

December 2006

Critical Success Factors in ERP Implementation: Five Years Later

Mary Sumner

Southern Illinois University Edwardsville

Follow this and additional works at: <http://aisel.aisnet.org/amcis2006>

Recommended Citation

Sumner, Mary, "Critical Success Factors in ERP Implementation: Five Years Later" (2006). *AMCIS 2006 Proceedings*. 305.
<http://aisel.aisnet.org/amcis2006/305>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISEL). It has been accepted for inclusion in AMCIS 2006 Proceedings by an authorized administrator of AIS Electronic Library (AISEL). For more information, please contact elibrary@aisnet.org.

Critical Success Factors in ERP Implementation: Five Years Later

Mary Sumner

Southern Illinois University Edwardsville
msumner@siue.edu

ABSTRACT

The purpose of this study is to follow-up on ERP implementation after five years. The original study of ERP implementation in five organizations was accomplished in 2000 (Sumner, 2002). The purpose of the follow-up interviews in 2005 was to identify changes in ERP planning, design, and implementation strategy as these projects evolved over time. The organizations participating in these case studies include companies implementing SAP (Anheuser Busch, Monsanto), Peoplesoft (Edward Jones, Boeing), and Oracle (Nestle Purina).

As ERP evolves within these organizations, ERP increasingly runs the business, and ERP project management is a part of managing the business. ERP implementations increasingly support common processes across business units on a global scale. Implementation of standardized, "common" processes are a strategy for cost-reduction, data integration, and cross-functional process integration. As ERP evolves, organizational initiatives evolve to facilitate enterprise-wide integration through business process managers and cross-functional teams. Project management becomes a critically important discipline, and business effectiveness outcomes are continuously monitored through regular meetings of steering committees and management reviews.

KEYWORDS

Enterprise resource planning systems, critical success factors

REVIEW OF THE LITERATURE

As in all large-scale IT projects, top management support, presence of a champion, good communication with stakeholders, and effective project management, are critical success factors in ERP projects (Bancroft, Seip and Sprengel, 1998). Factors which are unique to ERP implementation include re-engineering business processes, understanding corporate cultural change, and using business analysts on the project team (Sumner, 2002). Management support of the project team, a project team with the appropriate balance of technical/business skills, and commitment to change by all the stakeholders are all of paramount importance (Parr, Shanks, and Darke, 1999).

A number of research studies have addressed the critical success factors for successful ERP projects.

CSF 1. Business Justification for ERP. It is important to make the business case and to establish measurable benefits at the outset of an ERP project, so that these results can be assessed (Ross, Vitale, and Willcocks, 2003).

CSF 2. Vanilla ERP Implementation. Re-engineering business processes to support the best practices supported by the ERP software is linked with on-time, on-budget ERP implementation (Mabert, Soni, and Venkataramanan, 2003). Minimal customization is a key factor in successful ERP projects (Parr, Shanks, and Darke, 1999).

CSF 3. ERP Project Team has Business Experts. The project manager should report to business leadership (Brown and Vessey, 2003).

CSF 4. ERP Project Leadership. Project leadership is a very important issue, and project leaders need to have a proven track record (Brown and Vessey, 2003). One of the lessons learned in case studies of ERP projects is that a strong project leader needs to keep the project on track, even when changes require following contingency plans (Scott and Vessey, 2002).

A disciplined approach to project management which includes project scope, time, and cost management and project tracking is important (Umble, et.al., 2003).

CSF 5. *Effective Training.* User training is critical to ERP success, because people's jobs will change. User training should focus on business processes, not just technical training in how to use the software (Willcocks and Sykes, 2000). Training should enable managers to use query and reporting tools to generate needed reports (Ross, Vitale, and Willcocks, 2003).

CSF 6. *Use of External Consultants.* Effective management of external consultants is important for the success of an ERP project, because they can offer valuable expertise in analyzing cross-functional business processes and in configuring application specific modules (Brown and Vessey, 2003). Organizations should use consultants, but take advantage of opportunities to develop internal knowledge (Willcocks and Sykes, 2000).

CSF 7. *CEO Involvement.* The involvement of senior executives is a common characteristic of ERP projects that finish on-time and on-budget (Mabert, Soni, and Venkataramanan, 2003).

