

---

**ERP Practices in Corporate Sector**

---

**Dr. G. Kalaiamuthan***Officer-in-Charge, Asst. Prof in Commerce, Sri Jayendra Saraswathi Centre,  
SCSVMV University, Ramanathapuram***Introduction**

During the last few years, there has been a global tendency to implement ERP in almost every industry. The Saudi Arabian market has not been immune to this trend and has witnessed many various businesses have selected a variety of ERP solutions. Through time, ERP solutions have granted more satisfaction to customer requirements than any other solution. It is said that, if ERP is implemented successfully, the company automatically becomes world class in terms of its practices. This statement is true for most of the ERP products. Right from the industrial revolution and even further, we can see the efforts put in to improve existing practices. Typically, the classical industrial engineering principle says: there is always a better method available than the existing. Here the 'better' ultimately means improved efficiency, effectiveness and economics. If we understand the motto of this principle deeply, we may find the basic motivation of the *kaizen* in it. In this context, let us see what the best practice in ERP environment is. ERP assumes the fundamental set-ups as "Pillars of ERP". The best practice in ERP then can be defined as the utilization of these set-ups to the maximum possible to produce the desired performance in terms of customer focus, zero waste of all the resources, and value creation. Tangibly, it leads to increase in quality and service, and reduction of cost and response time.

ERP enjoys having a strong skeleton based on these best practices. All the workflows in ERP are so thoughtfully maintained that it ensures that the user automatically follows the best practice. It won't allow the user to bypass or modify the predetermined course of actions that may create non -value added activity.

**Definition**

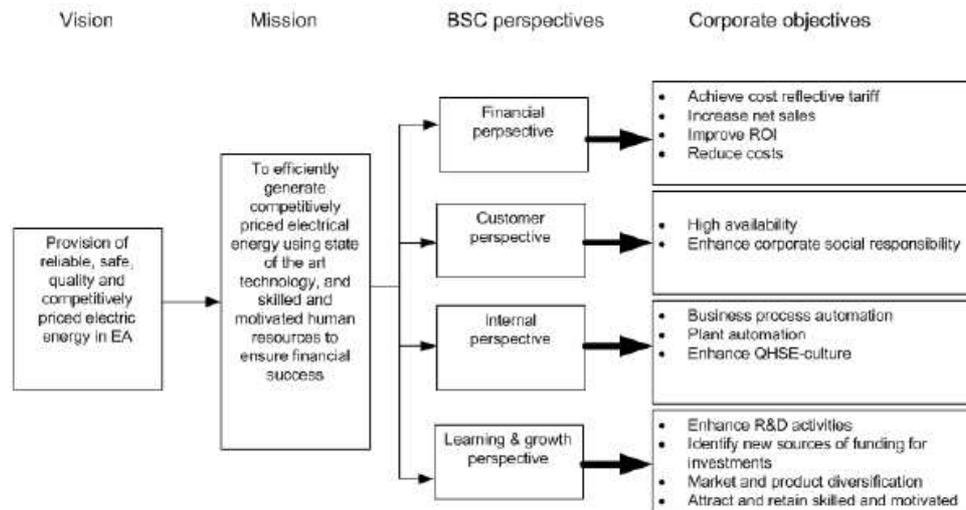
ERP is "the amalgamation of world-class (best) practices together".

**Origin of "ERP"**

In 1990 Gartner Group first employed the acronym ERP<sup>[3]</sup> as an extension of material requirements planning (MRP), later manufacturing resource planning<sup>[4][5]</sup> and computer-integrated manufacturing. Without supplanting these terms, ERP came to represent a larger whole, reflecting the evolution of application integration beyond manufacturing.<sup>[6]</sup> Not all ERP packages were developed from a manufacturing core. Vendors variously began with accounting, maintenance and human resources. By the mid-1990s ERP

systems addressed all core functions of an enterprise. Beyond corporations, governments and non-profit organizations also began to employ ERP systems.<sup>[7]</sup>

### Corporate Objectives in ERP



### Expansion

ERP systems experienced rapid growth in the 1990s because the year 2000 problem and introduction of the Euro disrupted legacy systems. Many companies took this opportunity to replace such systems with ERP.<sup>[8]</sup>

