Introduction

Ongoing budget constraints, due to economic recession and other factors, have forced state governments to further identify effective strategies to manage spending, achieve savings, and use spend analysis tools to better understand and control the cost of government activities.

This National Association of State Procurement Officials (NASPO) research paper recognizes the importance of state central procurement offices having an effective solution for the issues and actions referenced above. This paper highlights state practices and key elements of existing solutions, presenting benefits and drawbacks, in order to guide the decision-making process for choosing an appropriate solution for your state’s central procurement office. The audience for this paper is NASPO membership, public procurement managers and decision makers, Chief Information Officers, any procurement professionals directly affected by Enterprise Resource Planning (ERP) software and eProcurement implementations, and other interested parties.

Many organizations, including state and local governments, use traditional ERP systems to integrate their activities across their organizational structure. These organizations are familiar with the challenges of ERP implementation and maintenance. According to a 2012 survey of state and local government IT professionals\(^1\) (subscribers to Government Technology magazine), conducted by the Center for Digital Government (CDG), more than half of respondents (53%) representing state and local governments have recently implemented ERP systems or are in the process of implementing one.

The Business Dictionary\(^2\) defines ERP systems as “accounting oriented, relational database based, multi-module but integrated, software systems for identifying and planning the resource needs of an enterprise”. The National Institute of Government Purchasing (NIGP) Dictionary of Terms, referenced in NASPO’s State and Local Government Procurement: A Practical Guide\(^3\), notes that an ERP system “may include finance, accounting, human resources, purchasing, inventory control and other activities” and deploying it is “generally an enterprise-wide process, involving analysis, replacement of legacy systems and the development of new work processes and procedures.”

The term Vanilla ERP Software Solution, referred to as “vanilla implementations”, are commercial off-the-shelf ERP systems that are minimally customized. They are software applications that are implemented as delivered by the vendor with no modifications to the source code, other than configuring the software with the buyer’s data and values. In their 2000 study, “A taxonomy of ERP Implementation Approaches”, Parr & Shanks\(^4\) refer to this ERP implementation as the “least ambitious and least risky implementation approach”, noting that it is “typically done on one site only, and the number of prospective system users is small (less than 100)”. According to the same authors, a “vanilla implementation” means using ERP core functionality only, and aligning company processes to the ERP rather than customizing the system to reflect the organization business processes.

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The term Electronic Procurement (eProcurement), according to the definition from the NIGP Dictionary of Terms, means “conducting all or some of the procurement function over the Internet; it implies that point, click, buy, and ship Internet technology is replacing paper-based procurement and supply management business processes.”

**How do ERP and eProcurement Systems Address Procurement Principles?**

One reason why state and local governments are implementing ERP and eProcurement systems more widely, as indicated by the CDG survey referenced above, is due to the systems’ inherent support and encouragement of common principles of public procurement (and at the very least, the systems do not discourage these principles). Some of these principles include increasing transparency, achieving value and promoting competition, expanding the supplier base, maintaining financial controls and measuring performance, and promoting efficiency in workflow and approval authority. Each of these points is addressed below in more detail.

- **Increasing Transparency**
  Public procurement is an open process that can have a significant effect on the businesses and lives of people in the locality. Therefore, interested parties naturally seek information about the process, and the contract awards, proposals, pricing, etc. that are involved. ERP and eProcurement systems can increase transparency by making these documents and information more readily available in an accessible electronic format, rather than relying upon hardcopy documentation.

- **Achieving Value and Promoting Competition**
  Value can come in many forms, and one form is procuring “the right materials or services in the right quantity for delivery at the right time to the right place form the right source with the right service at the right price.” The competitive process allows state and local central procurement offices to achieve value, and the use of ERP and eProcurement systems can enhance competition by making it fuller and more open - that is, making it accessible to any interested party with an Internet connection. ERP and eProcurement systems can be used to consolidate the procurement process into one portal, rather than having disparate procedures possibly spread across multiple teams or multiple policy manuals.

- **Expanding the Supplier Base**
  The public procurement concepts of open, fair, and equal access to business opportunities are greatly enhanced by ERP and eProcurement systems. With the on ramp to participate being an Internet connection, vendors are finding it easy to join and familiar, as the systems generally perform much like other commonly used online website systems. The outcome is that businesses find it easier to participate. This potential for an expanded supplier base can provide a real and direct effect on economic development. More businesses have the potential to get business, including small or historically disadvantaged businesses. All of which expands the role of public procurement as a powerful economic engine, directly contributing to larger socio-economic initiatives.

- **Maintaining Financial Controls and Measuring Performance**
  The use of ERP and eProcurement systems creates an electronic repository for all procurement related data - financial or otherwise (for example, data on procurement processing time). Gathering data in a standardized method and accessing that data through reporting functions (available in many ERP and eProcurement systems) are powerful tools for any state or local central procurement office. These tools allow the office to review its procurement expenditures, and begin to address possible budget issues. They also allow the offices to review their internal practices and results, and better identify how to improve their own service delivery.

- **Promoting Efficiency in Workflow and Approval Authority**
  Many ERP and eProcurement systems include workflow processes that move procurement documents and actions from one person to another, as configured by the system user. This electronic flow can be more efficient than, for example, a paper-based process that requires those involved to be physically present in the office, reviewing a physical document that must be moved from person to person. Electronic procedures allow for

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7 Forrester. Presentation Supplier Enablement in eProcurement (March 2007)
instantaneous movement of information, and one can complete his or her role from any connected terminal. Additionally, governments are increasingly able to customize which steps are included in their systems, from requirements generation, to sourcing, to purchase, to payment, and beyond.

**Discussing Pros and Cons of ERP and eProcurement Systems**

Government entities are interested in finding better solutions to integrate their finance, accounting, human resources, purchasing, and other activities - and to lower their costs.

Literature research conducted for the purpose of this paper identified common complaints and difficulties experienced by organizations with ERP implementation as follows: high cost, lengthy duration of implementation, and requests to customize the ERP software due to business process changes. Results from the CDG survey noted above show that system integration is the most significant cost during an ERP implementation, increasing their expected cost with scope modifications and change orders. As noted in the above-mentioned Parr & Shank’s study, one comprehensive implementation of an ERP took seven years and cost tens of millions of dollars.

