

Developing A Student Information System At East Texas State

BY FRED RUSSELL

Executive Summary

One of the most important efforts undertaken by an educational institution is information processing, both academic and administrative. This article will attempt to explain how a difficult project is viewed by those primarily responsible for maintaining and using it. The goal is to describe the assessment process and the preparation of competitive bidding documentation, and to provide an insight into making the decision to purchase and implement an integrated student information system (SIS) at East Texas State University (ETSU). Among the topics covered are assessment of data needs, site visits, analysis of minimum/maximum requirements, review of bid responses, recommendation of a vendor, and budget and resources.

One of the most important efforts undertaken by an educational institution is information processing, both academic and administrative. This article will attempt to explain how a difficult project is viewed by those primarily responsible for maintaining and using it. The goal is to describe the assessment process and the preparation of competitive bidding documentation, and to provide an insight into making the decision to purchase and implement an integrated student information system (SIS) at East Texas State University (ETSU).

Organizational structures of post-secondary institutions are often multi-dimensional and complex. ETSU is composed of three major divisions:

1. Student and University Advancement
2. Business and Administration
3. Academic Affairs

Within these divisions reside the end user offices of an integrated student information system. Examples of these include: academic deans and departments, enrollment management, fiscal office, financial aid and housing. One university goal is stated as "Establish policies and procedures to ensure fiscal responsibility and accountability in the use of human physical and fiscal resources." Objectives relating to this goal are "Provide an integrated management information system to aid institutional decision

making, and provide appropriate computer support services for the efficient management of the institution and for the proper support of the instructional programs."

Therefore, the implementation of an integrated student information system enhances our efforts toward meeting the goal and objectives for the university.

History Of Student Accounting At East Texas State University

ETSU is a regional state university with an enrollment of approximately 9,400 students on two campuses at three locations. Located in Commerce, TX (60 miles from Dallas), ETSU was founded in 1889, offering degrees at the bachelor's, master's and doctoral levels. The student accounting system was developed over the course of 20 years with little software or systems integration. Each sub-system exists with a high degree of autonomy and operates independently from most of the other systems. An enrollment growth of 29% during the last five years has placed heavy demands on personnel.

Reasons For Change

Constant demands for more thorough data retrieval and analysis certainly heads the list of reasons to upgrade our old student

accounting system data base. I can't recall how many times I have been asked to supply answers to the executive branch of our university, or related to you the unending requests from external publics (federal and state agencies) and the private sector. For example: Can you tell me how many business majors you have enrolled in the last 10 years whose hometown is southwest of Oklahoma City and whose last name is Smith? Although this seems absurd, data manipulation to extract such a request often required putting together pieces from several "stand-alone" information systems and quite a bit of manual intervention as well.

Even with our efforts to respond, our old system contained so much data redundancy that it made matters difficult at best. Our computing center staff had been reduced over time so that they were no longer able to rapidly respond with upgrading existing programs or writing new ones. Once they could produce our requested programs, they were forced to move to another end user and left a void of proper documentation in the trail.

Given that the educational marketplace for the traditional college student population has become highly competitive, we had to address ways we could respond to customer needs. We had to be able to explore many "what if" conversations with them as they sculpted their academic program.

How Do You Begin To Determine Your Need For SIS?

Assessment Of Data Needs

Our first approach was to ask the primary end users of student information data to identify what their needs were. Each office was to supply a list of current data they capture and examples of reports they produce, and submit data elements or questions they would like to be able to retrieve from a new SIS.

Next we took our state and federal reports and secured their unique demands as a measure of our needs. Agencies such as the NCAA, IPEDS and the Coordinating Board (state governing agency) forged our opinions as to the types of data we would project that must be provided in a new system.

Approval By The Department Of Information Resources (DIR)

The state legislature established a review process for all hardware and complex software purchases known as DIR. Our university was "fortunate" to be the first university to have to request their approval of our plan, proper resources and ample budgeting. If you have such a structure through which you must pass, allow several months for their analysis. Our project, estimated in the range of \$600,000, was no small order and had to be scrutinized by state purchasing boards. I actually believe we were able to assist them in gaining their foundation for the review process.

Site Visits

As a part of any major SIS purchase, one must visit existing institutions or companies where the anticipated software is in production. Our efforts to accomplish this had definite priorities: 1) we wanted to see the software installed and running and 2) we wanted to speak with computer center staff and end users to determine their level of satisfaction.

We narrowed the list of companies that we felt could provide the product and support to three. Each company had SIS product lines installed at colleges and universities in various parts of the United States and Canada. The component parts of an integrated system include admissions recruiting, registrar, housing, financial aid and student accounts.

Analysis Of Minimum/Maximum

Requirements

Factors leading toward a recommendation included our evaluation of a quasi goodness of fit test. We had certain requirements that were mandatory and others that we would like to have but were deemed optional. From this phase we developed our request for proposal and began our competitive bidding process. Often in software purchases of this value, you are encouraged to conduct a pre-bid conference. This will serve as a clarification of any items that seem unclear to possible vendors. That is the good news; the bad news is that anything transpiring at this conference has to be shared with the entire bid list.

Review Of Bid Responses And Recommendation Of A Vendor

It is important that the evaluation of the bid responses is conducted equally. Developing a bid analysis form is instrumental in this evaluation. For example, one area might be admissions criteria and the analysis form might look like that in Figure 1.

Additional consideration included a corporate response to our need to review their approach to implementation of the software. If the company has experience in SIS projects, they will have an organized plan that institutions can use as a staff guide.

