Enterprise Resource Planning

Manoj Kumar Shukla
Master of Computer Application, 2nd year

Abstract:

In 1990, Gartner Inc., a US company providing advice about business technology, has introduced the acronym 'ERP' (Enterprise Resource Planning). Enterprise Resource Planning (ERP) system represents one of the fastest-growing segments of the business software market. The best of this mammoth database workflow program offers large companies a new elegant way to integrate information across an organization. These system implement business process within the organization to achieve synergy in operation across various business units. One of the key features of a true ERP system is that the data is capture at the point of origin and impact all related subsystem thereby making it available to every participant in the processes. It is meant to integrate the entire enterprise, starting from supplier/ vendor to the customer covering not only financial inbound and outbound logistics and human resources but also cross-functional supply chain optimization and execution and business intelligence function sets. This is a very complex subject and to understand it properly you need to have a certain level of business functional knowledge. Here I am going to explain in brief the objective, needs, components and implementation of ERP.

1. Introduction:

The story begins in the early 1960's when the commercial availability of computer provided a break through in data processing, capability. This was readily exploited through the development of inventory management system for manufacturing. The first of them was the Bill of Material Processing. From this, software was developed that enable future material requirement to be determined. In other words these were material ordering and planning system. This Material Requirement Planning (MRP) system tended to be written by the organization using them and was mainframe based. The 1980's were also a period for the development of the concept of computer integrated manufacturing. Under lying this was the philosophy of the fully automated and integrated factory. Hardware and software development enabled integration between product design (CAD) and manufacturing equipment (CAM). Another 1980s development was the technology to capture, store, retrieve, distribute and process documents/ images in other words image/document management system. From this emerged what has become known as workflow. By the early 1990s, the concept of workflow had expanded beyond the processing of document/images to broadly encompass the automation of processes.

In 1990, a concept develop by Gartner Group describing, the next generation of manufacturing business system and manufacturing resource planning (MPRII) software .It includes the Client/Server architecture uses graphical user interface (GUI) and can be crafted with open system. Beyond the standard functionality that is offered, other feature are included (e.g. quality, process operations, managements and regulatory reporting) In addition the base technology used in ERP will give users software and hardware independences as well as easy upgrade path .Key to ERP is the way in which user can tailor the application, so it is individually easy to use.

2. Definition:

An advanced planning and scheduling system through which orders are entered directly into the company's planning systems, and manufacturing is co-ordinated to take advantage of full systems integration, from material supply through final goods production. Various systems will include a menu of possible applications.

3.Objectives Of ERP System:

The objectives of the ERP system are as follows:

- **Contigency Factor:** Provide support for

all variations of best business purchases.

- **Productivity:** Enable implementation of these practices with a view towards enhancing productivity.
- **Customer-Tailor Made:** Empower the customer to modify the business processes to suit their needs.
- **Image Building:** Foster the image of the enterprise products and services.

4. Features of ERP Software:

An ERP system is not merely a database with some programming bolted on. What becomes apparent when looking at different systems are the different ways vendors have developed their technology. It not only deals with the business processes but can also provide:
1) Improved access to information
2) Assistance for all aspects of the implementation, including process modeling and documentation.
3) Tools to support training and development.

5. Why We Need ERP?

A major problem faced by Indian enterprises today is the lack of basis integration of data amongst different functions like finance, production, material and sales. This can be attributed mainly to the fact that personnel computers were installed by individual departments over a period of time to perform departmental task and no serious attempt was made to integrate the various functions carried out by different departments. It is common to find companies having computers in stores, but not connected to the finance department. As a result, finance will enter data again in their financial accounting system and a host of people will be spending their time trying to reconcile the statements from the two departments!

6. Implication of Lack of Integration:

In the early days when the enterprises were small, organizations had a customer focus. As they grew, they created different functions to manage the system more efficiently. Unknowingly, this created barriers amongst different functions and led to problems like:

The CEO has to struggle hard through many review meetings to simply get to the true status of key performance factors.