One argument in favor of “vanilla implementations” is that they require no customization other than the configuration. Also, the maintenance services and future updates are more easily and quickly implemented. However, a study by Yick titled “Implementing Vanilla ERP Systems: Factors to Consider in Strategy, Business Alignment, and Customization”, presented to the Graduate School of the University of Oregon, notes that implementing vanilla ERP systems can be a very costly investment. They do not always meet the “information processing requirements of a given organization”, often requiring organizational process changes or workarounds to conform to the ERP systems. According to Yick’s literature research of studies published since 1998, the paper indicates that organizations turn to the implementation of vanilla ERP software solutions due to the high cost in maintaining and upgrading customized ERP systems.

System providers offer eProcurement as one of their more affordable services. In her article published in Government Procurement, Devine, a marketing professional of an eProcurement firm, indicates that a trend has emerged in the past years where state and local governments are choosing “leaner” solutions such as eProcurement in place of ERP systems to achieve savings and obtain immediate results.

Traditionally, ERP systems have focused on providing basic purchasing functionality such as requisitioning, ordering, receiving, and invoicing to meet the core financial management requirements (the typical three-way match). Because of their integrated nature, ERP systems offer a common database of all expenditures to many users at once allowing a holistic approach to budgeting, accounting, and procurement, and providing for a “single point of truth” (i.e. for data integrity and consistency). However, the challenge of this common database is that the data is stratified from an accounting perspective rather than the commodity or service perspective needed for procurement spend analytics. ERP systems’ functionality generally lags behind that of stand-alone eProcurement applications that are developed as “best of breed” and that functionality is often delivered under a software-as-a-service model. The ERP systems are typically challenged to meet the public access and openness required of public procurement.

Functionality common in eProcurement tools that is unlikely to be offered in standard ERP packages includes supplier self-certification, personalized vendor portals, requisitioning, complex catalog hosting and shopping capabilities, electronic bidding (including reverse auctions), team-based bid evaluations, and open/unlimited vendor access to catalogs, accounts, and reports.

Perhaps more important for state procurement and contracting personnel operating in the public sector is the perceived lack of functionality in many ERP systems required for open, transparent, and accessible contracting. Specific features often missing from ERP packages include support for use by local government organizations, unlimited access by the public to reporting, capability to certify suppliers eligible for economic preferences, central portal for publicly advertising solicitations, integration with social media for posting public notices, and support for mobile access to government data.

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As a result of these deficiencies, and in order to take advantage of the added capabilities of eProcurement systems, governments appear to be accelerating the adoption of eProcurement solutions.

**ERP Integration**

There are two deployment models for an eProcurement system - standalone or integrated. After deployment of a standalone eProcurement system, buyers may find that, despite their success in conducting individual transactions, there are significant drawbacks to operating separate from the entity’s primary ERP system.

A key disadvantage of a standalone eProcurement system is that it generally only serves the needs of the procurement function and is not used to pay invoices or establish and manage budgets. As a result, detailed data related to purchasing and contracting is maintained in a separate procurement database from the financial expenditure database, and does not get consolidated into a common database with invoice payment and budget data. While the procurement function does have the ability to identify opportunities for consolidated spending and strategic sourcing, enforce purchasing policy to eliminate “rogue” spending, provide accurate management reporting on purchase trends or category spending, and respond to public requests for access to purchasing information, the separate databases impair an organization’s ability to do full procure-to-pay and budget analysis, trending or forecasting. Further, the separation of these systems requires adoption of manual processes to enter vendor and order data into the ERP system to process invoices, receipts and payments.

Providers of eProcurement systems have attempted to meet this need by offering receiving and invoicing capabilities in their suites. However, eProcurement offerings may not provide the level of capability offered by traditional ERP applications in the realms of accounts payable, asset accounting, project accounting, general ledger, or banking.

Providers of eProcurement systems have evolved their offerings to overcome the core issues of the standalone model by introducing standard technologies to seamlessly integrate their functionality and processes into the ERP systems. The outcome of this integrated model, when successful, is that such an integration provides for the enhanced functionality of eProcurement and the benefits of a common database of purchasing, payment, and budget data at the same time.

What makes for a successful integration between an eProcurement system and an ERP system will depend on the needs of the organization. However, common objectives of any integration should include the following:

- Be selective about what data will be integrated. Each integration point has a cost to deploy and maintain, and presents an additional point of failure of the system;
- Be clear during design on which system will be the system of record for key data sets such as master vendor files, purchase requisitions and purchase orders, contracts, and payment information;
- Collaborate with accounting, budgeting, treasury, and human resource partners to ensure the integration meets their needs and allows them to have a “single point of truth” when conducting their work;
- Ensure data to be interfaced is “clean” to avoid corrupting the target system;
- Make every effort not to customize or enhance the ERP as these changes typically cost more than in an eProcurement application.

A final point to consider is that ERP vendors are updating their suites to offer their own, branded, eProcurement functionalities. Organizations should evaluate whether the functionality inherent in its existing ERP solution can meet their needs and weigh the loss of some features/functionality against the costs and impacts of deploying and supporting a separate eProcurement system and the required integration. Organizations should also evaluate the development plans of the ERP system provider to determine whether they have a strategy and are investing to evolve their system to achieve the same best of breed functionality as their eProcurement system competitors.

**Return on Investment: What is the Value of an eProcurement System?**

Organizations that deploy eProcurement systems can see benefits in many ways, including the reduction of costs for purchased goods, eliminating unnecessary purchases, enhancing supplier participation and performance, streamlining processes, reducing cycle times, increasing staff efficiency, reducing re-work, enhancing accuracy and availability of reporting, increasing public transparency, and reducing environmental impacts. Realization of these benefits depends as much on the processes the organization follows as on the system itself.

Process steps to follow in order to realize the value of
eProcurement systems include:

- **Spend management**: Drive high levels of adoption through policy, training, and outreach. Visibility into an organization’s spend enables it to consolidate purchases, eliminate unnecessary spending, and work with suppliers to innovate. Focus on leveraging the metrics readily available in these systems to monitor compliance, monitor usage/participation, evaluate success of procurement practices, assess supplier participation including disadvantaged suppliers analysis, and category spend analysis.

