

**Automating the Procurement Process (e-Procurement)
For SCSHFDA Procurement Division**



By

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March 8, 2008

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I. INTRODUCTION

Background

During March 2005, I was asked by the Executive Director to find vendors that could automate the Authority's Procurement process. Electronic Procurement (also known as e-procurement) is a way of using the internet to make it easier, faster, and less expensive for businesses to purchase the goods and services they require. While e-procurement is a general term that covers a wide assortment of techniques, such as reverse auctions, its overall goal is to streamline the purchasing process so businesses can focus more on customer service.

The system would allow users to enter a Request for Purchase (an internal term for a purchase requisition) and have that document electronically transferred to the Procurement Division and allow modifications to be made by the Procurement staff before placing the order and the Purchase Order (PO) issued without having to re-enter the data. The current process is labor intensive, time consuming and expensive. This result has impacted negatively on our internal customers which hinders the level of service we provide to our external customers and other stakeholders.

During 2003-2005, the Senior Management Team which includes the Executive Director decided during their annual planning retreat to complete the Authority's Strategic Plan to make automating the agency's Procurement process one of the primary goals of the Plan. The IT Director and the Director of Procurement was given the task of developing, securing, and implementing an on-line Purchase Order/Requisition System. The IT Director left the agency before the preliminary research could be completed. Shortly, thereafter the Board of Commissioners decided to re-locate the agency from its Bluff Road location to the present

location at Outlet Pointe Blvd. The new IT Director and the Director of Procurement were assigned to co-ordinate the renovation of the Outlet Pointe Blvd. property. The project to automate the Procurement process was postponed until the renovations and the move could be completed. The Director of Procurement retired shortly after the move to the new location. The Board appointed a new Executive Director who upon his arrival began to look at the work flow processes for the entire agency. He formed "GO" Teams, which included Senior Managers, Division Directors, front line supervisors and regular staff employees to take a look at each process and make recommendations for improving the agency's work flow processes. One of the recommendations was to resurrect the proposal to automate the Procurement process.

In March of 2005, I became Director of Procurement and the Executive Director in agreement with my supervisor assigned this project to me. I began working on a system to automate the Purchase Order/Requisition system. I began discussions with the Information Technology Division to resurrect the proposal to automate the Procurement process. During these discussions, our objectives were to develop a mainframe application to allow our internal customers to create a Request for Purchase and transmit to Procurement for creation of the Purchase Order. We then proceeded to identify a means of applying electronic signatures to documents, routing and work flow documentation. After much discussion we realized that electronic storage of all contract documents related to Procurement must be included in the process. We identified a solution that would accommodate both major issues, the possibility of implementing an Electronic Document Management System for both the electronic signature and document management (records storage, review and retrieval).

The Authority's Board had previously approved the review, research and implementation of a document management system approximately two years ago. We were tasked with determining

the best way to provide a system that could be utilized agency wide. The Authority is very records-intensive and has records stored off site as well as a complete file room with overflow distributed discreetly around the agency.

Statement of Need

The Procurement Division is a medium volume, paper intensive department within the Authority. We must assure that needed goods and services are obtained following the South Carolina Consolidated Procurement Code¹ (Code) and good business practices. We must also ensure goods and services are procured efficiently, effectively and timely. The majority of procurements made by our division supports the operation side of the Authority and is very critical to the mission of “creating quality affordable housing opportunities for the citizens of South Carolina”.

There is no way in our current system to track a Request for Purchase from creation through the awarding of contracts and issuance of Purchase Orders. We often have to track the Request for Purchase to determine where it is and who has it, or where we are in the process of awarding a contract and/or issuing the PO. If the Request for Purchase has been approved and the buyer has not received it, the buyer has to call each person in the approval group to locate the Request for Purchase and document the status. This effort is very time consuming and labor intensive.

There is also no way to determine where the Request for Purchase stops during the approval process. We currently only document the day that the Request for Purchase is created and no other data are captured until the Purchase Order is issued. To track the status of documents through completion of a contract is very labor intensive given we are only authorized two (2) full-time employees. The Procurement staff must review each Request for Purchase to determine if the appropriate level of approvals were obtained. Once this step has been accomplished, the

Request for Purchase is checked for the following: 1) the date the Request for Purchase was created; 2) the suggested vendor (if known) the ship to department where the order is to be delivered; and 3) the requested delivery date. All of this information is then compiled manually to create the Purchase Order. After the Purchase Order is created it must be forwarded to the appropriate manager for approval signatures (Procurement Director, or Executive Director). The process regularly breaks down if the Procurement Director is unavailable or the Executive Director's secretary forgets to leave the Purchase Order on the Executive Director's desk for her signature.

