

Review of  
Enterprise Grants Management  
Options & Approaches

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*Prepared By:*  
**Office of State Budget and Management**

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## **Executive Summary**

House Bill 950, Session Law 2012-142, section 6A.7.(b1) established the Grants Management Oversight Committee (committee) to coordinate the development of an enterprise grants management system to replace all redundant grants management systems. A statewide system would provide simplified business processes; reduction of fraud, waste and abuse; elimination and redirection of staff resources; improved user experience; increased transparency; improved customer service, and reduced paperwork. To achieve these benefits, both short-term and mid-to-long-term courses of action were explored.

For the short-term, agencies in need of new grant management systems prior to the implementation of a statewide solution should work with OSBM and DOT to adapt DOT's existing SAP solution. Existing or future grants-related IT projects would be redirected toward the long-term statewide enterprise effort. Agencies taking the short-term approach would move to the statewide solution if that solution is different from the existing SAP solution. Additionally, the Oversight Committee should exercise governance authority while the technical SAP resources remain housed in DOT. OSBM would handle billing via MOUs with each agency, with OSBM reimbursing DOT for implementation and O&M costs.

Longer-term, the committee examined Best-of-Breed<sup>1</sup> grant applications and ERP<sup>2</sup> solutions incorporating grants management. SAP is the leading Best-of-Breed grants application, with an implementation estimate of \$12.7 million for all grant-making agencies. Though SAP could be used solely for grants as a Best-of-Breed solution rather than an ERP, doing so would severely limit the system's ability to address the state's Grantee Management<sup>3</sup> business needs as identified by granting agencies (i.e., )

SAP is also the leading ERP-based grant solution, as it is the only ERP identified with the capability to meet the state's grant management needs. Grants are integrally related to finances, and while the state's current financial system, NCAS, could meet agencies' grants management business needs, the wisdom of heavily investing in this older technology is highly questionable. Alternatively, SAP is currently in use as an ERP, including grants management, at DOT. DOT's record of successful SAP integration has resulted in DOT and the state being seen as a cutting edge leader in grants management. DOT has received requests for information on or demonstrations of their SAP implementation from over 30 governmental entities across the US and Canada.

Therefore, the state should broaden the grant enterprise effort and plan a statewide deployment of SAP's ERP. The planning phase would cost \$600,000-\$800,000 over a period of 8-12 months. Once complete, detailed implementation estimates would be available and the implementation process could begin. Longer-term, the Governor and General Assembly should consider optimizing SAP resources consistent with the mission critical roles of the State Controller in accounting and reporting and State

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<sup>1</sup> A Best-of-Breed application is the best application for one particular function, such as grants.

<sup>2</sup> An Enterprise Resource Planning (ERP) application performs all business functions, such as finances, grants, fleet maintenance, and HR/payroll, as one integrated system.

<sup>3</sup> Federal requirements for states receiving federal grant dollars.

Budget and Management in executing the budget by providing required support for the development and implementation of a statewide enterprise financials management solution. .

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## **I. Overview and History**

A grant is an agreement between the state and a private for-profit, nonprofit, or governmental entity to carry out a program or provide services<sup>4</sup>. Grants are financial assistance arrangements, where the grantee receives either state funds directly or pass-through funding from the federal government<sup>5</sup>. Once they are funded, grantees determine how best to deliver programs in accordance with contract terms established by state agencies. Between for-profits, nonprofits, and governmental entities, the state grants approximately \$16 billion per year<sup>6</sup>.

Currently, responsibility for grants management is distributed to approximately 26 state agencies and divisions. As a result, agencies have used manual processes or built and/or maintained multiple systems to manage their grants. These redundant systems create difficulties with tracking grant awards and ensuring the programs and services are carried out, while potentially underutilizing the state's IT dollars.

The first partially consolidated grant IT system began in 2007 in the Office of the State Auditor (OSA) and was known then as the Grants Information Center (GIC). The GIC was designed to automate the grant reporting requirements of G.S. § 143C-6-23, and the subsequent Administrative Code 09 NCAC 03M. These requirements provide for mandatory annual reporting by non-state entities receiving state and federal pass-through grant funds received during the grantee's fiscal year.

In 2009, the GIC was transferred to OSBM and became known as NCGrants after a series of enhancements and upgrades. While NCGrants has successfully centralized the G.S. § 143C-6-23 reporting requirements across all state granting agencies, it is not capable of performing end-to-end, enterprise-level grant functions, from initial application through award and audit. It also does not handle grants to governmental entities, such as local governments.

