

## **Re-engineering How the University of Georgia Pays Its Bills**

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**Abstract:**

*The University of Georgia Accounts Payable Department has re-engineered the University's payment process by integrating a web-based digital imaging work process system with newly developed payment input screens and an electronic purchase order system. The new system eliminates mountains of paper from the process and has converted a highly manual process into a mostly electronic one. The Department can now match purchase orders, invoices, and receiving reports online using electronic images and mainframe data and directly input payment information into the payment system. Staff members can utilize point and click technology to transmit invoice images to purchasers spread throughout the State in order to obtain electronic payment approvals. Lost and unmatched documents are greatly reduced, an electronic trail of communications is produced, payments can be made much more quickly, and multiple users can find and access images simultaneously. Employee morale is enhanced as a result of staff members performing less boring and burdensome manual work and instead working in a more professional environment. The system assists employees in eliminating hours of looking for lost documents, and greatly reduces the many hundreds of phone calls and thousands of memos previously required to obtain invoices and receiving reports from purchase initiators.*

**Introduction of the Organization:**

The University of Georgia was chartered in 1785 and is a comprehensive land-grant and sea-grant institution located in Athens, Georgia. The University currently enrolls more than 32,000 students including more than 7,000 graduate students. The University's annual budget exceeds \$1.1 billion and the institution employs approximately 10,000 faculty, administrative, and technical/clerical personnel. Employees are based throughout the State of Georgia as well as in three other states.

**Statement (Restatement) of the Problem/Initiative:**

The State of Georgia requires state agencies to pay invoices within thirty days of the receipt of a proper invoice. The University of Georgia has grown rapidly over recent years, and the volume of payments has also increased without a concurrent increase in staff. This combination of more work with no additional manpower began to make it impossible for the Accounts Payable Department to meet the State's prompt payment requirement.

The University of Georgia's Accounts Payable Department wrote approximately 200,000 checks for a total of \$450,000,000 to pay approximately 400,000 invoices during the past fiscal year. In most cases the Department requires the traditional three-way match (invoice, purchase order, and receiving report) in order to issue a payment to a vendor.

The Department estimates that it receives, identifies, sorts, and distributes well over three million pieces of paper each year from such disparate sources as University departments located throughout the State, governmental agencies, individuals, and vendors located throughout the world. The Accounts Payable staff must identify each invoice received and determine whether the proper documentation and approvals have been obtained in order to produce a proper payment. The staff must obtain any missing documentation and approvals by contacting the appropriate persons who may be on campus or anywhere in the world. The Department's problem was how to manage the payment process in an efficient, accurate, and timely manner without losing important documents or sacrificing accountability while handling millions of documents and communicating with individuals spread throughout the world.

**Design:**

The administration searched for more than a year for a feasible alternative to the mostly manual system that the Accounts Payable Department (AP) was using to process and pay invoices. As the University experienced rapid growth, the workload increased without an increase in the AP staff. The administration used the following general parameters to evaluate potential replacement systems:

1. A new AP system should not require adding staff due to a decreasing administrative budget.
2. A new system should not necessitate major changes in procedures or processes because the University's size would require a significant and expensive re-training effort.
3. A new system should be web-based, easy to use, and fully compatible with the University's current mainframe system.

Through a contact with a former colleague, the administration identified a web-based system that utilized a digital imaging workflow process that could possibly be customized to meet the University's requirements. The administration contacted the vendor that had developed this system and began to explore how it could be integrated with the University's mainframe system. The administration also talked to users of similar systems and traveled to view one such system in an accounts payable environment. Due to the positive results of this investigation, the administration met with the vendor's representatives and developed a scope and a budget for a similar system that promised to meet the University's needs. The administration then met with the manager of the

University's Procurement office to ensure that all State of Georgia procurement requirements were properly met.

