

Enterprise Systems: A Report from the Field

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A growing number of companies are replacing unique, customized, inflexible, and expensive home-grown information technology systems with more tailorable, integrated, and global enterprise software packages (sometimes known as enterprise resource planning or ERP systems). In some industries, notably the oil and chemicals sectors, these systems are now so pervasive that a company without one raises eyebrows. The widespread acceptance of German-based SAP, first in Europe and later in the United States, opened a wider market for traditional software suppliers such as SSA (BPCS) and J.D. Edwards, as well as newer entrants such as BAAN, Oracle, and PeopleSoft.

Broadly speaking, these systems bring together a suite of flexible, integrated software applications that can meet the core needs of a company's information processing requirements, typically including financial, sales and distribution, manufacturing and logistics, and human resources. Because enterprise systems are maintained and supported by a third party, they are particularly attractive to companies that find themselves saddled with systems that are unique, costly to maintain, and outdated.

Properly designed and implemented, enterprise systems can help support effective business practices, enhance flexibility, and contain costs. For all their advantages, however, these systems are expensive to buy, implement, and operate, especially if new computing technology is required. Budgets in the tens and even hundreds of millions of dollars are not uncommon. The multiyear projects required to install ERP systems frequently prove disruptive to large segments of an organization. Furthermore, these systems require specialized skills that must often be purchased along with the software itself. And, in a not insignificant number of cases, they can fail to deliver hoped-for benefits.

In an effort to widen our own experience in helping clients select, plan, implement, and manage these systems, and to document best practices in this area, Arthur D. Little recently sponsored a Best of the Best Colloquium on Enterprise Systems Implementation. Executives from a diverse range of companies – all engaged in building major parts of their technology futures around enterprise systems – came together in September 1996 in Keswick Hall, Virginia, to share experiences and insights, facilitated by consultants actively engaged in this arena.

The executives' discussions focused on six areas they identified as critical to the success or failure of enterprise systems: justification and return on investment, program design and implementation, approaches to reengineering, organization and project management, change management, and training and ongoing user support. The group's observations and advice on these areas are summarized below.

Justification and Return on Investment

Enterprise systems must be thoroughly justified to all stakeholders, and management must manage expectations appropriately across the organization.

Explore potential benefits fully. Companies typically cite a multitude of benefits they achieve – or expect to achieve – by implementing these systems. Colloquium participants mentioned more than a dozen factors that contribute to improved effectiveness and efficiency of businesses overall, as well as within the IT function (Exhibit 1). Understanding the implications of each of these potential benefits is vital to successful implementation. It is also essential for enterprise system implementation to be seen as a business initiative, not solely as an information technology project.

Develop a clear business case. The system must be positioned as a tool and enabler to achieve specific benefits. Those desired outcomes, in turn, should be articulated in a business case. The best cases are those that:

- Communicate financial and nonfinancial benefits.
- Document current costs of underlying business processes.
- Set broad expectations.
- Acknowledge that some people in the organization may suffer as a result of the initiative.
- Clearly define success and how it will be measured.

„You have to assign clear responsibility for achieving each element in the business case, and monitor the results at each implementation stage,“ noted Ken J. Eggers, Manager, Information Systems at CONDEA Vista Company.

Exhibit 1

Key Benefits of Enterprise Systems

Effectiveness... of the business	of IT
Improved customer service	Flexibility of systems
Faster cycle time to market	Responsiveness to change
Improved access to integrated information for more effective decisions (e.g., costs, profitability)	Strategic posturing of IT for the future
Commonality of global information	Solution to Year 2000 problems
Support for post-merger integration	
Responsiveness to regulatory changes	
Catalyst/enabler of (cross-functional) organizational renewal/transformation	
Added business functionality	
Efficiency... of the business	of IT
Reduced costs of business operations	Lower maintenance costs
Reduced inventories	Lower operating costs
Standardization of business processes across units, across functions	
Reduced cost of business information management (e.g., clerical cost for transaction inputs, cost of data reconciliation)	

„Even on smaller projects,“ he continued, „our practice is to write up a description, including a specific return on technology investment, just as if it were a capital project at a plant. We lay out all the costs and then provide a return estimate.“

Manage the benefits realization. Getting an enterprise system up and running is only the beginning. To ensure that the system will meet the organization’s business objectives, management must establish key metrics and assign specific responsibility for achieving the benefits.

