The Role of an Institutional Research Office in Administrative System Implementation: Getting into Everybody's Business

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Background: Southeastern Louisiana University

Southeastern is a comprehensive regional public university offering associate, baccalaureate and masters degrees. Southeastern has had rapid gains in student enrollment over the last ten years, almost doubling in number. The Fall 1999 enrollment is 15,199, and there are 1,199 full-time employees and 280 part-time employees.

In 1982 an in-house COBOL based administrative system was developed for the University. By 1996 there was a recognized need for a new administrative system. Rapid growth, along with the current system not being Y2K compatible contributed to this growth. A review of currently available commercial systems resulted in a decision to purchase Buzzeo. However, due to decisions made at the state level the university was not able to purchase Buzzeo and it was decided to develop a new java based system in-house. In 1998 changes were again made at the state level that opened the way for purchasing a commercial system. A review of available systems was once again conducted, and this time it was decided that PeopleSoft would better meet the University's needs, so the University purchased PeopleSoft HR, Financials and Student Administration.

Based on suggestions provided by the University community, the implementation project was named Project LEO. The official implementation began in March 1999, however some preliminary tasks were begun in November 1998. A 18 month implementation schedule (from March 1999) was developed with a budget of $5 million.

Structure of Project LEO

Following is a description of the teams and committees that have been a part of the implementation effort so far. Approximately 200 faculty, staff and students have been involved in Project LEO to date.

The Executive Committee is composed of upper administration, the President and Vice Presidents, who approve any significant policy changes which are recommended as part of Project LEO. The Steering Committee has a high-level overview of Project LEO and is made up of the Provost, VP for Administration and Finance, the Project Manager, Assistant VP of Technology; the Directors of Academic Services, Human Resources, Enrollment Services, and Administrative Computing Services; the Faculty Senate President, the Internal Auditor, the Controller, and the Student Government Association President. The Steering committee is charged with overseeing the budget, approving customizations, approving the time line and changes to the time line and selecting the implementation partner.

The Core Team is responsible for the day-to-day management of the project. Concerns that cross functional areas or affect the project as a whole are brought to this committee for attention. The Project Manager, the leaders of the functional area teams, and the leader of the technical team make up the Core Team.

Three data framework teams were established in order to make decisions about how the underlying structure would be defined, and to set it up. These teams were the Academic Structure Team, Campus Community Team and Chartfields Team. The Academic Structure Team reviewed PeopleSoft's structure and determined how it would fit the university's current structure. Some of the topics reviewed by the team included college and department structure,

course locations, and how the major and degree structure would be transferred to PeopleSoft's Academic Plans. Included on this team were representatives of Institutional Research, Enrollment Services, the Controller's Office, Human Resources, Payroll, and the Office of Technology. The Campus Community Team reviewed elements which would be used by more than one module, such as name usage, addresses, and race/ethnicity coding. Included on this team were representatives from Institutional Research, Enrollment Services, the Controller's Office, Human Resources, Purchasing, and the Office of Technology. The third data framework team, the Chartfields Team set up the structure for the Chart of Accounts. Included on this team were representatives of Institutional Research, Administration and Finance, the Controller's Office, Purchasing, Sponsored Research and Contracts, and the Office of Technology.

There are four project teams, three functional area teams (HR, Student Administration, Financials) and the Technical Team. The HR team consists of representatives from Human Resources, Financial Aid, Payroll, the Controller's Office, and the Office of Technology. The Student Administration team includes representatives from Enrollment Services, Financial Aid, Student Affairs, Student Government Association, and the Office of Technology. Representatives from the Controller's Office, Purchasing, Auxiliary Services, Property Control, Sponsored Research and Contracts, Alumni, and the Office of Technology comprise the Financials team. The Technical Team includes representatives from Administrative Computing, Basic Computing, Institutional Research, and the Office of Technology. Each of the functional area teams is responsible for software setup, data conversion, and testing. The Technical Team oversees the provision of hardware and network infrastructure for the new system.

