Centralized Application and Management System
Category: Data, Information and Knowledge Management

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Nomination submitted by:
Samuel A. Nixon Jr.
Chief Information Officer
Commonwealth of Virginia
Virginia Information Technologies Agency

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Executive Summary

The Centralized Application and Management System (CAMS) streamlined program administration, monitoring and oversight of agency-related programmatic and project information throughout the Commonwealth of Virginia. At the Department of Housing and Community Development (DHCD), this comprehensive initiative leveraged staff resources, consolidated existing systems, overhauled data reporting and collection, improved fiscal accountability, and digitized workflow.

DHCD has a broad service base: creating safe and affordable communities in Virginia, partnering with communities to develop economic potential, regulating building and fire codes and providing training and certification for building officials.

DHCD had an inadequate information lifecycle management process, operational inefficiencies: data collection, report management, compliance, fragmented interface with customers, lack of communication within the agency, manual processes and a decentralized customer data repository.

As a result, DHCD did not have a consistent approach to managing customer interactions. To provide better customer service and coordinate the collection and reporting of data across the agency, a strategic effort was initiated to modernize its processes and technologies.

DHCD undertook an exhaustive internal assessment and a June 2011 formal kick-off to assess business processes and prioritize infrastructure development. This included high-level engagement from DHCD program staff and senior-level management. The team focused on business process reengineering, customer interaction, process mapping, examination of workflows and Web-based functionality. The findings served as the impetus for development of the CAMS project, which launched simultaneously with a redesigned DHCD website and content management system.

In 2012, the CAMS initiative received the Technology Innovation Developer Award by the Greater Richmond Technology Council.

The CAMS project brought significant improvements in the commonwealth including:

- created an interactive information lifecycle management process
- established a central repository and Web-based portal
- established operational efficiencies through contained costs
- promoted interagency collaboration that reinforced transparency
- standardized data management and governance of state and federal funds
Description of the business problem

DHCD lacked adequate information lifecycle management. Processing delays compromised customer service enterprise-wide because of the fragmented interface both within and between divisions. Manual data collection and reporting oversights did not fully address the needs of external users and internal staff. Traditional paper-based processes and the absence of a centralized interface compromised resource management. Gaps in sufficient data sharing and redundancies negatively affected DHCD functionality and partnerships manifesting as operational inefficiencies.

Solution

After conducting an agency-wide business process assessment, DHCD launched CAMS in June 2011 to address systemic challenges and improve the use of existing resources. The goal was to better serve internal and external customers. As a modified data management process, CAMS:

- created a centralized repository of standardized data
- initiated an interactive feature for ongoing customer contact
- established a repository for processing applications and proposals
- managed oversight of programs, finances and projects

Leverage and transferability

The CAMS infrastructure can be expanded at DHCD and is a model for other state agencies. Given the focus on business process reengineering, the CAMS effort has future implementation cycles. Additional reporting capabilities and collaboration with other DHCD endeavors are possibilities.

The CAMS endeavor is an attractive consideration for other state and local entities to streamline and establish uniform data management protocols. For instance, CAMS enhancements include the availability of enterprise-wide access to aggregated data. The storage of all project-related information – award letters, proposals, contracts, budget details, audits, reports and compliance – are housed within a single repository. Also, the CAMS information is available from DHCD for legislative and executive personnel to showcase information lifecycle management within the commonwealth.

Project definition and scope

The core objectives of the CAMS project were to improve efficiency and eliminate redundancies through modernization. Through a custom-designed system, CAMS centralized government program administration and facilitated a high-quality user experience. Key aspects of the CAMS project include data collection, client relationship management, budget management, reporting requirements, and compliance and audit specifications within DHCD. A comprehensive effort centralized at DHCD, the CAMS project simplified access to financial data and federal- and state-funded program content for customers and DHCD staff.
The CAMS project permits real-time project management. Key features are the ability to flag inconsistencies for compliance purposes and to conduct risk analysis. The CAMS initiative creates transparency where internal program staff and senior management, along with external customers, have access to updated information. Through CAMS, reminders notify customers when reports or other project requirements are due. This allows DHCD staff to assess the progress of assigned projects. As different divisions within DHCD share the same customers, CAMS allows for the exchange of information, on a project and organizational level. This ensures an informed DHCD staff.

Consultants were assigned to support the needs assessment, requirements analysis, business process mapping, scheduling and tracking, internal and external customer user guides and references, communications plan and user testing.

**Architecture**

The CAMS initiative was developed internally at DHCD using the Microsoft ASP.Net 4.0 framework Web delivery from Microsoft’s Internet Information Services web server technology. Information is maintained on Microsoft's SQL Server relational database. The Web pages incorporate organically developed JavaScript, custom user controls and Telerik’s RadControls for ASP.NET AJAX. The initiative was launched with a cascading style sheet standard layout and design feature in the browser.

**Accessibility and information security**

To promote customer service, CAMS has 24x7x365 web access for citizens and administrators. This reinforces the commitment to provide access between programs, department divisions and customers. The CAMS effort is compliant with commonwealth and federal accessibility statutes and DHCD actively partners with commonwealth security to ensure best practices are followed.

