



# **Data Integration Initiative Semi Annual Report April 2009**

**State of North Carolina  
Office of the State Controller**

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## I. Background

Today, most state agencies deliver services through a number of different business programs which are supported by multiple, disparate information technology systems. As a result, information is spread across many siloed systems which are often supported using old architecture with data that is complex, out-of-date, or stored in inconsistent formats that may work well for independent programs, but are not easily accessible in a customer focused, service-driven environment.

To improve customer service and help the citizens of North Carolina, it is critical that information be shared across State programs. State agencies require a business intelligence solution that will enable all stakeholders to access a secured flow of information with a high degree of accuracy and consistency.

As directed by Session Law 2007-323, House Bill 1473 (Appendix A), a Strategic Plan for Statewide Data Integration was prepared by the Office of the State Controller in cooperation with the State Chief Information Officer, and delivered on April 30, 2008. This plan defined data integration as the capability of merging and reconciling dispersed data for analytical purposes through the use of standardized tools to support quick, agile, event-driven analysis for business. It recommended the establishment of an environment where agencies and programs partner to develop business solutions which are enabled by technology. The plan recognized that communication is the key to success and suggested the State encourage the establishment of “communities of interest” to support the needs of focused business areas and a business intelligence competency center to support enterprise solutions to business problems.

Session Law 2008-107, House Bill 2436, (Appendix B) directed the implementation of the Strategic Plan for Data Integration including the development of the Business Intelligence Competency Center (BICC) to support agencies’ and programs’ need for information.

This report summarizes the BEACON data integration activities since the October, 2008 Legislative report.

## **II. Data Integration Program**

The goal of the Data Integration Program is to provide a statewide framework that promotes and supports the development of applications which transform data into information for business.

The Strategic Plan for Data Integration profiles the current state of data warehousing and data analytics and identifies long term goals. It recommends a framework upon which the data integration initiative can grow and realize its objectives. The projects undertaken through this initiative will be limited by the need, quality and availability of statewide data. Data integration projects will not address the need for replacement and/or the consolidation of old or outdated disparate applications; rather, they will focus on developing an approach to provide secure, reliable information to enable statistical, analytical and predictive modeling.

### **II (A). Objectives**

The objective of the Data Integration Program is to develop a framework and the business infrastructure needed to expand and promote the use of data (as an information asset) in support of strategic business operations. This framework is based collaboration and relies on stakeholders coming together to identify business needs and data access points.

For North Carolina to recognize the value of data integration and the beneficial use of data based analytics, senior leadership will be called on to lead the charge to a cultural shift which deemphasizes the concept of agency ownership of data and promotes data sharing. These State government business leaders ultimately must accept their role as stewards of the State's data assets rather than data owners.

### **II (B). Summary**

The Strategic Plan for Statewide Data Integration defines "integration" as "the capability of merging and reconciling dispersed data for analytical purposes through the use of standardized tools to support quick, agile, event-driven analysis for business."

The implementation of the Strategic Plan for Statewide Data Integration is focused on the development of an environment that promotes the use of business intelligence to make better informed decisions. Its foundation is based upon the establishment of Communities of Interest and the implementation of a North Carolina Business Intelligence Competency Center (NCBICC).

The Community of Interest's goal is to engage stakeholders with varying responsibilities to collaborate on enterprise issues in support of solution development. Their focus is to identify needs and assist in ensuring project success (Appendix C). The NCBICC is an organization that is based on industry best practice. Its role is to support and manage the business need for analytics by offering an infrastructure that assists with the design, development and implementation of business intelligence applications.

## **II (C). Approach**

The objective of the Strategic Plan for Statewide Data Integration is to develop the framework that provides the State with the ability to expand and promote the use of the enterprise software which supports statewide data integration, sharing, reporting and advanced analytics. The merging and transformation of disparate data into integrated information requires collaboration, tools, knowledge and expertise.