- **Enhancing supplier participation and performance**: Drive to increase supplier participation through policy, training and outreach. A growing supplier base translates into increased competition, lower prices and ultimately contributes to economic development initiatives. Regularly review supplier performance information to glean opportunities to improve compliance, validate pricing, and improve the ordering and invoicing processes.

- **Streamlining processes**: Take care not to overuse workflow or business rules, potentially making the electronic process cumbersome and slow. When configured in moderation, customers can gain efficiencies through use of workflow, online bidding and evaluation, and built-in audit and policy compliance features.

- **Reduced process costs and impact to the environment**: Adopt policies and procedures encouraging use of electronic bidding, evaluation, award, and reporting. An eProcurement system can reduce the use of paper and fossil fuels required to move paper bids between bidders and buyers, therefore having the potential to reduce costs. This can also be a great aid to public procurement officials in ensuring transparency, and reduce costs when responding to requests for public information.

A final source of benefit to be considered is the retirement of existing or legacy systems that the eProcurement system intends to replace. While every situation is different, the licensing model common for most eProcurement systems today is under a software-as-a-service model which can, one time only, make funds available as buyers switch from a model with a single, large payout, in favor of a smaller monthly rental or service fee. Additionally, personnel dedicated to supporting existing systems may be able to be repurposed to mission critical projects as the ongoing support burden for software-as-a-service is typically borne by supplier personnel.

### Existing eProcurement solutions in State Central Procurement Offices

Statistics from the 2011-2012 NASPO Survey of State Procurement Practices show that of the 44 responding states, 30 states use an eProcurement system. See Figure below. Of those who use an eProcurement system, seven use a solution that was created internally within that state government.

For a complete list of states and their eProcurement solutions, providers, and year that the solution was acquired, refer to Appendix I.

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Features and functionality of existing State eProcurement solutions

Results from the NASPO 2011-2012 Survey indicate that the capabilities of states’ eProcurement systems vary, with most states having the ability to provide requisitions/purchase orders, solicitation development, receive bids and proposals, and contract award. Of the states using eProcurement systems, all but two of the responding states provide vendor registration and distribute solicitations. Eighteen of the responding states provide evaluation of offers and contract catalogs through their eProcurement systems and 14 provide blanket purchase orders and reverse auctions. In 18 states, the eProcurement system is integrated into the state financial system. Fourteen states’ eProcurement systems utilize digital signatures.

Sixteen states’ eProcurement solutions allow the user agencies to share documents during solicitation development, and in nine states, user agencies can “pool or aggregate” their bid quantities together through the eProcurement solution. A description of the features and functionality common to most existing state eProcurement solutions are listed in Appendix II.

Funding for State eProcurement Systems

In the face of budget constraints and cuts, the central procurement office has become even more essential to forming state financial strategies. Many central procurement offices have begun experimenting with new forms of revenue-generation in order to sustain staffs and budgets. NASPO’s 2009 white paper Administrative Fees: Creative Funding for Central Procurement in Difficult Economic Times\(^{11}\) addressed this issue in depth. More recently, new or renewed strategic sourcing initiatives are underway in several states as another tool in the central procurement offices’ arsenal to reduce costs. Often detailed spend data is necessary to achieve optimal strategic sourcing results, creating an even greater need for a central eProcurement system that can capture the detailed spend data necessary to achieve optimal strategic sourcing results. The focus here is to examine how states have been able to fund these eProcurement systems in these difficult times. It is the proverbial “Catch-22”, or the “chicken and the egg”, whereby spend data is essential to achieve optimal strategic sourcing results yet the cost of an eProcurement system may be prohibitive. How does one get started?

Funding for Existing eProcurement Solutions in State Central Procurement Offices

In this paper, we examine three different approaches to the funding of an eProcurement system for the central procurement office: (1) traditional state appropriated funding (2) the use of transaction and other fees to fund the central procurement office, its eProcurement system, or both, and (3) the use of a public/private partnership (which is further discussed later in this paper). Other funding mechanisms may be available, and the fact that they are not included in this paper should not be interpreted negatively against those mechanisms.

Results from the 2011-2012 NASPO Survey show that for most of the responding state central procurement offices using an eProcurement system, the funding comes from state appropriation, or user/agency fees, or vendor fees. Some states fund their system through a combination

<table>
<thead>
<tr>
<th>Types of funding for existing state eProcurement systems</th>
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<tr>
<td>State Appropriation</td>
<td>15</td>
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<tr>
<td>User/agency fee</td>
<td>4</td>
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<tr>
<td>Vendor fee</td>
<td>7</td>
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<tr>
<td>Combination of state appropriation and fees to user agencies</td>
<td>1</td>
</tr>
<tr>
<td>General Fund - use of our own staff and MIS staff time</td>
<td>1</td>
</tr>
<tr>
<td>Combination of state appropriation and Vendor fee as well</td>
<td>1</td>
</tr>
<tr>
<td>Contract rebates</td>
<td>1</td>
</tr>
<tr>
<td>Both agency and vendor fee</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: 2011-2012 NASPO Survey of State Procurement Practices

of state appropriation and either vendor fees or fees to user agencies, contract rebates, or both agency and vendor fees. The different types of funding strategies for states’ eProcurement systems are shown, by state, in the previous table.

The table above, however, does not tell the whole story. Some of the states that utilize fees today, in order to pay for their ongoing eProcurement system, initially funded the system through a public/private partnership whereby the vendor, at no cost to the state, paid the cost to build and implement the state’s eProcurement system. While NASPO does not endorse any single approach to the funding of eProcurement systems, the public/private partnership approach is a creative one that can address the Catch-22 or the chicken and egg dilemma mentioned above. States that initially utilized a public/private partnership include North Carolina and Florida. Virginia also adopted a hybridized form of public/private partnership. These approaches are further discussed later in this paper. There are a number of options to consider and each has pros and cons.

**Public/Private Partnership Funding of eProcurement Systems**

The public/private partnership approach to funding an eProcurement system is worthy of more discussion. Our intent here is not to discuss public/private partnerships as a general topic but only to discuss them in the specific context of those states that utilized this approach to initially fund their state’s eProcurement system. The experiences described here may or may not be reflective of public/private partnerships as a whole.