CSF 8. *Project Champion.* A project champion is essential (Willcocks and Sykes, 2000). Beyond this, project team members need to have the authority to make decisions on behalf of their functional area (Brown and Vessey, 2003).

CSF 9. *Reducing Resistance to Change.* In implementing ERP, companies often fail to address resistance to change, especially resistance to changes in job design. Since ERP implementation entails changes in business processes, change management is essential (Brown and Vessey, 2003). An organizational culture which fosters open communications is important to avoid resistance to change (Scott and Vessey, 2002).

CSF 10. *Steering Committee Meets on a Regular Basis.* A steering committee with executive leadership is one of the strategies used in successful ERP projects, as measured by on-time and on-budget implementation (Mabert, et. al., 2003).

ERP is typically introduced into business environments where "silos," or functional areas (e.g. Accounting, Sales, Manufacturing) exist. As ERP evolves, the "best practices" provide cross-functional processes and integrated data (Holland and Light, 2001). The following cases, which compare critical success factors in 2000 and 2005, provide insight into management and organizational changes that occur as ERP projects evolve.

CASES

The original study of ERP implementation in five organizations was accomplished in 2000 (Sumner, 2002). The purpose of the follow-up interviews in 2005 was to identify changes in ERP implementation strategy as these projects evolved over time. The organizations participating in the original sample included companies implementing SAP (Anheuser Busch, Monsanto), Peoplesoft (Edward Jones, Boeing), and Oracle (Nestle Purina). In Fall, 2005, follow-up interviews were arranged with the ERP project managers and ERP project team members to identify changes in the critical success factors which were noted in the 2000 case study process.

CASE 1: ANHEUSER BUSCH COMPANY

Background

Anheuser Busch Company was founded in 1852. The company engages in the manufacture and distribution of beer. In 2004, the company has 31,435 employees, with \$15 billion in sales. In 1996, Anheuser Busch initiated its SAP project, with an original justification of implementing a financial reporting system using integrated data. Since 1996, Anheuser Busch has implemented every SAP module, including Finance (FI), Sales and Distribution (SD), Production Planning (PP), Materials Management (MM), Plant Maintenance (PM), and Asset Management (AM). More recently, AB has implemented Human Resources (HR) and Quality Management (QM). AB has also implemented add-on's such as Business Warehouse (BW) and A-B Mall (on-line procurement). Additionally, Anheuser Busch wrote a product costing system for SAP before SAP had the activity-costing system.

In August 2005, 23,000 Anheuser Busch employees use SAP. The SAP project will be complete after the implementation of the last of SAP's 12 modules, Quality Management. Throughout the ten-year implementation process, no customization was allowed. Anheuser Busch selected SAP's best practices and re-engineered business processes to standardize the processes throughout the company. Critical success factors are: gradual implementation and adherence to the implementation plan, continuous support by the highest levels of management, including the CEO, and change management.

The benefits of SAP are: greater leveraged buying, dramatic decreases in costs, huge efficiencies, and decline in headcount. The overall quality of reports has improved (e.g. real-time reports). Easier audits (a tremendous audit trail), more accurate data, and various consolidations across the company are other benefits.

The key elements for the SAP project between 2000 and 2005 are contrasted in Table 1.

Case 1	Anheuser Busch	2000	2005
CSF 1	Business justification for ERP	ERP is justified in business terms	Same
CSF 2	Vanilla ERP	No customization was allowed	Same
CSF 3	ERP project team has business experts	Business leader is in charge, so that project leadership comes from the business perspective	Senior Directors of the company are involved in SAP implementation on a regular basis. End-user managers are actively involved and spend a good deal of their time on the project team to assure that SAP is accepted within their respective business units
CSF 4	ERP project leadership	Full-time, experienced project manager	Same
CSF 5	Effective training	In-house training capability	Same
CSF 6	Use of external ERP consultants	At the outset, consultants were 20 – 30% of the cost of implementation	Dependence on consultants was decreased over the course of the project; their involvement dropped to 10% of the cost of implementation
CSF 7	CEO involvement	Top management supported the project	Yes, the CEO sent out a very important letter committing to the success of the project
CSF 8	Existence of a champion	Champion was important in marketing the project's success throughout the organization.	Chief Financial Officer is the champion
CSF 9	Reducing resistance to change	There was a high level of resistance, and management was aware of it	Business units which had already implemented ERP helped new business units implement ERP
CSF 10	Steering committee meets on a regular basis	Yes, a steering committee was organized	Yes, a steering committee continuously reviews the cost implications of the project

