executive guides

# enterprise resource planning

## overview

**What is ERP?**

Enterprise Resource Planning software, or ERP, doesn't live up to its acronym. Forget about planning—it doesn't do that—and forget about resource, a throwaway term. But remember the enterprise part. This is ERP's true ambition. It attempts to integrate all departments and functions across a company onto a single computer system that can serve all those different departments' particular needs.

That is a tall order, building a single software program that serves the needs of people in finance as well as it does the people in human resources and in the warehouse. Each of those departments typically has its own computer system, each optimized for the particular ways that the department does its work. But ERP combines them all together into a single, integrated software program that runs off a single database so that the various departments can more easily share information and communicate with each other.

That integrated approach can have a tremendous payback if companies install the software correctly. Take a customer order, for example. Typically, when a customer places an order, that order begins a mostly paper-based journey from in-basket to in-basket around the company, often being keyed and re-keyed into different departments' computer systems along the way. All that lounging around in in-baskets causes delays and lost orders, and all the keying into different computer systems invites errors. Meanwhile, no one in the company truly knows what the status of the order is at any given point because there is no way for the finance department, for example, to get into the warehouse's computer system to see whether the item has been shipped. "You'll have to call the warehouse," is the familiar refrain heard by frustrated customers.

**How can ERP improve a company's business performance?**

ERP automates the tasks involved in performing a business process—such as order fulfillment, which involves taking an order from a customer, shipping it and billing for it. With ERP, when a customer service representative takes an order from a customer, he or she has all the information necessary to complete the order (the customer's credit rating and order history, the company's inventory levels and the shipping dock's trucking schedule). Everyone else in the company sees the same computer screen and has access to the single database that holds the customer's new order. When one department finishes with the order it is automatically routed via the ERP system to the next department. To find out where the order is at any point, one need only log into the ERP system and track it down. With luck, the order process moves like a bolt of lightning through the organization, and customers get their orders faster and with fewer errors than before. ERP can apply that same magic to the other major business processes, such as employee benefits or financial reporting.

**That, at least, is the dream of ERP. The reality is much harsher.**

Let's go back to those inboxes for a minute. That process may not have been efficient, but it was simple. Finance did its job, the warehouse did its job, and if anything went

wrong outside of the department's walls, it was somebody else's problem. Not anymore. With ERP, the customer service representatives are no longer just typists entering someone's name into a computer and hitting the return key. The ERP screen makes them business people. It flickers with the customer's credit rating from the finance department and the product inventory levels from the warehouse. Will the customer pay on time? Will we be able to ship the order on time? These are decisions that customer service representatives have never had to make before and which affect the customer and every other department in the company. But it's not just the customer service representatives who have to wake up. People in the warehouse who used to keep inventory in their heads or on scraps of paper now need to put that information online. If they don't, customer service will see low inventory levels on their screens and tell customers that their requested item is not in stock. Accountability, responsibility and communication have never been tested like this before.

**How long will an ERP project take?**

Companies that install ERP do not have an easy time of it. Don't be fooled when ERP vendors tell you about a three or six month average implementation time. Those short (that's right, six months is short) implementations all have a catch of one kind or another: the company was small, or the implementation was limited to a small area of the company, or the company only used the financial pieces of the ERP system (in which case the ERP system is nothing more than a very expensive accounting system). To do ERP right, the ways you do business will need to change and the ways people do their jobs will need to change too. And that kind of change doesn't come without pain. Unless, of course, your ways of doing business are working extremely well (orders all shipped on time, productivity higher than all your competitors, customers completely satisfied), in which case there is no reason to even consider ERP.

The important thing is not to focus on how long it will take—real transformational ERP efforts usually run between one to three years, on average—but rather to understand why you need it and how you will use it to improve your business.

**What will ERP fix in my business?**

There are three major reasons why companies undertake ERP: To integrate financial data. —As the CEO tries to understand the company's overall performance, he or she may find many different versions of the truth. Finance has its own set of revenue numbers, sales has another version, and the different business units may each have their own versions of how much they contributed to revenues. ERP creates a single version of the truth that cannot be questioned because everyone is using the same system. To standardize manufacturing processes. —Manufacturing companies—especially those with an appetite for mergers and acquisitions—often find that multiple business units across the company make the same widget using different methods and computer systems. Standardizing those processes and using a single, integrated computer system can save time, increase productivity and reduce headcount. To standardize HR information. —Especially in companies with multiple business units, HR may not have a unified, simple method for tracking employee time and communicating with them about benefits and services. ERP can fix that.

