

NMSU Enterprise Resource Planning System Evaluation Report September 2003

Summary

It is recommended that NMSU replace the current advancement, finance, human resources, financial aid, and student information systems with the SCT Banner software suite. It is further recommended that this integrated system be augmented with specific third-party software systems as required to support responsive, web-based administrative processing, and reporting for students, faculty, staff, administration, and external stakeholders of the University.

NMSU reviewed existing administrative systems and compared them to the SCT Banner integrated system. The review included interviews and conversations with staff at other SCT Banner institutions and comparison of written system evaluations performed by other institutions. The consensus position is that replacing the existing systems with SCT Banner is preferred over modifying the existing systems to address current system inadequacies and projected limitations in meeting the NMSU strategic targets.

Although there are several additional vendors of comprehensive administrative software for universities, NMSU believes the recommendation to contract with SCT Banner without a formal Request For Proposal is appropriate because:

- SCT Banner is an industry leader in providing integrated administrative software systems to higher education.
- Migrating to SCT Banner aligns NMSU with the existing contractual relationship between SCT and other four-year institutions in the state. By utilizing the state contract, NMSU is excused from the RFP process under state procurement regulations because of pricing terms previously negotiated between SCT and the State of New Mexico.
- A recent comprehensive Educause (www.educause.edu) study of Enterprise Resource Planning (ERP) systems found a common level of institutional satisfaction across all of the primary ERP systems, regardless of the vendor.
- The majority of institutions that implement an ERP with a minimum of modifications to the baseline systems have been shown to succeed, and SCT is considered to be a “best practices” vendor of university administrative software.

It is recognized that implementing new software does not address directly the existing issues with administrative process; therefore, the majority opinion is that an extensive business process analysis be conducted as part of implementing the new system. This will, in many cases, require extensive reworking of historic University practices, but it will result in a closer alignment of NMSU administrative services and procedures with other institutions on a national level. By implementing the integrated software suite without system modification, the following benefits are provided:

- Implementation and ongoing maintenance will remain within projected time and expense budgets.
- The University is positioned to take advantage of the “best practices” imbedded in the software, as well as the currently available widespread 3rd-party software components available when the system is implemented without modification.

Charge to the Evaluation Committees and Teams

Several ad hoc committees were formed in June 2003 to evaluate NMSU's current information systems in comparison to the SCT Banner Enterprise Resource Planning (ERP) software. Formal committees exist within Business and Finance, Human Resources, Information and Communication Technologies and Institutional Advancement. Additionally, several informal groups have attended presentations by SCT within the Student Services area. The goals of these groups were to:

1. Evaluate the current status of central office and end user satisfaction central administrative software systems.
2. Discuss and document weaknesses in existing systems, outstanding system modification requests, and access to timely and accurate data and reporting tools throughout the university.
3. Evaluate SCT Banner's software suite as a potential replacement option for finance, human resources, advancement, student services, email, portal, calendaring, reporting and content management, including system add-ons such as e-procurement.
4. Evaluate the need to look beyond SCT's Banner for alternate software packages.
5. Make a recommendation to the university administration that would encompass one of three options for addressing NMSU's decentralized method of initiating transactions and inquiring information:
 - Retain all or certain current systems, and initiate needed modifications and "best of breed" purchases to address perceived system weaknesses.
 - Replace existing systems in part or in whole with SCT Banner under existing contractual relationship with other four-year State educational institutions in New Mexico that have recently acquired the SCT Banner software suite.
 - Replace existing systems under new RFP for software systems by which NMSU would negotiate a new contractual relationship with one of the higher education industry leaders: Datatel, PeopleSoft or SCT.

It was agreed that a primary focus is to investigate changes needed in NMSU systems, policy, and procedure to implement SCT Banner software without system modification; that is, only using the intrinsic configuration of the software rather than rewriting the software. Although the goal is to avoid modifications, the system must still support NMSU's decentralized method of initiating transactions and querying information. It is recognized the underlying central office responsibility is to maintain accurate, timely information from which all authorized university system users can readily update and access secured data.

Overview of Committee and Team Actions Taken

The evaluators undertook the following general actions in support of this charge. Related documentation is provided in the Appendices to this report.

