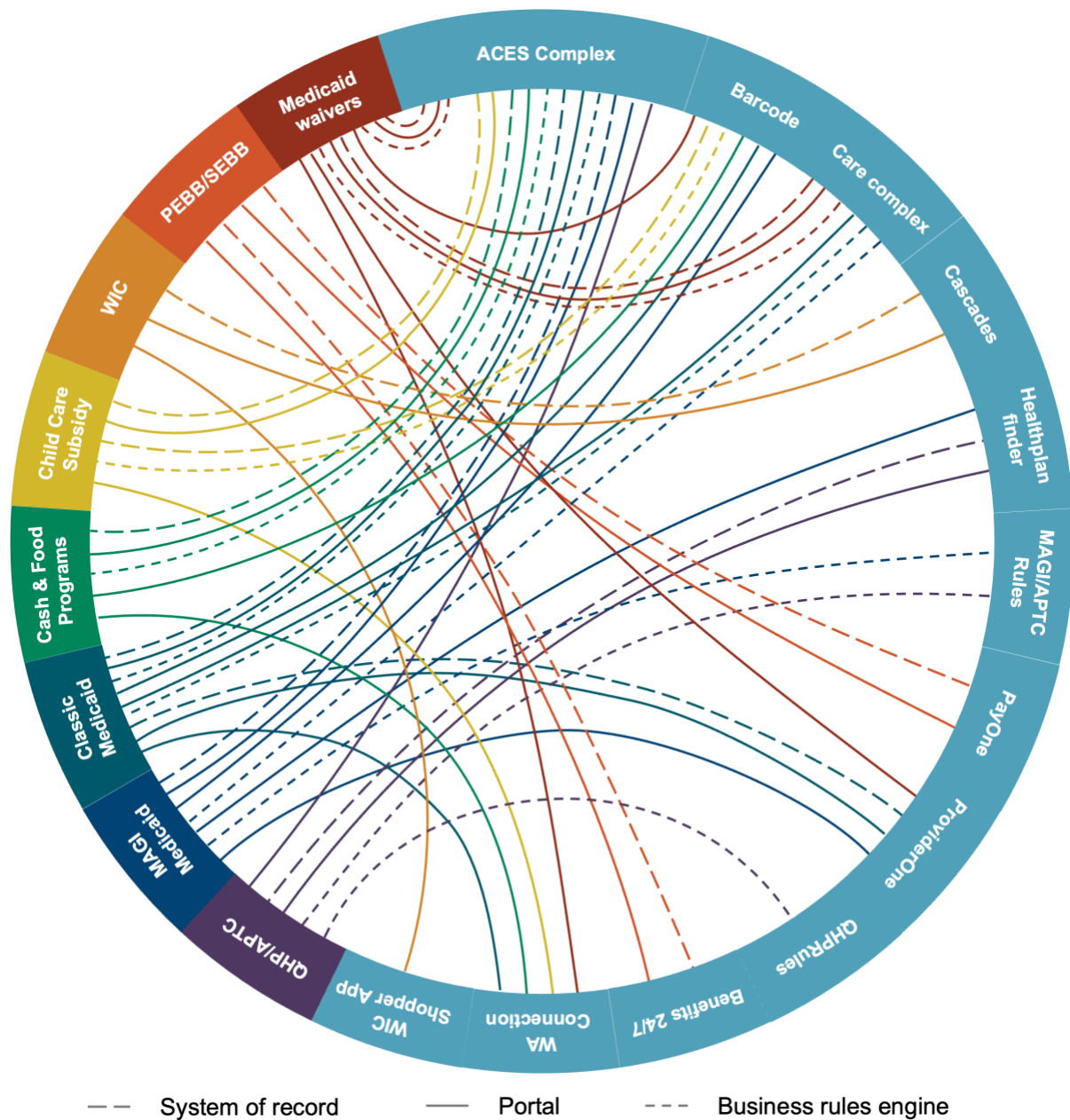
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<sup>16</sup> According to the IE&E Modernization Program, through the execution of the Information Management System (IMS) to DataBase2 (DB2) and Mainframe as a Service (MFaaS) projects, the immediate risk of end-of-life infrastructure for the ACES Complex has been mitigated. The risk will be mitigated through partnership with the new Maintenance and Operations vendor.

serve Washingtonians across programs and HHS Coalition organizations through changes to the eligibility and enrollment experience, online, in person, and over the phone.

Client eligibility, enrollment, and case management for all of the programs supported across the HHS Coalition organizations are each dependent on a complex web of IT systems. The image below depicts only a subset of the systems that support the various programs, with systems shown using the light blue color (e.g., ACES Complex, Barcode), and programs shown using other colors (e.g., Qualified Health Plan [QHP]/Advanced Premium Tax Credit [APTC]).

**Figure 3: Client Eligibility, Enrollment, and Case Management Systems<sup>17</sup>**



Source: IE&E Modernization Roadmap Report (2022)

<sup>17</sup> Source: IE&E Modernization Roadmap Report (2022)

This complex web of systems among Washington’s HHS Coalition organizations presents major challenges for clients, navigators, assisters, and state staff, including:

- 1) **Lengthy Online Application Challenges:** Code for America, a technology non-profit organization focused on improving digital government services, conducted an analysis of online benefits applications across all 50 states in 2023. Washington is among 39 states with online applications for, at a minimum, Medicaid (e.g., Modified Adjusted Gross Income [MAGI] Medicaid through WA Healthplanfinder [HPF]), Supplemental Nutrition Assistance Program (SNAP or Basic Food), Temporary Assistance for Needy Families (TANF) programs, Child Care Assistance (Child Care Subsidy Programs). However, Washington fares poorly in the time required to complete those applications. In the best instances, Code for America estimates that those applications could be completed in 15-20 minutes (e.g., Oregon, District of Columbia, Iowa, Utah) in a single application, whereas Washington requires two separate online applications (one for Medicaid expansion and one for programs such as child care subsidy, SNAP and TANF) and an estimated 90 minutes to apply, with an estimated 25 minutes for HPF and another 65 for Washington Connection (WaCon). Furthermore, not all Washington programs offer an online application, such as the Women, Infants, and Children (WIC) Nutrition Program, requiring even more time to apply for comprehensive benefits.<sup>18</sup>
- 2) **Mobile Access Challenges:** Washington Connection is the client portal for many of the programs, particularly cash and food assistance, child care subsidy, and classic Medicaid programs, while HPF is the client portal for MAGI Medicaid programs. While HPF supports mobile applications, WaCon does not effectively do so, and this limitation is a barrier to services for many in need. WaCon also does not display application questions and navigation in a manner that is easily navigated by smartphones. In April 2021, the Pew Research Center reported that 46% of survey respondents making less than \$50,000 per year rely solely on a smartphone for access to the internet.<sup>19</sup> Mobile device accessibility would enable better online application access for Washingtonians who live in poverty and/or lack access to a computer or tablet.
- 3) **Multiple Change or Verification Reporting Challenges:** Clients who seek services from multiple HHS Coalition programs or organizations often have to provide the same or similar information multiple times to verify eligibility, which is a time burden and can reinforce the trauma of their circumstances. While there are certain handoffs and other linkages that reduce this time burden, such as the link that refers clients between HPF and WaCon based on factors such as age and disability status, these connections could still be further optimized.

## 5.2 Technology Opportunity<sup>20</sup>

In addition to the business challenges, the complex IT environment in which eligibility and enrollment take place causes notable technology challenges, particularly around maintainability and longevity. The ACES Complex that Washingtonians rely on for eligibility and enrollment, including the Washington Connection portal, are developed, and maintained using legacy technologies that are not flexible to meet changing program and client needs. This makes the systems difficult and inefficient to support.

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<sup>18</sup> Code for America, [“Benefits Enrollment Field Guide,”](#) 2023

<sup>19</sup> Pew Research Center, [“Demographics of Mobile Device Ownership and Adoption in the United States,”](#) 2021

<sup>20</sup> This section was updated based on collaboration with the Legacy Systems Project Director on 07/31/2024, and updates were syndicated with the IE&E Executive Program Director, IE&E Deputy Director, ACES Project Manager, and TAD Project Manager.

These challenges apply particularly to the legacy mainframe-based DSHS ACES Complex, which is the primary system of record for many programs and a source of information for dozens of other systems. The ACES system has been successfully operating over the past three decades, helping millions of Washingtonians through difficult times. The U.S. Digital Response reviewed DSHS's plans<sup>21</sup> to address the mainframe hardware issues in 2020 and determined that, while the near-term risk of the ACES Complex going offline due to hardware failure is low, it rises significantly beyond 2025.<sup>22</sup>

Several aspects of this end-of-life scenario align with the "Situations which require modernization" in the well-known and widely used industry book on IT systems and modernization by Marianne Bellotti. In her book, Bellotti describes situations that warrant modernization such as code being difficult to understand, lack of qualified engineers, difficulty procuring hardware replacement parts, and underlying technology that no longer performs its functions efficiently.<sup>23</sup> Several of these aspects of the ACES Complex were identified and mitigated through IE&E Modernization Program projects over the past few years, including:

- The ACES IMS to DB2 project, completed in October 2023, updated the ACES database to a modern, well-supported database environment.
- The ACES M&O contract was bifurcated between software development/application maintenance (i.e., M&O, to be conducted by Deloitte going forward) and Mainframe as a Service (i.e., MFaaS, to be conducted by Ensono going forward) during the Spring and Summer of 2024.
  - The M&O contract with Deloitte ensures that ACES application development and overall software support for the system will continue until the contract ends in 2028. The extension of the M&O contract will likely need to be reconsidered closer to the date of expiry, depending on the status of the modernization effort (e.g., if all applications are not migrated from legacy systems, an extension is likely needed).
  - The MFaaS contract with Ensono secures ongoing support for the mainframe infrastructure (both hardware and software) beyond 2025, including the replacement of the end-of-life ACES IBM mainframe (i.e., Z13) with the latest IBM offering (i.e., Z16), providing more flexibility over the course of the IE&E roadmap.<sup>24</sup>

While the immediate end-of-life infrastructure concerns have been largely mitigated, the nearly 65-year-old coding environment continues to present challenges that are necessary to address. The mainframe uses legacy computer code Common Business-Oriented Language – COBOL, which is a computer programming language developed in 1959. The scale is significant, with approximately 12 million lines of COBOL code supporting mainframe operations. As COBOL is

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<sup>21</sup> U.S. Digital Response, "Washington State Department of Social and Health Services ACES Upgrade Plan Third Party Review," 2020.

<sup>22</sup> According to the IE&E Modernization Program, through the execution of the Information Management System (IMS) to DataBase2 (DB2) and Mainframe as a Service (MFaaS) projects (discussed further in this section), the immediate risk of end-of-life infrastructure for the ACES Complex has been mitigated. The risk will be mitigated through partnership with the new Maintenance and Operations vendor.

<sup>23</sup> Marianne Bellotti, *Kill It with Fire: Manage Aging Computer Systems (And Future Proof Modern Ones)* (San Francisco: No Starch Press, 2021), 38.

<sup>24</sup> According to the IE&E Modernization Program, through the execution of the Information Management System (IMS) to DataBase2 (DB2) and Mainframe as a Service (MFaaS) projects (discussed further in this section), the immediate risk of end-of-life infrastructure for the ACES complex has been mitigated. The risk will be mitigated through partnership with the new Maintenance and Operations vendor.

used less and less as a programming language and replaced by modern code, COBOL programmers and developers are becoming harder (and more expensive) to find and hire.

The remainder of this report focuses on how to streamline and move away from the ACES Complex technology environment, but it is important to note that ongoing efforts to stabilize and operate ACES are essential to continue to serve Washingtonians. This continued stability will be critical for the multi-year duration of the IE&E roadmap and will require technology investment decisions, particularly around additional capacity on the new mainframe to facilitate Application Programming Interface (API) development and overall testing, as well as resources to effectively mitigate and retire legacy functionalities as future state capabilities are enabled on the new IE&E Platform.

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# 6 | Modernization Approaches

Throughout the TAD Phase 2 project, a variety of impacted groups (e.g., end users, business subject matter experts, impacted application teams, application support teams) were consulted to help inform and update the IE&E Roadmap and path forward for the IE&E Modernization. Among the topics discussed was the modernization approach, defining whether there would be a full replacement or incremental modernization of ACES Complex functionality.

## 6.1 Current State Headwinds and Tailwinds for Modernization

To inform the modernization approach, a synthesis of ACES Complex current state was completed<sup>25</sup>, focusing on the intricacies that could simplify or complicate the modernization. Table 1 below summarizes the headwinds and tailwinds on the overall modernization across areas of the ACES Complex.

**Table 1: Current State Headwinds and Tailwinds for the Modernization**

Impact on modernization effort & timeline	Area	Current state findings
<b>Tailwind</b>	<b>Architecture</b>	Architecture design for IE&E Platform & MyWABenefits align with leading approaches on composability, agility, and maintainability <sup>i</sup>
	<b>Infrastructure</b>	Processing power of the mainframe is relatively small (~ <b>2,000 MIPS</b> <sup>ii</sup> ) indicating opportunity to reduce infrastructure modernization and run-rate costs on cloud
<b>Mixed</b>	<b>Tools</b>	While all mainframe modernizations are complex, COBOL and DB2 <sup>iii</sup> as primary language and database management point to a relatively lower complexity of code modernization, compared to more complex tools like the Assembler language
	<b>Size</b>	The large code base (“~ <b>12M lines of COBOL</b> ”) could impact application modernization cost and timeline; there could however be an opportunity to compress the codebase by removing redundant code <sup>iv</sup>

<sup>25</sup> Referenced materials include 50+ existing HHS Coalition documents (e.g., ACES 2017 Technical Documentation), 80+ hours of Knowledge Transfer (KT) sessions, 20+ interviews with impacted staff, and whiteboarding sessions with IE&E Program Leadership and supporting technical teams.

<b>Headwind</b>	<b>Batch jobs</b>	The number of batch jobs (~ <b>57,000 per month</b> ) is in line with industry standard; ACES <sup>v</sup> batch processes are more complex compared to online and may impact the modernization effort and timeline
	<b>Data</b>	Size of database (~ <b>28 years of data stored</b> ) appears to be high; adopting relational data structures may increase flexibility & scalability, but may require a sizeable data remodel. Additionally, while the current data warehouse (eDW) <sup>vi</sup> supports current reporting models, a data management strategy will likely be needed to support future capabilities
	<b>Business rules</b>	The complexity of program eligibility business rules prevents an easy decoupling of the code to be modernized; GenAI-enabled approaches may be needed to identify detailed data flows for each business process
	<b>Interfaces</b>	~ <b>200 interfaces</b> indicate a relatively complex ecosystem, with multiple methods that are supported (e.g., API <sup>vii</sup> , file transfer)

i. As described in Building Microservices 2nd edition (2022) by Sam Newman  
ii. Millions of Instructions per Second (MIPS); MIPS benchmarks from Gartner IT Key Metrics Data (2022); small <2,600  
iii. Common Business Oriented Language (COBOL), Database 2 (DB2)  
iv. Potentially millions of lines that do not have business logic and were auto-generated during the IMS to DB2 migration  
v. Ensono MFaaS Overview (10/2022); expert interviews (03/2024)  
vi. Enterprise Data Warehouse (eDW)  
vii. Application Programming Interface (API)  
Source: Knowledge Transfer (KT) session A.1 – V.1, 2017 ACES Technical Information, ACES Interface Catalogue, ACES – Level 1 Component Diagram, and SME Interviews 04/2024 – 07/2024 (e.g., with the ACES Application Architects)

## 6.2 Incremental Modernization Options & Preferred Approach

Given the complexity of the ACES Complex, an incremental approach to modernization is recommended, in alignment with the previous IE&E Modernization Roadmap Report (2022) to enable greater technology sustainability and flexibility to pivot if unplanned events arise. Five options emerged for how the legacy systems could be divided into pieces for incremental modernization, with hybrid options also possible:

**Table 2: Overview of Considered Modernization Approach Options**

Modernization approach options	Description
<b>UI<sup>ii</sup> Led</b>	Emphasizes visual appearance and user journey changes (e.g., designing portal up front), moving the front-end applications to the modern, cloud-based platform first, leaving the backend logic in the legacy system
<b>Application Led</b> (preferred approach) <sup>ii</sup>	Focuses on iteratively modernizing individual applications (e.g., ACES.online), related modules, and the corresponding data based on business logic and dependencies
<b>Program Led</b>	Involves iteratively rolling out individual programs (e.g., all modules related to cash programs) by modernizing the UI, business rules and logic, and data for a given program all together
<b>Capability Led</b> (preferred approach) <sup>ii</sup>	Focuses on iteratively rolling out individual business processes and capabilities (e.g., eligibility determination, benefits issuance) by modernizing the UI, business rules and logic, and data for a given capability all together
<b>Data Led</b>	Migrates data and establishes connections from the mainframe using integration tools and Application Programming Interfaces (APIs) before modernizing other parts of the ecosystem

i. User Interface (UI)

ii. As expressed by IE&E Modernization Program leadership in whiteboarding session (05/30/2024)

Source: Conversations with TAD Project team (Feb – Jul 2024)

Discussions with IE&E Modernization Program leadership and other impacted groups revealed that a **hybrid approach, primarily capability-led with exceptions for application-led** is the best fit to:<sup>26</sup>

- Enable reimaging of the eligibility and enrollment lifecycle
- Facilitate design and modernization across people, processes, and technology
- Minimize potential business disruption and interim architecture with legacy systems

When modernizing by capability, changes to the underlying technology would occur incrementally based on the different parts of the business process. Impacts to the people, processes, and technology could occur simultaneously, creating a single framework through which the end-to-end eligibility and enrollment landscape can be redesigned in a human-centric way. Multiple ACES Complex applications are relatively standalone – capturing ~2 capabilities each<sup>27</sup> – resulting in exceptions for an application-led approach. Relatively standalone applications – WaCon, Eligibility Service (eServ), and Enterprise Data Warehouse (eDW) –

<sup>26</sup> As expressed by IE&E Modernization Program leadership in whiteboarding session (05/30/2024), with the TAD Executive Sponsor & State CIO, IE&E Executive Program Director, IE&E Deputy Director, IE&E Product Owner, Senior IT Policy & Oversight Consultant, IE&E Product Manager, IE&E Enterprise Architect, DSHS Systems Development Chief, DSHS Business Services Chief, and QA Consultants, among others.

<sup>27</sup> Specifically, WaCon, eServ, and eDW; more information about the corresponding capabilities is included in the crosswalk in [Appendix O](#).

could be modernized into the IE&E Platform as discrete groups of work, reducing implementation risk associated with separating code and data components. The sections that follow define the specifics of the modernization approach, including defining the future state architecture and the year-by-year roadmap to enable it.

Other options were viewed as less conducive for dividing ACES Complex functionality. While a **UI-led approach** would help manage modernization risks from the complex ACES interfacing ecosystem and provide quick UI improvements (e.g., smartphone accessibility), it deprioritizes business and technical solutions to ACES mainframe opportunity areas (e.g., approach to batch jobs and data remodel). A **program-led approach** would accelerate the modernization of prioritized programs and improve accessibility for the associated benefits; however, it would also create a siloed mix of legacy and modernized subsystems that case workers may struggle to navigate, particularly in organizations that support multiple programs. Similarly, a **data-led approach** could accelerate remediation of the legacy data model (e.g., improving scalability and flexibility), but may introduce complexities in interim states by requiring the legacy mainframe to consume data from the modernized system.

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# 7 | Principles of the Modernization

The HHS Coalition employs user-centric, business driven and technology-focused design principles to define the future state architecture. To formalize the design principles that will be agreed upon, a variety of inputs were considered including existing design principles from the original IE&E roadmap report, the HHS Coalition Architecture Review Board (ARB) existing design principles, and preliminary observations in the current state synthesis. Most of the design principles were previously selected in alignment with the HHS Coalition vision, aiming to guide the modernization towards an improved customer experience and greater interoperability and coordination between HHS Coalition organizations. After a series of updates and expert interviews, including conversations with IE&E Modernization Program leadership and ARB members to validate that the existing design principles were integrated comprehensively and accurately, a set of business design principles and technical design principles across technology, architecture, and data was defined.<sup>28</sup>

Table 3 below includes the set of business design principles that were consolidated and will help support the IE&E Program vision. Certain principles below (indicated by footnotes) are derived from research completed by Code for America, as referenced in the original roadmap and cited in the figure below and are presented with the original wording from Code For America<sup>29</sup>.

**Table 3: Proposed Business Design Principles**

Category	Principle of	Description
<b>Experience</b>	<b>Many welcoming doors<sup>i</sup></b>	Provide an equitable and positive experience both online and in person
	<b>Being easy to understand<sup>i</sup></b>	Clients should be able to make it through the process with minimal caseworker support (i.e., to explain or clarify areas of the application)
	<b>Informed decisions<sup>i</sup></b>	Clients should clearly understand the implications of all the actions they have to take throughout the process
	<b>Simple actions<sup>i</sup></b>	Each stage in the enrollment and eligibility process should be able to be completed in as few steps as possible (e.g., greater workflow automation to reduce manual processing needs)
<b>Approach</b>	<b>Responsiveness to changing needs<sup>i</sup></b>	Build things that can change based on clients' needs, as well as shifts in policy and budget

<sup>28</sup> While the compilation of the following proposed business and technical design principles pulled from the aforementioned sources in the paragraph, the ARB is also in the process of defining Enterprise Architecture Principles, which could supplement or otherwise change the principles of the modernization provided in this section. The principles provided below likely need to be incorporated with the new ARB Enterprise Architecture Principles when they are available.

<sup>29</sup> Code for America, "[Blueprint for a Human-Centered Safety Net](#)," 2020

Category	Principle of	Description
	<b>Principles</b>	Architectural principles should be utilized by the Coalition to make decisions guided by the Coalition IT Strategy and the State IT Strategic Plan. The Coalition will revisit their principles in advance of major decisions and acquisition milestones
	<b>Business Value</b>	Technical assets should be built to maximize business value, using human-centered design principles and adjusting priorities based on business or client priorities
	<b>Effective governance</b>	Governance of the Roadmap and its activities should be conducted by the HHS Coalition, with individual products stewarded by identified organizations; stewardship does not equate to ownership
	<b>Modern development</b>	Modern application development practices should be utilized to deliver value to the customer quickly, with business and technology teams working in tight tandems
	<b>Cross-portfolio coordination<sup>ii</sup></b>	Decisions on one project should be coordinated with other interdependent projects and the impact on other parts of the Coalition should be assessed in decision-making, especially as many of the projects conducted by the Coalition have already been completed or are ongoing efforts being developed in parallel. As changes are pursued and enacted, the Coalition should seek to “first, do no harm” to services, programs, or organizations undergoing transitions

i. Principles taken from Code for America, “Blueprint for a Human-Centered Safety Net,” (full citation in source below) as cited on the original IE&E Roadmap

ii. “Cross-Portfolio Coordination” is the only business design principle that was taken from the ARB Charter (06/2023), which supplemented the original roadmap principles, and was not included in the original IE&E Roadmap

Source: IE&E Roadmap (as of 01/15/2022); Code for America, “Blueprint for a Human-Centered Safety Net,” 2020; ARB Charter - Technical Advisory Services (TAS); Interviews and feedback from IE&E staff (03/2024, 08/2024)

Table 4 below shows the technical design principles across technology, architecture, security, and data, which will help to define, develop, or configure the technical elements of the modernization to support the business principles and vision.

**Table 4: Proposed Technical Design Principles**

<b>Design Area</b>	<b>Principle of</b>	<b>Description</b>
<b>Technology</b>	<b>Configurability</b>	Industry-standard approaches should be used to minimize complexity and enable interoperability through flexible and configurable technology for components
	<b>Cloud-first</b>	Systems being modernized should use cloud services for infrastructure, platform, and software wherever possible
	<b>Cloud service provider-first</b>	Solutions should be used from the existing cloud service provider, where technically feasible and appropriate for business needs
	<b>Commercial off-the-shelf preference</b>	Commercial off-the-shelf / software-as-a-service (COTS/SaaS) solutions should be preferred in future state design when applicable, versus custom development (e.g., code is a liability – do without if possible) <sup>i</sup>
	<b>Modern technology</b>	Modern technology should be utilized in the development of technical assets, focusing on those that are cloud-native, extensible, interoperable, and secure, and utilizing artificial intelligence or machine learning where appropriate
	<b>Modern development</b>	Modern application development practices should be utilized to deliver value to the customer quickly with business and technology teams working in tight tandems
	<b>Reusability</b>	Enterprise solutions or existing technologies should be utilized across state organizations when possible, considering technical and business requirements when exploring additional options if needed
<b>Architecture</b>	<b>Natural boundaries</b>	Data, processes, and technologies should be designed around natural system boundaries: tight coupling within, loose coupling between
	<b>Commodity</b>	Components should be common, unless there is a compelling business case for unique needs
	<b>Availability and scalability</b>	Eligibility and enrollment systems should be made available 24/7, scaling to peak demand when needed and eliminating downtime (e.g., by ensuring ease of maintaining and sustaining the technology)
	<b>Commonality</b>	Public funds should be responsibly managed, including the reduction of vendor lock-in, which may arise when maintaining legacy technologies (e.g., optimally allocate resources to support use cases for real-time processing versus batch)

Design Area	Principle of	Description
<b>Security</b> <sup>ii</sup>	<b>Modern security</b>	Standard modern industry security protocols should be adhered to (e.g., zero trust practices, encryption at rest and in motion, penetration testing, end point protection)
	<b>Authentication</b>	Authentication should be explicit and standardized, both for users utilizing the common State authentication authority (e.g., EAD, SAW/Okta) and users authenticating from service to service
	<b>Least privilege</b>	Users should only have access to the specific applications, data, and resources needed to complete a required task, facilitated by role-based access control which assigns roles and corresponding permissions to each user
<b>Data</b>	<b>Minimized data redundancy</b>	Future state architecture design should minimize duplication of data
	<b>Shared data</b>	Data should be viewed as an asset, shared, and easily accessible, as in alignment with privacy and regulatory standards
	<b>Golden source of truth for master data elements</b>	A single, authoritative source for master data elements should be designated and utilized within a system to promote consistency and accuracy

i. Non-COTS solutions would still be considered when appropriate (e.g., for business processes that are too complex for COTS to satisfy)

ii. Full security architecture diagram with tooling included in appendix

Source: IE&E Roadmap (as of 01/15/2022), ARB Charter - Technical Advisory Services (TAS), Interviews with IE&E staff (03-08/2024)

As the IE&E Modernization Program looks to design and select solutions to improve the client and staff experience and reduce frictions for users, guided by the technical and business design principles, multiple options may arise. The four dimensions to be considered when comparing different options (i.e., Solution Fit, Complexity, Cost, and Risk) were weighed when presenting preliminary decisions in the following [Section 8: Future State Architecture](#), with the definitions of each of these dimensions included in [Appendix A](#).

## 8 | Future State Architecture

The technical vision for the future state IE&E Platform aligns with the technical design principles provided in the previous section along with an understanding of eligibility & enrollment processes and systems today, future aspirations identified by HHS Coalition impacted groups, and decisions made by the IE&E Platform and the State.

The IE&E Platform has selected Azure as the cloud service provider, utilizing Azure native services along with MuleSoft for API Management. To support new development, the platform includes providing DevSecOps and Infrastructure-as-Code (IaC) that can be used to provision future products consistently and common infrastructure for networking, security, and observability that all new development can use.

To support modernization of capabilities onto the platform, the target state architecture assumes the need to support multiple front ends (e.g., client, worker) utilizing the same underlying services (i.e., business logic). The architecture includes the use of APIs to help orchestrate interactions between the composable services and enable greater decoupling, thus allowing for greater flexibility and agility in future development. The architecture also includes an analytics platform to enable cross-coalition reporting and analytics through data sharing, to be defined by the supporting data governance model.

To ensure interoperability and better serve customers shared between applications and programs, the target state architecture also aims to integrate cross-coalition functionalities. “Integration”, in the scope of the future state IE&E Platform, is defined as the process of using interfaces and other methods to connect data between applications/systems and the new platform. Overall, the future state IE&E Platform is being developed for a streamlined customer experience and to support integration, which facilitates three system aspects that could enable an improved customer experience:

- 1) Shared data between programs
- 2) Reuse of the same services or calculations between programs
- 3) Unified front-end strategy (whether through a single or multiple portals)

The initial scope of modernizing applications towards the future state IE&E Platform is ACES Complex, as it is the system of record for client and eligibility data and houses the processing and eligibility rules for a majority of programs, but the platform is also being envisioned and developed for other applications and programs to utilize it in the future. In the implementation activities discussed in [Section 10.4: Detailed Activities](#), data integration and accounting for interfaces is detailed for each application component being modernized, where appropriate. The reuse of services between applications and programs will require further decision-making during these modernization activities, and the unified front-end strategy will be further discussed in the ongoing HHS Portal redesign and roadmap effort.

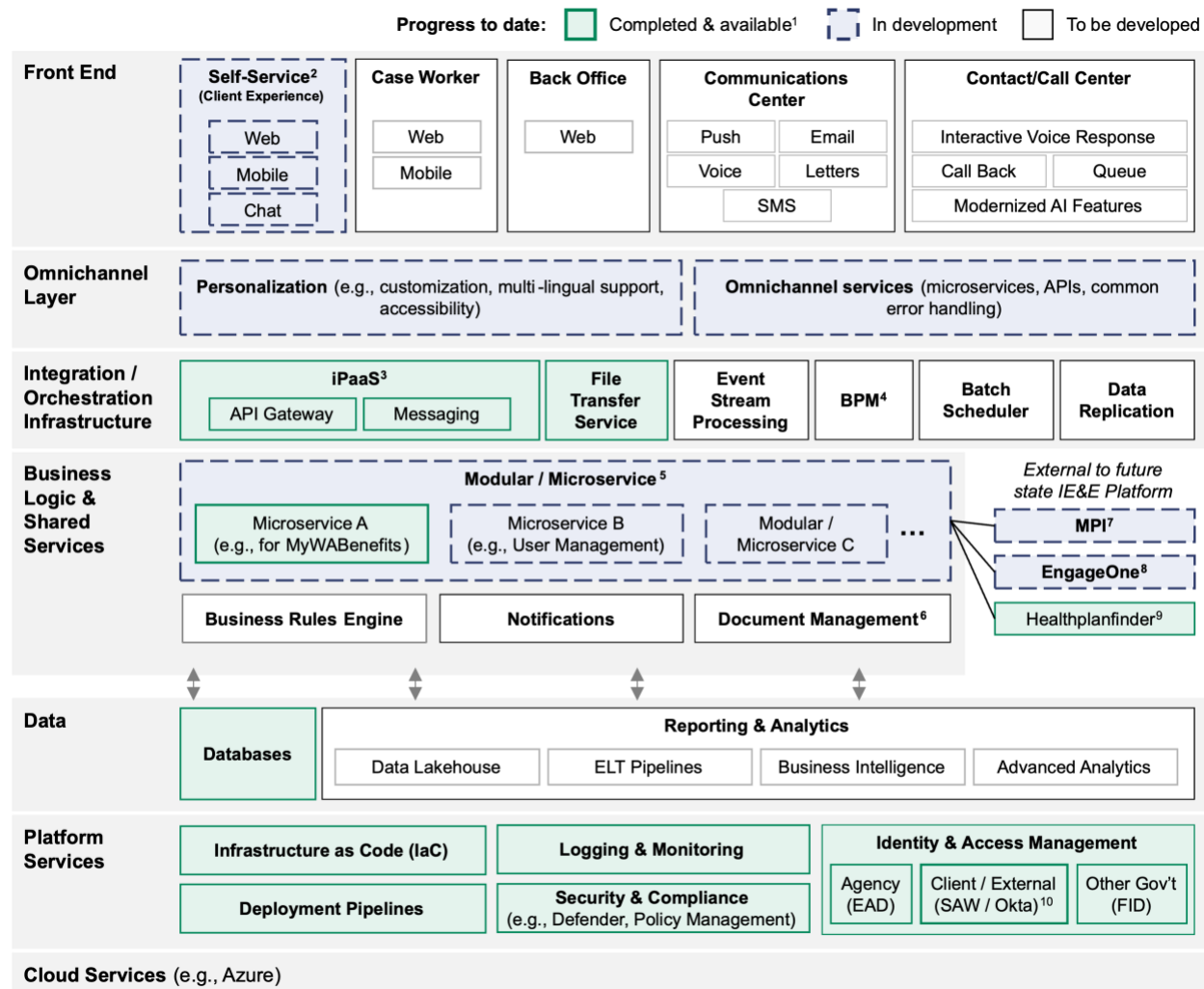
The guiding principles of the modernization, as well as other nonfunctional requirements (NFRs, i.e., system qualities, operational requirements, compliance standards, and business constraints and considerations), were all considered to inform the creation of the future state logical architecture below. For example, in alignment with the technical design principle of reusability,

the preferred approach for certain architectural components is to utilize enterprise-wide solutions that the State of WA has already approved (e.g., MuleSoft for API management). The logical (i.e., reference) architectures included in this section describe the functional components and services of a system without specific technical implementation details. These diagrams provide a foundation for more in-depth decision-making<sup>30</sup> regarding individual components within the architecture, informing areas for potential cost reduction or potential security and compliance issues.

## 8.1 Future State Service Architecture Diagram

The diagram below shows the different layers and components of the future state architecture at a high level, distinguishing between business logic and wider platform services.

**Figure 4: High-Level IE&E Platform Future State Logical Architecture<sup>31</sup>**



i. Available for Product 1 (MyWABenefits), but likely needs to be extended and further matured for additional future state capabilities

<sup>30</sup> Log of decisions made supporting this document (e.g., around architecture) is included in [Appendix C](#).

