



BHILAI INSTITUTE OF TECHNOLOGY, DURG (CG)

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Editor's Desk

As an institution which believes in academic pursuits which have practical implications, B.I.T Durg has always been a forerunner in academic endeavors setting benchmarks in education and industry.

This Newsletter aims at empowering professionals everywhere to lead more productive work lives by disseminating knowledge processed here at our campus.

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JUST IN TIME MANUFACTURING IS A PHILOSOPHY NOT A TECHNIQUE

JIT is a Japanese management philosophy which has been applied in practice since the early 1970s in many Japanese manufacturing organizations. It was first developed and perfected within the Toyota manufacturing plants by Taiichi Ohno as a means of meeting consumer demands with minimum delays. Taiichi Ohno is frequently referred to as the father of JIT. Toyota was able to meet the increasing challenges for survival through an approach that focused on people, plants and systems. Toyota realized that JIT would only be successful if every individual within the organization was involved and committed to it, if the plant and processes were arranged for maximum output and efficiency, and if quality and production programs were scheduled to meet demands exactly.

Just-in-Time (JIT) is not just a manufacturing technique but a philosophy of manufacturing that influences a company's relationship with its suppliers, customers, and employees. The two basic underpinnings of this philosophy are elimination of

anything that does not add value for the customer, and continuous improvement. Thus, the emphasis is on efficient utilization of resources, where resources can include time, material, and people. JIT activities include setup and lead time reduction, minimization of inventory, employee involvement in the decision-making process, cooperative arrangements with suppliers, and a focus on meeting the needs of the customer.

The JIT philosophy fosters an environment, where continuous improvements are sought in waste reduction and quality. Another important aspect of the JIT philosophy is that improves the relationships with employees, and employees are given broad problem-solving and decision-making authority.

Following are the things to remember When Implementing a Just-In-Time Manufacturing System

- Management buy-in and support at all levels of the organization are required; if a just-in-time manufacturing system is to be successfully adopted.
- Adequate resources should be allocated, so as to obtain technologically advanced software that is generally required if a just-in-time system is to be a success.
- Building a close, trusting relationship with reputed and time-tested suppliers will minimize unexpected delays in the receipt of inventory.

- Just-in-time manufacturing cannot be adopted overnight. It requires commitment in terms of time and adjustments to corporate culture would be required, as it is starkly different to traditional production processes.
- The design flow process needs to be redesigned and layouts need to be re-formatted, so as to incorporate just-in-time manufacturing.
- Lot sizes need to be minimized.
- Workstation capacity should be balanced whenever possible.
- Preventive maintenance should be carried out, so as to minimize machine breakdowns.
- Set-up times should be reduced wherever possible.
- Quality enhancement programs should be adopted, so that total quality control practices can be adopted.
- Reduction in lead times and frequent deliveries should be incorporated.
- Motion waste should be minimized, so the incorporation of conveyor belts might prove to be a good idea when implementing a just-in-time manufacturing system.

In general, companies employing JIT manufacturing practices enjoy reduced cycle times, faster times to market, and reduced operating costs, although there are some potential risks, especially for smaller organizations. In order to find success with JIT, it's important to find suppliers that are

close by, or that can supply materials quickly with limited advance notice. Sometimes, minimum order policies can pose a risk to smaller manufacturers who might order smaller quantities of materials.

Harsh Jain

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“POKA-YOKE” A SUCCESSFUL TECHNIQUE IN MANUFACTURING

Humans make mistakes, and these mistakes can cause defective products. Poka-Yoke, also known as mistake-proofing, is a technique for avoiding simple human errors at work. The idea was originally developed in the 1960s by Shigeo Shingo who was one of the IE engineers at Toyota.



Poka-Yoke's are mechanisms used to eliminate errors by effectively making it impossible to make mistakes in a given process. And they can be used everywhere. Poka-Yoke ensures that the right conditions exist before a process step is executed and thus preventing defects from occurring in the first place. Poka-Yoke is any mechanism in a Lean manufacturing process that helps to avoid mistakes.



Poka Yoke Approaches-

There are two types of regulatory function to prevent and detect errors, or we can say there are two types of approaches for mistake-proofing devices:

Control Approach: Control approach senses the error/problem and stops or shut down the machine/process so that corrective measures can be taken quickly, and thus preventing defects occurrence.

Warning Approach: The warning approach signals the occurrence of defects or mistakes through buzzers, lights, or other warning devices. However, the warning method does not shut down the machine or process on every occurrence.

Poka-Yoke Benefits-

1. Elimination of mistakes/errors/defects before they occur.
2. Detecting and correcting defects as they occur.
3. Improvement in product and process quality
4. Reduction in cost due to poor quality.
5. Reduction in customer complaints and rejection.
6. Prevention of defect outflow to customer.
7. Elimination of unwanted operations related to quality control.
8. Higher productivity.
9. Less burden on workers.
10. Enhance customer satisfaction.

