

Enterprise Resource Planning: Firms are Trying to Extend the System to Frond-End and M-Commerce

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Abstract: The growth of global enterprises and the expansion of technical and managerial knowledge are hallmarks of the twenty-first century organization. A wave of interest in improving the integration of information or data across the functional areas of a business has surfaced during the past few years. More specifically, business transactions that occur in one functional area would, indeed, affect transaction in other functional areas. Not surprisingly, the most effective managerial decisions can be made when information and data from all areas of business are available in real time, and that all parties having access to the information are participants in the decision made. A Software which enables this integration of information is the Enterprise Resource Planning (ERP) software system. The core issues and concepts underlying idea behind Enterprise Resource Planning is its ability to bind the entire enterprise in a tight web of information system. This software application leaves no function of an organization untouched. The thrust of this paper is to provide information about the ABC's of ERP, ERP implementation life cycle, the seven mantra's for ERP implementation, and the rebirth of ERP extending its footprints to Supply Chain Management (SCM), Customer Relationship Management (CRM) and Collaborative Management.

Keywords: Enterprise resource planning ERP, ERP II, Cost of ERP, e-commerce.

I. INTRODUCTION

When companies were small and all the different managerial functions managed by a single person, the decisions were made, keeping in mind the overall company objectives. But as companies grew, managing the entire operations became impossible for a single person. More and more people were brought in and the different business functions were given to different individuals. When the organization became larger, each person-hired people to assist him/her and the various departments as we see now, evolved. The size of the departments began to increase, as more and more people were required to do the job.

1.1 Isolated Information System:

As the departments became large, they became closed and watertight. Each had their own set of procedures and hierarchy. People, at most levels within a department, would just collect and pass information upward. Thus information was shared between departments only at the top level.

Although IT provided the perfect answer, in the haste, most developers ended up developing need-based, isolated and piecemeal information systems that were non-compatible as shown in figure 1.1. And it is no wonder then that IT implementations automated only the existing applications and not the business functions.

Most of this happened because IT was not integrated into the corporate strategy. To draw real benefits from a technology as powerful as IT, one has to device a system with a holistic view of the enterprise. Such a system has to work around the core activities of the organization, and should facilitate seamless flow of information across departmental barriers. Such systems can optimally plan and manage all the resources of the organization and hence, they can be called as **Enterprise Resource Planning (ERP)** systems.

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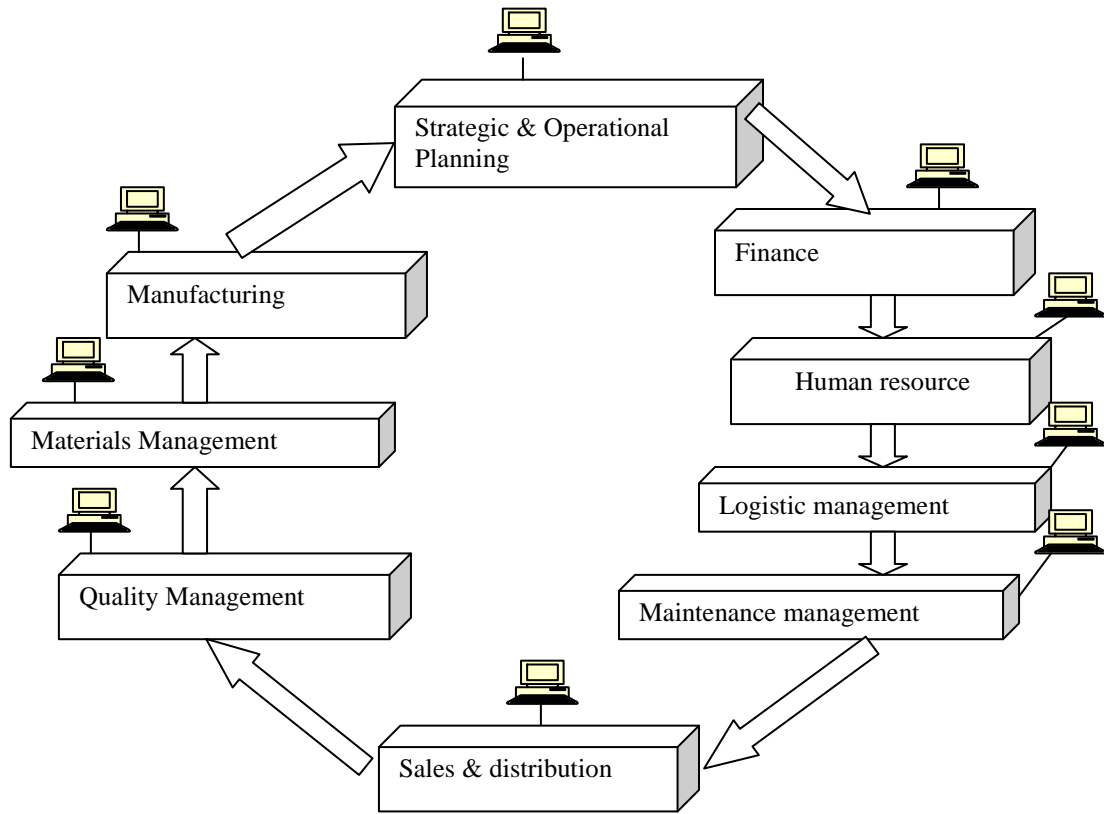


