A STRATEGY PAPER FROM

CENTER FOR DIGITAL GOVERNMENT

The People-Centered Universe

Fresh Thinking on Government IT Modernization

The People-Centered Universe

Fresh Thinking on Government IT Modernization

Before Nicolaus Copernicus published his ground-breaking book, "On the Revolutions of the Celestial Spheres," astronomers thought that the Earth, not the sun, was the center of the universe. The Copernican Revolution changed all that. By focusing on the sun as the center of the universe, the heliocentric model shook up well-accepted ways of thinking and unleashed an era of scientific productivity that is impressive even by today's standards.

Today, government technology is undergoing just such a revolution. Historically, we have put the IT system at the center of our universe. But today's new world is very different. In fact, the IT-system-as-the-center model is crumbling as legacy systems age, skilled workers retire and budgets are squeezed. It's time for our own Copernican Revolution.

In short: It's time to put people at the center of our universe.

This white paper analyzes this shift and what it means for legacy system modernization in government. For a number of reasons — chief among them the changes required by health care reform — state health and human services agencies are early navigators of this new world. We focus on these agencies and how they are trying to put beneficiaries at the center as they update their IT systems to meet the new requirements of the Affordable Care Act (ACA) and the American Recovery and Reinvestment Act (ARRA). We draw on the examples of real practitioners to show how putting the citizen at the center of our architecture can change the game in legacy system modernization and in the efficient delivery of health and human services programs.

Seeds of the Revolution

A number of factors are driving the need for a change in approach to government IT, in general, and in health and human services systems in particular.

First, states are under increasing and sustained budget pressure. Thirty-three states are reporting $75.1 billion in budget gaps for fiscal year 2012, according to the National Governors Association and the National Association of State Budget Officers.[1] Nearly two-thirds of respondents in a recent NASCIO survey said they anticipate reducing IT staff.[2] And part of the staff that remains — senior IT workers qualified to maintain the mainframes — are retiring at an alarming rate, with few young mainframe specialists waiting in the wings to replace them.

Meanwhile, many states struggle to maintain aging, fragile core systems. Some HHS systems are already buckling under the stress, as hard economic times have driven more citizens into government programs like Medicaid and the Supplemental Nutrition Assistance Program (food stamps), which has reached an all-time high of 45 million people receiving food assistance.[3]

In addition, state government IT systems are siloed. Different agencies have different IT systems that don't share data easily. This situation leads to multiple sets of redundant data that are neither correlated nor kept up to date, which can lead to costly errors.

Health care reform provides an opportunity for states to adopt an approach that puts the citizen — rather than the technology — at the center of the universe.

In health and human services, such silos are even more problematic. "Within HHS, you have these closely aligned agencies that are all dealing with the same person," says John Miri, senior fellow at the Center for Digital Government. "A person who is on food stamps may also be living in public housing and on Medicaid. Today, however, that person deals with different offices, forms and processes for each service. It's confusing and frustrating for the person; inefficient, costly and error-prone for the government; and impedes rather than promotes the overall goal of improving the lives of constituents and society as a whole."

What's the solution? States seem stuck with two equally unrealistic options: "rip and replace" current systems, which is too expensive and has led to prolonged implementation delays, or "leave it alone," which is untenable in the long term. We need fresh thinking. If we shift the focus from the system to the citizen, then new opportunities become possible. The question is not whether to replace the entire system, but rather how to re-orient what's already there and what will be added in a way that provides the best service for citizens.

Health care reform provides an opportunity for states to adopt an approach that puts the citizen — rather than the technology — at the center of the universe. And the change will start with Medicaid and human services agencies. Here's why, and how.

The New World: Putting People at the Center

For more than 30 years, state governments have relied on Medicaid Management Information Systems (MMIS) to administer Medicaid funds. Originally, these enormous systems were designed to handle the payment of provider claims. But as the Medicaid program grew larger and more complex over the years, more functions were required. Today, many of these systems are sorely in need of updating. They have been stretched beyond their original design — to pay claims — with increasing numbers of functions added to a system that wasn't designed to support them. The result has been significant cost overruns and significant delays in implementation timelines, which can cost states millions of dollars. In the Center for Digital Government's 2010 Digital States Survey, at least 10 states said replacing or upgrading their current MMIS was a top priority.

Meanwhile, to improve the administration of Medicaid, the Centers for Medicare and Medicaid Services (CMS) in 2002 launched the Medicaid Information Technology Architecture (MITA) initiative, a national framework of enabling technologies and processes in a service-oriented architecture (see sidebar "The MITA Framework"). With MITA, CMS is encouraging states to move away from mainframes and towards a component-based system. One of the goals of MITA is data sharing and consistency throughout the enterprise.

