

Commonwealth of Massachusetts Health Insurance Exchange and Integrated Eligibility System Review

Prepared by Microsoft Corporation for the Massachusetts Health Connector Authority

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1 Executive Summary

The Massachusetts Health Connector Authority asked Microsoft to conduct an independent, high-level assessment of the status of the state's Health Insurance Exchange and Integrated Eligibility System (HIX-IES). The system was being built to implement key provisions of the Affordable Care Act (ACA). This assessment involved reviewing reports and conducting interviews and workshops with information technology executives and managers from the Health Connector Authority, MassHealth, the Executive Office of Health and Human Services and the University of Massachusetts Medical School, as well as consultants from the independent verification and validation (IV&V) firm Berry, Dunn, McNeil and Parker. As part of the assessment, Microsoft was asked to provide a perspective on technology options the state might leverage to implement a functional and sustainable system. The review was conducted between January 20 and February 6, 2014.¹

Challenges facing states implementing Health Insurance Exchanges and Eligibility Systems

These are new ventures. They are complicated systems that cross public and commercial markets. Nationally, states and vendors had to compete for a limited number of software developers with the requisite technology and business requirement skills. Implementation timeframes were extremely compacted in part because regulations and guidance impacting system requirements came to the states as late as 2013, shortly before the systems were to go live. Consequently, the time for testing these complex systems was very limited.

Within the states, the two primary stakeholders, Medicaid and the Exchanges, appear to have different priorities and the markets they support have leveraged different technology approaches in the past. Medicaid's priority is determining eligibility and enrolling participants. Historically, federally funded programs like Medicaid have used large, custom-built solutions that frequently encounter time and cost overruns. The risk was manageable as long as the state could maintain agreement with the federal government and fall back on its existing system during delays. However, with respect to the ACA, there was a definitive go-live date of October 1, 2013 to ensure enrollments, with no backup system on which to rely. The Exchanges, by contrast, are charged with implementing insurance marketplaces. Their priority is to deliver top-notch service and performance to attract and keep consumers and insurers. Their goals are to provide easy access, create competition and reduce costs. The greatest risk for Exchanges is that if the technology doesn't work, consumers may lose confidence and insurers may stop participating, especially in the face of competition from the private health insurance exchange market, which has an increasingly mature set of technology components and platforms.

Massachusetts faces additional challenges

One challenge unique to Massachusetts is a byproduct of the singular success the state has achieved in implementing health reform and insuring 97 percent of its population. For other states and the federal government, delays in the functionality of the Marketplace will impact the

¹ This report is based on the Health Connector Authority's objectives, as related by the Health Connector Authority to Microsoft, and documents information Microsoft collected during the review. The Commonwealth is solely responsible for choosing the best way to meet its objectives.

pace of reducing their uninsured. In other words, they are “on the right course”; it would just take a bit longer. In contrast, Massachusetts, whose primary task is to transition its already insured residents to ACA compliant coverage, faces the risk of increasing its uninsured numbers as a result of system failure.

Another distinction relates to the programmatic complexity of subsidized insurance in Massachusetts. The Commonwealth chose to implement a single, integrated health insurance exchange and eligibility system, with the objective of providing a seamless, fully integrated experience for the entire spectrum of populations. Many other states treated health insurance exchange and eligibility as two separate projects – with different procurements, funding streams and time frames – and focused on integration of the two. ²

In addition, the Massachusetts approach involved custom-building most of the components of the system. The more components built from scratch, the greater the implementation risk. Kaiser Family Foundation and others have been tracking the progress of the states’ technology systems in meeting enrollment targets.³ States that appear to be achieving relative success include ones with a mix of custom-built functions (e.g. eligibility) and commercial off the shelf products and services, with many or even most of the HIX components utilizing the latter. Examples include Kentucky, which utilized 3rd-party components for SHOP and subsidized populations, plan selection and enrollment, premium collections, banking and carrier payments; and Nevada which utilized a 3rd-party exchange platform for major HIX functions such as plan management, plan selection/comparison tools, enrollment, subsidy calculation (APTC), billing and payments, 820 and 834 transactions, SHOP requirements and call center/member management functions.

Commercial-Off-The-Shelf (COTS) software is pre-built software usually from a 3rd party vendor. COTS can be purchased, leased or even licensed to the general public and is typically, lower cost, more reliable and more maintainable compared to custom built software.

Steps to ensure near-term coverage solutions and a workable system that is sustainable beyond

The system implementation was not functional at the October 1, 2013 start date or the January 1, 2014 date for first effective coverage. It is an operational assumption that the system will not meet requirements by March 31, 2014, when open enrollment ends. A Special Assistant to the Governor for Project Delivery was appointed to coordinate project oversight across state agencies. The state has also hired the health care technology firm Optum Inc. to provide IT implementation advisory and operational support in an effort to ensure that citizens will be able

² Organizing HIX and eligibility as two distinct projects with attention to their integration has been driven by the fact that each state’s eligibility system was different and was at a different point in its lifecycle. In some states, the eligibility system was owned by the Medicaid agency. In other states, it was owned by the Children or Family Services agency. Some states had recently implemented a new Medicaid system with a new eligibility sub-system that would be relatively easy to modify for ACA. Others had very old systems that required significant modernization, if not replacement, to support ACA and HIX integration. An example of such a state is Arizona that used the Federal Exchange and made modifications to their eligibility systems to support expanded Medicaid and other state program eligibility. These states developed the associated interfaces with the Federal Data Services Hub and then used the Federal Exchange for the plan selection and enrollment functions. CMS accounted for the varied status of eligibility systems by providing a separate funding model that followed existing Medicaid system procurement rules, with 90:10 federal matching funds, and a go-live date more than a year after the required go-live date for HIX’s.