ERP systems initially focused on automating *back office functions* that did not directly affect customers and the general public. *Front office functions* such as customer relationship management (CRM) dealt directly with customers, or e-business systems such as e-commerce, e-government, e-telecom, and e-finance, or supplier relationship management (SRM) became integrated later, when the Internet simplified communicating with external parties.<sup>[citation needed]</sup>

"ERP II" was coined in the early 2000s. It describes web-based software that allows both employees and partners (such as suppliers and customers) real-time access to the systems. The role of ERP II expands from the resource optimization and transaction processing of traditional ERP to leveraging the information involving those resources in the enterprise's efforts to collaborate with other enterprises, not just to conduct e-commerce buying and selling.<sup>[9]</sup> ERP II is more flexible than the first generation ERP. Rather than confine ERP system capabilities within the organization, it goes beyond the corporate walls to interact with other systems. *Enterprise application suite* is an alternate name for such systems.

### Two-tier enterprise resource planning

Two-tier ERP comprises software and hardware that allows companies to run the equivalent of two ERP systems at once: one at the corporate level and one at the division or subsidiary level. For example, a manufacturing company uses an ERP system to manage across the organization. This company uses independent global or regional distribution, production or sales centers, and service providers to support the main company's customers. Each independent center or subsidiary may have their own business model, workflows and business processes.

Given the realities of globalization, enterprises continuously evaluate how to optimize their regional, divisional and product or manufacturing strategies to support strategic goals and reduce time-to-market while increasing profitability and delivering value.<sup>[10]</sup> With two-tier ERP, the regional distribution, production or sales centers and service providers continue operating under their own business model separate from the main company, using their own ERP systems. Since these smaller companies' processes and workflows are not tied to main company's processes and workflows, they can respond to local business requirements in multiple locations.<sup>[11]</sup>

Factors affecting enterprises adopting two-tier ERP systems are the globalization of manufacturing or the economics of sourcing in emerging economies, the potential for quicker and less costly ERP implementations at subsidiaries based on selecting a software product more suited to smaller companies, and any extra effort required where data must pass between the two ERP systems.<sup>[12]</sup> Two-tier ERP strategies give enterprises agility in responding to market demands and in aligning IT systems at a corporate level while inevitably resulting in more systems as compared to one ERP system used throughout the entire organization.<sup>[13]</sup>

### Characteristics

ERP (Enterprise Resource Planning) systems typically include the following characteristics:

- An integrated system that operates in real time (or next to real time), without relying on periodic updates.<sup>[citation needed]</sup>
- A common database, which supports all applications.
- A consistent look and feel throughout each module.
- Installation of the system without elaborate application/data integration by the Information Technology (IT) department, provided the implementation is not done in small steps.<sup>[14]</sup>

### Challenges

Challenge
Lack of skills
Insufficient training
Incompatibility with work
Data conversion problems
High system cost
Long customisation period
Integration problems
Benefits not recognised
High user resistance
Inadequate preparation by employees
High staff turnover
Organisational changes
Complexity of ERP
System insecure
Staff layoff
Vendors unreliability
Poor ERP quality

### Functional areas

The following are common functional areas covered in an ERP System. In many ERP Systems these are called and grouped together as ERP Modules:

#### Financial Accounting

General Ledger, Fixed Asset, Payables, Receivables, Cash Management, Financial Consolidation<sup>[disambiguation needed]</sup>

#### Management Accounting

Budgeting, Costing, Cost Management, Activity Based Costing

#### Human Resources

Recruiting, Training, Payroll, Benefits, 401K, Diversity Management, Retirement, Separation

#### Manufacturing

Engineering, Bill of Materials, Work Orders, Scheduling, Capacity, Workflow Management, Quality Control, Manufacturing Process, Manufacturing Projects, Manufacturing Flow, Product Life Cycle Management

### Supply Chain Management

Supply Chain Planning, Supplier Scheduling, Order to Cash, Purchasing, Inventory, Product Configurator, Claim Processing