Concurrent with these efforts, the administration also met with the University's information technology (IT) staff to ensure that they were involved in the technological decisions as appropriate and to earn their cooperation and assistance in the process. The involvement of the IT staff was deemed to be critical to the success of the project due to the importance of the interface between the vendor's system and the University's mainframe system. The administration also strongly believed that the IT staff could add some significant enhancements to the system as it was being implemented.

Working with the vendor and with the IT staff, the administration determined that computer hardware upgrades totaling approximately \$54,000 were necessary to adequately support the new system. This total included the cost of two servers and upgrades to 22 personnel computers. The administration determined that system users would benefit greatly from the addition of larger screens and faster computers due to the significant reliance of the system on pc usage and on the importance of obtaining high quality images for review. Software, consulting, and training was projected to cost the University approximately \$142,000 in addition to the hardware upgrades.

Due to scheduling issues, the University needed to begin the design meetings with the vendor within two weeks of issuing the purchase order, or the project would be delayed for several months. Higher University management decided that early implementation

and its attendant problems were preferable to delaying the use of the system. This decision basically eliminated the possibility of obtaining extensive campus user input on the design of the new system. The administration decided that this lack of input was not preferable, but was acceptable since the design of this particular system would have a much greater impact on the AP staff than on the campus community.

The administration, key AP staff, and key IT staff met with the vendor's system design professionals for almost three days and worked out a detailed description of the desired AP system. For the next six weeks the vendor worked on the new AP system while the University's IT staff worked on the needed interface between the new system and the University's mainframe. The IT staff also continued to work on additional enhancements that the AP staff desired and that would greatly improve the final product. The IT staff stayed in near constant communication with the vendor's designers during this period to ensure that the two systems would work together. This extraordinary cooperation greatly increased the effectiveness of the system. Among other things, the vendor designed macros to "scrape" information from the University's mainframe into the new system, thus eliminating many thousands of keystrokes and increasing accuracy and productivity. The IT staff designed a new feature for the mainframe system that integrates with the new system and allows AP operators to directly input payment information into the mainframe system. This enhancement eliminates the manual batching and submission of payment information to the keypunch department.

After six weeks the vendor delivered the customized web-based digital imaging workflow system to the University and installed it. Meanwhile the administration began a massive effort to notify campus users of the new system and its projected impact on them. The University Communications department assisted in this effort and notices appeared in the University's official publications, in special e-mails to administrators, on the relevant web pages, and in letters to deans, directors, and department heads. The administration also presented the new system in the quarterly meeting of the University business officers, which includes key business personnel from all major University units. The administration also personally contacted key staff members throughout the University community to discuss the impact and advantages of the new system.

### **Implementation:**

The digital imaging workflow system supports the conversion of paper into an electronic image that can be indexed, stored, retrieved, and routed as needed. The new system supports the utilization of e-mail to transmit web links that allow the recipient to view a document and respond to Accounts Payable. An additional feature supports the use of multiple sessions simultaneously such that an AP operator can retrieve and review multiple documents while also accessing the mainframe payables system for relevant support information. The system also facilitates the processor's input of payment information into the University's payment system. Some data elements can be "scraped" directly onto the payment screen while other data is input directly by the operator. The previous procedure of manually batching payment information, preparing cover sheets with control totals, and sending them to the keypunch department is eliminated as is the

necessity of working error reports that result from the keypunch effort. The process now typically works as follows: Vendors mail hundreds of invoices and associated documentation daily to the Accounts Payable Department. Staff members sort the documents and prepare them for scanning by type (multi-page invoice, single-page invoice, etc.) and then feed them into a high-speed scanner. The scanned documents appear in a work queue on another AP staff member's computer for indexing. This person reviews and indexes each document such that the operator may retrieve it by invoice number, purchase order number, vendor name, or description. The operator receives the indexed invoice in a work queue on their computer and accesses the associated purchase order and any other relevant material such as a receiving report. Frequently the processor will not find a receiving report whereupon the processor will use the "Department Contact" information maintained by name and an e-mail link in the system. The operator can use this feature to send a message to the contact along with a link to the web image of the invoice. The department contact can use the link to immediately access the image and either approve the payment or reject the payment with an explanation of why it should not be paid. The disposition immediately flows back to the work queue in the Accounts Payable system for processing. When the operator receives an approval from the department contact, the operator can then access the multiple images/sessions necessary to ensure that AP has the necessary documentation to make the payment. Typically the operator will review the invoice, the purchase order, and the department's approval and then complete the necessary input onto the mainframe payment screen. Once the information has been entered and reviewed, the operator can release it for payment and a check will be produced overnight. If the operator encounters

