CONTEMPORARY MANAGEMENT ACCOUNTING

CHAPTER 02

Contemporary Management Accounting

- Problems with traditional management accounting
- Just in time systems
- Total Quality Management
- Life cycle costing
- Lean manufacturing, Six sigma, Kaizan / Target costing
- Business Process Re-engineering
- Throughput Accounting
- Backflush accounting
- Evolution of systems – ERP & MRP

Traditional management accounting

Traditional management accounting systems are apparently inadequate for a modern business environment that focuses on marketing, customer service, employee involvement and total quality, and for modern industry using advanced manufacturing technology.

Limitation of traditional management accounting

- Globalization and increased competition
- Information technology changes resulting in changes in production and information flows
- Changes in organizations including internal reorganizations and external mergers
- Traditional management accounting systems may be inadequate for a modern business environment that focuses on marketing, customer service, employee involvement and total quality, and for modern industry using advanced manufacturing technology.

Performance measurement in traditional management accounting

Measurement	Respond	Consequence of action
Purchase price variance	Buy in grated bulk to reduce the cost	Excess inventory Higher holding costs Quality and reliability of delivery times ignored.
Labour efficiency variance	Encourage greater output	Possibly excess inventory of the wrong products.
Machine utilization	Encourage more running time	Possibly excess inventory of the wrong products.
Cost of scrap	Rework items to reduce scrap	Production flow held up by reworking.

Performance measurement in traditional management accounting Cont..

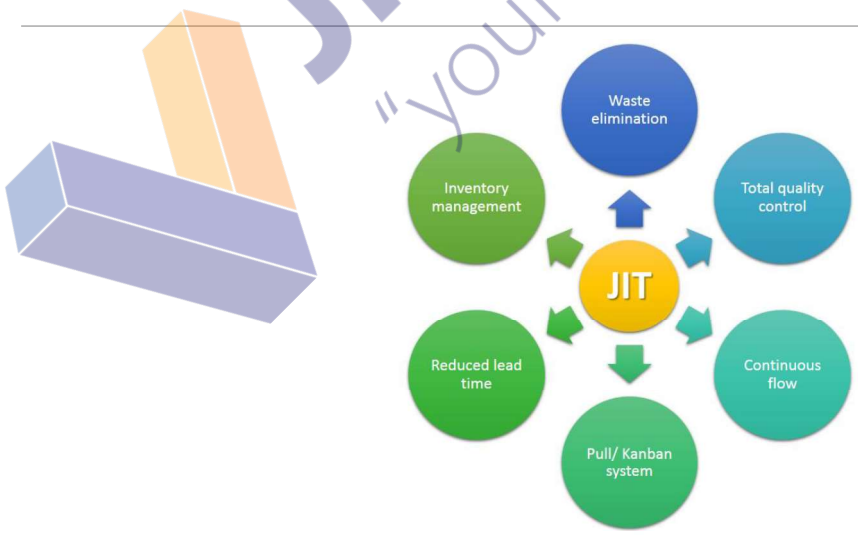
Measurement	Respond	Consequence of action
Scrap factor included in standard cost	Supervisor aims to achieve actual scrap = standard scrap	No motivation to get it right first time
Traditional absorption costing	Produce more output to reduce unit costs and/or over-recover overhead	Excess inventory, possibly of unwanted products
Cost center reporting	Management focus is on cost centre activities, not overheads	Lack of attention to activities where cost reduction possibilities might exist

Just In Time Systems

Just-in-time (JIT) is a system whose objective is to produce or to procure products or components as they are required (by a customer or for use) rather than for inventory.

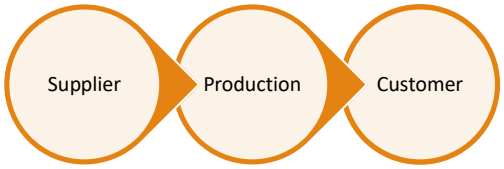
A JIT system is a **'pull'** system, which responds to demand, in contrast to a **'push'** system, in which inventories act as buffers between the different elements of the system, such as purchasing, production and sales.

Just In Time Systems



Push Vs Pull System

Push system



Pull system

Just In Time Systems

Just-in-time production is a production system that is driven by demand for finished products whereby each component on a production line is produced only when needed for the next stage.

Just-in-time purchasing is a purchasing system in which material purchases are contracted so that the receipt and usage of material, to the maximum extent possible, coincide.

What need JIT to be operated?

