An Admissions Process Transformed with Technology

WSU's new system takes the frustration out of matriculation

by **Lavon R. Frazier**

Washington State University has completely revamped its student admissions process with strategic objectives of self-service information, paperless processing, and enhanced enrollment. Prospective students can apply for admission, view transfer credit reports, and track their admission status on the Web. All application materials are stored in imaged form, and admissions staff process applications electronically using the stored images and automated workflow. The system automatically produces letters notifying applicants of admission decisions or missing information. Each student's virtual file is immediately available to academic advisors and others as needed. Use of the Web, imaging, and automated workflow has transformed the admissions process in ways not imagined just a few years ago.

WSU is a Research I land-grant institution. More than 21,000 students are served from the main campus in Pullman, three branch campuses, numerous learning centers throughout the state, and an extensive distance education program. WSU was ranked the No. 1 wired public university (No. 7 overall) by *Yahoo! Internet Life* magazine in 1999 (see www.zdnet.com/yil/content/college/colleges99/colleges10.html). The excellent backbone network in place on our main campus, the educational network throughout the state, and high-speed access to the Internet made it possible to implement the Web, imaging, and workflow systems for the new admissions process.

Strategic Administrative Objectives

Three strategic administrative objectives formed the context for transforming WSU's admissions process. The first objective was to enable our students and other customers to get information and conduct business in self-service mode. With today's technology, this translates to putting information on the World Wide Web for easy, anywhere, anytime access. It also means collecting information and conducting business transactions on the Web. A number of Web services were developed to help prospective students prior to and during the admission process. These enable prospective students to learn more about WSU, plan an academic program, apply for admission (including payment of the application fee), and track admission status.

The second strategic administrative objective was to move to paperless processing. The inherent problem with paper is that unless multiple copies are made, it exists in only one place at a time and is not easily shared. Overflowing file cabinets, stacks of in-process paper documents, and the need to locate a student's file to answer a question on the phone all indicated a paperless admissions process would be a great improvement in both processing effi-

ciency and customer service. A document imaging system with automated workflow was the solution we explored and ultimately implemented.

A third university objective was enhanced enrollment, i.e., improvement in both quantity and quality of students enrolling at WSU. With the younger generation having grown up with technology, high-school students now expect to get information and do business with colleges and universities on the Web. Some do not even apply for admission to an institution unless the application form is available online. Ease and convenience for the customer is essential for any university to compete for prospective students, and we believe that prospective student services on the Web play a major part in this. Another factor in competing for high-quality students is reducing the time it takes to process applications and offer admission. A student is more likely to enroll at an institution that responds quickly with an admission decision. Our document imaging and automated workflow helps speed response time. Figure 1 illustrates the admissions process prior to transformation.

Figure 1: **Before Admissions Transformation**

Web Services for the Prospective Student

To address these objectives, WSU implemented several Web-based tools.

INFORMATION PAGES

The Office of Admissions revamped their Web home page and accompanying informational pages to include links to video clips describing a range of student services, information on campus visitation programs, and everything a prospective student would want to know about applying for admission. An information request form is available on the Web for those who would like information sent to them about specific programs. The static form will soon be replaced by an interactive one that dynamically returns links to Web information customized to the individual's specific interests and assigns a WSU-ID so that he may access other secured Web services.

COUGAR TRACS (TRANSFER CREDIT SYSTEM)

This system was the winner of the 1999 EDUCAUSE Best Practices in Higher Education Information Resources award. The service gives potential transfer students real-time access to degree program planning tools and Web reports to see how the courses they have already taken (or plan to take) apply toward any of WSU's degree programs. This system makes available to prospective students the same transfer articulation rules and degree program requirements used by the student records offices and currently enrolled students.

The Cougar TRACS site asks first-time users for a limited amount of personal information. An "Access ID" is programmatically assigned based on the student's last name, and the student then selects a password. The main menu provides button selections for the student to enter course work from any institution in the transfer course database or to update personal information. The student can request individualized degree program requirements reports for any WSU degree offered. These reports are returned immediately via the Web. The degree-requirements reports can show courses that still need to be taken either by WSU course numbers or by course numbers at the student's transfer institution. Students may enter additional course work at any time and use the site for academic planning prior to or after enrolling at WSU.