Figure 1.1 A Pre – ERP Scenario

The ABC's of ERP

II. WHAT IS ERP?

Enterprise resource planning means, the techniques and concepts for the integrated management of businesses as a whole, from the viewpoint of the effective use of management resources, to improve the efficiency of an enterprise. Figure 2.1 below shows how information is integrated between departments within an organization using an ERP system.

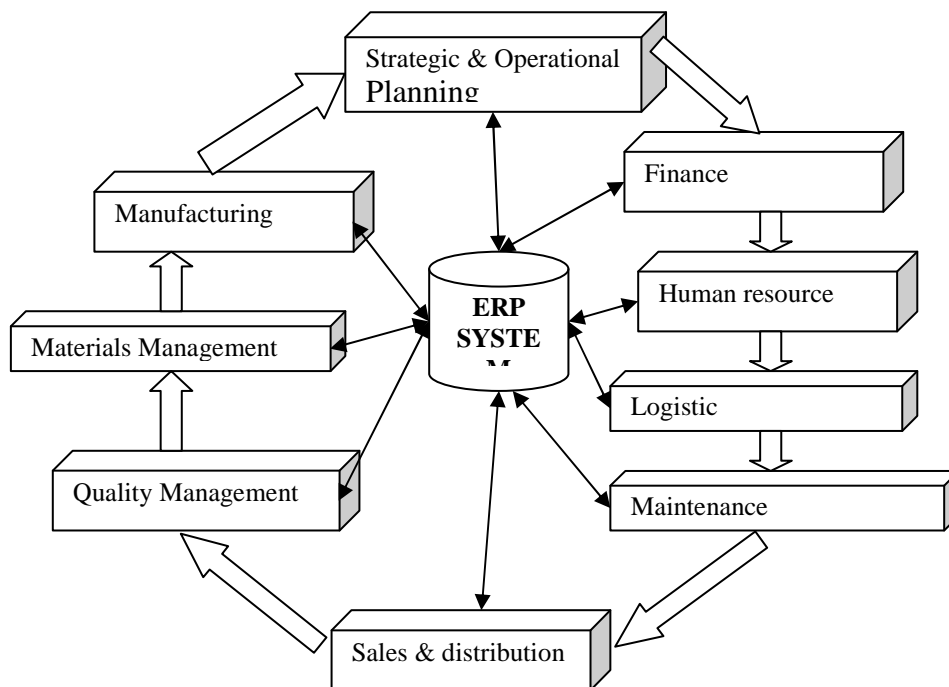


Figure 2.1 Information integration through ERP systems

2.1 Introducing ERP in the organization:

According to industry pundits one-third to one-half of ERP system implementations are 'failures' with nearly half of the failures leading to demise of the company as an independent ongoing concern.

It has been believed that introduction and implementation of an ERP is a technology based strategic decision, which is not true. In fact, it is a decision that ideally should be based on business needs and benefits. Ideally speaking, the top and the middle management must be more than clear as to what they expect from the ERP implementation. But the expectations are invariably met in most of the cases.

ERP is being preached as mantra to solve most of the problems in the enterprise. ERP has been successful in area of customer management, order management, production planning and control, cash flow, bill receivable, bill payable and inventory management.

III. 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.

IV. WHAT WILL ERP FIX IN THE BUSINESS?

There are three major reasons why companies undertake ERP:

4.1 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 have 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.

4.2 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.

4.3 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.

V. WILL ERP FIT THE WAYS WE 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:

- (i) 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).
- (ii) 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.

VI. 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.

VII. WHEN WILL WE 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.

VIII. 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.

8.1 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.

8.2 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.

8.3 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 CIO's 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.

8.4 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.

8.5 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.

8.6 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.

8.7 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.

8.8 Post-ERP Depression

ERP systems often wreak 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.

