Enterprise Resource Planning (ERP) Implementation Planning and Structure: A Recipe for ERP Success

Wayne Brown
Heald College
670 Howard St
San Francisco, CA. 94105
(415) 808-1400
Wayne_brown@heald.edu

ABSTRACT
Heald College, a 12-location institution, began implementing PeopleSoft (PS) Human Resources (HR), Student Administration, Finance, and Staffing Front Office in Jan 2003 and is scheduled to complete all module go lives by July 2004. The author conducted a brief review of the literature on attributes and structure that are believed to make a large project, such as an ERP implementation, successful. The project management structure and process used at Heald was compared to this ERP implementation literature. The author will discuss this structure and the processes used to control project costs, limit customizations, control scope, involve executive management, deliver documentation and training, communicate with the institution, and manage change.

The process used for software and implementation partner selection through to actual implementation will be reviewed and compared to the conditions that are believed to make a project successful. The author concludes with a lessons learned section which addresses tasks that could have been done differently.

Categories and Subject Descriptors
K.6.1 [Project and People Management]: *Staffing, Systems analysis and design, Systems development*

General Terms
Management, Documentation, Design

Keywords
Enterprise resource planning, structure, project management

1. INTRODUCTION
Heald College's experience with ERP implementations covered two major projects between 1999 and 2004. Projects of this size are expensive, carry a huge amount of risk and often fail (Krasner 2000; Markus, Tanis et al. 2000; Yakovlev and Anderson 2001). Reportedly, over 50% of these kinds of projects fail (Scheer and Habermann 2000).

SIGUCCS'04, October 10–13, 2004, Baltimore Maryland, USA.

Heald had used an AS400-based student records and business system for several years prior to 2000. The AS400s were separate systems for each campus and had very few internal controls. An effort was undertaken by the organization in the mid to late 1990s to review the possibility of replacing the AS400 with a client-server/graphical user interface-based system. As the Y2K "crisis" approached the investigation of a new system turned into an urgent requirement.

A number of systems were reviewed in the search for an AS400 replacement. It was determined that none of the software packages could meet all the needs of Heald. It is probably fortunate that Heald did not purchase and attempt to implement an off-the-shelf system during the late 1990s because during that period, off-the-shelf ERP software and implementations received a large number of unfavorable reports (Skok & Legge, 2001).

Ultimately, Heald decided to engage a consulting company to build and implement a system customized for Admissions, Academics, Financial Aid and Career Services. The finance functions of the institution were migrated to an off-the-shelf system. Integration between the two systems was attempted, but ultimately became a major stumbling block in the usability of the system. HR continued to use an off-the-shelf product and there was little integration, other than file exchanges, between HR and the other systems.

The first module of the new system, campus information system (CIS), was built for the Admissions department. Due to a number of challenges, the contractor was replaced and a second consulting company was hired to attempt to finish the Admissions module and build the other three modules. The consultants worked very closely with internal functional area experts and the Information Technology (IT) department. There was very little, if any, input or participation from the campus functional area employees during the design or implementation of CIS. While the author was unsure about project and scope management, the highly customized systems seem to indicate there was little or no scope control.

When the author joined the institution in May 2000, proposed fixes and enhancements to the system were not evaluated or put through an approval process. The fixes and enhancements were simply added to a growing list of hundreds of items that needed attention. The literature indicated that custom built systems have produced the same problem on other projects and increased the cost of the project (Krasner 2000). In an attempt to control the software release process, a prioritization process was implemented

and releases were initially scaled back to once every three months and later to once every six months.

Another issue was that there was not an effective approval process for the various modules delivered by the contractor. Functional area representatives were accepting the modules despite the fact the systems were not functioning correctly in a production environment.

During the initial CIS implementation, minimal training was delivered to functional area representatives from the campuses. The training that was delivered used PowerPoint screenshots of the system that was being built and the employees did not interact with a live system. There was not a consistent training material format or usage between modules. In the majority of cases, training materials were not produced. Furthermore, the system did not have a help function built into the software.

