ERP BUY VERSUS BUILD

With a host of mature Enterprise Resource Planning (ERP) products available to companies looking to implement solutions, industry watchers question the sanity of IT shops attempting to build their own ERP system from scratch.

The concept of ERP has been around for a long time, since the days of the mainframe back in the 1970s/early 1980s, in fact, and through the client/server years, thereafter. Today, organizations understand the business drivers for ERP which are to achieve improved cost effectiveness by implementing a single, integrated enterprise system that addresses core business functions such as human resources, accounting/finances, manufacturing and logistics. That single system not only addresses the core business functions but serves the individual needs of multiple departments. While the premise of ERP is a noble one, the reality of ERP has been less than noble, with tales of product implementations taking years or projects being abandoned, and costs escalating far beyond expectations.

At the same time, there is an upside of ERP - that businesses can not only realize investment benefits, but, more importantly, see improvements in internal processes. And, ERP is no longer just for large enterprises. ERP vendors are tailoring their solutions and aiming their marketing at the small-to-medium enterprise (SME) market, as well. There's also less of an emphasis on three to five year projects and more of an interest in rapid implementations that take closer to 12 months, and allow companies to realize benefits more quickly.

That said, given the maturity of the ERP marketplace, why would an organization attempt to build its own ERP system? In this report, we'll look at the buy versus build argument, as well as the notion of ERP customization. Several case studies will highlight how corporate decision-makers arrive at their ERP rollout decisions.

HOLDING ON
The rational for developing in-house business systems is that IT can hand-tailor and customize its automated systems to fit a particular business mold. Not only is the in-house developed system designed to meet that company's unique business needs and processes but IT developers will also contend that it provides the business with a greater competitive advantage than would an out-of-the-box solution.

While this argument may hold water for a minute number of companies that require some kind of unique functionality, the bigger question a company has to ask itself is whether they really compete based on the ERP system they use and what is the cost/risk factor they assume in building their own ERP system versus what they gain in competitive advantage? Also, a key consideration in the build-your-own software premise is the strength and stability of the IT department. The notion of a strong IT department that remains within the four walls of the organization and can be relied on to nurture the care and feeding of internal systems is thinning. In fact, although less so now than in the recent pass, IT talent shortages have not been conducive to stable IT departments. For those companies rolling their own software and entrusting the knowledge of those systems in existing staff may be putting themselves at risk in that the very people they rely on may up and leave, taking the unique application development knowledge with them.

Another aspect of the build-your-own software approach that flies in the face of current IT trends is the time, or roll-out, factor. According to industry analysts, the trend in ERP implementations is to do them in less time rather than more—down from multiple years to 12 months, or less. The more time a company spends on development the less time, and fewer benefits, it derives from new application productivity—and the bottom line to implementing any new IT tool is to quickly realize productivity gains. This trend towards implementing technology for the business advantages it affords can be seen in CIO’s becoming more business-focused rather than IT-focused.

Finally, given the fact that, today, much of a
company’s business happens outside of its own four walls, a home-grown ERP solution might not be able to meet the needs of today’s business requirements which involve reaching out to, and integrating with, business partners. That means accommodating the protocols for the exchange of information, or the technical glue such as communication standards, web standards, etc.

GETTING ANSWERS
In addition to the two important factors we raised earlier - the stability of the IT department, and application development time versus the realization of productivity benefits - there are other concerns that companies may have when it comes to buying a prepackaged ERP solution versus doing in-house development work:

♦ Will I have to change the way I do business to accommodate the vendor’s software?
♦ Will the software be able to grow and change as my business evolves?
♦ How can my company find product differentiation, and competitive advantage, with an off-the-shelf solution?

According to vendors, many companies are concerned about having to change their business processes in order to accommodate new business software. However, much of the exercise in installing new software is to adopt new business processes that are designed to make the business run better. The notion isn’t that a company has to tailor the way it’s been doing business to utilize the new software rather that it re-examine the processes that have been in place and bring those processes up to date with best practices. Industry watchers are quick to point out that vendors have spent years streamlining their implementations, accumulating expertise, and honing their methodologies.

Additionally, vendors have been working in multiple environments for years and have seen which practices work and which don’t work. SAP, for example, has mapped out standard methodologies for companies in different industries based on years of experience working with multiple companies in various vertical industries. Industry observers note that the biggest challenge of ERP isn’t installation but the exercise to update business processes and tap into the efficiencies of ERP.

Developing ERP solutions that address scalability and flexibility are critical in order to address the needs of expanding enterprises. Whether a company is expanding in terms of the number of users, breadth of shipments or volumes, or because of a merger or acquisition, an ERP system must be able to accommodate the company’s needs today and in the future. Vendors will argue that the ERP solutions they design can do just that, more so than can an in-house developed solution. In fact, many ERP vendors develop their systems so that they can integrate with third-party software, custom-designed software and legacy systems.

RESOURCE REQUIREMENTS
Based on all these arguments, it is easy to see weaknesses in the case for building-your-own ERP. Then comes the issue of costs. Industry analysts contend that the cost and time factors involved with an in-house project are generally prohibitive. Even with a large development staff, it would take years and tens or hundreds of millions of dollars to build from the ground up, followed by constant and substantial software maintenance.