High quality	Disruption in production due to errors in quality will reduce throughput and also the dependability of internal supply
Speed	Throughput in the operation must be fast so that customer orders can be met by production rather than from inventory
Reliability	Production must be reliable and not subject to hold-ups
Flexibility	Production must be flexible, and in small batch sizes, to respond immediately to customer orders
Lower cost	High-quality production, faster throughput and elimination of errors will result in reduced costs

The JIT philosophy

JIT can be regarded as an approach to management that encompasses a commitment to continuous improvement and the search for excellence in the design and operation of the production management system. Its aim is to streamline the flow of products through the production process and into the hands of customers.

The JIT philosophy originated in Japan in the 1970s, with companies such as the car manufacturer Toyota. At its most basic, the philosophy is:

(a) To do things well, and gradually do them better (**continuous improvement)**

(b) To **squeeze waste out of the system**

Any drawback of JIT?

A criticism of JIT, in its extreme form, is that having no inventory between any stages in the production process ignores the fact that some stages, by their very nature, could be less reliable than others, and more prone to disruption.

It could therefore be argued that some inventory should be held at these stages to provide a degree of extra protection to the rest of the operation.

Key elements of JIT philosophy

Elimination of waste	Waste is defined as any activity that does not add value. Examples of waste identified by Toyota were: · Waiting time. Waiting time can be measured by labour efficiency and machine efficiency. · Transport. Moving items around a plant does not add value. Waste can be reduced by changing the layout of the factory floor so as to minimize the movement of materials. · Inventory. The target should be to eliminate all inventory by tackling the things that cause it to build up.
The involvement of all staff in the operation.	JIT is a cultural issue, and its philosophy has to be embraced by everyone involved in the operation if it is to be applied successfully. Critics of JIT argue that management efforts to involve all staff can be patronizing.
Continuance improvement	The ideal target is to meet demand immediately with perfect quality and no waste. In practice, this ideal is never achieved. However, the JIT philosophy is that an organization should work towards the ideal.

JIT as a management technique

Work standards – All should follow the standards set.

Flexibility in responsibility – Expand the responsibility of employees to the extent of their capability, not to restrict the position or the grade.

Equality in all employees working in the organization

Autonomy – Authority should be delegated directly to those who are responsible for the activities they do.

Development of personnel – Training should be given.

Quality of working life – Job security, Attractive working environment

Creativity – Encourage to be creative in improvement to existing pratices.

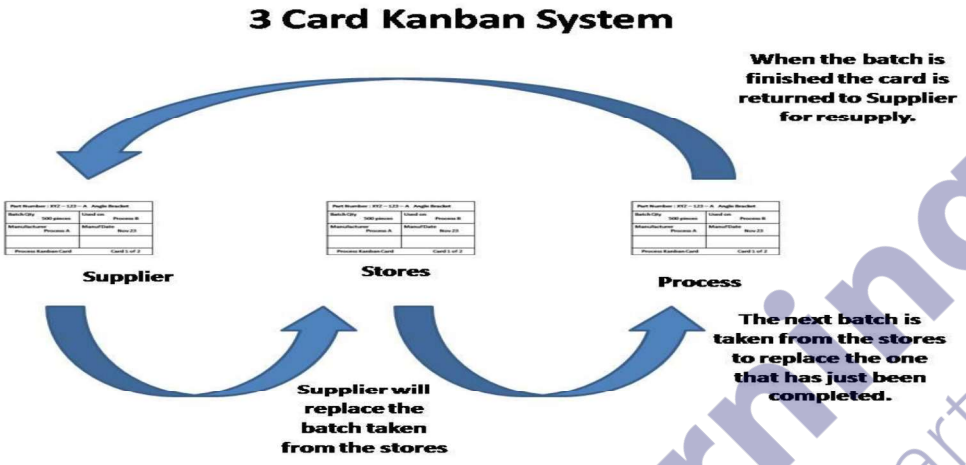
Kanban Control System

Kanban is the Japanese word for card or signal. A Kanban control system is a system for controlling the flow of materials between one stage in a process and the next.

In its simple form, a card is used by an 'internal customer' as a signal to an 'internal supplier' that the customer now requires more parts or materials. The card will contain details of the parts or materials required.

Kanbans are the only means of authorizing a flow of materials or parts. The receipt of a card from an internal customer sets in motion the movement or production or supply of one unit of an item, or one standard container of the item. The receipt of two cards will trigger the movement, production or supply of two units or two standard containers, and so on.