Cougar TRACS also offers academic advisors access to a prospective student's transfer information. Once the student makes contact with a WSU advisor, the advisor can request the student's Access ID (not password) and, using her own password, view the student's course work and receive the same degree program requirements reports for advising purposes. Prospective students, advisors, and others can also use the Transfer Course Equivalencies Web site to determine equivalencies for transfer courses from hundreds of different institutions. Behind the scenes for both Cougar TRACS and Transfer Course Equivalencies lies WSU's implementation of DARS, the Degree Audit Reporting System from Miami University of Ohio. Cougar TRACS may be viewed on the

Web at www.wsu.edu/transfer/TRACS, and Transfer Course Equivalencies at www.wsu.edu/advise/transfer-courses.

APPLICATION FOR ADMISSION

The WSU home page and Admissions Office Web pages prominently display the link to our online admission applications. The application forms are available either in PDF format to be printed and mailed with a check for the application fee or as online forms with the option to pay the application fee by credit card.

The student may fill out and submit one of seven different application forms on the Web: freshman, transfer, international, former WSU student, nondegree, post-bachelor's degree, and graduate school. For the six undergraduate applications, applicants enter preliminary information that will assure they are using the correct form and determine what other information will be requested. For example, the freshman applicant is asked whether she is currently attending high school or has completed high school. Those who are still attending high school will be asked for their senior year course work, as that will not yet appear on their high school transcript, whereas those who have finished high school will not be asked for that information. The preliminary form also asks which campus the applicant is planning to attend so that the main form displays the appropriate list of majors and interest areas offered there.

In addition to using a preliminary form to determine the content of the main application, the project team faced two other design decisions. One was whether the applicant would complete the form all in one sitting or be able to start the application, save what had been done, and complete it later. The team chose the one-sitting alternative, and developed additional Web pages to tell the applicant in advance what information was needed to complete the application. Similarly, the team weighed whether the application form should be presented in sections, with the applicant advancing one section at a time, or as one long form. The team decided to present one complete form plus the preliminary information page so the applicant could review the whole form and see what he would have to provide. Staff in the admissions office developed an extensive help page that the applicant can read ahead of time. These design decisions have held up quite well, with Web applicants returning many favorable comments about the experience of applying online.

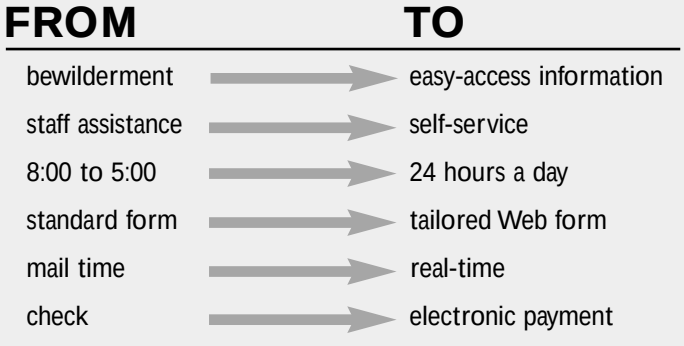
The project also forced several policy decisions.

The project also forced several policy decisions. WSU requires the applicant's signature on the standard paper admission application form. Student affairs sought and gained approval from the attorney general's office to display a certification message and request the applicant type his name and the date following that message. Provided that information is entered, the form is considered electronically signed.

Another policy decision involved the application fee. WSU requires $35 before the admission application will be processed. Allowing the applicant to apply online but then send a check for the application fee by mail would require staff to hold the application and find it again when the check arrived, thereby delaying processing. Student affairs administrators decided instead to require payment by credit card on the Web at the time the completed application is submitted. This way admissions staff could begin processing Web applications immediately with assurance that the application fee had been paid. The project team easily accomplished this by using the Web credit card service already in place for student account payments. The application fee payment section precedes the certification section on the application form. An additional page describing the secured network communication environment used at WSU helps alleviate any concerns about entering credit card information on the Web.

We planned to return a preliminary

Figure 2: **Transformations for the Student**



admission decision to the Web applicant, and this enhancement required another policy decision. Although this feature was technically interesting, the real challenge was definitely the policy issue. If we did not already have official high school records or test scores for the freshman applicant, would we accept self-reported GPA and test scores? Could the admission processing rules normally applied by admissions staff be sufficiently automated to reach a reasonable decision? Could we convey the decision to the student in such a way that it could be reversed later if necessary, or would the system's preliminary decisions stand? With acceptance of self-reported GPA and test scores, thorough testing of the automated evaluation rules, and careful wording of messages to the applicant, the project team developed an automated evaluation process that returns an immediate preliminary admission decision if requested by the Web applicant.