<sup>31</sup> Diagram created from whiteboarding sessions 04/19/24 and 04/24/24 with IE&E Modernization Program leadership and TAD Project team experts. Diagram shared and aligned upon with IE&E Modernization Program leadership in TAD Executive Sponsor Updates 05/17/24 and throughout 07/24.

- i. Completed for self-service eligibility status tracking, but other elements of client self-service are being developed in the HHS Portal project
- iii. Integration Platform as a Service (iPaaS)
- iv. Business Process Management (BPM) is a modern orchestration element that could further optimize or automate business processes in the future state – this element has not yet been discussed with Program leadership and will be considered based on needs and future capabilities
- v. Proposed microservice structure following a hybrid service architecture approach, with a more detailed hypothetical view of business logic based on future state capabilities in the appendix (e.g., eligibility determination, screening, benefit issuance)
- vi. Assumes document ingestion (i.e., document upload), management, generation, and search
- vii. Potential use for identity resolution (tying together client data across multiple apps), provision of access across apps, streamlined analytics, and master data management in future state
- viii. EngageOne project would be used to support Letter Generation & Print capability
- ix. Healthplanfinder (HPF) to integrate as a front-end application to support client-facing future state capabilities (e.g., Application Input & Changes)
- x. SAW currently available, to be replaced by Okta in an ongoing modernization

A more specific reference architecture, developed by the IE&E Enterprise Architect, that details the potential tooling of each of the components in the logical architecture above is included in [Appendix B](#). This diagram, developed by the IE&E Enterprise Architect, has been aligned with the components and layers represented in the logical architecture above. Furthermore, a security architecture diagram with potential tooling is provided in the “Security and Compliance” deep dive further down in this section. The diagram displays the points of connection between different security elements and relation to other functionalities (e.g., MuleSoft for integration and API management), calling out specific tooling where appropriate (e.g., GitHub Advanced Security for code analysis), and aligning with the IE&E Platform team’s previously documented approach and with HHS Coalition technical Subject Matter Experts (SMEs).<sup>32</sup>

## 8.2 Hybrid Service Architecture Rationale

Service architecture refers to the way that foundational “services”, fulfilling functionalities of the legacy system, are designed and implemented in relation to each other on the future state system. A modern service architecture can enable organizations to operate with more agility and flexibility and deliver greater business value, along with a more streamlined experience for clients. To achieve this, the future state service architecture can be developed in alignment with the technical design principles outlined in [Section 7: Principles of the Modernization](#), namely the principles of Configurability, Modern Technology & Development, Reusability, Natural Boundaries, and Commonality.

Today, the ACES Complex is a monolithic mainframe system, with all applications supported by direct access to the same databases, creating tight coupling. While this system requires fewer complex interactions than more modern composable options, it often encounters challenges with scalability (e.g., due to extensive dependencies in the “single database” and cumbersome release management) and can struggle with overall architectural flexibility to future state needs.



Large-scale technology enterprises and other entities that seek a modernized, scalable architecture approach often employ another approach, a microservices architecture. A microservices approach involves developing software that is composed of services which are

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<sup>32</sup> Discussed and aligned with the IE&E Enterprise Architect, IE&E Product Owner, and DSHS Cloud Security Engineer on 07/18/2024; also, with the TAD Executive Sponsor and other IE&E Modernization Program leadership on 07/19/2024.

able to be independently deployed (i.e., self-contained) while being loosely coupled (i.e., changing one service rarely requires changing another, although they still relate to each other). Each microservice can provide one or more published APIs or message queues (MQs) to communicate and interact with other services, and microservices can utilize existing APIs (e.g., within ACES Complex or related applications), as long as they are configured correctly. Despite the term ‘micro’ in its name, each microservice serves a single purpose, where each microservice’s functionality can be significant to the entire future state architecture. In the examples below, the microservices interact with each other, as the data retrieved by the “Assistance Unit” microservice could then be passed to the “Eligibility Determination” microservice for processing.

**Table 5: “Assistance Unit” and “Eligibility Determination” Microservice Examples**

 <b>Assistance unit<sup>i</sup></b>	 <b>Eligibility determination</b>
<ul style="list-style-type: none"> <li>• Application information</li> <li>• AU member information</li> <li>• Demographic &amp; Geographic information</li> <li>• Income information</li> <li>• Contact information</li> <li>• APIs that create, read, update, and delete</li> <li>• Application Status change events</li> </ul>	<ul style="list-style-type: none"> <li>• Rules engine</li> <li>• Rule sets &amp; rules</li> </ul>
<p>An example Assistance Unit (AU) Microservice could have the single purpose of cataloguing and holding the definition of the AU that is applying for one or more benefits or services. It could contain the data and behavior of the AU, including nuances like relationships and responsible parties.</p>	<p>An example Eligibility Determination Microservice is also single purpose, maintaining the business rules for determining eligibility for various programs. In the future state architecture, data retrieved from the AU Microservice would likely need to be provided to the Eligibility Determination Microservice to determine eligibility.</p>

i. Assistance Unit (AU), a group of related people living in the same household, and whose income, resources, and other circumstances are considered to determine eligibility for benefits and the amount of benefits to be received

Source: Content provided directly by the IE&E Enterprise Architect (08/09/2024); Washington State Legislature Administrative Code 388-408-0034, “[What Is an Assistance Unit for Basic Food](#)”, Conversations with TAD Project team (08/2024)

The “single purpose” of a microservice aligns with the technical design principle of “Natural Boundaries” (as outlined in [Section 7: Principles of the Modernization](#)) – the single purpose microservice can be a combination of functionalities that are tightly related (e.g., applicant info, contact info, updating functions). Each microservice, however, is loosely coupled to allow each microservice to be independently updated and minimize impacts to other functions or microservices (e.g., changing AU Microservice does not always mandate changes to the

Eligibility Determination microservice).<sup>33</sup> A true microservices approach breaks down all applications into a collection of services that can be built and deployed independently, with separate business logic and data persistence from other services. This decoupling of services offers more scalability and flexibility, but often requires comprehensive design, planning, and organizational change management, as it is a paradigm shift from the current state system.

Through alignment with IE&E Program leadership, a hybrid approach is preferred that strategically utilizes the two architecture approaches above where best suited and feasible for specific components.<sup>34</sup> This would allow the future state IE&E Platform to iteratively move towards a microservices architecture as HHS Coalition organizations become more technologically mature, instead of pursuing a “big bang” modernization towards the true microservices approach. Additional rationale for all options discussed, as well as criteria to guide decisions to implement a service as a microservice or modular service in the hybrid approach, are included in [Appendix C](#).

The sections below detail synthesized considerations and requirements for the key individual components of this future state architecture.

## 8.3 Technical Architecture Considerations by Component

### 8.3.1 FRONT END

A front end for the future state IE&E Platform serves as an access point for external users (e.g., clients, third-party partners, other government users) and internal users (e.g., HHS Coalition staff). For a streamlined experience for both types of users, human-centered design principles can be utilized, following the principles of the IE&E Modernization Program. External users especially could benefit from greater accessibility and ease-of-use. Designing front-end interfaces for clients requires greater customization to support accessibility requirements and multiple devices as compared to internal users, whom could be accommodated with configured commercial-off-the-shelf (COTS)<sup>35</sup> products and more standardized widgets to manage workflows.

### 8.3.2 API MANAGEMENT & GATEWAY

MuleSoft Anypoint Platform is the approved technological standard for API Gateway and further API management in the IE&E Platform. Integrations between ACES Complex and related applications in the current state are predominantly batch file transfers (~150, 75% of interfaces) that operate on a nightly basis (~75), which are file transactions from one system to another that can be time-consuming and require significant network resources. As part of the modernization journey, there is an opportunity to modernize file transfers to APIs, which allow applications to interact with each other in real time. This transition would enable information to be transmitted more rapidly, with greater efficiency (i.e., using fewer network resources), and with greater potential for re-use. To facilitate and accelerate this transition, the HHS Coalition could seek to decouple ACES Complex applications from ACES Complex data, a step that would streamline the development and further configuration of APIs from ACES Complex. If a modernization of

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<sup>33</sup> The “Natural Boundaries” principle states that “Data, processes, and technologies should be designed around natural system boundaries: tight coupling within, loosing coupling between”.

<sup>34</sup> Multiple discussions in whiteboarding sessions with HHS Coalition and IE&E Platform and Product staff culminated in this aligned path forward in the TAD Executive Sponsor Update on 05/17/2024.

<sup>35</sup> COTS is inclusive of off-the-shelf products for three different types of cloud computing, Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS).

file transfers to APIs is pursued in the current state without this decoupling, future API development, configuration, and changes would likely need to be handled by ACES Complex staff, which may result in lower agility and longer time to value, due to capacity constraints.

In terms of a strategy and support model, the HHS Coalition could establish an API governance body that sets standards for development and integration to guide development teams, potentially as a subgroup of an existing IE&E Modernization Program entity (e.g., as part of a temporary “Standards Committee” branch of the ARB).<sup>36</sup> A reference architecture diagram for the API structure of the future state IE&E Platform, with potential tooling to consider for areas of API management that have not yet been aligned upon across the HHS Coalition, is included in [Appendix E](#). This functionality would be a shared service, enabling cross-HHS Coalition organization staffing for the future state API governance body.

### 8.3.3 BUSINESS LOGIC

Business logic refers to the set of rules that dictate how a system executes business processes, and can include specific business capabilities (e.g., a specific activity in medical plan enrollment) or shared services (e.g., notification center). In the current state, the IE&E Platform and MyWABenefits, implement business logic as web services (i.e., logic exists in the code for each application). In accordance with the HHS Coalition’s preference to implement more COTS<sup>37</sup> tools, a business rules engine (BRE) has emerged as a preferred tool to centralize this logic separately from applications and optimize decision processes, in particular for eligibility determinations. The separation of business rules from applications provides greater transparency, maintainability, and allows for rules to be expressed in plain language, which are all enablers to an increased federal match.<sup>38</sup> [Appendix F](#) includes characteristics of business logic (e.g., criteria-based decision-making or calculations), as well as types of business logic (e.g., benefit calculation and issuance) to consider implementing in a BRE.

### 8.3.4 MASTER PERSON INDEX (MPI)

The inflight MPI project in the IE&E Modernization Program, shown in the logical architecture diagram in [Figure 4](#) as a shared service, aims to enable shared person identification in the target state (i.e., the ability to distinguish unique individuals in the system). MPI unlocks the ability to tie together data across multiple applications for a single client and establish unique identification for that client. The future state IE&E Platform will utilize MPI as a shared service to tie client data together from capabilities built on the platform with other disparate systems (i.e., those that are also connected through MPI). These connections will be provided either through an API (i.e., for instant transactions), or alternative bulk integration methods. The unique identification that MPI unlocks could enable two downstream use cases:

- For when a particular client accesses applications, their unique identification is tied to all specific data related to that client and the system is able to grant access accordingly.

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<sup>36</sup> The MuleSoft features or products currently used by the IE&E Platform team and those that the team has potential interest in using in the future is included in [Appendix D](#).

<sup>37</sup> COTS is inclusive of off-the-shelf products for three different types of cloud computing, Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS).

<sup>38</sup> Centers for Medicaid and Medicare Services (CMS), “[Conditions or Enhanced Funding](#)”

- For analytics on a single client or Assistance Unit (AU), this unique identification facilitates accurate and efficient input of a specific client's data (e.g., into a data lakehouse), streamlining the creation of an integrated view of a client's data and interactions across systems.

Once the relevant systems adopt MPI, the shared person identification becomes a building block for Master Data Management (MDM) of client information through the creation of a single master identifier (organized by index) for each client across data sources. This can evolve further to become a reliable source of truth for client data across the Coalition (e.g., correct address, email), supporting more efficient reporting and analytics, minimized data errors and duplication, and efficient decision-making.<sup>39</sup>

The expectation as the future state IE&E Platform evolves throughout the modernization journey is that MPI will continue to mature client identity resolution through greater automation to ensure accuracy. Furthermore, as MPI enters the phase of implementation to integrate with the IE&E Platform, the functionality is expected to follow the identity and access management (IAM) standards set by the platform to facilitate secure transactions, including MPI integration with selected IAM tools (i.e., Enterprise Active Directory [EAD], Secure Access Washington [SAW]/Okta)<sup>40</sup> and providing the necessary unique IDs.

### 8.3.5 IDENTITY AND ACCESS MANAGEMENT (IAM)

IAM enables the future state platform to secure and enable single sign-on (SSO) across all applications for all types of impacted groups that interface with the HHS Coalition's technical assets. EAD remains the statewide authentication solution for agency-to-agency IAM, while the in-flight replacement of SAW with Okta (i.e. IAM Modernization, which first aims to engage agency partners to complete a successful technology proof-of-concept) will provide IAM for individuals and businesses accessing agency technical assets. SAW historically provided IAM for other governments (e.g., federal) accessing HHS Coalition technical assets, and it is assumed that the vendor contracted with as a result of the IAM Modernization effort will continue to do the same.<sup>41</sup>

### 8.3.6 SECURITY AND COMPLIANCE

The IE&E Platform will continue to align with WaTech/OCIO Standard 141.10 and Health Insurance Portability and Accountability Act (HIPAA) HITRUST along with other standards and policies mandated by the State. As portions of the eligibility ecosystem must contain federal tax information, the IE&E Platform will also continue to align with IRS Publication 1075, which provides safeguards for protecting clients' federal tax return information.<sup>42</sup> The future state security architecture aligns with the IE&E Platform team's approach to security, as detailed in

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<sup>39</sup> MPI is called out in [Figure 4: High-Level IE&E Platform Future State Reference Architecture](#), separately from the modular and microservices in the "Business Logic & Shared Services" layer, as it is likely to be implemented as an external service to the IE&E Platform, to be called through interfaces as previously mentioned in point 1 above. "Shared person identification" or "unique identification (i.e., identity resolution) through MPI differs from identity proofing, which is more concerned with providing access to an identified client and can be pursued through solutions like Experian or Okta.

<sup>40</sup> Okta is a modern solution that helps organizations to manage digital identities and access in a secure and efficient way, acting as a digital gatekeeper and ensuring that access to specific technical assets is provided only to those that it should be provided to.

<sup>41</sup> Sourced from the WaTech Identity Access Management (IAM) Modernization "[Progress update – August 2024](#)", the IAM Modernization effort is in its second phase, which will continue through 07/2025 and will be extended as necessary, if contracts with technology and service providers necessary to modernize the IAM technology and processes are not reached

<sup>42</sup> As suggested by IE&E Modernization Program reviewer feedback and sourced from [IRS Publication 1075: Tax Information Security Guidelines](#)

“Platform – Proof of Architecture<sup>43</sup>”, implementing controls and services across security layers (e.g., perimeter, network, application, and data).<sup>44</sup> Many components are in place today on the platform; the next steps look to mature components already in place, provide guidance on application-level security, and enable additional services to support compliance, governance, vulnerability management, and threat management. [Appendix G](#) provides a future state security architecture diagram for the IE&E Platform, highlighting potential components that have not yet been implemented into the IE&E Platform. A comprehensive gap assessment to compare the current state with the future state architecture provided in [Appendix G](#) is advisable as an enabler to further platform security evolution and maturity. [Figure 5](#), the data architecture logical diagram provided in the Reporting & Analytics section below, specifically calls out potential tooling for data security, which is expanded upon in the aforementioned diagram.

### 8.3.7 REPORTING AND ANALYTICS

Over the past few years, data and information management has emerged as a top policy and technology priority for state technologists.<sup>45</sup> This ranking indicates the increased emphasis that private and public sector organizations are placing on the use of data to support richer, faster insight generation to inform decision-making and transition to a data-driven organization.

The overall IE&E Modernization Program vision of focusing on an improved client and worker experience and reducing risk is enabled by and informs the suggested approach for shifting to a data-driven IE&E Program, expanded upon in [Appendix H](#). Once this organizational vision is established, which defines technical and data-driven aspirations of the IE&E Program (e.g., as described in [Section 4: Vision](#)), the next step to mature towards a data-driven organization is to develop data & analytics use cases to help cascade the vision into actionable steps to achieve business objectives. These use cases drive the architectural components needed and the underlying people and technology to support them (e.g., governance, architecture, and talent).

Use cases for the future state IE&E Analytics Platform<sup>46</sup> that support the IE&E vision were ideated and prioritized in a collaborative process with SMEs across HHS Coalition organizations on 04/23/2024. The prioritized future state data and analytics use cases that are not yet feasible in the current state emerged from this delegation of SMEs, including:

- Identify, suggest, and auto-enroll Washingtonians in programs that they are likely eligible for, but not yet enrolled in (e.g., build a predictive model to support Next Best Action which suggests enrollment when someone becomes unemployed)
- Reduce the number of rejections from bad addresses (e.g., create a predictive model to flag and potentially correct abnormalities based on historical data, etc.)
- Minimize the number of clients dropped from benefits without a change in circumstance (e.g., track engagement with renewal communications and use virtual assistants to perform customized outreach on actions to take for clients with low engagement)

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<sup>43</sup> Version 2.1, 07/2023, provided by the IE&E Product Owner on 07/01/2024.

<sup>44</sup> Version 2.1, 07/2023, provided by the IE&E Product Owner on 07/01/2024.

<sup>45</sup> Data and information management appeared among state CIOs’ top ten policy and technology priorities for 2021, 2022, and 2023, according to “Resource Center,” National Association of State Chief Information Officers (NASCIO).

<sup>46</sup> The IE&E Analytics Platform is a reporting & analytics-specific layer that is a part of the overall future state IE&E Platform (discussed in [Section 8.1: Future State Service Architecture Diagram](#)). The Analytics Platform is to be developed specifically enables the use cases presented in this section.

These use cases mostly anchor towards advanced analytics; SMEs from across HHS Coalition organizations envision a future state that is enabled by predictive modeling and generative artificial intelligence (AI). The three synthesized use cases provided above include those that were prioritized with HHS Coalition SMEs – the full backlog of ideated use cases, which will continue to be ideated, prioritized, and enabled in the future state, is provided in [Appendix I](#).

As detailed in the suggested path to a data-driven IE&E Program ([Appendix H](#)), the next step before defining a data architecture is to build governance mechanisms to ensure efficient, effective, and compliant use of information, this is especially important for the multi-organizational HHS Coalition. Sharing eligibility data across organizations and even between programs raises privacy and legal concerns, which must be considered as part of the governance structure and requires the tooling of the future state Analytics Platform to be adaptable to changes. Additionally, data ownership in a consolidated cross-organizational Analytics Platform must be carefully planned.

For data architecture, a data lakehouse build (e.g., Snowflake for Data Lake, Databricks) is preferred for the future state IE&E Analytics Platform, as it better enables advanced analytics like predictive. This build combines Data Lake and Data Warehouse functionality into a single integrated platform based on recent data format innovations (e.g., Iceberg, Delta Lake), allowing ACID (atomicity, consistency, isolation, and durability) transactions. It allows for the storage of unstructured raw data. while also facilitating storage of preprocessed structured data for ease of reporting. The following figure shows a logical architecture for the future state IE&E Analytics Platform to support all the use cases mentioned above, with representative services and tools that could fulfill needed capabilities.

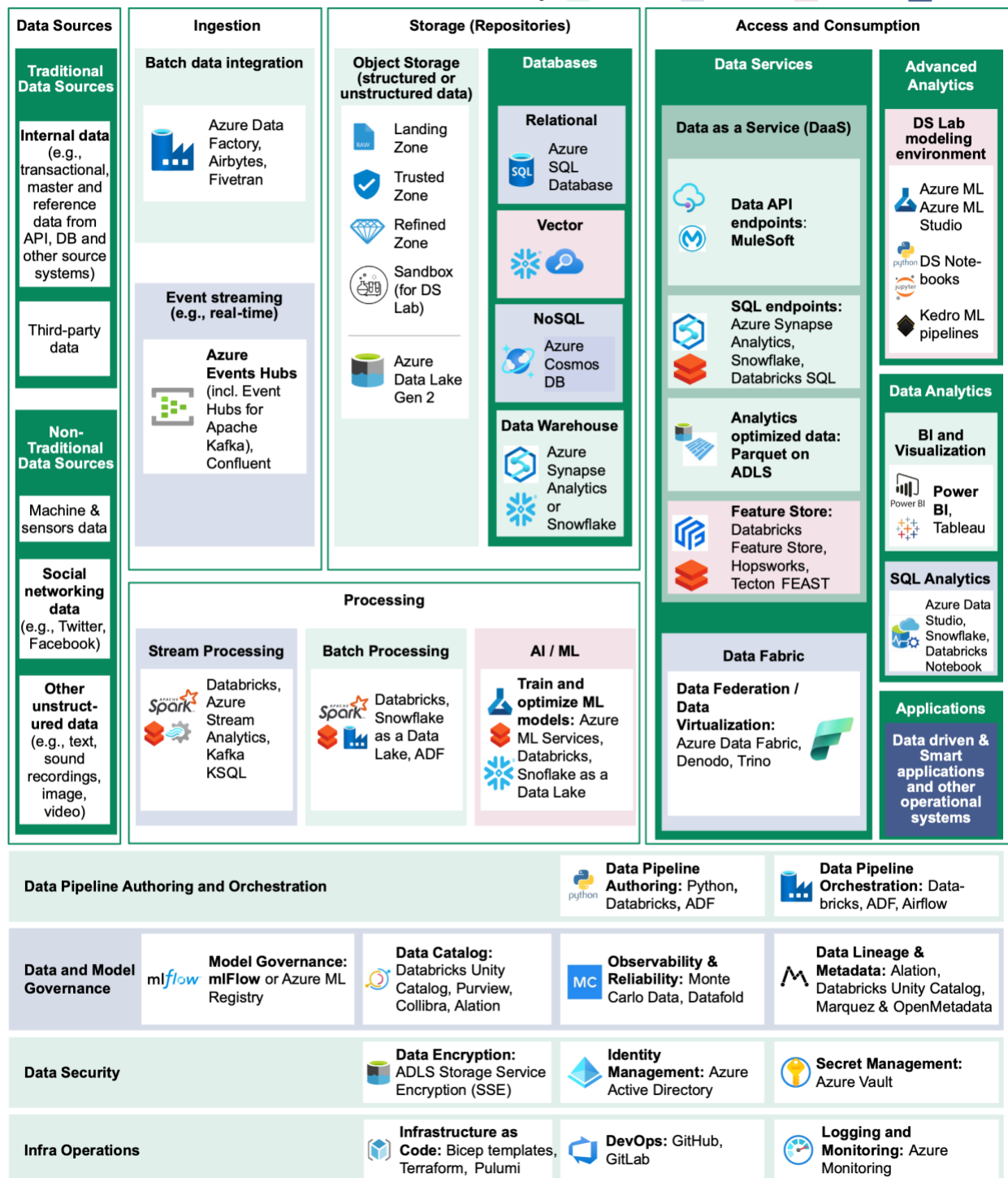
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Figure 5: IE&E Platform Future State Data Architecture Logical Diagram

ILLUSTRATIVE

PRELIMINARY NON-EXHAUSTIVE

Level of Maturity:<sup>1</sup> Level 1 Level 2 Level 3 Level 4



The central data lakehouse in the diagram is depicted by the “Processing” box. In the future state, it could be surrounded by a variety of the example tools provided, creating a more holistic platform that can fulfill the ideated use cases discussed above. Primary functionalities of the data platform are the ability to ingest the data, process and enhance for consumption, then provide access to the data to support analytics. Various sources of data likely need to be

supported for ingestion, including, batch, streaming, structured, and unstructured data. The enablement of the data platform components would typically be agile to address changes in data needs and priority.

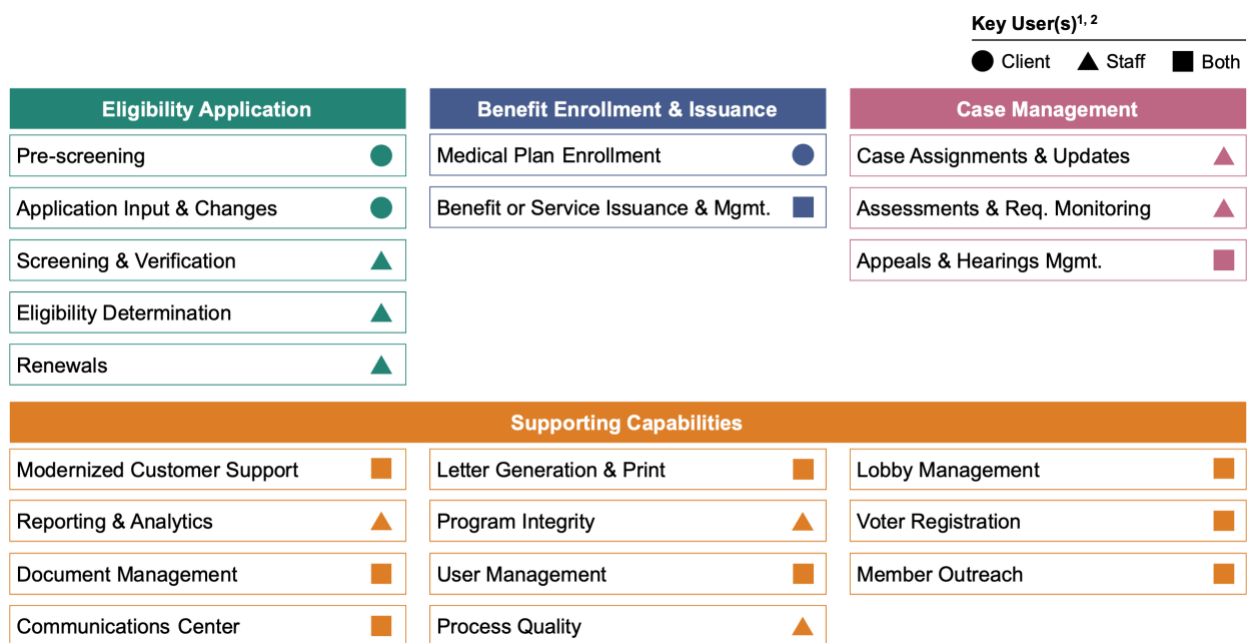
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# 9 | Prioritized Future State Business Capabilities

Future state business capabilities are to be supported by the modernized IE&E Platform architecture and capabilities span business processes including Eligibility Application, Benefit Enrollment & Issuance, Case Management, and Customer Support. Capabilities can be developed directly on the platform or supported indirectly through the architecture by designing for interoperability with existing services and systems. Based on additional conversations with the TAD Project team and business staff members, as well as a survey collecting the perspectives of ~50 SMEs across all HHS Coalition organizations,<sup>47</sup> the set of IE&E Platform Future State Business Capabilities is shown in the below figure, detailed with the key user groups interacting with each capability.<sup>48</sup>

These capabilities comprehensively include and build upon the “Products” from the original IE&E Roadmap – a mapping of capabilities to these products, including definitions for the respective products, is included in [Appendix K](#).

**Figure 6: Future State Business Capabilities and Key Users, Grouped by Business Process**



1. Shapes designating key users in individual capabilities are colored according to the accompanying business process (e.g., “Eligibility Application” as green), matching the prioritization matrix provided in a figure below.

2. “System” is not called out as a key user, as it can be assumed that the system is involved in all future state capabilities. “External Partners” have not been called out as key users, as they have been folded into “Client” or “Staff”, respectively (e.g., a healthcare navigator acts as an “External Partner” conducting activities for the “Client” in the Application Input & Changes capability)

<sup>47</sup> Future State Capabilities Prioritization Workshop on 07/15/2024 invited ~70 impacted groups from all HHS Coalition organizations to respond to a survey (either business value or technical complexity) to validate the exhaustiveness of capabilities and provide preliminary prioritization scores, an input in the sequencing of capabilities to be presented as part of [Deliverable 5.1: IE&E Roadmap v2](#). The team received ~50 responses out of the 70 and also collected prioritization scores on the capabilities added through this exercise (Medical Plan Enrollment, Appeals & Hearings Management, Lobby Management).

<sup>48</sup> [Appendix J](#) outlines the future state capabilities by the HHS organization programs that will be impacted, and [Appendix K](#) maps the capabilities to the original IE&E Roadmap products (with descriptions for the original products).

In the table below, definitions for the future state business capabilities are provided, grouped by business processes, and the key user(s) are further detailed.

**Table 6: IE&E Platform Future State Business Capabilities**

Business Process	Future State Business Capability	Key User(s)
Eligibility Application (Client & External Partners):	<b>Pre-screening (i.e., included in HHS Portal)</b> - Client completes an initial questionnaire to determine potential eligibility for programs	Client <sup>i</sup> or External Partner (e.g., healthcare navigator)
	<b>Application Input &amp; Changes (i.e., HHS Portal)</b> - Client submits requested information, documents, and related signatures to apply to and determine eligibility for benefits and/or services, including for renewals, certification reviews, or capturing and reporting of changes in circumstance <sup>ii</sup>	Client or External Partner (e.g., healthcare navigator)
Eligibility Application (Staff):	<b>Screening &amp; Verification (i.e., case worker portal)</b> – Eligibility worker helps to input client information or documents, which are cross-matched against other client data sources (e.g., Income Verification Express Service [IVES], Asset Verification System [AVS], State Data Exchange [SDX]) through interfaces and include data points from other capabilities (e.g., results of eligibility interviews)	Staff
	<b>Eligibility Determination (incl. enrollment &amp; routing)</b> – Staff, system, or external partner completes financial (e.g., income, shelter) and non-financial (e.g., residency, social security, household composition) checks to determine overall eligibility & level of benefits (e.g., cost of care for long-term services and support [LTSS]), and completes program enrollment for the AU using the necessary interfaces (e.g., ProviderOne, Healthplanfinder) – this capability also includes the ability to enable or disable eligibility for specific programs (e.g., temporary Summer Electronic Benefit Transfer [EBT] programs, other short-term programs), the function of storing provider rates to determine level of service, and the ability to determine and provide real-time, online determination results to clients (i.e., beyond MAGI determination)	Staff, System, or External Partner (e.g., social worker)
	<b>Renewals</b> – Staff or system reviews AU’s eligibility status & level of benefits to extend based on previous information submitted or determine if new information is required from the AU to renew	Staff or System
	<b>Benefit or Service Issuance &amp; Management</b> – Payments are delivered or services are authorized for clients (e.g., EBT beneficiaries, protective payees, LTSS recipients), vendors	Staff, System, or Client

Business Process	Future State Business Capability	Key User(s)
<b>Benefit Enrollment &amp; Issuance:</b>	(e.g., warrants), and support services; recoupments and overpayments are also included – this capability could potentially include the ability for clients to review balances in the future or otherwise manage issued benefits or services (e.g., temporarily disabling an EBT card, receiving regular balance statements, requesting new EBT card which is automatically dispatched), and would likely monitor issuances from a budgeting and accounting perspective	
	<b>Medical Plan Enrollment</b> – Clients or benefit navigators are able to compare, enroll, and manage selected health plans, with access to a comprehensive directory of providers (e.g., in alignment with current state Healthplanfinder functionalities). This capability would likely require an interface that transfers enrollment information to health carrier partners	Client, System, or External Partner (e.g., benefit navigator)
<b>Case Management:</b>	<b>Case Assignments &amp; Updates</b> – Cases, applications, & information updates are assigned to teams for processing in an organized fashion (e.g., through case numbering and filing, workflow management, automated assignment to next staff, case notes for trackability) – this capability also includes scheduling interviews, as well as future state functionalities that could facilitate better cross-organizational access and collaboration on shared cases, and would include interface with Barcode	Staff or System
	<b>Assessments &amp; Requirements Monitoring</b> – Additional assessments after initial eligibility & benefit level determination are conducted (e.g., evaluation for TANF WorkFirst clients, incapacity determination), and client compliance with provisions for receiving benefits (e.g., employment, job search) is checked. This capability also includes waitlist management  (i.e., of service-led eligibility assessments)	Staff
	<b>Appeals &amp; Hearings Management</b> – Staff or system reviews and manages requests for reconsideration, including appeals for eligibility determination or aspects of benefit issuance and hearings if required to investigate or finalize the appeal	Staff or System
<b>Supporting Capabilities</b>	<b>Modernized Customer Support</b> (e.g., Request Forms <sup>iii</sup> , Workflow & Tracking) – Clients are served in a technologically advanced and multi-channel way (e.g., through modernized voice response systems, telephonic	Client

Business Process	Future State Business Capability	Key User(s)
	signature, potential AI chatbot), with the least effort and clarification needed as possible. This capability also includes, for example, streamlined support forms for end users to input their information or appeal eligibility decisions, manage scheduled appointments, and report potential defects	
	<b>Reporting &amp; Analytics</b> – Staff across the IE&E lifecycle conduct analyses through a centralized platform for standard reporting (e.g., federal mandated reports, formal research reports) or ad-hoc analyses (e.g., transactional data to support performance management and coaching, reporting in response to requests from internal or external partners)	Staff
	<b>Document Management</b> – Client documents and metadata are uploaded, retained, and organized for staff members to access and review – this capability also includes paper document processing, as well as the existing Barcode functionality to hold client-submitted documents	Client, Staff, or External Partner (e.g., healthcare provider)
	<b>Communications Center</b> (i.e., notifications and alerts) – Clients, staff, or external partners receive communications (e.g., push, email, SMS) with updates on applications, eligibility status, or other procedural notifications – in the future, this capability could include direct secure messaging between clients and staff and communications in multiple languages. This excludes paper notifications, which are detailed in “Letter Generation & Print” below	Client, Staff, or External Partners (e.g., long-term care providers, CBOs <sup>iv</sup> )
	<b>Letter Generation &amp; Print</b> – Clients receive paper documents that detail updates on their case(s), and this capability includes the technical functionality to create the document, the physical capability of printing and dispersing the document, and the ability for the system to generate a digital version of the letter to enable the client to view the letter online in the future <sup>v</sup>	Client, Staff, External Partner (e.g., healthcare provider), or System <sup>vi</sup>
	<b>Program Integrity</b> (e.g., quality assurance) – Staff and system monitor for potential cases of improper eligibility determination or distribution of benefits or services (e.g., fraud), including internal audits that provide notifications for potential misuse of system or unauthorized access of client data, potentially utilizing automated pattern detection to inform suggestions for improvement	Staff or System

Business Process	Future State Business Capability	Key User(s)
	<b>User Management</b> – Client and staff user management, as well as IAM, for IE&E applications (e.g., sign up, permissions, general online account management such as notification preferences, staff organizational affiliation management) – this capability integrates with MPI for client identity resolution <sup>vii</sup>	Client, Staff or System
	<b>Process Quality</b> (e.g., workflow optimization) – Staff across the IE&E lifecycle track metrics to iteratively optimize workflow processes. This capability may include a suggestive or predictive functionality that automatically provides areas to further optimize	Staff
	<b>Lobby Management</b> – After client enters the queue, staff or system assigns responsibilities for the execution of digital processes to optimize in-person customer experience and service (e.g., digital waiting room that notifies clients prior to their name being called), to be conducted by staff or system	Client, Staff or System
	<b>Voter Registration</b> – System requests client to register to vote during the eligibility and enrollment processes	Client, Staff, or System
	<b>Member Outreach</b> – Staff transmits general communications and targeted outreach to enroll eligible Washingtonians for programs, including adherence to privacy policies (e.g., opt-in controls)	Staff

- i. Client themselves or authorized representatives (e.g., legal guardian, spouse).
- ii. “Application Input & Changes (i.e., HHS Portal)” also includes the ability to capture & report changes in circumstance (which federally requires staff involvement to update client information and redetermine eligibility) or track application status after submission.
- iii. “Request forms” defined as online tools and forms that would allow clients to provide feedback or other customer support requests directly to the relevant systems.
- iv. Community-based organizations (CBOs).
- v. In the future, automated functionalities may enable the system to execute the responsibilities that client or staff complete in the current state.
- vi. For “Letter Generation & Print”, generating a digital version of the letter is the extent of current state functionality, and the method for clients to view it in the future is to be determined.
- vii. Identity resolution (i.e., the ability to distinguish and tie together data across multiple applications for unique individuals in the system) through the use of MPI as a shared service differs from identity proofing, which is more concerned with providing access to an identified client and can be pursued through solutions like Experian or Okta. As MPI is further developed, it will likely be utilized and integrated for additional capabilities in order to facilitate cross-application data exchanges.