In the race to fix these problems, companies often lose sight of the fact that ERP packages are nothing more than generic representations of the ways a typical company does business. While most packages are exhaustively comprehensive, each industry has its quirks that make it unique. Most ERP systems were designed to be used by discreet manufacturing companies (who make physical things that can be counted), which immediately left all the process manufacturers (oil, chemical and utility companies that measure their products by flow rather than individual units) out in the cold. Each of

these industries has struggled with the different ERP vendors to modify core ERP programs to their needs.

**Will ERP fit the ways I do business?**

It's critical for companies to figure out if their ways of doing business will fit within a standard ERP package before the checks are signed and the implementation begins. The most common reason that companies walk away from multimillion dollar ERP projects is that they discover that the software does not support one of their important business processes. At that point there are two things they can do: They can change the business process to accommodate the software, which will mean deep changes in long-established ways of doing business (that often provide competitive advantage) and shake up important peoples' roles and responsibilities (something that few companies have the stomach for). Or they can modify the software to fit the process, which will slow down the project, introduce dangerous bugs into the system and make upgrading the software to the ERP vendor's next release excruciatingly difficult, because the customizations will need to be torn apart and rewritten to fit with the new version.

Needless to say, the move to ERP is a project of breathtaking scope, and the price tags on the front end are enough to make the most placid CFO a little twitchy. In addition to budgeting for software costs, financial executives should plan to write checks to cover consulting, process rework, integration testing and a long laundry list of other expenses before the benefits of ERP start to manifest themselves. Underestimate the price of teaching users their new job processes can lead to a rude shock down the line, So can failure to consider data warehouse integration requirements and the cost of extra software to duplicate the old report formats. A few oversights in the budgeting and planning stage can send ERP costs spiraling out of control faster than oversights in planning almost any other information system undertaking.

**What does ERP really cost?**

Meta Group recently did a study looking at the Total Cost of Ownership (TCO) of ERP, including hardware, software, professional services, and internal staff costs. The TCO numbers include getting the software installed and the two years afterward, which is when the real costs of maintaining, upgrading and optimizing the system for your business are felt. Among the 63 companies surveyed—including small, medium and large companies in a range of industries—the average TCO was $15 million (the highest was $300 million and lowest was $400,000). While it’s hard to draw a solid number from that kind of a range of companies and ERP efforts, Meta came up with one statistic that proves that ERP is expensive no matter what kind of company is using it. The TCO for a “heads-down” user over that period was a staggering $53,320.

**When will I get payback from ERP—and how much will it be?**

Don’t expect to revolutionize your business with ERP. It is a navel gazing exercise that focuses on optimizing the way things are done internally rather than with customers, suppliers or partners. Yet the navel gazing has a pretty good payback if you’re willing to wait for it—a Meta group study of 63 companies found that it took eight months after the new system was in (31 months total) to see any benefits. But the median annual savings from the new ERP system was $1.6 million per year.


James MCCullough remembers back when he had a $500 million IT budget and teams of IT professionals. By last year, though, all of that was a distant memory.

McCullough, the former CIO of Delta Air Lines, found himself reshaping his new company's IT infrastructure without the benefit of a large budget or staff. As CIO of eCompanyStore, an Alpharetta, Ga.-based company that builds online stores to fill promotional product needs for its clientele, he had to figure out how to deploy big-company technology—specifically, ERP applications—without spending big-company money.

"We knew we were going to have to go [the ERP] route if we were going to become scalable," McCullough says. "We didn't want to come back in 18 months or two years and say we can't handle [transaction] volume."

McCullough decided to explore a relatively new option in enterprise applications: fast-track ERP. Fast-track ERP gives smaller businesses (with revenues between $200 million and $500 million) access to functionality similar to what their Fortune 500 counterparts have had for years. When all goes well, fast-track ERP implementations are measured in thousands of dollars instead of millions, and months instead of years. The vendors promise up-front, guaranteed agreements on schedule and price, fully functioning applications and a lot fewer headaches than traditional ERP.