1. Reviewed summaries of outstanding project requests pending modification or repair of the existing administrative systems and related subsystems.
2. Performed system feature mapping between current NMSU systems and the proposed baseline SCT Banner systems.
3. Evaluated and reviewed implementation and project management experience of similar universities.
4. Compared NMSU's systems and goals to a recent Educause Center for Applied Research study, "The Promise and Performance of Enterprise Systems for Higher Education," drawing upon relevant experience from nearly 500 colleges and universities.
5. Interviewed project managers at three universities related to the evaluation of Banner and other vendor system products and reviewed their extensive due diligence work in vendor evaluation.
6. Participated in multiple on-site demonstrations of SCT's Banner software suite, including representatives of the general NMSU administrative systems user communities. Documented feedback from demonstration attendees.
7. Performed in-depth, informal referencing on six current SCT Banner clients, and with a variety of central and end users to document issues with current finance and human resources systems.
8. Participated in intensive one-on-one follow-up sessions with SCT trainers to ensure personal familiarity among Committee members and select key offices outside the Committee with the manner in which Banner processes critical transactions and provides end user inquiry support.
9. Analyzed proposed SCT contract language for acceptability of terms and conditions.
10. Performed a brief impact analysis related to hardware and software requirements in central and departmental offices.
11. Developed a draft project implementation plan, including a proposed timeline and project team organization structure, and a detailed budget to support hardware, software, ongoing maintenance, and temporary versus recurring increases in staffing and compensation. Project plans and budgets encompass the purchase of a complete suite of integrated administrative software products from SCT Banner with a three-year implementation.
12. Discussed current system limitations, ERP benefits and administrative system goals with campus CEOs, Deans and various department heads.

Recommendation

The NMSU majority opinion supports the replacement of NMSU's existing administrative systems with SCT's Banner software with several additional 3rd-party software packages. It is recommended the university purchase installation services and project management for every proposed component.

Although there are a handful of vendors that provide university ERP solutions, there is not sufficient support to merit active consideration of vendors beyond SCT Banner. This is based on research that reveals a similar level of institutional satisfaction across all of the primary ERP Systems, regardless of vendor. Further, SCT already has a pricing agreement with the state of New Mexico and the majority of the New Mexico higher education institutions use SCT Banner for their primary systems.

In addition to the core software, the proposed budget recommends additional funding for the purchase of integrated third-party software packages for e-procurement, HR applicant tracking, web-based decision-support reporting and enterprise system scheduling to support NMSU's decentralized administrative computing environment.

The draft implementation plan recommends a separate project implementation team to address system-level reporting, as well as project teams for each of the new systems to be implemented. The implementation plan also recommends establishing a steering committee for the project.

The proposed budget addresses server hardware, software costs, training, support and maintenance, internal compensation, external services and recurring costs.

Discussion

In addition to this discussion, the attached appendices detail many of the actions and the some of the thought processes used by NMSU in the analysis of our current administrative systems as compared to SCT Banner.

Establishing the Need

Access to self-service information is critical to NMSU's recruiting and retention efforts.

Currently, there are various degrees of web-based access to admissions, housing, financial aid, advising, bookstore and registration. These six applications are maintained on (at least) five different systems by five different vendors. As a result, substantial investment is required to maintain the interoperability of the systems and provide enhancements. By using an integrated system, more time can be devoted to policy, planning and configuration of the system as opposed to maintenance and programming. As an example, two specific priorities are web-based grading and one-stop address changes. These two items would require additional programming changes and new software with our current NMSU systems; however, they are part of the baseline SCT Banner system.

The most common comment of those interviewed throughout the campus is that **many of our internal processes are inefficient or ineffective**. Although there is not extensive documentation on these processes, an important aspect of the implementation of a new system is to gather the relevant departments together, look at each process, discuss how things are done now, and agree how it will be done in the future. It is well documented that when a large institution purchases and installs a software package to fit a process that is not optimized, the success rate of the project decreases.

It is recognized not all university information systems can be integrated into one comprehensive package; however, **NMSU currently spends a substantial amount of time amongst the information technology staff maintaining core administrative software**. This time can be redeployed to other departments, configuring the enterprise software or successfully integrating standalone systems with the main university database. In the current environment, there are many standalone systems that integrate with other standalone systems and not the core data set.

The needs of the NMSU research faculty, specifically the principal investigators (PI's) are not being met with the current financial and HR systems and processes. Interviews with Deans, Associate Deans and PI's yielded a common set of requests, namely, timely setup of grant accounts, easy to use and user-friendly interfaces that track grant expenditures and budget changes, and accurate, timely and simple reports. These issues reflect problems that are not only the information systems, but also the process.

Analysis of SCT Banner selection processes outside of NMSU

NMSU reviewed several other universities due diligence when provided on the web. There are recent examples of schools that selected SCT after a long evaluation process. Eastern Michigan

rated ERP vendors based on functionality, technology, investment, ability to execute, service and support and vision. From this process, the SCT Banner product was selected.

Utah State University conducted its own internal evaluation of different higher education administrative systems including PeopleSoft, Datatel and CARS (Jenzabar). This investigation, taking over two years, concluded that SCT Banner was the best option for Utah State University.

Saint Joseph's University (SJU) performed a technology evaluation comparing Datatel to SCT Banner in terms of the corporate issues, server and clients, compatibility with the network, database management, application software, reporting, application development, interfaces, implementation and vendor support. The comparison favored the SCT product, and SJU is now a Banner client.