### **1. Develop Communities of Interest**

To foster collaboration, groups of Communities of Interest will be established. This practice will unite business and technical users to conduct needs analysis across a focus area rather than within a siloed business area. Projects that demonstrate the strategic vision for information sharing will be encouraged to work under the support of the BICC for development and implementation.

### **2. Develop a NC Business Intelligence Competency Center**

The Data Integration Program recommends establishing a Business Intelligence Competency Center to develop business and technical proficiency in data integration and business intelligence and to act as an internal resource for State data integration projects. The NCBICC is a permanent organization that will support data integration and the use of analytics.

Initially the NCBICC will focus on developing resource competency in data integration methodology and the SAS toolset which, under the State's Enterprise License Agreement, became the enterprise analytical tool for the State's executive branch. The NCBICC will employ two full-time business and technology analysts to serve as an internal consulting team that assists in the successful delivery of data integration projects.

### 3. Develop a NC SAS User Group

The current State users of the SAS toolset will be identified and efforts to gain support from this community to create a user forum (for collaboration and the sharing of applications) will be undertaken. This forum will establish a communication link that will offer existing users and new users an opportunity to improve their understanding and application of the SAS toolset.

## II (C). Accomplishments

The initial State data integration effort has focused on the criminal justice data integration pilot program and its business objectives. Additional integration efforts are underway in the areas of human capital management and accountability and transparency of North Carolina state government spending.

### 1. Data Integration Projects

To establish a repository of data integration policy, procedures and best practices, the Data Integration Program will work closely with agency project teams to understand challenges, provide assistance and incorporate lessons learned into the data integration strategy.

#### a. Criminal Justice Data Integration

In 2008, legislation directed the Office of the State Controller, in cooperation with the State Chief Information Officer and the BEACON Steering Committee, to manage the development and implementation of a Criminal Justice Data Integration Pilot Program in Wake County.

The Public Safety Community of Interest, composed of the Criminal Justice Advisory Committee and agency partners, was established to identify the business requirements and to support the development of the Criminal Justice Law Enforcement Automated Data Services (CJLEADS) application.

The purpose of the CJLEADS pilot application is to establish a framework for the integration of criminal justice information. The pilot objectives include:

- Provide a comprehensive view of an offender through a single portal, allowing for identification of the offender through a photographic image.
- Provide an offender watch capability to alert the criminal justice professional when a person of interest has a change in status such as release from custody or an arrest.

SAS Institute, Inc. was selected as the vendor to design and develop the pilot application. CJLEADS will be hosted in a SAS technical environment during the development and testing of the pilot application. Data Integration Program resources and State project team members from eight State agencies are collaboratively working to refine the data requirements and system functionality for the pilot application.

The CJLEADS pilot application will be hosted in a SAS environment from May 1, 2009 through September 29, 2009, for a period of user acceptance testing to verify and confirm the integrated data and to validate the system functionality.

After the testing, the State will develop plans for a migration of the application from the SAS-hosted environment to the State production environment. Production planning efforts will identify production infrastructure, technical support, and business operations resource requirements.

Data Integration Program resources have been actively engaged in guiding the State project team efforts and providing coordination and communication with the SAS project team.

b. NC Workforce Outlook and Retirement Knowledge System (NC WORKS) Phase II

The NC Office of State Personnel is entering Phase II of the NC WORKS project. This initiative is the first comprehensive effort to develop a strategic workforce planning data warehouse application to gather and consolidate Human Resource intelligence and provide advanced analytics, predictive modeling, and forecasting capabilities to State agencies.

NC WORKS Phase II will help State agencies maintain optimum staffing by leveraging technology to aggregate State employment data and combine selected external sources of industry and education information into a single and consistent statewide reporting and modeling platform. This information will enable agencies to improve recruitment and retention efforts, analyze and predict employee attrition and retirements, and forecast human capital needs.

NC WORKS Phase II will integrate data from the State Human Resource System (BEACON), Teachers' and State Employees' Retirement System, University of North Carolina - General Administration, North Carolina Community College System, US Department of Labor and other sources of industry employment and education information.