Table 1: Anheuser Busch ERP: 2000 and 2005

Changes: Changes included lessened reliance upon external consultants, increasing importance of project leadership from the business units, and increasing steering committee review of the cost implications of the project.

CASE 2: MONSANTO

Background

Monsanto is in the specialty chemicals business, with a focus on seed and bio-tech. The company has 16,500 employees, and does \$6.63 billion in sales. Beginning in 1996, Monsanto started a corporate-wide SAP project to replace in-house developed legacy systems. The business justification for the project was operational excellence, e.g. cutting the costs of core

transactions-processing systems. An integrated package could support worldwide business operations and replace division-level systems. The project was comprised of three phases, including: Phase 1: 1996 – 2000: (Europe, Africa, North America); Phase 2: 1999 – 2002: (seed); and Phase 3: 2002 – present: (global business process consolidation, establishment of common processes).

Monsanto adopted the SAP system's "best practices," and the only modification affected the unique order-to-cash process, because it faces the customer. Overall benefits of ERP included: inventory turnover, on-time delivery, highly disciplined processes, real-time visibility (e.g. processes became visible across the spectrum), interconnected business processes, continuous process improvement, more reliable systems, and more accurate data. With SAP, managers have real-time data to support their decisions.

Monsanto believes that SAP provides a competitive advantage, because Monsanto is focused on one line-of-business. Other chemical companies are not as focused and therefore do not share the same benefits. The key elements for the SAP project between 2000 and 2005 are contrasted in Table 2.

Case 2	Monsanto	2000	2005
CSF 1	Business justification for ERP	SAP supported business plans	Same
CSF 2	Vanilla ERP	Re-engineered business processes to fit the SAP software. The only modification affected the unique order-to-cash process	Same
CSF 3	ERP project team has business experts	One of the critical workforce requirements for the project was the ability to obtain analysts with both business and technology knowledge	A three-some reports to the Head of Global ERP, including: <ul style="list-style-type: none"> • Local project manager • Business project manager • Business process manager from the PMO
CSF 4	ERP project leadership	Monsanto put someone "in charge" and centralized the management structure of the project in order to avoid duplication of effort	The Head of Global ERP reports to the CIO; Project responsibility is now aligned with the PMO (Project Management Office)
CSF 5	Effective training	Monsanto invested heavily in training and re-skilling their developers in SAP software design and methodology	Business project manager develops the training plan for manufacturing, finance, and other functions. Super users help with ongoing training
CSF 6	Use of external ERP consultants	When they didn't have needed expertise internally, Monsanto brought in the consultants they needed	Consultants are used for new areas (e.g. material ledger) to start with, but not over time
CSF 7	CEO involvement	The SAP project had approval by top management	Senior management support for the project is critical
CSF 8	Existence of a champion	The project leader for the SAP project was the "champion" for the project	Project leaders are champions
CSF 9	Reducing resistance to change	Effective communications is critical; it is important to tell everyone in advance what is happening, including the scope, objectives, and activities of the project	Senior management support mitigates (lessens) resistance to change
CSF 10	Steering committee meets on a regular basis	Steering committee oversees project	ERP sponsorship team assesses/approves ongoing investments, based upon IRR, net present value (e.g. business case)

Table 2: Monsanto ERP: 2000 and 2005

Changes: Changes included the formalized role of the Project Management Office in overseeing the project, creation of a three-person project leadership team including a local project manager, a business project manager, and a business process manager, and lessened reliance upon external consultants.

CASE 3: BOEING

Background

Boeing is an aerospace-defense industry company with their Integrated Defense Systems (IDS) based in St. Louis. Boeing IDS is a \$6 billion division supporting 140 applications provided by 23,000 separate software contracts costing \$250 million each year.

