

## **Imaging ‘Best Practices’ at Towson University**

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## **Abstract**

*In 2005, Towson University embarked on a university-wide effort to incorporate electronic imaging of documents in our workflow processes. Using electronic images of documents, Towson University wanted to improve process flow, enhance service to our student customers and maintain security and sensitivity of important documents. Furthermore, the transcripts of over 200,000 former students were located on different systems in susceptible and deteriorating media. We used classic and novel imaging techniques to capture and store these transcripts in a central repository.*

## **Introduction of the Organization**

Towson University is the second largest university in Maryland and a member of the University System of Maryland. We enroll more than 18,000 students, including international students from nearly 100 countries. Towson's campus is located in the suburban community of Towson, Maryland, eight miles north of downtown Baltimore. Established in 1866, Towson University is nationally recognized for its excellent programs in the arts, sciences, business, communications, humanities, health professions, education and computer information systems. Towson University's 2006 Operating Budget Plan is \$284 million, and the university directly employs about 3,000 people.

## **Statement of the Problem / Initiative**

One issue colleges and universities share is being awash in paper - applications, transcripts, financial aid forms, registration, drop/add slips, invoices, personnel records, forms, forms and more forms. At Towson University, rooms and corridors are lined with filing cabinets, not to mention expensive off-site storage of historically important documents. Applicant review is slowed down because the folder with all the papers is 'somewhere' on campus. Current and former students calling for assistance are told "I'm sorry, but I don't have your paperwork in front of me. You'll have to call back." Vendors seeking the status of their invoices have to wait for someone to retrieve their documents from the filing room. We needed to get rid of this paper, speed up processing of applicants and office functions, and improve customer service.

Even moving to more electronic systems did not alleviate document problems. Recently, Towson University switched its main enterprise data management system. This left thousands of former students'

records orphaned in the old legacy system that had been in place for 20 years that were not converted to the new system. How do we preserve some of this data, specifically transcripts?

Document imaging was seen as a powerful tool in helping to solve these issues. The university looked into different solutions and vendors and decided to employ Perceptive Vision's ImageNow®. A key reason Towson University chose ImageNow was its novel, patented ability to easily integrate image indexing and retrieval with practically any host information system without modifying the host system at all. The university's main data management system is PeopleSoft® 8.1, using html pages. For our financials, we still rely on the legacy FRS® with terminal emulation for the Windows® workstations. Additionally, there are a number of stand alone, specialized applications in use in various departments that we wanted to eventually integrate into the imaging solution. ImageNow provides us the ability to have one document imaging management software across all our applications.

## **Design**

Working with Perceptive Software, we identified key personnel training, developed a pilot project list and established an implementation schedule. The pilot consisted of archival scanning of HR personnel records, moving graduate admissions to a paperless process, and a major conversion of 300,000 transcript pages from the legacy SIS® system into the image repository. Further discussions with lead members from the three departments focused our approach to what would be included in the pilot.

The Office of Technology Services (OTS) intentionally chose a broad implementation of the imaging components for the initial pilot. The scanners purchased ranged in size, capacity and connection to their

host workstation (SCSI and USB). Some indexing functions would depend on elaborate auto-indexing at scan time, while others utilized the ImageNow simple interactive user interface. Straightforward workflows and scripting routines would expose Towson University developers to the rudimentary functionality of the automation capabilities of the software. The e-mail agent was setup for electronic submissions of résumés. The fax agent was planned to replace a dedicated fax machine for incoming résumés. The graduate admissions implementation incorporated a Web-based tool of ImageNow with a modification of a PeopleSoft page to allow graduate program directors access to an applicant's scanned images without having the client software installed on their workstations. The conversion of transcripts from printer-ready ASCII files into TIFF images in ImageNow tested the capabilities of the behind-the-scenes and versatile importing agent. We were working towards a broad exposure to the software while testing different hardware and automation techniques.

The actual implementation was scheduled over two consecutive weeks. An ImageNow implementation consultant would be on-site during that time. A simple implementation (one or two departments, no additional agents, very minimal workflows and scripting) would only need one week. Since we were looking for broad exposure, two weeks were scheduled. Seven months later, we had another consultant visit for two-and-a-half days to tie up some loose ends.