To help determine which capabilities and applications will be modernized first, two prioritization dimensions were outlined:

**Business value:** Driven by addressing user needs and pain points through improved client and worker experience (e.g., increasing accessibility by streamlining the application process), reduced business risk (e.g., meeting policy requirements by enabling controls for data de-

identification), and enhanced operations (e.g., gaining additional funding via federal match). The more programs or users are impacted, the higher the business value.

**Technical complexity:** Derived from the feasibility and ease of implementing the grouping (e.g., based on implementation risk, operational disruption, and statistics like lines of code and number of integrations). In some instances, the proposed technical capabilities are not currently available on the IE&E Platform, so enabling these technical capabilities may be a pre-requisite to the development of certain future state business capabilities.

To inform the capability prioritization, ~60-70 HHS Coalition business and technical staff participated in a capability prioritization workshop and surveys to provide input on the business value and technical complexity dimensions. Table 7 below outlines the approach for scoring capabilities on a 1 through 5 scale. Additional deep dive on drivers of business value and technical complexity – in addition to detail on the respondents who provided input on the capabilities and prioritization – are included in [Appendix L](#).

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**Table 7: Business Value and Technical Complexity Rating Criteria**

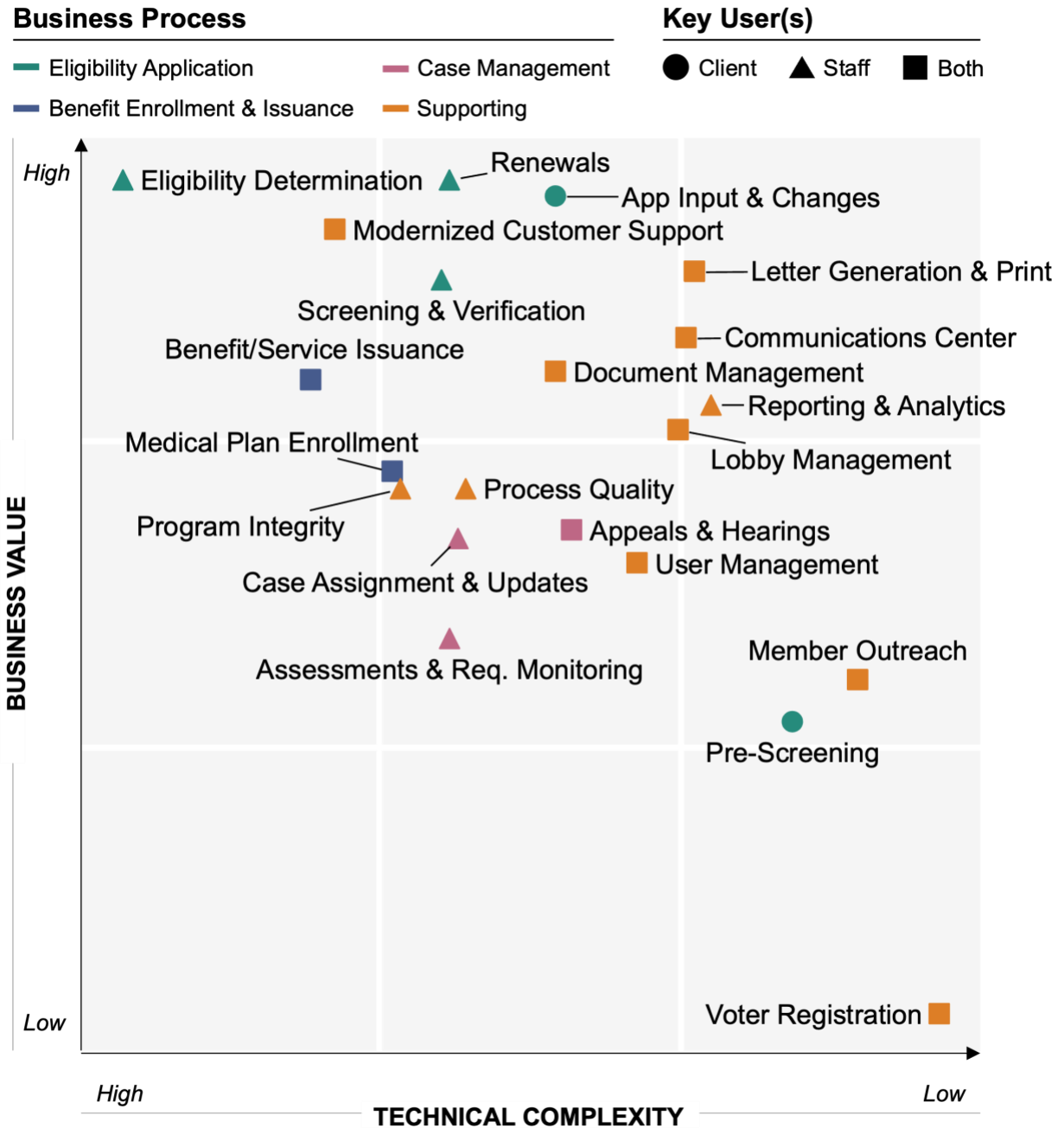
Rating	Business value	Technical complexity
<b>5 – Highest</b>	<p><b>Core to the eligibility and enrollment process</b> across programs and organizations (e.g., business processes are among the most used, like eligibility determination)</p> <p>Multiple instances<sup>i</sup> of improving client and worker experience, enhancing operations, and reducing risk (e.g., in eligibility determination)</p>	<p><b>Multiple platforms and technologies</b> are involved (e.g., z/OS- COBOL and z/Linux-Java)</p> <p>Among the <b>most dependencies on core ACES data</b> (e.g., predominately write)</p> <p>High interface volumes</p>
<b>4 – High</b>	<p><b>Relatively important</b> to eligibility and enrollment business processes across programs; capabilities supported have high usage</p> <p><b>Potential to satisfy all drivers</b> (i.e., improved client and worker experience, reduced risk, and enhanced operations)</p>	<p>Relatively high logic <b>complexity</b> (e.g., relatively high lines of code, complex business requirements)</p> <p>Mix of <b>read and write</b> data operations, <b>real-time and batch</b> integrations</p>
<b>3 – Medium</b>	<p>Medium usage, or high <b>for some</b> programs and organizations</p> <p><b>Two of three</b> drivers are satisfied (e.g., two of improving client and worker experience, enhancing operations, or reducing risk)</p>	<p>Business processes exist <b>outside of the mainframe</b>, with some dependency on mainframe data</p> <p>Relatively <b>standard amount</b> of interfaces</p>
<b>2 – Low</b>	<p><b>One driver</b> is satisfied (e.g., only improving client and worker experience)</p> <p>Relatively <b>few programs and organizations</b> use</p>	<p><b>Read-only data operations</b> with some write</p> <p>Relatively <b>low logic complexity</b> (e.g., low complexity business requirements)</p>
<b>1 - Lowest</b>	<p><b>No drivers</b> are clearly satisfied</p> <p><b>Has few end users</b>; process is primarily operational rather than functional</p>	<p><b>Read-only data</b> operations with limited write and <b>little dependency</b> on mainframe data</p> <p><b>Low logic complexity</b> (e.g., low complexity business requirements)</p>

i. Exceptions may be granted for capabilities that overwhelmingly satisfy one of the bullets or business drivers (e.g., improving client and worker experience), even if not all are addressed

Source: Conversations with TAD Project team (Feb – Jul 2024)

The capabilities with higher business value and lower technical complexity may be prioritized for an earlier release to help early realization of business value, as shown in Figure 7 below, which plots the average scores for business value and technical complexity for each future state capability.

Figure 7: Updated Prioritization Matrix Based on Survey Responses



Source: IE&E Future State Capabilities – Business Prioritization & Technical Complexity Surveys and Follow-up Surveys (July 2024)

# 10 | Modernization Roadmap

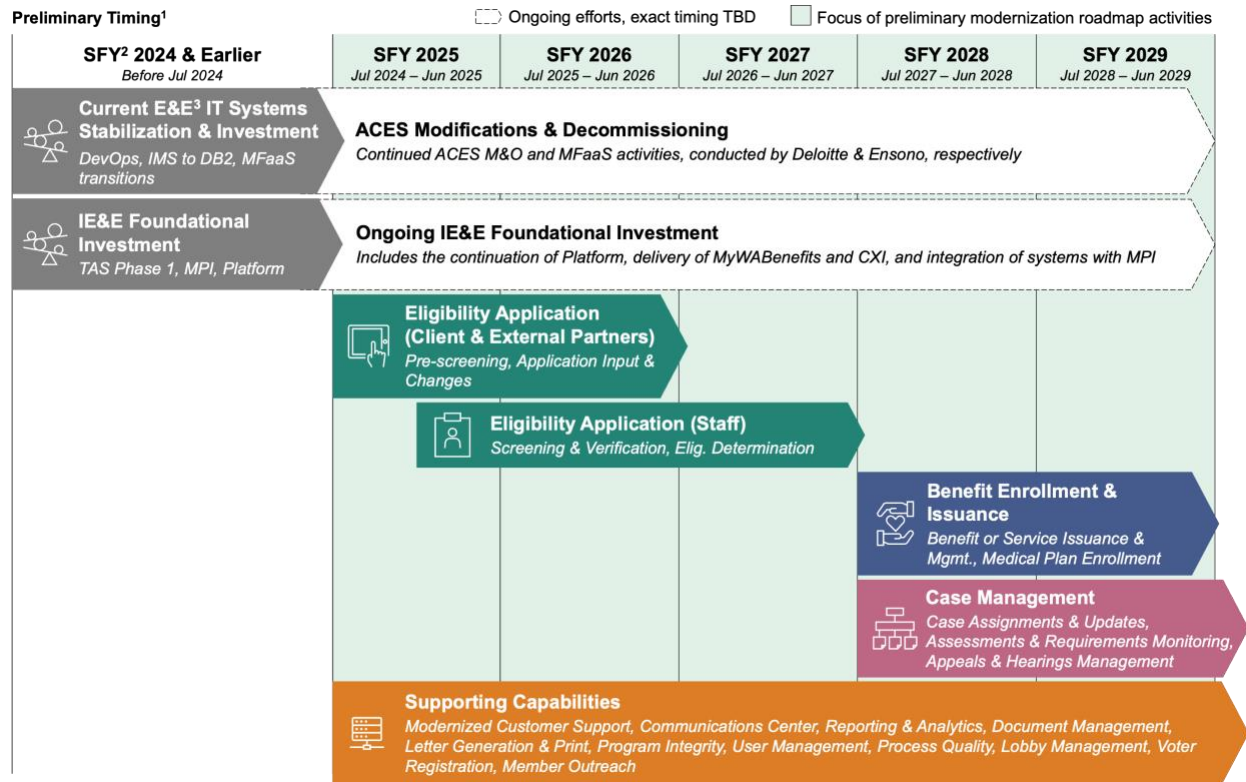
This deliverable updates the [previous IE&E Roadmap](#) to reflect the modernization approach by capability. This updated roadmap is sequenced based on the input from impacted groups on prioritization, technical dependencies identified, current modernization initiatives in progress, and legacy system milestones, among other implementation considerations.

The sequence and timing of modernizing specific capabilities incorporates:

- Prioritizing modernization of client experience and worker experience to solve for user needs and process pain points. Starting with improving experience for Washingtonians and then addressing changes and improvements to worker experience in order to scale support to clients. In particular, capabilities were prioritized to address friction clients when applying for benefits and reporting changes in circumstance (as described in [Section 5.1 Business Opportunity](#))
- Following flow of data and steps for core processes (i.e., Application Input & Changes, Screening & Verification, Eligibility Determination, Benefit/Service Issuance) to lower potential re-work, adjusting and solidifying upstream/downstream integrations as needed before moving to the next downstream process – this approach ultimately minimizes user disruptions or other impacts to business processes
- Supporting capabilities are implemented as required to enable core processes (e.g., User Management for Application Input & Changes, Letters Generation & Print for Eligibility Determination)
- Increasing maturity and enabling more innovative support services later once core processes are established and data can be captured by the new capabilities to inform priority (e.g., Modernized Customer Support)
- Optimizing case management processes once the modernized eligibility & enrollment flow is completed. New features can be prioritized to support the established end-to-end process.

Additional sequencing rationale by capability is detailed in [Appendix M](#). Figure 8 below outlines the preliminary sequencing by business process across State Fiscal Years (SFYs), also showing the previously completed and ongoing efforts of the IE&E Modernization Program prior to TAD Phase 2 (initially detailed in [Section 1: Introduction](#)).

**Figure 8: Preliminary Sequence of Business Processes Over Time**



1. Assuming capability modernization starts as soon as possible in SFY 2025
2. State Fiscal Year (SFY)
3. Eligibility and Enrollment (E&E)

Source: IE&E TAD Future State Capabilities Prioritization Workshop (07/2024), Discussion with IE&E Modernization Program leadership (08/01/2024), TAD Project team discussions

**SFY 2025** kicks off the HHS Portal project, beginning with the development of a roadmap that will inform the design of a streamlined client experience and determine changes to the application submission process and downstream impacts.<sup>49</sup> To prepare for capability development on the IE&E Platform, technical foundations are established, including procurement and setup of tools required on Day 1 of implementation (e.g., BRE, data replication). Additional discovery and in-depth analysis of ACES source code would occur to extract business rules, understand purpose and dependencies between batch processes (e.g., JCLs), and capture the read/write operations for databases. Technical foundations activities also include optimizing the data model to improve data quality for later application and analytics development.

**SFY 2026** begins developing the modernized client experience for application submissions (i.e. HHS Portal) and any supporting capabilities (e.g., User Management, Communications Center). With the client experience established, focus in this year shifts to the improvements and adjustments to worker experience, namely Screening & Validation for the submitted

<sup>49</sup> The start of the Portal project (i.e., the start of “Application Input & Changes” future state capability modernization) largely aligns with the general sequence of “Streamlined Application Submission” (Product 3) on the original IE&E Roadmap Report (2022), but the long-term horizon of this front end is to be determined. This is expanded upon below in the specific bullet for the HHS Portal Roadmap project.

applications. The modernization of eligibility determination rules begins as it is a larger component of work that extends into later years.

[SFY 2027](#) shifts focus to develop the modernized worker experience across Screening & Verification, Eligibility Determination, and related Case Assignment & Updates capabilities in ACES Complex. As the core application submission processes for clients goes into steady state, this year could also begin roll out of modernized customer support features onto the client portal, with integrations to existing methods (e.g., call centers, Interactive Voice Response [IVR]). Additional technical deep dives are conducted on non-ACES Complex systems (e.g., Barcode, eJAS) into their current state and architectural design to determine how they can be modernized to support upcoming capabilities such as Case Management (i.e., either on the IE&E Platform or further development to make the system interoperable with the new platform).

[SFY 2028](#) targets to complete the modernization for eligibility application processing for workers, tying together both the client and worker processes. This year will also tackle Benefit/Services Issuance and Management, particularly modernizing the payment (e.g., EBT) issuance process in ACES today and enabling new client self-service features like checking EBT balance.

Focus shifts in **SFY 2029** to improve case and workload management, both online and in person (e.g., Case Assignments & Updates, Assessments & Requirements Monitoring, Appeals & Hearing Management, Lobby Navigation). With the core eligibility & enrollment processes established on the IE&E Platform, greater data can be captured and analyzed to identify and inform improvement opportunities in workload and queue management.

The roadmap will be reviewed and on a recurring basis as modernization progresses to identify opportunities for acceleration or address potential risk (e.g., dependencies, organizational changes). Multiple releases could occur during a year, with exact timing depending on operational considerations to avoid disruption during critical periods (e.g., open enrollment, annual federal reporting). Greater parallelism of efforts can be considered based on capacity and comfort level based on lessons learned. Continuous coordination and planning are expected with these related roadmap efforts to determine impacts and adjustments necessary to timing, including:

- **HHS Portal** – The HHS Portal Roadmap project aims to design and implement a modern, human-centered portal for all Washingtonians to seamlessly access health and human services. The project will leverage the technical capabilities defined in TAD Phase 2 to create an actionable roadmap for the incremental build of the HHS Portal, which has the ambition to integrate eligibility and enrollment processes in Washington, providing a more streamlined customer experience and reducing the time it takes for clients and staff to access the multiple IE&E activities across programs (e.g., application input, eligibility status & determination). While the downstream client experience of a “no wrong door application process [taking] less than 20 minutes” on the original IE&E Roadmap was planned to be completed from 07/2025 – 06/2026, the current start of the HHS Portal Roadmap effort largely aligns with the general sequencing of the “Streamlined Application Submission” product from the previous roadmap, which was the third sequenced product on the original roadmap. As it aims to determine initial strategy & design for a streamlined customer experience, the HHS Portal project is starting at an opportune time, with the long-term horizon of the “no wrong door” approach to be determined.

- **MyWABenefits** – The Eligibility and Enrollment Status Tracker developed on the IE&E Platform, previously known as ‘Product 1’, providing households with a self-service portal to understand their eligibility and enrollment status across multiple programs.
- **IAM Modernization** – The IAM Modernization project is intended to conduct a technology proof-of-concept to eventually replace SAW with Okta for the enterprise service provided by WaTech. Though not an ACES Complex application, the solution is a key dependency for WaCon and enabling client access.<sup>50</sup>
- **MPI** – Project to enable identity resolution in the target state (i.e., the ability to distinguish unique individuals in the system), unlocking the ability to tie together data across multiple applications for a single client and establish an identifier for that client across applications.
- **EngageOne** – DSHS is leading an effort to [configure and deploy EngageOne](#) to replace ACES Complex’s ability to generate letters. It will include the ability to generate and store static files and migrate historical letters into static files.
- **Project Simplify (Civilla)** – In partnership with Civilla, the IE&E Modernization Program is conducting user experience research, design, and testing to inform recommendations for improvements to applications, renewals, and correspondence between staff and clients. The resulting changes will need to be reflected in online applications in the current state (i.e., WaCon and HPF), and will also inform the development of the HHS Portal in the future state. Furthermore, as the project seeks to simplify questions asked of clients in collaboration with federal agencies, data collection and any downstream analytics processes pursued by staff will be fundamentally changed.<sup>51</sup>
- Centers for Medicare & Medicaid Services (CMS) Regulation Changes – CMS ruling from April 2024 requires updates to simplify the eligibility and enrollment processes and updates to eligibility rules for Medicaid, the Children’s Health Insurance Program (CHIP), and the Basic Health Program (BHP). CMS requires states to meet requirements by specified deadlines (June 2024 – June 2027).<sup>52</sup>

## 10.1 Capability Modernization Steps

- For each capability to be modernized, the assigned team would prepare (e.g., by defining capability-specific requirements and architectures) and execute the modernization and migration of the different components (e.g., UI, security, and data) following an iterative approach (e.g., agile). The team would then lead the corresponding testing, go-live, cutover, and hypercare<sup>53</sup> activities, before incrementally making modernized capabilities available to end users. Table 8 below outlines the steps and activities expected to complete a capability modernization. These steps are standardized across the modernization activities for each capability outlined in [Section 10.3: Preliminary Roadmap Activities by Year](#), and they serve as a supplemental reference to determine activities to complete if not directly specified within each capability.

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<sup>50</sup> Sourced from the WaTech Identity Access Management (IAM) Modernization “[Progress update – August 2024](#)”; the IAM Modernization effort is in its second phase, which will continue through 07/2025 and will be extended as necessary, if contracts with technology and service providers necessary to modernize the IAM technology and processes are not reached.

<sup>51</sup> Sourced from IE&E Modernization Program internal website, “[Human-Centered Design](#)”.

<sup>52</sup> Centers for Medicare & Medicaid Services, “[Streamlining the Medicaid, Children’s Health Insurance Program, and Basic Health Program Application, Eligibility Determination, Enrollment, and Renewal Processes](#)” (2024)

<sup>53</sup> Refers to the period of intensive support right after initial release of a capability.

**Table 8: Standardized Capability Modernization Steps**

Stage	Steps (agile with potential overlaps)	Activity
<b>Prepare</b>	1) Project planning	Capability-specific initial set-up activities, which include, for example, standing up a project team, confirming the scope, establishing a project schedule, and securing funding
	2) Customer	Capability-specific user research and mapping of customer journeys, as well as decomposition of capabilities into business process diagrams, including feedback collection from all client and staff groups to inform solutions, priority, and experience design
	3) Requirement definition & analysis	Capability-specific discovery and requirement definition (incl. non-functional, integration, data), workflow and dependency assessment, roadmap alignment
	4) Detailed design and architecture definition	Capability-specific architecture design (service, data, business layer, non-functional, integration), ongoing governance and compliance, assessment on reusability of existing services
	5) Cloud infrastructure and platform set-up	Capacity planning, platform enhancements (compute, storage, network, databases, observability / monitoring, security, middleware and other third-party software requirements)
<b>Modernize and migrate</b>	6) UI and business logic modernization	UI modernization, business logic and rules modernization (e.g., business rules engine configuration)
	7) Interface modernization	Collaboration with interfacing partners, batch scheduler migration, modernization by capability rather than partner
	8) Data migration	Relational data migration, files and tape migration
	9) Security migration	Resource Access Control Facility migration, compliance with security architecture design
<b>Finalize</b>	10) Testing	End-to-end test plan deployment (e.g., unit, integration, system, performance, User Acceptance, Disaster Recovery, parallel, load, stress, usability, security-including vulnerability, data, penetration, incident response, dynamic/static application)
	11) Go-live, cutover, and hypercare	Pre-cutover preparation, backout plan, cutover execution, post-cutover monitoring and support, finalization

Stage	Steps (agile with potential overlaps)	Activity
	12) Decommissioning	Multi-step process covered in <a href="#">Section 11: ACES Complex Modifications &amp; Decommissioning Approach</a>

Source: Conversations with TAD Project team (Feb – Jul 2024)

The 12-step modernization process culminates in decommissioning, with activities outlined in [Section 11: ACES Complex Decommissioning Approach](#). These decommissioning activities would commence if there are no other dependencies on the legacy application or capability that was modernized. There may also be a need to retain some legacy applications for an unspecified period of time (e.g., data that is not migrated but still needs to be available for referential or reporting purposes).

Following the human-centered design principles of collaboration and inclusion, this team would engage IE&E Program leadership, teams (e.g., organizational change management [OCM], IE&E Platform, legacy decommissioning, other in-flight projects<sup>54</sup>) and representative users to provide input and feedback throughout the process.

The capability-led approach looks to develop and provide sets of related features together. This strategy helps to minimize scattered user disruption and number of screens, reduce potential legacy modifications required to support, and make broader scope decisions against ongoing priorities and maintenance. Opportunities can be identified to accelerate timing of specific features from later planned capabilities to address immediate process pain points and provide a more streamlined experience. Decisions on these adjustments will be informed by thorough research and analysis of customer and staff experiences, with the goal of providing efficiency, accuracy, adoption, and satisfaction to users.

**Table 9: User-Centric Engagement and Cross-Coalition Alignment**

Phase	User-centric engagement	Cross-coalition alignment
Prepare	<ul style="list-style-type: none"> <li>Client, staff, and partner<sup>i</sup> <b>impacted group identification</b> (e.g., demos, end user panels)</li> <li>User research and journey mapping to <b>understand user needs and identify pain points and opportunities</b> to improve experience</li> <li>Involving users and SMEs<sup>ii</sup> in <b>ideation</b> utilizing their expertise and experience</li> </ul>	<ul style="list-style-type: none"> <li>Roadmap alignment with organizations to <b>refine and confirm priorities</b> as required (e.g., align with new or ongoing initiatives)</li> <li><b>Assess and determine reuse</b> where possible or if a COTS product could be utilized</li> </ul>

<sup>54</sup> Legacy decommissioning team is outlined in [Section 11: ACES Complex Decommissioning Approach](#).

Phase	User-centric engagement	Cross-coalition alignment
Modernize and migrate (iterative development)	<ul style="list-style-type: none"> <li>• <b>Recurring prioritization and refinement of features</b> and backlog to capture new legislative changes, based on user feedback received, or based on new user research findings</li> <li>• <b>Prototypes and demos with end user panels</b> to gather feedback early and often</li> <li>• Include users to <b>validate developed features</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Align and coordinate with impacted system teams</b> to refine implementation approaches and timing for development and testing</li> <li>• Include other system teams and application support teams in <b>demos to provide early awareness and gather feedback</b> to enhance implementation</li> </ul>
Roll out and adoption <sup>iii</sup>	<ul style="list-style-type: none"> <li>• <b>Engage users to ease transition and facilitate adoption</b> (e.g., communications, trainings, workshops)</li> <li>• Establish methods and metrics to create <b>feedback loops</b> for deployed features</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate timing and deployment of changes</li> <li>• Mechanisms for application support teams to coordinate and resolve incidents</li> </ul>

i. Including tribal engagement and labor engagement

ii. Subject Matter Experts

iii. Flexible duration for rollout (e.g., phased, timing)

Source: IDEO – Human-centered design, Discussions with TAD project team (February – August 2024), Discussions with IE&E Program Leadership (August 2024)

Capability modernization will be a collaborative effort. Continued coordination with large-scale programs and an emphasis on engaging end users and SMEs will be maintained throughout the process. Impacted group feedback and insights are crucial to ensuring that the prioritized and developed work is both valuable to users and effective in supporting broader State initiatives to improve client experience and service delivery. The Prepare and Modernize and Migrate phases would be focused and look for opportunities to accelerate modernization through assessments to purchase solutions available on the market, transfer solutions from other states, or reuse existing services that fulfill the needs of the users. The IE&E program will work together with HHS Coalition organizations to determine what is needed to support and how resourcing can be appropriately met. The Roll Out and Adoption phase requires additional planning to determine the methods and approach to ease the transition for users and minimize business disruptions, including the duration of the roll out period or a phased approach.

## 10.2 Measuring Modernization Progress

CMS-Required Outcomes and Metrics for eligibility and enrollment systems will need to be collected and reported to CMS for certification to demonstrate compliance with applicable

federal requirements. Several of these metrics can also be utilized as metrics to measure the improvements to the eligibility and enrollment process for clients as modernization progresses.<sup>55</sup>

**Table 10: Applicable CMS Required Outcomes and Metrics**

Reference #	CMS Required Outcomes (select edited for brevity)	Default Metrics
<b>Application #1</b>	Eligibility system receives, ingests, and processes single-streamlined applications, change of circumstances, renewal forms, and any supporting documentation requested by the state (including telephonic signatures) from individuals through multiple browsers, mail, phone, and in-person applications to support eligibility determination.	<ul style="list-style-type: none"> <li>• Number/Percentage of applications submitted through each modality (mail, online, phone, in person)</li> <li>• Percentage of change in circumstances reported through each modality.</li> <li>• Percentage of supporting documents/information submitted through each modality</li> <li>• Percentage of renewal documents submitted through each modality</li> </ul>
<b>Application #2</b>	Individuals experience a user-friendly, dynamic, online application, such that subsequent questions are based on prior answers.	<ul style="list-style-type: none"> <li>• Average time it takes to complete an online application</li> <li>• User surveys</li> <li>• Abandonment rate of online applications</li> <li>• Outcome attestation of dynamic application skip logic</li> </ul>
<b>Electronic Verification</b>	Eligibility system uses automated interfaces with electronic data sources to enable real-time or near real-time, no manual touch eligibility determinations. Example data sources include SSA and the Department of Homeland Security (DHS) (directly or via the Federal Data Services Hub (FDSH)), and state quarterly wage data, among others.	<ul style="list-style-type: none"> <li>• Number/percentage of individuals whose determinations were entirely automated</li> <li>• Percentage of determinations that required a request for additional documentation from the applicant</li> </ul>
<b>Timely Determinations</b>	Individuals who apply for Medicaid based on disability receive an eligibility determination within 90 days and all other applicants receive an eligibility determination within 45 days.	<ul style="list-style-type: none"> <li>• Percentage of benefits approved/denied within mandated timeframes (i.e., 90 days for Classic Medicaid, 45 days for other Medicaid, 7 days for expedited food, 30 days for standard food and cash)</li> <li>• Percentage of applications that are pending and beyond mandated program determination timeframes</li> </ul>

<sup>55</sup> Centers for Medicaid and Medicare Services (CMS), "[MES Certification Repository – Eligibility and Enrollment](#)"

Reference #	CMS Required Outcomes (select edited for brevity)	Default Metrics
<b>Reasonable Opportunity Period (ROP)</b>	Individuals are enrolled for up to 90 days if pending verification of citizenship or immigration status.	<ul style="list-style-type: none"> <li>• Number of individuals enrolled during a ROP period</li> <li>• Number of people who remained enrolled at the end of the ROP</li> <li>• Number of people disenrolled at the end of the ROP for failure to verify citizenship or immigration status</li> </ul>
<b>SSN Verification</b>	Individuals are enrolled pending verification of SSN.	<ul style="list-style-type: none"> <li>• Number of individuals enrolled pending verification of SSN</li> <li>• Number of people who remained enrolled upon verification of SSN</li> <li>• Number of people disenrolled for failure to verify SSN</li> </ul>
<b>Notices #1</b>	Individuals receive system-generated timely automated (versus manual) eligibility notices and request for additional information for eligibility determination, as necessary.	<ul style="list-style-type: none"> <li>• Percentage of notices automatically generated and sent</li> <li>• Types of notices that are automated</li> <li>• Types of notices that are manually generally</li> <li>• Percentage of terminations due to lack of response to a notice</li> </ul>
<b>Notices #2</b>	Individuals receive electronic notices and alerts as applicable via their preferred mode of communication (e.g., email, text that notice is available in online account).	<ul style="list-style-type: none"> <li>• Outcome attestation of ability for applicants to receive notifications in their preferred mode of communication</li> </ul>
<b>Annual Renewals</b>	The system can automatically generate pre-populated renewal forms and distribute those forms via individuals' preferred communication mode.	<ul style="list-style-type: none"> <li>• Percentage of individuals up for renewal who were sent a prepopulated renewal form</li> <li>• Percentage of pre-populated renewals sent electronically and by mail</li> </ul>
<b>Eligibility Category</b>	The system applies an automated eligibility hierarchy that places an individual in the most advantageous group for which they are eligible at initial application and renewal.	<ul style="list-style-type: none"> <li>• Test results (automated if possible) verifying that the system applies an automated eligibility hierarchy to assign individuals to the most advantageous category for which they are eligible</li> </ul>

Reference #	CMS Required Outcomes (select edited for brevity)	Default Metrics
<b>Incarcerated Individuals</b>	Incarcerated individuals receive timely access to inpatient services and receive a timely and accurate eligibility determination upon release.	<ul style="list-style-type: none"> <li>• Number/Percentage of individuals whose eligibility status was suspended due to incarceration, if applicable</li> <li>• Number/Percentage of claims for inpatient services for incarcerated individuals</li> <li>• Number/Percentage of claims paid for services other than inpatient services for incarcerated individuals</li> </ul>
<b>Emergency Medicaid</b>	Individuals whose coverage is limited to emergency services due to immigration status receive timely and accurate eligibility determination.	<ul style="list-style-type: none"> <li>• Number/Percentage of claims paid for emergency services for individuals whose coverage is limited due to immigration status</li> <li>• Number/Percentage of claims paid for services other than emergency services for individuals whose coverage is limited due to immigration status</li> </ul>
<b>Retroactive Eligibility</b>	Individuals receive timely and accurate determinations of eligibility for the three months prior to the date of application if the individual would have been eligible and received services.	<ul style="list-style-type: none"> <li>• Percentage of individuals who received retroactive coverage up to 3 months prior to the date of application</li> </ul>
<b>Accessibility</b>	Persons with disabilities or with Limited English Proficiency (LEP) can submit a single streamlined application with any necessary assistance (e.g., teletypewriters [TTY] for the hearing impaired for phone applications, and language assistance for persons with LEP).	<ul style="list-style-type: none"> <li>• Number of calls using a TTY line</li> <li>• Number of requests for translation services by language</li> <li>• Data on the most common Help Desk calls from applicants and beneficiaries</li> </ul>
<b>Appeals</b>	Beneficiaries and applicants can submit an appeal against an adverse action via multiple channels (e.g., online, phone, mail, in person) and the status and adjudication of an appeal can easily be accessed by necessary state staff and appellants.	<ul style="list-style-type: none"> <li>• Percentage of appeals requested through each modality (mail, online, phone, in person)</li> <li>• Number of pending appeals in the reporting period</li> </ul>

As legacy functionality is modernized, there are several metrics that can be used to monitor and measure progress of the technology modernization. Table 11 below describes some of these metrics; one or more of can be selected and tracked on an ongoing basis.