As background, the systems before ERP were a series of legacy non-integrated mainframe systems. The overall goal in acquiring ERP was to reduce the overall number of systems. For example, Boeing had 16 different procurement systems before acquiring several common procurement systems, including a commercial procurement system from Baan and a defense contracting system from Manugistics. This enabled them to reduce the number of procurement systems from 16 to 5.

Boeing decided upon a best of breed solution because the company did not feel that one ERP system could be used to integrate 140 different applications. They decided to use multiple ERP packages from different vendors. Since Boeing was not willing to change its processes to fit the best practices supported by a package, the company required the software vendor(s) to customize the ERP packages to meet its unique business requirements. Since government contracting entails unique processes, Boeing required its vendors to customize and to maintain specific government contracting modules to meet its needs. This strategy is driven by the different requirements and realities of each business division.

Using the best of breed approach, Boeing has acquired a variety of commercial off-the-shelf software supporting different applications, including: Procurement/Manufacturing: Manugistics (e.g. was Western Digital); Commercial Procurement: Baan; Financial: Oracle; and HR: Peoplesoft. In each case, Boeing selects large vendors, because they contract with these vendors to customize the software to meet their needs. Every time an upgrade is installed, the software must be customized again. Once a vendor is selected, the partnership can last for as long as ten years.

In terms of ongoing ERP project evolution, Boeing is using the ERP software to implement “common systems” across business units, based upon the respective business cases. The overall success strategies for ERP implementation at Boeing were: (1) ERP project leadership by end-users; (2) building capability (e.g. enhancements) into the ERP implementation; and (3) the vendor partnership. As one executive put it, “Boeing is not in the software business, so we have created a partnership with a vendor who can meet our ERP software needs and work with us to modify their package to meet our needs.”

The key elements for the ERP project between 2000 and 2005 are contrasted in Table 3.

Changes: At first, the project team worked extensively with Western Data Systems (later Manugistics) to obtain software support for requirements. Boeing partnered with Manugistics to continually modify the software to meet unique requirements. Now, Boeing is a member of the Board of Manugistics, and the relationship is a partnership. Overall, the “best practices” were adopted to the extent possible and supplemented with modifications, e.g. defense contract accounting.

As Boeing’s ERP project evolved between 1993 and 2006, the use of ERP software to implement “common systems” across business units increased in importance. As a result, customization is limited to specific “must have” processes which the vendor could not support, e.g. defense contract accounting. The other critical strategy that has enabled the success of the best of breed ERP approach over time is cost and outcome monitoring. The investments in ERP, including customization of ERP modules and building interfaces across ERP systems, are continuously reviewed by a Steering Committee to assure that these projects are achieving business results that justify the ongoing investment.

Case 3	Boeing	2000	2005
CSF 1	Business justification for ERP	ERP investment was based upon the business case	Management is committed to the value of ERP based upon the business case. The business objective is inventory reduction, which is key to lean manufacturing and supply chain management
CSF 2	Vanilla ERP	Boeing decided not to change its processes to fit the best practices supported by ERP and required its vendors to customize the ERP software to meet its unique requirements (e.g. primarily defense contract accounting)	Using ERP software to implement “common systems” across business units increases in importance. Customization is limited to specific “must have” processes, such as defense contract accounting
CSF 3	ERP project team has business experts	Full-time commitment of “customers” to project management and project activities	The project managers have extensive business knowledge in Production, Engineering, and Operations. The project managers report to senior division management
CSF 4	ERP project leadership	Established disciplined, flexible program management	ERP project leaders have extensive project management experience. A co-lead from IT handles administration and project management
CSF 5	Effective training	Re-skilled the end-users in new technologies and applications	Software vendors provide training to Super-Users within each business area, and the Super-Users become trainers within specific areas
CSF 6	Use of external ERP consultants		Some of the team members represent consulting firms. Consultants are active in requirements planning and testing
CSF 7	CEO involvement	Obtained strong top management sponsorship.	Top management drives and communicates the need for change. Management is committed to the value of ERP based upon the business case
CSF 8	Existence of a champion	Project leaders were champions	Same
CSF 9	Reducing resistance to change	Sensitivity to user resistance	The project leaders are the change agents. Management deals with user resistance through education, continual reviews, and communications. The implicit assumption is that people need to make the change, or else move on
CSF 10	Steering committee meets on a regular basis	Steering Committee reviewed the project	Steering Committee meets regularly to review the business case for the ERP projects, including the business value of the investment and ongoing measures of the impact of the project on achieving business results

