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Information Technology**

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Colorado Health Care Policy and Financing (HCPF) Executive Dashboards

Nomination Category	Open Government and Data, Information Knowledge Management
State	Colorado
Project Initiation Date	March 2014
Project Completion Date	January 2015

I. EXECUTIVE SUMMARY

Data sharing within the State of Colorado agencies has historically been very limited. Vast amounts of data collected by agencies was not being leveraged to its full potential; and information was often either wasted or captured redundantly. The state called for a platform that could store, catalog, and analyze this data. The goal was to efficiently employ analytics for maximum information over multiple uses rather than one-time projects. This would save time and money for the state and its citizens. Recognizing this need, the Office of Information Technology (OIT) created the Data Insight platform.

The Data Insight platform is designed for state data analytics and support for business operations. It encompasses data and information governance, data integration from disparate systems and identity resolution of information across all contributing organizations through big data analytics. The platform allows for the storage, integration, and processing of data from a variety of different source systems in multiple formats using an agile approach that delivers results more quickly while being responsive to changing analytics and the state's operational needs.

This project reduced Colorado's state operational costs by creating a reusable analytics framework around information standards and services. It also allowed for more efficient use of resources by reducing training costs related to information interpretation and eliminating the redundant capture of data.

The Data Insight platform concept coincided with the need to implement the Affordable Care Act (ACA) through the Department of Health Care Policy and Financing (HCPF), OIT, and the health insurance marketplace – Connect for Health Colorado. When enrollment opened, the state saw a significant increase in the number of Coloradans applying for medical assistance programs and it needed to monitor and report on the implementation of the ACA. Based on the Data Insight platform, the first phase of the HCPF Executive Dashboards project was rolled out in May 2014. It allowed the state to monitor, track, analyze and report the outcomes of ACA implementation. Due to the success of the dashboards, the second phase of ACA-related dashboards was rolled out in January 2015.

The purpose of the dashboards is to provide HCPF executives with Medicaid expansion and application processing performance indicators. They assist HCPF in reporting necessary data on a weekly basis to the Centers for Medicare and Medicaid Services (CMS), the federal agency responsible for oversight of the ACA implementation. The dashboards provide insight on operational functions throughout the eligibility and enrollment processes so leadership can maximize resources, track performance, troubleshoot issues, and ultimately pave the way for future public sector data analytics.



II. PROJECT NARRATIVE

a. Concept

The HCPF Executive Dashboard was required for several reasons. First, it was invaluable in meeting CMS requirements for weekly and monthly reporting on the Medicaid expansion component of the Affordable Care Act (ACA). Second, it facilitated timely response to inquiries about Medicaid eligibility and enrollment in Colorado. Finally, it was required for HCPF leadership to track a significant requirement of ACA: to make immediate determinations of eligibility when Medicaid applications were filed (a functionality referred to as Real Time Eligibility, or RTE).

The second phase of dashboards includes metrics from HCPF back office, call centers and the state based marketplace (Connect for Health Colorado). Without these dashboards, data analysis would require manual effort from several data analysts and delay decision making.

The development of the HCPF Executive Dashboard was performed by Deloitte Consulting, the state's maintenance vendor for the Colorado Benefits Management System (CBMS), which supports both HCPF and the Colorado Department of Human Services (CDHS). The dashboards were broken into multiple sub-projects and an Agile project management approach was used which allowed the product owners and implementation team to maximize the value of each deliverable.

The HCPF Executive Dashboard is built on open-source big data products and an open-source identity matching platform. This choice enabled Colorado to realize cost benefits and save time during its implementation. End-to-end implementation of the first sub-project was done in only five weeks – far less time than it would have taken a more traditional approach using master data management and data warehouse technologies.

The HCPF Executive Dashboard calls on three systems for data: CBMS, Connect for Health Colorado, and Colorado's self-service portal, PEAK (the Program Eligibility and Application Kit). The dashboard provides HCPF leadership with information on aspects of the ACA and Medicaid expansion including:

- PEAK and Connect for Health Colorado applications received*
- RTE success rate*
- Non-RTE and combo applications statistics*
- Pending PEAK and Connect for Health Colorado inbox applications*
- Inbox application worked by counties and Medicaid vendor*
- Medicaid eligible by category (MAGI, Non-MAGI and CHP)
- Medicaid ineligible by application source, age, gender, ethnicity, etc.
- Number of uninsured Coloradans after Medicaid expansion
- Medicaid expansion eligible
- Medicaid applications received by source (online, mail, in-person, phone, other)