The fast track isn't without its speed bumps, however. First, there is a greater need to stick to the plain vanilla version of the package, with as little customization as possible. There are also unexpected costs that pop up outside the scope of the fixed-price contract. Although they are simpler than their bigger brethren, the systems are still at the mercy of people—it's essential to manage expectations and resistance to change, and provide thorough training.

McCullough started down the fast-track ERP path with Walldorf, Germany-based SAP. He and his team of 20, composed of SAP consultants and eCompanyStore employees, installed the R/3 system with modules for materials management, function planning and finance, and an online store to replace the Pandesic application. They started in mid-December 2000 and applied the finishing touches in early January 2001. They did it without spending big-company money or time. "I'm sitting on an engine that's capable of taking our company into the stratosphere with the same suite of applications," McCullough says.

## DISASTER!

As ERP implementations falter and fail, many people think the answer is more training. They're wrong.

Unless you've been as out-of-touch as the Mars Polar Lander, you're doubtlessly aware that the ERP industry hasn't been performing like the marvel it was first made out to be.

First came the ERP vendors' pre-Y2K plunging sales revenues and falling stock values. Second came the realization that all that hard work implementing an ERP system didn't actually guarantee business benefits—or even a positive payback. Take Meta Group's damning finding, for instance: The average ERP implementation takes 23 months, has a total cost of ownership of $15 million and rewards (so to speak) the business with an average negative net present value of $1.5 million. And the news gets worse.

An alarmingly long list of top-drawer integrators have fallen flat on their faces. Compared to these disasters, merely spending a lot of money on an ERP implementation that achieves very little is a consummation devoutly to be wished.

Hershey, Pa.-based Hershey Foods, for example, issued two profit warnings in as many months in the run-up to last Christmas. Why? Massive distribution problems following a flawed implementation of SAP's R/3 ERP system, which affected shipments to stores in the peak Halloween and pre-Christmas sales periods. In a booming stock market, Hershey shares ended the year down 27 percent from its year's high.

And Hershey wasn't alone in its misery. In November 1999, domestic appliance manufacturer Whirlpool of Benton Harbor, Mich., also blamed shipping delays on difficulties associated with its SAP R/3 implementation. Like Hershey, Whirlpool's share price dove south on the news, falling from well over $70 to below $60. While these two have (so far) been the highest-profile implementation debacles, companies as diverse as Scottsdale, Ariz.-based trash processor Allied Waste Industries; Newark, Del.-based high-tech fabric maker W.L. Gore & Associates; and industrial supplies distributor W.W. Grainger of Lake Forest, Ill., have all reported serious difficulties.

And if "serious difficulties" sounds bad, rest assured it can get much, much worse. After Carrollton, Texas-based pharmaceutical distributor FoxMeyer Drug actually collapsed following an SAP R/3 implementation, its bankruptcy trustees filed a $500 million lawsuit in 1998 against the German ERP giant, and another $500 million suit against co-implementer Andersen Consulting. (Both cases were unresolved at the time of writing.)

So what's going on? The good news—if that's the right word—is that most experts agree that such failures are not systemic. "Very rarely are there instances when it's the ERP system itself—the actual software—that fails," says Jim Shepherd, senior vice president of research at Boston-based AMR Research. Public pronouncements by both SAP and Hershey, he notes, have acknowledged that the software does what it is supposed to and that no big fixes or patches are planned. What's more, he adds, the prudent observer will differentiate between real implementation failures and not-so-real failures. "Blaming the failure on a system implementation has become a convenient excuse for companies that have missed their quarter-end [earnings] target."

As for blame, it is evenly spread. SAP implementations are no more likely to go down the tubes than ERP systems from other vendors: W.L. Gore's system, for example, came from Pleasanton, Calif.-based PeopleSoft. "When an ERP project unravels, or is seen not to perform well, one of the suppliers is usually chosen as the culprit," says David Duray, London-based global partner responsible for the SAP implementation business at PricewaterhouseCoopers. "In my experience, this is usually more of a political decision than a proper problem-source identification exercise—and SAP, over the last few years, has been a popular target."

Furthermore, adds Roger Phillips, an IT analyst at specialist investment bank Granville in London, which tracks the global ERP market, there is no evidence that geography is a significant differentiator in the success stakes. Disasters, he believes, "simply go with the ERP territory." There are, he says, "no cultural or managerial foibles that make American ERP implementations any more predisposed to disasters than any other country's implementations."