Five support teams were appointed which include Communications, Records and Reporting, Security, Training, and Web. Each team is comprised of university representatives with expertise in the area the team was charged with. The Communications team is responsible for informing Southeastern's faculty, staff and students of the importance of Project LEO as well as the benefits derived from implementation. The Records and Reporting Team will be discussed in more detail later in this paper. The Security Team was charged with developing a set of recommendations which defines who gets access, how much access, what type of access (read vs. write), who grants accesses, and efficiencies to be gained. Access includes not only access to various panels (screens), but also the ability to generate reports and queries. The Training Team was charged with determining and developing the training needed by the University community for utilizing PeopleSoft. The Web Team was charged with looking at the overall structure of the Southeastern website and determining necessary modification that are needed for interaction with PeopleSoft. The Web Team developed a new web site for Southeastern which will debut the end of October.

Seven process change teams were established in order to review how the university handles various aspects of its day- to- day operations and develop recommendations as to how to improve the efficiency of these operations. The process change teams include the Course Scheduling Process Change Team, the Payroll Process Change Team, the Hiring Process Change Team, the Procurement Process Change Team, the Space Utilization and Management Process Change Team, the Student Recruitment and Induction Process Change Team, and the Grants and Contracts Process Change Team.

Institutional Research's Participation

For a successful implementation, a university's Institutional Research Office must be involved. The IR office has the best global "big picture" view of how data is used on campus and what the university's data needs are. A combination of technical and functional understanding of data is necessary for implementing a new administrative system and these skills can be found in an IR office. An IR office understands the limitations of data and how data elements from separate systems can be related to one another. An IR office has an understanding of the importance of archiving data, why census dates are necessary, when it is appropriate to use census data, as well as why data from five years ago needs to be readily available. An IR office understands reporting requirements at the federal, state, or organizational level as well as the internal reporting needs of the university.

Our Office's Participation in Project LEO

At Project LEO's conception, Southeastern's administration decided that the Office of Institutional Research and Assessment should play an integral role to insure successful implementation. The Director of Institutional Research and Assessment serves as the Project Manager for Project LEO. The Project Manager attends all team meetings (with the exception of the process change teams), is a member of the Executive Committee, the Steering Committee and the Core Team. The Project Manager also works closely with the lead consultant to help keep time-lines in place and to redistribute resources as needed. The Institutional Database Coordinator is a member of the Institutional Research staff, and while she no longer does much IR related activities, she was previously the Statistical Assistant in the office. All three of the data framework teams had IR representation on them. In addition to the Institutional Database

Coordinator, there are three IR Research Associates on the Records and Reporting Team. There has been IR representation on both the Space Management and Utilization Process Change Team and the Procurement Change Team.

The Office of Institutional Research and Assessment will also be responsible for the data warehouse once it is implemented. This includes developing and designing the warehouse, ensuring that archives are made, and providing the training needed in order to gain access to the data warehouse.

Institutional Database Coordinator

As Southeastern moved to new administrative software, the opportunity was taken to take a close look at the University's data. In the legacy systems, the data resides in three main functional databases without much integration. To move this data into integrated databases required coordination among university data trustees, so the position of Institutional Database Coordinator (IDC) was created to facilitate and coordinate this effort.

The IDC's primary charge is to ensure data integrity among the University's data. The IDC is also responsible for identifying common data among the existing systems, coordinating the effort to define the data for the new system, and tracking and documenting the changes to the data from the old to the new. The IDC is also responsible for creating an end-user data dictionary, helping design the data warehouse, and providing insight for reporting standards for the University.

It was decided that an IR staff member would be the best person for this position. An IR person already has the "big picture" view that is necessary to coordinate among various groups. An IR person also has experience working with functional units in regards to data and has a good

idea of the problems inherent in the legacy system. A side benefit of appointing an IR person to this position is that it gives the rest of the exasperated IR staff a point of contact for data problems that are uncovered and wishes for the new system.

Much of the work done by the IDC is a coordinated effort among the IDC, the University's data trustees, and the Records and Reporting Team. The initial effort is to transform the data such that Southeastern's needs are met. After the end of the project, the IDC position will evolve into a new role, defined by university needs.

Data Warehouse

For the first time, the University decided to utilize the tool of a data warehouse because of the many benefits that could be realized. Institutional Researchers and end-users could have greater access to data currently not available to them, data from various systems could be integrated, historical data could be archived in a more secure and central environment, it would emphasis that data is institutional data, not individual data.