Table 3: Boeing ERP: 2000 and 2005

CASE 4: EDWARD JONES

Background

Edward Jones is a financial services company serving individual long-term investors. The company has 25,000 employees and does over a billion dollars in sales. Prior to implementing ERP systems, Edward Jones had financial and HR systems which became obsolete. In 1996, ERP was introduced. Peoplesoft HR (1997) and Financial (1998) systems projects were completed in 15 months. The major justification for the Peoplesoft project at Edward Jones was data integration, a common systems approach, and hard dollar savings through integration.

Between 1996 and 2005, ERP modules supporting HR, Payroll, Benefits, Finance (General Ledger, Accts Payable), Purchasing, and Asset Management have been implemented. During the ten year timeframe, the HR module was customized because of unique information regarding broker's commissions. Overall, existing business processes were changed. The biggest benefit was that ERP enabled the company's growth from 3,000 to 10,000 branches, assured timeliness of data, and provided additional functionality.

The key elements for the ERP project between 2000 and 2005 are contrasted in Table 4.

Case 4	Edward Jones	2000	2005
CSF 1	Business justification for ERP	High-level shared vision	Same
CSF 2	Vanilla ERP	Re-engineered business processes to fit the ERP software, except for the HR module – which was customized for brokers' commissions	Same
CSF 3	ERP project team has business experts	Project management was aligned with the business owner; the financial system project manager reported to the IS Director and CFO (matrix structure)	
CSF 4	ERP project leadership	Experienced project manager had a 100% time commitment	Use experienced personnel for implementation.
CSF 5	Effective training	Recruited and retained "key" Peoplesoft people; provided external classes for users and the project team	Both user training and technical training continue to be important
CSF 6	Use of external ERP consultants	Consultants who have implemented the system elsewhere are used	Consultants with module-specific expertise are used
CSF 7	CEO involvement	Top management sponsorship and support is important	Senior management support/sponsorship is important
CSF 8	Existence of a champion	Not specifically mentioned	Same
CSF 9	Reducing resistance to change	Not specifically mentioned	Same
CSF 10	Steering committee meets on a regular basis	Put a steering committee in charge	Same

Table 4: Edward Jones ERP: 2000 and 2005

Changes: The next step in ERP implementation will be the migration from Peoplesoft applications to Oracle Fusion (e.g. since Oracle has purchased Peoplesoft). This will mean re-customizing unique processes and bringing in consultants with specialized expertise. There is some frustration and anxiety associated with having to re-invest in implementing a new ERP system.

CASE 5: NESTLE PURINA

Background

Between 1996 – 2005, Ralston Purina’s Pet Products Division implemented Oracle Financial ERP systems using a modular approach, with the implementation of “add-on” modules for manufacturing. Since Ralston Purina was a divisionalized company, the Oracle projects were accomplished on a division-by-division basis. The Oracle projects were justified in terms of data integration and cost-reduction through the re-engineering of business processes. The Oracle Financial modules were not customized; rather, business processes were re-engineered to “fit” the best practices supported by the software.

When Nestle acquired Ralston Purina, the Pet Products Division became a part of Nestle’s SAP project. Nestle is the world’s largest food company, with \$70 billion in sales (e.g. chocolates, coffee, infant formula, and condensed milk). Nestle operates in 200 nations, runs 511 factories, and employs 247,000 executives, managers, staff and production workers worldwide. In 2000, Nestle announced the GLOBE project, a worldwide SAP project designed to force its confederation of global businesses to operate as if they were a single unit. *“The point is to make Nestle the first company to operate in hundreds of countries in the same manner as if it operated in one. And that hadn’t been achieved by any company—not even the British East India Co., at the peak of its tea-trading power—in the history of global trade.”*

Nestle’s worldwide implementation of SAP is the largest-ever deployment of SAP.com, estimated at \$3 billion. The SAP decision was made by Nestle’s CEO, Peter Brabeck. Between 2001 – 2005, the cutover to SAP was made in countries outside the U.S., including Latin America, Europe, Brazil, and Italy. Nestle’s GLOBE project in the United States, initiated in January, 2006, is expected to last three years.