2. MANAGEMENT ISSUES

There were a number of problems with the management of the CIS project. Initially there was executive support for the implementation, but as it became apparent that the project was failing, it lost virtually all sponsorship. The former chief financial officer (CFO) did lead the implementation committee, but by that time it appeared that some fatal project errors had already been made. Some of the problems included:

- No management of the scope of the project
- The rate of change was uncontrolled
- Major software release per month
- No follow-up process to check quality of the releases
- No database administrator
- Database design flaws
- One experienced programmer
- Lack of a formal process for moving programming between environments
- Inadequate technical infrastructure and support
- Over 300 items on the Financial Aid "to do list" alone

As Krasner (2000) pointed out, failures can result from a lack of management involvement or incompetence. The Heald College incomplete and error-filled implementation was extremely costly and difficult. According to Yakovolev and Anderson (2001), it is not unusual for a failed ERP to be overwhelming for an institution.

3. TECHNICAL ISSUES

The project team, which was formed to attempt to fix the CIS implementation, included a DBA and several programmers. The team spent 14 months after implementation, beginning in Jan 2001, attempting to fix the front-end/employee experience. The team eventually conceded that the system was never designed to complete a financial reconciliation. The interfaces between the off-the-shelf and the custom built system did not capture or provide the right information to perform a number of the financial reconciliations.

There were a number of technical problems with CIS. The modules did not use the same database for biographical or demographic information. The system was designed as a client-server application in what was rapidly becoming a web-based world. The wide area network that was in use at the time the system was deployed did not have sufficient bandwidth to handle the traffic that was already in place without adding the CIS load to it. Approximately nine months after CIS was deployed, the bandwidth between campuses and the corporate office was increased. Terminal services were also implemented to help alleviate the network congestion and improve system responsiveness. Furthermore, there was no system or performance process test plan conducted during the implementation. Consequently, there were a number of processes that did not work well in the production environment which had to be repaired later.

The reporting processes were handled by the same overworked transaction database server that handled all system transactions. Approximately one year after the CIS go live date, a separate and rapidly updated copy of the database server was implemented as a reporting server. This approach provided immediate relief to the production transaction server.

There was also a poor interface between the custom built system and the off-the-shelf financials system. This interface, or lack thereof, was ultimately the reason that the system was abandoned in favor of an off-the-shelf and integrated system. The problems encountered by Heald are consistent with the ERP implementation challenges that are cited in the literature (Krasner 2000).

4. LESSONS LEARNED 1.0

Failing to learn from previous system implementations is a common problem (Krasner 2000). Heald learned several lessons from the implementation of the failed CIS system. Fortunately, these were very fresh lessons when Heald began searching for a new system in 2002:

- Create a schedule and stick to it (Somers and Nelson 2001; Yakovlev and Anderson 2001)
- This (the implementation) is the most important thing the organization is doing (Yakovlev and Anderson 2001)
- Limit customizations (Krasner 2000; Somers and Nelson 2001; Yakovlev and Anderson 2001)
- Documentation of the process you go through and the business processes are needed as a history of the project and as the basis for training materials, respectively.
- Training is needed for all personnel (Ross 1999; Somers and Nelson 2001; Yakovlev and Anderson 2001)
- The institution IT department personnel are not software developers/implementers. System implementers are often used to help on ERP projects (Brown and Vessey 1999)
- Combined corporate and frontline involvement with IT is needed continually. The membership of the implementation group is thought to be a significant factor in the success of the project (Brown and Vessey 1999; Krasner 2000; Somers and Nelson 2001)
- Executive involvement and commitment is critical.

