BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH

NORTH AMERICAN EXCELLENCE AWARDS: IMAGING, MERIT

EXECUTIVE SUMMARY:

Brigham Young University has improved efficiency in its student admissions and financial aid processes as well as reduced physical storage of paper with its associated high cost. Located in Provo, Utah, BYU was ranked by "U.S. News and World Report's " in 1996 as the 22nd best of the "Top 100 National Universities". Home to more than 30,000 students, BYU, sponsored by The Church of Jesus Christ of Latter-day Saints (the LDS or Mormon Church), believes in providing the best possible college experience to both its undergraduates and postgraduates.

BYU is using Staffware Workflow and Data General's AV Image to scan and control the four million documents and 15,000 undergraduate applications the Admissions and Financial Aid offices receive annually. The system is a result of an on-going program BYU had implemented to review and evaluate methods for reducing paper and increasing efficiency. What started out as a mere research in 1990 became a reality in January 1994 when BYU installed its first Staffware/Data General system. The implementation has achieved significant improvements in productivity while realizing substantial cost reductions. These benefits include:

- 65 percent reduction in personnel

- 80 percent reduction in storage costs

- Reduce the processing cycle time

- Improve operator efficiency—eliminated the numerous amount of paperwork

- Immediate and accurate access to information—prior to implementation of system, the process of accessing information took 24 hours

- Automatic data conversion achieved a permanent archiving and audit trail management system

- Maximizes Admissions and Records resources—those once in charge of manually retrieving indexed microfiche are now acting counselors

It became clear that the use of workflow and imaging technologies as a way to manage documents was not just a departmental need, but a university-wide requirement. Such areas like accounts payable and receivable, as well as serving as a resource of videoclips and graphic materials for interactive instruction in electronic classrooms would benefit from such technologies.

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THE SYSTEM APPLICATION

The Staffware system is used to automate the procedure of approving or rejecting student enrollment applications as well as those applying for financial aid. The offices, consisting of 100 people who are also the Staffware users, receive about 15,000 new freshman or transfer applications and an additional 5,000 returning former students in a year. The admissions process requires certain data be processed from every document into the host system and the letters of endorsement be read by two counselors for all students. In addition, all documents for 60 percent of the new freshman and transfer applicants are reviewed by two counselors. Not counting unscheduled document queries, there are in excess of 300,000 accesses to one or more images for individual admissions in a year.

Thus, the following is a sequence of how the paper documents were handled before Staffware was implemented:

- Sort documents into groups by document type, processing group and by stamped date

- Direct work to processors

- Data enter documents—process information into the system

- Sort documents into folders for storage (including computer generated documents)

- Manually retrieve and re-file as needed for *each* decision-making task

- Purge documents from files and prepare filming

- Microfilm documents to be archived

- Index archived documents

- Retrieve and copy documents as needed.

  The new processing sequence consists of:

- Receive Application on the Web (students can access the BYU web page and can either fill out the forms within the web page or download)

- Print Turn-Around Pages/Applications

- Sort Mail by Area

- OCR and Link to Host

- Retrieve as needed

- Batch Enter Data by Document Field

- Batch Update Host Database

- Delete/Archive Documents

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THE KEY MOTIVATIONS BEHIND THE SYSTEM

The need to implement a workflow and imaging solution emerged out of several factors.

First, the outdated microfiche and microfilm technology BYU was using to archive student transcripts and student record information was at the end of their useful life. Files for active paper documents were maintained in each office and were purged and archived as they aged. An index system with reel and frame number for manual retrieval tied individual images of archived student documents to their University Student Information (USI) system record was still in use. The system has the disadvantages of dealing only with archived images and is very labor intensive.

Second, the increase in volume of documents compounded the office space requirements for admissions and records personnel. Growth in departmental staff had not led to growth in office space, and the large bulky file cabinets were consuming valuable space.

Third, the absence of a document database for student records led to inefficiency in processing student applications. Filling requests for student records would take a minimum of 24 hours, be handled by at least three people and frequently would yield incorrect or incomplete information.

Lastly, the need for changes in the process itself. Each of the 15,000 undergraduate applications received annually includes a six page, two-sided form, transcripts, standardized test scores, letters of recommendation, the required essay, and more. BYU wanted more than a retrieval and storage technology, they wanted a way to shuffle the paperwork around.

THE CURRENT SYSTEM CONFIGURATION.

