

**The Future of Health
and Human Services:
An Integrated
Citizen-Centric
Approach**

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**NEW CHALLENGES
TO DATA SHARING**

New Challenges to Data Sharing

Everyone working in social services knows that taking a holistic, citizen-centric approach means obtaining data from a number of different sources within and beyond their particular agency. This has always been challenging because so many of the systems are siloed – often in mainframes that were never designed to communicate with one another.

The mission of Health and Human Services (HHS) departments is clear: Promoting well being, ensuring safety, improving health, and enhancing the employment possibilities for the citizens served by the various agencies at every level of government.

Accomplishing that mission, however, is often a challenging endeavor, as comprehensive data is not always available to support the efforts of those delivering the services. Achieving better access to this critical data is possible through effective and affordable data integration strategies.

Now, the problem of incompatibility is made more complicated because some data sources do not reside within a government agency. Social Determinants of Health (SDoH) are a prime example. Defined by the World Health Organization (WHO) as “the conditions in which people are born, grow, live, work and age,” they include neighborhood and housing conditions, economic stability, education levels, the social and community context, and the availability of health care.

Obviously, taking these into account is extremely important in providing a spectrum of services that is both effective and efficient. But integrating data related to SDoH conditions involves dealing with even more siloed data sets.



On the surface, this makes a lot of sense. When a regulation changes, programmers don't have to do their recoding within a huge, monolithic system, risking disruption of the legacy code in the process and creating new problems. Developers simply make changes to the affected business rules in the appropriate module.

Unfortunately, this modular approach to modernization has led agencies to acquire single-function point solutions from a variety of vendors, resulting in even more silos. In addition, federal funding for IT systems itself is siloed, a reality which tends to perpetuate the problem.

Integrating the multiplicity of siloed systems that exist across various programs can make agencies more efficient, cut costs and, most importantly, improve the delivery of services to citizens. To quote the American Public Human Services Association (APHSA), ["If \[data is\] integrated in relevant data sets rather than held in program silos, we can move beyond a strictly transactional business model to one that is also transformational."](#)

To be clear, data integration isn't merely an aspirational goal. It delivers immediate tangible benefits. Here's an example of how it's helping one state keep children safe by integrating its judicial system with education and HHS systems. When an individual is arrested for a DUI violation, that information is immediately forwarded to a school district system that compares the name of the accused against the roster of school bus drivers. This enables school districts to quickly remove that individual, eliminating a potential risk to children who ride the bus to school. To the extent HIPAA regulations permit, other information about that individual, such as substance abuse or psychiatric problems, can be conveyed to case workers to give them a fuller picture.

While integration is clearly a top priority for HHS organizations, it is not the only concern. The IT systems of the future must also:

- Deliver data to frontline staff in real time to inform their decision making.
- Support modularity, with a hybrid approach that includes both on-premise and cloud solutions.

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- Promote the flexibility needed to respond rapidly to change.
- Be capable of handling big data, and the increasing variety and complexity of the data sets now available for analysis.
- Connect easily with legacy systems including mainframes.

In the next section, we’ll examine how Software AG addresses these needs for HHS organizations.



2

**A COMPREHENSIVE
INTEGRATION
PLATFORM**



A Comprehensive Integration Platform

Software AG offers a comprehensive set of solutions that helps HHS agencies and their partners in IT work together more efficiently and effectively. Put simply, it increases the ability to exchange critical information among systems that wouldn't otherwise be compatible.

From an IT perspective, webMethods makes an important contribution because it simplifies the task of integrating these systems. With webMethods, developers don't need to become deeply involved in the "plumbing" of the multiple systems most agencies have in place in order to integrate them. Integration can take place in several ways.

B2B (Trading Network) Integration. This offering provides out-of-the-box support for the standard document formats used within the HHS ecosystem, notably HL7. It also enables full HIPAA compliance, making it ideal for communication with other agencies and external partners, such as hospitals and providers. One state is currently putting this capability to work to pursue modularization of various functions via best-of-breed systems while easily communicating with the Centers for Medicare and Medicaid Services (CMS).

Adapter-Based Integration. Often, important information about citizens resides in two separate enterprise-scale applications. Using adapter-based integration, separate systems can be connected so that useful information is transferred from one to another automatically, saving case workers time and effort. Software AG adapters provide drag-and-drop wizards for setting up the transfer of required information like this from one application to another. All the developers need to know is what data is involved. They do not need to know the details of how Salesforce, Microsoft Dynamics, Oracle, and other such systems work. This is an enormous time saver.



A Service Bus for Multiple Systems. When two HHS systems are integrated at any level, the result almost always benefits the users of those systems. Nonetheless, point-to-point projects, often involving an intermediary data transformation, do have drawbacks. They can be expensive and time-consuming, and can therefore only be undertaken selectively when funds are available. Also, the benefit with this type of point-to-point approach to integration is limited to the two points involved, while the delivery of services to citizens almost always involves multiple programs and data sources. Given the increasing modularity of the systems that deliver these services, there is likely to be more and more incompatibility to deal with.