Once proper approval for the Purchase Order has been obtained the order is placed and a copy of the Purchase Order along with a copy of the Request for Purchase is manually routed to the Accounts Payable Department to await receipt of an approved invoice for payment. This is very labor intensive and a waste of valuable human resources. We manually processed one thousand (1000) Purchase Orders for the period Fiscal Year 2005 through Fiscal Year 2007.

Document filing and retrieving is also very labor intensive and many times documents cannot be located because they have been pulled for review or amendment and the person(s) pulling the records have not inserted a file check-out card in the file. Also records are not accessible for other Divisions that may need to review the contract file for specifications or other terms and conditions in the contract. Staff in the Procurement Office must pull the contract file and copy the documents need for review. He/she then must hand carry them or fax them to the requestor. All of these processes are time consuming for our limited staff.

These two areas alone cause many hours of staff time to be dedicated to paper chasing instead of allowing them to use their talents completing solicitations and managing contracts. It's difficult to be productive when valuable creative time is spent chasing paper. We determined that

¹ <http://www.scstatehouse.net/codet11c035.htm>

if we automate these two processes along with automating the Procurement process we would save an significant amount of time and could reallocate the time saved to developing new strategies that would serve the needs of both the internal and external stakeholders of the agency. It would result in reducing cycle time so procurements are completed faster and records are located as needed without loss of valuable production time.

The primary objective was to automate Procurement Services document processing and routing which would include electronic signatures; provide greater visibility of the documents and document the procurement cycle time and status; and provide the information in an electronic format that is accessible to the entire agency. To establish this process improvement project, we identified the need for an Electronic Document Management System (EDMS) with integrated workflow management.

Terms Defined

The following is a list containing agency terminology and acronyms that are used throughout this document.

Term	Description
RFP	Request for Purchase
PO	Purchase Order
EDMS	Electronic Document Management System
IT	Information Technology
SCSHFDA	South Carolina State Housing Finance Development Authority

Research Question

Once we identified our problems, we began to look for solutions that would allow us to automate the processes associated with electronic signature, routing of documents and record storage and retrieval. We needed to find out what products were available, and the cost of software and any hardware requirements that would be necessary to accomplish this project. We also need to find out how we compared with other procurement departments in regard to our current workflow procurement cycle times. We also need to review information related to procurement cycle times reported by other agencies. Part of the cycle time requirements are mandated by the *South Carolina Consolidated Procurement Code*² (Code). The time required for advertisement of informal and formal bids; time required for informal and formal bids from issuance to opening; The need to post an Intent to Award for 15 days prior to making an award for procurements <\$50,000; and the time to resolve protests should they be raised, are all times constraints that are beyond our control. We reviewed these factors for consistency during our research of our current procurement cycle from buyer to of the issuance award. We realized that a standard needed to be set that all buyers must follow unless there are unforeseen problems with the solicitation that would cause a variance from these standards.

We needed to answer the following questions from the information we collected:

- ❖ What product(s) would be best for us to accomplish this project?
- ❖ What would be the cost of the project?
- ❖ What standards do procurement organizations have in place for procurement cycle time?

² <http://www.scstatehouse.net/code/t11c035.htm>

- ❖ What is a reasonable procurement cycle time for SCSHFDA to implement, taking into consideration the built in constraints of the *Code*³?

Purpose

The purpose of this process improvement project was to free up staff time to allocate resources to those activities that are critical to the mission of SCSHFDA – “*The mission of the South Carolina State Housing Finance Development Authority is to “Create quality affordable housing opportunities for the citizens of South Carolina”.*”

By converting manual processes that are labor intensive and extremely time consuming into fast, reliable electronic processes that require less human interaction, significantly increases office productivity. Instead of using valuable time and office space to store and retrieve critical documents, our staff will be able to access real-time information at the click of a mouse. Information that once required up to an hour to retrieve can now be accessed from one’s desk in a matter of seconds. The need for off-site storage and an in-house filing system is drastically reduced.

By developing EDMS, we will be able to track all documentation and know where related documents are at all times during the procurement cycle process—from the creation of the request for purchase, through contract administration once the contract has been awarded, and/or the PO is issued. We will also be able to document the time necessary to complete each step in the procurement cycle process for future benchmarking by accessing the information electronically instead of the previous labor-intensive efforts.