Planning efforts are underway for NC WORKS Phase II. OSP has issued a Request for Proposal outlining the business and application requirements to engage a vendor to develop the application, training materials and system documentation and to provide knowledge transfer to State resources for the on-going support and maintenance of the application. The project timeline estimates the implementation of the initial release of NC WORKS Phase II six months after the execution of the vendor contract.

OSP will leverage the ITS Data Warehouse Shared Service Utility and the SAS Enterprise License agreement to implement NC WORKS Phase II.

Data Integration Program resources will work closely with the OSP team to provide project oversight and guidance to the NC WORKS project team and to encourage participation of the OSP team in the development of the NCBICC.

c. NC OpenBook

In support of Governor Beverly Perdue's Executive Order No. 4, the Office of State Budget and Management (OSBM), working with the Office of Information Technology Services (ITS), the Department of Administration (DOA), the Office of State Auditor (OSA) and the Office of the State Controller (OSC), has established NC OpenBook (<http://www.ncopenbook.gov/>) to provide a single, searchable website on State spending for grants and contracts. Creation of the NC OpenBook will be a phased implementation project due to the variety of systems and processes associated with grant and contract information.

OSBM will leverage the ITS Data Warehouse Shared Service Utility and SAS Enterprise License Agreement to implement NC OpenBook. SAS data integration and analytic technologies will be used to improve data quality, develop data relationships clarifying the linkages between awards and spending, and broaden the ranges of contract awards and grant awards being reported.

The NC OpenBook planned completion is Fall, 2009.

Data Integration Program resources will work closely with the NC OpenBook team to provide project oversight and guidance and to encourage participation of the project stakeholders in the development of the NCBICC.

2. NCBICC

The NCBICC planning effort is underway. Two business and technology analyst positions will assist in the development of the NCBICC and support the data integration project teams. Agencies and programs currently involved in data integration activities will be encouraged to participate in the planning and development of the NCBICC.

The SAS user community (agencies and programs) has been identified (Appendix D) and will be contacted to request their participation and development of the SAS user group.

## II (C). Next Steps

### 1. Data Integration Projects

Data Integration Program resources will provide support and project oversight for the on-going data integration projects. Approach, processes and lessons learned from these projects will be incorporated into the data integration framework.

### 2. Community of Interest

Communities of interest are expected to grow with the State's growing need for integrated information. The Data Integration Program team will be made available to assist agencies in developing a community of interest for their business area.

### 3. NCBICC

A business plan for the NCBICC will be developed with input from agencies and programs currently engaged in data integration activities, the Office of the State Controller and the State Information Technology Services. A governance program will be established for the NCBICC. The governance program will include the charter, mission, goals, roles and responsibilities. Performance metrics will be developed to assess the NCBICC's value and areas for continuous improvement.

The NCBICC will develop a communications plan and collaborate with ITS to promote continued and expanded use of the Data Warehouse Shared Service Utility and the State's Enterprise License Agreements.

## II (D). Funds – BEACON Data Integration Program

	Balance as of: February 28, 2009		
	<u>Appropriated</u>	<u>Expended</u>	<u>Available Balance</u>
<b>FY 2008 - 2009</b>			
FY 2007 – 2008 Funds Remaining	\$5,000,000	\$2,676,370	
Information Technology Funds FY 2008-2009	\$5,000,000		
Data Integration Strategic Planning Project		\$62,595	
Statewide Enterprise Licensing Agreement		<u>2,500,000</u>	
<b>Total</b>	<b><u>\$10,000,000</u></b>	<b><u>\$5,238,965</u></b>	<b><u>\$4,761,035</u></b>

**NOTE:** Data Integration funds have been encumbered for the following:

- NC WORKS Phase II - \$300,000
- NC OpenBook- \$900,000
- SAS Enterprise Licenses for calendar year 2010 - \$2,500,000
- Data Integration Program Business Analysts through 6/30/10 - \$299,703 - HB2436 Section 6.16(D)(2)

## III. Summary

The long-term vision of statewide data integration is to maximize the State's data assets for efficient and informed business decisions on which the outcomes can be monitored and acted upon. The critical success factors associated with this effort include; cultural transformation, data policy alignment, data governance and standards, resources availability, cross agency communication, and technology support. The data integration infrastructure including communities of interest and the NCBICC, are being developed to align these critical success factors.