IX. HOW DOES ERP FIT WITH ELECTRONIC COMMERCE?

After all of that work inventing, perfecting and selling ERP to the world, the major ERP vendors are having a hard time shifting gears from making the applications that streamline business practices inside a company to those that face outward to the rest of the world. These days, the hottest areas for outward-looking (that is, Internet) post-ERP work are electronic commerce, planning and managing your supply chain, and tracking and serving customers. Most ERP vendors have been slow to develop offerings for these areas, and they face stiff competition from niche vendors. ERP vendors have the advantage of a huge installed base of customers and a virtual stranglehold on the "back office" functions—such as order fulfillment. Recently ERP vendors

have begun to shrink their ambitions and focus on being the back-office engine that powers electronic commerce, rather than trying to own all the software niches that are necessary for a good electronic commerce Website. Indeed, as the niche vendors make their software easier to hook into electronic commerce Web sites, and as middleware vendors make it easier for IS departments to hook together applications from different vendors, many people wonder how much longer ERP vendors can claim to be the primary software platform for the Fortune 500.

X. SEVEN MANTRAS FOR THE RIGHT SELECTION OF ERP PACKAGE

The process of selecting an ERP is not an easy task—a lot of thinking and evaluation is required for the right product. The product should be selected on the basis of functional needs and IT needs of the organization and not on the basis of the promises of the vendors and consultants.

Figure 10.1 below shows relative importance of various aspects in an ERP implementation process.

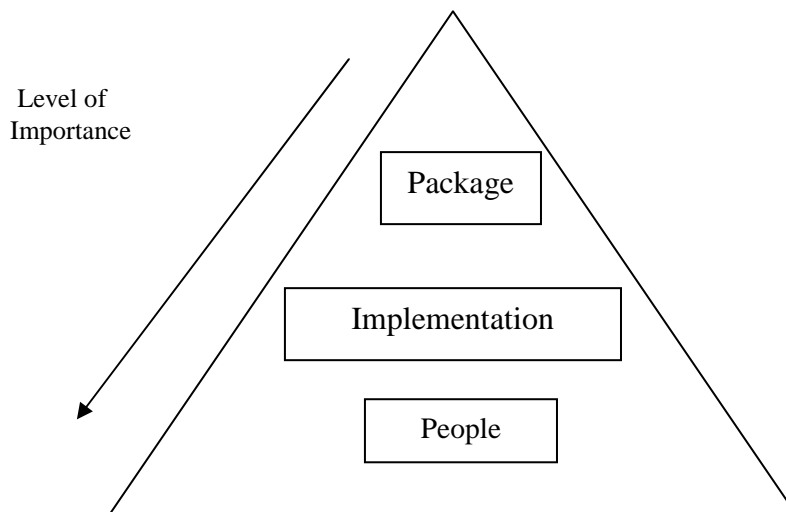


Figure 10.1 People are the most important aspect of ERP

Mantra 1: Ask why an ERP and have sufficient reasons to justify it.

Mantra 2: Get Top Management involved in buying decision.

Mantra 3: Identify the critical processes.

Mantra 4: Understand the Concept of ERP.

Mantra 5: Identify the Alternatives packages of ERP.

Mantra 6: The Final Selection of ERP Package.

Mantra 7: Creation of a Contract and a Project Charter.

Although the phases as shown in figure, may seem very linear and distinct from each other, in reality, throughout an actual implementation, the phases are in fact quite fluid. In many cases, companies go through many implementations - in different business units, different modules, or manufacturing location.

XI. ERP IMPLEMENTATION LIFE CYCLE:

Like any other project, the ERP implementation project also has to go through different phases. The different Phases of ERP Implementation are shown in figure 11.1.