With very little publicity, online Web application forms have been a great success. The graduate application was first made available in August 1998, and the undergraduate forms rolled out between November 1998 and March 1999. Some 20 percent of the fall 1999 prospective students applied online, and another 8 percent printed the PDF form and mailed it with a check. For the spring 2000 term, 50 percent of applicants used the Web forms. We expect these percentages to grow as WSU encourages new applicants to use the Web. Admission application forms and instructions can be viewed online at www.wsu.edu/admissions/apply.html.

ADVANCE TUITION PAYMENT

WSU encourages admitted students to make a nominal advance payment on their tuition as confirmation of their intent to attend WSU. Another link on the admissions office Web page takes them to the student payments page where they, their parents/guardians, or someone else on their behalf can make the advance tuition payment by credit card. This page also provides for payment of any tuition, fees, and other charges on a student's account including WSU childcare, student loans, housing, and dining services. Student payments and a variety of other Web services can be viewed online in the student information center at www.wsu.edu/wsuinfonet.

The project team developed an automated evaluation process that returns an immediate preliminary admission decision if requested by the Web applicant.

OTHER FEATURES

Other Web-based tools include the ability for applicants to check on admission status and financial aid status and to update their address and telephone number on file. These capabilities require the applicant to first obtain a WSU Network ID. The Network ID, together with network password, provides the key to access one's own information from WSU's integrated database. Upon the applicant's completion of the admission application form, the system automatically assigns or confirms the applicant's permanent WSU student ID number. By entering that student number and other identifying information, the applicant obtains her self-selected Network ID and network password online.

Being able to check admission status and financial aid status enables the applicant to find out if missing information is delaying the application process. After applicants have been admitted or enrolled they may continue to track financial aid awards and satisfactory academic progress using this feature.

Admitted and enrolled students can use their Network ID and password not only to update their contact information but also to restrict release of their directory information under FERPA regulations.

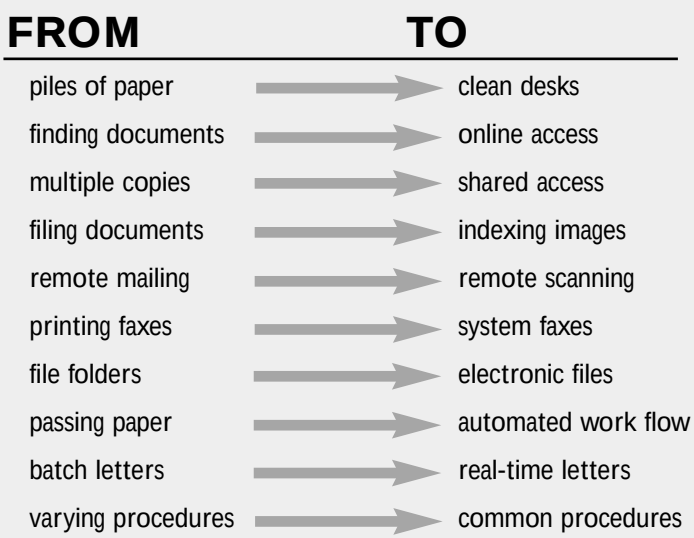
Some of the efficiencies students notice are illustrated in Figure 2.

Imaging and Workflow Processing

In spring 1998, WSU began looking for a solution to its document management challenges and, in particular, a way for the admissions office to eliminate their mountains of paper. After an ambitious vendor and product evaluation effort, we selected the Acorde product solution (then called eMedia Integrated Document Management) from Optika Imaging Systems Inc., together with a third-party document management integrator, Integra Information Technologies. A team of Integra integrators, admissions staff, and system analysts defined and programmed WSU's admission document scanning, indexing, and workflow processing rules. Working more quickly than seemed possible, the project team implemented Acorde Context, Optika's newly released imaging system; Acorde Process, Optika's workflow system; and Integra's newly developed scanning and indexing modules in January 1999. This implementation revolutionized the admissions office (see Figure 3).