The information technology consulting group, Gartner, periodically reviews the state of ERP vendors in higher education. In a recent report, "Higher-Education ERP in Transition", Gartner describes the consolidation of ERP vendors, and references their "Magic Quadrant" for ERP vendors. The Magic Quadrant plots each of the vendors as a data point on a two-axis graph with completeness of vision and ability to execute as the axes. The three vendors shown as "leaders" and "visionaries" are SCT, Datatel and Peoplesoft. No specific judgment is made regarding which vendor is best, but it is clear that these are the strongest vendors in the sector.

Goals of the SCT Banner Implementation

The purpose of the SCT Banner product is to **provide a modern, integrated information management system that meets the needs of the university and provides a foundation for future application development and system integration.** With any implementation on a university-wide scale, the most important part of the implementation is business process analysis, discussion and agreement on the how NMSU performs administrative tasks to meet today's strategic objectives. To these ends, there are fundamental goals of the business process analysis: user empowerment, functionality, and information consistency. Although a new system would maintain data in a central repository, the system must also be configured to allow access to and responsibility for information in the system. Any new system must have 24/7 availability, particularly as it relates to recruitment and retention of students. Information consistency means that NMSU define common data sets for a single official information repository so that accuracy of reported information can be assured.

Effects of the SCT Banner Implementation Process

A conversion to a new system implies change. In this case, change results from improving process and enabling a shared set of enterprise data that is owned by the university for use throughout the university. Changes means that redundant systems can be, and will be, eliminated. With increased access to data for individuals and departments also will come increased responsibility for data integrity.

The greatest indicator for success of a large-scale implementation is to avoid system modifications. This does not mean using the system the way it was initially configured, but rather use the flexibility built into the system and not make modifications to the actual software code. In the Banner systems, there is broad configuration capacity that has met the needs of hundreds of colleges and universities. Further, when a specific effort is made not to modify the system, the majority of institutions were pleased with the system, said that productivity was up, and perceived significant benefits for management, staff, students and faculty.

Since Banner is an integrated system, substantial analysis of auxiliary and shadow systems will guide the elimination or integration of these subsystems with the Banner system. Also, during the implementation, modifications to the existing systems will be limited to only mandatory or regulatory change and critical NMSU priorities already in progress. Should NMSU move forward with implementation of SCT's Banner, steering and implementation committees will be established immediately and detailed project plans will be developed for the implementation.

Across all vendors, the ERP moves work to the departments as a result of increasing accessibility of inquiry and update, and adds "keystrokes" to processing as a result of automation, but in return supports much more effectively analysis and customer service goals.

Frequency Asked Questions

What would the SCT Banner project entail?

The SCT Banner project is a migration from a combination of home-grown and purchased software that currently runs NMSU finance, human resources, student, financial, advancement and web-based applications to a system with an integrated database and 24 x 7 access to data. A primary objective is to integrate NMSU enterprise data by storing information only one time and create business rules and processes to allow widespread access to information throughout NMSU. SCT Banner will serve the entire university consistent with the goals of the academic and administrative leadership. The primary SCT Banner suite consists of six components:

Financial Records System (Banner Finance)

- General Ledger
- Contract and grant administration
- Accounts receivable and accounts payable
- GUI and web-based access to accounting functions

Student Information System (Banner Student)

- Recruitment
- Admission
- Registration
- Enrollment management
- Matriculation
- Degree Audit
- Graduation
- GUI and web-based access to student records

Financial Aid (Banner Financial Aid)

- Scholarships
- Waivers
- Tuition management
- Federal grants and loans
- GUI and web-based access to financial aid

Human Resource System (Banner HR)

- Applicant tracking
- Employee recruitment
- Affirmative action/equal opportunity
- Benefits administration
- Payroll
- Retirement activity
- GUI and web-based access to personnel records

Advancement and Alumni (Banner Advancement)

- Gift Management

- Campaign
- Prospect Management
- Volunteer Management
- Funds Management
- Membership Management
- Communications management
- Events Management
- GUI and web-based access to alumni records

Web-based Integration (Banner Luminis and 3rd party)

- E-mail
- Calendar
- Directory Services
- Portal
- Content management
- Document management
- Workflow
- E-procurement

Why should NMSU migrate to SCT Banner?

Efficiency, accuracy and accessibility of information are important to achieve the strategic targets of NMSU. Students, faculty and staff expect timely, web-based information using current technology. In order for NMSU to remain competitive in recruiting quality faculty and students, it is imperative to provide this.

To varying extents, NMSU's current systems are neither integrated nor best-of-breed. There are two strategies for implementing enterprise systems: integrated single-vendor solutions and integrated best-of-breed solutions. SCT Banner is an integrated system the implements best practices. Implementation of this will allow greater access to more accurate information at NMSU.

Why choose SCT Banner rather than another higher education system?