³ See Kaiser Family Foundation - <http://kff.org/health-reform/state-indicator/state-marketplace-statistics-2/>, Government Technology - <http://www.govtech.com/health/Are-State-HIXs-Making-the-Grade.html>, Wall Street Journal - <http://blogs.wsj.com/washwire/2013/10/02/why-kentuckys-health-exchange-worked-better-than-many-others/>

to enroll for health coverage. Finally, the state succeeded in obtaining CMS authorization to extend by 90 days the open enrollment period for certain existing subsidized programs, giving people more time to transition.

While ensuring access by March 31, 2014, the state and its consultants will simultaneously focus on getting a system that is operational and sustainable going forward. To achieve this, it is important to reduce complexity and risk of failure, and a vital focus must be to ensure that there is a flexible service-oriented system architecture that supports a wide range of options, including swapping in best-of-breed components for those that do not work.

It is clear from our review that the high-level conceptual architecture for the Massachusetts HIX-IES was designed to deliver a SOA with defined components and services, including separation of the user experience from the business logic and the data layers. However, the execution of that architecture instead led to a tightly-coupled environment. The tightly-coupled environment led to major performance, scalability and data-integrity issues, and it exacerbated significant functional gaps and defects. Fixes are more complicated, take longer, and require more extensive test passes. This tight coupling also impedes the isolation, repair, and replacement of components.

A Service Oriented Architecture (SOA) is a loosely coupled computer system architecture designed to meet the business needs of the organization. This is a software design approach that defines discrete pieces of software that perform application functions and which can be flexibly combined and consumed as needs change.

The state faces choices about how to proceed with implementation to have a working system as quickly as possible, and no later than the 2014/2015 open enrollment period. The February 4, 2014 MITRE FFRDC Technical Assistance Report provided some options, but did not offer guidance on which choice to pursue. This Microsoft report suggests that segmenting the system into technical areas and re-engineering them, with either the existing vendor or a new vendor, may provide the greatest likelihood of success. Other options can also succeed if pursued appropriately, but any option will require the solid foundation laid by a modular, service-oriented system. This step is generally not huge in scope or estimated time consumption, but it is a critical step that must be done correctly.

The problems that Massachusetts is facing with the implementation of its Health Insurance Exchange and Integrated Eligibility System are solvable. The technology challenges are significant but manageable. The state must make the right decisions quickly and communicate them clearly. The decisions should stay true to the goals of extending access to coverage, creating competition, reducing health costs, and improving quality. Massachusetts is a national leader in these areas. It should not settle for less.

2 Background

Background

In 2006, Massachusetts passed “An Act Providing Access to Affordable, Quality, Accountable Health Care.” (Chapter 58 of the Acts of 2006). In 2010, the Patient Protection and Affordable Care Act (the ACA) was signed into law by the President. The ACA was modeled extensively after the Massachusetts law. Included within its provisions were subsidies and tax credits for the purchase of health insurance and a mandate for individuals to obtain insurance. The overarching policy goals of both the federal and state laws was to extend health insurance access to the uninsured, create competition, drive efficiencies and reduce health costs through the implementation of Health Insurance Exchanges (Marketplaces).

As part of its 2006 law, Massachusetts created the Massachusetts Health Connector as an independent state authority to establish the Health Insurance Exchange. To comply with the ACA, Massachusetts had to modify the types of insurance products it offered. The Health Connector offered two pre-ACA programs: Commonwealth Care for those under 300 percent of the federal poverty level (FPL) and Commonwealth Choice for those over 300 percent of the FPL. In addition, MassHealth had a patchwork of various pre-ACA programs based on income and categorical eligibility. To implement the ACA, the structure of subsidized insurance was reconfigured and in some respects streamlined. Medicaid was expanded to 133 per cent of FPL, with categorical thresholds largely removed from eligibility. The Health Connector offers Qualified Health Plans (QHPs) to individuals not eligible for Medicaid, with subsidies available to those with income up to 400 per cent of FPL.

The ACA requires the development of online Marketplaces that provide eligibility determination and shopping for health insurance in accordance with ACA rules. States have the opportunity to create their own Marketplaces or participate in the Federally-Facilitated Marketplace (FFM). Massachusetts chose to operate a state-based Exchange and build a new IT platform to provide a single web portal to determine eligibility and support shopping for Medicaid, subsidized and unsubsidized coverage. Consumers who were eligible for Medicaid would be enrolled in MassHealth. The Exchange would facilitate shopping, payment and enrollment for those eligible for subsidized or unsubsidized QHPs. The HIX/IES would connect with a federal data services hub to verify income, disability status, citizenship, incarceration status and required parameters.

The federal Center for Consumer Information and Insurance Oversight (CCIIO) and the Center for Medicare and Medicaid Services (CMS) provided funding for development of the new system.