³ <http://www.scstatehouse.net/code/t11c035.htm>

II. INFORMATION SOURCES

Known Information

We knew very little about procurement cycle time because we did not have a system to the collect the necessary data. Prior to the implementation of the EDMS, accurately capturing this data was completely manual and nearly impossible. I discovered that the man-hours required for documentation of procurement cycle time was exhausting and labor intensive.

I also knew that record storage and retrieval was a problem and occasionally records could not be located because of an unreliable card checkout system. During my research for the project I pulled and reviewed all Requests for Purchases, Contracts and Purchase Orders for Fiscal Year 2005 through Fiscal Year 2007 to determine the appropriate procurement cycle time. There were 980 Request for Purchases and 1000 Purchase Orders issued for FY 2005-2007. The average time it took to initiate the procurement cycle was three (3) days for the Procurement Officer to react to the Request for Purchase because of the volume of work that had to be manually created. The Purchase Order was then created manually if we had the proper approval for the Request for Purchase, if not then another day was added to the cycle before the order could be placed with the vendor. I discovered that it could take up to five (5) working days to process a Purchase Request where no competition was required. If we had to get written quotes that added another two (2) days to the process.

Benchmarking Surveys

While conducting research for this project it was important to identify other benchmarking surveys pertaining to procurement cycle time. The National Institute of Governmental

Purchasing, Inc.⁴ (NIGP) had completed two benchmarking studies, one in 2001 and one in 2003. This information was valuable in analyzing our current cycle time against information gathered on a national, regional, and agency-type basis.

The NIGP 2003 Benchmark Study used key demographic indicators that could be benchmarked across agency types and across fiscal years. The study included the full spectrum of procurement services, from process time to electronic automation, change order authority, surplus disposal methods and even Personal Computer leasing methods. Results are divided into Utility, City, County and State categories. The survey was released to 1,876 NIGP members and utilities on February 27, 2003. Of this sample, 15% responded with data based on the median range of respondents, the key benchmarks defined in the survey results are as follows: 62 % responded that they have a centralized Purchasing Department, with another 26% reporting a combination of centralized/decentralized department.

When it came to the Formal Sealed Bid Process time, 72.1% of the responding agencies indicated that requisitions related to Request for Bids were approved within three (3) days, but at that point the process time begins to vary. 38% indicated that it took four (4) to seven (7) days for the documents to “hit the street”, 24% took eight (8) to fourteen (14) days, and 23% responding were quick to release the documents in a one (1) to three (3) day time frame.

Surprisingly, 46% of the agencies reported that the time items were out for bids typically fell in the sixteen (16) to twenty (25) day time frame, while another 32% indicated they only post bids for eight (8) to fifteen (15) days. These numbers indicate a steady trend in cutting the time associated with the bid process. The only area procurement is in direct control of is the time procurements are out for bid.

⁴ A non-profit International organization that supports Procurement Research, Training, Education, and Professional Development.

Electronic delivery and receipt of bids has greatly reduced the cycle time of formal bidding.

III. METHODOLOGY

Needed Information

The State Housing Authority contracted with Hyland Software in April, 2007 to review the existing business processes and communication flow for the entire agency. This high level discovery was performed on April 24-26, 2007. The current business-processing environment is paper intensive and documenting the status of a procurement transaction and locating documentation associated with the procurement was difficult due to routing and approval and workflow processes. Hyland used this analysis to evaluate the recommended imaging solution. Hyland was one of the Lot 1 vendors on contract with the Information Technology Office of the State of South Carolina.

The project goal was to implement an agency wide scanning solution, designed to enhance business processes through the use of document imaging, document storage and retrieval. It was also an expressed goal to automate the application process through the implementation of electronic forms and applications and management of a workflow system. This would be accomplished through the use of the OnBase Workflow module. Over the course of the project, the seven core program groups as well as all supporting departments such as Human Resources, IT, Legal and Procurement will convert their business processes away from paper files and toward electronically imaged files. After the Discovery was complete and all the data gathered. Hyland gave us an estimate of services for their work. Hyland will charge Services Fees to the South Carolina State Housing Authority for Project Management Services on a time and materials basis at the rate of \$1,212.00 per working day with work day defined as the services