Now, Medicaid systems face the additional pressure created by the Patient Protection and Affordable Care Act (ACA) of 2010, which expands Medicaid eligibility to 20 to 30 million new applicants by 2014. The law also mandates the creation of health insurance exchanges. Other federal mandates from the HITECH Act, part of the American Recovery and Reinvestment Act of 2009 (ARRA), are also coming due.[4]

The unique confluence of these factors gives state CIOs an opportunity to rethink and re-orient IT systems in health and human services. It's an opportunity to move from separate

The MITA Framework

The Medicaid Information Technology Architecture (MITA), an initiative of the Centers for Medicare and Medicaid Services, is a national framework intended to foster integrated business and IT transformation across the Medicaid enterprise to improve the administration of the Medicaid program. MITA is aligned with the National Health Infrastructure Initiative (NHII), a network of clinical, public health and personal health information systems, to help improve health care in the United States.

MITA's common business and technology vision for state Medicaid organizations emphasizes:

- A patient-centric view not constrained by organizational barriers
- Common standards with, but not limited to, Medicare interoperability among state Medicaid organizations within and across states, as well as with other agencies involved in health care
- Web-based access and integration
- Software reusability
- Use of commercial off-the-shelf software
- Integration of public health data

MITA is changing the way states design and build, change or modify their Medicaid system. In the future, states will have to ensure that their business goals and objectives meet the MITA goals and objectives.

Source: "What is MITA? An Overview," from CMS, www.cms.gov/MedicaidInfoTechArch/Downloads/mitaoverview.pdf

departmental programs with discrete IT systems, each keeping its own data, to a portfolio of services that are enabled by integrated systems drawing on the same sets of data.

Many believe that the MMIS is a good place to start. 'Health care reform is being done largely through Medicaid. And the Medicaid Management Information System is what all states use to manage their Medicaid business," says Rus Hargrave, IT director of the Oregon Health Authority. 'So it's a logical starting point for that reason alone."[5]

The MMIS already contains much of the information that will be required by health care reform. Even though the goal of the reforms, and the impetus for the creation of accountable care organizations (ACOs), is to focus on health care outcomes rather than claims and fees for specific services, the new system will still use much of the same data that the MMIS has today, Hargrave notes.[6]

Indeed, states are updating and upgrading MMIS in tandem with and complementary to preparing for health care reform. They are moving to make their MMIS modular and flexible so that they can be integrated with health information exchanges (HIEs). Kansas, for example, which already has a relatively new (2003) browser-based MMIS, is looking into ways to integrate its system with its HIE and its electronic health records (EHR) efforts. Over the next 5 to 10 years, the department hopes to make its MMIS more modular and Internet-enabled so that the state can add functions as needed. And Minnesota, which is in the process of migrating its MMIS from a mainframe to a service-based enterprise architecture, envisions a system with customizable modules and Web services that sit atop its MMIS and HIE.

As these examples show, creating a more patient-centered, integrated system need not require a forklift. Modular approaches, service-oriented architecture and Web-based services are all steps in the right direction. But the center of the proverbial universe, the thing that can pull it all together and extend it beyond health care and into the broader realm of human services, is the data warehouse.

The Data Warehouse Model

A data warehouse could link existing systems like MMIS with other agency systems as well as new systems that will be required by health care reform, such as EHRs. Did the patient get a follow-up visit? Did her blood pressure go down after a particular medication or health regimen was prescribed? 'In the new world we need to pick up those types of clinical indicators," says Hargrave.

Data warehousing can be key, particularly with various deadlines looming for health care reform mandates. By July 1, 2012, for example, systems need to be ready to administer contracts with ACOs, collect health outcome data and provide a dashboard that shows key performance metrics.[7] 'Without a robust data warehousing strategy, you can't get from here to there," says Hargrave. 'What you should do is build a very robust data warehousing capability that can aggregate the data across the different systems that you have, and some new systems that you'll build."[8]

"Without a robust data warehousing strategy, you can't get from here to there. What you should do is build a very robust data warehousing capability that can aggregate the data across the different systems that you have, and some new systems that you'll build."

– RUS HARGRAVE, IT DIRECTOR, OREGON HEALTH AUTHORITY

CMS recognizes the value of the data warehouse model. In guidance to the states, CMS has said: 'We expect that data warehouses, decision support systems, and other components of your MMIS will play a large part in achieving your state's Medicaid 'To-Be' vision for health information technology (HIT) and ensuring the meaningful use of EHR technology."[9]

The data warehouse also can become a broader bridge, linking and combining information from agencies throughout human services in ways that save taxpayer dollars, reduce waste and improve service and outcomes for beneficiaries. Rather than each agency storing data separately, and thus treating any given citizen as only a 'food stamp recipient," a 'public housing resident" or a 'Medicaid patient," such a design makes the citizen the focal point, surrounded by the services he or she uses.

