



## KEEPING THE LIGHTS-ON WHILE MODERNIZING LEGACY HEALTH AND HUMAN SERVICES IT SYSTEMS

### Abstract

The modernization of Health and Human Services (HHS) IT systems happens in phases where only a part of the functionality or only a few programs move from the legacy system/s to the new system. Recent guidance from the Centers for Medicare and Medicaid Services (CMS) will soon make modular development, procurement, and phased implementations, the norm.

This means that at any given point in time, HHS agencies would have to use both legacy and modern IT systems to deliver services, an arrangement that can have a serious impact on operations and service delivery. What should HHS agencies do to effectively use these multiple systems – some legacy, some new in production, and some in the process of being implemented?

This paper presents insights and best practices to successfully manage disparate HHS systems for disruption-free service delivery.

# Health and Human Services IT Landscape

The Health and Human Services IT landscape is an assortment of systems such as an eligibility system (or systems) for Food, Cash, and Medicaid programs; Medicaid Management Information System (MMIS) for claims management; Child Welfare and Child Support Enforcement systems; Health Insurance Marketplace; and an orientation and assessment system, among others. Each of these systems may have been built using different technologies and would have several components including case management, document management, reporting, and middleware.

To mitigate risk, any modernization effort focuses on only one of these areas or systems at a given point in time. For example, an agency may modernize its eligibility system for Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance for Needy Families (TANF) program, but may decide to use the legacy system for its Medicaid program. Given that eligibility determination and case processing for these programs is interdependent, and a member may be eligible for two or more of these programs, an agency would have to effectively use both the new and legacy systems to ensure service delivery is not impacted. If not, the agency would have to manage disgruntled members and business users, even as it spends more time, effort, and money to get the systems to work together.

Given these interdependences, it becomes extremely important for HHS agencies to plan and execute their modernization initiative properly.



## Key Factors to Consider for Effective Management of Legacy and New Systems

Modernization initiatives have four key phases – planning and procurement, implementation, rollout, and operations. There are key critical factors in each phase which an agency should focus on as it plans and executes its modernization initiative.



# Planning and Procurement Phase

**Identify the interrelated components and prioritize their modernization:** To effectively manage legacy and modern HHS systems, an agency should prioritize modernization of interrelated components (programs or functionalities). The agency should also identify what components from the legacy system can be leveraged during initial implementation in order to reduce the risk of disruption.

For example, an eligibility system consists of various functional components like application intake, verifications, recertification, rules engine, case processing, etc. Most of these components are interdependent. Data captured during the application intake phase is used to determine eligibility through various rules. So, it would be more efficient to prioritize modernization of the intake module along with the rules configuration system instead of modernizing just one of them. Independent or ancillary functions like reporting and notices can be modernized separately.

**Define timelines for every modernization phase:** The implementation should be

planned in such a way that the phasing-out of legacy components, after their modernized version goes live, happens seamlessly and there is minimal effort spent in maintaining the legacy systems during the implementation period. For example, sometimes the programs like SNAP and TANF are tightly coupled with each other in the legacy system. If the implementation timelines for these programs are multi-phased, then there will be additional effort spent in updating the legacy system to decouple these programs. This will not only increase the effort and cost but will also add to the risk of implementation failures.

Internal factors such as the way legacy system components function, availability of SMEs and external factors such as client priorities, directives and regulations, etc., should be taken into consideration while defining these timelines.

**Policy exceptions to be taken due to limitations in the current system / new system:** Instead of modifying systems to meet every policy, when it gets announced, an agency should try and assess the policies and see if it would be better to take an

exception. There may be times when an agency would have to adopt a more difficult approach to modify existing systems or build new systems to address requirements of a policy. Doing so may make IT systems more complex and difficult to manage. Some agencies set up a dedicated team whose job is to analyze various policies, study the capabilities and limitations of the agency's systems, and request for necessary waivers from CMS or other federal and state agencies.

**Security framework:** Different programs have different security needs based on the agencies that manage these programs. With the legacy system still running certain components and programs, syncing up different security requirements becomes a challenge. Agencies should make security framework more flexible to manage any disparities. One way to do this is to ensure that the roles and access provided in the new system correspond to the legacy roles so that users and their permissions can be seamlessly migrated. Use of centralized active directory-based authentication should be encouraged across all the integrating systems.