### Project Management

Project Planning, Resource Planning, Project Costing, Work Break Down Structure, Billing, Time and Expense, Performance Units, Activity Management

### Customer Relationship Management

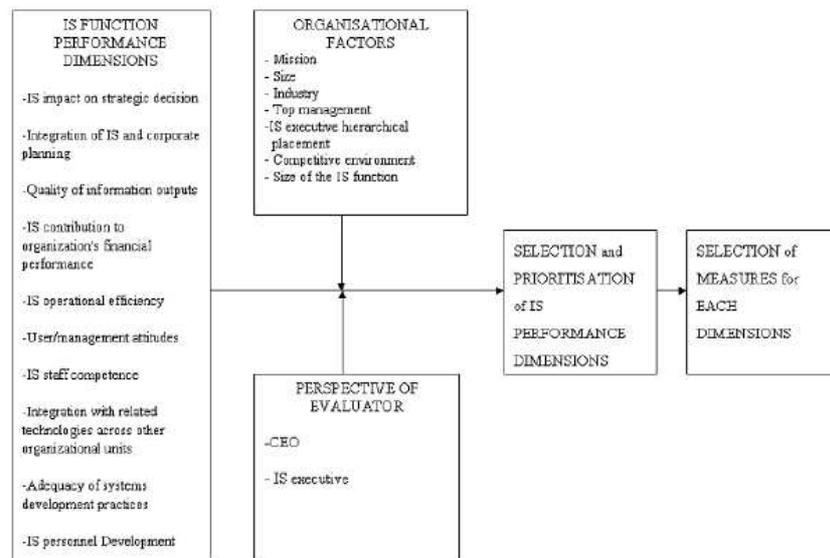
Sales and Marketing, Commissions, Service, Customer Contact, Call Center Support  
- CRM systems are not always considered part of ERP systems but rather BSS systems . Specifically in Telecom scenario

### Data Services

Various "self-service" interfaces for customers, suppliers and/or employees

### Access Control

Management of user privileges for various processes



### Components

- Transactional database
- Management portal/dashboard
- Business intelligence system
- Customizable reporting

- External access via technology such as web services
- Search
- Document management
- Messaging/chat/wiki
- Workflow management

### **Best practices**

Most ERP systems incorporate *best practices*. This means the software reflects the vendor's interpretation of the most effective way to perform each business process. Systems vary in how conveniently the customer can modify these practices.<sup>[15]</sup> Companies that implemented industry best practices reduced time-consuming project tasks such as configuration, documentation, testing and training. In addition, best practices reduced risk by 71% when compared to other software implementations.<sup>[16]</sup>

### **Modularity**

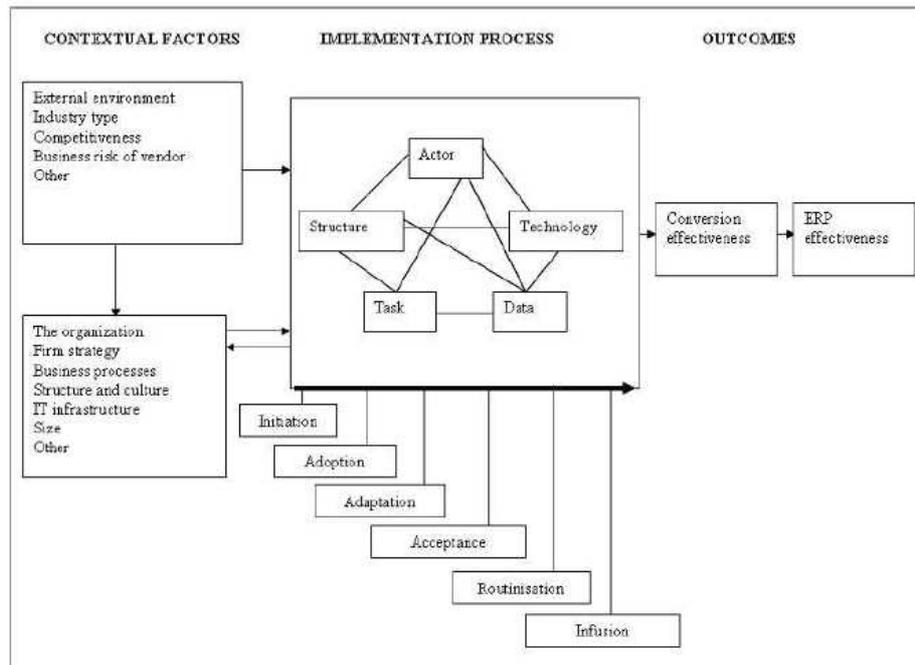
Most systems are modular to permit automating some functions but not others. Some common modules, such as finance and accounting, are adopted by nearly all users; others such as human resource management are not. For example, a service company probably has no need for a manufacturing module. Other companies already have a system they believe is adequate. Generally speaking, the greater the number of modules selected, the greater the integration benefits, but also the greater the costs, risks and changes involved.<sup>[citation needed]</sup>