“There are no inadvertent changes in data that can otherwise creep in when there’s a daisy chain of information that passes from one agency to the next to the next.”

One way to gain control of this proliferation of incompatible data is with a publish/subscribe approach made possible by Software AG’s Enterprise Service Bus. The bus is system agnostic, and has an open architecture designed to integrate easily yet securely with any system or repository at any level of government, from local to state to federal. It can even integrate with the systems of external providers.

Systems connecting to the bus can expose information for consumption by any other connected system by publishing it. Similarly, applications or services attached to the bus can pull information from other systems by subscribing to that system. Access to the bus can be controlled both to limit the data that can be published and which systems (or roles or individual users) have access to that data.

Integration with the publish/subscribe model has several advantages. From the user perspective, it means easy access to needed information. It also means accurate information direct from the source. There are no inadvertent changes in data that can otherwise creep in when there's a daisy chain of information that passes from one agency to the next to the next.

For IT, connecting all systems to each other via a shared information bus creates a much simpler, much more easily managed integrated infrastructure – one that is effectively future proof. As older applications are retired, an agency can replace them with newer application modules without worrying about compatibility. They simply connect those new applications to the shared bus and plug right into an integrated information infrastructure.



3

**LEVERAGING HHS
LEGACY SYSTEMS**



Leveraging HHS Legacy Systems

Integrating with mainframe systems will be one of the most important challenges for any agency seeking to take a more holistic approach toward the people it serves. In the second decade of the 21st century, mainframe systems remain crucial in government. The average state has [more than 20 agencies](#) that depend heavily on mainframe systems. These systems contain important data that determine eligibility for a variety of programs, as well as business logic developed over decades for the administration of these programs. As HHS agencies modernize and move to a more modular architecture, they can save enormous amounts of time and energy by leveraging these assets – and this can be done without the high cost and risk of a rip-and-replace approach.

One state where all HHS-related information and functionality resided on a legacy mainframe turned to Software AG for help combining eligibility functions for Medicaid and Children’s Health insurance Program (CHIP), as well as Affordable Care Act (ACA) integration. This resulted in a single portal for citizens, which is dramatically more convenient. Equally important, it was built at a fraction of the cost of a rip-and-replace solution.

Software AG’s Freedom for Legacy solution provides all the tools needed to integrate legacy systems into today’s modular world. To improve productivity, these tools can also be used to create web-based interfaces that combine various processes involving multiple green screens, if not multiple applications. This means greater efficiency, easier access to relevant data and a greatly reduced learning curve for new employees.



Freedom For Legacy offers three approaches to integration. They focus on data, screen flows and business logic.

- **Data.** Mainframe data files typically don't allow access via SQL. This is a major roadblock to integration, as SQL has been the most important language associated with data operations for several decades. Freedom for Legacy enables SQL access to legacy data – in real time. In addition, it lets developers join data from multiple sources. This means that data can be delivered to modern desktop applications, both for improving efficiency related to service delivery and for analytics. Users can get instant, convenient access to the data they need to do their jobs, and they can get all that data from what appears to them to be one single source, with no need to log into half a dozen different systems.

Modern web-based applications making use of these capabilities can also lead to a much improved citizen experience. For example, individuals could potentially check on their eligibility for a program and apply directly online or via a mobile device ([80 percent of households below the poverty line have cell phones](#)).

- **Screen Flows.** Freedom for Legacy also lets developers access data by identifying the relevant screens and fields where it's located in the legacy application. Using a wizard, these fields can be integrated into a new web-based application that helps case workers and citizens alike learn what they need to know. Development is a three-step process, aided by wizards. The first step is to identify the relevant transaction screens and fields. The second is to transform and compose these screens – as many as necessary – into web pages. The third step is to deploy to production.
- **Business Logic.** Freedom for Legacy allows developers to call procedures from a mainframe and leverage the business logic agencies developed in legacy systems. Through API enablement, these procedures can be seamlessly integrated into a web-based application – or any application, for that matter – eliminating the need to re-invent the wheel. When finetuning or modification is necessary, Freedom for Legacy allows integration with java and .NET.



Another economical path to modernization that lets agencies leverage legacy processes and improve access to legacy data is rehosting. The state of Mississippi Department of Human Services recently rehosted five systems to Linux, and the effort was well worth it. The state saved millions of dollars by rehosting rather than replacing these systems, and achieved important benefits: instant access to data 24/7, more efficient delivery of citizen services, and a path to future technologies such as artificial intelligence.

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Serving citizens in need is a complex and challenging task. As anyone working in the HHS community knows, the siloed nature of today’s systems makes it even more difficult. With integration solutions from Software AG, case workers, supervisors, administrators and others can get the data they need from multiple sources quickly and efficiently, leading to service delivery that’s both timely and comprehensive. Software AG offers a variety of solutions that can address challenges of any scope, whether it’s a matter of point-to-point communication, large scale integration via an enterprise service bus or leveraging legacy data and business logic for modernization. In short, whatever the mission, Software AG can help agencies get it accomplished.

For more information on Software AG’s Government Integration Hub, visit: www.softwareag.gov.com or email us at info@softwareag.gov.com