**Table 11: Modernization Progress Metrics**

Metric	Description	Pros	Cons
<b>MIPS</b>	Measure the change in processing power on the mainframe over time	<ul style="list-style-type: none"> <li>Easily verifiable (e.g., metric is already tracked in current state) Impacts are directly tied to the decommissioning of legacy systems</li> <li>Potential to drive savings as MIPS decrease</li> </ul>	<ul style="list-style-type: none"> <li>May not directly track user impact, as changes would occur when legacy functionality is shut off, not when modernized features become available Potential for MIPS to increase initially due to dual processing from data integration and parallel testing Only measures impact of modernizing existing functionality</li> </ul>
<b>Data objects (incl. tables, size)</b>	Quantify the number of tables and size of production data that has been modernized	<ul style="list-style-type: none"> <li>Could help identify risks and pain points given that data is a modernization headwind (as discussed in <a href="#">Section 6: Modernization Approaches</a>)</li> </ul>	<ul style="list-style-type: none"> <li>Shared database nuances may complicate measurement (e.g., how to measure progress)</li> <li>Only measures impact of modernizing existing functionality</li> </ul>
<b>Database calls / transactions</b>	Track the amount of calls to ACES databases, including transactions throughout the modernization	<ul style="list-style-type: none"> <li>Easily verifiable (e.g., calls and transactions are tracked in the current state)</li> <li>May help quantify user impact (e.g., how much data is being created on the cloud versus mainframe)</li> </ul>	<ul style="list-style-type: none"> <li>May be difficult to define which applications are creating calls / transactions</li> <li>Only measures impact of modernizing existing functionality</li> </ul>
<b>UI components</b>	Measure the number of screens and webpages that have been modernized	<ul style="list-style-type: none"> <li>Directly measures impact to end users, including the extent to which certain functionality has been adopted</li> </ul>	<ul style="list-style-type: none"> <li>Progress towards modernizing non-UI functionality may be excluded</li> </ul>
<b>Interface volume</b>	Track the count and type of modernized interfaces	<ul style="list-style-type: none"> <li>Helps capture the degree to which interdependencies with other systems are being managed</li> </ul>	<ul style="list-style-type: none"> <li>May be correlated with number of capabilities modernized, given that interfaces are modernized by capability</li> </ul>

Metric	Description	Pros	Cons
<b>Lines of code</b>	Track how many lines of code have been modernized vs. on the mainframe	<ul style="list-style-type: none"> <li>Relatively easy to measure</li> <li>May reflect the workload complete and remaining based on the number of lines modernized</li> </ul>	<ul style="list-style-type: none"> <li>Only measures impact of modernizing existing lines of code</li> </ul>
<b>Technical complexity of capabilities</b>	Assign weights to each capability based on technical complexity	<ul style="list-style-type: none"> <li>Based on feedback from ~25 HHS Coalition technical staff</li> <li>Captures progress towards configuring new capabilities, in addition to modernizing legacy</li> </ul>	<ul style="list-style-type: none"> <li>Relatively subjective metric, based on subject matter expert input rather than system performance</li> </ul>

Source: Conversations with TAD Project team (Feb-May 2024), Knowledge Transfer Sessions (A.1 – K.1)

## 10.3 Key Milestones and Roadmap Visualizations

The work described in this roadmap drives towards a series of milestones, capturing the expected impacts and improvements to client and worker experience over time. Table 12 below highlights example milestones, driven by the activities defined in subsequent parts of this section.

**Table 12: Preliminary Milestones by Year**

SFY <sup>i</sup>	Key milestone	Beneficiary	Organization staff impacted
<b>2025</b>	MyWABenefits (eligibility and enrolment status tracker) available	Client	
	Documents can be uploaded and submitted through an online portal <sup>ii</sup>	Client	
<b>2026</b>	HHS Portal with first features <sup>ii</sup> such as: <ul style="list-style-type: none"> <li>Pre-screening questionnaire available for all programs</li> <li>Digital access to letters generated from eligibility determination and previously uploaded documents</li> <li>Clients able to receive push notifications, including over email or text</li> </ul>	Client	DSHS
	New letters generation service enabled, allowing generated letters to be edited as required and then stored for later access	Staff	DSHS

SFY <sup>i</sup>	Key milestone	Beneficiary	Organization staff impacted
	Communications (e.g., email, chat) between staff and with clients can be tracked against the relevant application	Staff	DSHS
<b>2027</b>	One application across all programs	Client	DCYF, DSHS, HBE, HCA
	HHS Portal is the central system for all eligibility submittals (e.g., applications, renewals, change in circumstance, mid-certification reviews) <sup>ii</sup>	Client	DCYF, DSHS, HBE, HCA
	Digital customer support available through HHS portal (e.g., web forms, live chat)	Client	DCYF, DSHS, HBE, HCA
	Cross-coalition reporting across programs enabled	Staff	DCYF, DSHS, HBE, HCA
	eServ decommissioned	Mainframe decommissioning	DCYF, DSHS, HBE, HCA
<b>2028</b>	Self-service functions for benefit management added to HHS Portal (e.g., check EBT balance)	Client	DCYF, DSHS, HBE, HCA
	New worker portal established for client search and application screening	Staff	DCYF, DSHS, HBE, HCA
	Management of recoupments and overpayments completed through modernized application	Staff	DCYF, DSHS, HBE, HCA
	WashingtonConnection (WaCon) decommissioned	Mainframe decommissioning	DCYF, DSHS, HBE, HCA
<b>2029</b>	Lobby management upgrades to improve in-person client service	Client	DCYF, DSHS, HBE, HCA
	Optimized CSO case management for in-person queue management	Staff	DCYF, DSHS, HBE, HCA
	Increase information captured in-person through digital experiences to reduce processing time	Staff	DCYF, DSHS, HBE, HCA
	ACES (3G, Online, Legacy) decommissioned	Mainframe decommissioning	DCYF, DSHS, HBE, HCA

i. State Fiscal Year

ii. To be confirmed – subject to HHS Portal roadmap definition and budget availability

Figure 9: Preliminary Modernization Roadmap, below, lays out the preliminary start date and approximate duration of activities in 6-month increments, organized into 4 main workstreams:<sup>56</sup> Program Management, Modernize Business Capabilities, Modernize Technical Foundations, ACES Modifications & Decommissioning. Descriptions of the workstreams that group individual modernization capabilities & activities are as follows:

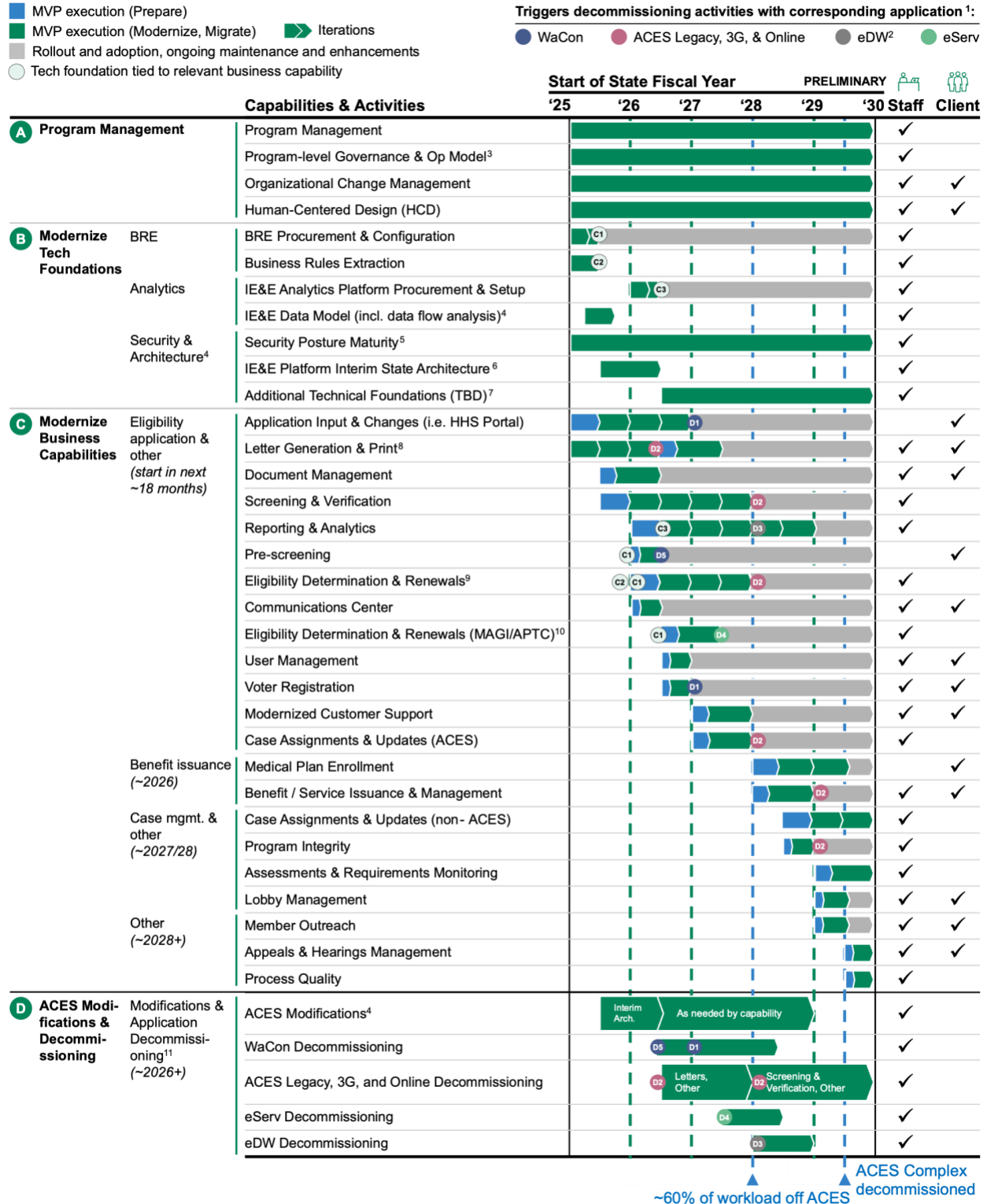
- 1) **Program Management** – definition and management of activities across general program management office (PMO), operating model, partner & vendor ecosystem, value assurance, and organizational change management (OCM)
- 2) **Modernize Technical Foundations** – design, development, and implementation activities across foundational elements of the future state IE&E Platform, which serve as enablers across business capabilities
- 3) **Modernize Business Capabilities** – design, development, and implementation activities across the future state capabilities ideated and prioritized in collaboration with HHS Coalition impacted groups (see [Section 9: Prioritized Future State Capabilities](#))
- 4) **ACES Modifications & Decommissioning** – activities impacting the legacy system, either modifying the system or decommissioning certain parts of the ACES Complex. These activities would also include modifications necessary to other systems currently integrated with ACES Complex applications. Activities would be in concert with the modernization activities in B and C above, with these activities specific for impacted groups and SMEs working on the legacy system.

The figure also includes indicators to note the dependencies between workstream capabilities and activities between Modernize Tech Foundations, Modernize Business Capabilities, and ACES Modifications & Decommissioning.

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<sup>56</sup> Not inclusive of efforts by impacted applications other than ACES Complex (e.g., ProviderOne, HPF, Barcode). Durations estimated based on analysis of ACES Complex application components completed in Deliverable 4.3, Initial Decommissioning Approach and capability prioritization survey results for technical complexity.

**Figure 9: Preliminary Modernization Roadmap**



1. Each chevron excludes nuances associated with underlying shared databases and infrastructure, which would be decommissioned as applicable (e.g., after all supported capabilities have been modernized) and potentially not until the end of the modernization, capabilities not marked do not exist in the ACES complex (e.g., net new created or in other systems like Barcode)

2. eDW decommissioning could begin before modernization is complete as improvements in later years will focus on enabling new use cases, rather than replacing existing functionality

3. Including vendor ecosystem, as well as hiring and skill development necessary to support the future state operating model
4. These technical foundations set up modernization of all business capabilities
5. Including IAM integration
6. Including select PoCs (Data Sync, APIs, Batch interface replication), IE&E Platform Interim State Architecture and ACES Modifications flow into each other, with modifications also including activities like changing interfaces and surrounding logic
7. Tech foundations to be defined over time (e.g., machine learning); with procurements as needed
8. EngageOne project in progress. Prepare phase in SFY 2026 for integration between future state IE&E Platform and EngageOne
9. Food, Cash, Classic Medicaid
10. Preliminary timing – MAGI/APTC Eligibility Determination does not need to start at the beginning of SFY 2026 and could move forward or backward to better align with Classic Medicaid Eligibility Determination
11. Decommissioning steps would occur by capability where applicable, though some components can only be done by application – 1 year per assumed based on 10-step decommissioning approach

Source: IE&E TAD Future State Capabilities Prioritization Workshop (07/2024), Conversations with TAD Project team (Feb-Jul 2024), "[AWS Prescriptive Guidance](#)"

The roadmap reflects the initial capability modernization effort to reach a minimum viable product (MVP) through one or more releases to end users (e.g., clients, staff, partners) to meet parity with ACES functionality today and include critical improvements prioritized by the impacted groups to solve major pain points. Additional enhancements to the capability in order to mature the capability and further streamline processes would be part of the continuous improvement and development efforts occurring in maintenance and operations phases.

The following figure illustrates how a selection of the capability modernizations (i.e., the “Eligibility application & other” modernizations before the start of SFY 2028) will impact different groups of programs, requiring either “Stakeholder Engagement” or “User/Process Changes” relevant to each capability being modernized in a particular state fiscal year:

- Impacted Group Engagement – Requires HHS Coalition organization resources (i.e., staff and SMEs) to be engaged in the ideation, design, development, integration, and other implementation activities of the capability modernization
- User/Process Change – Upon rollout of the capability modernization, necessitates changes in the user experience and/or business processes



The modernization is a large effort that will require coordination and engagement across the HHS Coalition in addition to the activities to be detailed by years below, whether it be providing input and feedback, participating in training and change management, or addressing technical impacts to existing systems. Other eligibility & enrollment systems and interfacing partners to ACES would collaborate with the modernization teams through activities including:

- Informing the modernization team of ongoing enhancements to existing systems and what may require changes to capability requirements captured by the modernization team
- Providing input to refine and update interfaces currently in place with ACES Complex applications
- Modifying system accordingly to account for new interfaces
- Supporting in testing of new interfaces
- Coordinating deployment timeline and activities for system changes
- Decommissioning previous interface and logic as needed

High-level overviews of a selection of these systems are included below:<sup>57</sup>

- **Barcode** – Worker-facing system of record for the State’s child care subsidy programs as well as a collection of computer application sub-systems managed by Department of Social and Health Services (DSHS) Economic Services Administration (ESA), providing computer application functionality to 6000+ DSHS staff, 900+ DCYF staff, 350+ HCA Staff, and 1080+ AAA staff for their daily work to manage caseloads and access the relevant documents to support processing client eligibility and care, such as:
  - Document Management System (DMS), which enables document indexing and scanning, thus creating an Electronic Case Record (ECR). This document management functionality is also used to hold client-submitted documents
  - Local office workload scheduling and tracking of client appointments, including to-do assignment tracking (“Tickles”) and office workload management reporting
  - Ad-hoc queries against the Barcode database
  - Lobby management to monitor, track and support delivery of service to in-person customers, including kick off of automated flow of operations
  - Barcode also facilitates statewide workload management for the Community Services Division (CSD), managing work queues, assigning tasks, allowing for the automated deployment of staff between phone and batch queues, and interacting with CSD’s telephony system to “screen pop” contact center employees into the proper case. The system is also going through a separate modernization effort called ReBar.
- **Benefit Verification System (BVS)** – Limited partner-facing computer application (e.g., community orgs who have permissions to view specific profile types) managed by DSHS ESA, allowing authorized users to verify specific, client-level information online rather than placing a phone call to a DSHS employee. Depending upon access levels and authorization, the user may be able to confirm the client’s benefit amount and/or what benefits they are receiving

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<sup>57</sup> Based on information from the 2017 ACES Technical Information, ACES Interface Catalogue, ACES – Level 1 Component Diagram, Washington Technology Solutions (WaTech) website, and interviews with impacted groups.

- **CARE Complex** – Worker-facing system operated by the Aging and Long-Term Support Administration (AL TSA) under DSHS. Acts as an Eligibility Portal, Eligibility System of Record (SOR), Care Management Portal, and Care Management SOR for certain Medicaid Waiver Programs (e.g., Community Options Program Entry System, New Freedom, Residential Support Waiver), thus functioning as a front-end portal and document management system. Interfaces with Barcode but not the ACES Complex
- **Electronic JOBS Automated System (eJAS)** – Worker- and partner-facing (e.g., Department of Commerce, Employment Security Department, State Board for Community & Technical Colleges) computer application system managed by DSHS ESA. The system is used as the case management system for Basic Food Employment (BFET), WorkFirst, Limited English Proficiency (LEP) Pathway, and Refugee and Immigrant Assistance clients. Daily case updates are extracted by ACES and sent as an outgoing file transfer to eJAS. Executes web services in ACES to retrieve client details and household member information for transmission to eJAS. Near Real Time (NRT) Customer Information Control Sem (CICS)-based MQ background service is triggered in ACES when client TANF extension review data is placed by eJAS into a message queue
- **FamLink** – Worker-facing system operated by Department of Children, Youth & Families (DCYF) as a case management system. The weekly interface from FamLink to ACES identifies foster care clients. Its purpose is to ensure households receive the correct TANF and Basic Food assistance when children have been removed from an active assistance unit. It supports child welfare programs (e.g., Child Protective Services [CPS], Child Welfare Service [CWS], Family Assessment Response [FAR])
- **HPF** – Client-facing eligibility and enrollment system operated by Health Benefit Exchange (HBE) as a front door for health coverage that offers Washingtonians access to health care. A key function of HPF is the ability to support real time ID proofing, income verification (through the IRS), and Social Security Number (SSN) verification, information that is especially significant to support real-time eligibility determinations in the future state.<sup>58</sup> Part of HPF's functionality is to integrate with ACES as a computer application system to determine MAGI and APTC eligibility for Washingtonians. It also supports the collection of client demographics, including household composition and tax filing relationships. An ACES interface links HPF and WaCon, enabling users to apply for benefits that they may be eligible for and directing users to the correct portal based on their age and disability status. WaCon links to HPF for individuals who are under 65 and not disabled to apply for medical benefits. For directing clients from HPF to WaCon, there is a redirect that takes some of the inputted client information from HPF and helps to pre-populate the application on WaCon. Beyond the interaction between these two portals, there is also a real-time integration between HPF and the eligibility service inside ACES
- **IVR** – Client-facing collection of automated tools (e.g., allowing telephones to get information from a computer database and automatically providing answers to frequently asked questions) managed by the Technology Innovation Administration (TIA) / ESA division within DSHS

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<sup>58</sup> ID-proofing, income verification, and SSN verification are required capabilities of State-based marketplaces, and the information is obtained through a connection to the federal data service hub.

- **ProviderOne** – Worker-facing and partner-facing (e.g., providers, billers) interface managed by HCA, providing Medicaid management information services to Washingtonians. ProviderOne is the core Medicaid Enterprise System (MES) for Washington State (a CMS required system). In the context of IE&E, it facilitates information exchange with ACES, receiving eligibility data for all Apple Health programs each day to enroll clients into Medicaid (Classic and MAGI). This is a dependency for many other processes (e.g., eligibility, provider claims, billing, correspondence); below are a few examples of information exchanged:
  - ProviderOne uses this information to authorize certain medical bill payments and generate federal reports
  - ACES uses this information to automatically update dashboards and other views with the most recent medical, rate, provider, and Third-Party Liability (TPL) data
  - There is also a real-time interface from ACES to ProviderOne that facilitates a “shopping experience” for the Managed Care Plan Selection Process that clients interact with via HPF.
- **Social Service Payment System (SSPS)** – Worker-facing computer system managed by DCYF. It interfaces with ACES to provide monthly information on clients who receive SSPS payments. Also supports child care subsidy programs (e.g., as Care Management Portal and Care Management SOR), for example to issue payments for a variety of services that increase independence, support families, and protect children
- **WIC Cascades** – Supports the Woman, Infants, and Children Nutrition Program (e.g., by giving supplementary nutrition benefits to pregnant individuals) as an Eligibility Portal, Eligibility SOR, Case Management Portal, and Care Management SOR. Operated by the Department of Health (DOH). There is no interface currently between WIC Cascades and ACES.
- **Workforce Optimization** – Worker-facing system operated by CSD within DSHS. Includes a touchpoint with Barcode but not the ACES Complex, functioning as an analysis tool to improve customer service and response time, with audit and quality monitoring functionalities included on its platform. This system is also utilized by DCYF.

## 10.4 Preliminary Roadmap Activities by State Fiscal Year

The following sub-sections will provide detail on activities as they align to the roadmap presented in [Figure 9: Preliminary Modernization Roadmap](#), for State Fiscal Years 2025-2027.

The below are a set of assumptions behind the roadmap and corresponding activities:

### ASSUMPTIONS FOR PROJECT MANAGEMENT

- 1) Required resources for capability development (per the operating model) have been staffed and onboarded
- 2) Dedicated technical and programmatic resources from partner organizations for the program have been identified and onboarded
- 3) Commitment from interfacing partners, including local, state, federal, and private entities. Commitment will confirm that partners are aware of the program timelines and dependencies, and that they will deliver their respective components (e.g. updated interfaces) according to the program schedule

- 4) Issues identified are quickly escalated and resolved. Includes establishment of service level agreements (SLAs) that defines expected timelines for issue resolution (e.g. critical issues resolved within 1 business day)
- 5) Streamlined design and requirements approval process with the core team (e.g. core approval team of less than 10 stakeholders that represent the HHS Coalition organizations and other impacted groups)
- 6) If a technical or business capability can be delivered with an established product, then it is assumed that a COTS product will be purchased or re-used (e.g. BRE, Document Management, Letters Generation)
- 7) Adequate funding secured for the IE&E program and participating coalition organizations. To the extent possible, program will strive to expedite federal funding requests, including use of a procurement checklist with the Advanced Planning Documents. IE&E and coalition partners will establish a method for coalition organizations to draw from those funds once secured.
- 8) The future M&O vendors supporting the modern IE&E system will be finalized before the production cutover for the first capability on the modern platform. Cutover plan will include transition and onboarding plan for all M&O vendors.
- 9) Required resources for capability development (per the operating model) have been staffed and onboarded

## **ASSUMPTIONS FOR MODERNIZE TECHNOLOGY FOUNDATIONS**

- 10) Identified organization changes needed to support data governance have been implemented (e.g. data lead for IE&E role and corresponding data steward roles in coalition organizations identified and staffed)
- 11) For SFY 2025, COTS procurement for BRE will be completed in less than 4 months since market scan has been completed. COTS procurement for analytics platform and data sync tool will be completed in less than 5 months. Procurement includes market scan, evaluation, contracting and software installation). Timing for procurement activities in SFY2026+ will be identified in future planning work.
- 12) Maximum number of identified and conducted PoCs for Year 0 (through June 2025) will be 2. Number of PoC conducted in subsequent years will be defined at the start of the Fiscal Year. PoCs for SFY 2025 may include BRE and Data sync.
- 13) The capability build team will assess if common services already exist and can be leveraged from other capability modernization teams before procuring or building their own

## **ASSUMPTIONS FOR MODERNIZE BUSINESS CAPABILITIES**

- 14) No significant customization of COTS solutions is needed (e.g. less than 25% requires custom code)
- 15) Key dates for all program dependencies (e.g. other IEE programs, legislative sessions) will be tracked and reported on. If any key dates move the IE&E timeline will be evaluated to identify any IE&E timeline impact
- 16) Each business capability implementation timeline includes 4-6 weeks for readiness at the start of the effort and 8-10 weeks for hypercare and adoption at the end of the effort. The timeline for M&O transition would occur throughout.

- Readiness includes (but is not limited to): detailed workplan / migration approach developed and approved, all required team members (core and non-core) identified and onboarded
  - Hypercare includes (but is not limited to): Go-live cut-over and support plan developed and implemented, M&O transition plan developed and implemented
- 17) Concurrent capability builds can be developed in parallel using an agile approach, with a governance that supports parallel development to align activities, prioritization, and milestones
  - 18) A phased-based incremental modernization approach, along with an agile delivery model, will be followed. This approach assumes that capability features will be prioritized and released in phases with the highest priority / highest impact features being delivered before lower priority features. Note that foundational elements are delivered first because they are critical for the implementation of business capabilities (e.g. eligibility capabilities cannot be implemented without a business rules engine in place)
  - 19) Any modifications to the IE&E reference architecture and technology design principles require review by the ARB. The ARB will recommend approval to G2 based on the review or will recommend updates to the modification.
  - 20) Individual features of a capability can be built or configured independently in an agile manner. However, during cutover, it's important to assess the impact on users and case workers to avoid scenarios where users have to interact with multiple systems (e.g., both mainframe and cloud) to perform a business function
  - 21) Any custom code developed as modular services or microservices must undergo code quality and security vulnerability assessments before deployment, with adherence to code security guidelines enforced through the DevSecOps process
  - 22) During data migration and conversion (e.g. data formatting), the source of record needs to be clearly defined (whether it's mainframe or cloud). Additionally, the requirements for data synchronization must be established to ensure data integrity and consistency. Data synchronization performance will be monitored, and approach may be modified as needed to ensure system performance is not negatively impacted.
  - 23) In order for data to be synchronized between ACES and a modernized system / platform, mainframe EBCDIC data format needs to be converted to an open system format (ASCII) before sending data to downstream systems/interfacing partners. Conversely any data being sent from a modernized system / platform back to ACES will need to be converted from ASCII to EBCDIC.
  - 24) Interface partners, as well as upstream and downstream application owners, will be engaged on interface decisions and are given clear guidelines and instructions on the types of changes required (e.g., API/Service changes, data format), along with adequate time to test and implement them. Timelines / key dates for making changes by other organizations will be agreed to in advance and any changes in timing will be assessed for impact to the delivery of the interface.
  - 25) A unit test, system integration test, performance test, and user acceptance test will be executed before deploying to production to ensure thorough testing before a specific business capability is implemented in production. Types of test and testing criteria will be documented in the testing strategy.

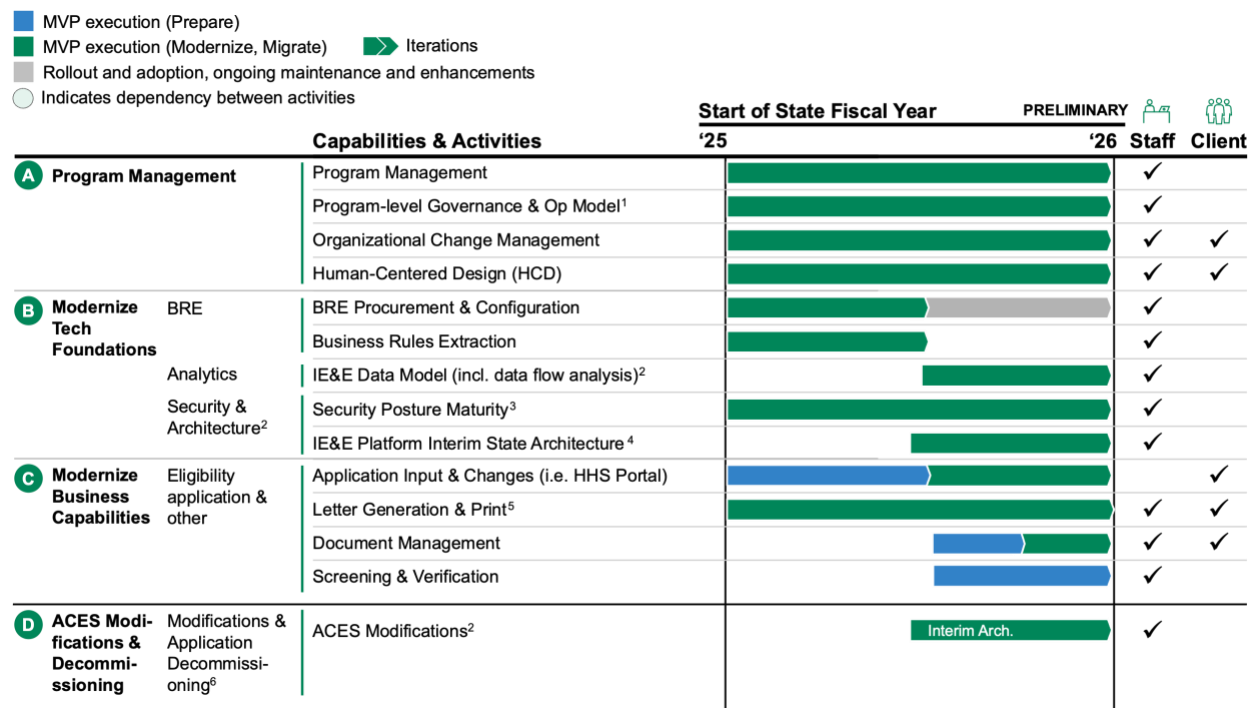
- 26) A testing strategy will be established early on, with a clear plan and test cases specific to each capability, to ensure that modern systems meet both functional and non-functional requirements. The testing strategy will also specify user acceptance testing (UAT) criteria and will include a list of testers required for each capability. Capabilities will not be released into production until UAT has been completed and users have signed-off on the capability
- 27) Business capabilities involving UI, business logic, and data components that rely on multiple platforms (e.g., cloud, mainframe, on-premises) require performance testing to ensure system performance criteria (e.g., latency, response time) are met
- 28) A tested rollback plan needs to be in place to revert changes in case of any major issues during the production go-live
- 29) Mainframe usage (measured in MIPS) needs to be monitored during system and parallel testing to ensure that the production mainframe system is not negatively impacted by the additional workload
- 30) The modernization of individual interfaces typically occurs alongside that of supported capabilities (or associated business processes). Interfaces with a given partner (e.g., Barcode, SSA) may not need to be modernized all together. For example, 3 interfaces between the ACES complex and Barcode are:
  - a) WACON sending client eApp data to Barcode in real-time (associated with the Application Input & Changes capability)
  - b) ACES Legacy sending eligibility data to Barcode via a nightly batch (associated with the Case Assignment & Updates capability)
  - c) ACES Legacy sending FIS/EBT data to Barcode after issuing benefits (associated with the Benefit / Service Issuance capability)
  - In these examples, interface 1) would likely be modernized during the HHS Portal modernization (along with other Application Input & Changes components), while interfaces 2) and 3) would be modernized separately along with their associated capabilities. Deviating from this strategy risks interfaces not functioning if the associated capability and data are migrated at different times

## ASSUMPTIONS FOR ACES MODIFICATIONS & DECOMMISSIONING

- 31) ACES support required is identified and has the capacity needed to support ACES modifications
- 32) Dedicated ACES test environments made available for integration and modification development to support capability modernization
- 33) The entire ACES mainframe will be decommissioned but the timeline may vary. This roadmap targets to move 80% of workloads off the mainframe by SFY2029, how long the remaining 20% of the mainframe may vary. The decommissioning process for a mainframe component (application module or data component) can be triggered once that component has been modernized to the new platform, fully cut over to production, and all upstream and downstream dependencies have been redirected to the target system. Furthermore, the target system must be stable for a certain duration (typically 3-6 months after production cutover) before the decommission

## IE&E MODERNIZATION – SFY 2025

Figure 11: SFY 2025 Snapshot of Preliminary Modernization Roadmap



- Including vendor ecosystem, as well as hiring and skill development necessary to support the future state operating model
- These technical foundations set up modernization of all business capabilities
- Including IAM integration
- Including select PoCs (Data Sync, APIs, Batch interface replication), IE&E Platform Interim State Architecture and ACES Modifications flow into each other, with modifications also including activities like changing interfaces and surrounding logic
- EngageOne project in progress. Prepare phase in SFY 2026 for integration between future state IE&E Platform and EngageOne
- Decommissioning steps would occur by capability where applicable, though some components can only be done by application – 1 year per assumed based on 10-step decommissioning approach

Source: IE&E TAD Future State Capabilities Prioritization Workshop (07/2024), Conversations with TAD Project team (Feb-Jul 2024), [AWS Prescriptive Guidance](#)

State Fiscal Year 2025 establishes the platform technical foundations and governance to support and scale capability modernization. This includes setting up the IE&E operating and governance model and analysis of the data model to identify opportunities to optimize the data model for the cloud and the data governance practices to follow. Required tooling to support the target state architecture, such as a BRE and a data replication service, are selected, procured, and enabled to allow for capability development. Additional technical analyses will be conducted on ACES Legacy to extract business rules and map component dependencies to inform detailed development and decommissioning.