The initial project budget reflected OTS' approach to invest more money initially in consulting time with the vendor than in buying more licenses for long-term use. If the project was successfully implemented, then money would be found for more licenses. If we had a poor start, then existing licenses would go unutilized. This approach paid off. The second, unplanned, on-site visit from the

vendor was funded from the original purchase order, consuming the unused hours purchased months earlier.

We had planned on a slow roll-out of imaging after the pilot projects were well-initiated. We greatly underestimated the desire for imaging on campus. Within months after implementation, we tripled our concurrent licenses to a total of 75 for the university. The initial implementation used a 'hand-me-down' server that was being rotated out of service from another application. With the popularity and growth of imaging, that server was replaced with a more robust unit after only seven months. Three pilot projects quickly became eight departments installing scanners, setting up barcoding, scanning profiles, workflows, etc. One of the later additions to imaging, Undergraduate Admissions, had scanned in 30,000 pages before one of the pilot projects had gotten fully underway. Almost daily, university members suggest to OTS staff an imaging solution to a problem or issue.

## **Implementation**

OTS takes the approach that the documents belong to the university's departments and we are just providing departments with an electronic solution to document management. The users know better what they want to do than the technology department 'in the basement of the library', so we taught them the software's management functions. OTS staff will not worry about user and group management, but we will train 'super users' in this function. With the transient nature of student workers in offices, decentralized management of users is much more responsive to customer needs.

We trained the super users in how to associate PeopleSoft screens with ImageNow. This function is very simple and straightforward, and once a super user has performed it a few times under supervision, they are ready to add screens on their own. Setting up scanning profiles; how to scan, error trapping of scanned images, using barcodes and patchcodes, automatically indexing, workflow routing, etc., is a more complex function. The profiles are usually setup by the department super user working with the OTS project manager to make a base set of profiles. Variants from these can be copied and modified as needed.

OTS researched commercial grade scanners to provide the campus community with a recommended list of scanners. We wanted to keep the choices within a small suite of scanners that we knew would work effortlessly with ImageNow and would quicken our learning curve on their idiosyncrasies and hopefully maintain control of maintenance issues. The suite has scanners for workgroups (500 pages / day), departments (2,500 pages / day) and small production models (6,000 pages / day). We also suggested that departments buy or install scanning enhancement software to improve the quality of their scans. Specifically, OTS recommended Kofax's Virtual Re-Scan (VRS®). It is magic. A simplified version ships with many commercial grade scanners, but the full function software, including the use of barcoding, is about \$850 via a SCSI card or a USB dongle for the workstation. The larger volume departments purchased production level scanners with the VRS SCSI card connection. Smaller volume locations purchased workgroup or departmental scanners with the VRS 'light' software and connecting via USB connections. OTS also recommends including maintenance kits with the scanners. Following the manufacturer's regular maintenance guidelines will ensure the quality of the scans and greatly increase the scanner useful life. We learned this lesson the hard way with our legacy scanning system.

## Benefits

Currently, Towson University has eight scanning stations, is using workflows to group index documents and route images to their proper departments, is utilizing barcoding to automatically index batches of documents, established special e-mail accounts that go directly into images, set up dedicated incoming fax lines that are directly imaged, and is working on importing 3.1 million images from an eight-year-old legacy imaging system stored on optical platters.

Two transcript conversion projects are instrumental in preserving these vitally important documents. In converting transcripts from the legacy SIS system to tiff images, we are retiring one of the last applications of an unsupported software product that is running on an antiquated VAX mainframe. The other transcript project is scanning pre-SIS transcript cards that were microfiched over 20 years ago. These microfiches are deteriorating so rapidly that frequently they cannot be used. In this case, staff has to request the original cards from the off-site storage location – a costly and time-consuming procedure. Now, all transcripts of former students will be available in the imaging system.

The conversion of the 3.1 million legacy images into ImageNow provides even more consolidation of information in one location. Using data manipulation tools, we indexed the legacy records of current students in the same fashion as newly acquired scans. All these images, old and new, can now be retrieved simultaneously from one click based on the current screen in PeopleSoft. University staff can now access **all** the documents of a student, as security permits, while dealing directly with that student - a tremendous boost of customer service. Additionally, the legacy imaging system was limited to relatively ancient scanners that can only be purchased on eBay, and these are mainly available for parts.