Kanban Control System



JIT in Service Operations

JIT in service operations **seeks to remove queues of customers.**

Queues of customers are wasteful because:

(a) They waste customers' time

(b) Queues require space for customers to wait in, and this space is not adding value

(c) Queuing lowers the customers' perception of the quality of the service

Modern versus traditional inventory control systems

- There is no reason for the newer approaches to supersede the old entirely.
- A restaurant, for example, might find it preferable to use the traditional economic order quantity approach for staple non-perishable food, but adopt JIT for perishable and 'exotic' items.
- In a hospital, a lack of inventory could, quite literally, be fatal, and JIT would be quite unsuitable.

Manufacturing Cycle Efficiency

Customer Respond Time (CRT) - the length of time between an order being placed and delivery of goods/services to the customer).

Manufacturing Cycle Time (MCT) - the length of time between starting and finishing the production of an order. (PT+WT+MT+IT)

Manufacturing Cycle Efficiency (MCE) - shows (in ratio form) the proportion of time during which value is being added during the production process, and is calculated as:

Processing Time/(Processing Time + Waiting Time + Moving Time + Inspection Time)

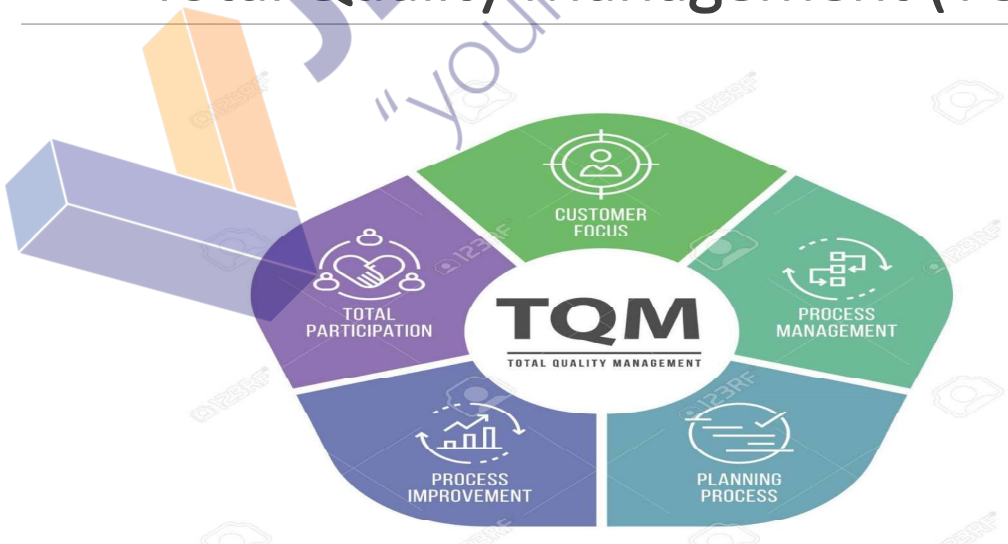
The closer the ratio is to 1, the more efficient the production operation.

Reducing MCT links well with TQM and improving MCE will increase costs**.**

Total Quality Management (TQM)

Total quality management (**TQM**) is the continual process of detecting and reducing or eliminating errors in manufacturing, streamlining supply chain management, improving the customer experience, and ensuring that employees are up to speed with training.

Total Quality Management (TQM)



Total Quality Management (TQM)

- In the context of total quality management (TQM), 'quality' means **getting it right first time**, and **improving continuously**.
- The main focus of TQM is 100% satisfaction of both internal and external customers through the continuous improvement of all activities and processes.
- Key elements of TQM include preventing the cause of defects in the first place (rather than relying on inspecting to a predefined level of quality) and aiming towards an environment of zero defects at minimum cost.
- Quality costs can be analyzed into prevention, appraisal, internal failure and external failure costs and should be detailed in a cost of quality report.
- The essence of continuous improvement is the use of an organisation's human resources to produce a constant stream of improvements in all aspects of customer value, including quality, functional design and timely delivery, while lowering cost at the same time.

Key elements of TQM

(a) Customer oriented.

(b) Recognition of nature of the customer–supplier relationship internally and externally.

(c)Predefined level of quality in the first place.

(d)Personal responsibility for each operator for defect free

(e) Any level of defects is unacceptable. TQM aims towards an environment of zero defects at minimum cost.

(f) Eliminate waste (time, equipment, labour etc.)

(g) All departments to get things right first time; this applies to misdirected telephone calls and typing errors as much as to production.

(h)Introduction of quality certification programs.