Department head has become less sensitive to enterprise wide impact of what they do in their individual departments. For example, a Production Manger who is judged on increased equipment utilization does not bother about its adverse implication on inventory turnovers or work-in-progress built up.

Despite major investment in Information Technology, people do not get the information they really at the time they need most. This, in turn, leads to the poor quality of managerial decisions. Ultimately, all these affect the organization's financial hygiene and general health like profitability and return on investment.

7. ERP Implementation Methodology:

A methodology allows you to make an educated guess on the implementation sequence that best fits your organization. It helps you in creating a project plan, tracking project progress, monitoring deliverables and in estimating resource requirements.

ERP Implementation Lifecycle incorporates the following five tracks that run through out the duration of the lifecycle:
- Business process analysis
- Change management
- Technical infrastructure development
- Programming for enhanced package feature
- Project management.

8. Implementation Phase:

1) The mainstream Implementation,
2) The Post-Go-Live on-line functioning of the application, and
3) The adaptation of the functionality as part of on going process improvements.

9. What Constitute Successful ERP Implementation?

1) A well-defined project organization structure which details the project planning, execution and monitoring mechanism.
2) An attitude which stresses on business transformation instead of process automation, and
3) An approach which brings out the proper integration of people, process and technology through effective management of change.

Expectations	Fears	Realities
An improvement in process. Increased productivity on all fronts. Total automation and disbanding of all manual processes. Improvement of all key performance indicators. Elimination of all manual record keeping. Real time information systems available to concerned people on a need basis. Total integration of all operations	Job redundancy. Loss of importance as information is no longer an individual prerogative. Change in job profile. An organizational fear of loss of proper control and authorization. Increased stress caused by greater transparency. Individual fear of loss of authority.	Changing the organization involves three levels – strategic, business process and change and consequential organization change. Changing the organization requires a mindset change. Without a willingness to change, it would be a classic case of an old organization plus new technology leading to an expensive old organization. In most companies in India, many process-related key performance indicators have not been measured till now ———either because the company did not feel it necessary or lacked the tools to do so. Measuring such indicators brings in a new culture. The generic nature of the ERP packages is such that there would be processes peculiar to some sectors and organizations which may have to be kept out of the process. Some of the processes are better done manually.

10. Some Common Reason For Failed Implementations:

1. Wrong people in development team.
2. Requirement not properly defined.
3. Poorly understood business process.
4. Lack of end user involvement.
5. Inexperienced personnel provided by vendor of systems integrator.
6. Inadequate attention of personnel provided by vendor of systems integrator.
7. Lack of upper management understanding, involvement and/ or visibility.

11. Post-Implementation Blues:

Even with all the preparations during the implementation, during post-implementation there will be need for course correction many times for some below-mentioned reason:

1. A change in business environment requires a change in the Critical Success Factors(CSF), resulting in a new or changed set of Key Performance Indicators(KPI) necessitating reconfiguration,
2. A review indicates a need for changes in some process,
3. Vision changes in the ERP and improvements in the hardware,

4. Communication technology necessitate changes, and

5. New additions to the business require extra functionality.

If the company feels inadequacy in term of return on investment or desire to improve existing system, then it can go for ERP audit, which is an emerging trend.

12. Case Studies On Arvind Mills [2]

Arvind Mills is the leading textile manufacturing company of the country and the third largest denim producer in the world. In keeping with its growth objectives, the organization is investing in the new projects in high values cotton shirting fabric, knit fabric and bottom weight fabric.

Arvind Mills has always been a pioneer in using modern methods and techniques in management and technologies. It identified information technology as a major business driver and enabler for creating the right business infrastructure, to cope with the pressure of globalization and increased competition.

Industry: Textiles.

Solution Area: Supply Chain Management.