Session Law 2011-145 directed the State CIO to plan and implement an enterprise level grants management system. Similar systems under development could be suspended by the CIO with funding reprogrammed to support development of the enterprise system. The SCIO surveyed 18 executive branch agencies, finding an array of existing grant applications. They are listed in Table 1 below:

<b><i>Table 1 - Existing Grant Applications</i></b>	
<b>Category</b>	<b>Applications/Agencies</b>
Custom, in-house developed & supported	13 applications
Custom, vendor developed & supported	2 applications
COTS*, vendor supported	3 applications
Software-as-a-Service (SaaS)	3 applications
<b>Total</b>	<b>21 applications</b>
Manual Processes - No IT Applications	5 agencies

*\*Commercial Off-the-Shelf*

<sup>4</sup> Grants do not include payments made by Medicaid, the State Health Plan, or similar medical plans.

<sup>5</sup> G.S. § 143C-6-22(a) stipulates state funds include federal funds that flow through the State Treasury.

<sup>6</sup> Estimate based on report from Program Evaluation Division (Appendix A) and information from NCGrants.

The SCIO's survey documented over 700 grant programs being administered across 26 agencies and divisions. The survey estimated over 100 state employees and thousands of grant recipients involved in the business processes, with an additional estimated 25 state employees supporting the grant IT applications in the executive branch. The SCIO's report concluded that the SAP application at the Department of Transportation (DOT) is the "only obvious candidate for supporting consolidation to a single Grants Management IT application on an enterprise scale." With the agreement of the Department of Commerce, the SCIO and Commerce suspended Commerce's pending grants system in favor of the SAP-based DOT system.

House Bill 950, Session Law 2012-142, section 6A.7.(b1) established the Grants Management Oversight Committee to coordinate the development of an enterprise grants management system to replace all redundant grants management systems. The committee is comprised of the Senior Deputy State Controller, the Director of OSBM, the State Auditor, and the State Controller, who serves as Chair. In place of the SCIO, OSBM is now charged with planning the new system under the purview of the committee.

OSBM intends to develop a cost-effective, enterprise-level solution to automate end-to-end management of all grants awarded by the state. The system will achieve the following goals:

- Elimination of duplicative grant systems and projects;
- Increased efficiency through standardization/streamlining of agency processes, and minimization of manual/paper-based processes;
- Improved ability to monitor grant activities to minimize fraud, waste and abuse;
- Centralized reporting capabilities to support agency monitoring and statewide oversight needs; and
- Increased transparency throughout the grant process for both public and government users.

While the system's scope currently excludes management of university grants (see Appendix B), it could interface with UNC-GA's Research Administration Management System (RAMSeS), allowing for centralized information gathering via a Business Warehouse.

The following key business drivers provide the impetus for this project:

1. **Legislative directive.** HB950 requires OSBM, under the direction of the Oversight Committee, to plan and implement an enterprise grant management system.
2. **Proliferation of grants-related systems.** State agencies currently operate about 21 different grant management systems, with plans to expand further or add more in the future.
3. **Insufficient reporting capability.** Currently there is no central repository for all state and federal pass-thru grants to governmental and non-governmental entities. Additionally, the information that exists in some databases, such as NCGrants, does not contain enough detail to fulfill all public and legislative records requests.
4. **Audit findings.** A State Auditor report from June 2012 and a Program Evaluation Division report from September 2009 noted accountability gaps and inconsistent grant management across



agencies. This new system would help standardize grant management across agencies and centralize all reporting and paperwork in one location, easing the auditing and fraud detection process by providing for better monitoring.

5. **Pending staff retirements.** Several agencies with grant management systems, including OSBM, are facing the likely loss of some key IT personnel due to retirements over the next few years. Some of these systems rely on legacy technology with skill sets that are difficult to replace, increasing business risk.
6. **Reliance on in-house IT support.** OSBM staff currently provides all in-house support for NCGrants, and agencies provide their own support for their grant systems as well. Grantees with grants from multiple agencies must maintain multiple support contacts, not only an inconvenience to the grantee but a vulnerability in light of item #5 above.

The following are some of the primary benefits the State can expect to see as a result of a statewide system:

1. **Simplified business processes.** Most granting agencies have multiple grant programs, each with their own business process. Many of these processes are manual or otherwise outdated. Migration to an enterprise platform will allow for the simplification of these processes, while moving the State to a more unified, best-practices approach.
2. **Reduction of fraud, waste and abuse.** Under current systems granting agencies rely on post-payment reporting to determine if funds were spent fraudulently, wastefully or abusively. Migration to an enterprise system will enable agencies to require the uploading of receipts and other scanned documents to justify the funds received, reducing the risk of misuse of funds.
3. **Minimization of erroneous payments.** Most grant programs have restrictions on how funds may be spent. Under current systems, payments may be made to a grantee in error, either for inappropriate items or if they are over the appropriate percentage in that category. Migration to an enterprise system with program-level restrictions will eliminate agency personnel and grantee errors by automatically calculating remaining balances for each category and limiting access to those items outside of the scope of the contract.
4. **Eliminated cost for duplicative systems.** Twenty three State agencies provide grant programs, and nearly every agency has some type of grant system that it uses to manage its programs. Some larger agencies have multiple grant systems to cover a variety of program areas. The enterprise system will be able to accommodate all program areas from all agencies, enabling the State to eliminate the current systems.
5. **Eliminate/redirect staff resources.** The elimination of duplicative systems will free up staff resources to be redirected to other areas of need within State agencies, or potentially allow for the elimination of certain positions all together.
6. **Improved user experience.** Many grantees receive grant funds from multiple state agencies. Under current systems these grantees are required to apply for and report on grant funds through multiple sites and processes. Migration to the enterprise system will provide grantees with a one-stop-shop grants experience.