- Implementations that are larger need executive support (Markus, Tanis et al. 2000).
- Executive support is one of the top factors in the ERP literature believed to contribute to the success of the projects (Brown and Vessey 1999; Somers and Nelson 2001)
- Relegating management of the project to the IT department during critical points is a primary cause of system implementation cancellation (Somers and Nelson 2001). This approach had been the rule rather than the exception during the CIS implementation.
- Fixed fee: Heald was determined to control the cost and scope of the next project
- Data quality was given a top priority for the second ERP implementation. The responsibility for the data conversion for the second project was assigned to a senior IT manager who worked with functional area leaders on the data conversion
- The system must be designed to do everything the organization wants it to do when a project is completed. As with any system or other project, you have to decide before you start what you want to end up with.

According to Brown and Vessey (1999), executive support, implementation team members and leader, managing change, utilization of implementation consultants, approach to data conversion, limiting the amount of software customization and process changes instituted as a part of the software implementation are all factors that have an impact on the success of the project.

5. FOLLOWING THE ERP LITERATURE

Heald's first step towards the implementation of a second ERP was to initiate a Request for Proposal (RFP) for software. The RFP was sent to three academic software makers: PeopleSoft (PS), SCT Banner, and Datatel. The institution used a consultant to guide them through the process of evaluating software. In addition, Heald used corporate and campus functional area personnel to assist in the selection of the software. There were over 75 employees involved in the selection process. Ultimately, PS was selected based on input from the functional areas and IT staff.

A second RFP was then sent to several PS implementers based on their PS implementation experience: Vendor 1, 2, 3, 4, and 5. Vendor 4 and 5 declined to bid on the project. Vendor 1, 2, and 3 submitted responses and presented their proposed plan and team for implementation. Vendor 2 did not bring implementers or functional experts to the RFP response and they had the highest price combined with the least experience. Vendor 1 and 3 were evenly matched for experience and the proposed implementation team Vendor 1 was more expensive but Vendor 3 was not as financially secure as Vendor 1. Vendor 1, PS, was selected.

5.1 Project Structure

The author, in concert with other leaders in the organization, created a structure to implement and manage the project (Figure 1). The goal of the structure was to ensure project success while involving the right number and mix of employees in the project. This collaborative approach ensured there was "buy-in" from the functional areas and campuses. It also helped spread the credit for the success of the project. Finally, it provided the campus functional areas with a local expert for training and ownership of the functional module.

The organization leaders recognized that the structure had to drive the project to completion. Decisions were made quickly by those with the knowledge, the Implementation Committee (IC) and super users, and any problems that would impact a timeline were quickly addressed or elevated. There was heavy and committed executive support. The project was the sole performance initiative for the life of the project. In addition, the IC was led by the CFO and vice president (VP) of IT.

A number of different implementation structures were available (Markus, Tanis et al. 2000). Heald chose a model that involved frontline functional area personnel in the decision-making, configuration, training, and production support.

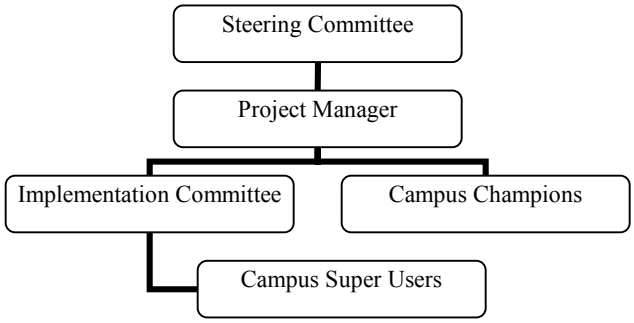

Figure 1. Implementation Structure

The Steering Committee (SC) was composed of the institution President and all of the VPs. The Project Manager (PM) reported to the Steering Committee on a regular basis. However, when problems arose which required additional resources, the decision was made by the President with the advice of the CFO and PM.

The PM was the VP of IT. The literature recommended that someone other than the chief information officer lead the project (Willcocks and Sykes 2000). Unfortunately, there was not another executive in the organization who could assume leadership of the project when it began.