**Communications plan**

To implement CAMS, several strategies were executed to communicate the new endeavor throughout the agency and among clients. To ensure that users were educated about the program, a communication plan included:

- Onboarding – Debriefing for DHCD staff about CAMS with specialized training
- User support – DHCD staff provided troubleshooting and technical support
- Policy, procedures and guidelines – Documentation on protocols and compliance
- Education and training – Interactive workshops, field testing, needs assessments and case study training
- Marketing/collateral/resources – DHCD launched a frequently asked questions (FAQ) resource, video curriculum and an online CAMS user guide
- Public relations – Mass email notification, press releases and announcements were distributed to internal and external customers
Significance of the project

The CAMS initiative brought significant efficiencies for data management and information exchange. This innovative approach transformed business processes for DHCD and improved interaction with citizens (as customers and taxpayers), agencies, planning district commissions, vendors, non-profit organizations and local and state policymakers. CAMS also revamped DHCD processes and led to enhanced transparency.

As a result, partners such as local governments, planning district commissions, developers and other housing and community development authorities realize immediate benefits whether it involves applying for funds, managing existing projects or staying in communication with the DHCD.

The CAMS project aligns with Governor Bob McDonnell's priorities including:

- program tools that enable 24x7x365 customer support
- enhanced information sharing to optimize business functions and systems
- expanded back office productivity supporting streamlined government operations

Moreover, the CAMS project underscores the NASCIO state CIO information technology priorities through the consolidation of services or data centers. This was accomplished through coordination of data across the agency to provide a seamless user experience. The CAMS endeavor also promotes optimization by maximizing the data platform. Existing resources were used. Automated notifications and monitoring were implemented. The CAMS project also provides a transparent repository to enhance collaboration and communication across the agency and with customers. Finally, the NASCIO state CIO goal to contain budget and cost controls was reinforced throughout the CAMS project.

Benefit of the project

Various improvements resulted from the CAMS implementation throughout the commonwealth. Gains include project impact and outcomes and qualitative and quantitative benefits.

Project impact

The endeavor has been beneficial for internal and external customers. For internal staff, the effort has:

- streamlined processes
- improved data exchange
- improved payment processing time
- reduced the incidence of duplicate records
- diminished inaccuracies
In addition, there has been greater inter-agency coordination and collaboration with vendors and other state and local partners. For external customers, CAMS allows for program and project interaction from the DHCD Web-based portal including:

- proposal submission and revision when necessary
- contact information updates
- project management
- data collection
- audit submissions
- contract and budget revisions
- compliance monitoring
- budget management

The CAMS endeavor serves multiple audiences and accomplishes various objectives simultaneously, leverages existing modernization technology and acts as a repository and searchable Web-based portal.

Implementation for CAMS cost approximately $1 million over two-years and came in within budget. With just under one year of implementation, the project already is demonstrating significant procedural-, efficiency- and customer-based benefits.

**Project outcomes**

Before development of CAMS, information management was difficult to manage. DHCD employees and partners experienced technical and project management issues. After CAMS, processes and program oversight were improved.

**Quantitative benefit**

CAMS technology includes many quantitative benefits. The implementation of CAMS:

- reduced mail sorting, delivery and process time from five days to one day
- cut paper application submissions for clients by 80 percent within one year
- reduced administrative staff data entry support by 20 percent
- eliminated annual citizen and partner expenses of $2,000 per proposal submission for duplication and shipping
- consolidated 81 contact programs and mailing lists into a single site
- integrated financial processes achieving 30 percent savings through automated remittance and synchronization with agency financial management systems
- reduced the correction timeframe for inaccurate remittance requests from more than 10 days to less than four days
**Qualitative benefit**

CAMS technology includes many qualitative benefits as well. CAMS:

- established a central repository for DHCD clients, vendors, citizens and staff
- promoted collaboration among four DHCD divisions
- created a dashboard allowing external users access to proposals, remittance, requests and report summaries and notifications
- introduced the exchange of ideas and intellectual property within the agency
- eliminated redundancies and ensured better compliance with program management mandates and financial accountability requirements
- enhanced training through interaction programs and interactive capabilities
- digitized applications and brought portable document format (PDF) conversions
- developed user dashboard for report retrieval and data submission notification
- promoted transparency across DHCD through information sharing
- introduced the exchange of ideas and intellectual property within the agency
- eliminated redundancies and ensured better compliance with program management mandates and financial accountability requirements
- enhanced training through interaction programs and interactive capabilities
- digitized applications and brought portable document format (PDF) conversions
- developed user dashboard for report retrieval and data submission notification
- promoted transparency across DHCD through information sharing
- provided a secure portal for program/project management
- streamlined review, approval and correction of requests for payment
- assessed performance, including determination of funds obligated or expended

**Operational benefit**

Several operational efficiencies resulted from CAMS. These include more accurate inter-agency data, greater agency collaboration, productivity, cost savings and reduced liability between DHCD, clients, and partners. Another is streamlined information lifecycle management for grantees. An operational efficiency is the reduced time for data going through the remittance submission and review process. Typically the workflow would require a mailed paper copy from the customer. Through CAMS, customers submit electronic submissions, eliminating duplication and postage expenses, mail processing and login time.

**Fiscal outcomes**

Benefits from implementation of the CAMS project already have been realized. While long-term benefits will require time to come to fruition, short-term benefits are clearly evident. First, there is a definitive cost savings achieved that demonstrates actual versus anticipated benefits. Also, the CAMS project averted significant costs that have been associated with the legacy programs.

Discussions among DHCD senior management are underway to launch an annual cost-benefit analysis to assess the implementation to date. Furthermore, additional forecasting will be implemented for a multi-year benefit analysis of the long-term impact and return on investment of the CAMS endeavor.