Key Timelines and Benchmarks

Some of the key dates and benchmarks for implementation of the MA HIX/IES are listed in the table below. March 31, 2014 is when open enrollment for 2014 ends. By that date, the Health Connector is expected to convert 32,000 enrollees from Commonwealth Choice to Qualified Health Plans (QHP) and enroll people who are seeking insurance through the Exchange for the first time. With the latest extension authorized by CMS, the Health Connector has until June 30th, 2014 to convert 124,000 Commonwealth Care members to subsidized QHPs. To provide immediate coverage for people seeking subsidized coverage in the absence of a functioning system, Massachusetts has been putting people under temporary Medicaid coverage as a transitional protection. This program is authorized through June 30th. Finally, June 30th is also

the date by which Medicaid begins redetermination of eligibility for its 1,500,000 enrollees, which has been suspended since Oct 2013.

Important benchmarks requiring functioning technology system

October 1, 2013	Beginning of open enrolment for 2014
January 1, 2014	First coverage effective date
March 31, 2014	End of open enrolment for 2014; transition 32,000 members from Commonwealth Choice to QHPs
June 30, 2014	Transition of 124,000 from Commonwealth Care to QHPs; Transition people from temporary Medicaid coverage Medicaid redetermination resumes
November 15, 2014	Beginning open enrolment for 2015
January 15, 2015	Open enrolment for 2015 ends

3 Review and Analysis

This assessment consisted of a review of materials, interviews with state IT personnel and an analysis of industry options. It is not, and was not intended to be, a detailed first-hand analysis of software code or other implementation artifacts.

The most telling indicators of the current state of the system is that every critical milestone to date has been missed, including the go-live date of October 1, 2013, the October 31, 2013 date for follow-on code and feature release, and the December 15, 2013 date for additional follow-on code and feature release. Another telling indicator is that the system is still not functioning in a reliable, end-to-end fashion at the time this report was submitted.

The operative question is why the system doesn't work. It should be noted that different project members had differing priorities depending on their agency or organization objectives. However, themes that were consistently expressed by project members and documented in various reports reveal fundamental issues related to project management, software development practices and governance, architecture and infrastructure, and documentation. Each of these areas will require deeper review. A review of IV&V reports, the CMS Operational Readiness Review, the MITRE report and interviews reveals the following examples of specific issues:

- Documents and interviews indicate that there is not a single, integrated master plan to manage all of the sub-contractors, deliverables, inter-dependencies and overall progress of the implementation.
- Several different user roles are defined in the system, such as Consumer, Broker, Navigator/Assister, Customer Service Representative and Worker. Each of these roles represents significant development effort, database design, input screens, testing and more. On October 1, only the Consumer role was implemented. The other roles required manual workarounds or had a complete lack of functionality.
- There is still no objective measure of how much of the website is even completed. IT leaders from the Commonwealth Connector Authority and the Executive Office of Health and Human Services indicated that between 5 and 35 percent of the negotiated scope requirement seemed to have been implemented as of January 22, 2013.
- Required website features such as program determination, case management, reporting, operational dashboards and the ability to send notifications to users were not functional when the website went live. IV&V reports and interviews with state stakeholders indicate that the state has still not accepted the Detailed Design Documents from the vendor. There is no ability to trace the technical requirements of the website in order to determine whether the required functionality has been designed, developed or implemented. That means there is also still no way to plan and execute complete testing of the site.
- There are significant issues with project management. A substantial portion of the site's original functionality was de-scoped or deferred to meet the October 1 go-live date. This resulted in the state having to revert to manual processes for many of its populations for the open enrollment period.
- The user experience has significant usability, workflow and aesthetic gaps. User Interface for mobile platforms has been deferred.

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- The original scope to use a shared-service Identity Management System with other Massachusetts HHS systems was abandoned, which required designing and implementing a stand-alone security approach.
 - The Small Business Health Options Program (SHOP) functionality was de-scoped. The functionality to support small businesses defaulted back to the Commonwealth Choice platform and existing vendor.
 - The CMS Operational Readiness Review (ORR), conducted September 9-10, 2013, found that out of fifty-two conditions of readiness, eleven were deemed “satisfactory”. The remaining conditions were either “partial” or “missing”. The system moved forward to go-live on October 1, 2013, with the expectation that subsequent deployment of essential functionality would occur in late October. The targets were missed and the system remained effectively non-functional.

Governance and Project Management

Effective governance supports the end-to-end project life-cycle, including envisioning, planning, developing, stabilization, deployment, operation and maintenance of the implementation. Governance provides a decision-making framework that must be logical, robust and repeatable. It establishes a communication plan, change management, issue and risk management, and an issue-escalation process. Governance provides alignment with program management, particularly on large complex projects. Governance and project management must go hand-in-hand if implementation is to be predictable and successful. While well-established governance provides for the quality and standardization of technology activities, program management drives governance to ensure that all stakeholders are well-informed and that decisions are being made logically.

The February 4, 2014, MITRE FFRDC Technical Assistance Report indicated that there did “not appear to be a consistent unified vision for the system nor clear lines of accountability for implementing (the) vision.” It further noted a “lack of alignment” and a “lack of clearly defined responsibilities” among the IT staffs of the systems integrator and different state agencies.