7. **Transparency.** The use of multiple grants management systems makes it difficult to properly track the expenditure of funds by grantees, as each system has varying levels of accessibility and transparency. The enterprise system operates in a fully transparent process, enabling the grantee to see everything the agency does with the contract and vice versa. In addition, the enterprise system has access for both State and federal auditors to follow every transaction.
8. **Improved customer service (public, grantees, legislators, etc.) through consolidated reporting.** In addition to the one-stop-shop experience for grantees and increased transparency, the enterprise system will enable OSBM to provide more detailed information to the legislature, and to the public if requested.
9. **Reduced paperwork.** Many grant programs still require a paper application and reporting process. In addition to the reports required by each program, G.S. § 143C-6-23 requires that grantees submit annual reports to the state. Migration to the enterprise system will eliminate the paper processes, and, once all agencies are on the enterprise system, will eliminate the need for the grantee to submit a separate set of reports to satisfy the G.S. § 143C-6-23 requirements.

The Oversight Committee explored options for the enterprise grants management system. This report summarizes those findings.

## **II. Short-Term Approach**

Prior to the creation of the Oversight Committee and pursuant to previous legislation, OSBM had begun discussions with the Department of Commerce's Workforce Solutions Division to implement the first phase of an enterprise grants management system. This system is based on DOT's existing SAP solution. Commerce was in need of a new grants management system for their next grant cycle and had agreed to cancel a pending IT project, with the funding redirected toward the statewide enterprise effort. The

Oversight Committee has approved proceeding with this project, on the condition that Commerce agrees to move to the statewide enterprise solution should it differ from the DOT SAP solution.

#### II(a). Requirements

The SAP system will be used to modernize and streamline the Workforce Solution Division's grant management process. Specifically, the new system will support the following business objectives:

1. Allow online submission of grant applications for individual programs, including a workflow-based review and approval process;
2. Convert online applications into an award, agreement, or contract, also using a workflow-based review and approval process;
3. Provide for required grantee reporting online, including payment requests with line item expenditures and uploading of receipts and other supporting documentation;
4. Process payments and pay grantees in a timely manner, also using a workflow-based review and approval process;
5. Suspend payments to grantees not meeting reporting requirements;
6. Close out grants to provide for final reporting, payment claim submission, and blocking of late or inappropriate payment requests;
7. Consolidate audit documents into fewer locations, with ability to provide view-only access for state and federal auditors; and
8. Minimize training requirements with a user-friendly solution.

#### II(b). Governance and Cost

The SAP solution being implemented for Workforce Solutions will continue to be housed at DOT. DOT is performing the implementation and training of SAP on behalf of OSBM, and OSBM has signed Memorandums of Understanding (MOUs) with Commerce and DOT to define this relationship. Both MOUs have been reviewed and approved by the Oversight Committee (see Appendices C and D).

DOT will be reimbursed for all costs that are not specific to DOT, so that they are not subsidizing other agencies for their grants management functionality.

Commerce will provide \$136,000 upfront to OSBM to implement the system requirements, and \$20,400.00 annually for each year of SAP system support, as indicated in Table 2.

<b>Table 2 - Implementation Costs for Workforce Solutions</b>					
<b>SAP Modules</b>			<b>Hours</b>	<b>Rate</b>	<b>Cost</b>
CRM	Customer Relationship Management	Grants Management Programs, Applications	250	\$100	\$25,000
	ADOBE	Adobe Interactive Forms	100	\$100	\$10,000
	Development	Workflow, Actions, User Exits	190	\$100	\$19,000
	Interfaces	Other systems (FARS)	100	\$100	\$10,000
BW	Business Warehouse	Business Reporting, Dashboards, Data Mining and Analysis	80	\$100	\$8,000
	Security	User Roles, Authorization	100	\$100	\$10,000
	Basis	System Support, Architecture	70	\$100	\$7,000
EP	Enterprise Portal	Landing Page and Authentication	60	\$100	\$6,000
	Project Management	Project Delivery	200	\$100	\$20,000
	Training	Training, Documentation, Communications	210	\$100	\$21,000
<b>Totals</b>			<b>1,360</b>	<b>\$1,000</b>	<b>\$136,000</b>

OSBM will transfer these funds to DOT as reimbursement for the work performed. Any funds that are not spent will be returned to Commerce. These costs and terms are specified in the OSBM-Commerce MOU and are subject to change after implementation is complete. Additionally, any policy or timeline changes made by the Oversight Committee may impact both implementation and annual support costs.