So what does lie behind ERP disasters? And behind the rather longer list of costly-but-underwhelming implementations typified by that now-infamous Meta Group report? Increasingly, experts reckon that they've found the smoking gun: poor training. Not the technical training of the core team of people who are installing the software, but the education of the broad user community of managers and employees who are supposed to actually run the business with it.

## checklist

**A few things to ponder when planning for ERP**

- Which processes are most important now and why?
- Does this sytem meet our needs or go beyond them?
- Who will be the change champion(s)?
- Who are the stakeholders?
- What is the business culture at our company and what are its strengths?
- What subcultures do we have and what are their strengths?
- How can we apply those strengths to business change?
- What cultural attributes are weak or will interfere with the change?
- What will be the toughest changes, and how will we address them?
- Who will be responsible for change management?

## buzz words

**Material resource planning**

The practice of calculating what materials are required to build a product by analyzing a bill of material data, inventory data and the master production schedule. Enterprise resource planning (ERP) is an outgrowth of MRP.

**Enterprise resource planning**

The practice of consolidating an enterprise's planning, manufacturing, sales and marketing efforts into one management system.

**Enterprise relationship management**

The practice of analyzing customer data from sales, marketing, service, finance and manufacturing databases in order to relate efficiently to customers.

**Enterprise resource management**

The practice of providing users with efficient access to an organization's network resources. ERM enables the enterprise to control and track the systems and resources that each user has access to and provides consistent standards for creating and changing passwords.

## HOTQUESTIONS

*Barry Wilderman, vice president of application delivery strategies for the Stamford, CT based Meta Group talks about getting the most from your ERP system.*

**Question:**
What benefits have been realized with the use of Project Management Technologies on the implementation of ERP systems?

**Reply:**
The benefits of using project management techniques well on ERP systems can be dramatic, but require real discipline and skill in project management. The discipline of project management (done well) requires clear definitions of tasks, individuals assigned to tasks, and real deliverables that mark the end of a task. Emphasis

should be placed on work breakdown structures, using earned value techniques (rather than percent complete), and time sheet data entry with regular reevaluation of "estimates to complete". Project teams should include IT, line of business and outside contractors, with an empowered leader for each team. Done correctly, using project management goes a long way to ensuring that ERP projects and on time, within budget and maintain scope.

**Question:**
Implementing an ERP system requires large amounts of time, money, and resources. To provide better access to the data that this system now houses, does it make sense to use a corporate portal?

**Reply:**
I think it is important to be clear about a number of overlapping technologies, all of which can add value to the Corporation: Corporate Portals: Generally speaking, a Corporate Portal is used to empower individuals in the organization to gain access to key information (e.g., current enrollment options in a 401K), as well as to make individual transactions (e.g., indirect procurement). This can be quite valuable to the organization, but presumes, of course, that data is readily available, and some business systems (e.g., on line purchasing) are in place. ERP Systems: ERP systems are implemented to provide cross functional business processes (e.g, order to cash, purchase to pay, make to demand) that are crucial to the organization. Developing a corporate portal doesn't necessarily remove the requirement for an ERP system.


*Cost savings alone won't justify an ERP upgrade.*

The bad news? ERP is still costly and time consuming. But the good news, according to recent research by Boston-based AMR Research, is that companies are finally accepting ERP as a strategic part of the business. Accordingly, AMR analysts say, further investments in the technology will require sound business reasoning beyond the cost-saving arguments that initially brought ERP to life.

"It all has to do with the attitude that companies take with their ERP system," says Alison Bacon, AMR analyst. "The business people have to be involved and realize that it's not an IT-only issue any more."

AMR Research surveyed 109 companies (70 percent of which have annual revenues exceeding $1 billion) and found that 85 percent of them listed improved ease of use, additional functionality and improved collaboration as the primary benefits to an ERP upgrade. Just 13 percent listed cost savings as the main motivator.

"Increasingly, people are not looking at ERP systems as just a big piece of software, but it's being seen as a core strategic asset of the company," says Judy Bijesse, AMR analyst. "It's much more important that the system remains relevant and adds functionality."

Half of the companies surveyed added an average of three new functional areas to their ERP systems. The most popular were portals, Internet-based procurement applications, self-service HR and business intelligence. AMR Analyst Allison Bacon says ERP is taking on an even broader set of applications today than before.