The next step is to add business intelligence and analytics that can look across data sets and produce insights on the population as a whole, and — while adhering to all privacy laws, regulations and guidelines — on individual citizens to identify where people are falling through society's social safety nets. Many times after a tragedy occurs we look back and say there were numerous signs of trouble. However, agencies that provide assistance to citizens in need such as food stamps, housing programs, homeless shelters, mental health providers and child services often cannot clearly see the overall picture. A data warehouse with analytics could raise a red flag in such situations. For example, for the past two years, the state of Michigan has been involved in an initiative to ensure child safety. The State Court Administrative Office and the Michigan Department of Human Services have started sharing information compiled from the state's data warehouse in cases involving abuse, neglect, foster care and adoption. The next step in the program is to integrate Medicaid data to allow analysts to monitor the quality of health care and determine courses of care.

The program is already delivering results. From late 2008 through August of 2009, the state increased family reunifications by 34 percent among temporary court wards (TCW). This is a group of children who were identified in a Michigan children's rights lawsuit as having remained in the system for one year or longer.[10]

By analyzing the broader data, states may be able to more effectively identify patterns that show where programs work and where they are ineffective, thus improving services and saving money.

Making the New Model Work

Using a data warehouse and business intelligence to put the citizen at the center of IT systems produces many benefits, for people, for the government and for society as a whole.

- The capability to collect, correlate and analyze data from various government agencies increases the chances of catching fraud and identifying bad actors that try to cheat the system.
- Maintaining a single repository of data reduces duplication of both data and the work required to input and maintain it. It also increases the likelihood that errors, such as duplicate payments, will be caught.
- It helps the government to identify citizens who may have fallen through the cracks and to thus take proactive steps that may prevent a tragedy.

By analyzing the broader data, states may be able to more effectively identify patterns that show where programs work and where they are ineffective, thus improving services and saving money.

- Combining and analyzing health information can help detect disease or health problems earlier and get citizens the help they need sooner, improving the overall health of society and saving on health care costs in the long term.
- The integrated system could improve customer service. Citizens will find the maze of government programs easier to navigate and agencies will be able to provide help more quickly and efficiently.

The combination of all of these advantages can produce dramatic cost savings. The state of Michigan has achieved $200 million in financial benefits each year since 2005 by using advanced analytics to integrate Medicaid data. Specifically, the Michigan Department of Community Health (MDCH) and the Michigan Department of Information Technology (MDIT) have integrated 12 separate program areas encompassing 34 separate data sources into a single environment in its enterprise data warehouse. Among the users of the data warehouse are the Departments of Community Health (DCH), Human Services, Corrections, Natural Resources and Treasury, as well as the State Police and the State Court Administrative Office (SCAO). MDCH can monitor the cost and care associated with a single individual across multiple programs, which has allowed the state to improve the administration of health care services; conduct advance health care analysis to determine patterns; assess which programs are most effective; detect and reduce fraud, waste, and abuse and improve health care outcomes. The state plans to expand the use of the data warehouse to many other systems.[11]

The Office of the Inspector General used the Illinois Medicaid Data Warehouse to help collect a record $67 million in audit recoveries. Over a two-year period, the state's Department of Health Care and Family Services recovered $27 million in Medicaid fraud or errors in 2003-2004, plus stopped an additional $14 million in improper payments. Illinois' Bureau of Comprehensive Health Services used business intelligence and the data warehouse to identify medications that were being overprescribed. This led to requiring prior authorizations on several medications and saved the state more than $15 million annually as well as improving care for patients. Illinois is also planning to link data from disparate databases — including Medicaid, Census, alcohol and substance abuse programs — in an effort to improve birth outcomes for children born

Mandates for Health Care Reform

The Patient Protection and Affordable Care Act (ACA) of 2010 ensures that all Americans will have access to quality, affordable health care. It requires states and the federal government to establish health insurance exchanges that will allow consumers and small businesses to shop for coverage in a competitive marketplace. Insurers will compete for contracts on the basis of cost and quality. The ACA also mandates that states screen exchange applicants for eligibility for other federal, state and local assistance such as Medicaid and the Children's Health Insurance Program (CHIP).[12]

The State Health Information Exchange Cooperative Agreement program funds state efforts to build capacity for exchanging health information within the state and across state lines. The goal is to move toward nationwide interoperability with the National Health Information Network. As of October 2011, the program has awarded nearly $550 million to 56 states and other entities.[13]

Meanwhile, states need to comply with several health-IT deadlines dictated by the American Recovery and Reinvestment Act of 2009 (ARRA). These include updates to the Health Information Portability & Accountability Act (HIPAA 5010 transaction standards) by January 2012[14] and a new version of the clinical and reimbursement coding system (ICD-10) by October 2013.[15] State HIEs are also supposed to be interoperable with electronic health records, computerized physician order entry systems and other IT systems in order to meet the meaningful use provisions of ARRA.

to women receiving the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and Medicaid benefits.