(i) Emphasis on the cost of poor quality: good quality generates savings.

Benefit of TQM

- Elimination of waste
- Elimination of non-value-adding activities and processes
- Reduced costs
- Increased profitability
- Greater competitive advantage
- Reduction in the variability in processes and outputs to ensure customer satisfaction
- Increased staff morale, leading to greater productivity and efficiency
- Increased customer loyalty and hence more repeat purchases

Is TQM is so expensive?

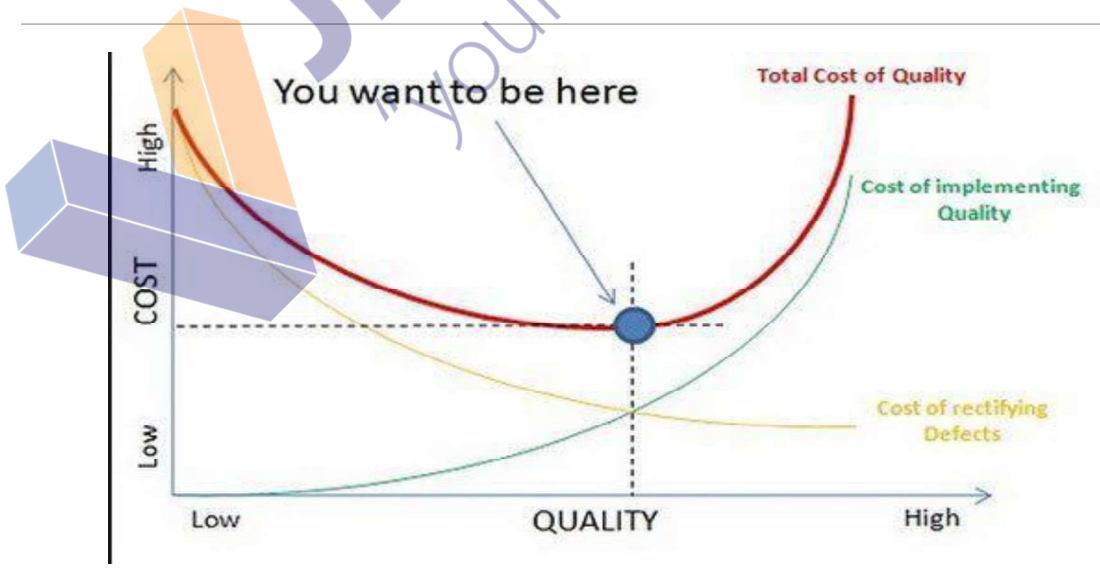
- In the current economic climate, companies are trying to eliminate unnecessary costs as much as possible. Some people have argued that strategies to improve quality are too expensive to implement and run.
- Training employees is expensive and any changes to quality procedures mean additional costs.
- All quality programs must be managed, which is another costly requirement.
- As shareholders are often looking for a quick return – and will also be focusing on ways in which management could reduce costs – any long-term investment in TQM might be unpopular. Also, if the company is operating in a market with little competition, it can be tempting to ignore quality issues.

Cost of quality

Cost of quality reports highlight the total cost to an organization of producing products or services that do not conform with quality requirements.

Quality related cost	Examples
Prevention cost	Quality engineering Training in quality control
Apprisal cost	Acceptance testing Inspection of goods inwards
Internal failure cost	Failure analysis Losses from failure of purchased items
External failure cost	Administration of customer complaints section Cost of repairing products returned from customers

Conformance Vs Non-conformance cost

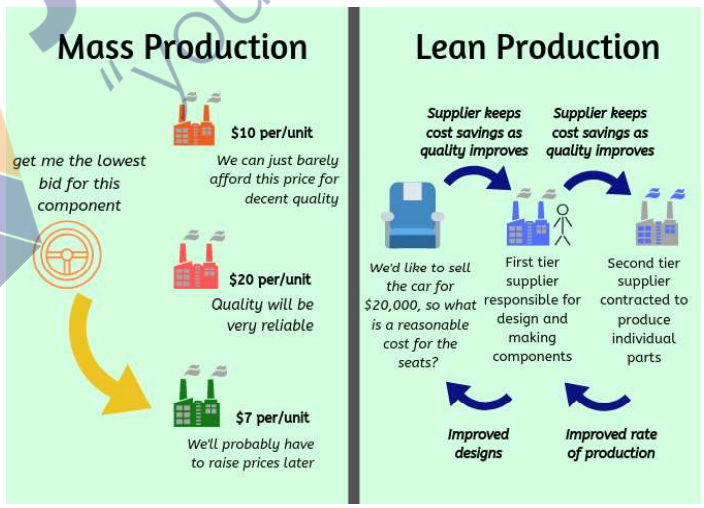


Lean Manufacturing

Lean approach is focused on a production plan based on actual demand rather than production being based on a sales forecast.