Adopting DOT's SAP-based grant system is recommended as a short-term solution for other agencies with immediate grant-related IT needs, such as Commerce's Division of Workforce Solutions. Since the system is already in operation, it can be scaled up quickly, while maintaining compatibility with the recommended Mid-to-Long Term Approach.

### III. Mid-to-Long-Term Approach

In addition to implementing the short-term approach, the Oversight Committee reviewed longer term approaches to enterprise grants management systems. The following options were considered:

- Best-of-Breed grants applications (including SAP)
- Scaling up DOT's SAP-based grant system for statewide use
- Implementation of an Enterprise Resource Planning (ERP) system, including grants functionality

In addition to the short-term business objectives cited above, several long-term objectives were noted:

1. Create a single, uniform system that is utilized by every state grant program, eliminating redundancy;
2. Streamline and standardize business processes across programs/agencies when practicable;
3. Improve reporting and analytical capabilities (including a dashboard) at multiple levels of detail to meet federal, state agency, and statewide requirements and improve decision-making;
4. Reduce risk from continued use of older technology, reliance on in-house support, and an aging IT workforce.

It was also apparent that a comprehensive requirements-gathering effort was necessary to ensure all business needs from all state agencies were included. In 2008, OSC completed requirements-gathering for an SAP enterprise financial system, which included grants management. OSBM gathered those business requirements and asked all departments and Council of State agencies to make any necessary updates.

Initial communication was via an OSBM memo (Appendix E), with a subsequent OSBM/OSC webinar. Follow-up was conducted with non-responsive agencies by OSBM and OSC to achieve maximum participation. At this stage, requirements-gathering was focused on high-level business needs, not the detailed requirements and process workflows of individual grant programs.

Over 250 business requirements were identified, split into Grantee Management (federal or state monies sub-granted to localities or NGOs) and Grantor Management (federal monies that may or may not be sub-granted). The requirements have been sub-categorized as follows, with an example of a requirement from each grouping (see Appendix F for full listing):

<b>Table 3 - Statewide Business Requirements for Grants (examples)</b>		
<b>Process Area</b>	<b>Process</b>	<b>Requirement</b>
Grantee Management	GM-100 General	Ability to establish grant budgetary controls.
Grantee Management	GM-100 General - Integration	Ability to integrate with other information systems for processing and for budgeting.
Grantee Management	GM-110 Pre Grant Administration	Ability to electronically collect grant / funding opportunities from user-defined granting organizations.
Grantee Management	GM-120 Post Award Management	Ability to enter new and modified budgets on-line/real-time at pre and post award subject to approvals.
Grantee Management	GM-130 Grant Reporting and Administration	Ability to provide reporting capabilities on a current period to date basis.
Grantor Management	GM-200 General	Ability to comply with Federal Government's Single Audit Act and cash management legislation.
Grantor Management	GM-200 General - Integration	Ability to integrate with other information systems for processing and for budgeting.
Grantor Management	GM-210 Grant Guidelines	Ability to advertise grant guidelines on line and conduct applicant outreach.
Grantor Management	GM-220 Grant Application	Grant Applicants shall be able to enter, save, edit, view, retrieve, and submit applications online.
Grantor Management	GM-230 Grant Award	Ability to access online grant agreement forms in the system that can be easily adapted, reviewed, and approved.
Grantor Management	GM-240 Grant Award Administration	Ability to view any changes to fund balances or budgetary implications as they occur in order to track funds.
Grantor Management	GM-250 Grant Close / Report	Ability to generate standard and custom reports using reporting capabilities.

### III(a). Best-of-Breed Grants Applications

The government grantor/grantee management software product market is fragmented, and most commercial off-the-shelf (COTS) vendors are relatively small and limited to their geographic area. Gartner, Inc. conducted a study published in November 2010 on government grant management software (see Appendix G) which identified four vendors/products that could potentially handle all types of grants of all sizes for state government:

1. **CSDC – Grantium G3:** a provider of COTS software for state & local governments. Grantium G3 was developed by Grantium, a 50-employee Canadian software vendor acquired by CSDC in 2010. Strengths include product and consulting experience across a broad set of customers and the flexibility inherent in a Java-based architecture. Challenges: flexibility of the form-based workflow means, in some cases, an extended implementation process may be required.
2. **DTPi – WebGrants:** a 10-person company whose WebGrants product is aimed at grantee functions, while its separate MyWebGrants subscription-based system is targeted at grantor functions. The configuration flexibility of the form creator module is a strength, but may require an extended implementation process. Additionally, the separate subscription-based nature of MyWebGrants limits implementation of an enterprise-wide platform.
3. **HTC – EGrAMS:** a global provider of IT solutions with annual revenue of over \$100 million. Approximately 10 sales and service personnel are entirely dedicated to EGrAMS. EGrAMS was initially developed with the Michigan Department of Community Health, and then productized as a configurable grants management application. Strengths include the flexibility of workflows and forms, particularly in the application and award phases. Challenges: EGrAMS runs only on a Microsoft architecture, and the built-in reporting tool is not as comprehensive as SAP's BusinessObjects.
4. **SAP –** a global company with about \$14 billion in annual revenue. Strengths include SAP's experience with midsize to large public-sector customers worldwide, integration with SAP ERP for financial management, and integration with BusinessObjects for reporting. Gartner recommends SAP for government agencies with other SAP products already built into their enterprise architectures, that can leverage existing skills for implementation and support, and can integrate data, services and reporting.