The Staffware Workflow and Unix and client-server-based AVImage easily integrated into the existing mainframe environment. AVImage includes the Win-Track Document Manager and AVImage viewer, DB Link, AVImagizer Toolkit and OpStar Optical Storage Manager. The AVImagizer Toolkit provides an easy way to add images to host-based applications without the need for modification, allowing actual document images to be "paper-clipped" to student applications and records in the system. The AVImage package includes a Data General AViiON 8500 server, nearly 100 personal computers, a Data General 10GB CLARiiON Disk Array, and a 72-platter Opstar optical storage jukebox. AVImage uses the existing campus-wide Ethernet network to image-enable the admissions, financial aid and records processes.

Important to the BYU solution was the addition of the Staffware workflow automation product. Staffware allows the graphical definition of workflow applications that are used to manage departmental chargeback and scheduling. BYU chose this system for a variety of reasons; open systems standards, an appropriate user interface, and coping with data compression and storage over networks. Getting the key software to communicate was really

important. The Staffware features of DDE and extensive APIs enabled it to "sit" on top of the accounting system without any problems.

IMPACT TO THE COMPANY

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Financial Aid provides assistance to about 25,000 of the 30,000 students enrolled at the university. About 40 percent or 10,000 of these students require two or more counselor interviews where access is made to the student's electronic file. Document images are available to the counselors upon demand with less than two second response time where before inquiries for student records would take a minimum of 24 hours, be handled by at least three people and frequently would yield incorrect or incomplete information. Not only is the performance of the counselor improved, but even more important, service to the student is enhanced while increasing the privacy of the student's information.

COST SAVINGS

Brigham Young University does not measure Return on Investment in monetary figures. Instead, the institution measures effectiveness through the improved services it provides to the student body, better utilization of its counselors, more storage and the elimination of the paper routing.

COMPETITIVE ADVANTAGE.

Brigham Young University did not implement the system to gain a competitive edge. For the reasons stated above, a workflow and imaging was identified.

THE IMPLEMENTATION PROCESS AND METHODOLOGY.

In 1990, BYU began to the process of evaluating electronic storage and retrieval document. As time passed, it became clear to BYU that electronic imaging systems were becoming more sophisticated and were integrating a series of operations, i.e. workflow, that could significantly influence performance in their work place. By June of 1993, funding was allotted to the

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Admissions and Records department and bids were requested in July. In December of 1993, the award was awarded to Staffware and its partner, Data General.

The Staffware Workflow technology and the Data General AViiON Image server were added as a secure mode to the network in January 1994. Software installation and training for Staffware and AV Image continued until the middle of March. Actual production for capturing the Financial Aid documents for the school year 1994-1995 began in May.

Similar workflow processes for capturing active Admissions documents and indexing them for retrieval either from the imaging system or by linkage with the host system were implemented in July 1994. In November, the workflow procedures for processing data from the images of new admissions documents into the host system were ready for implementation.

The backlog to applications that had already been received and processed into the host system before the new procedures were ready for implementation. A decision was made to complete this cycle and begin new procedures with the next term cycle. The Admissions decision workflow was partially implemented in December. The complete workflow automates the process of calculating an Admissions Preparedness Index that includes objective information such as high school GPA and ACT scores included in the host system database and subjective factors provided by a read group who have evaluated the student's essay, letters of endorsement and recommendation that are part of the image database.

The following is a time line of the implementation process:

Time		Event
1990	1992	Industry tracking
1992	1993	Site visits
Mar-Jun	1993	Requirements survey
June 21	1993	Project approval in concept given by the Computer Policy and Planning Committee
July 15	1993	Approval to solicit Requests for Quotations
July 28	1993	Requests for Quotations released
August 13	1993	Requests for Quotation received
August 25	1993	Technical questions conference calls
Sep-Nov	1993	Project scope and funding issues resolved
December	1993	Staffware & Data General awarded contract
January	1994	Hardware installed
Feb-Mar	1994	Software training
May	1994	Financial Aid document imaging
July	1994	Admissions document imaging
September	1994	Financial Aid and Admissions image retrieval
November	1994	Admissions document processing
December	1994	Admissions counseling support
February	1995	Financial Aid processing from images
March	1995	Financial Aid counseling support
April	1995	Admissions processing from images
September	1995	Admissions decision support
September	1995	OCR Data Collection

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THE OVERALL TECHNOLOGICAL AND BUSINESS INNOVATION

Brigham Young University not only achieve its goal of improving the speedy processing of data, timely available of information, and the quality of service to the university community in a cost effective way, it also realized that the combined workflow and imaging technologies opened the door to re-structuring organizations.

Many organizations are structured to manage paper efficiently. This is true of most admissions and records departments at large college institutions and many large corporations that handle large volumes of paper. Through the use of workflow and imaging, the business environment can be reengineered so that the primary focus is on providing the service and not how the work is being processed.