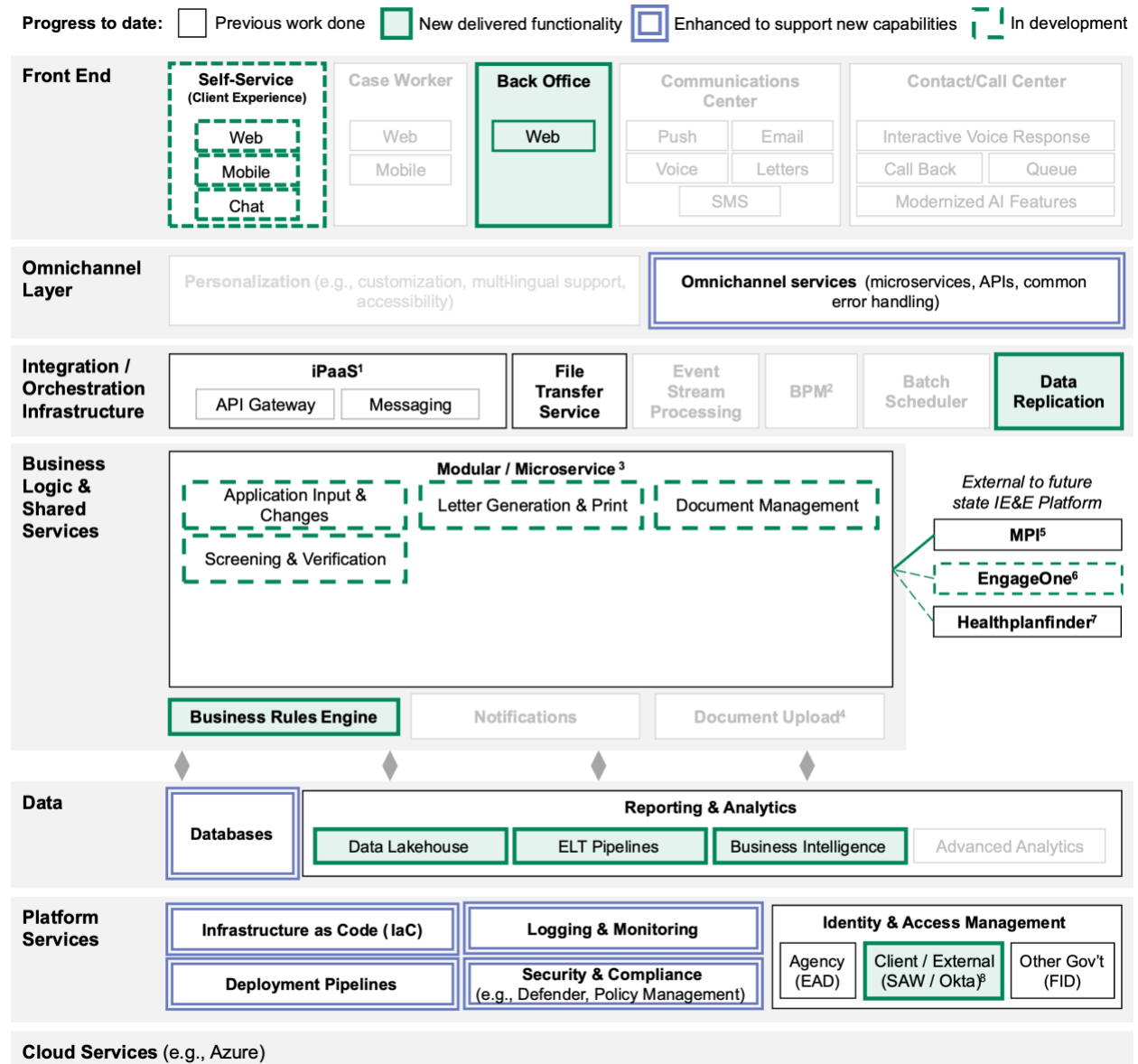
Priority capability modernizations already in progress through initiatives such as HHS Portal and EngageOne (i.e. Application Input & Changes and Letter Generation & Print) would also continue to solve for customer experience pain points identified by previous analyses (e.g., Project Simplify). Additionally, the document upload feature of the Document Management capability to enable clients to provide documentation digitally would be addressed. The program will also begin user research and discovery for worker experience to support the modernization

of the Screening & Verification capability to process eligibility applications, including drawing from the design of the customer experience for Application Input & Changes.

## TARGET LOGICAL ARCHITECTURE – SFY 2025

Figure 12 below shows a snapshot of the target state logical architecture (introduced in [Figure 4: High-Level IE&E Platform Future State Logical Architecture](#)) by the end of SFY 2025. The activities to follow describe the incremental configuration of capabilities that culminate in the new delivered functionality.

**Figure 12: Target State Logical Architecture, End of SFY 2025**



1. Integration Platform as a Service (iPaaS)

2. Business Process Management (BPM) is a modern orchestration element that could further optimize or automate business processes in the future state – this element has not yet been discussed with Program leadership and will be considered based on needs and future capabilities

3. Proposed microservice structure following a hybrid service architecture approach, with a more detailed hypothetical view of business logic based on future state capabilities in the appendix (e.g., eligibility determination, screening, benefit issuance)

4. While document management assumes document ingestion, management, generation, and search, the modernization in this year only concerns document upload
5. Potential use for identity resolution (tying together client data across multiple apps), provision of access across apps, streamlined analytics, and master data management in future state
6. EngageOne project would be used to support Letter Generation & Print capability
7. Healthplanfinder (HPF) to integrate as a front-end application to support client-facing future state capabilities (e.g., Application Input & Changes)
8. SAW currently available, to be replaced by Okta in an ongoing modernization

**Table 13: SFY 2025 Highlights (non-exhaustive)**

<b>Key Milestones</b>	<ul style="list-style-type: none"> <li>• Budget acquired for 2025-2027 biennium</li> <li>• Op model defined and stood up</li> <li>• MyWABenefits available as a self-service front end</li> <li>• HHS Portal strategy and roadmap defined</li> <li>• Priority foundation tools selected and available for production use (i.e., data pipelines, data replication, business rule engine)</li> <li>• Data sync approach between cloud and mainframe refined, validated, and implemented to support initial capabilities</li> <li>• Data Model optimization plan defined</li> <li>• Opportunities for COTS products identified for all capabilities</li> </ul>
<b>Expected Process Impact</b>	<ul style="list-style-type: none"> <li>• Clients can check the status of their eligibility applications through MyWABenefits</li> <li>• Clients (and supporting external partners) able to upload documents for their submittals (e.g., applications, change of circumstance) through an online portal</li> </ul>
<b>Systems Impacted</b>	<ul style="list-style-type: none"> <li>• ACES Legacy (modifications to support data sync approach)</li> </ul>

## DETAILED ACTIVITIES

### A. Program Management

- Program charter reviewed and updated, as applicable
- Define key organizational change management activities (e.g., resourcing decisions and impacted group engagement) based on capabilities to-be-modernized across years and the Enterprise Impact Assessment
  - Enterprise Impact Assessment and stakeholder engagement plan refined for capabilities being enabled in SFY 2026
  - Impacted group readiness assessment completed for capabilities being enabled in SFY 2026
  - Initial communications developed and published to provide transparency to impacted groups (e.g., vision, roadmap)
  - Skills development requirements (e.g., specific programming languages, cloud platforms, or technical tooling; project management; data analytics) assessed based on projected resourcing needs for the capabilities to be modernized, with necessary trainings pursued and set up

- Business process changes modeled per capability and path to iterative adoption defined (e.g., changes to a set of less disruptive functionalities first), all with comprehensive documentation
- Structure set up to catalogue modernization learnings, which will be added to and utilized as each capability is modernized
- Schedule management activities updated, as applicable
- Clear governance structure for the overall modernization journey, defined roles & responsibilities in development and configuration teams, and agile ceremonies put in place (i.e., process defined by PMO, to be implemented by individual development teams in project kick-off)
- Establishment of governing bodies (i.e., update to existing or new) to support modernization and target state platform (e.g., API governing body, IE&E data team, cross-coalition data council, ACES remediation team), including anticipated membership, intersection between bodies, and descriptions of roles, responsibilities, and authorities.
- Alignment on the roadmap with HHS Coalition SMEs and executives completed (to be done on an ongoing basis) to ensure activities in the modernization journey deliver expected value and benefits, while addressing risks and issues
  - Key impacted groups to syndicate with throughout the modernization journey identified
  - Consensus on the overarching vision among key impacted groups achieved (i.e., through workshops or other collaborative, cross-HHS Coalition sessions)
  - Requirements gathering for the technical foundations and future state capabilities to be built out in SFY 2025 and SFY 2026 completed (e.g., directly collected from different HHS Coalition SMEs or through a more automated fashion)
  - Backlog of modernization activities to be conducted in SFY 2025 and SFY 2026 developed, informed by the syndication, visioning, and requirements gathering outlined above
- Funding for SFY 2026 projects secured (i.e., with cost allocation models built, Advanced Planning Documents [APDs] prepared, alignment with state and federal funding agencies completed, biennial budget submitted)
- Assessment of PMO structure, framework, processes, software, licenses, and resources conducted, with necessary updates and recruitment of resources to support SFY 2025
- Other relevant in-flight projects (e.g., to improve client or worker experience in the short term) – including those launched after the publication of this roadmap – identified, with interdependencies and coordination expectations defined
- Documentation and evidence meeting CMS and FNS requirements prepared for certification prior to any upcoming releases

## **B. Modernize Technical Foundations**

- ACES technical analysis deep-dive completed
  - Eligibility rules extracted into a human-readable format through a comprehensive analysis of codebase using a rules extraction tool
  - Analysis of application data flows, batch job external interfaces, and database operations completed

- Data dependency technical analysis completed to inform ACES Complex application component mapping per capability
- Plain-language explanations for each source code segmented and documented, including logical flow and stepwise processing
- Approach defined to utilize rules extraction outputs for new rule configuration once tooling is selected (i.e., BRE)
- Tools procured and setup completed
  - COTS feasibility for all capabilities assessed and market scan conducted for prioritized tools (e.g., IE&E Analytics Platform, data replication tool)
  - Functional and non-functional requirements for prioritized tools identified
  - Selection criteria developed and vendor selection support completed (i.e., execution of alternatives assessment, cost analysis, vendor negotiation facilitation, initial licensing and deployment support) for Application Input & Changes, Document Upload, and technical foundations in SFY 2025
  - Configuration of access and environments (e.g., production, test) of selected tools completed
  - Configuration of access and environments (e.g., production, test) of selected tools started (and completed for less complex capabilities, e.g., user management)
- Proof of Concepts (PoCs) designed and launched to validate implementation assumptions, including setup of success criteria, including:
  - Data synchronization approach validation
  - BRE configuration with business rules output from ACES eligibility rules extraction
- Analytics foundations established
  - Data model optimized, with initial data governance defined
    - › Opportunities identified to develop an initial optimized data model (e.g., through a current state analysis to identify redundancies), which will manage and secure critical business data for and guide the build-out of future state system capabilities
    - › Data governance to support initial optimized data model established and validated, including role definition, prioritized data domains that need governance, piloted governance model, and data governance needs mapped for future data platform tools (e.g., quality, classification)
    - › Cross-organization collaboration initiated with data privacy officers to determine what data can be shared or updated across systems and programs, and by whom
  - Foundational analytics platform architecture designed to support standard reporting (i.e., in eDW plus prioritized use cases), with guidance on tooling and data sharing. Example components include the Data Lakehouse, Extract-Load-Transform (ELT) pipelines, and Business Intelligence
  - Data governance structure initiated:
    - › Roles identified to support the federated data governance model and how they are currently represented throughout the HHS Coalition (e.g., current data owners and stewards), including for target skillsets (e.g., Python rather than Data Build Tool [DBT]-Structured Query Language [SQL]-based low code)

- › IE&E data team onboarded (e.g., Chief Data Officer [CDO], stewards)
- › Data governance needs mapped for tools to proposed data platform tools / services
- › Ways of working, standards, and policies for development of prioritized use cases developed, including policies and safeguards around data retention, sharing, lineage, privacy & security, and artificial intelligence
- Ongoing technical foundations maintenance & enhancements
  - IE&E Platform updated to connect to new IAM service (i.e., Okta as the replacement to SAW)
    - › Reusable patterns developed for future development teams on the IE&E Platform (e.g., logging and monitoring, APIs, IaC)
- Platform standards and guidance defined and documented
  - Disaster Recovery (DR) and backup strategies defined
  - Remaining security standards (e.g., design overlay), audit controls, and Continuity of Operations plans established in alignment with data integrity and compliance standards

### **C. Modernize Business Capabilities**

- Application Input and Changes (i.e., HHS Portal) roadmap developed and supporting capability modernization (e.g., Document Management) initiated
  - HHS Portal vision finalized and syndicated, with functional, technical, and security capabilities defined and matched against ideated core user personas
  - In-depth user research conducted to validate core user personas, inform user journeys to be built for personas, and enable comprehensive prototype development
  - Prototype (i.e., Figma flows) developed to illustrate user journeys for core personas and map interactions points beyond the Portal, taking into account the outputs of CXI (i.e., Project Simplify) to be incorporated into a revamped design of the application
  - Current state existing portal technology and architecture assessed (i.e., inventory, design, usability, overall quality), also utilizing the outputs of CXI (i.e., Project Simplify)
  - Future state HHS Portal target architecture designed and visualized, complete with a future state alternatives assessment
  - HHS Portal roadmap delivered (with milestones, dependencies, and an assessment of whether the portal will be COTS, custom-build, transferred from an existing platform, etc.) and syndicated with HHS Coalition impacted groups
  - Prototype of the HHS Portal refined through in-depth validation with each one of the identified core personas and with impacted groups across the HHS Coalition
  - COTS, custom-build, or transfer options evaluated to support development, utilizing the assessment outlined in the HHS Portal roadmap
  - HHS Portal begins development utilizing the Portal-specific future state architecture and roadmap
  - HHS Portal supporting capabilities developed, including Document Management, Pre-screening, and User Management. Corresponding architectural components like Back Office Front End configured accordingly

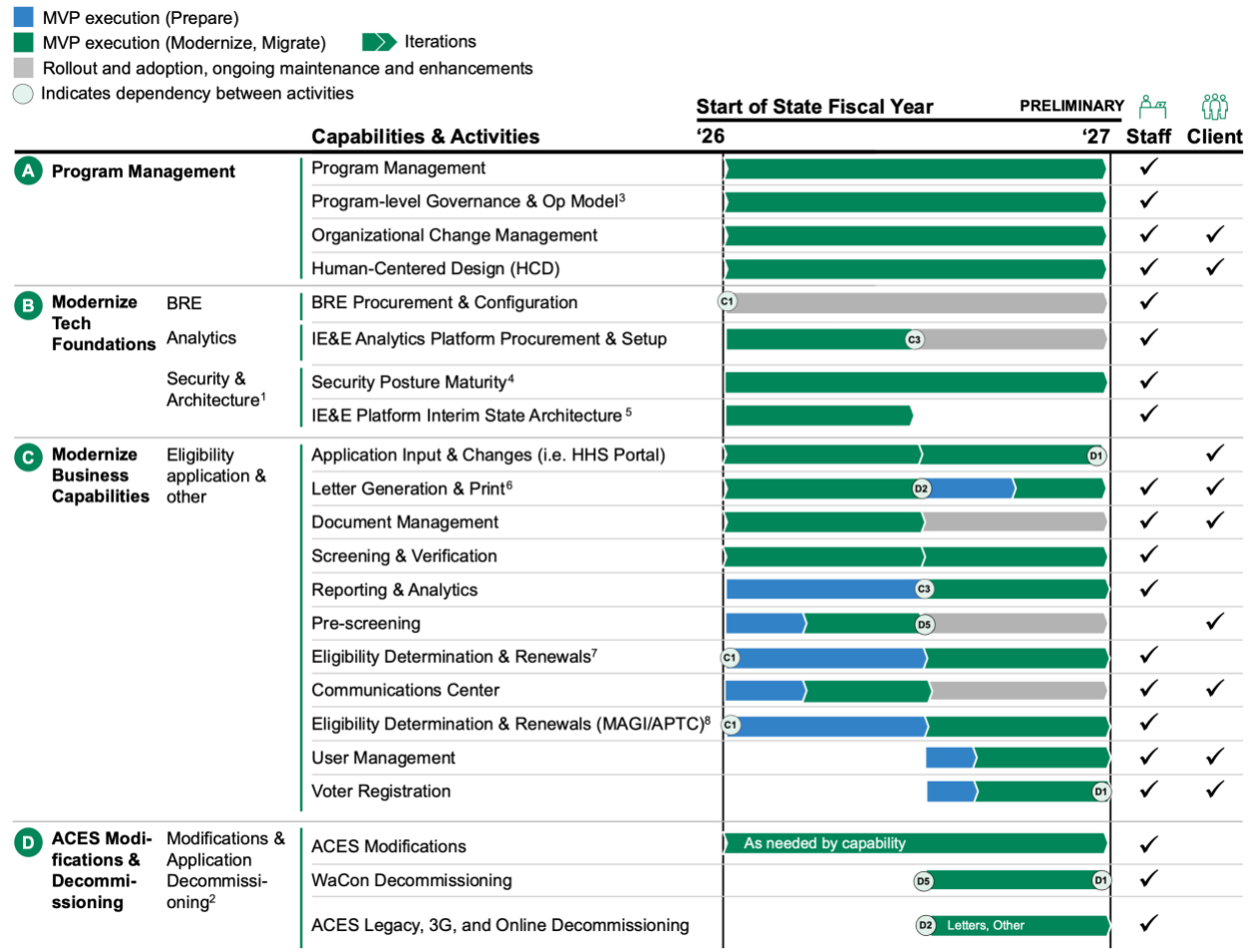
- Integrations built for HHS Portal supporting capabilities to connect to upstream/downstream systems
- Screening & Verification (i.e. worker portal) capability modernization begins
  - Worker portal vision developed through synthesis of current processes, user interviews and visioning workshops to imagine the user experience for processing eligibility applications, changes in circumstances, and renewals
  - Core personas defined for internal staff members who would use the worker portal
  - Prototype developed (i.e., Figma flows) to illustrate journeys for core personas and an updated service blueprint HHS Portal blueprint based on expected changes to worker experience
  - Current state existing technology (e.g., ACES.Online, ACES 3G) and architecture assessed (i.e., inventory, design, usability, overall quality)
- Preparation for SFY 2026 capabilities completed
  - Current state processes of capabilities to-be-modernized assessed (e.g., communications center, voter registration)
  - Potential buy or build for capabilities to be modernized assessed (i.e., through assessment criteria and cost estimate development)
- Advancement of ongoing capability modernization efforts
  - Eligibility and Enrollment Status Tracker (i.e., MyWABenefits) finalized and released
  - Integration pattern with MPI created for future state capabilities (e.g., API)
  - Progress made on letter generation modernization through the EngageOne project
  - Document management modernization on the future state IE&E Platform to enable client document upload (in alignment with HHS Portal activities mentioned above) completed

#### **D. ACES Modifications & Decommissioning**

- EngageOne development to support modernized Letter Generation & Print capability continued
- Support validation of data synchronization approach (e.g., architecture, updates to ACES Complex)
- Plan established for the ACES remediation team that focuses on remediation, improvement, and integration activities
- Modification and decommissioning requirements assessed for other systems impacted by capability modernization
- Legacy system remediation priorities assessed
- ACES interface assessment started and interface transition strategy developed, starting with comprehensive requirements gathering for the 100+ interface partners for streamlined migration
- ACES interfaces identified that are required for capabilities prioritized for SFY 2026 (e.g., Eligibility Determination & Renewals, Screening & Verification), including opportunities to modernize (e.g., batch to REST)
- ACES ongoing system maintenance and enhancements

## IE&E MODERNIZATION – SFY 2026

Figure 13: SFY 2026 Snapshot of Preliminary Modernization Roadmap



- These technical foundations set up modernization of all business capabilities
- Decommissioning steps would occur by capability where applicable, though some components can only be done by application – 1 year per assumed based on 10-step decommissioning approach
- Including vendor ecosystem, as well as hiring and skill development necessary to support the future state operating model
- Including IAM integration
- Including select PoCs (Data Sync, APIs, Batch interface replication), IE&E Platform Interim State Architecture and ACES Modifications flow into each other, with modifications also including activities like changing interfaces and surrounding logic
- EngageOne project in progress. Prepare phase in SFY 2026 for integration between future state IE&E Platform and EngageOne;
- Food, Cash, Classic Medicaid
- Preliminary timing – MAGI/APTC Eligibility Determination does not need to start at the beginning of SFY 2026 and could move forward or backward to better align with Classic Medicaid Eligibility Determination

Source: IE&E TAD Future State Capabilities Prioritization Workshop (07/2024), Conversations with TAD Project team (Feb-Jul 2024), [AWS Prescriptive Guidance](#)

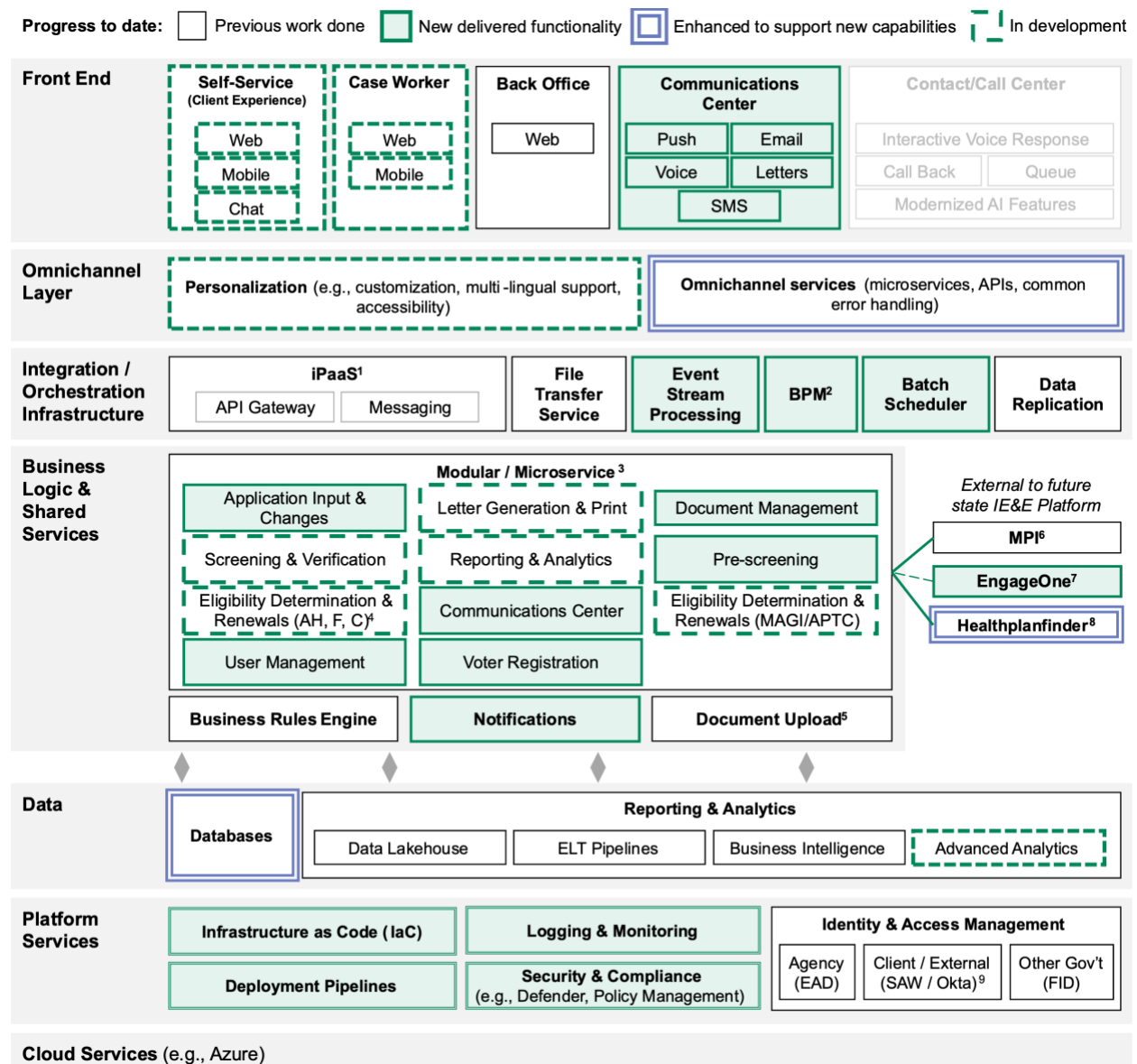
State Fiscal Year 2026 moves forward the enhancement of the digital application experience, finalizing the configuration of the HHS Portal and most related supporting capabilities (e.g., Communications Center). To adjust and advance together with changes to client experience for application submissions, worker experience strategy and roadmap is defined to provide guidance for the Screening & Verification capability. Eligibility Determination modernization

begins, validating, refining, and configuring the eligibility rules found in ACES Legacy (e.g., Apple Health [e.g., Classic Medicaid, Long-Term Services and Support], Food, Cash) in a modern cloud-based Business Rule Engine and implementing changes to enable greater real-time eligibility and automated enrollment as allowed by program policy. MAGI Medicaid and APTC rules would also be analyzed and validated to align with Apple Health eligibility determination. Other supporting capabilities, like Letter Generation & Print and Voter Registration, are also expected to be modernized. Prior to the activities below, it is advisable to align across the HHS Coalition on the operating model for the BRE (e.g., technical team owning and maintaining, business SMEs creating test cases).

## TARGET LOGICAL ARCHITECTURE – SFY 2026

Figure 14 below shows a snapshot of the target state logical architecture by the end of SFY 2026. The activities to follow describe the incremental configuration of capabilities that culminate in the new delivered functionality.

**Figure 14: Target State Logical Architecture, End of SFY 2026**



1. Integration Platform as a Service (iPaaS)
2. Business Process Management (BPM) is a modern orchestration element that could further optimize or automate business processes in the future state – this element has not yet been discussed with Program leadership and will be considered based on needs and future capabilities
3. Proposed microservice structure following a hybrid service architecture approach, with a more detailed hypothetical view of business logic based on future state capabilities in the appendix (e.g., eligibility determination, screening, benefit issuance)
4. Eligibility Determination & Renewals (Apple Health [AF], Food [F], Cash [C])
5. While document management assumes document ingestion, management, generation, and search, the modernization in this year only concerns document upload
6. Potential use for identity resolution (tying together client data across multiple apps), provision of access across apps, streamlined analytics, and master data management in future state
7. EngageOne project would be used to support Letter Generation & Print capability
7. Healthplanfinder (HPF) to integrate as a front-end application to support client-facing future state capabilities (e.g., Application Input & Changes)
8. SAW currently available, to be replaced by Okta in an ongoing modernization

**Table 14: SFY 2026 Highlights (non-exhaustive)**

<b>Key Milestones</b>	<ul style="list-style-type: none"> <li>• HHS Portal developed and available for initial release alongside the completion of the Application Input &amp; Changes modernization; further enhancements (e.g., associated with Modernized Customer Support capability) expected next year</li> <li>• Letters Generation, Pre-Screening, User Management, Communications Center, and Voter Registration available for initial release in support of HHS Portal</li> <li>• Worker experience strategy defined to support improvements to staff-facing capabilities (e.g., Screening &amp; Verification, Eligibility Determination &amp; Renewals, Case Assignment &amp; Updates)</li> <li>• ACES Interfaces assessed and identified for updates from batch to real-time (e.g., REST APIs)</li> <li>• Budget acquired for 2025-2027 biennium, updated as necessary using supplemental process</li> </ul>
<b>Process Impacts</b>	<ul style="list-style-type: none"> <li>• Clients are able to submit applications through a streamlined process through a mobile-friendly HHS Portal for Apple Health, Food, Cash, and Child Care Subsidy programs. They can also receive notifications, access letters generated, and complete pre-screening questionnaire through the portal.</li> <li>• Staff are able to edit generated letters as needed and stored for future reference through the modernized Letters Generation &amp; Print capability</li> <li>• Staff and clients can communicate digitally and track as they relate to an application</li> </ul>

## Systems Impacted

- WaCon - modifications to interfaces and preparation for decommissioning
- HPF - modifications to interfaces with WaCon and new integration to HHS Portal
- Barcode - modifications to interfaces to receive data from HHS Portal for new applications
- ACES.online/3G - modifications as required to support updated applications forms and process
- ACES Legacy - modifications to share data and receive data from HHS Portal

## DETAILED ACTIVITIES

### A. Program Management

- Overarching vision refined through continued engagement with impacted groups
- PMO activities continuing to be executed, in alignment with the IE&E roadmap, priorities, and design principles, as well as the approved IE&E Program Management Plan
- Governance structure and agile ceremonies continuing to be executed, with defined roles & responsibilities in development and configuration teams for capabilities in SFY 2026
- OCM activities executed (e.g., piloting changes with subsets of impacted groups, training on leading approaches) with teams that are impacted by capability modernizations in SFY 2026
  - Enterprise Impact Assessment and stakeholder engagement plan refined for capabilities being enabled in SFY 2027
  - Impacted group readiness assessment completed for capabilities being enabled in SFY 2027
  - Continued communications developed and published to provide transparency to impacted groups (e.g., vision, roadmap)
  - Impacted groups engaged to ease process transitions (e.g., trainings, workshops)
  - Skills development requirements (e.g., specific programming languages, cloud platforms, or technical tooling; project management; data analytics) assessed based on projected resourcing needs for the capabilities to be modernized, with necessary trainings pursued and set up
  - Business process changes modeled per capability and path to iterative adoption defined (e.g., changes to a set of less disruptive functionalities first), all with comprehensive documentation
  - Modernization learnings catalogued for the capabilities in SFY 2025, which will be added to and utilized as each capability is modernized in SFY 2026
- Alignment on the roadmap with HHS Coalition SMEs and executives completed (to be done on an ongoing basis) to ensure activities in the modernization journey deliver expected value and benefits, while addressing risks and issues
  - Key impacted groups to syndicate with throughout the modernization journey identified

- Consensus on the overarching vision among key impacted groups achieved (i.e., through workshops or other collaborative, cross-HHS Coalition sessions)
- Requirements gathering for the technical foundations and future state capabilities to be built out in SFY 2026 verified and completed for SFY 2027 (e.g., directly collected from different HHS Coalition SMEs or through a more automated fashion)
- Backlog of modernization activities to be conducted in SFY 2026 and 2027 developed, informed by the syndication, visioning, and requirements gathering outlined above
- Assessment of SFY 2026 funding conducted to ensure availability of needed funds, and funding for SFY 2027 projects secured (i.e., with cost allocation models built, Advanced Planning Documents [APDs] prepared, alignment with state and federal funding agencies completed, biennial budget submitted)
- Assessment of PMO structure, framework, processes, software, licenses, and resources conducted, with necessary updates and recruitment of resources to support SFY 2026
- Documentation and evidence meeting CMS and FNS requirements prepared for certification and prior to any upcoming releases

## B. Modernize Technical Foundations

- IE&E Analytics Platform further developed
  - Additional opportunities for consolidation or optimization of the data model discovered and resolved, with a refined governance model applied to implemented data platform tools
  - IE&E Program data catalog<sup>59</sup> established
  - New data governance model piloted, including:
    - › Accountability and ownership implementation methods (e.g., defining data owners at name-level in data catalog, driving accountability from the top-down)
    - › Automated tools for data governance (e.g., data classification at the point of ingestion or creation, data quality rule definition / issue identification / issue resolution)
    - › Policies and procedures for new IE&E data organization (e.g., aligned with federated data governance decision) around data retention, sharing, lineage, and privacy & security
    - › Required data sharing controls (e.g., anonymization), including identifying compliance regiments required before sharing
  - Cross-coalition data committees and councils (e.g., at CDO-level, steward-level) established to support federated data governance model, for example to develop shared definitions of data elements and oversee data sharing agreements
  - OCM plan created to address adoption of data governance (e.g., new tools and processes)

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<sup>59</sup> In a federated data governance model, a cross-organization IE&E Modernization Program or HHS Coalition data organization would be stood up, including a Chief Data Officer. Given that each organization currently has their own data catalog in the current state, this model would likely continue in the future state, with the new cross-organizational data organization also having its own data catalog. Metadata would be shared with other organizations, as needed and in compliance with privacy and other legal considerations, in this consolidated model.