### **Connectivity to plant floor information**

ERP systems connect to real-time data and transaction data in a variety of ways. These systems are typically configured by systems integrators, who bring unique knowledge on process, equipment, and vendor solutions.

### **Direct integration**

ERP systems have connectivity (communications to plant floor equipment) as part of their product offering. This requires the vendors to offer specific support for the plant floor equipment that their customers operate. ERP vendors must be expert in their own products, and connectivity to other vendor products, including competitors.



**Database integration**—ERP systems connect to plant floor data sources through staging tables in a database. Plant floor systems deposit the necessary information into the database. The ERP system reads the information in the table. The benefit of staging is that ERP vendors do not need to master the complexities of equipment integration. Connectivity becomes the responsibility of the systems integrator.

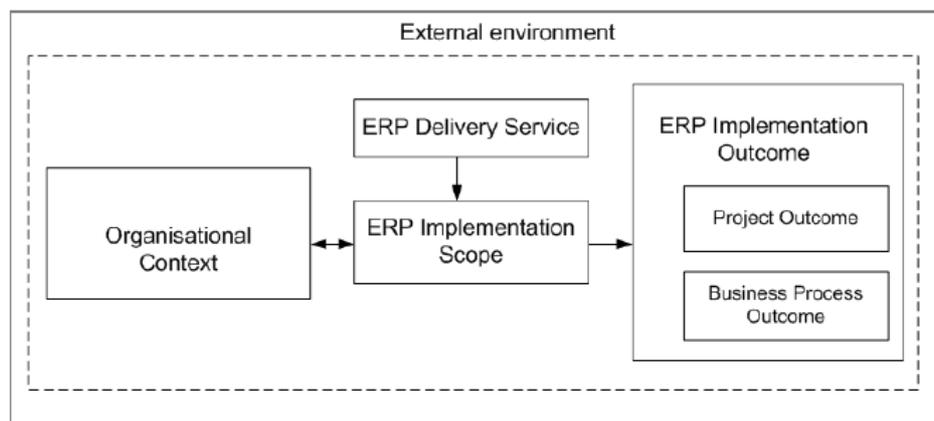
**Enterprise appliance transaction modules (EATM)**—These devices communicate directly with plant floor equipment and with the ERP system via methods supported by the ERP system. EATM can employ a staging table, Web Services, or system-specific program interfaces (APIs). The benefit of an EATM is that it offers an off-the-shelf solution.

### **Custom-integration solutions**

Many system integrators offer custom solutions. These systems tend to have the highest level of initial integration cost, and can have a higher long term maintenance and reliability costs. Long term costs can be minimized through careful system testing and thorough documentation. Custom-integrated solutions typically run on workstation or server class computers.