of one (1) person for eight hours (8) hours, plus travel and expenses. The total estimate of Project Management Services is thirty (30) days for an extended total of \$36,360.00 plus travel and expenses. Hyland also presented an estimate for Installation Services on a time and material basis at the rate of \$1,515.00 per working day, plus travel and expenses. The total estimate of Installation Services is thirty (30) days for an extended total of \$45,450.00 plus travel and expenses. For workflow development and implementation, Hyland will charge Services Fees to the South Carolina Housing Finance Development Authority for Consulting Services on a time and material basis at the rate of \$1,717.00 per working day, plus travel and expenses. Each work flow in each department would be treated as a separate statement of work, estimated at forty (40) days of Workflow Consulting Services for each workflow. In addition to the Workflow Consulting Services for each workflow, Project Management Services may also be required. The cost for implementation of a Document System for the entire agency including Procurement was \$964,873.40. We determined these costs to be excessive and not within our budget.

We began to look at options for implementing the Document Management System and interviewed several companies that were on state contract. After the interview process we determined that the State CIO's office offered the best and most cost-effective solution. The cost for the CIO's solution was \$403,503.85 and we did not have to buy any new hardware to host the application. The total estimated cost for this Document Management System was a definite cost saving for the SCSHFDA. The actual net cost savings was \$561,369.55 less than the initial Hyland proposal.

The next step was to gather information for automating the work flow process. We knew that the buyers were manually creating the Purchase Orders and routing them to the next level in the

approval cycle. This process caused the buyers to spend valuable time chasing paper instead of applying that time to actually processing procurements and working towards issuing contracts for the requested supplies and services needed to carry out the agency's mission.

The Procurement Office has two (2) staff members. I assigned myself to document the procurement workflow. I estimated that the other buyer spent on average 6 hours a day just creating Purchase Orders. The average hourly salary for the staff involved is \$20.00. By automating the workflow process we will save an estimated 1,040 hours each year in staff time, which equates to approximately \$20,800 a year in savings in the Procurement Division alone. This work was identified as being an impediment to our effectiveness in processing Requests for Purchase. Once the system is completely implemented we will begin to decrease our need for documents and records storage and will decrease the cubic feet floor space to house the documents. We can convert the current file room into badly need office space which will eliminate the need to acquire more space at our current location or move to a larger building to accommodate our need for future growth.

Information Analysis

The first observation was the cost saving we could realized by not using Hyland Software for the Document Management System piece and going with the State CIO to host the system, thereby allowing the agency to implement its own system. Not only was there a cost savings, we were able to negotiate a better rate with Hyland Software, which is on state contract through ITMO, to assist with the consulting for document imaging the entire agency. We also saw a substantial saving if we automated the procurement process including electronic signature and the ability to route the paperwork through the internet. By automating the procurement process

and installing the proper software the review and approval time is cut by fifty (50) percent. Because the purchase order is in an electronic format, it can be sent to managers via e-mail or instant messenger. Also, managers can access existing orders created by the software and can use it to approve, void, alter, or reject purchase orders without ever leaving their desk or have a conversation with the person who created the original order.

Once the purchase order is approved, it can also be submitted to suppliers faster. While manually created orders were sometimes mailed and could take 3-4 days to reach the supplier, software created orders can be faxed right from the computer (if the computer has fax software installed) or e-mailed to suppliers so that they receive it immediately.

Finally when the order is received, it is easier to compare the receipts to the original order, the buyer simply goes into the original purchase order, matches it up with the receipt, and make the appropriate notations. Then the purchase can be saved and can be easily accessed later if necessary.