Some items that are shared in common by the states that developed a public/private partnership to fund their initial eProcurement system include the fact that a private sector company built the eProcurement system at no initial cost to the state. However, each state had statutory authority to impose fees, usually collected as part of the eProcurement system once it was built. Each state conducted a competitive bid because, although there was no initial cost, there would be significant and ongoing downstream reimbursement to the private sector company. Each state found it necessary to later modify or renegotiate contracts based on actual experiences with the public/private partnership contract.

The challenges of the public/private partnership are interesting from the standpoint that the three states examined below experienced similar challenges. It is not clear if these challenges are directly related to the public/private partnership approach or if they were a result of other factors, such as the novelty of the systems themselves developed.

**Florida**

The State of Florida entered into a contract for the provision of an eProcurement system solution and also included, as part of the scope, the collection of transaction fees. After first satisfying the State Purchasing Legislative Budget Request amount, which funds State Purchasing, the contractor was to be paid from the remaining transaction fees collected. The contract allowed for the State and the contractor to share the revenue above a certain dollar threshold, which was never reached.

The State of Florida has a simple 1% transaction fee that vendors pay on sales to the State. However, Florida’s fee structure is unique in two respects. One is that the fee is assessed on all state procurement transactions for commodities and services, not just on contracts issued and administered by the central procurement organization. The other unique aspect of Florida’s program is that it allows for many exemptions from the fee. Other states generally have only a few simple exemptions to any fee structure (such as government-to-government purchases or special programs for small or minority businesses).

The public/private partnership contract was successful from the standpoint of the provisioning of the eProcurement system and some revenue generation. However, revenues were below expectations, in part due to the exemptions to the fee described above. After several years, when it was thought that the contractor received back its initial investment, the contract was renegotiated to a fixed price contract.

**North Carolina**

Like Florida, the State of North Carolina entered into a contract for the provision of an eProcurement system solution that also included, as part of the scope, the collection of transaction fees. This public/private partnership contract was successful from the standpoint of the provisioning of the eProcurement system and revenue generation. North Carolina also faced the dilemma of identifying when the partnership reaches the point at which the contractor recovers its initial investment, at which point transition to a more traditional fee for service contract is appropriate.

North Carolina assesses a transaction fee of 1.75% (applied to goods procurement only) that is used exclusively to fund its eProcurement system. The North Carolina central procurement office is funded from State General Appropriations. Because the transaction fee is used to fund the system only, the fee is only assessed against vendors who receive purchase orders through the eProcurement system itself. Further, fees are assessed only for commodities purchased through...
the system; services are exempt. This approach results in lower overall revenue but is a much simpler approach to transaction fee assessment than those of some other states.

Virginia
The Commonwealth of Virginia initially had a contract whereby, in its first five years, there was a fee model that called for the contractor to provide the eProcurement system solution and recover their investment from a portion of the fees charged to vendors. That was determined not to be ideal for the contractor due to fee revenue being less than expected as the system ramped up. Over the next 10 years, Virginia renegotiated its contract and moved to a fixed price contract paying the contractor a set annual sum.

Virginia still collected fees, but also charged both agencies and vendors. Virginia also transitioned from the contractor doing the fee collection to the Commonwealth doing the fee collection. Today, all the fees are collected by Virginia. While the public/private partnership initially built the system, the later model has worked well and been a win-win for the contractor and Virginia. Local government public bodies pay no fees.

The Commonwealth of Virginia eProcurement system operates on a breakeven concept. Vendors and agencies (but not local governments) are assessed transaction fees based on the dollar value of each purchase order for goods and services they receive. The baseline fee is a 1% transaction fee, which is capped at $500 for small businesses and at $1,500 for all other businesses. Currently, to stay at breakeven, the system is operating with temporary reduced fees, and agencies are being assessed a tenth of a percent (0.1) and vendors three-quarters of a percent (0.75) in transaction fees with the aforementioned state caps.

States’ Experiences with the Implementation of their eProcurement Systems and Lessons Learned

Arizona
Facing a $1.4 billion budget shortfall, the State of Arizona replaced its multiple procurement systems and old mainframe technology with a “one-stop-shop” eProcurement system, called ProcureAZ. This single, web-based procurement and sourcing portal brought significant cost and manpower efficiencies not only to the state, but to local governments and schools as well. ProcureAZ has yielded a return on investment from two major areas: the administrative fee paid by the vendors and the cost and operational savings realized by the state and state agencies.

How does a state in a budget crisis purchase a new procurement/sourcing system? Arizona devised an “everyone wins” answer to this question by assessing a 1% administrative fee for vendors on purchases made by local government entities. It is important to note that in Arizona, the vendors are not charged the administrative fee when a state agency uses a statewide contract. The administrative fee covered the entire cost for implementing the system within 18 months, and it continues to cover its ongoing usage costs.

The keys to the operational success of the project were the immediate, measurable benefits across key business processes enabled by ProcureAZ. At the beginning of the multi-phased implementation, the ProcureAZ team benchmarked key metrics for key business processes across the state. The metrics captured cycle times, pricing on key contracts, number of transactions, time to deliver reports, etc. The business process metrics were then captured again and have been continually measured since the “go live” of the initial phase. These key performance indicators were part of each and every steering committee report. The following are some of the highlights of the cost and operational benefits of ProcureAZ:

- Reduced Costs - The State saved an average of 26% on contract pricing in a representative sample of new solicitations for various commodities and services:
  - Office supplies - 25.4% lower
  - Janitorial supplies - 24.2% lower
  - Elevator maintenance - 32.5% lower
  - Legal messenger - 20.3% lower
- Reverse Auction Solicitations - Saved an average of 26%
- Increased participation in the State’s cooperative purchasing program by 51%
- Reduced cycle time for key processes:
  - Requisition processing - 42.5% less time
  - Purchase order/contract processing - 46% less time
  - Open market, “one-time buy” cycle - 34% less time

In summary, the ProcureAZ project was cash flow positive from the administrative fee alone within 18 months. More impressively, the ProcureAZ project broke even at six months (administrative fee plus the cost and operational
savings realized by the state and state agencies) and has generated almost $250 million in financial benefits to the state in less than four years.

