**ERP System**

**ABSTRACT:**

**Enterprise Resource Planning (ERP)** systems integrate various organizational functions into a unified software solution, yet their implementation often faces complexities, with many deployments failing to realize expected benefits. This study focuses on post-implementation challenges, commonly encountered after the system goes live. Using a mix of qualitative and quantitative methods, including interviews and surveys, we identify key issues and provide a conceptual guide for successful ERP post-implementation. The research contributes to understanding ERP implementation beyond developed nations, offering insights applicable to organizations of diverse types and sizes.

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**CHAPTER – 1**

**Introduction**

* 1. What is ERP?

An **[ERP software system](https://www.sap.com/india/products/erp.html" \t "_self)** is a set of integrated applications or modules for managing a company’s core business processes – including [finance and accounting](https://www.sap.com/india/insights/erp-finance.html" \t "_self), [supply chain](https://www.sap.com/india/insights/supply-chain.html" \t "_self), [HR](https://www.sap.com/india/insights/employee-experience.html" \t "_self), [procurement](https://www.sap.com/india/insights/procurement-business-networks.html" \t "_self), sales, inventory management, and more. ERP modules are integrated into one complete system and share a common database to streamline processes and information across the enterprise Businesses can expand the scope of their ERP as they grow.

* 1. Components of ERP:

The components of an ERP system typically include:

* + 1. Core Modules: These are the fundamental components of an ERP system that address primary business functions. Core modules can include:

1. Finance and Accounting: Handles financial transactions, general ledger, accounts payable/receivable, budgeting, and reporting.
2. Human Resources (HR): Manages employee information, payroll, benefits administration, recruitment, training, and performance evaluation.
3. Supply Chain Management (SCM): Covers procurement, inventory management, order processing, logistics, and supplier management.
4. Manufacturing: Controls production planning, scheduling, work orders, bill of materials (BOM), quality control, and shop floor operations.
5. Customer Relationship Management (CRM): Manages customer interactions, sales force automation, marketing campaigns, lead tracking, and customer service.
   * 1. Customization and Integration Tools: ERP systems often provide tools for customization and integration with other software applications. This enables organizations to tailor the ERP system to their specific business processes and integrate it with existing systems such as customer relationship management (CRM) software, business intelligence (BI) tools, or e-commerce platforms.
     2. Database Management System (DBMS): A robust DBMS serves as the foundation for storing, managing, and retrieving data within the ERP system. Common examples include Oracle, Microsoft SQL Server, MySQL, and PostgreSQL.
     3. Reporting and Analytics: ERP systems offer reporting and analytics capabilities to help users make informed decisions based on real-time data. This can include standard reports, ad-hoc querying tools, dashboards, and data visualization features.
     4. Security and Access Control: ERP systems implement security measures to protect sensitive data and regulate access to different modules and functionalities based on user roles and permissions. This includes features such as user authentication, encryption, role-based access control (RBAC), and audit trails.
     5. Mobile and Cloud Capabilities: Modern ERP systems often provide mobile applications or web-based interfaces to enable users to access the system remotely from various devices. Cloud-based ERP solutions offer scalability, flexibility, and accessibility without the need for extensive on-premises infrastructure.
     6. Workflow Automation: ERP systems streamline business processes by automating repetitive tasks, approvals, and workflows. This improves efficiency, reduces errors, and accelerates decision-making across the organization.
     7. Support and Maintenance Services: ERP vendors offer support services to assist users with implementation, training, troubleshooting, and ongoing maintenance of the system. This ensures smooth operation and optimal performance of the ERP environment.

These components work together to provide organizations with a centralized platform for managing their resources, optimizing operations, and driving business growth.

* 1. Who invented ERP?

The invention of **Enterprise Resource Planning (ERP)** cannot be attributed to a single individual, as it represents the culmination of various technological advancements and the evolution of business management practices over several decades. However, the development of ERP systems can be traced back to the emergence of **Material Requirements Planning (MRP)** systems in the 1960s and 1970s.

One of the pioneering ERP vendors was **SAP (Systems, Applications, and Products in Data Processing),** a German software company founded in 1972. SAP developed one of the first commercially successful ERP systems, known as SAP R/3, which was launched in 1992. SAP R/3 introduced a modular architecture and client-server technology, allowing organizations to customize and scale their ERP implementations according to their specific needs. Since the introduction of SAP R/3, numerous other ERP vendors have entered the market, offering a variety of ERP solutions tailored to different industries and business needs.

* 1. Why ERP is to be implemented?

Generally organizations today face the twin challenges of globalization and shortened product life cycle. To face such competition, mills/companies have to follow the best business practices in the industry. Shortened life cycles call for continuous design improvement, manufacturing flexibility, super-efficient logistics control and better management of the entire supply chain. These call for faster access to accurate information both inside the mill/company and from the entire supply chain outside. ERP systems with a company wide view of business processes, business needs of information and flexibility meet these demands. Because of the state-of-the art developments in computing and communication technology, it is possible to network mill/company units through reliable communication channels, providing close interaction among them.