One company’s metric may be achieving better quality (i.e., less scrap, fewer returns, lower warranty costs). Others may set faster product development times, improved customer satisfaction, more accurate order fulfillment, or faster delivery times as benefit goals.

A second important step is to assign individual responsibility for achieving the benefits. At Chevron Services Company, for example, each support team has a person assigned to ensuring that the project achieves its business goals, and every team uses metrics to monitor progress. According to Robert H. Ford, Manager, Customer Support and Configuration, this approach has helped „build acceptance and credibility among operating company managers.“

Program Design and Implementation

In exploring the design and implementation of an enterprise system, colloquium participants looked at several key considerations.

Understand the impact of enterprise systems on IT. Companies should anticipate the need to enhance underlying IT capabilities. They must understand the impact of these systems on the technology roadmap early in the process. IT infrastructure improvements (i.e., networks, servers, data management, skills enhancement) are frequently on the critical path to implementation.

Weigh big bang vs. incremental approaches.

How should a company decide on the right implementation strategy and process? Should it go „big bang“ (all modules at once) or multiple releases? And should it implement all its sites at once, or each separately?

In weighing the virtues of a big bang vs. an incremental approach, „a lot has to do with the culture and politics of the organization,“ offered one executive, adding, „In some companies, you need lots of small successes to build up your case.“

A clear advantage of the big bang, we have found, is that it reduces the need for intermediate interfaces. „At Chevron,“ said Robert Ford, „a big bang implementation has eliminated all the throw-away interfaces. You totally eliminate that as an issue. That’s obviously a trade-off. We’re happy we made it.“

Pay attention to buy-in among key stakeholders.

„Buy-in at the senior level is critical,“ according to Douglas G. Petersen, Director, Operating Systems at Allegiance Healthcare Corporation (formerly Baxter International, Inc.). „You need to know what their expectations are, because we typically have several different reasons at varying levels of the organization for implementing enterprise systems.“

In addition, there may well be situations in which individual users actually lose functionality and performance in the transition to an enterprise system. Ongoing buy-in efforts acknowledge these possibilities, not just at the outset but throughout implementation.

Manage „scope creep.“ Controlling modifications or customization is another critical success factor. Colloquium participants agreed on the following best practices in dealing with what is often referred to as „scope creep.“

- Maintain and adhere to a tight schedule.
- Seamlessly integrate third-party applications.
- Limit software modifications to those that are critical.
- Consider building a limited set of standardized external interfaces to minimize the impact of any subsequent changes.

„It seems to me,“ noted Anthony F. Stepanski, President and Chief Executive Officer of Origin Technology/North America, „that you either accept and recognize the value of the enterprise system, and commit yourself to it, or you probably shouldn’t undertake implementation in the first place.“

Seamus Brennan, Assistant Worldwide Controller at Analog Devices, Inc., concurred, adding: „Avoiding scope creep is also a key success factor for achieving fast implementation. Further, it has been our experience that you need a full-time implementation team to accomplish both goals.“

Don’t overlook data quality issues. Achieving consistent information across the business, highly reliable data management, and commonality of coding structures – these concerns always arise during implementation. Data quality issues can consume up to 40 percent of an installation budget.

Putting in an enterprise system by itself won’t improve the quality of data. It is important to emphasize the absolute requirement for timely and accurate input of data (given a real-time integrated system). In this respect, user training and reinforcement are critical.

„A big part of our effort in the first year of the project came down to nothing but defining and reconciling our common coding theme,“ reported Joanna L. Morgan, Director, Corporate Information Services at Cooper Industries, Inc. „Insofar as achieving consistency, we have found that continually driving the educational process on coding is very important. We also try, whenever possible, to give people with responsibility for data entry some direct benefit from the system, for example, by producing reports centrally that were previously decentralized.“

Approaches to Reengineering

Should process redesign occur before, during, or after the implementation of an enterprise system? Should a company start with a clean sheet, or let the package guide them? And should they look to achieve world-class processes or meet industry standards?