### Implementation

ERP's scope usually implies significant changes to staff work processes and practices.<sup>[17]</sup> Generally, three types of services are available to help implement such changes—consulting, customization, and support.<sup>[17]</sup> Implementation time depends on business size, number of modules, customization, the scope of process changes, and the readiness of the customer to take ownership for the project. Modular ERP systems can be implemented in stages. The typical project for a large enterprise consumes about 14 months and requires around 150 consultants.<sup>[18]</sup> Small projects can require months; multinational and other large implementations can take years.<sup>[citation needed]</sup> Customization can substantially increase implementation times.<sup>[18]</sup>



### Process preparation

Implementing ERP typically requires changes in existing business processes.<sup>[19]</sup> Poor understanding of needed process changes prior to starting implementation is a main reason for project failure.<sup>[20]</sup> It is therefore crucial that organizations thoroughly analyze business processes before implementation. This analysis can identify opportunities for process modernization. It also enables an assessment of the alignment of current processes with those provided by the ERP system. Research indicates that the risk of business process mismatch is decreased by:

- Linking current processes to the organization's strategy
- Analyzing the effectiveness of each process
- Understanding existing automated solutions<sup>1</sup>

ERP implementation is considerably more difficult (and politically charged) in decentralized organizations, because they often have different processes, business rules, data semantics, authorization hierarchies and decision centers. This may require migrating

some business units before others, delaying implementation to work through the necessary changes for each unit, possibly reducing integration (e.g. linking via Master data management) or customizing the system to meet specific needs.

A potential disadvantage is that adopting "standard" processes can lead to a loss of competitive advantage. While this has happened, losses in one area are often offset by gains in other areas, increasing overall competitive advantage.

### **Configuration**

Configuring an ERP system is largely a matter of balancing the way the customer wants the system to work with the way it was designed to work. ERP systems typically build many changeable parameters that modify system operation. For example, an organization can select the type of inventory accounting—FIFO or LIFO—to employ, whether to recognize revenue by geographical unit, product line, or distribution channel and whether to pay for shipping costs when a customer returns a purchase.

### **Customization**

ERP systems are theoretically based on industry best practices, and are intended to be deployed *as is*. ERP vendors do offer customers configuration options that allow organizations to incorporate their own business rules but there are often functionality gaps remaining even after the configuration is complete. ERP customers have several options to reconcile functionality gaps, each with their own pros/cons. Technical solutions include rewriting part of the delivered functionality, writing a homegrown bolt-on/add-on module within the ERP system, or interfacing to an external system. All three of these options are varying degrees of system customization, with the first being the most invasive and costly to maintain. Alternatively, there are non-technical options such as changing business practices and/or organizational policies to better match the delivered ERP functionality.

### **Extensions**

ERP systems can be extended with third-party software. ERP vendors typically provide access to data and functionality through published interfaces. Extensions offer features such as:

- Archiving, reporting and republishing
- Capturing transactional data, e.g. using scanners, tills or RFID
- Access to specialized data/capabilities, such as syndicated marketing data and associated trend analytics
- Advanced planning and scheduling (APS)
- Managing resources, facilities and transmission in real-time

**Data migration**

Data migration is the process of moving/copying and restructuring data from an existing system to the ERP system. Migration is critical to implementation success and requires significant planning. Unfortunately, since migration is one of the final activities before the production phase, it often receives insufficient attention.

**ERP Vendors in Indian Market**

Enterprise resource planning systems are MIS (Management Information systems) that integrate all business process in central database. It automates the business practices associated with the production, operations and distribution aspects of an organization engaged in manufacturing products or services.

There are few well-known ERP vendors available in India. SAP, Oracle Apps, Microsoft Dynamics (Navision Axapta), SSA Global Technologies, Infor Global, QAD and Exact Software are offering ERP software for big organization. SAP and Oracle are the key players in this field. SAP and Oracle has launched there ERP for SME segment. Apart from the above vendors, 3i-Infotech, Ramco Systems, The Sage Group, ESS, Godrej, Intentia and many other are also available for SME segment in Indian market as well as in other market like Africa, Gulf, SE Asia etc.

SAP (Systems, Applications and Products in Data Processing) was founded in 1972 in Germany. The SAP R/3 enterprise application suite for open client/server architecture are considered as excellent but not perfect. In SAP R/3, R stands for real time and 3 stands for three tier architecture (Database layer, Application layer and Client layer). SAP software has a very high level of integration among its individual applications.

Inform is a global provider of Enterprise Resource Planning for manufacturing, distribution, chemical, pharmaceuticals, food and beverage and other business verticals. It is the world 3rd largest ERP Company in the world.