Integrated higher education systems are available from SCT, Datatel, PeopleSoft, Oracle, SAP, Jenzabar. Current research (e.g. Educause and Wake Forest University) shows that the vendor is not the primary measure of success. The best measure of success is implementing with little or no modification to the baseline system. Since the state of New Mexico has a standing contract with SCT, and since nearly every other institution of higher education within New Mexico uses the SCT Banner system, it is a logical choice for NMSU.

SCT has been providing services to the higher education market for over three decades. Gartner Group consistently rates SCT as the industry leader and is consistently ranked high or at the top in their "Magic Quadrant" for higher education enterprise system vendors. SCT Banner is developed specifically for higher education.

What are some the benefits of SCT Banner?

- Available 24 hours a day, 7 days a week access from any authorized web-enabled computer
- Shared data is entered only once
- Non-social security ID number for students, faculty, and staff
- Electronic signatures, forms and workflow
- Oracle database as a basis for generating reports
- Ability to implement improved methods to track recruitment and enrollment
- Ability to define clear and consistent data definitions
- Retirement of the mainframe computer
- Strong baseline system to allow NMSU IT staff to focus on improvements to the system
- Integration with NMSU's web-based course management system, WebCT

Will Banner save the university money?

Return on Investment (ROI) is a popular metric to compare the attractiveness of one business investment to another. In a university, it is difficult to quantify ROI, however there are a few estimates that can be made.

Another measure, Value on Investment (VOI), is the value created by using information and communications technology to innovate and transform organizational business processes, relationships, and dynamics. This yields both "hard" savings and efficiencies like ROI and "soft" strategic outcomes. These intangible strategic outcomes include enhancements in the capabilities of colleges and departments to access and manage their information assets in order to collaborate and innovate. Such enhancements enable NMSU to improve its competitive advantage.

As a way to estimate return, or value, an analysis of productivity for an integrated system can be performed. If it is assumed that of the 1500 NMSU system users, on average (1) 1400 of these people can get a 5% increase in productivity by either saving time or having better access to data, (2) 50 people have 25% more work required because the system is more complicated and (3) 50 have 50% work more required because of increased volume, then value can be calculated based on an average NMSU salary. For example, if the average salary is \$40,000, then the net value would be about \$1.3M per year in additional value, as described in Table 1, which would be employee productivity in this case. It is assumed that NMSU probably will not save money, just redeploy resources.

Table 1- Sample productivity calculation

Productivity increase: $1400 * 0.05 * \$40,000 = \$2.8M$
Productivity decrease: $50 * 0.25 * \$40,000 = \$0.5M$
Productivity decrease: $50 * 0.50 * \$40,000 = \$1.0M$

In terms of the effect on enrollment and retention, if it is assumed that improved web-based student service result in a 0.05% increase in enrollment and in retention. This then equates to

between \$1M and \$2M of additional annual revenue. Based on these simple estimates, even a multi-million-dollar system can recover the expense quickly if the focus of the system is on enhancing student, staff and faculty services.

Personnel savings is a factor when reviewing the financial impact of new technology. Typically universities save money by not having to hire additional workers or by re-deploying existing ones to other functions or departments. Other savings that can be significant are the reduction in temporary or seasonal labor. In addition, it should be noted that hiring a new worker whether permanently or on a temporary basis requires interviewing and other university personnel time, which amounts to 25% to 100% of the annual cost of a new employee.

Operational benefits are another category of savings commonly overlooked. Postal service and mailing costs for documents being sent by the university can be very high. Telephone costs increase dramatically if calls are required because the information to answer an outside inquiry is not initially available. Printing costs and the time to replace paper-based procedure manuals can also be extensive. Enabling e-services can help reduce these costs.

A system replacement is an enterprise project and will benefit the entire university. Many of the Vice Presidents/Provosts, Deans, and other NMSU representatives have acknowledged that even in the face of a difficult budget crisis, the existing administrative computing system is insufficient. Information technology must be viewed as an investment rather than an expense.

Appendix – Advancement Supporting Comments and Recommendations

On July 23, the Vice President for Advancement, the Advancement Services team, Alumni Director and several development officers attended the SCT Banner Advancement module demonstration presented by Andy Kearney of SCT. The impressions were favorable. All questions pertinent to the functionality of the module were asked and answered to our satisfaction.

Two concerns remain:

1) It is impractical to expect that a comprehensive understanding can be achieved in a few hours of demonstrations of selected aspects of the software. We feel that it is important to speak with two or three users of the software who are similar to us in their use of the SCT Banner Advancement module. At least one on-site visit is also desired -- especially to a school who previously used the CMDS TeamMate software and converted directly to SCT Banner Advancement. Every system has its strong and weak points. We would prefer to have the greatest understanding possible of the system before beginning the conversion and use.