The study specifically excluded vendors such as CyberGrants, MicroEdge, and Bromelkamp Company, as they primarily target the nonprofit foundation market.

Of the four vendors involved in the Gartner study, CSDC/Grantium and DTPi/WebGrants are small to midsize companies with 50 or fewer employees and a limited capability to expand market presence beyond their home markets. Additionally, while ruling it out in the short-term, Gartner noted that over the longer term, smaller companies such as CSDC/Grantium may be subject to further consolidation and buy-out as the market remains highly fragmented.

Therefore, using the Gartner study, potential vendors were narrowed down to HTC and SAP.

### *III(a)(1). HTC/EGrAMS*

No state has yet to attempt an enterprise approach to grants management. The State of Michigan was identified as the only state to implement the EGrAMS system. The State of Alaska has also begun implementing EGrAMS, but they are very early in their process and are only implementing one agency at present.

Michigan's implementation is not an enterprise implementation, covering only MDCH and the state's 45 health departments at this time, though other small grant-making agencies are considering moving to the platform. The EGrAMS system is hosted and maintained by HTC. In addition, any enhancements to the system are requested by MDCH and, if possible, made by HTC. Thus, MDCH's EGrAMS implementation is a software-as-a-service (SaaS) setup. This implementation of EGrAMS is focused primarily on financial management aspects of grant programs, requiring a second system for subrecipient monitoring and auditing.

While Gartner included it as a viable option, after discussing this with Michigan staff, it is apparent EGrAMS cannot handle all aspects of grant management required by North Carolina. Specifically, its subrecipient reporting capabilities are inadequate, requiring additional subsystems, and its reliance on Microsoft-only architecture would prevent compatibility with the underlying architecture of the state's existing SAP resources.

### *III(a)(2). NC DOT's SAP System*

Gartner's other viable option for an enterprise grants system is SAP. The current statewide BEACON HR/Payroll system is based on SAP. In addition, DOT runs SAP ERP through the BSIP<sup>7</sup> implementation, with modules including financial management, cost accounting, federal aid billing, budgeting, time entry, fleet management, facility management and procurement. DOT has successfully implemented SAP for many of their grant programs and is continuing to phase in the remainder.

Other NC agencies using SAP services provided by BSIP:

- Department of Public Safety (DPS) – Highway Patrol Fleet Maintenance
- Department of Public Instruction (DPI) – School Bus Fleet Maintenance and Inventory
- Department of Agriculture – Accounts Receivable

The Department of Public Safety (DPS) is interested in and actively discussing with DOT the possibility of using a full ERP implementation of SAP, including financial management and grants management.

DOT's record of successful SAP integration has resulted in North Carolina being seen as an innovative leader in grants management. DOT was one of the first public sector entities in North America to implement SAP's ERP solution. During implementation in 2001, DOT partnered with SAP to develop

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<sup>7</sup> Business Systems Information Portal.

SAP's funding management capabilities for the public sector. The solution developed for DOT has become SAP's public sector solution, is marketed to other states and public sector entities, and thus is fully supported by SAP. DOT was the first in the United States to implement SAP's CRM<sup>8</sup> grants management module, the first phase of which was completed in 2011. DOT has received requests for information on their SAP implementation from over 30 governmental entities across the US and Canada, with many requests resulting in live demonstrations of the product.

As one option, the feasibility of scaling up the Department of Transportation's current SAP-based grants solution across state government was studied as a best-of-breed grants application.

### *III(a)(2a). Design and Cost Estimate*

In order to meet both Grantor and Grantee Management business requirements, SAP requires implementation of both the CRM and ERP/Financials modules. The Grantee Management financial functions are fundamental components of the ERP/Financials module and cannot be implemented separately. The ERP/Financials module is a full financial management package, capable of replacing NCAS.

A CRM-only installation is possible, but it would only process Grantor Management functions. It would also require the creation and maintenance of multiple interfaces with agency financial systems, such as NCAS, FARS (Commerce), and BUD/BAAS (Public Instruction). For this section of the report, it is assumed that the ERP/Financials module (and thus Grantee Management) would not be implemented.