### **A. SESSION LAW 2007-323, HOUSE BILL 1473**

AN ACT TO MAKE BASE BUDGET APPROPRIATIONS FOR CURRENT OPERATIONS OF STATE DEPARTMENTS, INSTITUTIONS, AND AGENCIES, AND FOR OTHER PURPOSES.

#### **BEACON DATA INTEGRATION**

**SECTION 6.8.(a)** The Office of the State Controller, in cooperation with the State Chief Information Officer, shall develop a Strategic Implementation Plan for the integration of databases and the sharing of information among State agencies and programs. This plan shall be developed and implemented under the governance of the BEACON Project Steering Committee and in conjunction with leadership in State agencies and with the support and cooperation of the Office of State Budget and Management. This plan shall include the following:

- (1) Definition of requirements for achieving statewide data integration.
- (2) An implementation schedule to be reviewed and adjusted by the General Assembly annually based on funding availability.
- (3) Priorities for database integration, commencing with the integration of databases that the BEACON Project Steering Committee identifies as most beneficial in terms of maximizing fund availability and realizing early benefits.
- (4) Identification of current statewide and agency data integration efforts and a long-term strategy for integrating those projects into this effort.
- (5) Detailed cost information for development and implementation, as well as five years of operations and maintenance costs.

While it is the intent that this initiative provide broad access to information across State government, the plan shall comply with all necessary security measures and restrictions to ensure that access to any specific information held confidential under federal and State law shall be limited to appropriate and authorized persons.

**SECTION 6.8.(b)** The State Controller shall serve as Chairman of the BEACON Project Steering Committee (Committee). The other members of the Committee shall include the State Chief Information Officer, the State Personnel Director, the Deputy State Budget Director, and the Department of Transportation's Chief Financial Officer.

**SECTION 6.8.(c)** Of the funds appropriated from the General Fund to the North Carolina Information Technology Fund, the sum of five million dollars (\$5,000,000) for the 2007-2008 fiscal year shall be used for BEACON data integration as provided by subsection (a) of this section. The Office of the State Controller, in coordination with State agencies and with the support of the Office of State Budget and Management, shall identify and make all efforts to secure any federal matching funds or other resources to assist in funding this initiative.

Funds authorized in this section may be used for the following purposes:

- (1) To support the cost of a project manager to conduct the activities outlined herein reportable to the Office of the State Controller.
- (2) To support two business analysts to provide support to the program manager and agencies in identifying requirements under this program.
- (3) To engage a vendor to develop the Strategic Implementation Plan as required herein.
- (4) To conduct integration activities as approved by the BEACON Project Steering Committee. The State Chief Information Officer shall utilize current enterprise licensing to implement these integration activities.

**SECTION 6.8.(d)** The Office of the State Controller, with the assistance of the State Chief Information Officer, shall present the Strategic Implementation Plan outlined by this section to the 2007 Regular Session of the General Assembly when it convenes in 2008 for action as deemed appropriate. This plan shall be completed not later than April 30, 2008.

Prior to the reconvening of the 2007 Regular Session of the General Assembly in 2008, the Office of the State Controller shall provide semiannual reports to the Joint Legislative Oversight Committee for Information Technology. Written reports shall be submitted not later than October 1, 2007, and April 1, 2008, with presentations of the reports at the first session of the Joint Legislative Oversight Committee on Information Technology following the written report submission date. The Joint Legislative Oversight Committee on Information Technology shall then report to the Joint Legislative Commission on Governmental Operations.

**SECTION 6.8.(e)** Neither the development of the Strategic Information Plan nor the provisions of this section shall place any new or additional requirements upon The University of North Carolina or the North Carolina Community College System.