* 1. When ERP can be implemented?

WTO has earmarked 31st December 2004, for phasing out the quota regime for trading. To face the competition because of globalization, a company/mill has to equip itself by following e-commerce, ERP systems, BPR etc. Hence, ERP concepts have to be understood and implemented as early as possible to sustain in the race for survival, irrespective of the mills/company’s structure.

* 1. History of ERP

**1960: Early Beginnings**

The term ERP was first used in the 1990s by the Gartner Group, but enterprise resource planning systems actually have their roots deep in the manufacturing industry and can trace their history back to the 1960s.

At this time, manufacturers needed a better way to manage, track, and control their inventory. Basic software solutions, known as MRPs or Material Requirements Planning systems, were developed to meet their needs. These systems helped manufacturers monitor inventory and reconcile balances, as well as included very basic manufacturing, purchasing, and delivery functions.

**1970s and 1980s: MRP systems**

Through the 1970s, more and more manufacturers started to adopt MRP systems, and the systems themselves became more sophisticated. By the 1980s, MRP systems evolved into what became known as MRP II or Manufacturing Resource Planning systems. More manufacturing processes were added to the original MRP Systems, and these MRP II systems had expanded capabilities and were better able to handle scheduling and production processes.

**‍1990s and beyond: True ERPs**

In the 1990s, the first true ERP systems came into use. These systems further expanded beyond previous iterations’ basic inventory control and manufacturing processes to include other departments and functions, such as accounting, finance, and sales. These systems set the stage for ERP solutions as we’ve come to know them today, by integrating multiple processes and departments into one system.

**2020s: Big data and artificial intelligence**

‍Over the next few decades, ERP systems became more advanced. In recent years, big data and AI have transformed ERP systems again, making them more powerful and adaptive. Big data enables ERP systems to handle massive amounts of information, providing businesses with valuable insights into their operations. **AI** adds a layer of intelligence, allowing ERP systems to learn from data patterns and make informed predictions, and AI-driven automation streamlines repetitive tasks.

The integration of big data and AI in ERP systems has ushered in a new era of agility and intelligence, empowering manufacturers to navigate the complexities of the modern business landscape.

We can observe the history of Enterprise Resource Planning (ERP) in the figure1.2.1

Figure 1.2.1: History of Enterprise Resource Planning(ERP)

* 1. How ERP connects?

ERP connects and integrates all these different aspects of your business and lets you streamline your processes and share accurate information across your company. The central feature of all ERP systems is a shared database that supports multiple functions and that can be used by all of your different departments.

In real-world terms, this means that employees from two different departments, for example, inventory and production, can both work off of the same set of accurate data and pull the relevant information from the system that they need to do their jobs more efficiently and effectively. ERPs let you eliminate entering the same data multiple times into multiple systems or spreadsheets, provide you with a single source of truth for your organization, and allow information to flow more freely between departments.

In a nutshell, an ERP allows you to better plan your enterprise’s resources. Because all your various business functions are integrated within an ERP, you can better manage your business as a whole, collaborate more easily between departments, and get orders out the door and into your customer’s hands faster.

**CHAPTER – II**

2.1 Departments involved in ERP?

1. Merchandising
2. Planning
3. Sourcing
4. Inventory
5. Production
6. Shipping
7. Finance
8. Sampling

2.1.1 Merchandising:

The act of marketing, processing, and selling goods to customers is known as merchandising. It uses a variety of tactics, including negotiation, price fixation, advertising, promotion, order confirmation, and product display, to draw clients and increase sales. The idea includes every step of the process, from product selection to shelf stocking, visual displays, inventory management, and profitability and customer happiness maximization. Understanding customer behavior, industry trends, and rival strategies is essential to effective merchandising to provide experiences and offers that appeal to the target market. Textile merchandisingorGarments merchandising is also about similar things.

Merchandising is all about educating and informing your customers about the products you sell once you know what they want. By staying on top of new concepts and trends, it’s easier to change the way you present your products to get the attention of buyers.

Merchandising is the Department that connects product manufacturers & customers. It is the way to process used to motivate and sustain certain categories of commercial activity. It includes directing and overseeing the development of the product line from start to finish. The marketing and merchandising department represents their new product to customers. It is the forecast of retail customers within their budget, an ongoing concern. Offering their apparel product on your website & meeting about seasonal products, special displays, and price plans is another way to merchandise your goods.

2.1.2 Planning:

The production planning and control (PPC) department is one of the most important parts of the Textile and apparel industry. We get orders from the buyer with an estimated delivery date, so the production allocation and optimum capacity utilization are necessary here, here is the role of the planning department. This department first works on factory capacity calculations before receiving orders. After that, they collect raw materials like fabric, trims, and accessories from the sourcing team; size and planning; cutting marker setup; many sewing lines allocated; and also, bulk cutting and production date set up based on the order receiving date to shipment date. The best thing about the production planning and control department not only having a control execution from every aspect like merchandising, production, and QC. So that they will be on-time shipment to the buyer’s requirements.