With the new system, application forms, checks, transcripts, and other paper documents that arrive in the mail are sorted and scanned into the system each day. As soon as a set of documents has been scanned, a staff member indexes them. This process assigns the applicant's student number, name, cam-

Figure 3: **Transformations for the Staff**



pus, and other identifying information to each scanned document so its image may be retrieved from the system in various ways. Once the scanned documents have been indexed, the images are stored in the imaging system and are immediately available for admissions office staff, or any authorized person at any location, to view. This has been a tremendous help in answering applicants' questions of whether documents have been received. The person taking the call need only look up the documents in the imaging system at her workstation to answer the question rather than try to locate that particular applicant's file in the piles of paper on any of several desks.

The second major change is in the way an application is processed. One of the reasons for the piles of paper was that an application couldn't be processed until all the necessary documents had arrived. Admissions staff held the application form until the application fee was paid and all required transcripts were received. With the new system, the indexing process also captures the type of each document. Workflow rules then automatically route the application form to a holding queue until all other necessary documents have arrived and have also been indexed into the system, at which time the system releases the virtual package of documents for processing. Workflow rules trigger an automatic notice if an application has been held for a specified length of time. To request the missing documents from the applicant, the staff member launches the letters module (this additional feature was programmed by Integra) and selects the appropriate letter. The system merges data already captured in workflow with the letter text and sends it to the word processor on the staff member's workstation for review. Then, with another click, the staff member prints the letter and automatically transfers it to the imaging system where it is stored and viewable as part of the applicant's virtual folder.

Once the applicant's package is complete, workflow rules route it to the appropriate electronic queue for review and action. A staff member selects a package from the queue by using one of his predefined profiles. Based on package characteristics such as status, campus, or queue, predefined profiles select and present workflow packages to staff members. In this way, work is sorted for the individual staff member and, when several users have the same profile, work is also spread out across the staff. Behind the scenes, though, the packages are really in the same work queue. A staff member locks a package into her workspace before starting to process it so that only one person can work on a package at a time.

After locking an application package, the staff member checks for complete information on the imaged application, enters specific data from or about the application into a workflow form, and checks that the first-level review is complete. The package is then automatically unlocked and workflow rules route it to whatever queue is required next, perhaps for evaluation of high school course work or for entry of transfer courses into the automated transfer articulation system. The package flows into and out of various queues as determined by actions taken by staff members and workflow rules applied against data entered into the system. When all required information has been supplied and an admission decision is made, the staff member selects the appropriate admission or denial letter text from the letters module and continues through the letters process described above.

Automated workflow processing (see Figure 4) has made a tremendous difference in the admissions office. Although we do not have historical statistics for comparison, it is evident that the overall process has improved. Gone is the passing of student files from one staff member to the next, or copies of files from one office to the next. Each staff member can see what other staff members have done by the data entered or checked off in workflow, by reviewing package journal entries, or by looking at package history. Staff members also have the ability to make and view annotations of different types that have been added to the images themselves. In

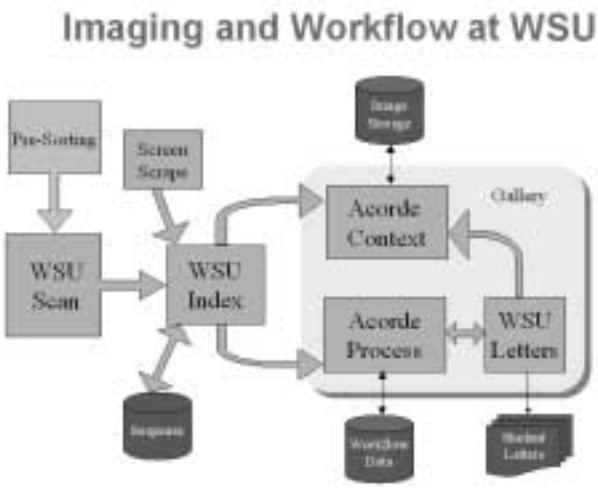
some cases, staff members outside the admissions office are involved in admission decisions. For example, the Student Advising and Learning Center (SALC) is involved in reinstatement decisions for returning students. They are now part of the automated workflow process, with workflow rules routing the package for an applicant requiring reinstatement directly to a queue worked on by SALC staff at their own workstations. And all work is passed on to the next step immediately rather than at the end of the day.