The Commonwealth has taken concrete steps to strengthen governance and project oversight. On February 6, 2014, the Governor appointed a Special Assistant to the Governor for Project Delivery to coordinate project oversight across agencies. That person brings to the task both public sector and commercial health insurance experience.

Architecture

For states, a Health Insurance Exchange (HIX) represents a new business and a new type of system. For the first time, states are faced with the challenge of integrating a new, consumer-oriented, web-shopping experience with their traditional back-office, worker-facing enterprise systems. This presents challenges across the board – different project management approaches, development methodologies, tools, staff skills, and cultures. To manage these challenges, states need an underlying platform and architecture that is service-oriented, supports modularity and re-use, and enables the rapid deployment of proven best-of-breed components.

Seven Conditions and Standards

CMS recognized this by setting the Seven Conditions and Standards, which provide the framework for system design and the baseline for states to obtain funding for insurance exchange and eligibility systems. To quote from the guidelines, “... *these dimensions of development and artifacts are essential to help states ensure they are making efficient investments and will ultimately improve the likelihood of successful system implementation and operation*”. (from CMS *Enhanced Funding Requirements: Seven Conditions and Standards - Medicaid IT Supplement* (MITS-11-01-v1.0))

The guidelines spell out the required documentation, activities and information -- to be reviewed and approved through various gate reviews by CMS -- that allow for initial and ongoing systems funding. These principles seemed to be factored into the original architecture design of the system, although analysis indicated that there were gaps in several areas of the implementation.

A description of each of the Seven Conditions and Standards is included in Appendix A.

A review of the Operational Readiness Report, IV&V reports, MITRE report and stakeholder interviews indicates that the current state of the MA HIX-IES implementation has gaps with respect to the following conditions: leveraging conditions, business results condition, reporting condition and interoperability condition. These conditions are at the heart of re-use, growth and ability to maintain the system. For example:

- The IV&V reports called out the lack of conformance to the Modularity Condition as eliminating the ability to do component testing. Lack of modularity also impacts performance and the ability to isolate and correct non-performing components. Modularity is also correlated to the speed of defect fixes.
- The MITRE report identifies an inconsistent use of standards, practices, and procedures and Service-Oriented Architecture (SOA) principles.
- MITRE also points out that the technical design submitted to the Commonwealth did not provide enough detail to completely describe the functionality needed to build the system. The business functional architecture, process decompositions and interactions, and a systematic mapping of those processes to a business service component in a SOA are not fully apparent. The lack of alignment between the business and technical services has manifested itself throughout the software design and development processes. Data abstraction commonly achieved between the data layer and the presentation layer is absent, causing portal scalability and data integrity issues.
- The IV&V identifies inconsistent or lack of, service orientation, with respect to the Interoperability Condition and the MITA Condition. It also cites how the portal implements business logic in the portal itself, instead of using calls to external services

To avoid establishing yet another costly silo in state government and to achieve the long-range, "triple aim" goals of healthcare reform, it is essential that the exchange and human services agency share a modern technical infrastructure and assets that are acquired with federal funding. This requires that public exchanges and state health and human services agencies remain committed to continuing the foundational work of pursuing an enterprise vision that increases interoperability throughout government, including regional HIXs.

- **Gartner Inc.**, *Don't Let Healthcare Reform Deadlines Overwhelm Health and Human Services Integration Goals*, Rick Howard, October 24, 2012

via a services bus. Likewise, the portal layer is directly coupled to the data access layer without service abstraction and orchestration.

Importance of Service Orientation

As discussed previously, the public health insurance exchange is a new business domain. It will certainly evolve in the coming years as more private exchanges enter the market and businesses move to defined contribution benefit models that shift their employees into the exchanges, multi-state or regional exchanges and even CO-OP models. Sustainability pressures on the states will increase as the initial federal funding expires. These factors underscore the critical importance of a flexible, responsive, modular, service-oriented system to accommodate changing business models and support innovation.

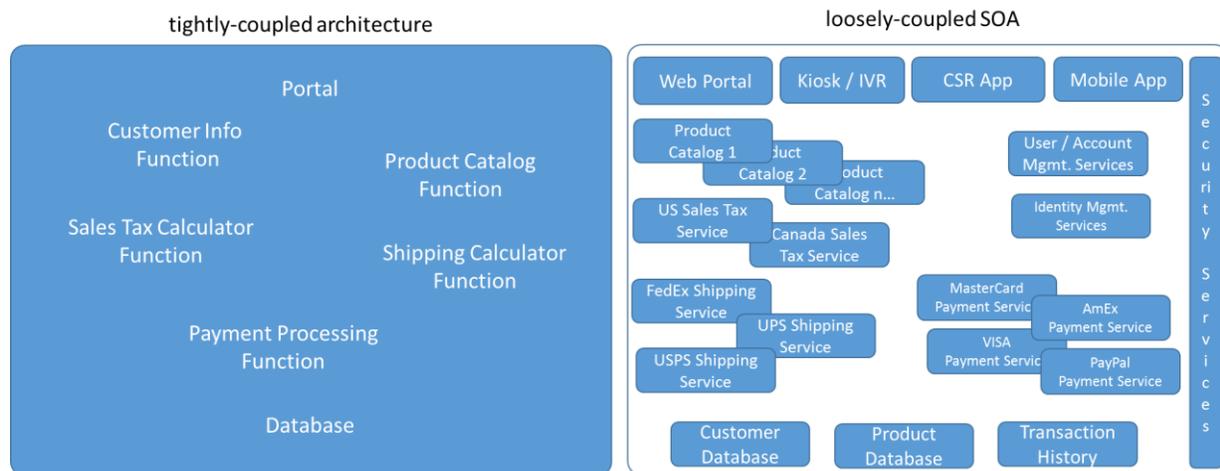
Public exchanges will eventually orient toward the commercial health insurance market and away from human services agencies.
 - *Gartner Inc., Don't Let Healthcare Reform Deadlines Overwhelm Health and Human Services Integration Goals, Rick Howard, October 24, 2012*