**Ratified July 31, 2007**

**B. SESSION LAW 2008-107, HOUSE BILL 2436**

AN ACT TO MODIFY THE CURRENT OPERATIONS AND CAPITAL APPROPRIATIONS ACT OF 2007, TO AUTHORIZE INDEBTEDNESS FOR CAPITAL PROJECTS, AND TO MAKE VARIOUS TAX LAW AND FEE CHANGES.

**BEACON DATA INTEGRATION**

**SECTION 6.16.(a)** The Office of the State Controller, in cooperation with the State Chief Information Officer, shall begin implementation of the Beacon Strategic Plan for Data Integration, issued in April 2008. This plan shall be implemented under the governance of the BEACON Project Steering Committee and in conjunction with leadership in appropriate State agencies and with the support and cooperation of the Office of State Budget and Management.

While it is the intent that this initiative provide broad access to information across State government, the plan shall comply with all necessary security measures and restrictions to ensure that access to any specific information held confidential under federal and State law shall be limited to appropriate and authorized persons.

**SECTION 6.16.(b)** The State Controller shall serve as the Chairman of the BEACON Project Steering Committee. The other members of the committee shall be the State Chief Information Officer, the State Treasurer, the Attorney General, the Secretary of Correction, the Administrative Officer of the Courts, the State Budget Officer, and the Chief Financial Officer of the Department of Transportation.

**SECTION 6.16.(c)** Of the funds appropriated from the General Fund to the North Carolina Information Technology Fund, the sum of five million dollars (\$5,000,000) for the 2008-2009 fiscal year shall be used for BEACON data integration as provided by subsection (a) of this section. Funds to support this activity shall also be the unexpended balance from the funds appropriated for BEACON/Data Integration Funds in Section 5.3(b) of S.L. 2007-323. The Office of the State Controller, with the support of the Office of State Budget and Management, shall identify and make all efforts to secure any matching funds or other resources to assist in funding this initiative.

**SECTION 6.16.(d)** Funds authorized in this section may be used for the following purposes:

- (1) To support the cost of a project manager to conduct the activities outlined herein reportable to the Office of the State Controller.
- (2) To support two business analysts to provide support to the program manager and agencies in identifying requirements under this program.
- (3) To establish a Business Intelligence Competency Center (BICC), a collaborative organization comprised of both technical and business stakeholders, to support and manage the business need for analytics through the development of standards and best practices.
- (4) To engage a vendor to implement the Strategic Implementation Plan as required herein.
- (5) To conduct integration activities as approved by the BEACON Project Steering Committee. The State Chief Information Officer shall use current enterprise licensing to implement these integration activities.

**SECTION 6.16.(e)** Prior to the convening of the 2009 General Assembly, the Office of the State Controller shall provide semiannual reports to the Joint Legislative Oversight Committee for Information Technology. Written reports shall be submitted not later than October

1, 2008, and April 1, 2009, with presentations of the reports at the first session of the Joint Legislative Oversight Committee on Information Technology following the written report submission date. The Joint Legislative Oversight Committee on Information Technology shall then report to the Joint Legislative Commission on Governmental Operations.

**SECTION 6.16.(f)** Neither the implementation of the Strategic Information Plan nor the provisions of this section shall place any new or additional requirements upon The University of North Carolina or the North Carolina Community College System.

**Ratified July 16, 2008**

### ***SESSION LAW 2008-118, HOUSE BILL 2438***

AN ACT TO MAKE TECHNICAL, CLARIFYING, AND OTHER MODIFICATIONS TO THE STATE BUDGET.