**Colorado**

Colorado was a key player and one of the four core states that participated in the development of a multi-state cooperative WSAC/NASPO software-as-a-service eProcurement solution. Below are a few lessons learned from Colorado’s implementation.

- Secure executive buy-in and formal sponsorship.
- Find Champions and Business stakeholders.
  - Create a solid Governance structure up front.
- Collaborate with all entities.
- Fits in current technology roadmap - IT roadmaps and integration.
  - Pick the right solution. They are similar and yet very different.
- Ensure thoughtful implementation and a thorough understanding of critical path and detail designs.
  - Deploying an eProcurement system has many facets and interfaces with numerous (dozens) systems/interfaces that need to be documented up front. This all take time and huge amounts of resources.
  - Deployment may take more time than anticipated. Plan, plan, and then plan some more!
- Do the implementation in waves and do not buy more functionality than needed up front.
- Hire experts for integration, change management and training.

**Michigan**

The State of Michigan has recently awarded a contract to implement the BuySpeed eProcurement Solution. The solution will replace several existing legacy systems and has added functionality. The eProcurement project implementation phased schedule includes functionality deployment modules from requisition and approval, through acquisition/sourcing, to receiving, invoicing and payment and vendor management, including interfaces to the financial system, contract management, performance monitoring and reporting. Michigan’s eProcurement solution implementation which started in January 2013 has a target go-live end date of March 2015 when the enterprise rollout will be complete to include all remaining agencies and MiDEAL partners.

Michigan’s new eProcurement system “is expected to reduce operating costs, diminish "maverick" or off-contract spend and increase transparency in Michigan’s state spending”\(^{12}\).

The implementation of the BuySpeed eProcurement Solution will require organizational change and changes to business processes. To support this change, an Organizational Change Management Plan for the eProcurement System Project was developed, including three parts: Preparing for Change, Managing Change, and Reinforcing Change. The Change Management Team will be focusing on supporting the state in all areas of change management: business process redesign, communication, support, and training. The change management will be ongoing for the duration of the project through the end implementation of all state agencies. Organizational Change Management will be complete for the project once the final “After Change” interviews have been completed and lessons learned have been compiled and archived.

Frequent communication has been identified as a key component to obtain project buy-in and support as well as in alleviating concerns about the change to the eProcurement system. In addition, internal team communication is critical in resolving issues, making informed decisions, setting priorities, and increasing understanding of the solution being developed. The stakeholders involved for the eProcurement project include:

- External: Vendor personnel
- External: Michigan colleges, universities and K-12 Schools
- External: Local government purchasing organizations
- Internal: State of Michigan (SOM) administrators
- Internal: SOM users (non-administrators)
- Internal: SOM project team members
- Internal: Periscope-Compuware project team members

Additional stakeholders groups have been identified and added to the project team: Project Quality Assurance, Critical Projects Office, and Investment Fund Office. Also recommended was the addition of Chief Financial Officers and Financial Managers User Group monthly meetings as well as a security users group. All stakeholders are included in the monthly communications and web updates according to the communication plan.

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Over the last decade a number of state procurement agencies have either implemented or are in negotiations to transition to a software-as-a-service (SaaS) eProcurement solution. Nevada participated along with Colorado, Oregon, and Washington, in the market research and development of a cooperative Western State’s Contracting Alliance (WSCA) RFP solicitation for eProcurement Services and Solutions that was released in October 2010. Nevada was a key player on the sourcing team for this solution. After an extensive evaluation, vendor presentation, and clarification process of proposing vendor, in June 2011, an award was made and contract signed for this eProcurement solution.

In August, 2012, the State of Nevada prepared a business case for an eProcurement solution, to address the current need for change in its Department of Administration, Purchasing Division. The Purchasing Division is responsible for a wide variety of statewide procurement, from paper to boats to firearms to office equipment. Every year, the division oversees $505 million in purchases ($9.2 million in P-Card expenses) from over 4,000 vendors. The existing process relies on many manual steps, does not capture significant data, and does not allow the state to consolidate buying power. Moreover, spent outside established contracts with preferred vendors is not captured.

Three alternatives were investigated as part of Nevada’s business case analysis, including maintaining the status quo, maintaining current functionality with commercially off the shelf software (COTS), and implementing a full procure-to-pay SaaS solution. It was concluded that the first two alternatives were not acceptable long term. While COTS may accommodate some of the desired features, such as posting solicitations, receiving notification of opportunities to bid, running queries for information on contracts and registered vendors, and generating reports, some issues and limited functionality of the current solution practices will remain. Also, COTS will limit the cost savings and leverage of the WSCA partnership that Nevada has established over the past several years. It was noted in the analysis that the most significant risk associated with COTS is tied directly to the choice of solution, the vendor selected, and the speed in which conversion to the new technology will occur. Selecting the SaaS alternative seems to be the best alternative in terms of correcting the problems of the current system and leveraging the WSCA partnership and SaaS solution provider to procure and implement a full procure-to-pay eProcurement solution with additional functionality. Some of the benefits are highlighted below:

- The system will allow suppliers to create catalogs that will enable government agencies to compare prices and shop for goods and services on-line and make purchases electronically.
- Spend will be captured by the Nevada Purchasing Division from the system rather than from the self-reported sales from suppliers.
- Better analysis of data to determine spending patterns across the Nevada Purchasing Division user community.
- Visibility into state spending that can then be used to develop an enterprise sourcing strategy to fully leverage the state’s buying power.
- Metrics for measuring supplier performance can be created and published in an expanded system to track Key Performance Indicators.
- As a web-based solution, there is no hardware or software to purchase or maintain; just implementation costs and a yearly subscription fee.
- Minimal Web browser and O/S requirements. The vendor is responsible for all software and hardware support, maintenance, and upgrades.