2) Currently, the Advancement Office has complete control over, and responsibility for, our systems, their management and business rules. In a campus wide, integrated Banner environment, this need for control of the modules, reference tables including codes, and the business rules involving our area does not diminish. Past experience (on campus but in a different office, four to five years ago) with the absence of direct control over the critical components of systems used primarily by accounting staff, has been significantly unfavorable. Delays due to insufficient resources and other issues within ICT, significantly and negatively impacted the productivity of the accounting staff in completing their work and thus reduced the level of service to their customers. Our need to control those codes, reference tables and business rules used exclusively by our team, is unchanged and is a key factor as to whether or not we will want to use the SCT Banner Advancement module or the sub-modules within the financial system used for 501(c)(3) accounting and pooled endowment fund management applications. In addition to directly controlling those factors which are needed in our area, we wish to participate jointly with other users to coordinate the successful management and maintenance of the application's business rules, codes and reference tables. We are especially concerned in the areas of accounting for 501(c)(3) units, management of pooled endowment funds, management of demographic attributes such as contact attributes like addresses and phone numbers, group membership attributes for groups such as the Alumni Association and memberships in the radio and television departments; award recipients, including scholarships, earned and honorary degrees and so on; and death attributes including date of death.

Finally, as managers of the largest single database of active addresses within the university, the Advancement Office offers, in an integrated database environment with addresses shared by the entire university community and stored in the SCT Banner system, to manage the entire range of contact attributes in the database and provide mailing labels, printed or in electronic form, for use throughout the university. To accomplish this, we would ask that all mail be returned to Advancement Services office for address correction in the system before it would be forwarded by us to the appropriate department responsible for having sent the mail piece initially.

Appendix – Student Information Systems Priorities September 2003

Regulatory (Mandatory)

- Tax Relief Act
- SEVIS reporting to BCIS (INS)
- Government reporting (IPEDS) ethnicity modifications (pending final requirements)

University or Department Policy/Procedural Issues

- Separate the billing and reporting of tuition and individual fees
- Signature requirement for Admissions applications
- Modify current withdrawal rules to allow students to cancel registration by a predetermined date
- Allow undergraduate academic history screen (AHUG) updates whenever college/major changes
- Remove SSN's from view screens and reports wherever possible.

Bugs/Maintenance

- Correct Financial Aid disbursement receipt errors
- Tuition calculation errors - students with dual main/branch enrollment
- Correct fee records/pay records roll bucket problem (incorrect payment plans and holds on students when no balance due – FRIS roll problem)
- Automatically input library charges to student files
- Tuition recalculation for outgoing exchange students
- Track bugs that lead to invalid ID numbers in SAR files
- Leave course schedules available online for at least 5-6 years

Top Thirteen Recommendations

- Interface and automatically load VISTAS data to Sigma's Student Aid Management (SAM) to post tuition waivers, including dependent tuition, sponsorship, employee tuition, residency waivers, third party resources, etc.
- Students able to update contact information (address, phone, email) on the web
- Provide access for departments to a centralized student email address
 - Add fields for catalog year and program options for degree audit processing
 - Limits to overloads as per ADAC vote – do not allow registration without an override for the following limits:
 - 1) Students in good standing – no more than 18 credit hours in a regular semester and no more than 7 credit hours in a summer session

- 2) Students on probation – no more than 15 credit hours in a regular semester and no more than 5 credit hours in a summer session
- Web based grading for main and branches (midterm, athletes, last date of attendance)
 - Electronic funds transfer (EFT), covers excess financial aid, includes logging of student e-mail addresses; capacity for students to see bills and account history
 - Provide online creation and maintenance of course schedules at the colleges for their courses including the ability to set enrollment caps
 - Submit course flimsies on-line
 - Branchfer Flag for identifying NMSU branch transfers to the Main campus
 - Add calculation for all credits attempted, including transfer credits attempted, to student scholastic screen (SADU) – implement transfer articulation module of the Degree Audit Reporting System (DARS/STAR) – migrate CHE transfer file from Foxpro system
 - Distance Education Tuition Calculation
 - 1) Add flag to indicate course section is a distance education course on semester class list (SCCL), semester class list for one course (SCSS) and Commission on Higher Education courses (CHEC). (It may not be possible to add it to SCCL but please try!) The flag should function like the general education course flag where a ‘Y’ means ‘yes’ and a blank means no.
 - 2) When the course section rolls over to a new semester, the field should revert to a blank. (i.e. it needs to be reset manually every term)
 - 3) On SCCS, if distance ed flag = ‘Y’, require an entry in the “off-site locator” field.
 - 4) Add at least four fields to course section, SCSS, to indicate “instruction type(s)” with a companion field for “percent of instruction” for each type. This should work like the academic interests and academic indicators with the first instruction type and percent being used as the “Primary” instruction type and percent. Validate sum of percents to be sure it equals 100% for all types.
 - 5) Add a table to accommodate the “instruction type” codes to be used. It should include a 4-character code for “instruction type”, a “description” field, and a field for “CHE instruction type” codes.
 - 6) Add a field for “distance ed fee” to SCSS to allow distance ed fees to be entered at the section level. This fee should be included in the sum with course section fees for tuition calculation purposes. (The distance ed fee will be charged on a per credit basis for each course section.)
 - 7) Add a ‘distance ed fee’ code to accounts receivable date table (ARDT).
 - 8) Timeline:
 - a) ICT programming done by October 1, 2003
 - b) Testing completed by October 15, 2003
 - c) (INSERT OTHER KEY MILESTONES HERE)
 - d) Implement fully for Summer 1, 2004