A Service Oriented Architecture (SOA) is a loosely coupled computer system architecture designed to meet the business needs of the organization. This is a software design approach that defines discrete pieces of software that perform application functions and which can be flexibly combined and consumed as needs change.

A true SOA environment enables system components to be assembled or developed quickly and reliably within rapid timelines. It allows components to be rolled out independently of each other as needed. And it allows re-use of components by other state programs, or other states. This improves delivery, testability, performance, sustainability and the ability to innovate.

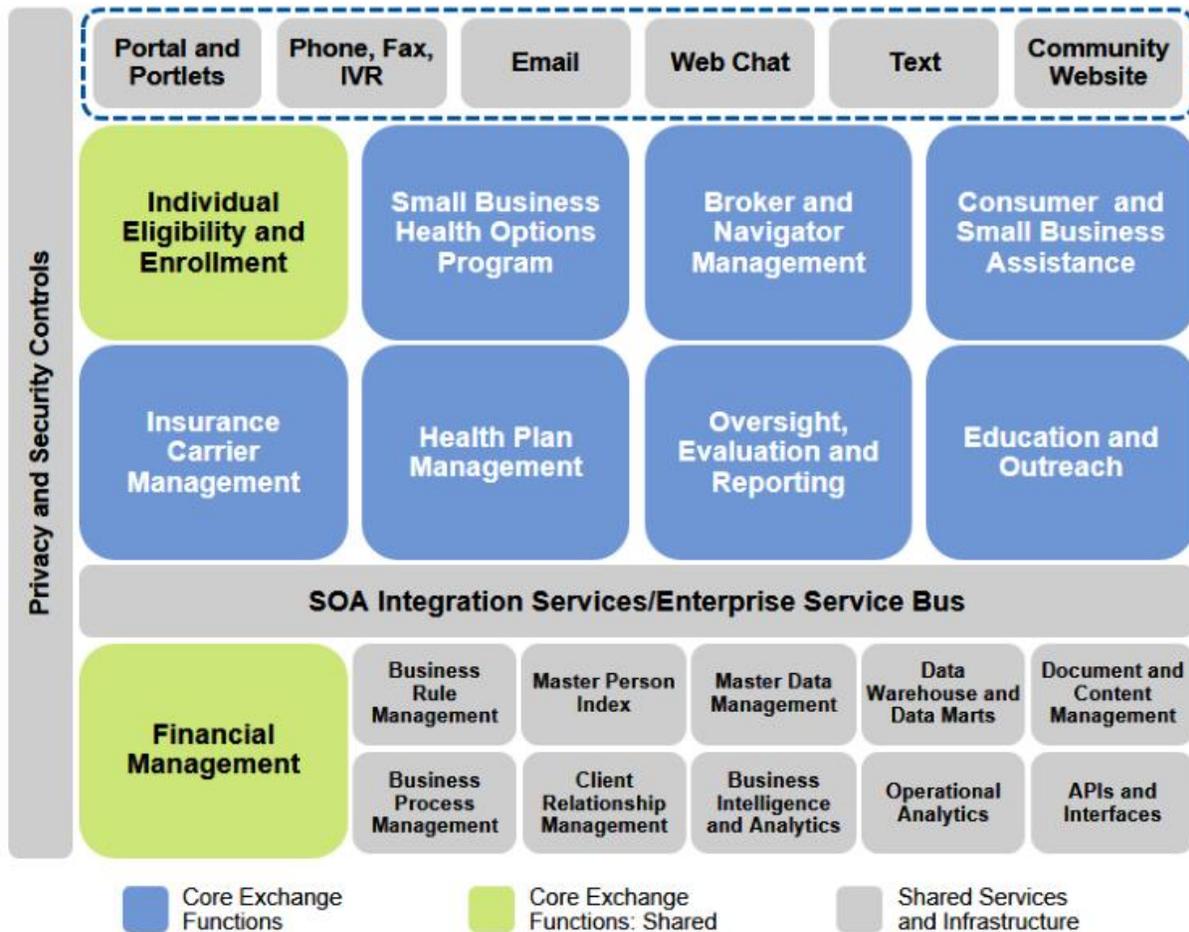
The image below depicts a very simplistic comparison between a single, tightly-coupled system architecture and a modular, loosely-coupled, service-oriented architecture. This illustrates how a tightly-coupled system impedes incremental delivery, impedes component testing and component repair or replacement and impedes future extensibility. Conversely the loosely-coupled system allows for incremental delivery of functionality, allows for the development of components or use of 3rd-party components, allows for isolation of components for testing and performance optimization and allows for future innovation, extensibility and sustainability.