Efficiencies and benefits of the proposed eProcurement solution include contract compliance, strategic sourcing, process savings, and PCard savings. Business processes will likely be streamlined and there will be a change management component, and staff and vendors will need to be trained (online) on the new system. Data is owned by the state and, given system failure or contract termination, shall be returned to the state in appropriate form for use in a follow-on system. Data security will be managed by the vendor and the service level agreement (SLA) will determine penalties associated with a data breach or data corruption. The functional activities of performing purchasing for the State of Nevada will be fundamentally unchanged.

Calculations included in the Nevada business case are shown below. All savings are calculated conservatively with the assumption that Nevada will never get to 100% of spending being channeled through the solution. Estimated time for the eProcurement solution deployment is February 2014 - April 2014.

- **Estimated Ongoing Annual Support:** $827,904.
- **Total Estimated Implementation Cost:** $743,289
- **Total Estimated First Year Cost of $1,571,193, including implementation plus first-year annual subscription fee**
- **Five Year Total Cost of Ownership:** $4,882,809

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13 State of Nevada e-Procurement Solution Business Case. Department of Administration. Technology Investment Request for FY14-15
At present, Nevada is in the process of investigating the actual and verifiable hard-dollar savings, so that budgets can be adjusted to reflect those savings, or at a minimum, confirm that the state’s eProcurement acquisition is revenue neutral. Nevada is also working with their state controller to determine the right course of action for integrating their eProcurement solution with their ERP (and the possible hurdles involved with replacing their ERP in the future).

**North Carolina**

The North Carolina Procurement Transformation Project was the result of an Office of State Budget and Management (OSBM) review of North Carolina’s procurement practices. This review coincided with the signing of Executive Order No. 4, NC Open Book. The 2009 review found the state’s procurement practices to be highly complex while lacking centralized information management, defined performance goals, and compliance and training resources. The findings within the OSBM’s study precipitated a three-pronged transformation initiative that aimed to “create a customer-focused enterprise to achieve increased procurement effectiveness, efficiency, and compliance resulting in significant financial benefit for taxpayers by reducing the costs of acquiring goods and services.” The initiative is currently underway with an anticipated two to three year timeframe for complete implementation.

The project focuses on four functional work streams within procurement: organization, strategy and governance, strategic sourcing, and technology. Within this latter work stream, a recommendation was accepted to upgrade the state’s system in order to serve as North Carolina’s core eProcurement system for the state. The upgrade to the eProcurement system is expected to achieve best value, delivery excellence, operational efficiency, and workforce excellence, among other benefits. Other project facets that are expected to help reach these goals include the implementation of an improved system of spend reporting, the expansion of e-Sourcing and bidding capabilities to reduce evaluation times and bid entry, and the integration of the eProcurement system with the state’s human resources system to align with personnel interfaces and security policies.

Another major component of the initiative involves the improvement of the “punch-out” catalog. Started in 2011, the objectives of this project include the improvement of catalog content, the refining of the processes used to create new catalogs, and the establishment of a continuous program improvement plan.

**Virginia**

Like many governments, the ability of the Commonwealth of Virginia to efficiently purchase goods and services was hampered by a decentralized procurement model. Before the Commonwealth built and deployed their eProcurement system, eVA, selling to and buying on behalf of government was a laborious task.

If a supplier wanted to sell office supplies to the Commonwealth and market its goods to possible buyers, the supplier had to find the purchasing offices of each agency, institution and local government entities. Suppliers had to travel in person to these offices to register and find what business opportunities were available or they could participate in a $75 annual subscription to a solicitation publication that only advertised business opportunities valued at over $30,000.

When a supplier received a purchase order, the format and information always varied among purchasing offices, so it was easy to make mistakes in determining what an agency was ordering. There were frequent returns and corrections on orders. Because the whole process was conducted on paper, the supplier couldn’t automate its supply chain for delivery. The manual process took time and required constant communication between the supplier and buyer. This created delays for agencies to receive the supplies they needed and for the supplier to receive payment.

If a buyer in a state agency was trying to purchase supplies for their unit, then the buyer had the same experience from the other side. The buyer had access to a limited list of potential suppliers for competition on their solicitations and when placing orders faced a multitude of price lists, returns for errors in product or pricing and time-consuming paper-based processes. The buyer also had no means to communicate with buyers in other agencies who might be purchasing the same goods or services so they often had to pay more per unit because purchases were uncombined and the state was not leveraging its bulk buying power.

Overall, buying patterns were characterized by a lack of knowledge of the items available on contract and in catalogs, on determining the best supplier available, and on best practices by other agencies resulting in a better price.
This made doing business with the state dependent on personal relationships between suppliers and buyers. Suppliers sold only to offices they knew, slowing the growth of their businesses. Small businesses had limited access to the market if they didn’t have the resources to build personal relationships with the myriad of buyers throughout the state. Each purchasing office operated as its own business including the satellite offices of a single agency, resulting in a greater reduction in buying power to be leveraged. These inefficiencies and missed opportunities embedded in this way of doing business increased the cost to the Commonwealth and ultimately the taxpayer. A new way of doing business through a single electronic procurement system for the state was envisioned.

**Virginia’s Solution: Statewide Electronic Procurement**

The eVA system is an end to end, government-to-business network streamlining the Commonwealth’s purchasing processes creating a virtual enterprise-wide procurement system. It provides electronic purchasing through a web site for all Commonwealth of Virginia agencies, local governments, and institutions of higher education. It funnels this purchasing through a single electronic portal capable of managing the unique needs of a diverse group of state and local agencies and suppliers. eVA does this by automating workflow; utilizing common auditable business rules that apply to all users, while supporting unique rules for each buying organization; providing data capture and aggregation for procurement information and activity; and securing the transmission of transactions and data.

eVA has made doing business with the Commonwealth easier because there is one standard way to access business with the Commonwealth. This system establishes a central clearinghouse of information for both supplier and buyer. Suppliers can expect one electronic standard, regardless of the multiple back-end systems agencies use. Suppliers no longer have the frustration and additional cost of connecting their order management systems and business processes to government in multiple ways in order to sell goods and services to the Commonwealth.

eVA also provides suppliers with a self-service tool to register across multiple government agencies. Suppliers can enter their own demographic information and confirm the accuracy of the information prior to entry, increasing the quality of the supplier data. Through supplier self-service, agencies avoid the time and resources needed to manage these processes.

eVA uses technology tools to share information with suppliers regarding contract opportunities, historical contract and bidding information, and government news and information. Suppliers avoid the expense of paper catalogs by placing electronic catalogs in a virtual marketplace accessible by any authorized public sector shopper. Shoppers connect to eVA through a web browser—accessing and searching on-line supplier catalogs and placing electronic orders for goods and services directly from their desktops.