Charting Your Own Path

It's clear that by focusing on the citizen as the center of our IT universe, revolutionary advancement can be achieved in quality, efficiency, productivity, cost and customer service. Nevertheless, such a change is not likely to happen quickly. There are some substantial challenges to be overcome. While the federal government is helping to fund the systems required for health care reform, money to build a broader citizen-centric system may be hard to come by. In addition, many states cite the lack of IT staff with skills in some of these new technologies as a significant barrier. And then there are inter-agency turf wars. Given all the budget pressures, "business units are becoming protective of available funds and less willing to cooperate," says one state IT manager.

Still, states that have started down this path are blazing trails that the rest of us can follow. Their advice:

- While you can't change everything at once, operate within the MITA-defined framework (see sidebar "The MITA Framework").
- Don't tackle it all at once, start with a few systems and add over time and according to a plan.
- Modularize legacy IT systems so that they can be used within a service-oriented architecture.
- Introduce the use of business intelligence and analytics in your data warehouse.
- Get political backing from the state legislature and leadership.

- Secure funding.
- Create a data sharing and governance process that manages the inevitable conflicts between agencies and manages privacy and data security concerns.

What has become clear is that the momentum has shifted and is gaining steam toward a holistic person-centered view of health and human services programs and systems with data-driven analytics. With federal encouragement, more and more states are adopting this approach. Recent national MMIS and human services IT conferences have underscored this approach as it is becoming a given that this is the future of HHS systems.

Despite the fact it took time for Copernicus' theory to start its revolution, once the idea took hold, the world was never the same. ■

Endnotes

1. http://www.nasbo.org/LinkClick.aspx?fileticket=yNV8Jv3X7Is%3d&tabid=65
2. NASCIO study, "State IT Workforce: Under Pressure," NASCIO, January 2011. http://www.nascio.org/publications/documents/NASCIO_ITWorkforce_UnderPressure.pdf
3. http://money.cnn.com/2011/08/04/pf/food_stamps_record_high/index.htm
4. http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/pdf/PLAW-111publ148.pdf
5. Information from Center for Digital Government interview with Rus Hargrave, conducted on Aug. 5, 2011.
6. Ibid.
7. http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/pdf/PLAW-111publ148.pdf
8. Information from Center for Digital Government interview with Rus Hargrave, conducted on Aug. 5, 2011.
9. CMS State Medicaid Director Letter #09-006 Enclosure B September 1, 2009
10. http://www.ingenix.com/news-events/press-releases/341/
11. Information from responses submitted by Devid Behen to the Center for Digital Government on Aug. 8, 2011.
12. http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/pdf/PLAW-111publ148.pdf
13. http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov__hitech_and_funding_opportunities/1310
14. https://www.cms.gov/transactioncodesetsstands/02_transactionsandcodesetsregulations.asp
15. https://www.cms.gov/icd10/

OptumInsight, formerly Ingenix, is part of Optum, an information and technology-enabled health services company serving the broad health marketplace, including more than 270 federal agencies and state governments, 250,000 care providers, 6,200 hospitals, and over 2,000 health plans, plan sponsors, 400 life sciences companies, and one in every five consumers. We specialize in improving the performance of the health system by providing analytics, technology, and consulting services that enable better decisions and results. Optum business units, including OptumInsight, OptumHealth and OptumRx, employ more than 30,000 people worldwide who are committed to making the health system work better for everyone.

The Center for Digital Government, a division of e.Republic, is a national research and advisory institute on information technology policies and best practices in state and local government. Through its diverse and dynamic programs and services, the Center provides public and private sector leaders with decision support, knowledge and opportunities to help them effectively incorporate new technologies in the 21st century.

www.centerdigitalgov.com

Acknowledgements:

John Miri is a Senior Fellow at the Center for Digital Government. After a successful career as a private sector software executive, Miri was appointed by the Texas Governor to the top regulatory board overseeing statewide electronic government. He went on to lead transformational projects for two successive Texas State Chief Technology Officers and has become an advisor and close confidant to leading state and local government CIOs around the nation. As the former Director of E-Government and Web Services for the State of Texas, Miri led the state to breakthrough results of 829 online services, 83 million citizen financial transactions, and $5 billion in online revenue. He helped found three web-based technology companies that leveraged Web 2.0 and cloud computing to achieve dramatic results for clients in the commercial markets. Miri has been a passionate advocate of next generation Internet technologies for more than a decade and is a nationally recognized speaker and author on government technology.

© 2011 e.Republic. All rights reserved.