- Admissions (Banner)
 - 1) Guaranteed technical support for guidance and training to resolve BANNER and Crystal Reports problems and answering questions within a reasonable amount of time (48 hours or within a week).
 - 2) Applications received via the Internet will load automatically onto BANNER including international students.
 - 3) Email addresses from prospective students and applicants will load automatically to Admission Advisors address book.
 - 4) Prospective students can check their application status via the Web.
 - 5) Email requests received from prospective students load automatically to system
 - 6) Web based access to admissions information at the department level to review complete and incomplete applications (Graduate School)
 - 7) Web based survey of applicants collecting information at time of application (ie how they heard about NMSU – Graduate School)

Appendix – Content Management Recommendation

Content Management Systems (CMS) automate the process of creating, publishing, and updating web site content. The CMS Planning Committee was formed to guide New Mexico State University in evaluating and recommending a CMS solution that would benefit the institution.

The CMS Planning Committee hosted two vendor presentations; Vignette and SCT. Members from the Campus Webmaster Group (CWG) were also invited to the presentations. The purpose of the presentations was to give the Committee and the CWG an introduction to the functionality of CMS and give them an idea of useful features.

Vignette

Vignette's product was very strong; the work flow templates are very intuitive and customizable, the user interface well-designed, and features such as the "Virtual Repository", a way to manage content in any data format, seemed to be very useful.

SCT's Luminis

SCT's product, Luminis, consists of other packages in addition to their CMS solution, Documentum. These packages include a LDAP server, Calendar server, email server, a SCT implementation of uPortal, and Documentum. Although Documentum shared nearly all the same features of Vignette, its user interface and editing tools were not as refined as Vignette's. Addressing this concern, a development version scheduled to go beta in early 2004 was demonstrated, and showed significant improvement in the interfaces and editing tools.

Conclusion

Side by side, Vignette and Documentum are not significantly different from each other. Concerns about Documentum's interface are being addressed with the release of the new version early next year. The additional capabilities of Luminis, including the tight integration with the Banner products, the portal, and the application server, made it the best product for New Mexico State University. Luminis provides so many extra capabilities beyond CMS that it is much more closely aligned with our business needs.

Appendix – Business and Finance Recommendation Supporting Documentation

Recommendation Support Summary

The appendices to this report, referenced below, provide detailed supporting materials for the conclusions drawn in the report. This section will summarize the results of this work in relation to the Committee's fulfillment of its charge.

Conditions for Implementation

The majority of end users included in the evaluation process agreed that the SCT Banner Finance and Human Resources systems, would address their primary concerns with existing systems, if implemented under these summarized conditions:

1. Point of Initiation Updates and Flow

Inconsistency of the option for end users closest to the point of initiation of a transaction to update the central administrative system in a format that will support secured, paperless processing subject to a minimum number of approval steps. Existing systems are being modified gradually in-house to allow for this functionality, but the majority of commonly encountered transactions cannot be processed in this manner, and there is not a centrally organized or funded direction to bring all transaction processing to a common standard. This includes both web-based workflow processing and web-based self-service options.

2. Secured Format for Inquiry

- Inability of end users to have ready access to timely, accurate central system data in a secured format for inquiry and subsequent reuse in ad hoc reporting or stand-alone departmental databases.
- Inability to customize central system inquiry screens to meet the needs of users unfamiliar with the details of central system layout and structure.

It is accepted by the Committee that certain departmental needs will not be met by any central administrative software package, even if the concerns raised above are fully satisfied; therefore, any recommended central system must have full capability for seamless interface integration with CIO-approved departmental subsystems. It is the Committee's goal and the CIO's eventual objective that these subsystems not duplicate functions provided by the central system.

3. Review Processes for Improvement and Streamline Opportunities

A general need to review processes for improvement and streamlining opportunities; work has been done in select areas, but a system-wide overview is needed to ensure efficiencies in both central and departmental offices, and to encourage a refocusing of

administrative functions across the university on supporting the institution's strategic directions and related objectives.

4. Lack of Interface between Finance and Human Resources Systems

Lack of adequate interface between the finance and human resources systems, which are currently provided by different vendors, limits the university's ability to encumber salaries, automate the salary budget process, and efficiently process labor distribution and leave accounting transactions.

5. Inefficient Support Documentation Storage and Retrieval

There is a current project to automate document records retention and retrieval that is separate from the current finance and human resources software systems. The current project will continue with third party software integrated with SCT's software, and should be supported by any direction taken for administrative systems purchase or development.