DOT is currently estimating the cost for a full SAP implementation at DPS, including grants management. The working estimate for DPS' grants management within SAP is based on the following SAP modules:

1. CRM (Customer Relationship Management) – Grant Programs, Applications
  - a. ADOBE – Adobe Interactive Forms
  - b. Development – Workflow, Actions, User Exits
  - c. Interfaces – NCAS, etc.
2. BW (Business Warehouse) – Reporting, Dashboards, Data Mining, Analysis
  - a. Security – User Roles, Authorization
  - b. Basis – System Support, Architecture
3. EP (Enterprise Portal) – Landing Page, Authentication
  - a. Project Management
  - b. Training – Documentation, Communication

With these modules in mind, state granting agencies were divided into "Simple" and "Complex" categories. Having not yet mapped individual grant process workflows, this categorization was made based on the group's working knowledge of each agency's number of grant programs and degree of process complexity.

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<sup>8</sup> Customer Relationship Management.



Finally, to obtain a rough estimate of implementation cost, estimated hours to implement the SAP modules were multiplied by the estimated cost per hour of Simple and Complex agencies. A higher rate was used for the complex agencies because they would require significantly more outside help due to the size of the effort, whereas simple agencies would be completed by optimizing the use of existing resources. Costs would be minimized with this approach by using internal state resources to handle project management and internalizing risk management. Of note, the state already has sufficient SAP licenses between OSC/BEACON and DOT (100,000 and 50,000, respectively) to cover grant recipients.

The estimated hours needed to implement all granting agencies is 71,500, with a total estimated implementation cost of \$12,650,000 per Table 4:

<b>Table 4 - Implementation Costs for DOT's SAP System</b>		
<b>Simple Agencies</b>	<b>Estimated Hours</b>	<b>Cost (# of Hours at \$100/Hour)</b>
Administration	2,500	\$250,000
Agriculture	2,500	\$250,000
AOC	1,000	\$100,000
Commerce*	2,500	\$250,000
Cultural Resources	2,500	\$250,000
Insurance	2,500	\$250,000
Justice	1,000	\$100,000
Labor	1,000	\$100,000
UNC-GA	1,000	\$100,000
<b>Complex Agencies</b>	<b>Estimated Hours</b>	<b>Cost (# of Hours at \$200/Hour)</b>
DENR	10,000	\$2,000,000
DHHS	15,000	\$3,000,000
DPI	20,000	\$4,000,000
DPS	10,000	\$2,000,000
<b>Totals</b>	<b>71,500</b>	<b>\$12,650,000</b>

*\*Remaining divisions; Division of Workforce Solutions currently in development.*

Annual support costs, known as Operations and Maintenance (O&M), are estimated at 15% of implementation costs for Year 1 based on DOT's current SAP implementation. As additional agencies are brought online, O&M costs would be expected to decline for future years as the result of growing economies of scale. Therefore, the O&M costs in any given year would depend on which agencies are implemented during that year, and then cumulatively totaled to the final year of statewide implementation.

Scaling up DOT's SAP grants solution, but not implementing SAP's ERP/Financials module, would require the construction and maintenance of an SAP-NCAS interface. The level of interface required, and therefore the cost, would depend on the detailed grant processes and number of agency subsystems that would be determined in future detailed process mapping. For estimating purposes, three levels of interfacing were assumed, with costs noted in Table 5:

<b>Table 5 - NCAS Interface Costs</b>			
<b>Complex</b>	<b>\$60,000</b>	<b>(600 hours at \$100/hour)</b>	Simple estimate based on time/cost for
<b>Mid-level</b>	<b>\$30,000</b>	<b>(300 hours at \$100/hour)</b>	DOT development of interface b/w SAP
<b>Simple</b>	<b>\$15,000</b>	<b>(150 hours at \$100/hour)</b>	financials and NCAS

Annual maintenance costs for the NCAS interface would be required as SAP upgrades are implemented, chart of account changes are made in NCAS, and new grant programs are added. It is also important to note that not implementing the ERP/Financials module would likely require interfacing with an as yet unknown number of agency subsystems. These costs can not be estimated without further detailed information gathering. Additionally, for some complex agencies (such as DHHS, DPS, and DPI) there may be limited benefit and unexpected challenges in implementing only the Grantor Management functionality without also addressing ERP financials

### *III(a)(2b). Time to Implement*

DOT estimates that the SAP grants solution could be rolled out to all state agencies within 3 years provided the right level of agency commitment is present. Agencies would be brought onboard in rolling phases to allow for the most cost-effective utilization of DOT resources and to account for each agency's grant cycles. The exact order of agency implementation, and therefore the annual costs, would be determined by the governance structure based on available agency funding and the urgency of meeting each agency's grant system needs.

### *III(a)(2c). Governance Model*

Governance decisions, such as the order of agency implementation and the prioritization of support and maintenance needs, would require a governance structure outside of a grant-making service agency. Such an arrangement would allow for greater objectivity in resource allocation and maximization.