The key elements for the ERP project between 2000 and 2005 are contrasted in Table 5.

Case 5	Ralston Purina, now Nestle Purina	2000	2005
CSF 1	Business justification for ERP	Oracle ERP projects were justified in terms of business impacts	Nestle GLOBE project is key to Nestle’s business strategy. Goal: worldwide integration of data, centralization of financial controls
CSF 2	Vanilla ERP	Avoided customization of ERP modules	Same
CSF 3	ERP project team has business experts		SAP project team has 37 functional area managers who have been transferred from the business units for 3 years to accomplish the project. Project manager (CIO) reports to the CFO
CSF 4	ERP project leadership	Experienced project leader	Project leader has extensive ERP experience: Director of Application Development: (1995-1998); CIO, Ralston Pet Products: (1998 – 2005); Director of SAP US Project (2005 to present)
CSF 5	Effective training	Emphasized reporting, including custom report development	Training and change management are combined with each other to facilitate organizational change. Management follows a process change management philosophy
CSF 6	Use of external ERP consultants	Obtained consultants who are specialists in specific application modules	Same
CSF 7	CEO involvement	CEO support	CEO (and executive team) “calls the shots.”
CSF 8	Existence of a champion	Champion	CFO is the Champion (CIO reports to CFO); CFO

			has line business experience plus corporate culture experience (both line and staff experience)
CSF 9	Reducing resistance to change	Effective communications is a change management strategy	Emerging interest in measuring change; hired a firm to statistically measure readiness to change and the rate of change
CSF 10	Steering committee meets on a regular basis	Steering committee meets regularly	Steering Committee provides monthly updates on project progress; this will change to bi-monthly updates
Table 5: Nestle Purina ERP: 2000 and 2005			

The project leader for the U.S. implementation of the Nestle GLOBE (SAP) project conveyed lessons learned from his prior experience (1996 – 2005) implementing Oracle ERP. These lessons were: (1) Change the process, (2) Get the data right, and (3) Start early in figuring out the roles (screen level authority and transactions-based roles). Other elements of success are integrity (e.g. do what you say you are going to do), credibility (e.g. tell about problems--over-cost and over-budget), and understand the culture—in national and international environments. Believe in what you are doing.

Changes: For Nestle Purina, the major change is leaving a decade of experience implementing Oracle ERP to become a part of Nestle’s GLOBE implementation of SAP. While this may seem like “starting all over again,” the lessons learned between 1996 and 2005 are transferable to the U.S. implementation of SAP between 2006 and 2009.

FIVE YEARS' LATER: WHAT HAS CHANGED

Summarizing some of the major changes in ERP implementation between initial project start-up and five years’ later, several findings emerge from the case studies:

	2000	2005
Vanilla ERP	ERP supports common processes within business units	ERP supports common processes across business units
Organizational initiatives for enterprise-wide integration	ERP is super-imposed upon existing structures	Cross-functional business process managers and cross-departmental teams evolve to facilitate organizational change
Project management	Use experienced project managers	Project management disciplines become formalized. In some cases, the project is managed within the Project Management Office (PMO)
Use of external ERP consultants	Consultants are brought into supplement internal ERP expertise	Use of consultants is decreased
Resistance to change	Resistance to change is an issue	ERP runs the business, and resistance to change is not accepted
Measurement of business outcomes	Steering committee is formed to oversee the project	Steering Committees continuously monitor the business value of the investment in ERP
Training	Training focuses on re-skilling MIS professionals	Super-users with functional areas are responsible for on-going training of end-users

As ERP evolves within these organizations, ERP increasingly runs the business, and ERP project management is a part of managing the business. ERP implementation increasingly supports common processes across business units on a global scale. Implementation of standardized, “common” processes is a strategy for cost-reduction, data integration, and cross-functional process integration.