**SECTION 2.3.** Section 6.16(b) of S.L. 2008-107 reads as rewritten:

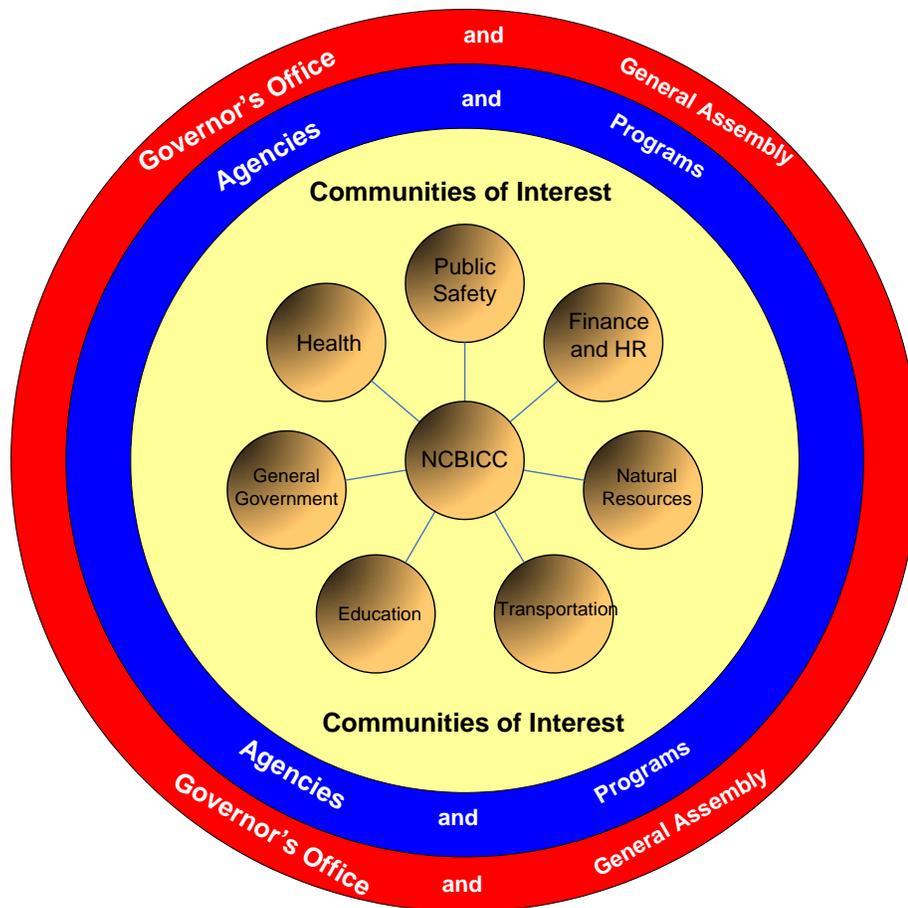
**"SECTION 6.16.(b)** The State Controller shall serve as the Chairman of the BEACON Project Steering Committee. The other members of the committee shall be the State Chief Information Officer, the State Treasurer, the Attorney General, the Secretary of Correction, the Administrative Officer of the Courts, the State Budget Officer, the Secretary of Administration, and the Chief Financial Officer of the Department of Transportation."