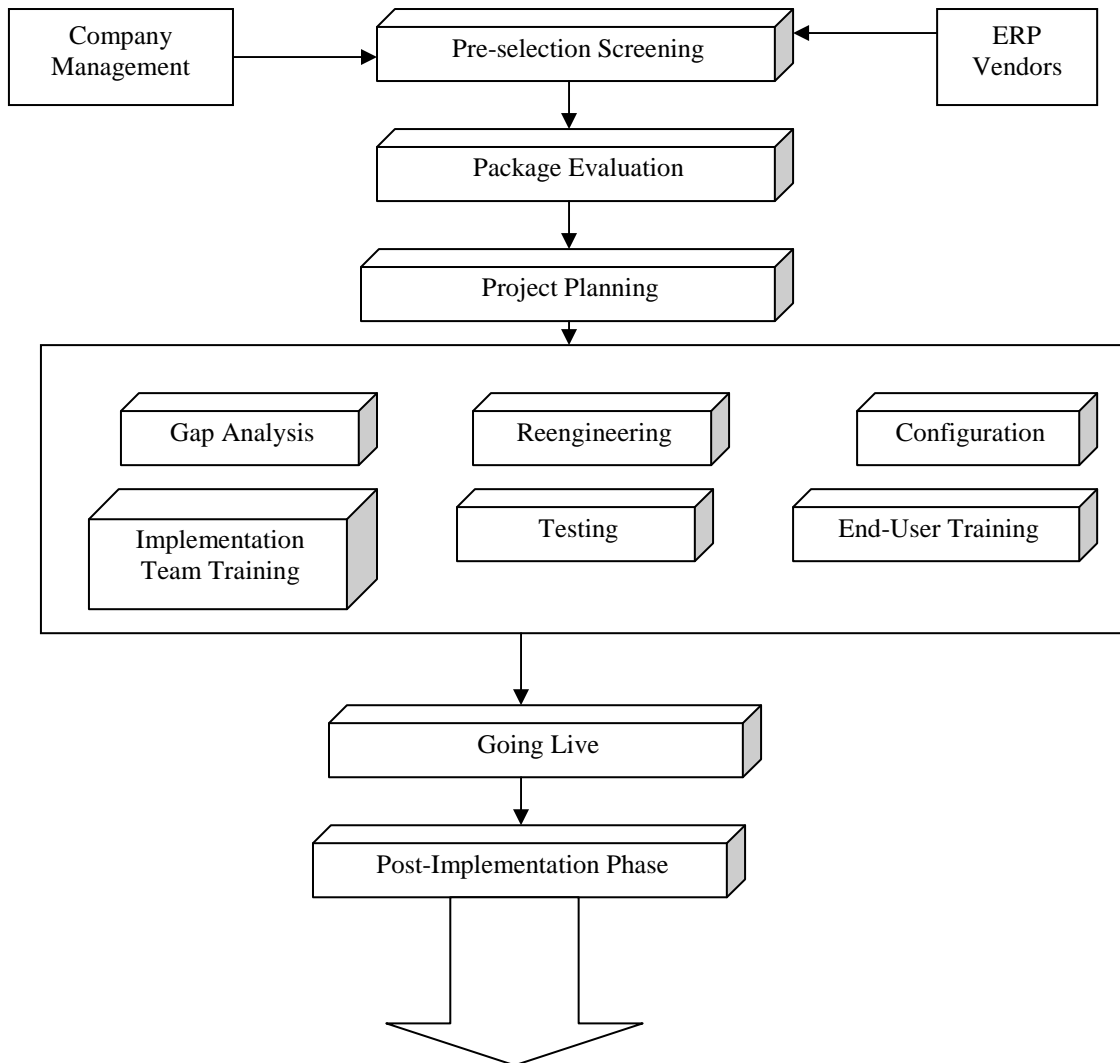


Figure 11.1 ERP implementation Lifecycle – different phases

XII. REBIRTH OF ERP

During the past decade, almost every corporate around the world was chanting the ERP mantra. Companies selling ERP packages, and consultants helping in the implementation, rode the waves to make huge fortunes.

India spotted the ERP wave a bit late – but once it did, it waded in with gusto. Between 1995 and 1999, over 600 companies had either implemented – or were implementing – ERP solutions.

By 2000 though, the ERP movement was in big trouble. For one, the Internet – and the opportunities it provided in reaching out to vendors and customers alike – took the center stage. Then again, the big glitch of the ERP philosophy started cropping up. The ERP was all about making the internal systems of the company very efficient. But in a number of situations, that alone was not enough.

ERP helped the company to streamline the back – end, but still fail to meet the just – in – time requirements of the customer, especially in the situations where the company was dealing with products from other vendors.

The major ERP vendors were slow to see the power of the Internet. They were also slow to recognize that they would need to extend their solutions to Supply Chain Management (SCM) and Customer relationship management (CRM). As a result, the ERP movement itself slowly slid into irrelevancy.

12.1 ERP II:

Over the past few months though, ERP vendors are trying hard to make a come back. And they are now modifying ERP to extend their the footprints. ERP is evolving into what **Gartner** (research director, Asia Pacific, Kristian Steenstrup) likes to call **ERP II**. It incorporates much of the market learning of 1999 – 2000. And the vendors are making investments to web enable software, expand footprint to include SCM and CRM and address collaborative commerce as shown in Figure 12.1.