- Annual renewal due by category (MAGI, Non-MAGI and CHP)
- Eligible redetermination
- Application processing times (from number of hours to number of days, weeks, months, and years)
- Call center metrics (call volume, wait time, abandonment rate, repeat callers)
- Back office: Application disposition statistics
- State-based marketplace transfers

**Indicates near real-time dashboards that refresh data every four hours from the operations database*

b. Significance

While implementation of the Affordable Care Act (ACA) using the federal health insurance exchange was experiencing significant issues, Colorado's launch of ACA was one of the most successful in the nation. Approximately 180,000 additional Coloradans became eligible under the Medicaid expansion rules. Additionally, thousands of applicants for health insurance were determined ineligible for Medicaid first, preparatory to a determination that they were eligible for income tax credits and/or premium cost reductions.

The sharing of information across boundaries using the HCPF Executive Dashboard improves decision-making, mission performance, and customer service. Additionally, centralizing governance, security and standards around the information reduces misinterpretation of data and provide the structure for ongoing, secure and reusable information exchanges. The Executive Dashboard created the architectural framework for those information exchanges by making data visible, accessible, understandable, and above all, trusted.

Both Executive Dashboard projects proved how powerful data analytics can be for the state. Upcoming dashboard projects will address data collection and generating on such topics as the following:

- Caseload metrics
- Case growth
- Applications disposition
- Application processing timeliness
- Predictive analysis
- Over and underpayment report
- County performance
- EDBC re-run report
- Repeat authorization report
- Statewide timelines graph
- Timeliness vs. complexity graph



The State of Colorado recognizes that data analytics is an asset just as human resources, capital and property, and financials are assets – critical to business success. Data has the potential to become powerful information if analyzed through the right set of dashboards, and more shared, cross-agency information provides insights to a business problem or issue. Deeper insights create impactful outcomes for Colorado’s citizens.

c. Impact

The HCPF Executive Dashboard adds value in four key areas:

1. *Governance*: This component jumpstarts any government or approved entity to easily create the privacy statements, memorandum of understanding (MOU), data dictionaries, checklists and all the necessary tools required to share data amongst government agencies and external entities. The entity that owns the data retains complete control over it.
2. *Hybrid Big Data Integration*: The framework, developed using open source Apache Software foundation components, includes metadata and contact information, policies generated from the governance framework and any other relevant information required for an entity to understand and use the data. It connects on the back end to multiple data sources as well as enterprise data stores. It provides the capability to integrate unstructured data to analyze both big data and traditional data sources. Additionally, it provides capabilities around strict roles-based access rights so that an entity may expose their data to only those members who are allowed access.
3. *Identity Resolution*: This framework, developed using open source Apache Software foundation, includes a component for resolving individual identities in real time using open-source software. A participating entity must follow the guidelines for resolving identity which includes submitting certain elements of an identity that will be resolved or added. This includes some configurability on how the resolution is established and what is returned to the requestor.
4. *Analytics*: This framework delivers a complete business analytics solution that includes everything from reports, dashboards, interactive visualization and exploration, predictive and prescriptive analytics.

Before the HCPF Executive Dashboard was operational, many data analysts across both HCPF and the private contractor (Deloitte) had to be engaged to produce manual reports and queries to report the metrics that are now starting to be reported using automated tools and processes through the HCPF Executive Dashboard. This has resulted in reaching the four overarching goals of the Colorado Data Insight initiative:



1. *Improve information availability and interoperability within the state:* Thanks to this project, there are now current, updated ACA statistics for HCPF executives. Initially, reporting was a manual process, taking three to four hours to produce. With the implementation of the HCPF Executive Dashboard, the manual process was eliminated and data refreshed every four hours during the standard business hours of 8 a.m. to 4 p.m., Monday through Friday.
2. *Reduce costs and redundancy:* The former manual reporting process took an average of four hours to complete daily statistics, and five to seven days for monthly statistics. With the dashboards that are now used to generate and obtain statistics, daily reporting was completely eliminated, and the time dedicated to monthly reporting was cut in half. Real Time Eligibility data is now refreshed every four hours, providing up-to-date information for executives, whereas the manual process only included a snapshot of the previous day's statistics.
3. *Increase information agility:* Relevant ACA data for executives now available.
4. *Increase information security:* There is now role-based access control (RBAC) around who can access and use the data; and auditable information around access and reporting.

The HCPF Executive Dashboard allows transparency and good government collaboration based on the Governor's Colorado Blueprint and builds a foundation for better, holistic, decision-making within the state. The Data Insight is a unique platform that will transform government's decision-making process through better use of analytics.