Heald determined the PM had to be a manager and evangelist for the project and he or she had to be respected in the institution. The person had to be familiar with the organization and know how to get things done. Furthermore, the person had to foster collaboration, have the ability to make decisions, and break impasses. The PM was expected to provide oversight for the implementation vendor and the functional teams. This included keeping them on track for completion dates and managing the vendor relationships. It also included assisting the implementers and functional area leaders with process change decisions and bringing more resources to bear when appropriate.

Willcocks and Sykes (2000) identified the sponsor and champion as two different people, but in this case, the PM performed many

of the duties of both roles including communication, project team leadership, decision making, maintaining senior executive relationship.

The IC was designed to bring functional area expertise to the project. The group consisted of the central office functional area leaders for Admissions, Academics, Financial Aid, Career Services, Finance, Business Office, one person from a campus for each functional area, and two IT managers. The IC members attended the initial PS training. The IC members were also responsible for overseeing the functional PS super user teams and in concert with them and the implementer outlining the Heald business processes. When necessary, they changed the business processes to take advantage of PS capabilities. They also included the super users in the functional area fit gap and configuration meetings and met with them by teleconference on a regular basis. The committee functional area members ensured training was delivered to the campuses before the system was deployed. Lastly, they elevated any challenges they could not resolve to the PM.

The super users brought frontline functional area expertise to the project. Each campus identified one employee from each functional area to act as the campus super user for that functional area. The super users participated in the fit gap, which is the examination of the differences between Heald's business process and the software. They then helped outline how Heald would operate with the new system. Finally, super users trained their functional area departments at the campuses prior to deployment of PS.

The final position in the structure was the campus champion. The campus champion mirrored the PM duties at the campus level. They were the campus project evangelist who helped ensure the project was a success in each campus. They met with the PM on a monthly basis and helped maintain an open line of communication between the project team and the campuses.

5.2 Communication and Change Management

Resisting change during a project can be a major issue (Ross 1999). The PM conducted an initial visit and briefing to each campus after the software was purchased. There were additional visits to the campuses by the PM and functional area leaders. In addition, there were regular messages sent to the employees. The functional area leaders held conference calls with the super users on a regular basis. There was a monthly project newsletter that was sent out via e-mail and posted on a dedicated project intranet. The intranet contained copies of all meeting presentations, agendas, and minutes. It also housed all of the functional area business process scripts (BPS) and training materials. A dedicated project e-mail address was created and publicized for use by employees to submit questions about the project. These questions were subsequently transformed into a frequently asked questions (FAQ) list.

5.3 Documentation

There was a large amount of documentation created as a result of the PS project. Initially, strategy documents were created to guide the project team. As the IC, super users, and consultants compared Heald processes with the software, fit gap documents were created and decisions were made about the scope of the project. These decisions were documented and used to create the agreement about the scope of the project. As the business processes were created, they were documented on a BPS. Finally, the BPS was used to create training documents. In the future, the training documents will be used to customize the PS delivered help system for Heald processes.

5.4 Challenges

As Yakovolev and Anderson (2001) noted, the loss of personnel is a common problem on system implementations. Issues pertaining to personnel was a go live issue in 62% of the cases (Krasner 2000). Over the course of the Heald project, there were a number of critical people who left the project. The project team learned very quickly that a project cannot be slowed down by the loss of personnel. The institution responded by quickly filling the positions with consultants and then hiring new employees. If paralyzed by the loss of personnel, there could be a vicious ripple effect that would be more costly than the consultants needed to fill the staffing gap. The project timeline moves on with or without the organization.

5.5 Milestones

When the Heald project team first presented the project plan to the Board of Trustees, it was a very different plan and timeline than the one that was implemented. The organization was flexible and the project team used words like "tentative" and "anticipated" freely.

Heald learned to celebrate the milestones. An ERP project is a marathon and not a 100-yard dash. The people in the organization and on the team need to recharge and see progress to stay engaged in the project. As of July 2004, the Heald team had completed all of their go live milestones, with the exception of one, on time! The missed milestone was two days late.