If a solicitation is required, the documents are created through predefined libraries of information and published to the Web. Recipient supplier lists are also created electronically, so that as solicitations are published to the Web, registered suppliers are automatically sent e-mail notifications of and hyper-links to the impending opportunity. Procurement documents can be distributed electronically.

Registered suppliers can Web search, view, and electronically bid on solicitations. eVA also offers reverse auctions—suppliers can anonymously post bids to an open forum, where they can compare their bid to the lowest one submitted. Suppliers can re-submit their response at a lower bid, providing real-time competition for the buyer.

The entire bid evaluation process can now be done electronically, from posting submitted bids on the Web to submitting, capturing, tabulating and compiling team evaluations. eVA provides the buyer with a summary of the team’s evaluation, an assessment of the supplier’s responses to evaluation criteria, and an electronic bid evaluation of prices by item and by supplier. When the buyer is ready to issue an award, document delivery and publishing requirements are selected, and award results are posted to the Web for public review.

eVA supports the creation, modification, and distribution of contracts, master agreements, and purchase orders to suppliers. eVA also provides electronic invoicing capabilities for suppliers to facilitate faster payment processing.

eVA provides tracking and reporting capabilities so users can track and audit procurement progress, activities and history. Effectively, eVA provides the ability to manage the complete procurement life cycle to state agencies, institutions of higher education, and local governments utilizing the system.

Overall, eVA has transformed the business of purchasing for the Commonwealth. It reduces paperwork and creates a virtual enterprise community of online purchasers and suppliers who benefit from transacting electronically. At the same time, state agencies, institutions of higher education and local governments retain their unique business rules, while benefiting from economies of scale and information from an enterprise-wide solution.
**eVA Functionality: Addressing the full Procure-to-Pay process**

- Requisitioning, Approvals, Orders & Electronic Order Delivery
- eSourcing & Reverse Auctions
- Public Posting & eMail/eFax Supplier Notifications
- Supplier Enablement: registration, personalized portal, catalogs/punch-outs
- Buyer Enablement: organization/user setup, PCards, data maintenance
- Reporting, Spend Analytics & Spend Management
- eInvoicing
- Integration-Interface with 69 ERPs: Peoplesoft, Oracle, Banner, Munis, etc.
- Mobile Apps for Approvers & Suppliers
- Supplier Master Data distribution
- Transparency Reporting
- Data Retention

**eVA Metrics**

**A. Participation**

- 220+ State Agencies/Colleges/Universities
- 595 Local Government organizations (including 135 Public Schools)
- 26,700+ state and local government users
- 57,800+ Suppliers registered
- 983 Catalogs, 120 punch-outs, 5.1 million items

**B. Transactions**

- 450,000+ orders per year
- $4-5 Billion spend per year
- 15-20,000 on-line solicitations per year
- 49+ Million Supplier bid eMail/eFax notices per year

**C. Savings**

- Price ($368 million since CY2000 from reduced prices of goods and services)
- Efficiency ($105 million since CY2000 from more efficient administrative processing of purchase orders)

**D. Competition**

- 30-fold increase in average number of suppliers invited to bid
- 100% increase in bids submitted on less than $50K procurements
Conclusions

A number of states are now considering (or will be faced with soon) a decision of whether to transform their procurement systems, retire their legacy systems, integrate eProcurement functionalities into their state’s ERP systems, or deploy a separate eProcurement system.

As noted above, every state’s situation is different and there are benefits and limits to functionality for each solution; however, the success of one implementation over another will depend on whether the solution chosen is the best match for the needs of the organization.

NASPO hopes this paper may assist procurement officials in their efforts to choose the best solution that effectively addresses their jurisdiction’s needs. The paper has examined the different roles of ERP and eProcurement systems, how they support common principles of public procurement, pros and cons of each alternative, and benefits and examples of implementations from a handful of states that were able to contribute to this paper. We highlighted lessons learned, practices regarding ERP integration, and functionalities of existing eProcurement systems among the states, in order to guide this decision-making process.

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Disclaimer

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### Appendix I  Existing eProcurement Solutions by State