Paper documents no longer have to be transferred from branch campuses to the central campus for processing. One branch campus uses the fax facility in Acorde Context to fax application documents directly into the system. The other branch campuses scan and index application documents for their campus into the system from their own location. They then use the same workflow procedure to process applications. When a package requires special processing at the main campus (e.g., entry of transfer courses into the automated transfer articulation system), workflow processing automatically routes the package to that queue. When that work is finished, the package immediately goes on to the next queue which can again be accessed through user profiles to see only those application packages appropriate for each campus.

Also gone—well, almost gone—is the copying of transcripts and other admission documents for academic advisors and departments. Staff in other areas who need to review application documents, such as athletics, international programs, multicultural student services, and the colleges, can now access the images from their own desktops rather than waiting to receive paper copies in interdepartmental mail. We expect the number of departments accessing admission documents directly from the imaging system to grow as we make this available on the Web. This will result in huge time and cost savings for all concerned.

In addition to the staff and processing efficiencies gained, the improvements in student service have been tremendous. Where once a student may have waited for several days while his file was located to answer a question (and there were as many as 25 "lost" files at peak times), now the question is answered immediately by the person taking the call. Where manual procedures varied from campus to campus and even from one staff person to another, automated workflow rules now ensure consistent processing of each student's application. The imaging and workflow systems also provide management data to help eliminate processing bottlenecks and resolve exceptions, which results in quicker response to the student.

Figure 4: **Imaging and Workflow at WSU**



Future Enhancements

We are extremely pleased with the Web services, imaging, and automated workflow systems implemented at WSU, but we also have a growing list of ideas for enhancements.

We recently developed software to match the data on a Web application form to existing student records to determine if the applicant already has a student ID number or if one needs to be assigned. We have achieved a 97 percent success rate, that is, the software accurately matches to an existing record or creates a new student ID number without manual intervention for 97 percent of our applicants. For paper applications, this has eased the staff burden of looking up each individual to get a student ID. For the Web applications, the match/assign software now returns the student ID to the applicant before he leaves the Web site, and also directly uploads applicant data into our student records system. The remaining enhancement will be to load the application automatically into the imaging and workflow systems. Since we expect the number of Web applications to increase rapidly, the automated load enhancement has top priority.

In addition to Web applications, we expect to receive high volume of transcripts via EDI (electronic data interchange) as the community colleges in

Washington begin sending us electronic transcripts. The enhancement to load these transcripts automatically into our imaging, workflow, and transfer articulation systems is under way.

We plan to implement Web access to images in the system and Web participation in workflow in the coming year. This should be a relatively straightforward task, as Optika actively supports the Web as an interface to the Acorde products. Web access will make it easier to open the imaging system to academic departments throughout WSU and to academic advisors at any location, and to open both imaging and workflow systems to those graduate coordinators and committees who make admission decisions for applicants to the graduate school.

We are also considering the use of optical character recognition (OCR) software to read information from many paper forms and translate that information into electronic data. Data from a scanned document could then be loaded automatically into our student information and transfer articulation systems. It will also be useful when the financial aid office begins using the system because they process forms generated by WSU with barcodes encoded with data that can be read by the OCR software.

Successful Transformation

The World Wide Web, imaging, and automated workflow technologies have enabled a major transformation of the admissions process at WSU. Our investment has taken us from frustration to automation:

- from student bewilderment to easy-access information
- from uncertainty of transfer status to online degree requirements reports
- from paper application forms and checks in the mail to Web-based forms and credit card payments
- from batch-generated letters to real-time student letters
- from student phone calls to Web status look-up
- from piles of paper to clean desktops
- from multiple paper copies to electronic images
- from passing files on to the next person to automated workflow
- from different procedures at each campus to a common electronic procedure
- from single person access to a student's file to any number of people having simultaneous access

This is more than we thought was possible just a few years ago. With continued enhancements and new features, we expect to realize even more improvements in the future. *e*

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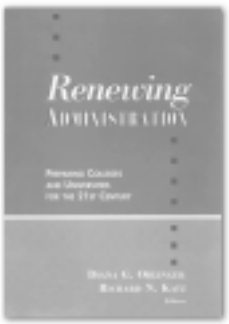

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