A data warehouse is not to be confused with data mart and data store. A data mart typically uses the data warehouse as its source of data. A data mart is designed for a specific function or for a specific department. For example, Southeastern may decide to create a data mart for analyzing faculty productivity. The data used for this purpose will already be in the data warehouse, however, the data mart's focus will be on distinct sets of data that will help answer our faculty productivity questions.

A data store is a generic term that includes databases and flat files. Southeastern will most likely use the data store as a place to mirror its production database when needed. Perhaps we know we need to capture data at a specific point in time, but may not have the specifics ready

about the exact data needed. The data store can be used to hold the data until we are ready to move the data to the data warehouse.

To build the University's first data warehouse, a phased approach will be taken. The first phase, expected to last six months, includes setting policy for the development, use, and maintenance of the data warehouse, identifying the technical tools needed, identifying data to be stored in the warehouse, and developing a prototype. The second phase, also expected to last six months, will include testing the prototype, creating documentation for, and implementing a "mini" data warehouse.

Reporting

A need was observed to review the University's reporting requirements and investigate how reporting would be done once PeopleSoft was implemented. A Records and Reporting Team was appointed with the following charges:

- Complete a reporting "fit/gap" analysis
  - Inventory our current reports – do they meet customer needs?
  - Identify the reports that are standard with PeopleSoft systems – evaluate as to appropriateness, acceptability, deficiencies
  - Identify those reports that will need to be programmed/modified

- Evaluate the types of reports needed by the university based on the results of the fit-gap analysis and needs that are not currently being met by any existing reports. Develop a typology based on critical need/priority, constituent audience, data types and locations, and office to be responsible for production.

- Design and develop a university data warehouse; develop policy and procedural guidelines for data warehouse access and usage

- Review the reporting and query options available with PeopleSoft including Crystal Query, nVision, and OLAP; determine who needs to use these reporting tools and develop recommendations for training

- Develop policy recommendations for the maintenance of the institution's data records and data warehouse.

The team was composed of persons with primary reporting responsibilities from each of the three functional areas, the Institutional Database Coordinator, three IR Research Associates, a Student Affairs representative, the Southeastern webmaster, the DBA, and the Database Team Coordinator.

The first task of the committee was to complete a Report Inventory of all current reporting needs. Working with each of the functional areas, an inventory was developed that containing of the areas' needed reports and requested reports. The inventory included:

- Type of report (Internal, Federal, State, Other External, Ad-hoc)
- Whether or not a paper copy was necessary
- Type of data (Student, HR, Financial, etc) and time of data (census date, end of semester, fiscal year, etc.)
- Purpose of report
- Office currently responsible for report
- What department or office requested the report

It was acknowledged that as the day-to-day operations of PeopleSoft is better understood, some of the reports may be deleted from the inventory while others may be added.

The implementation of a new administrative software system creates a new reporting environment. It was determined that rather than simply keeping things status quo, now was a good time to develop policies, procedures, and guidelines for all reporting. One of the first decisions to be made was how would responsibility for reporting change. It was decided that the Office of Institutional Research and Assessment would be ultimately responsible for all external reporting and coordinating with the appropriate offices to get the reports done. A move in this direction has already begun, and IR is now responsible for all student reporting to the Board of Regents, whereas previously IR submitted some, and Enrollment Services submitted some. It was decided that internal reporting should be decentralized, with the majority of the internal

reporting being the responsibility of the functional area. Many internal reports will be replaced by queries , a change that will have greater effect in the future. The Records and Reporting Team will insure that current internal reports are in place, however once PeopleSoft is implemented, functional units will be responsible for any future reporting needs, probably with assistance from IR.

Currently, the Records and Reporting Team is in the process of reviewing the delivered reports and queries to determine if they will meet Southeastern's reporting needs. The team will then develop reports and/or queries for any reporting needs not met by PeopleSoft.

Also being reviewed are methods of report distribution. It is the recommendation of the team that as much reporting as possible should be done electronically, thus minimizing the number of printed reports. It was also decided that there is no "one size fits all" solution to how reports should be distributed, the best distribution method will depend on the type of report and the intended audience. Some methods that will be used in report distribution include:

- Web-based reporting
- Pushing reports to users electronically
- Desk-top query user can run whenever needed
- Training users to create their own basic queries
- Paper Distribution

The Records and Reporting Team also decided that all reports generated for internal use or a university audience should contain some standard documentation. This should include the source(s) of data in the report, the purpose of the report, the intended use and audience for the report, whether the information should be held confidentially, and the period of time the report should be held in archive records or if the report replaces a current document. The Records and Reporting Team is developing a template to be used for this report documentation. Once it is

developed, it will be shared with various users from the campus and modified based on their feedback.