The storage of images is on slow and cumbersome optical platters and the software was never maintained or upgraded. The university can now retire this legacy stand alone equipment and application.

Using barcoding on cover sheets for indexing back-filed admission folders completely eliminates the tedious and error-prone indexing process. A report listing which applicants' folders to scan produces a barcoded cover sheet for each applicant. This sheet is placed as the first page of that person's folder. The sheets serve as a patch code, indicating different batches in a stack of a papers, and they are used as indexing values. Images are indexed while the paper is being scanned. Nothing else is needed. Towson University scans in the entire folder contents of approximately 8,000 applicants. The time savings are marvelous.

The graduate admissions process used to be that all of an applicants' papers were copied in the central admissions office and placed in a blue folder for each applicant. This includes copies of documents printed on security paper. These copies are always poor, and many times not readable. Once an applicant's folder was complete, it was forwarded via campus mail to one of 60 program directors for review and eventual return. Of course, the program directors' offices would make a copy of the copy 'just in case.' Some programs admit by committee, so each committee member needed a copy of each applicants folder. Frequently, these copies are made by student workers. It was not uncommon that these students would handle personal information of their acquaintances. Furthermore, the central office admissions coordinators *sometimes* needed to continually hound *some* program directors to look for their blue folders and process their applicants. And once the directors made their admission decisions, they

needed to actually return the blue folders! This led to a lot of extraneous copies of sensitive documents stored around campus in varying degrees of security.

Imaging replaces all of that. Now, when an applicant's admissions paperwork is done and scanned into ImageNow, a final reviewer forwards the document into an automatic workflow that then sends an e-mail message to the appropriate program director telling them of a new applicant, and providing a direct link to that applicant's documents. If there is an admissions committee for that program, they can also use that same link to see the documents. Less follow-up is needed. Privacy and security are maintained. Nagging has been reduced considerably. Also, utilizing the advanced scanning software, images made from security paper are sometimes more readable than the originals.

In the State of Maryland, most institutions do not pay their invoices directly. Rather Accounts Payable (AP) prepares invoices with the necessary coding and forwards the original invoice to Annapolis for payment. This includes travel reimbursement documents for university employees. Since we do not keep the originals on campus, all invoices had to be copied and stored for three years. AP is now imaging the invoices before sending them out for payment. The images are indexed by vendor, invoice number and date. Now, when vendors or employees inquire about their payments, or lack thereof, AP staff can retrieve all of the vendor's documents, or just the invoice in question right at their workstation.

## **Retrospect**

Be prepared for immense latent demand for a high visibility broad solution for campus needs. When people find out that there is a broad initiative to bring some whiz-bang technology on to campus, the requests to be included in the project seem to never stop. This, of course, is *much* better than rolling out

some whiz-bang technology and nobody cares! Make sure your projects are in the former group by doing research on what the departmental users want versus what you want to do.

The deep in the bowels server room steps are critical and largely unseen. To the DBAs, software and hardware engineers, this is just another project. They will not be as excited as the users getting their new 'toys.' Include these people as early as possible. Give them plenty of lead time and clear steps as to what is expected and when it is needed. Make sure everyone knows what box is going where with which specific software components. Make sure all of the software components are on-site, are the correct version and, when possible, installed before the main implementation.

Don't forget other infrastructure. We had to delay our direct fax to imaging service because we had scoped out the unique fax board based on using digital phone lines. This seemed the best and most cost-effective solution. Not until the order to actually run the phone lines into the server room was made, did the line installer tell the program manager that the server room was not set up for digital phone lines, only analog lines. This and other factors prompted us to delay the fax service.

If your product has different components, what are each of their requirements? Towson University purchased many add-on agents to the main ImageNow product: a mail agent, fax agent, unique virtual printer, etc. The implementation was set for a UNIX® server. Only during the actual visit of the software implementation consultant did we find out that some of these components are Windows®-based only. We had to scramble to set up a temporary Windows® server for the initial visit. This temporary unit was replaced preceding a second visit from ImageNow staff, and the software components transferred to the new production unit at that time.