- Level 1 components of the logical diagram developed (e.g., in the data architecture logical diagram in [Figure 5](#) above), specifically:
  - › Ingestion: Batch data integration
  - › Storage: Object storage, data warehouse
  - › Processing: Batch processing
  - › Access and consumption: Data API endpoints, SQL endpoints, analytics optimized data, BI and visualization
  - › Data pipeline authoring and orchestration, data security, infra operations
- Inventory existing reporting to ensure that nothing is lost in the transition to future state, including an exhaustive list of functionality that may help enable prioritized use cases (e.g., previous efforts utilizing bots to summarize eligibility status, or systems ingesting employment data)
- Ongoing technical foundations maintenance & enhancements
  - Platform services (e.g., IAM) maintained, with issues resolved as applications continue to evolve
  - Reusable patterns updated for future development teams on the IE&E Platform (e.g., logging and monitoring, APIs, IaC)
- Platform standards and guidance defined and documented
  - Service-layer Minimum Viable Products (MVPs) built out, including specific MVPs for data layer, technology stack, and future state Platform
  - Foundations for interoperability between systems (e.g., shared definitions, standards for application, product, and service architecture) established

### **C. Modernize Business Capabilities**

- Application Input & Changes (i.e. HHS Portal) activities and modernization of supporting capabilities (e.g., Communications Center) completed
  - HHS Portal continued development utilizing the Portal-specific future state architecture and roadmap defined in SFY 2025
  - HHS Portal supporting capabilities developed and integrated, including Document Management (in-flight since SFY 2025) and Communications Center:
    - › Use of available COTS products and/or services assessed to fulfill functional requirements defined by the HHS portal (e.g., for Communications Center, email, text, portal push notifications)
    - › Requirements and architecture refined, and features prioritized for MVP release
    - › Implement MVP for the relevant capability
    - › Integrations (e.g., APIs) built to enable inter-operability with other capabilities
  - Syndication continues with HHS Coalition impacted groups as defined by the HHS Portal roadmap
  - HHS Portal completes initial development
  - Steady-state management and maintenance established
- Screening & Verification (i.e. worker portal) capability modernization continues

- Future state target architecture designed, complete with a future state alternatives assessment
- Screening & Verification roadmap delivered (with milestones and dependencies, laying out the critical work that must be in place prior to capability development and integrations) and syndicated with HHS Coalition impacted groups
- Capability development begins
- Integrations built to upstream/downstream systems (e.g., AVS, which is planned to be fully integrated with the future state platform in 2026) and all relevant interfaces (e.g., SDX, IVES)
- Data sync with ACES extended to support required interim architecture
- Eligibility Determination & Renewals for Apple Health (e.g., Classic Medicaid, LTSS), Food, Cash capability modernization begins
  - Eligibility rules and logic refined based on rules from ACES Legacy, input from program and policy SMEs to identify existing or new rules required for future state and opportunities for process improvements, and updated during modernization to legislative and policy changes
  - Set of eligibility rules configured in selected BRE
  - Integrations built to feed client and assistance unit data through BRE to receive eligibility determination results
  - Data sync with ACES extended to support required interim architecture
- Eligibility Determination & Renewals for MAGI Medicaid & APTC capability migration begins
  - Eligibility rules and logic refined based on rules from eServ, input from program and policy SMEs to identify existing or new rules required for future state and opportunities for process improvements, and updated during process due to legislative and policy changes
  - Initial set of eligibility rules configured in selected BRE
  - Integrations built to feed client and assistance unit data (from HPF) through BRE to receive eligibility determination results
- Reporting & analytics development begins
  - Ongoing use case ideation and prioritization process established
  - Cross-coalition business benefits, pain points, and data sources documented
  - Business criteria defined to support prioritized use cases (e.g., how to identify Washingtonians who are eligible for, but not enrolled in, benefits)
  - Data pipelines and reports / dashboards developed as defined by requirements for prioritized use cases, including governance and data quality measurements needed
  - Architecture needs identified to address gaps in existing capabilities to support use cases, such as a comparison mechanism between historical data and other client information
- Advancement of ongoing capability modernization efforts
  - Letter generation modernization finalized through the EngageOne project
  - Voter registration capability fully modernized

- Initial exploration of integrating letter generation with the future state IE&E Platform completed
- MPI integration adjusted as new capabilities are developed and corresponding data continues to evolve

#### **D. ACES Modifications & Decommissioning**

- ACES remediation team fully resourced, to focus on remediation, improvement, and integration tasks
- Relevant eligibility and enrollment data for application submission and eligibility determination (e.g., data synchronization) exposed by ACES team
- Modification and decommissioning requirements assessed for other systems impacted by the next planned capability modernization (e.g., Screening & Verification, Eligibility Determination & Renewals, Modernized Customer Support, Case Assignment & Updates)
- Integrations and legacy systems remediations for Application Input & Changes, Screening & Verification, and Eligibility Determination capabilities (including changes with HPF) implemented
- Remaining ACES interfaces identified that are required for capabilities prioritized for SFY2027 (e.g., Eligibility Determination & Renewals, Case Assignment & Updates), including opportunities to modernize (e.g., batch to REST)
- Data archival and conversion plans initiated
- Integration with MPI completed
- ACES ongoing system maintenance and enhancements (including EngageOne) IE&E Modernization – SFY 2027

**Figure 15: SFY 2027 Snapshot of Preliminary Modernization Roadmap**

■ MVP execution (Prepare)    
 ■ MVP execution (Modernize, Migrate)    
 ➤ Iterations  
■ Rollout and adoption, ongoing maintenance and enhancements  
○ Indicates dependency between activities

Capabilities & Activities			Start of State Fiscal Year		PRELIMINARY	Staff	Client
			'27	'28			
<b>A Program Management</b>	Program Management		<span style="color: green;">■</span>			✓	
	Program-level Governance & Op Model <sup>1</sup>		<span style="color: green;">■</span>			✓	
	Organizational Change Management		<span style="color: green;">■</span>			✓	✓
	Human-Centered Design (HCD)		<span style="color: green;">■</span>			✓	✓
<b>B Modernize Tech Foundations</b>	BRE	BRE Procurement & Configuration	<span style="color: gray;">■</span>			✓	
	Analytics	IE&E Analytics Platform Procurement & Setup	<span style="color: gray;">■</span>			✓	
	Security & Architecture <sup>2</sup>	Security Posture Maturity <sup>3</sup>	<span style="color: green;">■</span>			✓	
	Additional Technical Foundations (TBD) <sup>4</sup>		<span style="color: green;">■</span>			✓	
<b>C Modernize Business Capabilities</b>	Eligibility application & other	Application Input & Changes (i.e. HHS Portal)	<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">01</span>	<span style="color: gray;">■</span>			✓
		Document Management		<span style="color: gray;">■</span>		✓	✓
		Pre-screening		<span style="color: gray;">■</span>			✓
		Communications Center		<span style="color: gray;">■</span>		✓	✓
		User Management		<span style="color: gray;">■</span>		✓	✓
		Voter Registration	<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">01</span>	<span style="color: gray;">■</span>		✓	✓
		Letter Generation & Print <sup>5</sup>		<span style="color: green;">■</span>		✓	✓
		Screening & Verification		<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">02</span>	<span style="color: green;">■</span>		✓
		Eligibility Determination & Renewals <sup>6</sup>		<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">02</span>	<span style="color: green;">■</span>		✓
		Eligibility Determination & Renewals (MAGI/APTC) <sup>7</sup>		<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">04</span>	<span style="color: gray;">■</span>		✓
		Case Assignments & Updates (ACES)		<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">02</span>	<span style="color: blue;">■</span>		✓
		Modernized Customer Support		<span style="color: green;">■</span>		✓	✓
		Reporting & Analytics		<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">03</span>	<span style="color: green;">■</span>		✓
<b>D ACES Modifications &amp; Decommissioning</b>	Modifications & Application Decommissioning <sup>8</sup>	ACES Modifications <sup>2</sup>		<span style="color: green;">■</span>	As needed by capability	✓	
		WaCon Decommissioning	<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">01</span>	<span style="color: green;">■</span>		✓	
		ACES Legacy, 3G, and Online Decommissioning		<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">02</span>	<span style="color: green;">■</span>	Letters, Other	✓
		eServ Decommissioning		<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">04</span>	<span style="color: green;">■</span>		✓
		eDW Decommissioning		<span style="border: 1px solid gray; border-radius: 50%; padding: 2px;">03</span>	<span style="color: green;">■</span>		✓

1. Including vendor ecosystem, as well as hiring and skill development necessary to support the future state operating model
2. These technical foundations set up modernization of all business capabilities
3. Including IAM integration
4. Tech foundations to be defined over time (e.g., machine learning); with procurements as needed
5. EngageOne project in progress. Prepare phase in SFY 2026 for integration between future state IE&E Platform and EngageOne;
6. Food, Cash, Classic Medicaid
7. Preliminary timing – MAGI/APTC Eligibility Determination does not need to start at the beginning of SFY 2026 and could move forward or backward to better align with Classic Medicaid Eligibility Determination
8. Decommissioning steps would occur by capability where applicable, though some components can only be done by application – 1 year per assumed based on 10-step decommissioning approach

Source: IE&E TAD Future State Capabilities Prioritization Workshop (07/2024), Conversations with TAD Project team (Feb-Jul 2024), [AWS Prescriptive Guidance](#)

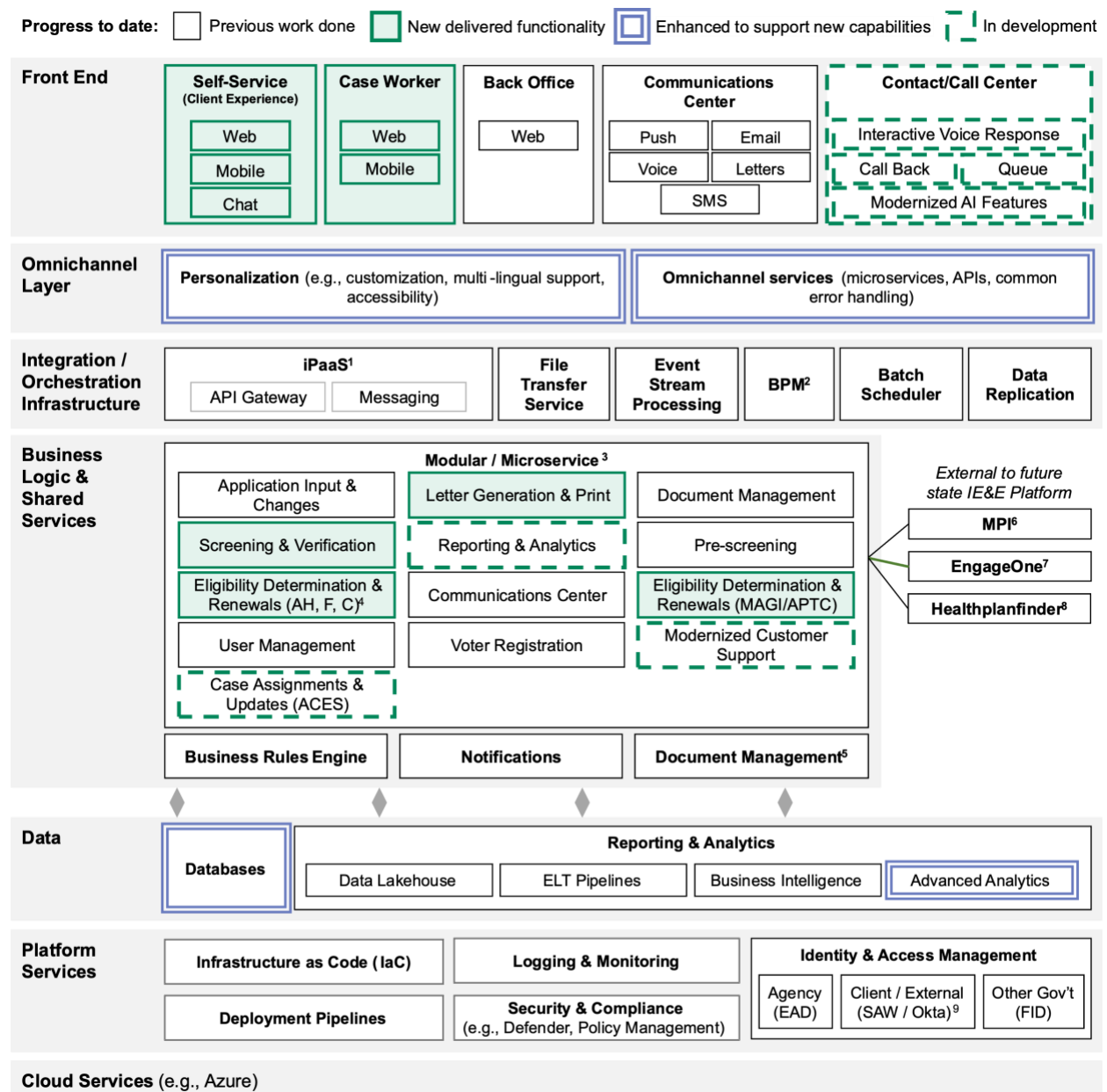
In State Fiscal Year 2027, the HHS Portal enters into steady state, with customer experience enhanced through a roll out of the Modernized Customer Support capability to help reduce call center volumes and processing times. For workers, the modernization of Screening & Verification, Case Assignment & Updates, and Eligibility Determination on the platform is also completed and available for roll out. The State is also able to begin decommissioning parts of

legacy systems (e.g., WaCon, eServ). Technical deep dives into the current state of non-ACES Complex systems (e.g., Barcode, which relates to the Case Management & Updates and Assessments & Requirements Monitoring capabilities), as well as corresponding architectural design activities, would be conducted to determine whether these systems would be incorporated into the future state IE&E Platform or modernized to be interoperable with it (or whether only specific pieces of these systems would be incorporated into the future state IE&E Platform).

### 1.1.1 TARGET LOGICAL ARCHITECTURE – SFY 2027

Figure 16 below shows a snapshot of the target state logical architecture by the end of SFY 2027. The activities to follow describe the incremental configuration of capabilities that culminate in the new delivered functionality.

**Figure 16: Target State Logical Architecture, End of SFY 2027**



1. Integration Platform as a Service (iPaaS)
2. Business Process Management (BPM) is a modern orchestration element that could further optimize or automate business processes in the future state – this element has not yet been discussed with Program leadership and will be considered based on needs and future capabilities
3. Proposed microservice structure following a hybrid service architecture approach, with a more detailed hypothetical view of business logic based on future state capabilities in the appendix (e.g., eligibility determination, screening, benefit issuance)
4. Eligibility Determination & Renewals (Apple Health [AF], Food [F], Cash [C])
5. Assumes document ingestion, management, generation, and search
6. Potential use for identity resolution (tying together client data across multiple apps), provision of access across apps, streamlined analytics, and master data management in future state
7. EngageOne project would be used to support Letter Generation & Print capability
8. Healthplanfinder (HPF) to integrate as a front-end application to support client-facing future state capabilities (e.g., Application Input & Changes)
9. SAW currently available, to be replaced by Okta in an ongoing modernization

**Table 15: SFY 2027 Highlights (non-exhaustive)**

<b>Key Milestones</b>	<ul style="list-style-type: none"> <li>• Modernization of Screening &amp; Verification, Eligibility Determination &amp; Renewals for Classic Medicaid / Food / Cash, and Case Assignment &amp; Updates complete, introducing an improved experience for case workers</li> <li>• Modernized Customer Support is configured to support the HHS Portal</li> <li>• Technical deep dives into non-ACES Complex systems and corresponding architectural design (i.e., on IE&amp;E Platform or updated to be interoperable) are completed</li> <li>• Advanced analytics like predictive modeling enabled to support prioritized data &amp; analytics use cases</li> <li>• Budget acquired for 2027-2029 biennium</li> <li>• CMS Enhanced Funding secured for eligibility system</li> </ul>
<b>Expected Process Impacts</b>	<ul style="list-style-type: none"> <li>• Staff have improved search experience for client inquiry to support case work</li> <li>• Staff receive greater pre-populated data on applications and through data interfaces to complete screening, verification, and eligibility determination.</li> <li>• Clients are serviced by greater real-time eligibility determinations based on approved and implemented changes to eligibility rules, also reducing work required by staff</li> <li>• Clients can receive customer support through digital methods (e.g., web, chat) for greater self-service</li> </ul>
<b>Systems Impacted</b>	<ul style="list-style-type: none"> <li>• HPF - modifications to interfaces to utilize selected BRE</li> <li>• ACES Legacy - modifications to adjust logic and interfaces to direct to modernized capabilities and to share data and receive client, AU, and eligibility data</li> <li>• ACES.online/3G - modifications to interfaces and preparation for decommissioning</li> <li>• Multiple ACES Interface partners (e.g., Barcode, eJAS, ProviderOne) - modifications to interfaces to receive data from HHS Portal for new applications</li> </ul>

## DETAILED ACTIVITIES

### A. Program Management

- Overarching vision refined through continued engagement with impacted groups
- PMO activities continuing to be executed, in alignment with the IE&E roadmap, priorities, and design principles, as well as the approved IE&E Program Management Plan
- Governance structure and agile ceremonies continuing to be executed, with defined roles & responsibilities in development and configuration teams for capabilities in SFY 2027
- OCM activities executed (e.g., piloting changes with subsets of impacted groups, training on leading approaches) with teams that are impacted by capability modernizations in SFY 2027
  - Enterprise Impact Assessment and stakeholder engagement plan refined for capabilities being enabled in SFY 2028
  - Impacted group readiness assessment completed for capabilities being enabled in SFY 2028
  - Continued communications developed and published to provide transparency to impacted groups (e.g., vision, roadmap)
  - Impacted groups engaged to ease process transitions (e.g., trainings, workshops)
  - Skills development requirements (e.g., specific programming languages, cloud platforms, or technical tooling; project management; data analytics) assessed based on projected resourcing needs for the capabilities to be modernized, with necessary trainings pursued and set up
  - Business process changes modeled per capability and path to iterative adoption defined (e.g., changes to a set of less disruptive functionalities first), all with comprehensive documentation
  - Modernization learnings catalogued for the capabilities in SFY 2026, which will be added to and utilized as each capability is modernized in SFY 2027
- Alignment on the roadmap with HHS Coalition SMEs and executives completed (to be done on an ongoing basis) to ensure activities in the modernization journey deliver expected value and benefits, while addressing risks and issues
  - Key impacted groups to syndicate with throughout the modernization journey identified
  - Consensus on the overarching vision among key impacted groups achieved (i.e., through workshops or other collaborative, cross-HHS Coalition sessions)
  - Requirements gathering for the technical foundations and future state capabilities to be built out in SFY 2027 verified and completed for SFY 2028 (e.g., directly collected from different HHS Coalition SMEs or through a more automated fashion)
  - Backlog of modernization activities to be conducted in SFY 2027 and 2028 developed, informed by the syndication, visioning, and requirements gathering outlined above
- Assessment of SFY 2027 funding conducted to ensure availability of needed funds, and funding for SFY 2028 projects secured (i.e., with cost allocation models built, Advanced Planning Documents [APDs] prepared, alignment with state and federal funding agencies completed, biennial budget submitted)

- Assessment of PMO structure, framework, processes, software, licenses, and resources conducted, with necessary updates and recruitment of resources to support SFY 2027
- Documentation and evidence meeting CMS and FNS requirements prepared for certification and prior to any upcoming releases

## **B. Modernize Technical Foundations**

- Data model and refined governance model for implemented data platform tools maintained
- Tools procured and setup completed
  - Support of vendor selection and implementation of tools for the relevant capabilities in SFY 2028 completed (e.g., case assignments & updates)
  - Functional and non-functional requirements for prioritized tools identified
  - Configuration of access and environments (e.g., production, test) of selected tools completed
- IE&E Analytics Platform further developed
  - Governance efforts expanded from pilot to full IE&E Program
  - Dashboards created to track adherence to standards and controls for data governance (e.g., to review at data committees/councils defined in the previous year)
  - Ongoing change management support to ensure that impacted staff buy into the adoption of new technology tools, for example data quality
  - IE&E Program data governance practices coordinated with those of other HHS Coalition organizations
  - Policies and safeguards around artificial intelligence updated based on learnings to date and functionality of selected tools
  - Level 2 and 3 components of the logical diagram developed (e.g., in [Figure 5](#) above), specifically:
    - › Ingestion: Event streaming
    - › Storage: Relational and NoSQL databases, Vector
    - › Processing: Stream processing, AI/ML
    - › Access and consumption: Data fabric, DQL analytics, Feature store
  - Advanced analytics services enabled (e.g., predictive modeling, artificial intelligence) to support prioritized use cases (if applicable)
- Ongoing technical foundations maintenance & enhancements
  - Platform services (e.g., IAM) maintained, with issues resolved as applications continue to evolve
  - Reusable patterns developed for future development teams on the IE&E Platform (e.g., logging and monitoring, APIs, IaC)
- Platform standards and guidance defined and documented
  - Future state IE&E Platform extended past initial service-layer MVP (i.e., beyond data layer, tech stack) to support additional roadmap capabilities and tools

## C. Modernize Business Capabilities

- Architectural decision-making and design of non-ACES Complex systems (i.e., eJAS and Barcode) completed to inform Case Assignments & Updates and Assessments & Requirements Monitoring implementations
  - Technical deep dives conducted into the current state of eJAS and Barcode
  - Architectural design of these systems & corresponding functionalities (i.e., either redesigned to be implemented on the future state IE&E Platform or developed to be interoperable with the platform)
- Screening & Verification (i.e. worker portal) capability modernization completed
  - Worker portal configuration complete
  - Cutover from ACES Legacy to new capability on IE&E Platform
  - Steady-state management and maintenance established
- Eligibility Determination & Renewals for Apple Health (e.g., Classic Medicaid, LTSS), Food, Cash capability modernization completed
  - Remaining eligibility rules configured in selected BRE
  - Cutover from ACES Legacy to new capability on IE&E Platform
  - Steady-state management and maintenance established
- Eligibility Determination & Renewals for MAGI Medicaid and APTC migrated to IE&E Platform
  - Remaining eligibility rules configured in selected BRE, with rules and logic refined on an ongoing basis based on rules from eServ, input from program and policy SMEs to identify existing or new rules required for future state and opportunities for process improvements, and updated during modernization to legislative and policy changes
  - Integrations to/from HPF and to/from ACES developed to receive necessary AU information and provide corresponding eligibility result
  - Cutover from eServ to new capability on IE&E Platform
  - Steady-state management and maintenance established
- Case Assignment & Updates (ACES-related functions) implemented
  - Future state target architecture designed, complete with a future state alternatives assessment
  - Case Assignment & Updates roadmap delivered (with milestones and dependencies) and syndicated with HHS Coalition impacted groups
  - Capability development begins
  - Integrations built to upstream/downstream systems (e.g., Barcode)
  - Data sync with ACES extended to support required interim architecture
- Modernized Customer Support implemented
  - Priorities determined based on research and vision created for HHS Portal and learnings from Application Input & Changes release
  - Use of available COTS products and/or services assessed to fulfill functional requirements

- Requirements and architecture refined, and features prioritized for MVP release
- Capability developed and released to production, utilizing requirements, architecture, priorities, and COTS products/services defined
- Integrations (e.g., APIs) built to enable inter-operability with other capabilities
- Reporting & analytics development continued
  - Data pipelines and reports / dashboards developed as defined by requirements for prioritized use cases, including governance and data quality measurements needed
- Advancement of ongoing capability modernization efforts

#### **D. ACES Modifications & Decommissioning**

- ACES remediation team continues to be focused on remediation, improvement, and integration tasks
- Data archival and conversion plans continued
- Data synchronization extended to support new capabilities
- Decommission eServ and WaCon applications (with the former supporting eligibility determination of MAGI and APTC for HPF, and the latter the new HHS Portal functionality)
- Program correspondences migrated to the correspondence engine on the future state IE&E Platform
- ACES ongoing system maintenance and enhancements
- Modification and decommissioning requirements assessed for other systems impacted by next planned capability modernization (e.g., Benefit/Service Issuance & Management, Medical Plan Enrollment, Program Integrity)
- Integrations and legacy systems remediations for Screening & Verification, Eligibility Determination, Case Assignment & Updates, Modernized Customer Support capabilities implemented
- ACES interfaces identified that are required for capabilities prioritized for SFY2028 (e.g., Benefit / Service Issuance & Management, Medical Plan Enrollment), including opportunities to modernize (e.g., batch to REST)

By the end of SFY 2027, ~60%<sup>60</sup> of the ACES modernization will be complete, including the following capabilities:

- Application Input & Changes
- Letter Generation & Print
- Document Management
- Pre-screening
- Voter Registration
- User Management
- Screening & Verification

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<sup>60</sup> Preliminary estimate requiring further analysis.

- Eligibility Determination & Renewals
- Case Assignments & Updates (ACES)
- Communications Center (net new created)
- Modernized Customer Support (net new created)
- Document Management (net new created)

Two additional capabilities would be nearing completion through the following year: Benefit / Service Issuance & Management and Program Integrity. The process for modernizing these capabilities would closely align with the process described for the preceding capabilities and in [Section 10.1 Capability Modernization Steps](#). The only remaining ACES Complex capability to be modernized would be Reporting & Analytics, with ongoing modernization efforts focused on enabling additional advanced analytics functionality and corresponding use cases.

Nonetheless, the overall modernization will continue for ~3 years, focusing primarily on the potential modernization of capabilities existing today in non-ACES systems (e.g., Barcode). To close out the final parts of the ACES Complex modernization and potentially begin to modernize capabilities from other systems, there may be a need to update the roadmap to:

- Account for interdependencies between the teams and milestones outlined in this roadmap and those defined for the modernization of other systems
- Adjust existing interfaces to support the exchange of information with other systems as they are modernized
- Document lessons learned from the first years of the modernization that may impact the approach for subsequent years

The information described in the years to follow include example considerations to guide the final years of the modernization and potential refresh of this roadmap.

## IE&E MODERNIZATION – SFY 2028 AND ON

By the end of SFY 2028, the modernization of worker-facing capabilities tied to the eligibility application process would be complete, specifically the following capabilities:

- Benefit / Service Issuance & Management
- Program Integrity

Planning and execution of the decommissioning of ACES.Online, ACES 3G, and related ACES Legacy components could also begin with most functionalities modernized, as described in [Section 11: ACES Complex Modifications & Decommissioning Approach](#) below.

- With the core functionalities of ACES modernized to the cloud, deprioritized<sup>61</sup> case management capabilities could be modernized, along with net new and non-ACES customer experience capabilities:
  - Medical Plan Enrollment
  - Case Assignment & Updates (non-ACES)
  - Assessments & Requirements Monitoring

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<sup>61</sup> Based on capability prioritization described in [Section 9: Prioritized Future State Capabilities](#).

- Lobby Management
- Member Outreach
- Appeals & Hearings Management
- Process Quality

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# 11 | ACES Complex Modifications & Decommissioning Approach

The below sections describe the modifications and decommissioning steps required for ACES Complex applications but can also be applicable to steps required for other legacy systems. Further analysis would be included as part of capability modernization planning to determine the impacted systems.

## 11.1 ACES Complex Modifications

As ACES Complex capabilities are modernized, the legacy mainframe will have to be modified to minimize disruption in interim states. Five core elements of the legacy system that typically need modification are:

- **Data Synchronization:** The ACES Complex would be extended to support required interim architecture for capabilities and establish consistency between the legacy and target data stores
- **Services, interfaces, and databases:** In the current state, there are a variety of interfaces that facilitate the exchange of data within ACES (e.g., ACES 3G retrieving eligibility determination for food / cash programs from ACES Legacy). If one end of the interface is modernized, the service layer of the legacy application and existing interface would likely need to be modified to enable the legacy functionality to retrieve data from the cloud
- **Infrastructure:** As functionality is moved off the mainframe, the underlying infrastructure would have to be modernized, including the:
  - Load balancer (e.g., F5 on-premises load balancer used to get requests from WaCon and HPF)
  - Application server (e.g., WebSphere Application Server [WAS] and Lightweight Directory Access Protocol [LDAP], the latter of which is used for WaCon and ACES.Online authentication)
  - Online transactions (e.g., CICS Transaction Manager)
  - Batch jobs (e.g., Job Execution System [JES])
  - Job sequencer (e.g., Tivoli Workload Scheduler [TWS])
- **System maintenance and enhancements:** Throughout the modernization, the source code will have to be continuously maintained and updated to address changing requirements (e.g., if legislative changes impact business logic for eligibility determination)
- **Documentation and processes:** As the functionality of the legacy ACES Complex changes, support and training documentation will need to be refreshed. For example, Table 16 below outlines the different user interfaces that clients and case workers may have to navigate. Underlying processes such as incident management would also likely have to be updated

**Table 16: User Interface Modernization Timeline**

End user	User Interface	2025	2026	2027
Client	Application (Apple Health, Food, Cash)	WacCon	WaCon	HHS Portal
	Application (MAGI, QHP, APTC)	HPF	HPF	HPF
	Status	MyWABenefits	MyWABenefits	HHS Portal
Worker	Screening & verification	ACES.Online	ACES.Online	Case worker portal
	Eligibility determination	ACES 3G	ACES 3G	Case worker portal
	Payment issuance (e.g., over-payments, recoupments, chart of accounts)	CICS Screen	CICS Screen	Case application (MAGI) and case worker portal

Source: Conversations with TAD Project team (Feb-Jul 2024)

## 11.2 ACES Complex Decommissioning Approach

As ACES Complex functionality is modernized, the associated legacy features will eventually no longer be used (e.g., aligned with the timeline provided in [Figure 9](#) above). Before decommissioning these features, it will be important to manage and minimize the impact on clients and case workers. A legacy decommissioning team would do so by leading a variety of activities to ensure operational readiness and execute feature shutdown in parallel to the year-by-year modernization. This team would continuously collaborate with the OCM, IE&E Platform, and other IE&E Program teams to perform the following before decommissioning each legacy feature:

- Validate that the IE&E Platform is stable, reliable, and meets all functional requirements before decommissioning corresponding legacy features
- Monitor case worker usage levels, adoption, and proficiency with the modernized functionality
- Verify that all data has been successfully migrated to the IE&E Platform, including validating accuracy and integrity
- Ensure that ACES Complex interfaces and dependencies with other systems have been modernized and tested
- Validate that the IE&E Platform complies with all relevant regulatory requirements (e.g., for data security and privacy)
- Receive formal sign-off from impacted groups across business and technology that the above activities have been completed

The responsibilities of this team would also evolve as each legacy functionality is decommissioned. Initially, the legacy decommissioning team would focus on planning and communication (e.g., notifying impacted groups of upcoming decommissioning activities), and augmenting documentation and inventories (e.g., identifying databases shared by multiple legacy capabilities). The team would then decommission application servers, databases, and infrastructure corresponding to the modernized functionality. It would also ensure necessary backup and archiving, shut down the application, and perform cleanup of the network and security. To finalize, the team would complete post-decommission and final cleanup / validation activities, such as auditing the legacy components and data to ensure removal, documenting lessons learned, and validating with impacted groups that the decommissioned features are no longer accessible Table 17 below summarizes the decommissioning activities to be conducted for each capability. (Preceded by capability modernization steps – see [Section 10.1](#))

**Table 17: Standardized Capability Decommissioning Steps**

Part	Step	Activity description
<b>Prepare</b>	1) Planning & communication	Project planning, impacted group communication, change management approval
	2) Documentation & inventory	Component inventory, configuration documentation, dependency mapping, list of existing solutions across the State
<b>Shut down &amp; decommission</b>	3) Application shutdown	Impacted group notification, pre-shutdown verification, service shutdown, middleware shutdown
	4) Data backup & archiving	Database backup, file system backup, data archiving, documentation storage
	5) Application server decommissioning	Service removal, servers unconfigured, server shutdown, physical server decommission
	6) Database decommissioning	Clients disconnected, schema export, database removal, storage reclamation
	7) Network security cleanup	Firewall rule removal, load balancer configurations, access control
	8) Infrastructure decommissioning	Legacy platform decommission, hardware disposal, storage cleanup
<b>Finalize</b>	9) Final cleanup & validation	Log and temp file deletion, audit, validation
	10) Post-decommission activities	Documentation, lessons learned, impacted group communication

Source: Conversations with TAD Project team (Feb – Jul 2024)

The order in which legacy features are decommissioned will closely follow the release schedule of associated functionality. In SFY 2026, two parallel streams will be stood up:

- Initiating the 10-step decommissioning activities for capabilities that have been modernized (e.g., Pre-screening, Eligibility Determination – MAGI & APTC). These activities will continue into the next year
- Completing ACES Complex technical analyses, including parsing the full source code to map dependencies across underlying components like databases and infrastructure. These learning will help refresh a more detailed legacy decommissioning roadmap, such as by understanding which components are shared across capabilities and may need to be decommissioned later

In SFY 2027, the eServ and WaCon applications would no longer be maintained and operated by the State, with most corresponding legacy components decommissioned (e.g., as Eligibility Determination MAGI & APTC would be modernized, in addition to Application Input & Changes and Pre-screening). Nuances associated with underlying shared databases and infrastructure will prevent the full applications from being shut down until future years.

By SFY 2028, the legacy decommissioning team will have documented a series of lessons learned from sunseting ACES Complex functionality to date. A stream will utilize these lessons learned to revisit the 10-step decommissioning approach described in Table 17 above and refresh the decommissioning component of this roadmap as needed. Additionally, eDW functionality will no longer be available for users, as the corresponding functionality will be modernized into the future state IE&E Analytics Platform.