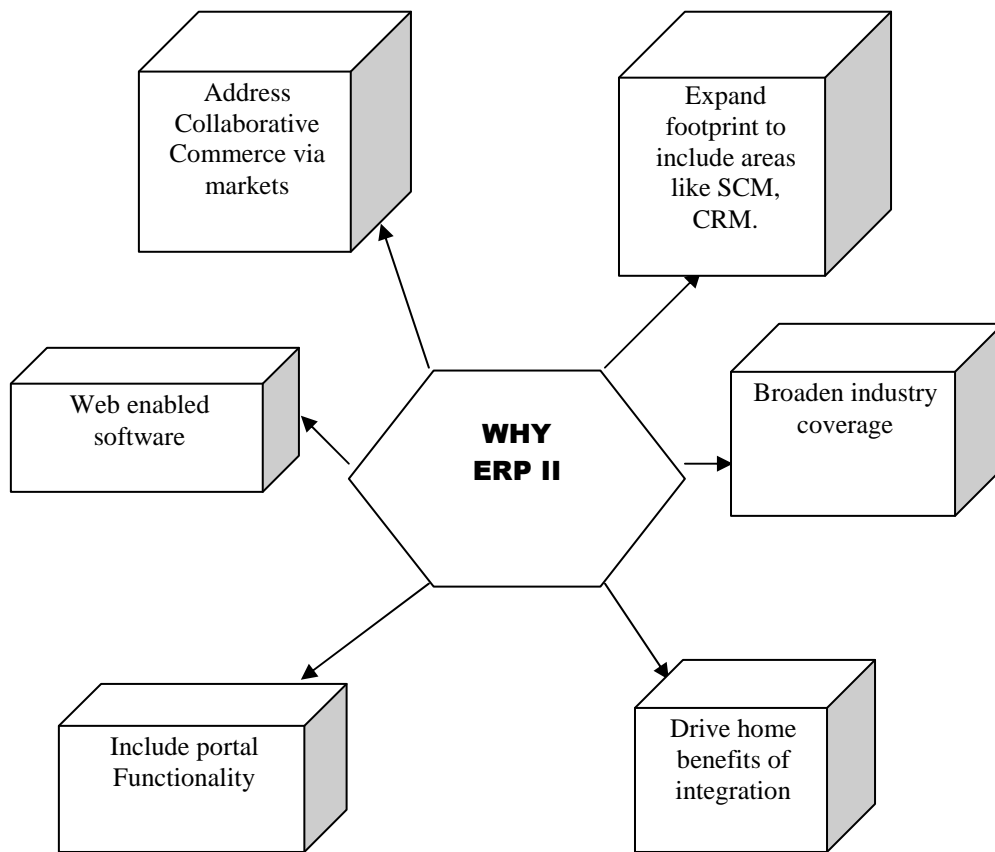


Figure 12.1 Rebirth of ERP

12.2 ERP versus ERP II

	ERP	ERP II
ROLE	Integrate info islands with firms	Collaborative commerce
DOMAIN	Manufacturing and distribution	All sectors
FUNCTION	Sales, distribution finance process	Cross – industry and industry specific
PROCESS	Internal and hidden	More open; externally connected
ARCHITECHTURE	Closed and monolithic	Web – based
DATA	Internally generated and consumed	Shared externally

XIII. POPULAR WEBSITES FOR ERP SYSTEM

www.pivotpoint.com
www.dacg.com
www.bscon.com
www.ifsab.com

www.geac.com
www.mrp9000.com
www.erpfans.com
www.baan.com
www.ssax.com

XIV. ERP COUNSELING

Bangalore based Maini Info Solutions has set up a portal www.erptimes.com Which is positioned as an unbiased, vendor independent advisory service for organizations planning to implement ERP solutions

XV. CONCLUSION

The future of ERP will include tools for demand Planning, Supply chain optimization and Supply chain execution. For instance if we want a new design of a car, we can share the final prototype of the axle with the supplier. The new ERP II is not vastly different. It effectively amount to building a new addition to an old house. ERP II essentially only takes off from an enterprise-centric ERP, which concentrated on storing all information within the enterprise, to handle data distributed throughout a trading community. In fact, looking back, this is how ERP evolved in the first place. "from materials resource planning (MRP) to manufacturing resource planning (what was also called MRP II) to ERP-has been a continuous growth to integrate all functions in an enterprise. It has grown constantly by mutations and the latest has been the incorporation of CRM and SCM in what is now

ERP II.

Comment:

1990-1998: Implement ERP or you will be dead

1999-2000: ERP is irrelevant. ERP is dead

2001 : ERP II will revive the ERP movement. Long Live ERP II

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