2.1.3 Sourcing:

The sourcing department is responsible for getting all the materials needed to make their products. This includes things like fabrics, threads, buttons, and zippers. Their main job is to find the best companies to buy these materials from. They look for suppliers who can give them good quality materials at a good price, and who they can rely on to deliver on time.

Once they've found the right suppliers, the sourcing team negotiates with them to make deals. They work to get the best prices and terms for the materials they need. They also create contracts to make sure everyone understands what's expected. After making the deals, they place orders for the materials. They keep track of these orders to make sure everything arrives when it's supposed to.

One important part of their job is to make sure the materials they get are good enough. They check the quality of the fabrics and other items they receive. Sometimes they do tests to make sure everything is okay. The sourcing team also works on building good relationships with their suppliers. They talk to them regularly and work together to solve any problems that come up.

Another big part of their job is to find ways to save money for the company. They look for cheaper suppliers or try to negotiate better deals with their current ones. They also keep an eye on what's happening in the market to make sure they're getting the best prices.

Lastly, the sourcing department makes sure they're being responsible for how they get their materials. They make sure their suppliers treat their workers well and follow the rules. They also look for materials that are made in ways that don't harm the environment. Being responsible is an important part of their job.

2.1.4 Inventory:

In the textile industry, the inventory department manages all the materials and products the company has. Their job is to keep track of everything and make sure there's enough of what's needed for production.

They record and monitor all the materials like fabrics, threads, and accessories, types of machinery as well as finished products like clothes or textiles. They use systems to keep track of how much is in stock, what's been used, and what needs to be ordered. When materials run low, the inventory team places orders to restock them. They receive deliveries, check them against orders, and make sure everything's correct and in good condition.

The inventory department organizes materials and products in the warehouse. They make sure everything is stored properly and easy to find when needed. This helps to avoid wasting time looking for things and keeps the warehouse tidy. They work to prevent shortages by keeping an eye on inventory levels and ordering more when needed. At the same time, they try to avoid having too much stock sitting around, which can tie up money and space.

The inventory team provides reports on inventory levels and usage to other departments, like production or purchasing. They also analyze data to find ways to improve inventory management and reduce costs.

Overall, the inventory department plays a crucial role in ensuring that the textile company has the right materials at the right time to keep production running smoothly. They help to balance the need for enough stock to minimize excess and waste.

2.1.5 Production:

The production department in the textile industry is responsible for making the products. Firstly, they plan how to make the products and schedule when each step will be done. This involves deciding which fabrics to use, how many products to make, and how long each step will take. Next, they operate machines to cut, sew, and finish the fabrics to make clothes or textiles.

They use specialized equipment and techniques to turn raw materials into finished products. Quality control is another important part of their job. They check the products to make sure they're good quality and fix any problems. This ensures that customers receive products that meet their expectations and are free from defects. Meeting deadlines is crucial for the production department. They work to finish products on time to meet orders and customer deadlines. This requires efficient planning, coordination, and execution of production processes.

Lastly, they coordinate with other departments like sourcing and inventory to make sure they have the materials they need. They communicate regularly to ensure a smooth flow of materials and information throughout the production process. Overall, the production department ensures that the textile company's products are made efficiently and meet quality standards. Their work is essential for the company to meet customer demand and achieve success in the market.

2.1.6 Shipping:

The shipping department in the textile industry is responsible for getting products to customers. They gather products from the warehouse and package them for shipment. Then, they organize transportation, whether it's by truck, ship, or plane, to deliver products to customers. They keep track of where shipments are and make sure they arrive on time. Additionally, they handle paperwork like invoices, customs forms, and shipping labels to ensure smooth delivery. If there are any problems with shipments, they work to solve them quickly to keep customers happy.

Overall, the shipping department ensures that products are delivered safely and on time to customers, playing a crucial role in customer satisfaction.

2.1.7 Finance:

The finance department in the textile industry handles all the money matters. They manage the company's finances, like budgeting and planning how to use money wisely. They also keep track of all the money coming in and going out. They pay bills, like for materials and utilities, and collect payments from customers for products sold. They prepare financial reports, like profit and loss statements and balance sheets, to show how the company is doing financially.

They also handle things like payroll, taxes, and any other financial tasks needed to keep the company running smoothly. Overall, the finance department makes sure the textile company's money is managed properly and helps the company stay financially healthy.

2.1.8 Sampling:

The sampling department in the textile industry is responsible for creating samples of new designs or products. They work closely with the design team to bring new ideas to life by creating prototype samples. These samples allow the company to test the design, quality, and feasibility of new products before full-scale production.

The sampling department uses specialized equipment and techniques to produce small batches of samples. They may experiment with different materials, colors, and techniques to achieve the desired results. Once the samples are ready, they are evaluated for quality, fit, and design accuracy. Feedback from designers, customers, and production teams is used to refine the samples and make any necessary adjustments.

The sampling department plays a crucial role in the product development process, helping the company to innovate, stay competitive, and meet customer demands for new and exciting products.

**Functioning:**