In SFY 2029, the legacy decommissioning team will focus on sunseting other legacy features as modernized capabilities are brought online. All remaining ACES Complex applications (ACES.Online, ACES 3G, ACES Legacy) would be shut down, with integrations and dependencies with other systems already modernized and tested.<sup>62</sup> Other eligibility & enrollment systems and interfacing partners to ACES would collaborate with the modernization teams through activities including:

Additionally, the modernization of ACES Complex capabilities will be complete, with additional developer capacity freed up to focus on the decommissioning. These activities will focus on:

- Completing a full decommissioning of shared components (e.g., databases) as all legacy applications have been shut off
- Finalizing the archiving of all ACES data
- Shutting down all legacy infrastructure components as all functionality has been moved from mainframe to cloud
- Completing a full decommissioning of legacy code as business rules are now live in a modernized BRE
- Sunseting legacy documents and related capabilities
- Decommissioning the legacy enterprise service bus after all legacy interfaces have been modernized

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<sup>62</sup> The decommissioning, like the modernization described in [Section 10.3: Key Milestones and Preliminary Roadmap Activities by Year](#), is a large effort that will require coordination and engagement across the HHS Coalition, whether it be providing input and feedback, participating in training and change management, or addressing technical impacts to existing systems.

- Ending maintenance of ACES applications

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# 12 | Appendices

## Appendix A – Comparison Dimensions for Architecture Design Decisions

Multiple solutions and options may arise as the future state architecture is designed in line with the design principles. Four dimensions were considered when comparing different options:

**Solution Fit** – Degree to which the solution meets the functional and technical needs of the business and platform (e.g., Reusability)

**Complexity** – Level of difficulty involved in implementing & managing the solution (e.g., on an ongoing basis). Example considerations include code complexity, security requirements, and testing needs

**Cost** – Total Cost of Ownership (TCO) to own and operate the solution over its entire lifecycle, including acquisition, operation, maintenance, and disposal costs. Example considerations include billing model, modernization cost, resource responsibilities, etc.

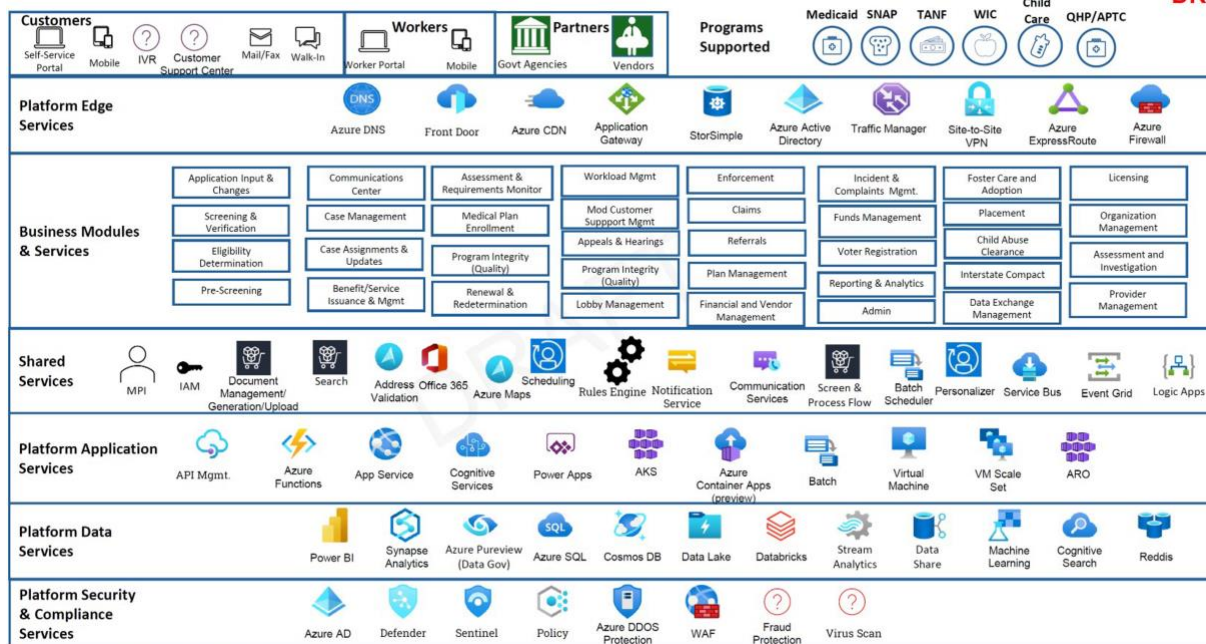
**Risk** – Potential loss in value or damage caused by implementing and managing the solution (e.g., security risk, dependency risk, adaptation to changing requirements). Example considerations include security risk, dependency risk, skillset availability, and adaptation to changing requirements).

## Appendix B – Future State Logical Architecture Diagram with Tooling

As referenced in [Section 8: Future State Architecture](#), a more specific future state reference architecture that details the potential tooling of different platform components across layers is included below. This diagram, developed by the IE&E Enterprise Architect, has been aligned with the components and layers represented in the earlier [Figure 4: High-Level IE&E Platform Future State Logical Architecture](#).

**Figure 18: IE&E Platform Future State Logical Architecture with Tooling (Created by IE&E Enterprise Architect)**<sup>63</sup>

DRAFT



Source: I&E Program Enterprise Architecture

## Appendix C – Service Architecture Decision Matrices and Criteria to Choose Between Modular and Microservices

In a **modular monolithic approach**, applications are built as a comprehensive unit, with all business logic in one place and often supported by one tightly integrated database. Monolithic software can be further divided into different “modules”, which can separate out the business logic into different functional groupings but are never fully independent from each other and need to be written in the same development language as other modules. This approach is often used to modernize existing monolithic systems to the cloud while keeping the same structure and patterns and often serves as an interim step to the true microservices approach discussed below. Compared with hybrid and true microservices, this approach will likely result in lower modernization complexity, as the architecture would largely remain as is and would require the least transition activities and change management. The lower complexity of this approach could lead to a lower modernization cost, and the “single database” also means that the risk of encountering data consistency & transactional integrity issues is low. The solution fit of this approach for the IE&E Modernization Program’s needs, however, is also low, as a complete modular monolithic solution often encounters challenges with scalability (e.g., due to extensive dependencies and cumbersome release management) and architectural flexibility.

In a **true microservices approach**, all applications are broken down into a collection of services that can be built and deployed fully independently, with separate business logic and data persistence from other services, enabling the microservice to be fully decoupled from the

<sup>63</sup> Diagram created by the IE&E Enterprise Architect and aligned upon with the TAD Project team’s logical architecture in the previous figure, in meetings throughout 07/2024 – acronyms include Interactive Voice Response (IVR); Supplemental Nutrition Assistance Program (SNAP); Temporary Assistance for Needy Families (TANF); Women, Infants, and Children Cascades (WIC Cascades); Low Income Home Energy Assistance Program (LIHEAP); Web Application Firewall (WAF).

system that is utilizing it. The decoupling of microservices also enables them to scale independently, using a specific database for its purpose, while a modular monolithic service is often still tied to the application it falls under and uses the same database as other related modules. This is the leading approach often employed by large-scale technology companies or other enterprises that seek the most modernized, scalable architecture approach. Compared with modular monolithic and hybrid, this approach could result in a highly complex modernization, which requires comprehensive design, planning, and organizational change management (i.e., due to the complete paradigm shift from a mainframe-based monolithic system into a cloud-based services system). High complexity could lead to a higher modernization cost due to the aforementioned need for change management, including the setup of an enterprise operating model and training required. Individual teams may have less familiarity with decomposing a large application into microservices to be released as separate products, and greater consideration for data integrity is needed to manage data consistency risks, as data passing through services that have their own, separate databases. The solution fit for this approach, however, is high, as it is the most scalable and flexible option, and the IE&E Platform team has existing experience with microservices architecture.

**The preferred approach going forward**, based on discussions with IE&E Modernization Program leadership, is a **hybrid architecture** that strategically utilizes both modular monolithic services and true microservices where feasible, for specific components. Certain components may not benefit from transitioning to microservices, so they can remain as modular monolithic services. Hybrid architecture balances the flexibility and scalability of a true microservices architecture while maintaining existing functionality (i.e., as modular monolithic services) for specific components. Modernization complexity and cost is evaluated as “medium” – practices in the hybrid approach may be new to some ACES teams, but there exists a critical base of knowledge to incrementally transition to a microservices architecture that is organized around separate products with clear boundaries. This approach minimizes the data consistency risks of a true microservice architecture while still maintaining high solution fit for the functionalities that need to continue as modular monolithic services.

The decision to implement a service as a microservice or modular service in the hybrid approach is guided by three main criteria:

- **Size of the domain** – If the grouping of data and logic is relatively small or serves a single purpose, then the service could be a microservice. For example, the MPI service could be a microservice, as the grouping of data and logic would serve a single purpose, with many apps calling it to determine if there is pre-existing customer information. On the contrary, a broader service like case management likely has dozens of data objects in a large database that could be shared across multiple front-end apps. The grouping of data and logic is large and often serves multiple purposes, so case management could be a modular service.
- **Reusability** – Services that can be invoked by multiple applications are often developed and deployed separately from the applications they serve, so they could be microservices.
- **Adaptability** – Logic and rules that change frequently are often isolated into services that can be changed and released independently of other services (i.e., microservices).

## Appendix D – Current and Potential Future Usage of MuleSoft Features or Products in the IE&E Platform

MuleSoft was approved as the technological standard for API Gateway and further API management across the HHS Coalition and in the future state IE&E Platform. Thus, the modernized IE&E Platform and associated products will use the MuleSoft SaaS API Gateway for API management features, including API security, traffic routing and load balancing, rate limiting and throttling, transformation and orchestration, caching, and high availability and fault tolerance. Specifically, the IE&E Platform and Product teams are using the following MuleSoft features:

**Table 18: Current Usage of MuleSoft Features or Products by the IE&E Platform<sup>64</sup>**

Type	MuleSoft Feature or Product
Hosting	CloudHub 2.0
Hosting	CloudHub
General Product	Access Management
General Product	Anypoint CLI
General Product	Anypoint Code Builder
General Product	API Community Manager
General Product	API Experience Hub
General Product	API Functional Monitoring
General Product	API Manager
General Product	APIkit
General Product	Composer
General Product	Connectors
General Product	Design Center
General Product	Exchange
General Product	Monitoring
General Product	MQ

<sup>64</sup> Shared by the IE&E Platform team lead on 05/3/2024 in an offline communication, indicating what MuleSoft features or products the IE&E Platform and Product teams are currently using ([Section 10.4](#)), interested in using ([Table 18](#)), and have no intent to use (not detailed in this deliverable for brevity).

Type	MuleSoft Feature or Product
General Product	Mule Runtime
General Product	Munit
General Product	Runtime Manager
General Product	Security
General Product	Service Mesh
General Product	Studio

**Table 19: Potential Future Usage of MuleSoft Features or Products<sup>65</sup>**

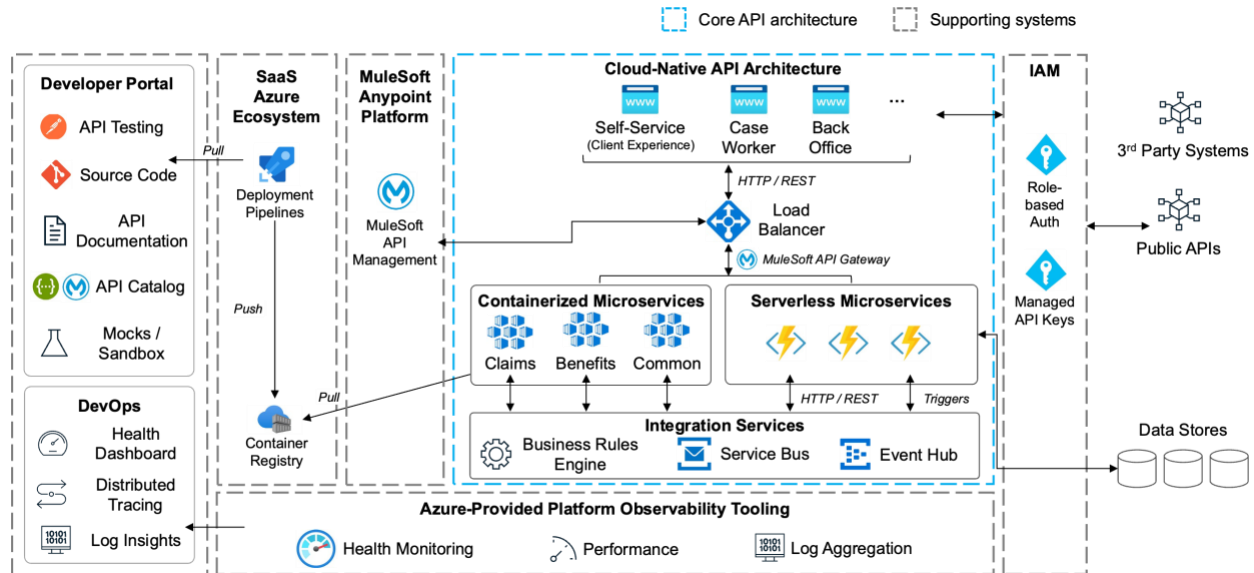
Type	MuleSoft Feature or Product
Hosting	Runtime Fabric
Accelerator	Cloud Information Model
Accelerator	Consumer Goods
Accelerator	Financial Services
Accelerator	Healthcare
Accelerator	Life Sciences
Accelerator	Manufacturing
Accelerator	Retail
Accelerator	Salesforce OMS
General Product	API Governance
General Product	DataWeave
General Product	Gateway
General Product	Partner Manager
General Product	Visualizer

<sup>65</sup> Shared by the IE&E Platform team lead on 05/3/2024 in an offline communication, indicating what MuleSoft features or products the IE&E Platform and Product teams are currently using ([Section 10.4](#)), interested in using ([Table 18](#)), and have no intent to use (not detailed in this deliverable for brevity).

## Appendix E – Future State API Reference Architecture Diagram with Tooling

Figure 19 below displays a reference architecture diagram for the API structure of the future state IE&E Platform, with potential tooling to consider for areas of API management that have not yet been aligned upon across the HHS Coalition and IE&E Modernization Program.

Figure 19: IE&E Future State Platform API Reference Architecture Diagram with Tooling



## Appendix F – Proposed Characteristics and Types of Logic to Implement in a BRE

### PROPOSED CHARACTERISTICS

The TAD Project team has identified a preliminary list of characteristics of business logic that could be a good fit for a BRE, including logic that:

- Includes criteria-based decision-making or calculations
- Requires a high frequency of updates (e.g., due to policy changes)
- Requires a set of multiple rules to be changed concurrently (e.g., if a policy change affects all benefit determination rules for a certain program)
- Would otherwise benefit from being centralized, to be reused and applied to multiple points of the IE&E lifecycle
- Requires business knowledge to maintain, and thus needs to be transparent to business staff

Business logic related to workflows (e.g., routing rules, notifications) are better suited to be implemented through a dedicated workflow engine, business process management (BPM) tool, or customer service tool to orchestrate logic and user actions. Business rule engines are often used as an inference service to receive an output based on data fed, while workflow logic requires orchestration and triggering of downstream actions (e.g., email notification, letter generation, benefit enrollment, case creation). Based on the market scan mentioned above, however, many modernized business rules engines are part of a larger suite of tools, which

often include workflow engines (or decision engines) and often include automated or advanced data analytics capabilities.

## PROPOSED TYPES OF LOGIC

Taking the characteristics outlined above a step further, the TAD Project team has defined the following potential types of business logic to implement in a business rules engine:

- 1) **Eligibility determination** – Rules that assess client information and compare it against policy (i.e., state or federal legislation) to determine what programs a client is eligible for
- 2) **Benefit calculation and issuance** – After eligibility determination, rules that match client information to policy to calculate the level of benefits (e.g., exact payout, schedule of benefit issuance) that the client would receive
- 3) **Other potential future state capabilities**
  - a) **Data verification** – Rules that verify if data has been input or formatted correctly, prior to evaluation by eligibility logic
  - b) **AU finalization** – Post-application processing rules that validate additional considerations for a group of clients treated as a single unit for benefit determination, such as triggers (e.g., changes in income) during the certification period
  - c) **Service-level eligibility** – Non-financial checks to determine what level of service a client is eligible for
  - d) **Compliance checks** – Checks to determine if client data is compliant with rules outside of simple data verification
  - e) **Plan assignment and decision support** – Rules that determine the correct enrollment plan for the client and facilitate more informed, transparent client decisions on plans through the use of a consumer decision support system. A decision support tool allows clients to view plan options that are relevant to them and compare plans based on a variety of data points and metrics (e.g., provider directories, total cost estimation, prescription drug coverage, patient safety).
  - f) **Automated renewals** – Rules that determine if a client's benefit enrollment should be auto-renewed

## Appendix G – IE&E Platform Future State Security Architecture

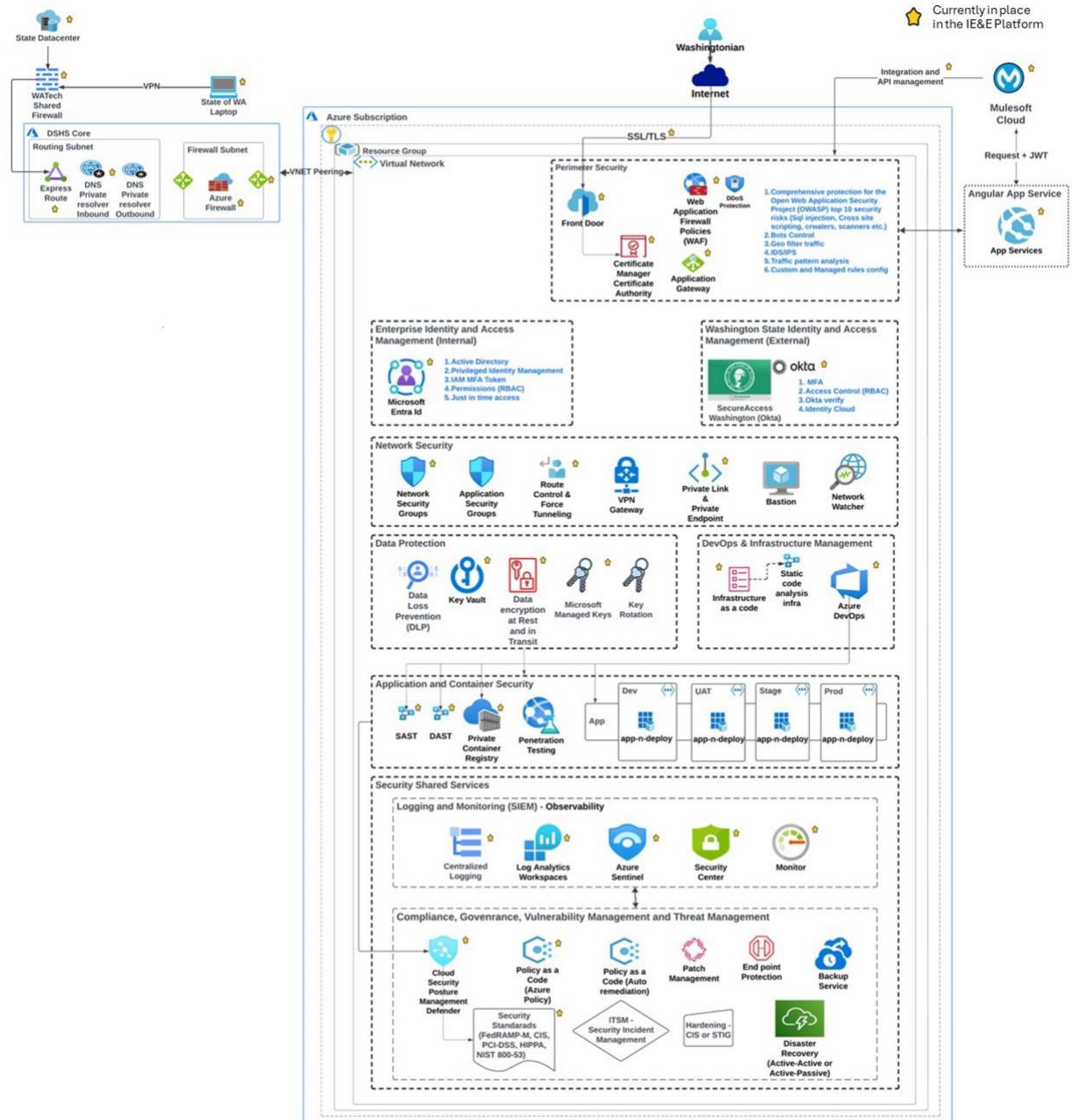
Figure 20 shown below details the security architecture for the future state IE&E Platform. This architecture goes more in-depth into the “Security & Compliance” component on the Platform Services layer in [Figure 4: High-Level IE&E Platform Future State Reference Architecture](#), and it is aligned with the IE&E Platform team’s approach to security, detailed in the “[Platform – Proof of Architecture](#)” deliverable.<sup>66</sup> The diagram displays the points of connection between different security elements and relation to other functionalities (e.g., MuleSoft for integration and API management), also calling out specific tooling where appropriate (e.g., GitHub Advanced Security for code analysis). Specific details on the diagram were shared and aligned upon with

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<sup>66</sup> Version 2.1, 07/2023, provided by the IE&E Product Owner on 07/01/2024.

HHS Coalition SMEs.<sup>67</sup> The security components marked with a yellow star indicate those that are already implemented by the IE&E Platform team. A comprehensive gap assessment, comparing the current state with this target state architecture, is advisable as a next step for the HHS Coalition to continue evolving the platform and maturing its security practices.

**Figure 20: IE&E Platform Future State Security Reference Architecture Diagram**

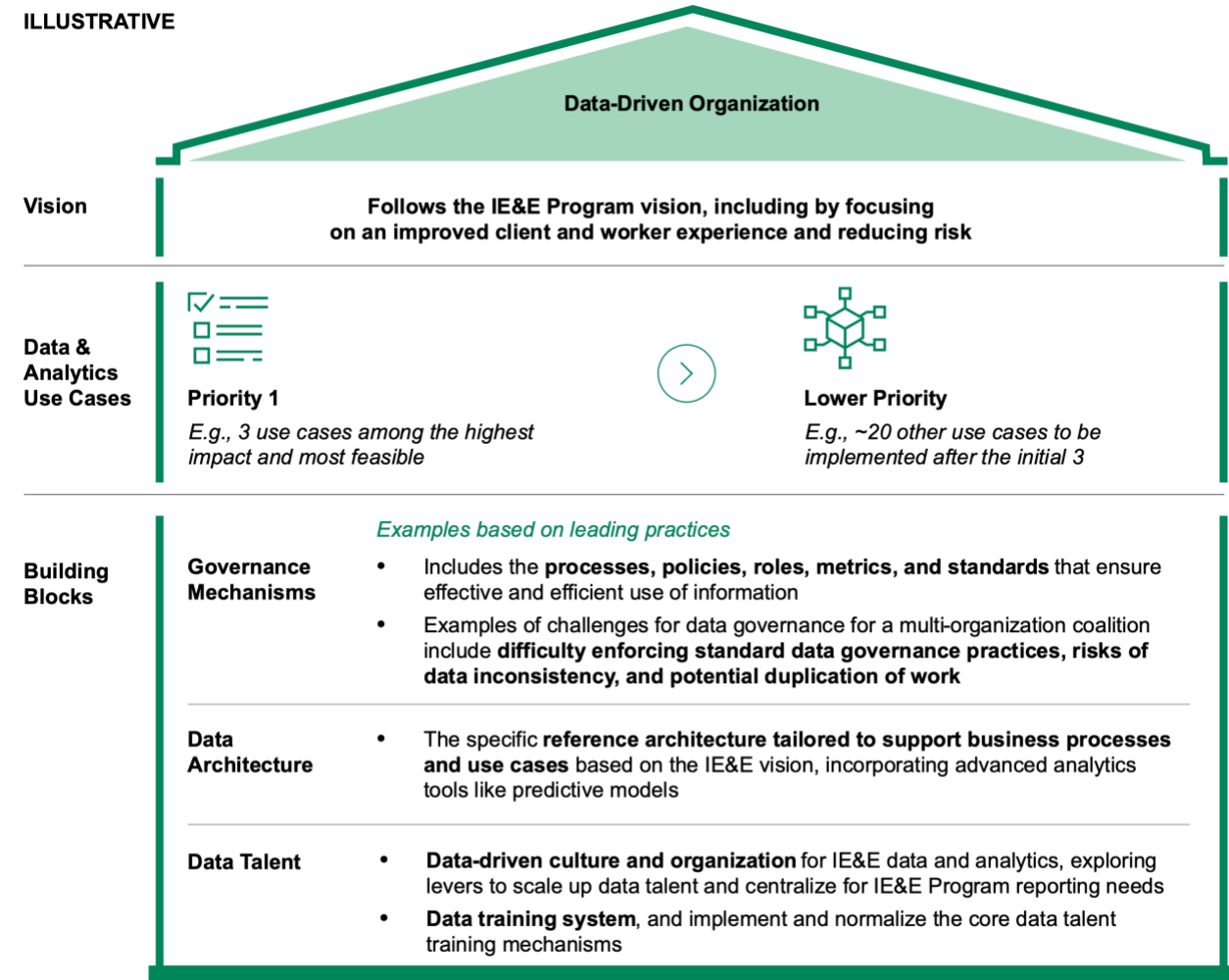


<sup>67</sup> Discussed and aligned with the IE&E Enterprise Architect, IE&E Product Owner, and DSHS Cloud Security Engineer on 07/18/2024; also with the TAD Executive Sponsor and other IE&E Modernization Program leadership on 07/19/2024.

# Appendix H – Overall Approach to Data Management Strategy

Figure 21 below outlines the suggested approach for shifting to a data-driven IE&E Program.

**Figure 21: Approach to Data Management Strategy**



Source: IE&E Roadmap (as of 01/15/2022), conversations with TAD Project team (Feb-May 2024), [“What is Data Governance,” Azure](#)”

## Appendix I – Backlog of Data & Analytics Use Cases

### BACKLOG OF DATA & ANALYTICS USE CASES<sup>68</sup>

Example use cases (preliminary). Asterisk indicates Priority 1: Defined by cross-organization team during the Data & Analytics Use Case Workshop (04/24)<sup>69</sup>

<sup>68</sup> Source: Conversations with the TAD Project team (Feb-May 2024), ~25 interviews with IE&E Program stakeholders (Mar-May 2024), Data and Analytics Use Case Workshop (Apr 2024)

<sup>69</sup> As discussed with HHS Coalition impacted staff and data & analytics SMEs in the Data & Analytics Use Case Workshop (04/24/2024).

## 1) Improved Client Experience

- a) **\*Identify, suggest, and auto-enroll Washingtonians in programs that they are likely eligible for, but not yet enrolled in (e.g., build a predictive model to support Next Best Action which suggests enrollment when someone becomes unemployed; use GenAI to direct potential applicants to other health & human services to consider through “one-stop shop” for clients who satisfy eligibility requirements, potentially with bot to summarize eligibility status)**
- b) Identify process pain points and associated root causes for mobile application users (e.g., collect data on the exact places where clients drop off the website; use GenAI on call data to summarize areas for improvement in instructions given)
- c) **\*Reduce the number of rejections from bad addresses (e.g., create a predictive model to flag and potentially correct abnormalities based on historical data and other client info)\***
- d) Calculate success metrics for IE&E programs (e.g., track the extent to which particular benefits improve the recipient's quality of life)
- e) Offer benefit matching proactively (e.g., create intelligent recommendation engine based on 360 data)
- f) Optimize call center queues and hand-offs (e.g., utilize predictive modeling to forecast call volumes; use GenAI to triage calls based on sentiment analysis / inquiry type)

## 2) Enhanced Worker Experience (including operational improvements<sup>70</sup>)

- g) Streamline call center processes (e.g., incorporate AI-driven virtual agents to help summarize issues/errors, thus reducing staff workload and enabling more rapid responses; use Machine Learning to train models to improve summaries)
- h) Identify case worker pain points (e.g., collect and categorize case worker feedback – with capabilities like sentiment analysis – and provide potential next steps for technical staff to resolve system pain points)
- i) Create question-and-answer capability for data analysis (e.g., create a bot that answer analyst questions by integrating data from across different sources and custom queries and provides insights)
- j) Improve data structure and quality (e.g., use GenAI-enabled extracting, transforming, and formatting of messy or unstructured data from documents or files; help clean up enrollment data across organization / program, for example to match HHS Coalition Master Person Index- MPI)
- k) Calculate cross-enrollment across programs / HHS Coalition organizations in near real-time (e.g., to inform interoperability between organizations with growing or shrinking cross-enrollment)<sup>1</sup>
- l) Inform IE&E product sequencing and maintenance based on usage data (e.g., so that higher usage products – for example, streamlined application process – get more frequent updates and/or prioritized earlier)<sup>1</sup>
- m) Improve data synchronization across systems bi-directionally (e.g., ensure that updates made in one system flow to others)

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<sup>70</sup> Select use cases also drive operational improvements for broader state management capabilities. A fourth driver of data and analytics use cases could be created accordingly for ideation purposes

- n) Create single source of truth to improve data quality (e.g., anchor on MPI to ensure items like ID match across siloed systems)
- o) Improve integration and interoperability across the Coalition (e.g., help clean up enrollment data across organization / program, for example to match HHS Coalition MPI)
- p) Identify and pursue potential federal funding opportunities (e.g., understand population sizes and trends particularly for specific needs)<sup>1</sup>
- q) Consolidate customer composite data in one place (e.g., adopt Customer 360)

### 3) Reduced Risk

- r) Predict coverage changes (e.g., apply predictive analytics on changing population demographics / needs and potential implications of updated regulatory guidelines)
- s) **\*Minimize the number of clients dropped from benefits without a change in circumstance (e.g., track engagement with renewal communications and use virtual assistants to perform customized outreach on actions to take for clients with low engagement)\***
- t) Manage clients who are enrolled but not eligible (e.g., apply predictive analytics on changing population demographics / needs)
- u) Automate compliance requirements (e.g., create tool to synthesize compliance requirements on a self-serve basis)

## Appendix J – Enterprise Impact Assessment for ACES Modernization

Program groups were established based on prior categorization made by the ACES team and by the dependency to ACES. Key program groups are outlined below:

**Table 20: Program Group Categorization**

Program Group	Program(s)
Cash Assistance	TANF, State Family Assistance (SFA), WorkFirst Employment and Training, Diversion Cash Assistance (DCA), Additional Requirements for Emergent Needs (AREN), Consolidated Emergency Assistance Program (CEAP), Aged, Blind, or Disabled (ABD) Cash Assistance, Housing and Essential Needs (HEN) Referral, Pregnant Women Assistance, State Supplemental Payment, Refugee Cash Assistance
Food	Federal SNAP, Food Assistance for Legal Immigrants (FAP), BFET, Basic Food Outreach and Assistance, SNAP-Ed, Transitional Food Assistance, Washington Combined Application Project (WASHCAP), Working Family Support
Classic Medicaid and Other Apple Health	SSI Medicaid, SSI-related Medicaid, Medicare Savings Programs, Refugee Medical Assistance, Breast and Cervical cancer, Alien Emergency Medical (AEM)*, Medically Intensive Children’s Program (MICP), Foster Care and Adoption Support (FCAS)

Program Group	Program(s)
Long-Term Services and Support (LTSS)	Home and Community Based Waivers (COPES, New Freedom, Residential Services), Developmental Disabilities Administration waivers (Basic Plus, Individual and Family Services, Children’s Intensive In-Home Behavioral Support, Community Protection, Core, 1115 waiver – foundational community support, 1115 waiver – Medicaid Alternative Care and Tailored Supports for Older Adults Waiver Program, Community First Choice
MAGI Medicaid	Apple Health, Expansion Adults, AEM
QHP/APTC	QHP, APTC
Child Care Subsidy	Working Connections, Seasonal Child Care, Child Welfare Child Care (Child Protective Services, Child Abuse & Neglect, Family Assessment Response), Early Childhood and Education Assistance Program (ECEAP)
WIC	Women, Infants and Children Nutrition Program
Immigrant and Refugee	Afghan Refugee School Impact (ARSI), Career Ladder for Educated and/or Vocationally Experienced Refugees (CLEVER), Community Outreach & Education (COE), Early Refugee School Impact (ERSI), FAP Employment & Training, Housing Stabilization Services, Immigration-Related Legal Services Afghans, Immigration-Related Legal Services Refugees, Immigration-Related Legal Services Ukrainians, LEP Pathway – Employment, LEP Pathway – Education (ESL/ELA), Naturalization, ORIA Basic Food Employment & Training BFET), Promoting Refugee Integration, Mobility & Empowerment (PRIME), Refugee Health Promotion, Refugee Medical Screening, Refugee School Impact (RSI), Refugee Youth Mentoring Program (RYMP), Services for Older Refugees (SOR), Ukrainian Refugee School Impact (URSI), Unaccompanied Children’s Stabilization Services (UCSS, temporary program), Unaccompanied Refugee Minors (URM)
PEBB/SEBB	Public Employees Benefits Board and School Employees Benefits Board

All program grouping, except for PEBB/SEBB, have interactions with ACES Complex in the current state. Below is the mapping of where program groups will be impacted on a capability level. The TAD Phase 2 team will start with ACES functionality for the modernization approach, therefore, understanding the reliance to ACES by capability is critical. All impacted programs will be engaged throughout the modernization process to be informed on the modernization, provide input on the modernization, and implement changes to the modernization. Impacted groups in programs will include:

- End users: Client and staff members who are applying and/or receiving benefits available or helping others gain access to benefits (e.g., WaCon assistors)
- Business subject matter experts: Working groups who are serving in a policy-making or administrative capacity
- Impacted application teams: Teams who are managing current ACES applications or integrating with ACES applications

- Application support teams: Teams who will oversee technical assistance to maintain functionality of impacted applications

**Table 21: Program Groups Impacted Per Capability**

Business Process	Future State Capabilities	Programs Affected
Eligibility Application	Pre-screening (i.e., included in HHS Portal)	Cash Assistance Food Classic Medicaid LTSS Child Care Subsidy
	Application Input & Changes (i.e., HHS Portal)	Cash Assistance Food Classic Medicaid LTSS Child Care Subsidy
	Screening & Verification (i.e., case worker portal)	Cash Assistance Food Classic Medicaid LTSS Child Care Subsidy
	Eligibility Determination (including enrollment & routing)	Cash Assistance Food Classic Medicaid LTSS MAGI Medicaid QHP/APTC
	Renewals	Cash Assistance Food Classic Medicaid LTSS MAGI Medicaid QHP/APTC
Benefit Enrollment & Issuance	Benefit or Service Issuance & Management	Cash Assistance Food Classic Medicaid LTSS
	Medical Plan Enrollment	Classic Medicaid MAGI Medicaid
Case Management	Case Assignments & Updates	LTSS
	Assessments & Requirements Monitoring	Immigrant and Refugee

Business Process	Future State Capabilities	Programs Affected
	Appeals & Hearings Management	<i>Not a capability in ACES Complex applications today</i>
Supporting Capabilities	Modernized Customer Support	<i>Not a capability in ACES Complex applications today</i>
	Reporting & Analytics	Cash Assistance Food Classic Medicaid LTSS MAGI Medicaid Child Care Subsidy WIC Immigrant and Refugee
	Document Management	<i>Not a capability in ACES Complex applications today</i>
	Communications Center	Cash Assistance Food Classic Medicaid LTSS
	Letter Generation & Print	Cash Assistance Food Classic Medicaid LTSS
	Program Integrity	Cash Assistance Food Classic Medicaid LTSS MAGI Medicaid Child Care Subsidy Immigrant and Refugee
	User Management	Cash Assistance Food Classic Medicaid LTSS
	Process Quality	<i>Not a capability in ACES Complex applications today</i>

Business Process	Future State Capabilities	Programs Affected
	Lobby Management	<i>Not a capability in ACES Complex applications today</i>
	Voter Registration	<i>Not a capability in ACES Complex applications today</i>
	Member Outreach	<i>Not a capability in ACES Complex applications today</i>

Additional system initiatives in the state that will affect the modernization and decommissioning:

- SAVE Interface – Update to V38: Multiple prior updates have been made to the SAVE interface since original integration, limited impact on decommissioning
- CHIP Continuous Enrollment to Age 6 Years: Eligibility change to auto-renew children through the age of 5, regardless of income compatibility rules
- Child Support Pass-Through Payments: Eligibility and interface change. There will be changes in data sent to the Division of Child Support and the data received back. There will be changes to eligibility to no longer count child care income for TANF
- Adding 5 new Tribal CSOs: This will change access to ACES, allowing 5 new tribes to have access to update certain cases within ACES
- Modify LIS Interface Process for Medicare Savings Programs: Resources are no longer an eligibility factor for Medicare Savings Programs. The LIS interface process will need to be modified to auto-open clients and stop sending applications.