In the midst of the project, the team also had a project audit performed by the institution financial auditor. The audit was performed on interfaces, conversion, and security during the 14th month of the 18 month project. There were no significant findings identified.

6. LESSONS LEARNED 2.0

As with all projects and endeavors, there were lessons learned by the team. Fortunately, these were not lessons that had already been learned during the CIS implementation.

Create a project team incentive upfront! Heald did not implement an incentive until five months after the project had started. Implementing it earlier may have made a difference in the number of people who left the project.

Staff up - not down. The project will lose people and there should be enough people assigned to the project to cover the loss. The organization can avoid expensive consulting cost overruns by having a number of institution employees involved in the project. This potential staffing issue has been identified as a problem in other research (Willcocks and Sykes 2000). Heald lost eight functional and technical employees over the life of the project. The institution responded by quickly filling the positions with consultants and then hiring new employees. This institutional response kept the project on track.

Heald used the PS "Lab" for the Financials implementation. A "Lab" implementation is completed by PS consultants at a PS site versus a traditional implementation which is done at the customer

site. Heald personnel communicated with their PS consultants through teleconferences and Heald visits to the "lab" location. "Lab" implementations are less expensive, but have their drawbacks. One of the drawbacks is that the knowledge transfer is not as steady as the onsite implementation. The implementer's onsite team had an investment in ensuring the project went well and that the milestones were completed on time. The lab team had a decided focus on the letter of the law for the implementation and scope contract.

The fixed fee project was great. It should be noted that a fixed fee contract does not mean that the implementer will do everything for a fixed cost. The institution and the implementer agree on a scope for a fixed cost and the implementer may not work on things outside of that scope.

The PM will need to ensure that consultants are staying on the project until the end. Phased go lives may leave the project shorthanded for consultants at the end.

As difficult as it can be, the institution needs to make informed decisions quickly. Heald was able to do this and it was very apparent that any indecision would have quickly turned into missed milestone dates and budget overruns. These missed milestones would have had a ripple effect on other functional areas and subsequently endangered the entire project.

Communication and change management are very important pieces of the implementation puzzle. While the Heald team did a good job of communication and change management, more could have been done. In retrospect, a senior employee should have been placed in charge of communication and change management. There was a communication committee that orchestrated a number of events. However, dedicating an employee to this function may have had more of a positive impact.

Functional area leaders should own and regularly brief management on *their* progress. They own the module, decisions, and the implementation of the module. The functional area should get the credit. Heald followed this model from the beginning of the project with positive results.

7. CONCLUSION

Heald College learned several valuable lessons through their first unpleasant ERP experience. They took the knowledge gained and applied it the second time they attempted to implement an enterprise system. The resulting implementation confirmed there are a number of literature-based factors that help contribute to the success of a project.

8. REFERENCES

[1] Brown, C. and I. Vessey (1999). ERP implementation approaches: Toward a contingency framework. International Conference on Information Systems, Charlotte, North Carolina, ACM.

[2] Krasner, H. (2000). "Ensuring E-business success by learning from ERP failures." IT Pro: 22-27.

[3] Markus, M., C. Tanis, et al. (2000). "Multisite ERP Implementations." Communications of the ACM **43**(4): 42-46.

[4] Ross, J. (1999). "Surprising facts about implementing ERP." IT Pro: 65-68.

[5] Scheer, A. and F. Habermann (2000). "Making ERP a success." Communications of the ACM **43**(4): 57-61.

[7] Skok, W. and M Legge (2001). Evaluating enterprise resource planning (ERP) systems using an interpretive approach. SIGCPR. San Diego, ACM.

[6] Somers, T. and K. Nelson (2001). The impact of critical success factors across the stages of enterprise resource planning implementations. International Conference on System Sciences, Hawaii, IEEE.

[7] Willcocks, L. and R. Sykes (2000). "The role of the CIO and IT function in ERP." Communications of the ACM **43**(4): 32-38.

[8] Yakovlev, I. and M. Anderson (2001). "Lessons from an ERP implementation." IT Pro: 24-29.