Example: ecommerce website



The image below, from Gartner, builds on the concepts above to illustrate a modular, service-oriented state Health Insurance Exchange solution. The likely candidates for custom development, shared services and 3rd-party components are shown. The service-oriented approach provides for the ability to use best-of-breed components (either developed internally or with 3rd-party commercial components) for rapid deployment of components, reduced development time, reduced testing time, and more flexibility to support the aforementioned emerging business models.

The Major Functions and Services of a Health Insurance Exchange



- **Gartner Inc.**, *Don't Let Healthcare Reform Deadlines Overwhelm Health and Human Services Integration Goals*, Rick Howard, October 24, 2012

4 Industry Options

An operational assumption of this report is that most of the Massachusetts website will not be available for all of the 2013/2104 open enrollment period. Manual processes and other contingencies are being put into place. The focus of this section deals with the steps that the Commonwealth can take to achieve a functional, working system that supports coverage transition and enrollments after the 2013/2014 open enrollment period and is sustainable in the long term.

Industry Context

With the passing of the ACA and the birth of the public insurance exchange market, various business models and systems approaches have emerged. States were required to either operate their own state exchange, enter into a Partnership model with the federal government, or use the Federal Exchange altogether. In addition, there were varying levels of modernization and integration with existing state eligibility systems in the various state approaches. There has been corresponding disruption and consolidation in the private exchange market, which has been growing and evolving for about a decade. With the evolution of the private exchange market; employee benefits, retiree benefits, Medicare supplemental and individual insurance markets have evolved, too. There is more choice, more competition and more consumer focus than ever before.

This overall industry context is important to understand as the state evaluates its current situation and moves forward to meet the requirements of the law and offer the best insurance marketplace for its citizens. The state needs to ensure that it is starting with a foundation created by a modular, service-oriented architecture. All choices will require this prerequisite foundation. From a purely technical perspective, it appears the current system architecture implementation is the basis of many problems. Creating this new foundational architecture generally should not require a large scope or estimated time commitment, but it is a critical step that must be done correctly. It is critical not only to stabilizing the system, but also to enabling future options, innovation and sustainability. Decision-making and planning should be informed by an analysis and determination of best-of-breed systems and components in other states as well as in the commercial market.

Organizational Structure of Project and Systems

Assuming the prerequisite technology foundation is in place, go-forward plans must also factor in a structural systems ownership and delivery element. As discussed in Footnote 1 of this report, many states treated the eligibility modernization and HIX development as separate projects, with important integration requirements, but separate in terms of procurement, management and implementation. This approach is supported by the very nature of the two separate funding streams and deadlines governing these projects from CMS. The question arises whether to keep HIX/IES as a single project or whether it is viable for the state to modify its APD with CMS. to separate it into two projects that will come together at key integration points in the future as the systems are stabilized. A structure of separate systems solves some of the inherent conflicts in priorities between the Connector and EOHHS. This structure will allow each project to focus on its respective mission and deliver, in the timeliest manner, the system best-suited for its customer. In contrast to the current environment, this approach would enable functionality of the Health Connector even if there were delays in achieving Medicaid eligibility functionality.

One challenge with a single, tightly-coupled system is that everything has to wait until the entire system is complete before it can go into production. Separate systems or a loosely-coupled system would allow for the HIX components to go into production much sooner than the IES system. This is largely due to the availability of commercial components in the HIX market that are proven, have evolved over many years and require minimal configuration and integration. By contrast, the IES is much more complex and customized, by definition, to each state's individual requirements. CMS even recognized this as the funding and governance structures were established. Specifically, CMS indicated that the states' IES modernization projects would follow existing state development models and fall under the existing federal funding model for Medicaid systems, while the HIXs would be funded through separate establishment grants and have separate procurement requirements and different funding deadlines.

Options

As discussed, the state has to evaluate and confirm that it has the proper technical foundation in place. It should make fundamental improvements in the areas of personnel, process, and governance. In addition, the project and systems organization and structure need to be evaluated and changed or reaffirmed.

The state faces choices about the direction it will take to ensure that it has a system workable for both the 2014/2015 open enrollment and beyond. The February 4, 2014, MITRE FFRDC Technical Assistance Report identified three options, but provided no recommendations or the data required to make an informed choice. This Microsoft report provides suggested options that have been identified through a review of reports, interviews and workshops. Where applicable, the suggested options are aligned to those suggested by MITRE. Each option includes an analysis of apparent strengths and limitations, as well as information or research required to support that approach.

- **Segment the system into separate technical areas and re-engineer each segment as required to complete the system.** In addition to making governance, project management, staffing and architecture improvements, this approach would take a systematic look at each of the functional areas of the exchange, including underlying sub-systems and components, to evaluate the efficacy of using transfer or third-party components. The commercial HIX space contains many proven components and companies with years of experience offering successful commercial insurance exchanges. Pure technology companies offer technology components and complete exchange platforms. Shopping and plan-comparison tools and health insurance-specific customer support and call center solutions are available for the subsidized populations, non-subsidized and the SHOP populations. Plan management and financial services -- including premium collection, premium aggregation, premium payments and additional features like health savings accounts -- are also available. Several states have integrated these sub-systems and components into their health insurance exchange solutions.⁴ This segmented approach would be consistent with a decision to separate the HIX and eligibility systems into two distinct projects that would come together at key integration points in the future as the systems are stabilized. It would also minimize custom development, testing and risk, and offer the greatest flexibility, the shortest time-

⁴ Examples include Choice Administrators used in Nevada; or HCentive or Healthation used in Kentucky.

to-market and the most sustainable model. This approach could be undertaken by the existing vendor or a new systems integrator vendor.