Data Integrity

Data integrity is an important issue to Institutional Researchers. Many an Institutional Researcher has spent hours chasing down numbers that did not match. To help insure the integrity of the new system, IR should participate in the framework teams such as Academic Structure, Campus Community and Chart Fields. If there are problems with the development of the framework, there is little hope that the system will go live with "good" data that meets the needs of the university and in particular the IR office. For example, if the framework is not set up properly for relating degrees and majors, the IR office will spend many hours trying to determine what category students actually belong in.

The data in the legacy system that is going to be converted needs to be cleaned up either prior to conversion or during the conversion process. If the data is not cleaned up, the system will go live with the bad data and some of the same problems will be carried over from the legacy system. To help insure this does not happen, data clean-up needs to be a part of the implementation time-line. Data also needs to be tested across the systems, not just within. It will be important to know if the data elements shared between systems is the same in the two systems.

Another "must" for helping to maintain the integrity of the data is a data dictionary. The data dictionary should include what the element is, valid values, format, if the field was converted from the legacy system and if so how, and if appropriate what was the element name

in the legacy system. Information should be included about the element from the legacy system in order to help users become familiar and comfortable with the new system more quickly. For example, PeopleSoft has Academic Plans and Academic Sub-Plans, terms that have no meaning to current campus users. However if the data dictionary includes that Academic Plans are a combination of the students' major and degree, and Academic Sub-Plans are the equivalent of our legacy concentrations, users will quickly understand these terms. Currently the Institutional Database Coordinator is in charge of developing the data dictionary.

The Changing IR Office

Once Project LEO is complete, the Office of Institutional Research and Assessment will undergo a change. It is uncertain exactly how or what these changes will be. Anticipated changes resulting from responsibility for the data warehouse and insuring that all data, reports and systems are systematically archived, will call for new skills in the IR Office. Before access can be give to the data warehouse, users will have to undergo training on the use of the data warehouse, which will have to be provide by IR. Also IR will have to take a role in training users to do their own queries, helping them to better understand what questions are appropriate to ask and where to look for the answers. All this will require the staff to become proficient in conducting queries, developing reports, and extracting data from the new system. As more data responsibility is placed on Institutional Research and new skills are developed, IR will become less dependent on other departments for data needed to complete analyses.

Resources Available

1. PeopleSoft and IR Listserv - psir@sluweb.selu.edu
2. PeopleSoft Data Warehouse Listserv - psdw-1@cornell.edu
3. PeopleSoft and Higher Ed - psedu-l@cause.colorado.edu
4. PeopleSoft Admisssions - psadmissions-l@cornell.edu
5. PeopleSoft Financial Aid - psfinaid@listserv.acns.nwu.edu
6. PeopleSoft Student Financials - pssf@piranha.acns.nwu.edu
7. PeopleSoft Security - pssac-l@piranha.acns.nwu.edu
8. PeopleSoft Student Records - psstudrec@piranha.acns.nwu.edu
9. PeolpleSoft Student Administration - pssis@piranha.acns.nwu.edu
10. PeopleSoft and the Web - webtalk@piranha.acns.nwu.edu
11. Southeastern's Project LEO - www.selu.edu/LEO
12. PeopleBud (contains a listing of universities across the country who are implementing PeopleSoft - www.geocities.com/SiliconValley/9295/index.html
13. Inmon, W.H. (1996). Building the data warehouse (2^{nd} ed.). New York: John Wiley & Sons.
14. Kimball, R. (1996). The data warehouse toolkit: Practical techniques for building dimensional data warehouses. New York: John Wiley & Sons.
15. Data Warehousing - www.datawarehousing.com
16. Data Warehousing Information Center - pwp.starnetic.com/larryg/index.html
17. Data Warehousing Knowledge Center - www.datawarehousing.org
18. DCI's Data Warehouse Report - datawarehouse.dci.com
19. DM Review - dmreview.com
20. Review Booth - www.reviewbooth.com