**Conclusion**

ERP systems continually evolve to meet demands for additional functionality, capability, and expanded deployments throughout the organisation. Furthermore business requirements are in a state of continuous change to respond to the ever dynamic environment. Given that there is no "hard-stop" implementation end-point.

**References**

1. Bidgoli, Hossein, (2004). *The Internet Encyclopedia, Volume 1, John Wiley & Sons, Inc. p. 707.*
2. Khosrow-Puor, Mehdi. (2006). *Emerging Trends and Challenges in Information Technology Management. Idea Group, Inc. p. 865.*
3. *A Vision of Next Generation MRP II", Scenario S-300-339, Gartner Group, April 12, 1990*

4. Anderegg, Travis. "MRP/MRP/ERP/ERM – Confusing Terms and Definitions for a Murkey Alphabet Soup". <http://www.wlug.org.nz/EnterpriseSpeak>. Retrieved 2007-10-25
5. "ERP". <http://www.erp.com/component/content/article/324-erp-archive/4407-erp.html>. Retrieved 2009-10-07.
6. Shields, Murell G., *E-Business and ERP: Rapid Implementation and Project Planning*. (2001) John Wiley and Sons, Inc. p. 9.
7. Chang, SI; Guy Gable; Errol Smythe; Greg Timbrell (2000). "A Delphi examination of public sector ERP implementation issues". *International Conference on Information Systems*. Atlanta: Association for Information Systems. pp. 494-500. ISBN ICIS2000-X. <http://portal.acm.org/citation.cfm?id=359640.359793>. Retrieved September 9, 2009.
8. (Second ed.). Boston: Thomson Course Technology. 2006. ISBN 0-619-21663-8
9. "The Bryan School of Business and Economics at UNCG – Exceptional Problem Solvers". [http://www.uncg.edu/bae/people/holderness/readings/ERP\\_is\\_Dead--Long\\_Live\\_ERP\\_II.pdf](http://www.uncg.edu/bae/people/holderness/readings/ERP_is_Dead--Long_Live_ERP_II.pdf). Retrieved 2012-11-08.
10. Ferdows, K. (1997). "Making the most of foreign factories," *Harvard Business Review*, 75(2), 73-88.
11. Gill, R. (2011). "The rise of two-tier ERP." *Strategic Finance*, 93(5), 35-40, 1.
12. Montgomery, Nigel (2010). "Two-Tier ERP Suite Strategy: Considering Your Options." Gartner Group. July 28, 2010. Retrieved September 20, 2012.
13. Kovacs, G. L., & Paganelli, P. (2003). "A planning and management infrastructure for large, complex, distributed projects - beyond ERP and SCM." *Computers in Industry*, 51(2), 165-165.
14. Shields, Murell G., *E-Business and ERP: Rapid Implementation and Project Planning*. (2001) John Wiley and Sons, Inc. p. 9-10.
15. Monk, Ellen and Wagner, Brett. "Concepts in Enterprise Resource Planning" 3rd.ed. Course Technology Cengage Learning. Boston, Massachusetts. 2009
16. "Enhanced Project Success Through SAP Best Practices - International Benchmarking Study". ISBN 1-59229-031-0.
17. What is ERP?, <http://www.tech-faq.com/erp.shtml>
18. "Critical Issues Affecting an ERP Implementation". *Information Systems Management*. Auerbach Publications. 1999. p. 7. [http://carl.sandiego.edu/gba573/critical\\_issues\\_affecting\\_an\\_erp.htm](http://carl.sandiego.edu/gba573/critical_issues_affecting_an_erp.htm). Retrieved 2013-01-10.
19. Turban et al. (2008). *Information Technology for Management, Transforming Organizations in the Digital Economy*. Massachusetts: John Wiley & Sons, Inc., pp. 300-343. ISBN 978-0-471-78712-9
20. Brown, C., and I. Vessey, "Managing the Next Wave of Enterprise Systems: Leveraging Lessons from ERP," *MIS Quarterly Executive*, 2(1), 2003.
21. King. W., "Ensuring ERP implementation success," *Information Systems Management*, Summer 2005.