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Mary Sumner

Southern Illinois University Edwardsville

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Critical Success Factors in Enterprise Wide Information Management Systems Projects

Mary Sumner
Southern Illinois University Edwardsville
Campus Box 1106
Edwardsville, IL 62026
618-650-2093
Msumner@siue.edu

Abstract:

In the past several years many organizations have initiated enterprise-wide information management systems projects, using such packages as SAP, Peoplesoft, and Oracle. These projects often represent the single largest investment in an information systems project in the history of these companies, and in many cases the largest single investment in any corporate-wide project. These enterprise-wide information management systems projects bring about a host of new questions. Some of these questions and issues are:

- What is the purpose and scope of the enterprise-wide information management systems project?
- What are the project objectives and outcomes to date?
- How was the investment in the integrated system justified? What were the tangible and intangible business benefits that were considered?
- What was the role and importance of top management support?
- How were business processes affected by the software?
- What investments in training, support, and maintenance were needed to assure project success?
- Was external vendor expertise used to accomplish certain aspects of the project?
- What was the role of end-users in project management and systems development?

Background:

Some of the “success factors” associated with large-scale client-server implementation projects include securing the support of top management (Beath, 1991), improving or “re-engineering” business processes before implementing IT solutions (Hammer and Champy, 1993), and assuring close involvement between users and the IT organization .

With new technology, it is often critical to acquire external expertise, including vendor support, to facilitate successful implementation. Also, the costs of training and support are often under-estimated, and these costs may be many times greater than originally anticipated. Client-server implementations often bring “surprises” with respect to cost, because of the costs of decentralized servers, systems integration software, technical support,

and software updates and version control (Caldwell, 1996).

The lessons learned from systems development projects can also pose some challenges for large-scale integrated projects. Some of the “best practices” in project management include effective external integration strategies, such as creation of a user steering committee, user participation on the project team, and user responsibility for education and installation (Cash, McFarlan, 1992). In addition, successful projects require the use of effective internal integration strategies, such as use of outside technical expertise, selection of an experienced project manager, and selection of team members with significant previous work relationships. Other systems development practices which contribute to project success are effective project planning, effective change control, business justification, compatibility of skills with the skill set needed for project requirements, and leadership by a “champion” who markets the project internally (Beath, 1991).

Findings:

The findings describe case studies which have been accomplished as a “pilot” study for this research. These case studies will highlight the issues of project justification, benefits, critical success factors, and factors associated with project “failure.”

Monsanto:

Monsanto is one of the world’s largest chemical and life sciences companies. Since becoming chairman and chief executive in 1995, Robert Shapiro has intensified the transformation of Monsanto from a pioneering chemical company to a cutting-edge bioengineering company with a concentration on food and nutrition. The focus of Monsanto’s business is a \$2 billion drug division, a \$1.2 billion food ingredients division, and a \$3 billion maker of agricultural products. This \$6 billion group of companies is positioned to lead the biotech revolution of the future.

Project Justification:

Beginning in 1996, Monsanto started a corporate-wide SAP project. The business justification for the project was operational excellence, e.g. cutting the costs of core

transactions-processing systems, such as order processing and inventory management. In addition, an integrated package could support worldwide business operations and replace division-level systems. Before SAP, Monsanto had four purchasing packages—one for each business unit. SAP provided economies of scale in development, maintenance and operations. Its overall costs were divided by a much larger number of users. For example, buying a \$100,000 package to support 5000 users is less expensive than buying a \$25,000 package to support 100 users. In addition, the SAP project enabled Monsanto to reduce its information systems development staff from 500 to 50 people.

Some of the “business drivers” for the SAP implementation at Monsanto included: data integration, standardization, access to timely and complete information, leverage gained in purchasing, and globalization. SAP cut the costs of operational systems, improved the reliability of customer service, and assured timely delivery and follow-up.

Critical Success Factors:

Some of the “critical success factors” in the Monsanto project dealt with the management structure, the re-design of business processes, investments in re-skilling and professional development, and acquisition of external expertise.

- Management structure: Monsanto put someone “in charge” and centralized the management structure of the project in order to avoid duplication of effort.
- Re-design of business processes. Rather than attempting to modify the software, Monsanto re-engineered their business processes to be consistent with the software. This has proved to be critical to the project’s success. Many companies “go to war” with the package and try to make it meet their process requirements, only to lead the way to huge cost overruns and project failure in some cases.
- Training and re-skilling. Monsanto invested heavily in training and re-skilling their developers in SAP software design and methodology.
- External consultants. When they didn’t have needed expertise internally, Monsanto brought in the consultants they needed.
- Management support. Without question, top management support is critical to the success of a project, and the SAP project had approval by top management.
- Role of the champion. The project leader for the SAP project was clearly a “champion” for the project, and that role was critical to marketing the project throughout the organization.
- Discipline and standardization. Another “success factor” which is closely associated with the software itself is the need to adhere with the standardized specifications that the software supports.