Lean manufacturing, a concept with roots in the production processes of Toyota, aims at improving efficiency, eliminating product backlogs and synchronizing production to customer demand rather than a long-term (often incorrect) forecast.

Lean Manufacturing



Kaizen Costing

The aim of Kaizen costing is to reduce current costs by using various tools such as value analysis and functional analysis.

Kaizen costing focuses on obtaining small incremental cost reductions during the production stage of the product life cycle.

'Kaizen' translates as **continuous improvement (CI).**

It is based on the idea of an ongoing process of reviewing how the business operates in order to identify and implement cost savings.

Each individual action may result in a small cost saving, but these are incremental and can add up to a material saving.

Kaizen Costing

WHAT IS KAIZEN?

Continuance improvement

Every stage of production

Attitude or atmosphere

Small gains rather than large gains

HOW ARE KAIZEN GOALS MET?

Reduction of non-value-added activities and costs

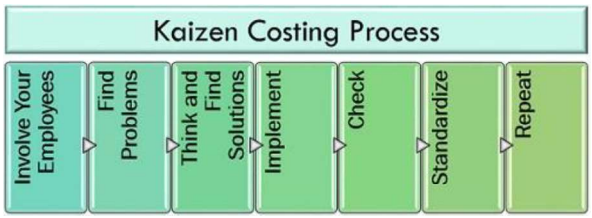
Elimination of waste

Improvements in production cycle time

DAIHATSU

TOYOTA

Kaizen Costing Process



Kaizan Costing – Target cost

Traditional	Cost	Margin	Selling price
Modern	Target cost	Target Margin	Target Selling price

Kaizan Costing – Target cost

Functional analysis is applied at the design stage of a new product, and a target cost for each function is set. The functional target costs are added together and the total becomes the product target cost.

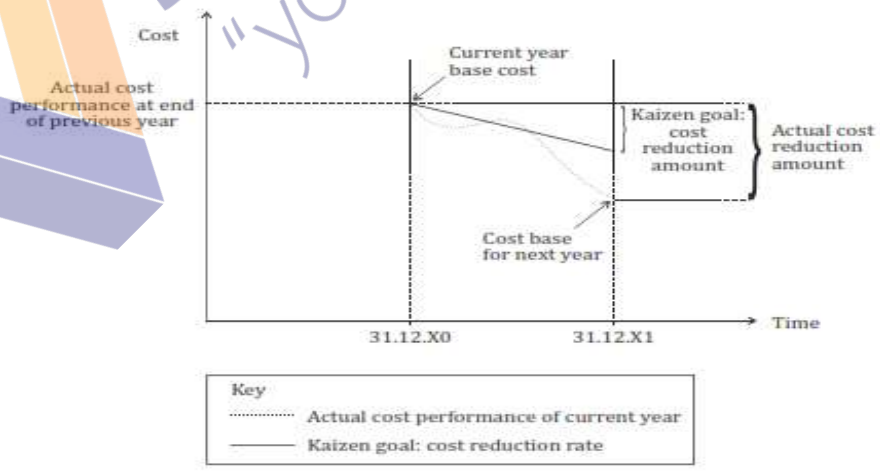
Target costing involves setting a target cost by subtracting a desired profit from a competitive market price. Real world users include Sony, Toyota and the Swiss watchmakers, Swatch.

In effect it is the opposite of conventional 'cost plus pricing'.

Once the product has been in production for a year, the actual cost of the first year becomes the starting point for further cost reduction.

It is this process of continuous improvement, encouraging constant reductions by tightening the 'standards', during the production phase that is known as Kaizen costing.

Kaizen Costing – Target cost



Steps of setting target cost

(1) Estimate a selling price for a new product that considers how much competitors are charging and how much customers are willing to pay. This selling price will enable a firm to capture a required share of the market.

(2) Reduce this figure by the firm's required level of profit. This could take into account the return required on any new investment and on working capital requirements or could involve a target margin on sales.

(3) Produce a target cost figure for product designers to meet.

(4) Reduce costs to provide a product that meets that target cost.