Conversely, the cost of an off-the-shelf solution including the price of software, or licensing fee times the number of users, plus implementation costs which traditionally run multiple times the cost of software. Software license fees run about $1,500-$3,000 per user. For 100 users software license costs can run about $250,000 while the software costs for ten thousand users would run into the millions of dollars. The software license costs usually represent the smaller piece of the project, and are not a barrier to entry. The external expertise, or implementation costs, usually run between one and five times the software costs, depending upon project complexity and how much help is needed. In addition to these costs, companies can expect to incur internal costs, such as dedicating employees to the project, training, hardware and networking, for example.

There tends to be misunderstandings in the industry as to how much ERP costs in terms of time and money versus the sheer magnitude of what a company is trying to do—which is, often, a substantial change in business processes. That said, a company changing business processes across the entire organization will be hard-
pressed to do a rapid implementation. How long an ERP project takes is related to the size of the company, the complexity of the business, and the sense of urgency to complete the project.

The best approach taken for ERP implementations is to strike a balance between time/investment and the value associated with being able to take advantage of the new system. The faster the implementation, the greater disruptions to the business and the greater risks. Industry observers contend that companies $250 million and smaller often try to do ERP implementations in 9-12 months. Multinational, multibillion dollar businesses, with multiple channels take two to three years, and it is quite common to confront even longer time schedules.

In the realm of ERP, ROI is elusive. In fact, it is recommended that organizations look at ERP as an infrastructure investment, rather than a capital purchase. The truth of the matter is that many companies do an ROI analysis up front because they're asked to, however, only a small percentage of companies do any kind of ROI measurement afterwards. Given the scope and the number of touch points for ERP, it is difficult to go back and calculate benefit. Revenue increases, profit improvements, lower inventory, for example, can be impacted by so many factors, i.e. management decisions, market conditions, or ERP.

**USER EXPERIENCE**

**Cybex International.** Cybex, a $100 million designer and manufacturer of cardiovascular and strength training fitness equipment, is a company built by acquisition. Today, the organization has approximately 450 employees, worldwide. Originally founded as Trotter Inc., a manufacturer of treadmills and strength equipment in 1973, the company went on to purchase Cybex, a fitness equipment manufacturer, in 1997, and Tectrix, an exercise equipment maker, in 1998. Before not too long, the company operated in three separate facilities using three different IT systems. That’s when company decision-makers knew that it was time to invest an ERP system that would serve all business entities.

As a company accustomed to designing and building products, the first impulse of the organization was to consider building its own ERP system. That discussion, however, was over in half-an-hour. Management understood that that it lacked the time, resources and talent to build such a solution. At this time, in 1998, Cybex had three people in its IT department. The more sensible option, it was decided, was to buy a pre-packaged solution that would fit a client/server environment. With the help of Arthur Andersen, Cybex set out to define its ERP requirements. It was recommended that the company shop for a single package with functionality that handled several core business processes, i.e. finances, order management, and manufacturing; and, most importantly, include a configurator to build a bill of materials on the fly. This last requirement was needed to bring greater manufacturing efficiencies.

A project team whittled down a list of 12 vendors to two, who could be matched with a CRM vendor, as well. Vantive and PeopleSoft were selected. PeopleSoft, in particular, was selected as the ERP vendor because it had the best selection of capabilities and was the best in terms of being user friendly--for order management and on the front-office side, according to Brian Lyman, manager of business systems. With the help of its systems integration partner, Cybex wrote the specifications for the CRM and ERP solution, and PeopleSoft built it.

The timeframe for the ERP project was early 1998. The software was acquired in April 1998 and implementation began soon thereafter. The rollout was done in phases by modules. In January 1999, the company went live with purchasing and payables; in March 1999, it went live with order management in its Massachusetts-based manufacturing facility, and in July 1999, completed implementation at its Minnesota manufacturing facility. At this point, the whole company was on ERP financials and supply chain modules. At the end of December 1999, the company went live with PeopleSoft’s e-Store, which links the company’s web site to the back-end systems. This enables customers, either the public or its dealers, to place an order directly into the system, select their payment terms and track their orders.

Lyman admitted that the ERP implementation was a struggle, particularly in that it dealt with change management issues. Additionally, there was a steep learning curve for the company’s IT department who had no experience with client/server technology, coming from a mainframe/terminal-based IT environment.
During the ERP implementation process, Cybex tried to keep the solution as vanilla, as possible. However, some customization was required. Like in many businesses, the company made minor customization to the software for order management and reports. A more major customization effort was required on the product configurator—to enable it to provide data on a daily basis rather than at longer intervals, such as 30-60-90 days. The daily availability of data would allow the company to make more rapid changes in its manufacturing process if it was necessary.

Cybex had concerns about buying a prepackaged ERP solution, such as having to change the way the company did business to match the software. ‘In some areas we had to change our processes to match the software because it would have required too great a change to the software to match our processes,’ said Lyman. He noted that it took diligence to buy into the new processes, to keep focus while stubbing their toes, however, the change was, ultimately, better for the company.