**Ratified July 18, 2008**

### C. Data Integration Communities of Interest

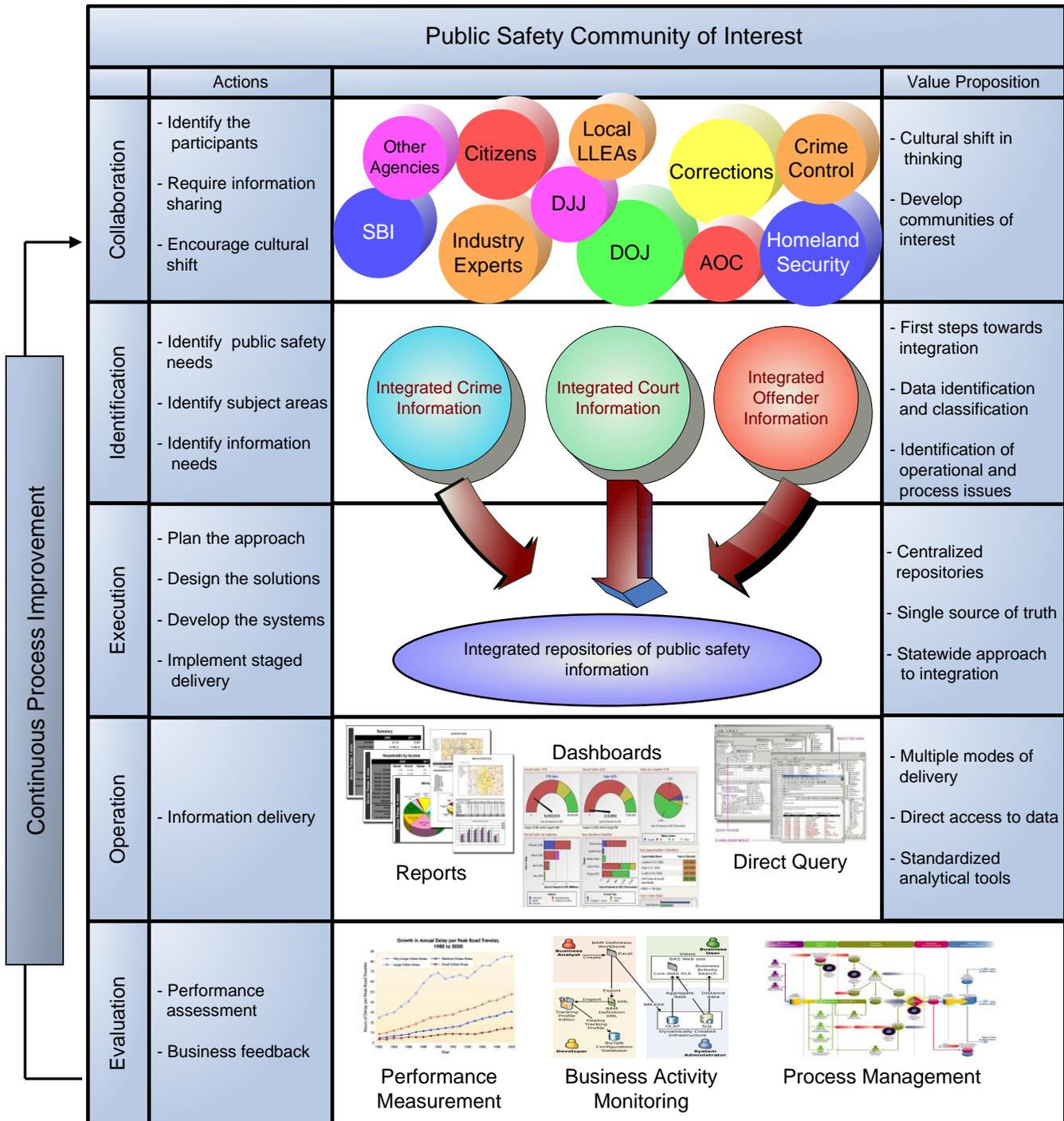
#### **NCBICC Communications Hub**

Open communication is critical in developing sound analytical solutions. To encourage the necessary exchange of ideas, the NCBICC will encourage a communications hub that promotes collaborative teams around the common areas of interest (e.g. finance, budget, public safety, health, transportation, etc). These communities of interest will work together to ensure that the business solutions designed are appropriately scoped to solve a range of needs rather than a siloed business domain.



## Community of Interest

The Community of Interest depicted below is an example of a forum that could be formed to discuss public safety. This graphic illustrates the solution development lifecycle that will be employed by communities of interest to support the integration of data and the use of data analytics.



**D. Current SAS Users - State Agencies and Programs**

State Agencies Currently Using SAS Tools through Enterprise Licensing
Department of Agriculture
Department of Commerce
Department of Public Instruction
Department of Health & Human Services (DHHS)
Department of Administration
Department of Crime Control & Public Safety
Department of the Secretary of State
Office of the State Auditor
Office of the State Controller
Department of Insurance
Office of State Budget and Management
NC General Assembly
Department of the State Treasurer
Department of Juvenile Justice & Delinquency Prevention
Department of Revenue
Employment Security Commission
Department of Labor
Office of State Personnel
Department of Justice
Department of Environmental and Natural Resources
Department of Correction
Department of Transportation
Department of Cultural Resources
NC State Health Plan