Develop an overall reengineering philosophy.

Some companies consider implementing an enterprise system after they have completed significant reengineering activity, only to discover that they must redo much previous work. Enterprise packages are tailor-able, to be sure, but only within limits.

A sounder approach, in our view, is to develop a philosophy at the outset of the project about the level of reengineering and package changes needed, and then to communicate that philosophy to the project team.

Reengineer processes concurrently with implementation, up to a point. To start, establish overall requirements that are fully aligned with your business strategy (e.g., reduce the cost of doing business, enhance customer service, enable global management). As a next step, define critical systems capabilities to directly support those needs. Then set some stakes in the ground. For example, „We will make no custom modifications to the package.“ Or „Our scope will include and exclude the following....“

At that stage, you should be in a good position to evaluate and select an enterprise system based on critical requirements. Then you can reengineer detailed business processes while you configure the system. Consider deferring major reengineering changes until a later phase of the project if that permits more rapid deployment and makes business sense.

Organization and Project Management

Building effective capabilities in support of successful systems implementation is a matter of ensuring that all key roles and responsibilities are assigned and understood.

Select the right kind of core team leader. Core team leadership is a full-time assignment. Team leaders should know the business well and have cross-functional experience; they should also be politically savvy and good communicators. Most important, colloquium executives agreed, team leaders should come from staff working outside the Information Services area.

„You want the team leader to be someone who comes from the business and has broad-based credibility throughout the organization,“ according to one participant. „It shouldn't be a person widely identified with technology or just one side of the organization.“

Attract the best and brightest team members.

A group of colloquium participants developed a profile for team members that included the following „must have“ credentials:

- Cross-functional business knowledge
- Open-minded, out-of-the-box thinking
- Recognition for functional expertise, with resulting credibility and influence
- Knowledge of benchmarking
- Flexibility (a team player)

„Frequently, you know that you have found the best and brightest because you can't get them released to the project team full-time,“ concluded Seamus Brennan of Analog Devices.

„A lot of good people don't like to be pulled out of their jobs to serve on a team like this,“ observed another executive. The challenge, he said, is to convey not only how important the team's work is to the company, but the invaluable career-enhancement benefits that accrue to each member as a result of his or her involvement.

„Some 70 percent of the implementation teams we encounter,“ said Michael Di Pietro, Vice President, Client Research and Industry Analysis at Advanced Manufacturing Research, Inc., „appear to proceed on the assumption that they can just as easily bring in payroll people for this portion of the project, maintenance staff for that assignment, and order-management personnel for a third component. Instead, representatives from all functions have to be involved on a consistent, full-time basis.“

„Part-time people don't work for a number of reasons,“ concurred Seamus Brennan. „First of all, their old job doesn't go away. Further, if they're part-time, you also can't co-locate them. We felt very strongly that the team had to be together. We would never do a project like this on e-mail or by faxes. It just can't be done.“

„Our central project team numbered about 100 people at one point,“ added Robert Ford of Chevron. „We seeded each of our operating company implementation teams with experienced people from the core team. We learned a lot of lessons going forward. It took about a year and a half to implement our first company. We can now do one in just eight to nine months.“

Focus on how to keep the core team together.

If attracting the best and brightest people in the organization to the team is important to successful implementation, so is keeping them.

„Many of these folks are difficult to extract from an organization,“ said one executive. „Then, when you do, they want and need to know what will happen to them when the project is over. That’s only natural. My response is that the best always find another place. We just can’t be specific about other opportunities early on in a project. But we know there will be other assignments.“

Participants explored a number of best practices around retention, including developing succession plans to manage the transition, conducting regular performance reviews, and providing incentives linked to specific objectives. In addition, one firm backfilled team members with temporary employees drawn from recent retirees. To deal with potential restlessness and seed the company with more change leaders, consider rotating members back into the organization.

Put in place an advisory team. More than half of the participating companies at the Best of the Best Colloquium organized advisory teams to support their core teams.

„Early on in the project,“ noted Ken Eggers of CONDEA Vista, „we used advisory teams on the finance and maintenance groups to get together and make sure they were on board with the business design.“

„Advisory teams are great for helping resolve issues and agreeing on solutions across sites,“ interjected another executive.