6. System-Level Weakness in Current and Related Software

Included is a summarized list of centrally identified system-level weaknesses with current and related software. The majority of current systems weaknesses beyond those identified above, either pending modification or already modified within existing baseline software, would be addressed in baseline SCT Banner finance and human resources systems, to the best of the Committee's understanding of those systems' capabilities.

7. Sub-System Weaknesses

The Committee identified the following primary weaknesses in current subsystems related to finance and human resources services:

- Lack of effective system-wide reporting at either the functional user or IT professional level;
- Lack of a common database for shared values, such as addresses, and associated inefficiencies of processing to attempt to reconcile separate databases;
- Lack of self-service and other end user update and inquiry options;
- Lack of effective automated interfaces within and between both central and justifiable departmental subsystems, and existence of unnecessary "shadow" subsystems in response to the above weaknesses;
- Lack of responsive and reliable vendor maintenance and upgrade plans in the human resources system.

Committee Use of EDUCAUSE Report

In addition to performing hands-on review and referencing, the Committee used the well-documented work of EDUCAUSE and many other institutions in its review of the three optional directions, documented under point (5) of the Charge to the Committee. This allowed the Committee to prepare an analysis and recommendation at a fraction of the time and cost encountered by other institutions, while preventing NMSU to fall into a historical trap of insular analysis.

The Committee felt strongly that it needed to combat against the natural inclination to approach the project from an NMSU-centered viewpoint, when, in fact, the goals and challenges of providing superior financial and human resources administrative services within a public university setting have been successfully identified and met many times over. The Committee's approach underscores a commitment to benchmarking NMSU against our fellow institutions.

Key Results of EDUCAUSE Report

The EDUCAUSE Report included analysis of information gathered from nearly 500 higher education institutions, of which over half had implemented a multiple-module purchased ERP package since July 1995.

- The institutions were fairly evenly split between three vendors: SCT, PeopleSoft, and Datatel. Ultimate satisfaction with the implementation and functionality was not vendor-specific.
- The highest percentage of respondents had implemented finance, human resources, and student modules, although student was most frequently implemented at a separate time; very few institutions did not implement finance and human resources modules together and from the same vendor.
- The primary reason for implementing an ERP after the "Y2K" period was to improve customer service, and the largest obstacles were related to process changes required.
- Across all vendors, the ERP moves work to the departments as a result of increasing accessibility of inquiry and update, and adds "keystrokes" to processing as a result of automation, but in return supports much more effectively analysis and customer service goals.
- The most statistically significant factor related to project outcome was the absence of modifications: meeting time/budget targets was positively correlated, and initial user satisfaction was negatively correlated. After a year, however, over 80% of respondents were pleased with the system, said that productivity was up, and perceived significant benefits for management, staff, students and faculty. The great majority of institutions implemented with a minimum of modifications to the baseline systems.

Noted Weaknesses in STC Banner Finance and Human Resources Systems

All references obtained by the Committee on the SCT Banner finance and human resources systems were positive. No specific weaknesses were noted during referencing.

The majority of comments received from demonstration participants and one-on-one sessions with central staff for the SCT Banner Finance and Human Resources systems were positive.

No significant issues were identified in the review of the SCT proposed contract by the University's Director of Central Purchasing and Risk Management Administration or the General Counsel.

ICT performed a brief review of hardware, infrastructure, and operating system needs to guarantee full accessibility of the system capabilities as appropriate to IT, central and departmental functional offices; the attached budget incorporates all of these costs based upon assumptions made to date

Interviews with the project managers of successful implementations, and a review of related project planning materials from SCT and these institutions, supports the proposed project timeline and team structure, and a budget recommending additional space and compensation for project team members during the project. The above-referenced EDUCAUSE study indicated that consultants played a significant role in a large number of implementations, that project management was successful, and that communication, process redesign and training were the three areas that they would place more attention and resources toward, were they to repeat the implementation.

Appendix – ICT FY04 Goals Related to SCT Banner

The following goals are excerpts from the ICT FY03 Progress Report (ict.nmsu.edu) that relate specifically to an ERP system. Implementation of SCT Banner will help address each of these goals

1. Create a university definition set for key information commonly used in internal and external reports.
2. Define the roles of the departments and central administration for data entry, information storage and data reporting.
3. Expand self-service web-accessible administrative applications for students, faculty, and staff.
4. Support the Vice Provost for Research office in the production implementation of the Info Ed International electronic research administration system. The proposal tracking module is scheduled for a pilot project in August 2003.
5. Select an enterprise web reporting system to provide better access to enterprise information on the financial, human resources and student information systems.
6. Implement a production portal system for NMSU students to access and organize web-based services.
7. Plan and implement at least one new document management/imaging and workflow (Accelio) project to transition manual paper based systems.
8. Implement DARSweb to allow advisors to code degree requirement exceptions and run audits and students to run audits for themselves. Because NMSU previously performed degree checks manually, DARwin and DARSweb streamline the degree audit process, ensure consistency of audit results, and provide students with a convenient and easy way in which to monitor their progress and perform degree program “what-if” scenarios.
9. Implement transfer articulation module of the Degree Audit Reporting System (DARS).
10. Implement a production-ready solution for generating batch audits and audit purge with DARS.
11. Identify and implement replacement(s) for current administrative Lotus Notes and FoxPro applications.
12. Obtain training for web technologies, object oriented programming, change management and project management for ICT staff.
13. Enhance student employment services system (SES Ventana)