*Source: 2011-2012 NASPO Survey of State Procurement Practices*

<table>
<thead>
<tr>
<th>Responding State</th>
<th>eProcurement Solution/Provider and State Comments</th>
<th>Acquisition Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>Periscope Holdings, Inc.</td>
<td>2008</td>
</tr>
<tr>
<td>California</td>
<td>BidSync (interim solution until Fiscal can be implemented)</td>
<td>2009</td>
</tr>
<tr>
<td>Connecticut</td>
<td>Oracle PeopleSoft ERP (in-house solution)</td>
<td>1998</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>Ariba</td>
<td>2004</td>
</tr>
<tr>
<td>Florida</td>
<td>MyFloridaMarketPlace (Ariba)</td>
<td>2003</td>
</tr>
<tr>
<td>Georgia</td>
<td>PeopleSoft with SciQuest catalogs</td>
<td>2006</td>
</tr>
<tr>
<td>Hawaii</td>
<td>SicommNet, Inc.</td>
<td>2005</td>
</tr>
<tr>
<td>Idaho</td>
<td>SicommNet, Inc.</td>
<td>2002</td>
</tr>
<tr>
<td>Indiana</td>
<td>PeopleSoft</td>
<td>1999</td>
</tr>
<tr>
<td>Iowa</td>
<td>CGI and SciQuest</td>
<td>2001 and 2010</td>
</tr>
<tr>
<td>Kansas</td>
<td>PeopleSoft</td>
<td>2009</td>
</tr>
<tr>
<td>Kentucky</td>
<td>CGI/AMS</td>
<td>1999</td>
</tr>
<tr>
<td>Louisiana</td>
<td>ISIS AGPS and SAP ERP. New SAP ERP system with pilot agency Nov. 2011</td>
<td>1995 and 2011</td>
</tr>
<tr>
<td>Maine</td>
<td>CGI/AMS</td>
<td>2007</td>
</tr>
<tr>
<td>Maryland</td>
<td>Periscope Holdings, Inc.</td>
<td>2000</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>Comm-PASS (Massachusetts is in the process of replacing its in-house solution with an eProcurement Solution)</td>
<td>1997</td>
</tr>
<tr>
<td>Minnesota</td>
<td>Oracle PeopleSoft</td>
<td>Implementation in process 2011-2013</td>
</tr>
<tr>
<td>Missouri</td>
<td>CGI/AMS</td>
<td>1998</td>
</tr>
<tr>
<td>New York</td>
<td>NYS is in the process of implementing a statewide financial management system (SFS). SFS is Oracle PeopleSoft</td>
<td>N/A</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Ariba</td>
<td>2001</td>
</tr>
<tr>
<td>North Dakota</td>
<td>PeopleSoft Oracle ERP</td>
<td>2006</td>
</tr>
<tr>
<td>Ohio</td>
<td>PeopleSoft Strategic Sourcing Module</td>
<td>2011</td>
</tr>
<tr>
<td>Oregon</td>
<td>SciQuest solution (Oregon is in the process of implementing ORPIN 2.0 through WSCA SaaS eProcurement)</td>
<td>ORPIN 1 procured in 2004</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>SAP</td>
<td>2007</td>
</tr>
<tr>
<td>South Carolina</td>
<td>SAP</td>
<td>No response</td>
</tr>
<tr>
<td>South Dakota</td>
<td>ESM Solutions</td>
<td>2002</td>
</tr>
<tr>
<td>Tennessee</td>
<td>Oracle PeopleSoft</td>
<td>Went live 2009</td>
</tr>
<tr>
<td>Utah</td>
<td>BidSync</td>
<td>2007</td>
</tr>
<tr>
<td>Virginia</td>
<td>CGI/AMS, Inc. w/Ariba</td>
<td>2000</td>
</tr>
<tr>
<td>West Virginia</td>
<td>In-house solution</td>
<td>1991</td>
</tr>
</tbody>
</table>
## Functionality and Capabilities of Existing State eProcurement Systems

<table>
<thead>
<tr>
<th>Functionality</th>
<th>States Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requisitions/purchase orders</td>
<td>AZ,CA,DC,FL,GA,IA,ID,IN,KS,KY,LA,ME,MN,MO,MS,NC NY,OR,PA,SC,SD,TN,VA,WV</td>
</tr>
<tr>
<td>Solicitation development</td>
<td>AZ,CA,DC,FL,GA,IA,ID,IN,KS,KY,LA,MA,MN,MO,MS, OR,PA,SC,SD,TN,UT,VA</td>
</tr>
<tr>
<td>Distribution of solicitations</td>
<td>AZ,CA,CT,DC,FL,GA,HI,IA,ID,IN,KS,KY,LA,MA,MD,ME, MN,MO,MS,NC,ND,OR,PA,SC,SD,TN,UT,VA</td>
</tr>
<tr>
<td>Vendor registration</td>
<td>AZ,CA,CT,DC,FL,GA,HI,IA,ID,IN,KS,KY,LA,MA,MD,ME,MN MO,MS,NC,ND,OR,PA,SC,SD,TN,UT,VA,WV</td>
</tr>
<tr>
<td>Receiving bids and proposals</td>
<td>AZ,CT,DC,FL,GA,HI,IA,ID,IN,KS,KY,MA,MD,ME,MN,MO, MS,OH,OR,PA,SC,SD,TN,UT,VA</td>
</tr>
<tr>
<td>Evaluation of offers</td>
<td>AZ,DC,FL,IA,IN,KS,KY,MA,MD,ME,MN,MS,OR,SC, SD,TN,UT,VA</td>
</tr>
<tr>
<td>Contract award</td>
<td>AZ,CT,DC,FL,HI,IA,ID,IN,KS,KY,LA,MA,MD,ME,MN,MO, MS,OH,OR,PA,SC,SD,TN,UT,VA</td>
</tr>
<tr>
<td>Contract administration</td>
<td>AZ,CT,DC,GA,IA,ID,IN,KS,KY,MA,ME,MN,MO,MS, OR,SC,TN,VA</td>
</tr>
<tr>
<td>Contract catalogs</td>
<td>AZ,DC,FL,GA,IA,IN,KY,LA,ME,MN,MS,NC,OR,PA, SC,SD,TN,VA</td>
</tr>
<tr>
<td>Blanket purchase orders</td>
<td>AZ,DC,FL,GA,IA,ID,IN,KY,LA,MN,OR,SC,TN,VA</td>
</tr>
<tr>
<td>Reverse Auction</td>
<td>AZ,DC,FL,IA,IN,KY,MN,OH,OR,PA,SC,TN,UT,VA</td>
</tr>
<tr>
<td>Utilizes digital signatures</td>
<td>AZ,CT,GA,IA,KS,KY,MA,MN,OH,OR,PA,SC,UT,VA</td>
</tr>
<tr>
<td>Integrated into the state financial system</td>
<td>AZ,DC,FL,GA,IN,KS,KY,LA,ME,MN,MO,MS,NC,OH,PA, SC,TN,VA</td>
</tr>
<tr>
<td>Does not maintain a record of contractor performance</td>
<td>AZ,CA,FL,GA,HI,ID,LA,MA,MD,MN,OR,PA,SC</td>
</tr>
<tr>
<td>Contractor performance Reporting by client agencies</td>
<td>DC,FL,IA,KS,KY,NC,VA,WV</td>
</tr>
<tr>
<td>Performance reports publicly available (i.e., available to persons other than internal system users)</td>
<td>CT,FL,VA</td>
</tr>
<tr>
<td>Provides for using agencies to share documents during solicitation development</td>
<td>CA,CT,DC,FL,HI,ID,KS,LA,MD,MN,NC,OH,OR,SC, TN,VA</td>
</tr>
<tr>
<td>Provides for using agencies to “pool or aggregate” their bid quantities together</td>
<td>AZ,DC,FL,KY,LA,MN,SD,TN,VA</td>
</tr>
</tbody>
</table>