As ERP evolves, organizational initiatives evolve to assure enterprise-wide integration through business process managers and cross-functional teams. As an example, Monsanto’s ERP project teams have business process managers. Project management becomes a critically important discipline, and project management strategies become formalized. Additionally,

business effectiveness outcomes are continuously measured and monitored, through regular meetings of steering committees and management reviews.

Finally, ERP implementation involves the challenge of supplier management. In some cases, supplier partnerships evolve into critical partnerships. In Boeing's case, for example, the company entrusted all customizations needed to support unique business processes to the supplier. In other cases, supplier relationships are disrupted when suppliers merge. For example, when Oracle bought Peoplesoft, Edward Jones needed to move to Oracle Fusion. Business changes also impact supplier relationships. When Nestle purchased Ralston Purina, Nestle Purina became a part of the largest SAP implementation in history—after a decade of successful Oracle ERP implementations.

If any lesson is to be learned, it is that strategy drives structure (Chandler, 1962). ERP is a business strategy to integrate cross-functional processes and data. In 2005, a number of structures, including cross-functional process teams, the role of the business process manager, formal budgetary review processes, and disciplined project management methods, have been implemented to facilitate the success of ERP.

REFERENCES

1. Bancroft, N., Seip, H. and Sprengel, A. (1998). *Implementing SAP R/3*, 2nd ed., Manning Publications, Greenwich, Ct.
2. Barki, H., Rivard, S., and Talbot, J. (1993) Toward an assessment of software development risk, *Journal of Management Information Systems*, 10, 2, 203-225.
3. Bingi, P, Sharma, M.K, and Goodla, J.K. (1999) Critical issues affecting an ERP implementation, *Information Systems Management*, 16, 3, 7-14.
4. Brown, C. and Vessey, I. (2003) Managing the next wave of enterprise systems: Leveraging lessons from ERP. *MIS Quarterly Executive*, 2, 1, 65-77.
5. Chandler, Jr., A. D., (1962) *Strategy and Structure*, Cambridge University Press, Cambridge.
6. Holland, C. and Light, B. (2001) A stage maturity model for enterprise resource planning systems use. *Database*, 32, 2, 253-266.
7. Keil, M. and Montealegre, R. (2000) Cutting your losses: Extricating your organization when a big project goes awry, *Sloan Management Review*, 41, 3, 55-68.
8. Mabert, V. A., Soni, A., and Venkataramanan, M.A. (2001) Enterprise resource planning: Measuring value, *Production and Inventory Management Journal*, 42, 3-4, 46–51.
9. Mabert, V.A., Soni, A., and Venkataramanan, M.A. (2003) Enterprise resource planning: Managing the implementation process, *European Journal of Operations Research*, 146, 2, 302–314.
10. Motwani, J., Mirchandani, D., Madan, M., and Gunasekaran, A. (2002) Successful implementation of ERP projects, Evidence from two case studies, *International Journal of Production Economics*, 75, 1-2, 83-94.
11. Parr, A.N.; Shanks, G.; and Darke, P. (1999) Identification of necessary factors for successful implementation of ERP systems, in Ojelanki Ngwerryama, Lucas Intron, Michael Myers, and Janice DeGross (Eds.) *New Information Technologies in Organizational Processes*, Boston, MA: Kluwer Academic Publishers, 99-119.
12. Ross, J., Vitale, M. and Willcocks, L. (2003) The continuing ERP revolution: Sustainable lessons, new modes of delivery, in *Second-Wave Enterprise Resource Planning Systems*. Graeme Shanks, Peter Seddon, and Leslie Willcocks (Eds.) Cambridge University Press, Cambridge.
13. Scott, J. and Vessey, I. (2002) Managing risks in enterprise systems implementations, *Communications of the ACM*, 45, 4, 74-81.
14. Sumner, M. (2002) Risk factors in managing enterprise-wide/ERP projects, *Journal of Information Technology*, 15, 4, 317-327.
15. Umble, E.J., Haft, R., Umble, M.M. (2003). ERP: Implementation procedures and critical success factors. *European Journal of Operational Research*, 146, 241-257.
16. Willcocks, L. P. and Sykes, R. (2000) The role of the CIO and the IT function in ERP, *Communications of the ACM*, 43, 4, 22-28.