- Evaluate possibilities of incorporating work study and branch campus student employment
 - Write 7 ad-hoc query reports
 - As per Business Office suggestion, incorporate email notifications in EAF upon SES student requisition disapproval
 - Write SES Purge process (data is to be retained for 3 years so first run won't occur for some time)
 - Test Employment Eligibility Verification Step 2 for January 2004 use (can't run until waivers are in place for one year)
 - When Vistas is live on DB2, incorporate the generation of activity records for unofficial transcripts during the waiver process
 - When electronic signatures available, incorporate signature if required
14. Provide quality technology training, support, and documentation for administrative applications, office productivity software (MS Office), enterprise reporting tools (Crystal Reports), Web content management, and other technologies that are of strategic value to staff and faculty at NMSU.
 15. Replace Corridor "screen-scrape" applications for Vistas and SAM CICS applications in order to provide web registration and financial aid award acceptance capabilities. Corridor is no longer under maintenance.
 16. Examine and refine ICT organizational structure.
 17. Enable laser check printing of vendor/disbursement checks.
 18. Install and train users for SEVIS system.
 19. Implement SIS priorities established by the SIS committee.
 20. Implement priorities for recruitment and retention efforts especially through web based access to admissions data for prospective undergraduate and graduate students as defined by Noel Levitz and NMSU.
 21. Development of automated billing and additional electronic services to support distance education.
 22. Implement job scheduler for SAM and VISTAS/SAR.
 23. Implement Oracle 9 and Banner 6 releases for Admissions
 24. Define and publish architecture for a single login to e-services at NMSU.
 25. Continue working to move all services to a single login and password using the NMSU Global ID and Password.

26. Assist in implementation of the strategic plan of CHECS regarding network connectivity and shared services.
27. Provide network setup and configuration to support NMSU early registration at remote locations.
28. Enhance electronic security by requiring all systems that take login/password/ssn/pin over the Internet to use SSL.
29. Install PGP encryption software for transmitting payroll information to the institution's banking partner.
30. Publish data security standards and guidelines for NMSU.
31. Provide more information via the web and post of frequently asked questions through the ICT Customer Service Center.
32. Redesign ICT website <http://ict.nmsu.edu>
33. Evaluate the advantages of a Web Content Management System (W-CMS) for NMSU. A white paper outlining advantages and costs will be developed for review of the NMSU leadership.
34. Investigate and propose an online testing and evaluation policy.
35. Foster the use of shared web servers and database server for department ad hoc applications.
36. Develop guidelines for departmental responsibilities in web content management.
37. Establish a library of resources and tools for web publishing.
38. Complete the NMSU information privacy policy and guidelines.
39. Evaluate room scheduling software for technology classrooms on all campuses.
40. Create long term plan for email services at NMSU.
41. Propose to CHE unified WebCT for Carlsbad, Alamogordo, Grants and Las Cruces
42. Select an enterprise calendaring system.
43. Work with advancement to redesign www.nmsu.edu.
44. Increase access to SIS data and reduce printing

45. Increase access and standard reports to provide budget and account information to departments.
46. Install a commercial virus scanner for NMSU email.
47. Determine a new non-SSN, lifetime ID number for students
48. Eliminate need to come to campus for PIN reset
49. Work with Business and Finance to detail faculty issues with grant accounting, salary encumbrances and procurement.
50. Provide additional access to HRMS system for departments.
51. Investigate the JAMIS system for faculty grants and compare to SCT and InfoEd software.
52. Reduce the dependency on departmental shadow systems for FRS.
53. Insure that NMSU has a single authoritative data source for identification and demographic information.
54. Create infrastructure for online distance education counseling
55. Provide training on FERPA, GLB, HIPAA, data access and data security issues.
56. Investigate online evaluations for NMSU courses.
57. Enhance www.nmsu.edu search page.
58. Determine policy for having and publishing email addresses at NMSU.
59. Create better tools for sending mass email.
60. Work with branch campus to determine which electronic services can be provided at Main Campus versus at the branch campus.
61. Put in place standards for automatic vacation email and voicemail messages.

Appendix – Web-site and Institutional References

Educause

Eastern Michigan University

Utah State University

Wake Forest University

Pontificia Universidad Católica de Puerto Rico