## Appendix K – Mapping Future State Business Capabilities to Products from Original IE&E Roadmap

The table below maps the future state business capabilities discussed in [Section 9: Prioritized Future State Capabilities](#) to the products from the original IE&E Modernization Roadmap (2022). Listed below the table are the definitions for the original products, directly taken from the original roadmap document.

**Table 22: IE&E Platform Future State Business Capabilities**

Business Process	Future State Business Capability – Definition	Mapping to Original Roadmap Products
<b>Eligibility Application (Client &amp; External Partners):</b>	<b>Pre-screening (i.e., included in HHS Portal) -</b> Client completes an initial questionnaire to determine potential eligibility for programs	3
	<b>Application Input &amp; Changes (i.e., HHS Portal)</b> - Client submits requested information, documents, and related signatures to apply to	1, 3, 5, 6, 12

Business Process	Future State Business Capability – Definition	Mapping to Original Roadmap Products
	and determine eligibility for benefits and/or services, including for renewals, certification reviews, or capturing and reporting of changes in circumstance <sup>1</sup>	
<b>Eligibility Application (Staff):</b>	<b>Screening &amp; Verification (i.e., case worker portal)</b> – Eligibility worker helps to input client information or documents, which are cross-matched against other client data sources (e.g., Income Verification Express Service [IVES], Asset Verification System [AVS], State Data Exchange [SDX]) through interfaces and include data points from other capabilities (e.g., results of eligibility interviews)	3, 4, 5, 12
	<b>Eligibility Determination (incl. enrollment &amp; routing)</b> – Staff, system, or external partner completes financial (e.g., income, shelter) and non-financial (e.g., residency, social security, household composition) checks to determine overall eligibility & level of benefits (e.g., cost of care for long-term services and support [LTSS]), and completes program enrollment for the AU using the necessary interfaces (e.g., ProviderOne, Healthplanfinder) – this capability also includes the ability to enable or disable eligibility for specific programs (e.g., temporary Summer Electronic Benefit Transfer [EBT] programs, other short-term programs), the function of storing provider rates to determine level of service, and the ability to determine and provide real-time, online determination results to clients (i.e., beyond MAGI determination)	1, 3, 8, 12
	<b>Renewals</b> – Staff or system reviews AU's eligibility status & level of benefits to extend based on previous information submitted or determine if new information is required from the AU to renew	1, 6, 8, 12
<b>Benefit Enrollment &amp; Issuance:</b>	<b>Benefit or Service Issuance &amp; Management</b> – Payments are delivered or services are authorized for clients (e.g., EBT beneficiaries, protective payees, LTSS recipients), vendors (e.g., warrants), and support services; recoupments and overpayments are also	10

Business Process	Future State Business Capability – Definition	Mapping to Original Roadmap Products
	<p>included – this capability could potentially include the ability for clients to review balances in the future or otherwise manage issued benefits or services (e.g., temporarily disabling an EBT card, receiving regular balance statements, requesting new EBT card which is automatically dispatched), and would likely monitor issuances from a budgeting and accounting perspective</p>	
	<p><b>Medical Plan Enrollment</b> – Clients or benefit navigators are able to compare, enroll, and manage selected health plans, with access to a comprehensive directory of providers (e.g., in alignment with current state Healthplanfinder functionalities). This capability would likely require an interface that transfers enrollment information to health carrier partners</p>	10
<b>Case Management:</b>	<p><b>Case Assignments &amp; Updates</b> – Cases, applications, &amp; information updates are assigned to teams for processing in an organized fashion (e.g., through case numbering and filing, workflow management, automated assignment to next staff, case notes for trackability) – this capability also includes scheduling interviews, as well as future state functionalities that could facilitate better cross-organizational access and collaboration on shared cases, and would include interface with Barcode</p>	3, 4, 5, 6, 12
	<p><b>Assessments &amp; Requirements Monitoring</b> – Additional assessments after initial eligibility &amp; benefit level determination are conducted (e.g., evaluation for TANF WorkFirst clients, incapacity determination), and client compliance with provisions for receiving benefits (e.g., employment, job search) is checked. This capability also includes waitlist management (i.e., of service-led eligibility assessments)</p>	6
	<p><b>Appeals &amp; Hearings Management</b> – Staff or system reviews and manages requests for reconsideration, including appeals for eligibility determination or aspects of benefit issuance and hearings if required to investigate or finalize the appeal</p>	Net New

Business Process	Future State Business Capability – Definition	Mapping to Original Roadmap Products
<b>Supporting Capabilities:</b>	<p><b>Modernized Customer Support</b> (e.g., Request Forms<sup>ii</sup>, Workflow &amp; Tracking) – Clients are served in a technologically advanced and multi-channel way (e.g., through modernized voice response systems, telephonic signature, potential AI chatbot), with the least effort and clarification needed as possible. This capability also includes, for example, streamlined support forms for end users to input their information or appeal eligibility decisions, manage scheduled appointments, and report potential defects</p>	7, 11
	<p><b>Reporting &amp; Analytics</b> – Staff across the IE&amp;E lifecycle conduct analyses through a centralized platform for standard reporting (e.g., federal mandated reports, formal research reports) or ad-hoc analyses (e.g., transactional data to support performance management and coaching, reporting in response to requests from internal or external partners)</p>	2, 14
	<p><b>Document Management</b> – Client documents and metadata are uploaded, retained, and organized for staff members to access and review – this capability also includes paper document processing, as well as the existing Barcode functionality to hold client-submitted documents</p>	9, 13
	<p><b>Communications Center</b> (i.e., notifications and alerts) – Clients, staff, or external partners receive communications (e.g., push, email, SMS) with updates on applications, eligibility status, or other procedural notifications – in the future, this capability could include direct secure messaging between clients and staff and communications in multiple languages. This excludes paper notifications, which are detailed in “Letter Generation &amp; Print” below</p>	7
	<p><b>Letter Generation &amp; Print</b> – Clients receive paper documents that detail updates on their case(s), and this capability includes the technical functionality to create the document, the physical capability of printing and dispersing the document, and the ability for the system to</p>	7

Business Process	Future State Business Capability – Definition	Mapping to Original Roadmap Products
	generate a digital version of the letter to enable the client to view the letter online in the future <sup>iii</sup>	
	<b>Program Integrity</b> (e.g., quality assurance) – Staff and system monitor for potential cases of improper eligibility determination or distribution of benefits or services (e.g., fraud), including internal audits that provide notifications for potential misuse of system or unauthorized access of client data, potentially utilizing automated pattern detection to inform suggestions for improvement	Net new
	<b>User Management</b> – Client and staff user management, as well as IAM, for IE&E applications (e.g., sign up, permissions, general online account management such as notification preferences, staff organizational affiliation management) – this capability integrates with MPI for client identity resolution <sup>iv</sup>	Net new
	<b>Process Quality</b> (e.g., workflow optimization) – Staff across the IE&E lifecycle track metrics to iteratively optimize workflow processes. This capability may include a suggestive or predictive functionality that automatically provides areas to further optimize	Net new
	<b>Lobby Management</b> – After client enters the queue, staff or system assigns responsibilities for the execution of digital processes to optimize in-person customer experience and service (e.g., digital waiting room that notifies clients prior to their name being called), to be conducted by staff or system	Net new
	<b>Voter Registration</b> – System requests client to register to vote during the eligibility and enrollment processes	Net new
	<b>Member Outreach</b> – Staff transmits general communications and targeted outreach to enroll eligible Washingtonians for programs, including adherence to privacy policies (e.g., opt-in controls)	Net new

- i. "Application Input & Changes (i.e., HHS Portal)" also includes the ability to capture & report changes in circumstance (which federally requires staff involvement to update client information and redetermine eligibility) or track application status after submission.
- ii. "Request forms" defined as online tools and forms that would allow clients to provide feedback or other customer support requests directly to the relevant systems.
- iii. For "Letter Generation & Print", generating a digital version of the letter is the extent of current state functionality, and the method for clients to view it in the future is to be determined.
- iv. Identity resolution (i.e., the ability to distinguish and tie together data across multiple applications for unique individuals in the system) through the use of MPI as a shared service differs from identity proofing, which is more concerned with providing access to an identified client and can be pursued through solutions like Experian or Okta. As MPI is further developed, it will likely be utilized and integrated for additional capabilities in order to facilitate cross-application data exchanges.

## INDIVIDUAL CLIENT PORTFOLIO

- **Product #1 – Eligibility and Enrollment Status Tracker:** Provides Washingtonians with a single point of access for eligibility and enrollment status across multiple HHS Coalition programs, beginning with Apple Health (e.g., Classic Medicaid, LTSS), Food, and Cash programs. Additionally, it offers eligibility workers and applicants access to the same data, reducing confusion as they engage in discussions and support activities.
- **Product #2 – IE&E Data Model and Data Technologies:** Develops a relational and modular
- **Product #3 – Streamlined Application Submission:** Provides self-service and worker-based initial application entry that includes the facilitation of business discussions that supports streamlining of application data collection for Apple Health (e.g., Classic Medicaid, LTSS), Food, and Cash programs.
- **Product #5 – Classic Medicaid Consolidated into Health Portal:** Includes the modernization of case management systems and processes with the ability to take advantage of the streamlined application data process.
- **Product #6 – Change Reporting and Renewal Application:** Extends the streamlined application data collection process to include change reporting and renewals.
- **Product #7 – Modern Notifications and Client Communications:** Provides mechanisms for physical and electronic correspondence with clients (letters, emails, etc.).
- **Product #9 – Document Upload:** Provides clients, eligibility workers, and Washingtonians with the ability to upload documents online or through a mobile device (e.g., tablet, phone).
- **Product #12 – Fully Integrated Portal and Modern Business Rules:** Integrates application data collection, change reporting, and renewal with the new business rules engine.

## CASE WORKER PORTFOLIO

- **Product #4 – Modern Case Management:** Includes the modernization of case management systems and processes with the ability to take advantage of the streamlined application data process. It will also include the implementation of legacy ACES integration for application data collection submissions.
- **Product #8 – Modernized Eligibility Business Rules:** Begins building eligibility rules in a modern business rules engine on the new IE&E Platform, including MAGI and non-MAGI.
- **Product #10 – Modernized Enrollment and Other Business Rules:** Builds additional business rules in a modern business rules engine on the new IE&E Platform.

- **Product #11 – Assistor Management and Support Products:** Provides new assistor management and support products.
- **Product #13 – Documents Management System:** Provides a new documents management system.
- **Product #14 – Data Warehouse Integrated to Modern Data Technologies:** Repoints the data warehouse to the new IE&E Platform and takes advantage of new capabilities.<sup>71</sup>

## Appendix L – Drivers of Business Value and Technical Complexity

### DRIVERS OF BUSINESS VALUE<sup>72</sup>

Business value (e.g., primarily from modernizing a capability) may be driven by:<sup>73</sup>

- 1) **Improving client and worker experience by** (for example):
  - a) **Increasing accessibility** (e.g., streamlining application process, enabling client to move through the process with minimal caseworker support)
  - b) **Reducing eligibility processing time** (e.g., determining eligibility in near real-time, utilizing automation to simplify workflows and handle time intensive, manual tasks)
  - c) **Providing greater transparency** (e.g., to users and regulators about data use)
- 2) **Reducing risk by** (for example):
  - d) **Reducing errors** (e.g., duplicate benefit enrollment)
  - e) **Meeting policy requirements** (e.g., enabling controls for data de-identification, controls for data retention, or easier adaption as policy requirements change)
- 3) **Enhancing operations by** (for example):
  - f) **Enabling additional innovation** (e.g., accelerating speed to deploy, enabling new features, building applications that can change based on clients' needs)
  - g) **Gaining additional funding** (e.g., maximizing federal match)
  - h) **Decreasing MIPS<sup>74</sup> consumption** (e.g., reducing processing costs)

### DRIVERS OF TECHNICAL COMPLEXITY

Technical complexity (e.g., primarily from modernizing a capability) may be driven by:<sup>75</sup>

- **Dependency on core ACES data** (e.g., no updates to core database)
- **Number of integrations** (e.g., with other ACES complex apps and/or with other systems)
- **Data operations** (e.g., prioritizing read-only overwrite)

<sup>71</sup> Sourced from the initial IE&E Modernization Roadmap Report (2022).

<sup>72</sup> Sourced from IE&E Roadmap (as of 01/15/2022) page 48, conversations with TAD Project team (Feb – June 2024), Data and Analytics Use Case Workshop (04/2024); IE&E TAD Business Design Principles

<sup>73</sup> Based on IE&E Program Vision and discussions with HHS Coalition staff at the Data & Analytics Use Case Workshop

<sup>74</sup> Million instructions per second (MIPS)

<sup>75</sup> Source: Conversations with TAD Project team (Feb – June 2024)

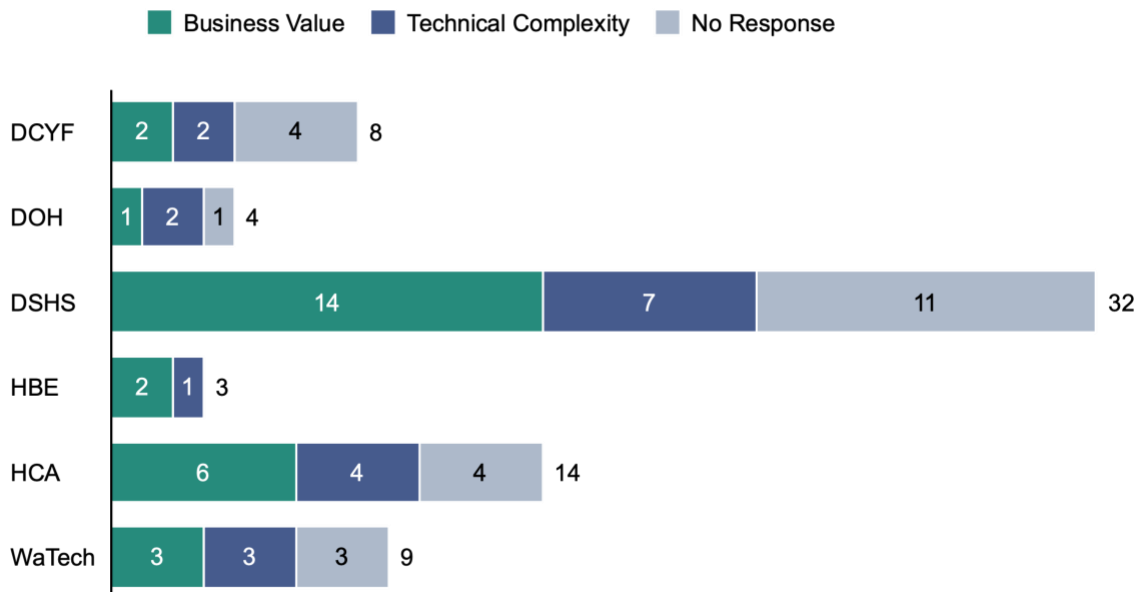
- **Logic complexity** (e.g., simpler business requirements)
- Use of **newer tech stack / coding language**
- Number of **real-time interfaces** (e.g., to reduce business disruption)
- **Sequence of related batch jobs** are primarily at the start or end of the processing sequence, rather than the middle
- Development or configuration leads to lower complexity of **following capability development**

Based on this criteria, two surveys were distributed to gain more input from a wider group of HHS Coalition impacted groups on how capabilities of the future state IE&E Platform could be prioritized. A breakdown of survey respondents is included in Figure 22 below.

**Figure 22: Breakdown of Capability Survey Responses**

**70 stakeholders** identified in collaboration with IE&E Modernization Program leadership as designated respondents to the survey

**47 respondents** 67% provided feedback on the list of capabilities (28 business, 19 technical)



Source: IE&E Future State Capabilities Business Prioritization Survey and Technical Complexity Survey results collected 07/09/2024, Conversations with IE&E Executive Director, IE&E Deputy Director, and TAD Project management leads 06/2024

## Appendix M – Rationale for Sequencing of Capabilities

The rationale for the sequencing of the capabilities is outlined below:

**Table 23: Rationale for Capability Sequencing**

Capability	Rationale for sequencing
Application Input & Changes	Prioritizing modernization of the client experience. Modernization currently in progress to design HHS Portal.

Capability	Rationale for sequencing
<b>Letter Generation &amp; Print</b>	Currently in progress, this will require coordination to understand and utilize as a capability to support Eligibility Determination
<b>Reporting &amp; Analytics</b>	Low technical complexity and helps to start earlier to begin establishing platform services and data governance to support initial use cases. Starting the reporting & analytics capability after a few capabilities have initiated modernization once greater data can be accessed from the platform. Early considerations on analytics also helps to identify and address data traps limiting analytics use cases.
<b>Document Management</b>	Currently in progress, required for document upload to support Application Input & Changes
<b>Eligibility Determination &amp; Renewals (MAGI/APTC)</b>	Starting MAGI/APTC rules at the start of SFY 2026 aligns with the timing of changes in Classic Medicaid rules, but further discussion needs to be had to determine the priority and relationship of these two capability modernizations, particularly food and cash programs.
<b>Pre-Screening</b>	A low technical complexity and low business value capability, but low risk of disruption as an initial capability to learn lessons from, including as an initial use case to validate the selected business rules engine. Required for HHS Portal to replace WaCon functionality
<b>User Management</b>	Required to support Application Input & Changes which is a prioritized core process
<b>Screening &amp; Verification</b>	Prioritizing modernization of the worker experience to align on changes to the customer experience, also closely tied to changes in eligibility determination to be developed in parallel
<b>Eligibility Determination &amp; Renewals (Apple Health [e.g., Classic Medicaid, LTSS], Food, and Cash)</b>	Starting early due to high complexity that will require long time frame to verify and implement. Prioritized to gain earlier benefits from CMS enhanced funding through administrative features such as human-readable format <sup>i</sup>
<b>Communication Center</b>	Prioritizing modernization of the customer and worker experience, can be released to support Application Input & Changes
<b>Case Assignment &amp; Updates (ACES)</b>	Prioritizing modernization of the worker experience, closely tied with the development of Screening & Verification
<b>Modernized Customer Support</b>	New capability that can be initiated and target for release after Application Input & Changes (i.e., HHS Portal), prioritizing modernization of the customer experience and the worker experience. It is sequenced after the Portal, as a modernized portal to host these customer support functionalities would need to be available first, after which the support functionalities could be targeted for development to

Capability	Rationale for sequencing
	supplement and make the portal more user-friendly, accessible, and functional
<b>Medical Plan Enrollment</b>	Capability resides outside of ACES Complex applications (e.g., HPF, ProviderOne) Later sequencing due to existing modern experiences as compared to eligibility application and determination processes driving current client pain points
<b>Benefit/Service Issuance &amp; Management</b>	Dependency on the completion of Eligibility Determination for Cash and Food programs (e.g., for payment issuance). Sequenced based on balance of changes required of ACES at a time
<b>Voter Registration</b>	Small piece of work that will be built at the end of Eligibility Determination and Case Assignments & Updates, sequenced to be earlier than indicated in the prioritization matrix, as voter registration is available in the current state and is federally mandated, so must be included in the same timeframe as HHS Portal considerations
<b>Case Assignments &amp; Updates (Non-ACES)</b>	Lower priority based on survey results, sequenced based on balance between ACES related work, non-ACES related work, and new capabilities to be included in the modernization
<b>Program Integrity</b>	Dependency on Eligibility Determination and Benefit/Service Issuance & Management, lower priority based on survey results, sequenced to help close out ACES modernization
<b>Assessments &amp; Requirements Monitoring</b>	Currently in Barcode, lower priority based on survey results, sequenced based on balance between ACES related work, non-ACES related work, and new capabilities to be included in the modernization
<b>Lobby Management</b>	Currently in Barcode, lower priority based on survey results, sequenced based on balance between ACES related work, non-ACES related work, and new capabilities to be included in the modernization. Requires modernization together with Case Assignment & Updates (non-ACES) as the functions are tightly coupled in Barcode
<b>Member Outreach</b>	Lower priority based on survey results, sequenced based on balance between ACES related work, non-ACES related work, and new capabilities to be included in the modernization
<b>Appeals &amp; Hearings Management</b>	Currently in Barcode, lower priority based on survey results, sequenced based on balance between ACES related work, non-ACES related work, and new capabilities to be included in the modernization
<b>Process Quality</b>	Lower priority based on survey results, sequenced based on balance between ACES related work, non-ACES related work, and new capabilities to be included in the modernization

i. Centers for Medicaid and Medicare Services (CMS), [“Conditions or Enhanced Funding”](#)

## Appendix N – Decision Log

Table 24 below outlines the decisions made in support of this document during the TAD Phase 2 project.

**Table 24: TAD Project Decision Log**

Asterisk indicates recommended option<sup>i</sup>

Topic	Decision	Options
<b>IE&amp;E Platform &amp; Product Architecture</b>	What type of service architecture will be implemented in the near term?	<ul style="list-style-type: none"> <li>Modular monolithic</li> <li>True microservices</li> <li><b>Hybrid architecture*</b></li> </ul>
	What is the technological standard for API gateway and further API management across the HHS Coalition?	<ul style="list-style-type: none"> <li>MuleSoft</li> <li>Similar offering</li> </ul>
	Will business logic be implemented in a business rules engine, and how will it be developed?	<ul style="list-style-type: none"> <li><b>Business rules engine*</b></li> <li>Web services</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li><b>COTS*</b></li> <li>Custom build</li> </ul>
<b>IE&amp;E Analytics Platform Architecture</b>	Which analytics architecture paradigm?	<ul style="list-style-type: none"> <li>Cloud Data Warehouse</li> <li><b>Data Lakehouse*</b></li> </ul>
	Which analytics architecture archetype?	<ul style="list-style-type: none"> <li>Centralized</li> <li>Federated</li> <li><b>Hybrid*</b></li> </ul>
	Will the data set-up be Greenfield or Brownfield?	<ul style="list-style-type: none"> <li><b>Greenfield*</b></li> <li>Brownfield</li> </ul>
	What types of data will be handled?	<ul style="list-style-type: none"> <li><b>Structured*</b></li> <li><b>Semi-structured*</b></li> <li><b>Unstructured*</b></li> </ul>
	What are the timeline requirements for analytics?	<ul style="list-style-type: none"> <li><b>Near real-time*</b></li> <li><b>Batch*</b> (incremental and full load)</li> <li><b>Streaming*</b></li> </ul>
	What are the ingestion methods?	<ul style="list-style-type: none"> <li><b>API*</b></li> <li><b>Native database connection*</b></li> <li><b>File exchange*</b></li> </ul>

Topic	Decision	Options
	What is the pattern for data ingestion?	<ul style="list-style-type: none"> <li>Extract-transform-load (ETL)</li> <li><b>Extract-load-transform (ELT)*</b></li> </ul>
	How will the data be consumed?	<ul style="list-style-type: none"> <li><b>Direct access files*</b></li> <li><b>Pub/sub*</b></li> <li><b>API*</b></li> <li><b>Structured Query Language (SQL) endpoint*</b></li> </ul>
<b>Governance &amp; Talent</b>	What are the target core skill sets for the data team?	<ul style="list-style-type: none"> <li>Data Build Tool (DBT)-SQL based low code</li> <li><b>Python*</b></li> </ul>
	What data governance model will be used?	<ul style="list-style-type: none"> <li><b>Federated*</b> (e.g., dedicated IE&amp;E data team)</li> <li>Decentralized</li> </ul>
	What is the operating model for API management and development in the future state?	<ul style="list-style-type: none"> <li>Centralized</li> <li><b>Federated*</b> (e.g., central clearinghouse)</li> <li>Completely distributed</li> </ul>
<b>Modernization Approach</b>	What modernization approach will be utilized?	<ul style="list-style-type: none"> <li>User interface-led</li> <li><b>Application-led*</b></li> <li>Program-led</li> <li><b>Capability-led*</b></li> <li>Data-led</li> </ul>
<b>Transactional Data</b>	What type of transactional database will be used for core business data?	<ul style="list-style-type: none"> <li><b>Relational*</b></li> <li>Non-relational (NoSQL)</li> </ul>

i. As expressed by IE&E Modernization Program leadership throughout the TAD Phase 2 project; further detail on each decision is included in supporting deliverables

Source: Conversations with TAD Project team (Feb – Jul 2024)

## Appendix O – Target State Crosswalk

Figure 23 below provides a mapping between future state capabilities and ACES Complex applications that currently support the capability for certain programs. The figure is utilized to support considerations for ACES Complex decommissioning.

**Figure 23: Target State Crosswalk**

IE&E Future State Capabilities		ACES complex related application					
ILLUSTRATIVE		WACON	ACES. online	ACES 3G	ACES Legacy	eServ	eDW
Business Process	Capability						
Eligibility Application	Pre-screening						
	Application Input & Changes						
	Screening & Verification						
	Eligibility Determination (including enrollment & routing)						
	Renewals						
Benefit Enrolment & Issuance	Medical Plan Enrolment <sup>1</sup>						
	Benefit / Service Issuance & Management						
Case Management	Case Assignment & Updates						
	Assessments & Requirements Monitoring <sup>1</sup>						
	Appeals & Hearings Management <sup>1</sup>						
Supporting Capabilities	Modernized Customer Support (e.g., request forms, workflow & tracking) <sup>1</sup>						
	Reporting & Analytics						
	Document Management <sup>1</sup>						
	Communications Center (e.g., notifications, alerts)						
	Letter Generation & Print						
	Program Integrity (e.g., quality assurance)						
	User Management						
	Process Quality (e.g., workflow optimization) <sup>1</sup>						
	Lobby Management <sup>1</sup>						
	Voter Registration						
	Member Outreach <sup>1</sup>						

1. Capability is currently outside of the ACES complex (e.g., in HPF, Barcode, eJAS, ProviderOne)

## Appendix P – Acronyms

The following acronyms are utilized in this document. Additional IE&E Modernization Program acronyms can be found in the Project Library at [IEE Program Acronyms List](#).

**Table 25: Document Acronyms**

Acronym	Definition
ABD	Aged, Blind, or Disabled
ACES	Automated Client Eligibility System
ACID	Atomicity, Consistency, Isolation, and Durability
AEM	Alien Emergency Medical
AI	Artificial Intelligence
ALTSA	Aging and Long-Term Support Administration
APIs	Application Programming Interfaces
APTC	Advanced Premium Tax Credits
ARB	HHS Coalition Architecture Review Board
AREN	Additional Requirements for Emergent Needs
ARSI	Afghan Refugee School Impact
AU	Assistance Unit
AVS	Asset Verification System
BFET	Basic Food Employment & Training
BPM	Business Process Management
BRE	Business Rules Engine
BVS	Benefit Verification System
CBOs	Community-Based Organizations
CDO	Chief Data Officer
CEAP	Consolidated Emergency Assistance Program
CICS	Customer Information Control System
CLEVER	Career ladder for Educated and/or Vocationally Experienced Refugees
CMS	Centers for Medicaid and Medicare Services
COE	Community Outreach & Education
COFA	Compact of Free Association
COTS	Commercial-Off-The-Shelf
CPS	Child Protective Services

Acronym	Definition
CSD	Community Services Division
CWS	Child Welfare Services
CXI	Customer Experience & Innovation
DB2	Database2
DBT	Data Build Tool
DCA	Diversion Cash Assistance
DCYF	Department of Children, Youth & Families
DED	Deliverable Expectation Document
DMS	Document Management System
DOH	Department of Health
DQL	Data Query Language
DR	Disaster Recovery
DSHS	Department of Social and Health Services
EAD	Enterprise Active Directory
EBT	Electronic Benefit Transfer
ECR	Electronic Case Record
eDW	Enterprise Data Warehouse
eJAS	Electronic JOBS Automated System
ELT	Extract-Load-Transform
ERSI	Early Refugee School Impact
ESA	Economic Services Administration
eServ	Eligibility Service
ET	Enterprise Technology
FAP	Food Assistance for Legal Immigrants
FAR	Family Assessment Response
FNS	Food and Nutrition Service
HBE	Health Benefit Exchange
HCA	Health Care Authority

Acronym	Definition
HEN	Housing and Essential Needs
HHS	Health and Human Services
HIPAA	Health Insurance Portability and Accountability Act
HPF	Healthplanfinder
IaC	Infrastructure-as-Code
IAM	Identity and Access Management
IAS	Infrastructure as a Service
IES	Integrated Eligibility Systems
IE&E	Integrated Eligibility and Enrollment
IMS	Information Management System
ITS	Information Technology Solutions
IVES	Income Verification Express Service
IVR	Interactive Voice Response
JCL	Job Control Language
JES	Job Execution System
KT	Knowledge Transfer
LDAP	Lightweight Directory Access Protocol
LEP	Limited English Proficiency
LIHEAP	Low Income Home Energy Assistance Program
LTSS	Long-Term Services and Support
MAGI	Modified Adjusted Gross Income
MDM	Master Data Management
MFaaS	Mainframe as a Service
MICP	Medically Intensive Children's Program
MIPS	Millions of Instructions Per Second
MPI	Master Person Index
MQ	Message Queue
MVP	Minimum Viable Product

Acronym	Definition
M&O	Maintenance & Operations
NASCIO	National Association of Chief Information Officers
NRT	Near Real Time
OCM	Organizational Change Management
OESD	Opportunities for Enhanced Service Delivery
OFM	Office of Financial Management
PaaS	Platform as a Service
PEBB/SEBB	Public Employees Benefits Board and School Employees Benefits Board
PMO	Program Management Office
PoCs	Proof of Concepts
PRIME	Promoting Refugee Integration, Mobility & Empowerment
QHP	Qualified Health Plan
RFP	Request for Proposal
RSI	Refugee School Impact
RYMP	Refugee Youth Mentoring Program
SaaS	Software-as-a-Service
SAW	SecureAccess Washington
SDX	State Data Exchange
SESA	Services and Enterprise Support Administration
SFA	State Family Assistance
SFY	State Fiscal Year
SMEs	Subject Matter Experts
SMS	Short Message Service
SNAP	Supplemental Nutrition Assistance Program
SOR	System of Record
SOR	Services for Older Refugees
SQL	Structured Query Language
SSE	Storage Service Encryption

Acronym	Definition
SSO	Single Sign-On
SSPS	Social Service Payment System
TAD	Technical Architecture & Design
TANF	Temporary Assistance for Needy Families
TAS	Technical Advisory Services
TCO	Total Cost of Ownership
TIA	Technology Innovation Administration
TPL	Third Party Liability
TWS	Tivoli Workload Scheduler
UCSS	Unaccompanied Children's Stabilization Services
UI	User Interface
URM	Unaccompanied Refugee Minors
URSI	Ukrainian Refugee School Impact
WaCon	Washington Connection
WAF	Web Application Firewall
WASHCAP	Washington Combined Application Project
WAS	WebSphere Application Server
WaTech	Washington Technology Solutions
WIC	Women, Infants, and Children (Cascades)