In the near-term, defined as through the first phase of implementation, the Oversight Committee should be reauthorized as a Steering Committee, continuing to exercise governance authority. The Steering Committee should be expanded to include members from grant-making agencies. The technical SAP resources should remain housed in DOT as the use of the existing structure allows for greater continuity in coordinating the critical early stages of the project. Billing would be accomplished via MOU between OSBM and each Phase 1 agency, with OSBM then reimbursing DOT for the implementation costs and subsequent years of O&M until a longer-term governance structure is in place.

Looking longer-term at later project phases, the General Assembly should consider centralizing SAP resources in a statewide, financial oversight agency with a direct SAP appropriation.

### *III(b). Statewide ERP, with Grants Functionality*

In considering an ERP system as a long-term solution for enterprise grants management processing, the scope of the discussion must be much larger, since other financial business functions are related to or would be impacted by grants management functions.

The State currently uses the North Carolina Accounting System (NCAS) as its statewide financial system. NCAS was implemented for most agencies in July 1995, and has been continuously in place since then. The NCAS software is a COBOL language mainframe system that originally was developed in the mid-seventies. NCAS is not in use enterprise-wide, since DOT, the Universities, the Community Colleges and the Employment Security Commission operate their own automated financial systems. Additionally, DPI uses a separate version of NCAS, interfacing back at a summary level. Each of those separate entities submits summarized general ledger entries to NCAS, to facilitate a single source for CAFR data, but they do not process business transactions in NCAS. In addition, NCAS is limited in its enterprise-wide functionality. NCAS provides the following business functions for its users:

- General ledger
- Budgetary control (funds checking)
- Purchasing (limited users – most now use DOA's E-Procurement system)
- Accounts payable
- Accounts receivable (limited users)
- Inventory
- Procurement card reconciliation
- Fixed assets
- Decision support system (data marts are limited to mostly general ledger data)

NCAS is limited in that it cannot provide the following business functions to its user agencies:

- E-Procurement
- Grant processing
- Budget planning and creation
- Banking and cash control
- HR/Payroll
- Equipment control and maintenance
- Facility (property) control and maintenance
- Manufacturing (desired for DPS' Correction Enterprises)

OSC and DOT have a record of successful SAP implementation. DOT initially embarked on a project to acquire and implement a modern financial system, for which they selected the SAP ERP system. OSC uses SAP to meet the state's HR Payroll functions paying monthly and bi-weekly nearly 100,000 state employees. During the course of its implementation, DOT determined they could obtain more value from the integrated nature of an ERP system and utilizing the system for many of their other core business functions that were tied to the financial functions. At the time, SAP found it necessary to customize their solution to meet DOT's unique public sector needs, but the customized product is fully supported by SAP and ultimately became the public sector solution that is now marketed to other states

and public sector entities. DOT went live on SAP in April of 2003 supporting financials and other processes including: Purchasing, Fleet Management, Project Systems and more. Since implementation, the system has been constantly improved and enhanced to support additional business processes and additional users both inside and external to DOT. In 2009, DOT upgraded their SAP system to the newest release of the ERP software. At the same time, additional hardware was purchased and a strategic plan adding new functionality was implemented.

In 2011, DOT completed implementation of grants management functionality for two of its program areas. DOT has continued to add the rest of its program areas into the system and expects to be complete by the end of 2013. Both the upgrade and this project were completed by DOT's in-house support team augmented by two individual consultants with specialized skill sets for new technologies. This project was especially notable because it was the first implementation of SAP Grantor Management in the nation..

The Department of Agriculture recently began using DOT's implementation of Accounts Receivable. The Department of Public Safety (DPS) is discussing with DOT the possibility of using a full ERP implementation of SAP, including financial management and grants management.

Earlier in this report, the feasibility of scaling up the Department of Transportation's current SAP-based CRM grants solution across state government as a Best-of-Breed solution was examined, excluding SAP ERP/Financials. As a second option, the implementation of both the CRM and ERP/Financials SAP modules, which would replace NCAS, was explored, along with the possibility of a Software-as-a-Service (SaaS) solution.

### *III(b)(1). Consideration of Alternatives*

Utilizing a fully integrated ERP system requires deciding whether to host and operate the system within state government versus employing SaaS (software as a service). The advantages of SaaS are that the provider has the responsibility for operating and troubleshooting the system and the cost of implementation and operation can be spread out over the life of the contract, thereby avoiding the very large up-front expense of self-implementation and operation.

The downside of using the SaaS approach can be significant as well. First, the hosting entity will expect customers to use the software as-is, having selected the SaaS that most closely meets their business needs. As a result, SaaS providers are unlikely to make user-requested enhancements to off-the-shelf products, and if enhancements are made, it will be at a high cost. While changes to any software should be minimized, with a user base as diverse as the state's various agencies, changes would likely be needed.