- Effective communications. Another important CSF is to tell everyone in advance what is happening, including the scope, objectives, and activities of the project. Admit that there will be change.
- Obtain “business” analysts. One of the critical workforce requirements for the project was the ability to obtain analysts with both “business” and technology knowledge. Instead of 200 “programmers” with average skills, the SAP project demanded and could be accomplished with 20 of the “best and brightest” analysts. However, retaining these professionals was a significant problem because of their market value.

In terms of factors conducive to project failure, one of the main factors associated with failure is lack of integration. The project needs to be based on an enterprise-wide design. You can’t start with “pieces,” and then try to integrate the software component’s later on. Other problems are caused by “going to war” with the package, and trying to modify the code to conform with existing business processes. As mentioned earlier, this is a sure formula for potentially huge cost overruns and possible project failure.

In terms of “lessons learned,” Monsanto’s experience demonstrated the importance of using SAP’s built-in “best practices,” its systems development methodology, and a combination of systems analysts with both “business” sense and knowledge of information technology. Other “lessons” are: start with small, empowered teams; standardize data early on; eliminate complexity; and avoid compromising the system and its specifications. Standardization is key to success, and can create greater flexibility and changeability down the line.

Monsanto considered their project a success because of a centralized management structure, adherence to design specifications, and investments in training and support required to overcome technical and procedural challenges in design and implementation.

Anheuser Busch Companies:

Anheuser Busch Companies initiated a corporate-wide SAP project in 1996. The project is perhaps the largest IT project ever undertaken by the company. Anheuser Busch is a worldwide manufacturer of beer and related food products, headquartered in St. Louis, Missouri.

Project Justification:

The original project justification was similar to the one at Monsanto. There were extensive economies of scale associated with consolidating four MIS projects into one, and SAP offered an integrated, corporate-wide solution. The business justification entailed major cost savings from reducing the costs of operational level information systems. SAP provided hard-dollar savings, based upon

integration of data and processes, a common database, and increased leverage in purchasing and buying.

Critical Success Factors:

The critical success factors mentioned by Anheuser Busch's senior project manager for the SAP project included:

- Maintain excellent staffing, both by developing internal personnel and by using external consultants.
- Place a "business" leader in charge, so that project leadership comes from the business perspective.
- Avoid trying to modify the software; instead, re-design or re-engineer existing business processes to "fit" what the software will support.
- Obtain and maintain top management support for the project.
- Obtain and retain team members with knowledge of the business processes, as well as an understanding of the technical aspects.
- Understand the role of the "champion" in marketing the project's success throughout the organization.

Sigma Chemical:

Project Justification:

The major sources of justification for the SAP project at Sigma Chemical were the need to integrate a number of different order processing systems, the need to improve and integrate financial systems, and the ability to reduce the workforce through systems integration. The major motivation behind the project was to gain a "competitive advantage" by providing "seamless" order processing to customers in a global marketplace. This meant that any customer in the world could place orders using one integrated order processing system, as opposed to using many different systems for different product lines.

Critical Success Factors:

Some of the major "critical success factors" for the SAP Project included:

- Achieve the support of senior management for accomplishing project goals and objectives and aligning these with strategic business goals.
- Re-design business processes to be consistent with system specifications.
- Invest in training, re-skilling, and professional development of the IT workforce.
- Use a mix of consultants and internal staff to work on the project team, so that internal staff members can "grow" the necessary technical skills for SAP design and implementation.

ENTERPRISE-WIDE PROJECTS USING ORACLE:

Ralston Purina Company:

The Oracle Financials Project at Ralston Purina supported a modular approach, with the implementation of "add-on" modules in manufacturing. Since Ralston is a

divisionalized company, the Oracle projects were accomplished on a division-by-division basis.

Critical Success Factors:

Some of the CSF's for the Oracle project at Ralston included similar "messages," such as the need for strong management sponsorship, experienced technical consultants, and experienced project managers. Some new strategies included:

- Address "scope expansion" requests with information on the time, cost, and business impacts of these changes;
- Address "tough" issues squarely. Surprises hurt trust.
- Bring all "related" projects together and manage them.
- Avoid customization (e.g. don't touch the software, don't touch the Oracle tables, don't touch the Oracle interfaces).
- Don't add people to a project, if it is already behind schedule.
- Obtain consultants who are specialists in specific application modules.
- Understand and appreciate the criticality of high-tech worker turnover, recruitment, and retention issues.
- Emphasize reporting, including custom report development, the use of report generators, and user training in reporting applications.
- Emphasize effective user training.

Summary and Conclusions:

These large integrated information systems projects pose new opportunities and significant challenges. Based upon these preliminary case studies, it seems that the risk of project failure is being contained primarily through a number of strategies.

- Justify the enterprise-wide projects based upon cost-justification and economies of scale.
- Re-engineer business processes to "fit" the package, rather than trying to modify the software to "fit" the organization's current business processes.
- Identify and implement strategies to re-skill the existing IT workforce and acquire external expertise through vendors and consultants when needed.
- Utilize "business analysts," with both business knowledge and technology knowledge.
- Obtain top management support for the project and a commitment to establishing and supporting project leadership.
- Make a commitment to training end-users in custom report development.
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References Available Upon Request from Mary Sumner