IV. RESULTS

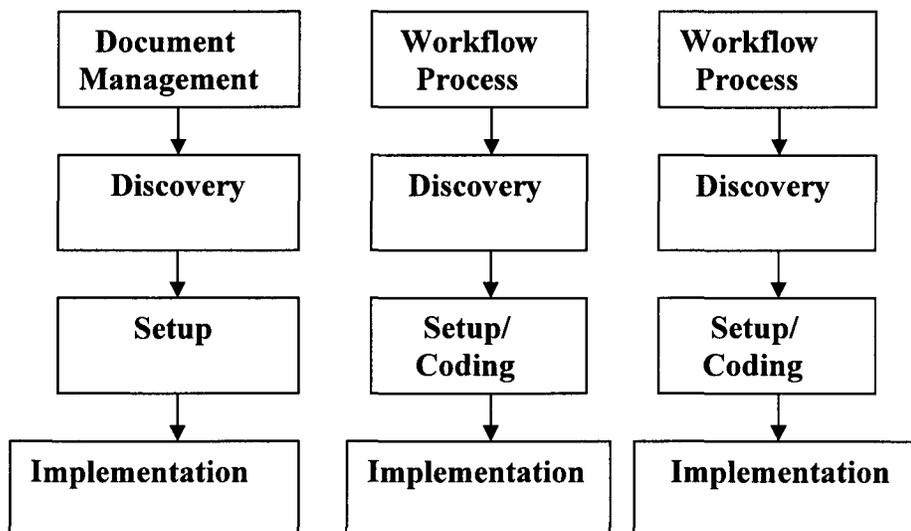
Project Analysis

EDMS and the Procurement software will provide automatic routing, electronic signature and we will be able to track the Request for Purchase from its inception to the receipt of the order and until the archival period ends. EDMS will allow documents to be scanned and viewed using a secure portal on the intranet. Access will be limited based on Organization Party Heads for non-procurement office employees. Using the CIO to host the EDMS will result in SCSHFDA not having to install an additional server. SCSHFDA's IT department in conjunction with Hyland Software (an approved vendor on state contract) will install the appropriate software. Return on Investment should be realized within two years of installation.

The EDMS will allow SCSHFDA to eliminate the need to issue a new solicitation when the current imaging, records retention and records disposal contract expires in January 2009. This will result in a savings of \$186,802.00.

We determined that the project should be implemented in three phases. The following programs will be included in the first phase Contract Administration, Loan Production, Loan Servicing, Housing Trust Fund. We determined that these areas would be the most advantageous for us to begin with. Workflow in these departments can be constructed to be used in other departments eliminating the need to design another workflow approach. Given the complexity of each workflow we estimated that this phase will take at least four months.

The second phase will include HOME, Housing Tax Credits, and Section 8 Voucher Program. We estimate that this implementation will take three months using the basic workflow process from the first wave of departments. The third phase will include Finance, Procurement, Legal and Human Resources. We determined that Finance and Legal are somewhat directly connected to the program areas therefore the workflow for these areas can be linked to the overall process. Procurement and Human Resources will demand a different approach for their workflow, therefore we estimated the implementation of this phase to take four months. We determined that each phase would be implemented using the following format:



Of course each program will have its own set of workflow processes, some more and some less than illustrated.

The biggest obstacle throughout the implementation phase will be to ensure that the EDMS will interface with the CIO'S host equipment and the designated Procurement software. To overcome this obstacle SCSHFDA will hold weekly progress meetings to ensure a successful integration between both systems.

The other major obstacle we will face will be getting the agency's employees to embrace the new system and convert from manual processes to an electronic process, including electronic records storage and management. Initially, we expect some resistance because of the already strenuous workload, however involving the users in the start up process will help to eliminate some resentment and fright of the new system.

V. SUMMARY AND CONCLUSION

Summary

The result of the implementation of the EDMS Workflow solution, will enable the Agency's seven program areas along with Finance, Procurement, and legal to electronically process information internally and externally. Directly connecting each program with its stakeholders and customers. The Procurement Services Office will have tremendous processing capabilities that never existed prior to this new process. The once labor intensive and time consuming manual processes can now be completed in a matter of minutes. We no longer have to contend with the endless paper trails and the frustration of trying to manually document the workflow

process. This will be replaced with a new system that can create reports and documents with a few clicks of a mouse.

Management will realize a bonus with the employees being able to devote more quality time to customers and stakeholders instead of concentrating on tasks that add no value to the process.

The return on investment is based on the full year savings generated by implementing the EDMS System. The ROI is calculated on the useful life of the software. The useful life of the software if it were not to be upgraded in 5 years. The formula used is as follows:

Annual Savings Generated	\$207,602
Term in years (max = 7)	5
Internal cost of capital	7%
Pay Back Period in Months	23
Net Present Value	\$459,223
Return on Investment	257.25%

Results

The results of the EDMS Workflow solution will be shorter procurement cycle times and having the capability to locate documents with the click of a mouse. Also being able to fax or e-mail Purchase Orders to vendors. This will result in additional cost savings due to the decreased in the volume of printing and mailing of Purchase Orders. The vendor will receive the Purchase Order quicker and be able to deliver goods and services in a more timely fashion.

We have determined that this process improvement project is the best and most cost effective for the Agency.