This rigidity could hinder process redesign, a finding reported by OSBM, OSA, and by Fiscal Research's Program Evaluation Division. A State Auditor report from June 2012 and a Program Evaluation Division report from September 2009 noted accountability gaps and inconsistent grant management across

agencies. Some agencies have processes that have evolved over time, maintaining vestigial processes that are no longer necessary for managing the grants. Such “slack” from poorly designed and/or understood processes exposes the State to risk, as key personnel and/or technology are no longer available or able to perform their respective functions. Additionally, there would be no system to fall back on if the state ended its relationship with the provider, or if the provider went out of business..

Gartner Inc. (See: Appendix G) expects SaaS grants management solutions and open source to be suitable primarily for small and midsize entities (less than \$500 million in annual grants). As such, it is unsuitable for enterprise implementation in NC, which annually manages nearly \$16 billion in grants. Additionally, it is notable that Gartner specifically excluded CyberGrants, MicroEdge, and Bromelkamp Company, as they primarily target the nonprofit foundation market. CRM, EDRM<sup>9</sup>, PPM<sup>10</sup>, and BPMS<sup>11</sup> solutions (such as SAP) are expected by Gartner to be used by large and complex government agencies wanting very scalable systems and higher levels of customization.

The committee considered at length whether to recommend issuing a Request for Proposals for an ERP solution. The committee chose not to recommend an RFP for several reasons.

First and foremost, available data indicates that a very small number of ERP solutions exist that could serve an entity the size of North Carolina. Of those solutions, per the Gartner study, SAP is the only one with a grants management component capable of meeting the state’s needs. The RFP process for a project of this scope would take at least 18 months, and, based on the data referenced above, the likelihood of selecting SAP after completing a lengthy and time consuming process was extremely high. Lastly, the State has a significant investment in SAP, both at OSC and DOT, and DOT’s implementation.

### *III(b)(2). Cost Estimate & Time to Implement*

Any ERP solution will require a detailed planning effort. To obtain a refined cost estimate and implementation timeline, an update to OSC’s 2008 planning effort would be necessary. This plan would cost \$600,000-\$800,000 and would require 8-12 months to complete. Once complete, detailed implementation estimates would be available and the implementation process could begin.

## **IV. Conclusions**

### **IV(a). Short-Term**

Agencies in need of a new grants management system prior to the implementation of a statewide solution should follow OSBM’s model with the Department of Commerce’s Workforce Solutions division by adapting DOT’s existing SAP solution. All agencies would move to the statewide enterprise solution should it differ from the DOT SAP solution. Pending and future grants-related IT projects should be redirected toward the statewide enterprise effort.

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<sup>9</sup> Electronic Document and Records Management.

<sup>10</sup> Project and Portfolio Management.

<sup>11</sup> Business Process Management Suites.

In the near-term, the Oversight Committee should continue to exercise governance authority, while the technical SAP resources should remain housed in DOT. Use of an existing structure would allow for greater continuity in coordinating the critical early stages of the projects. Billing would be accomplished via MOU between OSBM and each agency, with OSBM then reimbursing DOT for the implementation costs and subsequent years of O&M until a longer-term governance structure is in place.

#### IV(b). Mid-to-Long-Term

Regardless of whether it is a Best-of-Breed or ERP implementation of SAP, governance decisions, such as the order of agency implementation and the prioritization of support and maintenance needs, will require a governance structure. Such an arrangement allows for greater objectivity in resource management. In the near-term, the Oversight Committee should be reauthorized as a Steering Committee. Looking longer-term, the Governor and General Assembly should consider centralizing SAP resources in a statewide, financial oversight agency (such as OSBM or OSC) with a direct SAP appropriation. Governance decisions would be accomplished through this agency.

A review of Best-of-Breed grants applications identified two qualified systems: HTC/EGrAMS and SAP. Based on information gathered from Michigan's implementation of HTC/EGrAMS, EGrAMS is not capable of meeting the state's needs. Additionally, while HTC/EGrAMS is not used by the state, SAP is already in use as the state's HR/Payroll system and as an ERP at DOT. Agriculture is using DOT's SAP Accounts Receivable abilities, and DPS is investigating a full-scale SAP ERP deployment based on DOT's implementation. SAP is the only feasible Best-of-Breed option.

Yet while SAP could be used solely for grants as a Best-of-Breed solution and not as an ERP, doing so would preclude meeting the state's Grantee Management business needs. Available data have shown that a very small number of ERP solutions exist that could serve an entity the size of North Carolina. Of those solutions, per the Gartner study, SAP is the only one with a grants management component capable of meeting the state's needs. Grants are intimately tied to the state's finances, and the State's SAP ERP implementation is considered to be an innovative effort, with the incorporation of the grants management functionality into the base SAP software. It is the Committee's recommendation that the State should broaden the financial management enterprise effort beyond grants management, proceeding with a plan to develop a statewide ERP solution based on SAP resources. .