“Portals, business intelligence—those are applications that extend beyond what we would deem to be traditional ERP systems,” Bacon says. “The vendors have done a great job upselling to their existing client base.”

For the most part, the survey found that cost expectations hit the mark. Most (76 percent) respondents said the costs of upgrading met their expectations. On average, though, actual costs exceeded expected costs by about $100,000. The average cost of an ERP upgrade in this survey was $1.5 million or 18 percent of the cost of the initial ERP implementation.

The survey also found that small, incremental ERP upgrades drove costs higher. Larger upgrades (those that affect the most users) provided better economy of scale. Companies that were able to upgrade efficiently learned from their initial implementations, says Bijesse. In fact, most companies surveyed (65 percent) handled their ERP upgrades through an in-house group.

“Undertaking a big, big project like that requires internal expertise,” Bijesse says. “Companies that were able to maintain competency in–house were in much better shape.”

According to the survey, the average upgrade takes about seven months from planning to the launch date. Planning consumes about 24 percent of the total time while testing requires another 22 percent. Testing was ranked the most difficult stage of ERP upgrading by 29 percent of respondents. Another 28 percent said data conversion/migration was the most difficult.

“The success of the planning phase determines the success of the overall project,” says Bijesse.

## ROI

When CFOs look at enterprise resource planning (ERP) spending projections, their eyes often get as big as silver dollars. To reassure themselves that their math isn't completely out of whack, most companies want to compare notes with someone who has already lived through an ERP project. "Total installed cost is probably the hottest issue in the market right now; users want to gut-check with someone else," says Chris Jones, research director of business applications at Gartner Group Inc.

Unfortunately, a total cost number-even if you can find a company willing to share its figures-won't necessarily mean much. Jones notes that everyone delves into ERP from a unique situation, depending on hundreds of variables, including the existing hardware and network infrastructure, the number of corporate divisions and users, the specific functions targeted for the ERP system and the amount of process redesign. The cost of the software itself is universally known to be a small slice of the total project outlay.

One attempt at a useful comparison is to look at the total cost as a multiple of the software cost. There's no consensus, however, on what that multiple should be. Meta Group Inc.'s Barry Wilderman, a vice president of application delivery strategies, for example, says ERP implementation costs should fall in the range of $3 to $10 per dollar spent on the software itself. Such a wide range offers little predictive value, other than serving as a red flag for users who anticipate spending $15 per software dollar. And even the use of such broad numeric ranges has skeptics. "Never use a rule of thumb. This nonsense about one-to-one, two-to-one-

that's exactly what it is: nonsense. There is no such thing as a standard cost to implement ERP," says Gartner's Jones.

A different benchmark compares the cost per user. Monsanto Co.'s Gary Banks, IT lead for the company's SAP implementation, says the overall price tag for ERP can be intimidating. However, his unscientific survey indicates that while other software projects typically have a lower overall price, the cost per user is higher than with ERP because fewer employees benefit from other kinds of software. Again, remember that many variables affect the cost-per-user number. "I'm sure it could be done for less with a more aggressive implementation," says Banks, noting that Monsanto has invested a lot of time in choosing the processes and business models best suited for the company.


**The Hidden Costs of ERP**

Although different companies will find different land mines in the budgeting process, those who have implemented ERP packages agree that certain costs are more commonly overlooked or underestimated than others. Armed with insights from across the business, ERP pros vote the following areas as most likely to result in budget overrun.

**1. Training**

Training is the near-unanimous choice of experienced ERP implementers as the most elusive budget item. It's not so much that this cost is completely overlooked as it is consistently underestimated. Training expenses are high because workers almost invariably have to learn a new set of processes, not just a new software interface.

**2. Integration and Testing**

Testing the links between ERP packages and other corporate software links that have to be built on a case-by-case basis is another often underestimated cost. A typical manufacturing company may have add-on applications for logistics, tax, production planning and bar coding. If this laundry list also includes customization of the core ERP package, expect the cost of integrating, testing and maintaining the system to skyrocket.

As with training, testing ERP integration has to be done from a process-oriented perspective. Instead of plugging in dummy data and moving it from one application to the next, veterans recommend running a real purchase order through the system, from order entry through shipping and receipt of payment-the whole order-to-cash banana-preferably with the participation of the employees who will eventually do those jobs.