Common examples of poka-yoke devices in manufacturing include magnets in a food-processing plant to detect and remove metal pieces before packaging, interlock switches that can identify the position of a machine's guard and switch off the machine when the guard is lifted, safety mats near dangerous machinery that automatically trigger a machine shutdown when someone steps on them, personal protective equipment like gloves that are in eye-catching colors for the food industry in case they fall into the food, and standardized containers at workstations that contain exact quantities of material.

Poka-Yoke technique is one of the most precious gems in the crown of Lean management. It is a way of ensuring quality without actually having a quality assurance process, rather than preventing defects to appear in the first place.

Mayank Chandwani

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ERP: AN EXCELLENT STRATEGIC WEAPON

Enterprise Resource Planning (ERP) can indeed be a strategic weapon, because it provides a necessary infrastructure that forms the transactional system of record upon which a business is based, it serves as a source of cost savings and operational improvements, and it streamlines and accelerates business processes.

As optimism increases for a worldwide economic recovery, small to mid-size enterprises (SMEs) once again look forward to revenue growth. As a result, SMEs must seek competitive advantages that enable them to contain costs to ensure that growth of revenues is not at the expense of profits. Enterprise Resource Planning (ERP) can indeed be a strategic weapon. Not only does it provide a necessary infrastructure that forms the transactional system of record upon which a business is based, but it also serves as a source of cost savings and operational improvements, streamlining and accelerating business processes, allowing SMEs to compete on the same stage as larger companies.

information about the activity and state of different divisions of the body corporate and makes this information available to other parts where it can be used productively. Information on the ERP is added in real time by users. Any authorized user with a valid password and access to the network can access the system any time.

The most widely used ERP modules include:

1. **Finance:** The finance and accounting module is the backbone of most ERP systems. In addition to managing the general ledger and automating key financial tasks, it helps businesses track accounts payable (AP) and receivable (AR), close the books efficiently, generate financial reports, comply with revenue recognition standards, mitigate financial risk, and more.
2. **Human resources management:** Most ERP systems include an HR module that provides core capabilities such as time and attendance and payroll. Add-ons, or even entire human capital management (HCM) suites, can connect to the ERP and deliver more robust HR functionality – everything from workforce analytics to employee experience management.
3. **Sourcing and procurement:** The sourcing and procurement module helps businesses procure the materials and services they need to manufacture their goods – or the items they want to resell. The module centralises and



ERP is most frequently used in the context of software. The ERP software functions like some a central nervous system for a business. It collects



automates purchasing, including requests for quotes, contract creation, and approvals. It can minimise underbuying and overbuying, improve supplier negotiations with AI-powered analytics, and even seamlessly connect with buyer networks.

4. **Sales:** The sales module keeps track of communications with prospects and customers – and helps reps use data-driven insights to increase sales and target leads with the right promotions and upsell opportunities. It includes functionality for the order-to-cash process, including order management, contracts, billing, sales performance management, and sales force support.
5. **Manufacturing:** The manufacturing module is a key planning and execution component of ERP software. It helps companies simplify complex manufacturing processes and ensure production is in line with demand. This module typically includes functionality for material requirements planning (MRP), production scheduling, manufacturing execution, quality management, and more.
6. **Logistics and supply chain management:** Another key component of ERP systems, the supply chain module tracks the movement of goods and supplies throughout an organisation's supply chain. The module provides tools for real-time inventory management, warehousing

operations, transportation, and logistics – and can help increase supply chain visibility and resilience.

7. **Service:** In an ERP, the service module helps companies deliver the reliable, personalised service customers have come to expect. The module can include tools for in-house repairs, spare parts, field service management, and service-based revenue streams. It also provides analytics to help service reps and technicians rapidly solve customer issues and improve loyalty.
8. **R&D and engineering:** Feature-rich ERP systems include an R&D and engineering module. This module provides tools for product design and development, product lifecycle management (PLM), product compliance, and more – so companies can quickly and cost-effectively create new innovations.
9. **Enterprise asset management:** Robust ERP systems can include an EAM module – which helps asset-intensive businesses minimise downtime and keep their machines and equipment running at peak efficiency. This module includes functionality for predictive maintenance, scheduling, asset operations and planning, environment, health and safety (EHS), and more.

The utilization of Enterprise Resource Planning software allows companies to



decrease the time it takes the company to get paid for its goods or services after the sale. Employing an ERP system allows for increased cash flow. The utilization of the ERP system's integrated system architecture removes the necessity for multiple, different systems to be used within the company and consolidates to the same system across multiple geographies.

Different locations can use and see the same data regardless of the physical geography and eliminates the knees for storing redundant data in multiple physical locations. The ERP system also eliminates the requirement for each location to upload or extract data to and from the central data storage site

ERP systems increase productivity by integrating data and processes across multiple departments and location which allows our company to move product faster, process orders quicker, invoice customers more aptly and reconcile shipments sooner.

Information flow is the lifeblood of any company. Utilizing an ERP system allows access to a multitude of company information. The ERP system also tends to have more accuracy and relevancy because it all comes from one source, not multiple sources. The ERP system will provide the company various reporting tools and make generating time

sensitive and up-to-date information faster and more user-friendly

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