Problem: In keeping with the growth and diversification plans of ABC Rs1,2000 crore was invested in state of the art manufacturing facilities in Sanjet about 20 Km from A1.These plants have the very latest and most advanced textile machinery available. The target customers of this Greenfield project are top international and domestic apparel bands. Typically, these bands come up with designs for the coming season and work in close coordination with the fabric supplier for developing and finalizing the look of their garments. It was felt that to service these discerning customers, Arvind Mills would require a world-class Supply Chain Management system.

Solution: A host of packages were evaluated, keeping in mind the above requirement. The global presence of the company's customers merited a world class ERP package that supported all global practice and conventions in Supply Chain Management. SAP, the world's largest ERP package company was considered to be the best choice .SAP is a very comprehensive package and has the maximum number of installations worldwide and has incorporated the best practices in its package. SAP also agreed to assist Arvind Mill in addressing certain textile-specific requirements through innovative process work around as well as in customization.

Implementation: XYZ, one of the leading information technology management consultants in the country, was selected by SAP India to provide additional project management up root and techniques. Arvind Mills core team was taken through extensive SAP product training at the SAP facility at Bangalore. As required by SAP Arvind Mills created a "war room" project facility, resulting in better focus and also ensured that Arvind Mills SAP and Coopers and Lybrand worked as one team. The entire project was implemented in about seven months.

Since an ERP implementation involves change management in the organization the constant support of senior management was a key driver. A project steering committee consisting of senior members of the Arvind Mills, SAP India and XYZ closely monitored the progress.

Benefits: Major benefit was envisaged in strengthen the supply chain management and customer order execution. It was felt that the planning for raw materials and for work in progress goods would show substantial improvement. SAP would help in stand arising business process in various functional areas within the organization. Since, it is an integrated package, it gives a lots of online information to the senior management reading the performance of the organization. Earlier, the same information required some time in consolidation and compilation.

13. Conclusion:

In a seminar on ERP, the presenter, a General Manager for materials, described the ERP system as "It is a damsel during evaluation, transform into an elephant during implementation and finally a dinosaur after some time". Clearly this organization did not reap the benefits of the ERP. It is worth remembering that the ERP system is merely a tool to facilitate activities within the business. Thus when improvements occur they need not be directly concerned with the ERP system.

Improvements in the use of the ERP system are an outcome of improvements in the process. These improvement seed must be sown in organization under a banner of Total Quality Management or Continuous Improvement Programme. Another aspect is the culture. From an ERP perspective a culture that embraces change is desirable. It forms a part of the condition conducive for change. When the point in time is reached where the tool – ERP system- is viewed more as a hindrance than an enabler, then the implementation cycle completes the circle. The question that is asked is whether to upgrade the system or replace with a new system. Whichever the decision, the outcome is to start the cycle again.

14. References:

1. Diwan, Sharma ERP , Pentagon Press
2. Diwan, Sharma ERP , Pentagon Press
3. Harwood ERP The Implementation Cycle, Computer Weekly Professional Series.

[3]Table 2: A selection of major ERP vendors and subsequent date of acquisition:

Established	Company	Headquarters	Acquired by	Acquisition date	Notes
1972	SAP	Germany			
1975	Data Works	US	Platinum (U.S.)	Dec 1998	Platinum, founded 1984, was renamed Epicor in 1999
1977	JD Edwards	US			
1977	Oracle	US			
1978	BAAN	Netherlands	Invensys (U.K.)	Sep 2000	Invensys resulted from merger of BTR and Siebel in 1999
1979	QAD	US			
1979	Tetra	UK	Sage (UK)	Mar 1999	
1981	SSA	US	SSA Global Technologies (US)	Apr 2000	SSA GT was formed in August 2000 as a subsidiary to Gores Technology Group
1981	JBA	UK	Geac (Canada)	Oct 1999	Geac
1982	Fourth Shift	US	AremisSoft Business Solutions US)	Apr 2001	
1983	IFS	Sweden			
1984	Intentia	Sweden			
1987	Peoplesoft	US			
1993	MARCAM	US	Invensys (US)	Jun 1998	MARCAM was an IBM spin-off in 1993.