- **Design and implement a new system with a new systems integrator (SI) vendor.** For purposes of this report, this approach assumes replacing the current vendor and “transferring” a system that has been successfully implemented elsewhere. This approach would likely leverage a combination of custom-built and commercial off-the-shelf products. It would be necessary to identify key metrics of success, identify the top systems against those metrics, and determine their compatibility with the Commonwealth’s vision. Success would depend on the availability of a team of developers experienced in implementing the transferred system. A risk of this approach is that HIX implementations began on October 1, 2013, so there is limited data to determine successful systems. There are indications that some systems -- namely those supporting Kentucky and Nevada -- are achieving success in meeting enrollment targets and have implemented a SOA architecture that uses third-party components for plan management, shopping, small business, and financial services.⁵
- **Continue to incrementally improve the current system.** This option could be undertaken with either the existing SI vendor or a new one. The current system implementation continues to rely on building out more components from scratch. It expects to correct, over an extended period of time, architectural flaws that have resulted in a monolithic, tightly coupled system. Between now and the next open enrollment, it is essential that both the eligibility and the HIX components are functioning well. Continuation of the current approach is risky unless near-term implementation of a service-oriented architecture is implemented and, where applicable, best-of-breed COTS components are leveraged to achieve HIX functionality. The keys here are reducing complexity, improving time to market and sustainability.

Default to the Federal Exchange. This is not an optimal option, at least in the long term. It is included here only because it is often raised as in discussion. It may not provide Massachusetts with the platform for its health reform transformation and, therefore, a replacement system may likely still be required. In the meantime, the state would still have to complete implementation of its eligibility system. Based on our review, it is not clear at this juncture whether the federal exchange would have the capacity to integrate the Massachusetts health plans, given its own remediation efforts.

The table below identifies go-forward options available to the state, with actions required to support the choice.

⁵ See Kaiser Family Foundation - <http://kff.org/health-reform/state-indicator/state-marketplace-statistics-2/>, Government Technology - <http://www.govtech.com/health/Are-State-HIXs-Making-the-Grade.html>, Wall Street Journal - <http://blogs.wsj.com/washwire/2013/10/02/why-kentuckys-health-exchange-worked-better-than-many-others/>

Table of Options

Go-Forward Choices	Implement Governance/ Project Management	Implement SOA Architecture	Determine Best of Breed COTS and Transfer Components	Determine Best of Breed Transfer System	Comments
Segment System into technical areas and then re-engineer	X	X	X		Combination custom build and COTS; greatest flexibility, least time to market, most sustainable
Design and implement new system with new SI/vendor	X	X		X	Combination of COTS and custom built components
Continue to incrementally improve current system	X	X	X		Based on failed implementation to date, hi risk unless SOA implanted and where applicable COTS used
Default to federal	X	X			Temporary; need replacement plan for new system

5 Recommendations

The Commonwealth has taken concrete steps to strengthen governance and project oversight with the appointment of a Special Assistant to the Governor for Project Delivery. Likewise, by bringing on Optum, it has likely strengthened its capacity to reduce backlog and assist citizens in enrolling for coverage by March 31, 2014, when open enrollment ends.⁶

It is necessary to achieve a functional, working system to complete coverage transition and support the 2014/2015 open enrollment period. The system that is implemented must also be sustainable past 2015.

There are multiple options from which the Commonwealth could choose moving forward. Based on the information available at the time this report was submitted, however, segmenting the system into separate technical areas and re-engineering each segment appears to offer the greatest flexibility, shortest time to market and most sustainability.

A core element of any option should be to ensure that it builds off of a modular, service-oriented foundation that implements the CMS Seven Conditions and Standards. To achieve a workable, sustainable solution, it is necessary to reduce complexity and risk of failure while creating the flexibility to swap in best-of-breed components. This will allow the state to replace problematic components and address evolving business requirements into the future. To make the most informed choice going forward, the state should assess:

- Best-of-breed options for health insurance exchange functionality, including proven commercial, off-the-shelf products and services.
- Best-of-breed options for system replacement, including custom-built eligibility systems successfully deployed in other states that could be transferred to Massachusetts.
- The efficacy and viability of separating the health information exchange and the eligibility system into two projects, which can be integrated at various points once these sub-systems are stabilized.

The state faces significant but manageable challenges in the implementation of its Health Insurance Exchange and Integrated Eligibility System. Decisions should be made quickly and communicated clearly. Achievement will be determined by the furtherance of health reform goals. These include extending access to coverage, creating competition, reducing costs, and improving quality. Massachusetts has been at the forefront of the nation in these areas. The technology system it implements should enable its continued success. The state should not settle for less.