# Implementation Phase

**Partial data set conversion:** In a phased implementation only part of the system data will be migrated to the new system, so a two-system synchronization strategy needs to be designed in the beginning and implemented diligently in every phase. While there are many elements that make up the two-system synchronization strategy, automated, bi-directional data syncing across the new and legacy systems is probably most important and an agency should spend more time and effort in getting this right.

**Unique ID:** Every HHS system (new as well as legacy) will have a unique identifier. So, instead of making master data (a typical client record consists of the name of the member, age, dependents, income, etc.) part of these different systems, it would be better to maintain master data outside of any transaction system in the form of Master Client Index (MCI) so that

it can be easily referred by all – the legacy system components as well as the newly implemented systems.

**Databases:** Legacy databases are usually hierarchical or file-based while modern systems have relational databases. Data conversion issues on both sides are considerable, especially while both systems are running in parallel. Syncing up data, identifying correct data elements, maintaining integrity, and resolving data inconsistencies in legacy data at source can be challenging. Data cleanup activities in the legacy system should be planned from day one of the implementation and golden record should be maintained as per the master data management policies.

**Testing external interfaces:** HHS IT systems interact internally and externally with systems from partner agencies. When an agency embarks on a modernization

initiative, it should keep its partner agencies informed about the potential changes or updates to both the new and old systems. Collaborate with them to ensure that both the legacy and the new system communicate seamlessly with each other and the external systems to avoid disruption.

**Availability of policy and operational staff for design activities:** With the legacy system still running, an agency's policy and operational staff will have to perform their daily tasks and duties using that system. In addition, they will need to be available to assist in designing modern systems. Staff unavailability can considerably delay deliverables and impact overall timelines. SME and policy support staff requirements and availability should be discussed and agreed on upfront to avoid any impact on ongoing operations.

## Rollout Phase

**Pilot:** Pilot is a critical phase for SNAP programs where the new system is initially made available to only a subset of the member population. During this phase the legacy system has to continue to work for all the members and programs. As outlined in the previous section, making only part of the new system work along with the old system is a challenge, especially when it comes to data synchronization. Robotic process automation can help automate data sync up and simplify manual operational procedures, enabling an agency to effectively manage both the legacy and modern HHS systems.

**External interfaces:** As part of a phased implementation there might be a need to exchange data with an external agency for both the legacy and the new system. Automated file merge and split techniques should be implemented to merge data across the two systems in order to provide a consolidated view of the external stakeholders.

## Operational Phase

**Data integrity:** The same client or customer record may exist in both the new and the legacy system when the person is receiving benefits from different programs. Updating these records in case of renewals, or any life events, can be tricky and risky. Agencies should look at modern techniques like robotic process automation to automate this process and provide a single-click update capability. This will not only save time but will also increase data accuracy.

**Case processing time:** In order to view and update benefits for a client, the operations staff would have to login to different systems separately and search for a client or a case. This increases case processing time and impacts customer satisfaction. Techniques like single sign on authentication across systems and context

specific data view should be used to reduce case processing times.

**Job aids:** Several system job aids are created during early stages after go live. For the staff that is expected to simultaneously work on legacy as well as modernized systems, knowing these job aids and using them in the right way is a challenge. User-intuitive online training tools that are integrated with the case processing system should be made available to facilitate adoption.

**On-job assistance:** In order to bridge the gap between the business and technical team, a help desk should be set up. A simple chat function staff by which they can chat with the help desk for quick assistance whenever needed, enabling users to work efficiently on both legacy and modern systems simultaneously.

## Conclusion

As the modernization journey is long and consists of multiple phases, HHS agencies would have to use both the legacy and the new system for service delivery. It is very important to plan for and make every effort to use these systems effectively and reduce the impact on ongoing operations.

Availability of staff is limited in most of the Health and Human Services agencies, so automation should be maximized to ensure that data is synchronized across multiple systems and made available to the staff without any extra effort and training. Modern techniques like robotic process automation where software robots automate repetitive tasks, transactions, and processes to improve

productivity of the operational staff, should be used. Although there will be multiple systems working in the background, a unified view (user interface) should be provided to the operational staff to enable seamless navigation across the old and new systems.

With advance planning and minimal implementation effort upfront, many negative downstream impacts can be avoided. These simple considerations will not only help in controlling the operational cost and error rates during phased implementations, but will also drive operational efficiencies which in turn will reduce the wait times outside service centers.



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