<i>Data Needed</i>	<i>Exists In Current Software</i>	<i>Comments</i>
1. Multiple Applications	yes no	
2. Course Evaluations	yes no	
3. Test Score Data	yes no	

ANALYSIS FORM FOR ADMISSIONS CRITERIA

FIGURE 1

After We Sign A Contract — Then What?

Conversion

Those in the systems support business will understand that hardware conversion used to be a dreaded experience. Changing operating systems and vendors has often driven computer center staff to move on to more familiar environments.

Project Management And Team

Transfer this anxiety to an implementation team with little experience in software conversion and you will understand the importance of the selection of that team and its project director. In the end, SIS is equal to

several mini-conversions when you consider replacing long-standing locally developed software.

Budget And Mainframe Resources

An implementation effort is costly. It is wrought with hidden costs, especially when you consider the fact that the team members must also continue their regular day-to-day jobs. Therefore, proper operating expense budgets are crucial to a successful implementation.

In addition, your current mainframe must have enough capacity to operate the full force of the SIS software. Perhaps you should consider at least running two applications. One would be the generic vendor model, while the other would be the actual institution-populated version. Some refer to establishing test accounts as a description of training and building data bases.

We began our implementation on an IBM 9370-model 60 and by the time we are ready to cut-over, we will be running on an IBM ES-9000-model 170. We are running VSE-ESA and using CICS.

One Approach To Implementation

Several steps are instrumental in forging the way for a successful implementation of an SIS. Plan for the following areas to serve as important benchmarks along that path to

success:

1. Install test account data on mainframe.
2. Review policies and procedures of university to determine whether to keep, amend or discard.
3. Schedule consultant training
 - a. Introductory walkthroughs using the software.
 - b. Building reference tables for your institution.
 - c. Assign tasks and set deadlines for end users.
 - d. Decide which data you will convert (from old system to new).

(continued on page 40)

Managing Data Standards And Policies (continued from page 36)

resolve it. But the objective is quality decision making, and this deliberate approach achieves it.

Committee Members' Reactions

The committee sometimes sees itself as taking too long to resolve issues, particularly those of a controversial nature where other parts of the college community are pressing for an answer. In its defense, the committee feels it must revisit an issue many times before all of the necessary people have become involved, complete and accurate information has been gathered, and all aspects of the issue have been analyzed. In addition, the ramifications of some decisions by the DSPC are quite significant and may lead to major, behind-the-scene changes. The Social Security number decision is an example of this.

Finally, none of the committee members had any of their other responsibilities reduced or eliminated when they joined the DSPC. Consequently, committee meetings and assignments must be squeezed into already tight schedules. But no one has resigned and all feel that the work is important for the college and significant for their own functions.

Conclusions And Future Directions

The Data Standards and Policies Committee at Bentley College has worked well during its short life. One of the chief spinoff benefits from this committee is a heightened awareness and realization on the part of key users of the complexity and the interdependence of the systems that they use. The members of the committee have matured from having a parochial view of the system to a much more global appreciation. In addition, the committee has provided a somewhat unexpected forum for discussion and airing of some very different and valid views concerning such issues as privacy rights, data ownership, the tradeoff between security and user flexibility, and the need to educate the broader user community concerning the use of data to which more and more of them now have broad access.

Toward the latter end, workshops have

been held with senior college managers to make them aware of the committee and the issues with which it deals. In addition, the chair has begun an education effort in a college newsletter through an article explaining the need for data integrity and security and the responsibility individuals bear for those objectives.

Future directions for the committee include policies concerning archiving and purging of data (so far usually avoided by just upgrading hardware capacity and power) and other security issues, as well as the routine work of ensuring the integrity and accuracy of the exploding volume of data maintained on college systems. JSM

Peter T. Farago is director of administrative systems at Bentley College in Waltham, MA. He chaired the college's Data Standards and Policies Committee for three years.

Jessica Whitmore-First is a technical consultant for Datatel Inc., which provides software and services to the higher education and non-profit communities.

Ernest A. Kallman, Ph.D., professor of computer information systems at Bentley, has more than 30 years of computer industry experience in distribution, education, manufacturing, transportation, government and not-for-profits.

Developing An Integrated SIS (continued from page 11)

- e. Match current data elements and screens to your new SIS software to ease conversion program resolution.
- f. Decide which locally developed systems you plan to retain and maintain.
4. Schedule on-line processing exercises to evaluate performance of processes such as tuition and grade point average calculation.
5. Finalize procedures and processes for data entry.
6. Run an integration test in which these processes are performed by various campus personnel who are not familiar with them.
7. Perform a stress test in which you monitor the response of multiple users, keeping an eye on the mainframe response time.
8. De-bug and modify processes after stress test.
9. Set production cut-over date.
10. Don't look back.

Advantages And Disadvantages Of SIS

Several advantages are realized in integrated student information systems. Data is complementary throughout the system and more accurate. Report processing is more thorough and distributed to end users. This transfers ownership of the data to the end user rather than just the computer center. A

variety of longitudinal tracking benefits are noticed regarding student performance and enrollment records. Projection of course needs for planning by the academic administration provides better utilization of human (faculty) and physical (building and rooms) resources.

A few disadvantages do surface in a project so vast as SIS. The most noteworthy is teaching experienced staff a new system while they are un-learning the old one. Learning the new system is usually layered onto day-to-day jobs. The computer center staff role changes from "most experienced" to learned advisor.

Conclusion

In summary, institutions or businesses have incessant needs for data that will enhance their decision making process as well as enable them to become more responsive to their students or customers. Student information systems for colleges and universities are critical to their success. Any attempt to implement SIS products should be approached with optimism, a dedicated staff, ample budgeting and an extensive task-orientation plan. JSM

Fred Russell, Ed.D., is currently registrar and project director for SIS at East Texas State University in Commerce, TX.