Cybex isn’t concerned about using the same ERP solution that thousands of other companies use because company differentiation is based on how the product is used and the fundamental strengths of the company, which is product design.

Cybex paid under $10 million dollars for its ERP/CRM solution, including software licensing, hardware, and implementation with Arthur Andersen. ‘We couldn’t even touch that if we chose to do it internally,’ said Lyman.

The customization work that Cybex did to the software is an on-going added expense that surfaces every time the company does an upgrade. However, Lyman noted that it’s part of on-going product support which is now done internally. The IT department now consists of 10 people. ‘We have to own the management of the software because we can’t rely on people not to be available when we need something done,’ he said.

The next planned implementation for Cybex will be version 8, which includes sales and support, self-service, e-CRM types of features. ‘Our distribution channel is critical. This upgrade will give them the information they need, when they need it,’ said Lyman.

Empirix Inc. A spinoff of Teradyne Inc., one-year old Empirix is a $70 million company with 350 employees, worldwide. Empirix provides enterprises, e-businesses and equipment developers with performance testing and monitoring solutions for web, voice and network applications. Faced with the task of getting the company’s core IT applications up and running in a short time-frame—less than three months—Empirix had to scramble for a solution without the benefit of having its own central IT infrastructure in place. After some top-level evaluation, the start-up opted to deploy the Oracle E-business Suite as a hosted service by Oracle.com. According to Brenda Boyle, senior project manager, the ERP solution got them up and running with two key core applications—financials and human resources.

Given the tight schedule, Empirix needed to have its applications go live on January 1, 2001, company decision-makers didn’t even consider building their own enterprise applications. There were other factors taken into consideration, as well. The solution had to be affordable; the company had a 12-week lead-time with no internal resources to manage the applications; the company needed help with application implementation and to run the applications.

The first thing Empirix decision-makers did was look in-house at the systems Teradyne had in place. The parent company was an Oracle shop. The startup also was concerned about finding a tool that would scale as the company grew and had a company behind it that would be there, as well. At that point, the decision was made to bring in Oracle and Oracle Consulting. The vendor recommended the Oracle E-Business Suite delivered as a hosted solution by Oracle.com. It said it could deliver the application in a few weeks.

Empirix decided it wanted to go with a vanilla out-of-the-box implementation. Customization was a no-no because it took too much time to justify and build it, and Boyle didn’t think that the company had any business processes that couldn’t be meet with the out-of-the-box solution. ‘I’ve seen what customization entails. Every time there’s a need for customization a consultant or third-party person has to be brought in to write, implement and test the software. Then there’s usually rebuilding and retesting, etc.,’ said Boyle, noting that there are always delays and more delays. That was something Empirix could not afford.

The company was so adamant about not allowing
customization that if someone requested customization, they were told to abandon or change their processes, or submit a business case that included a cost and schedule impact analysis to be reviewed by Boyle and the CEO. There weren’t any takers.

The project began in October 2000 and Empirix met its target date and was running on all applications targeted for Phase I on January 1, 2001. The applications included General Ledger, Accounts Payable, Accounts Receivable, Order Management, Cash Management, Purchasing, Inventory, Human Resource Management System, and Advanced Benefits. The company was able to operate as an independent entity from Teradyne. That means it could hire employees, order materials, book, ship and invoice orders, pay suppliers, and create financial statements.

Boyle reported that it cost $50,000 in startup costs to go with Oracle—that included getting the applications hosted and maintenance fees. She estimated that just to hire a database administrator, buy the necessary hardware and set up instances would have cost the company $250,000. Hosting the ERP solution provided an up-front savings of $200,000. On a recurring basis, Boyle also estimated that it would cost Empirix $125,000-$150,000 per year plus overhead to hire a good DBA, alone.

Since the system went live the company made other additions to it in 2001, including a Bills of Material, Work in Progress, and Engineer Change Orders. It also set up alerts, i.e. for email, and discover tools for reporting. Empirix has also renewed its contract with Oracle.com and believes a hosted ERP decision was absolutely the right decision and has no plans to bring the application in-house.

THE COST OF DOING BUSINESS
The bottom line to any ERP project is that system implementation, for many companies, is simply the cost of doing business. Functionally, companies, particularly larger ones, $100 million plus, but even smaller concerns, need ERP to compete. The inefficiencies of relying on manual systems, or separate systems with non-integrated applications—accounting, customer orders, inventory control, product shipping—would be overwhelming. Building an ERP system is not an option given the scope of such an endeavor, and the alternative, which is to purchase pre-packaged solutions from vendors well-worn in the product space, who have amassed years of expertise and best practices. Customization is an option for those companies who believe their processes require it, and industry observers estimate that two-thirds to three-quarters of implementations are customized. However, the trend in the industry is toward less customization and more configuration. The benefits of configuration is that it can be done much faster than customization and is already vendor tested. All that’s left is for the user organization to see if the configuration satisfies its needs.

Not only is it recommended that companies do less customization but it’s also recommended that they do less integration. While integration can be powerful it is important for companies to decide where to integrate. Like customization, integration adds time, cost and complexity to ERP roll-outs.