**3. Data conversion**

It costs money to move corporate information, such as customer and supplier records, product design data and the like, from old systems to new ERP homes. Although few CIOs will admit it, most data in most legacy systems is of little use. Companies often deny their data is dirty until they actually have to move it to the new client/server setups that popular ERP packages require. Consequently, those companies are more likely to underestimate the cost of the move. But even clean

data may demand some overhaul to match process modifications necessitated—or inspired—by the ERP implementation.

**4. Data analysis**

Often, the data from the ERP system must be combined with data from external systems for analysis purposes. Users with heavy analysis needs should include the cost of a data warehouse in the ERP budget—and they should expect to do quite a bit of work to make it run smoothly. Users are in a pickle here: Refreshing all the ERP data in a big corporate data warehouse daily is difficult, and ERP systems do a poor job of indicating which information has changed from day to day, making selective warehouse updates tough. One expensive solution is custom programming. The upshot is that the wise will check all their data analysis needs before signing off on the budget.

**5. Consultants Ad Infinitum**

When users fail to plan for disengagement, consulting fees run wild. To avoid this, companies should identify objectives for which its consulting partners must aim when training internal staff. Include metrics in the consultants' contract; for example, a specific number of the user company's staff should be able to pass a project-management leadership test—similar to what Big Five consultants have to pass to lead an ERP engagement.

**6. Replacing Your Best and Brightest**

It is accepted wisdom that ERP success depends on staffing the project with the best and brightest from the business and IS. The software is too complex and the business changes too dramatic to trust the project to just anyone. The bad news is, a company must be prepared to replace many of those people when the project is over. Though the ERP market is not as hot as it once was, consulting firms and other companies that have lost their best people will be hounding yours with higher salaries and bonus offers than you can afford—or that your HR policies permit. Huddle with HR early on to develop a retention bonus program and to create new salary strata for ERP veterans. If you let them go, you'll wind up hiring them—or someone like them—back as consultants for twice what you paid them in salaries.

**7. Implementation Teams Can Never Stop**

Most companies intend to treat their ERP implementations as they would any other software project. Once the software is installed, they figure, the team will be scuttled and everyone will go back to his or her day job. But after ERP, you can't go home again. You're too valuable. Because they have worked intimately with ERP, they know more about the sales process than the salespeople do and more about the manufacturing process than the manufacturing people do. Companies can't afford to send their project people back into the business because there's so much to do after the ERP software is installed. Just writing reports to pull information out of the new ERP system will keep the project team busy for a year at least. And it is in analysis—and, one hopes, insight—that companies make their money back on an ERP implementation. Unfortunately, few IS departments plan for the frenzy of post-ERP installation activity, and fewer still build it into their budgets when they start their ERP projects. Many are forced to beg for more money and staff immediately after the go-live date, long before the ERP project has demonstrated any benefit.

**8. Waiting for ROI**

One of the most misleading legacies of traditional software project management is that the company expects to gain value from the application as soon as it is installed; the project team expects a break, and maybe a pat on the back. Neither expectation applies to ERP. Most don't reveal their value until after companies have had them running for some time and can concentrate on making improvements in the business processes that are affected by the system. And the project team is not going to be rewarded until their efforts pay off.

**9. Post-ERP Depression**

ERP systems often wreak cause havoc in the companies that install them. In a recent Deloitte Consulting survey of 64 Fortune 500 companies, one in four admitted that they suffered a drop in performance when their ERP systems went live. The true percentage is undoubtedly much higher. The most common reason for the performance problems is that everything looks and works differently from the way it did before. When people can't do their jobs in the familiar way and haven't yet mastered the new way, they panic, and the business goes into spasms.


**ERPCentral**

http://www.erpcentral.com/
This portal to ERP issues links to trade publication articles as well as B2B, CRM, Wireless and e-Business information.

**ERP Fan Club**

http://www.erpfans.com
Yes, ERP does have its own fan-club site on the Web, with links to news, vendor information and the like.

**The IT Industry Portal – ERP**

http://www.erphub.com
Even though this site is a subsection of EarthWeb, another IT industry portal, non-IT executives will still find useful feature articles and case studies on topics like ERP implementation strategies, infrastructure and system performance.

**IT Toolbox – ERP**

http://www.erpassist.com
At this Yahoo-style portal, extensive links to ERP books, white papers, articles and other resources are organized by vendor and by broad topic themes.

* Taken from Darwin Publications