Change Management

„We have to keep in mind,“ observed **Dr.** Lawrence W Loh, Chief Information Officer of Analog Devices, Inc., speaking for many of the participants, „that enterprise systems are all about the enterprise, not about systems.“

„I think many of us are realizing that we will get this system running well in the lab, so to speak, but we have thousands of users who have to be trained on it,“ added Doug Petersen of Allegiance Healthcare. „We feel that’s where the danger is going to come in. That the data within the system will fall apart if we don’t address some of the underlying change management issues and do a good job on training.“

Choose a senior-level champion. Atop management champion can play a critical role in effective change management and implementation of an enterprise system. However, a number of participants agreed that the chief executive officer isn’t always the best choice. The higher up the organization you go, the more risk you run that the champion’s involvement will be delegated. An executive that delegates this role won’t be seen as a champion.

„We had enormous support from our chief financial officer, who took personal responsibility to make sure that enterprise systems implementation was a key mission statement for the whole organization. He supported us at every turn,“ reported Seamus Brennan.

Continuously „sell“ senior management. The support of a champion doesn’t replace the need to „sell“ other members of top management on the benefits of the system. „Do it early and often, using multiple approaches,“ recommended one participant.

All senior managers in the organization should be able not only to support the enterprise system project, but to pass what one executive dubbed „the elevator test.“ In the time it would take to reach the 10th floor, every manager should be able to clearly explain to any employee who asks, as they enter the elevator on the ground floor, „Why are we doing this?“ The explanation provided must be reasonably consistent across the company.

Maintain momentum and enthusiasm throughout the organization. Ongoing communications are essential to ensure and maintain broad-based buy-in through every implementation phase. Several executives at the colloquium attributed at least part of their companies’ success in this area to two things. First, in all their communications about the project, they made a practice of tying central messages and specific department objectives and needs back to the overall company.“ Second, they regularly adjusted their mix of efforts to include everything from conducting workshops, publishing newsletters, and holding focus groups, to organizing lunchtime discussions and traveling road shows, each designed to suit different stages across the implementation life cycle.

„It’s important to ensure early broad-based employee buy-in,“ offered Robert Ford, „and then to keep on communicating.“

„Continuous communications is vital,“ added Analog Devices’ Dr. Loh. „You have to explicitly, candidly, and constantly communicate the business case and realities, including goals, timetable, and expectations.“

Training and Ongoing User Support

Training and ongoing user support are important continuing concerns, according to colloquium participants. „I would say that one of our biggest issues right now, with almost 6,000 users, is how to support them,“ Chevron’s Robert Ford offered. „We are struggling with things like: How big a support group do we really need? How proactive should it be?“

Provide upfront and ongoing user support.

Plan for support prior to system turn-on. That is the most opportune time to decide what support levels and structure will be provided, to weigh centralized vs. distributed approaches, to discuss problems, and to make decisions about staffing. For example, a best practice is to break out an ongoing user support group from the implementation team as soon as the first module is in production.

Require training and competency testing. „Our experience has been that training really cannot be delegated to the training department, because the expertise in many cases is now embedded in the operations,“ noted Seamus Brennan of Analog Devices.

One company reported using outside professional trainers to help its team develop the necessary materials and train in-house staff, who then continued to train larger numbers of users. Another team worked with its Human Resources department to make sure that the enterprise systems training was integrated with other company programs. The department also handled the scheduling and logistics for these activities, leaving the team to do the actual training.

„Our employees now have to pass a test before they receive a user ID and get on the system,“ said Ken Eggers of CONDEA Vista. „We didn’t do that initially. But we found that training on its own was not enough.“

Conclusion

Companies that excel at enterprise system implementation have a number of characteristics in common. They are armed with clear strategies, a commitment to balance the interests of key stakeholders, and the ability to identify specific leverage points to accomplish change. They see technology as an enabler, not a panacea. And they recognize that achieving sustained change starts with visionary and committed leaders, who ultimately speak to the hearts and minds of their employees. Properly developed, implemented, and supported, enterprise systems offer such organizations a more seamless, flexible, and cost-efficient path to help make the future they envision a reality.

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