⁶ See Appendix 2, regarding lo tech options to support manual workarounds

Immediate and Near Term Actions		
	Immediate	Present to 5/31
Implement new/modified Governance/Project Oversight	Appointment of Special Assistant to Governor for Project Delivery	
Ensure enrolment for 3/31	Appointment of Optum	
Facilitate compliant SOA architecture		X
Determine efficacy and viability of separating HIX and Eligibility System into two projects		X
Determine best of breed COTS components for HIX functionality		X
Determine best of breed transfer options for system replacement		X

6 Appendix

A-1 Summary of the Seven Conditions and Standards

(from CMS *Enhanced Funding Requirements: Seven Conditions and Standards* - Medicaid IT Supplement (MITS-11-01-v1.0)

Modularity Standard: This condition requires the use of a modular, flexible approach to systems development, including the use of open interfaces and exposed application programming interfaces (API); the separation of business rules from core programming; and the availability of business rules in both human and machine-readable formats. The commitment to formal system development methodology and open, reusable system architecture is extremely important in order to ensure that states can more easily change and maintain systems, as well as integrate and interoperate with a clinical and administrative ecosystem designed to deliver person-centric services and benefits. Modularity is breaking down systems requirements into component parts. Complex systems can be developed as part of a service-oriented architecture (SOA). Modularity also helps address the challenges of customization.

Medicaid Information Technology Architecture (MITA) Condition: CMS's MITA initiative is "intended to foster integrated business and IT transformation across the Medicaid enterprise to improve the administration of the Medicaid program." With respect to Health Insurance Exchanges, the MITA condition requires states to align to and advance increasingly in MITA maturity for business, architecture, and data. CMS expects the states to complete and continue to make measurable progress in implementing their MITA roadmaps.

Industry Standards Condition: States must ensure alignment with, and incorporation of, industry standards: the Health Insurance Portability and Accountability Act of 1996 (HIPAA) security, privacy and transaction standards; accessibility standards established under section 508 of the Rehabilitation Act, or standards that provide greater accessibility for individuals with disabilities, and compliance with federal civil rights laws; standards adopted by the Secretary under section 1104 of the Affordable Care Act; and standards and protocols adopted by the Secretary under section 1561 of the Affordable Care Act. CMS must ensure that Medicaid infrastructure and information system investments are made with the assurance that timely and reliable adoption of industry standards and productive use of those standards are part of the investments. Industry standards promote reuse, data exchange, and reduction of administrative burden on patients, providers, and applicants.

Leverage Condition: State solutions should promote sharing, leverage, and reuse of Medicaid technologies and systems within and among states. States can benefit substantially from the experience and investments of other states through the reuse of components and technologies already developed, consistent with a service-oriented architecture, from publicly available or commercially sold components and products, and from the use of cloud technologies to share infrastructure and applications. CMS commits to work assertively with the states to identify promising state systems that can be leveraged and used by other states.

Business Results Condition: Systems should support accurate and timely processing of claims (including claims of eligibility), adjudications, and effective communications with providers, beneficiaries, and the public. Ultimately, the test of an effective and efficient system is whether it supports and enables an effective and efficient business process, producing and communicating the intended operational results with a high degree of reliability and accuracy.

Reporting Condition: Solutions should produce transaction data, reports, and performance information that would contribute to program evaluation, continuous improvement in business operations, and transparency and accountability. Systems should be able to produce and to expose electronically the accurate data that are necessary for oversight, administration, evaluation, integrity, and transparency.

Interoperability Condition: Systems must ensure seamless coordination and integration with the Exchange (whether run by the state or federal government), and allow interoperability with health information exchanges public health agencies, human services programs, and community organizations providing outreach and enrollment assistance services. CMS expects that a key outcome of the government's technology investments will be a much higher degree of interaction and interoperability in order to maximize value and minimize burden and costs on providers, beneficiaries, and other stakeholders. CMS is emphasizing in this standard and condition an expectation that Medicaid agencies work in concert with Exchanges (whether state or federally administered) to share business services and technology investments in order to produce seamless and efficient customer experiences. Systems must also be built with the appropriate architecture and using standardized messaging and communication protocols in order to preserve the ability to efficiently, effectively, and appropriately exchange data with other participants in the health and human services enterprise.

A-2 Lo-tech contingencies to support manual workarounds:

Prior to the state's engaging Optum to implement 3/3/1 enrollment the review team discussed with the state lo-tech options that might support manual workarounds. This included screen consolidation efforts to reduce manual time processing enrollments. Other considerations included:

- 3rd-party tools to support enrollment of sub-populations whose eligibility criteria and plan selection are simple. For example a 3rd party exchange platform (with plan comparison, shopping, enrollment functionality) might be used to support non-subsidized individuals or non-Medicaid subsidized individuals where income attestation allowed.
- Utilization of a simple web-based screening tool to determine whether a consumer is eligible for state or subsidized plans or non-subsidized plan and then direct the consumer to a 3rd-party enrollment tool (example above); or to SHOP website; or to call center for Medicaid enrollment. This would reduce traffic on the website and the call centers. This similar to a tool used by Kaiser Family Foundation <http://kff.org/interactive/subsidy-calculator/>.
- Developing an eForm / App that could be filled out and transmitted to a queue in the call center where the XML form data could be extracted and entered into a call-center workers screen automatically.

If any sub-groups or sub-populations can be handled through one of these alternate methods it could offset the manual / call-center staffing requirements positively. For example if it takes 2 hours to manually enroll someone through the paper / call-center path then for every 1000 people that don't have to go thru the paper process between now and 03/31, it reduces call-center staff requirements by 5 workers.