a problem during processing, he/she can use point and click technology to ask a supervisor a question. The supervisor immediately receives the question along with access to all relevant information and can instantly type and transmit a reply to the processor. The system maintains a comprehensive record of all transactions. Any payments that are being made to University employees for such purposes as travel reimbursements are automatically reviewed by the system for possible direct deposit to the employee's bank account. The system compares the payee's social security number against the numbers in the payroll system to identify any payees with direct deposit information. This direct deposit enhancement eliminates approximately 40,000 checks per year along with the attendant problems and costs associated with handling them as well as replacing lost, damaged or stolen checks. The Department also benefited from obtaining additional computer screens that were slated to be salvaged by another department. Each AP operator now uses two computer screens in concert by using an additional video card, and thus the operator can more easily view multiple documents.

**Benefits:**

The Department began implementation of the new payment processing system in July of 2002 and by December of 2002 had reduced the number of payment processors in Accounts Payable by three employees (from nine to six) solely due to efficiencies gained as a result of the new system. The manager anticipates further reductions in staff in the coming months as additional enhancements to the system are implemented. These staff reductions have already saved approximately \$105,000 on an annual basis for salary and benefits and management anticipates these savings to grow in the coming months. The University's keypunch department is also realizing a significant decrease in workload related to the new system, and a decrease in workforce is anticipated in that department as well.

Prior to implementation of the new system, AP frequently paid invoices more than 30 days after receipt of an invoice. In December AP generally paid invoices within three days of receipt of the invoice and often processed them on the day of receipt. The Department experienced a 71% staff turnover rate in a recently ended fiscal year, primarily due to the stress associated with working in an environment where near constant telephone calls brought angry inquiries from vendors and department contacts seeking payment information. The atmosphere in the Department is now much more calm and professional and the only employee who has left the Department since the implementation of the new system retired in accordance with an earlier plan.

The system generates remarkable accounting records both as to the disposition of documents and also as to the productivity of staff members. Each employee is given a daily report indicating the quantity and accuracy of his/her work. Management can much more accurately identify star employees and reward them, and also assist employees who may be having difficulties.

The professionalism associated with working with a cutting-edge technology system has led to a significant improvement in office morale. When a staff member receives an inquiry from a vendor, he/she can generally access the needed document within seconds as opposed to having to put the inquirer on hold, walk across the office to the file room, find the appropriate file, review it and then return to the telephone hoping that the vendor is still holding and not upset about the delay. With the new system, the staff projects a much more professional image and morale has increased significantly.

Possibly the greatest benefit of all is yet to come. The digital imaging workflow process system promises to improve almost any process that involves the receipt, storage, processing, and record keeping of massive amounts of paper and multiple users – i.e. most large university administrative offices. The AP department has already demonstrated the new system to multiple visitors who have shown interest in possible alternate applications.

**Retrospect:**

Scheduling limitations of both the vendor and the University led to management making the decision to rush the implementation of this system to avoid a delay of many months. Implementation probably would have been smoother had the Accounts Payable Department been able to publicize the new system earlier and more thoroughly than what was possible with the rushed implementation. Management decided to focus on ensuring that the transition was successful at the cost of delaying its implementation. While the administration would certainly have benefited from the input of campus users, the rapid implementation did have the benefit of limiting the scope of the project and thus avoiding the possible pitfall of trying to overbuild the new system. In retrospect too much front end input may have caused numerous delays and problems in the long run.