Kaizen costing vs standard costing

Standard costing is used in conjunction with management by exception (management's attention is directed towards situations where actual results differ from expected results).

Standard costing therefore reflects current levels of performance and fails to provide any motivation to improve.

Kaizan costing aim is to achieve cost reduction targets using continuance improvement and reduce the gap between target and estimated profit.

Kaizen costing, target costing and life cycle costing

Target costing relates to planning

Kaizen costing covers manufacturing

Life cycle costing is relevant to all stages of a product's life

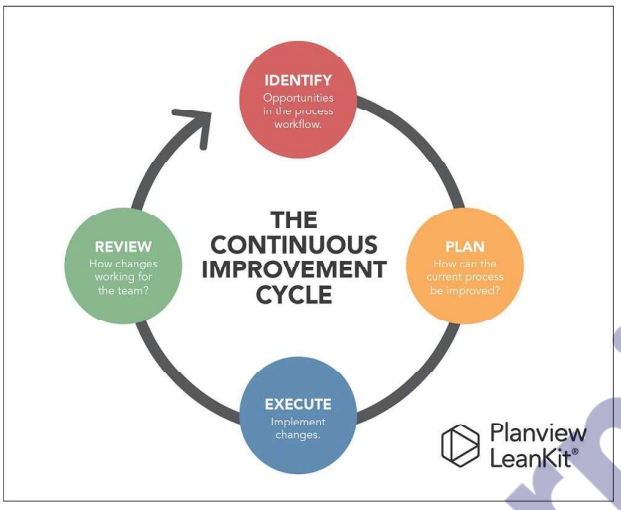
Continuance Improvements

Continuous improvement is an 'ongoing process that involves a continuous search to reduce costs, eliminate waste, and improve the quality and performance of activities that increase customer value or satisfaction' (Drury, *Management and Cost Accounting).*

The implementation of continuous improvement does not necessarily call for significant investment, but it does require a great deal of commitment and continuous effort.

Continuous improvement is often associated with incremental changes in the day-to-day process of work suggested by employees themselves.

Continuance Improvements



Essential factors for continuous improvement

Total commitment from senior management.

The opportunity for all employees to contribute to the continuous improvement process.

Employees' awareness of their role.

Management of the performance and contribution of employees.

Good communications throughout the organization.

Measurement and evaluation of progress against key performance indicators and benchmarks.

Benefits of continuous improvement

- Better performance, which produces increased profits
- Improvements in customer satisfaction
- Increases in staff morale
- Improvement on a continual, step-by-step basis is more prudent than changing things all at once
- Better communication within the organization
- Improvements in relations with suppliers
- Better use of resources
- More efficient planning

Kaizen costing Example

Tata Steel is one of the world's top ten steel producers. The group has a crude steel capacity of more than 28 million tonnes and 80,000 employees.

Tata introduced a continuous improvement culture in their UK operations in a five year change process.

They developed a current state value stream map which showed the existing systems and processes, and a future state map.

Cornerstones of continuous improvement are as follows;

Kaizen costing Example

Quality. The creation of key performance indicators (KPIs) with a focus on meeting customer needs was an important step in improving these processes. Previous measures had focused on output.

Process improvements. A process of benchmarking its KPIs means that Tata is always reviewing its activities, and by sharing relevant information within Tata, it maintains the drive necessary to keep the system geared to its needs.

Teamwork. CI requires everyone to work differently. Every employee needs to feel that they can and should spot areas of weakness and make suggestions about how to make improvements. To help employees make this shift in attitude a phased approach was used whereby initially CI coaches were responsible for CI, then CI champions, managers, team leaders and finally the team.

Kaizen costing Example

Tata saw benefits through:

Reduced wastage

Improved quality, including less time spent on reworking products

Faster response times to customer requests

In addition to achieving its production targets, Tata also had a more committed and engaged workforce, who were more flexible and enable Tata to be responsive to fluctuations in production demand.

Business Process Re-engineering

Business process re-engineering looks at how processes can be redesigned to improve efficiency. Note the link between all these techniques – they are all focused on improvements.

it has been realized that processes which were developed in a paper-intensive processing environment may not be suitable for an environment that is underpinned by IT.

Business process re-engineering (BPR) is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as ***cost, quality, service and speed.*** (Hammer and Champy, *Reengineering the Corporation, 1993).*

Business Process Re-engineering

Fundamental and radical indicate that BPR is somewhat akin to zero base budgeting: it starts by asking basic questions such as 'why do we do what we do', without making any assumptions or looking back to what has always been done in the past.

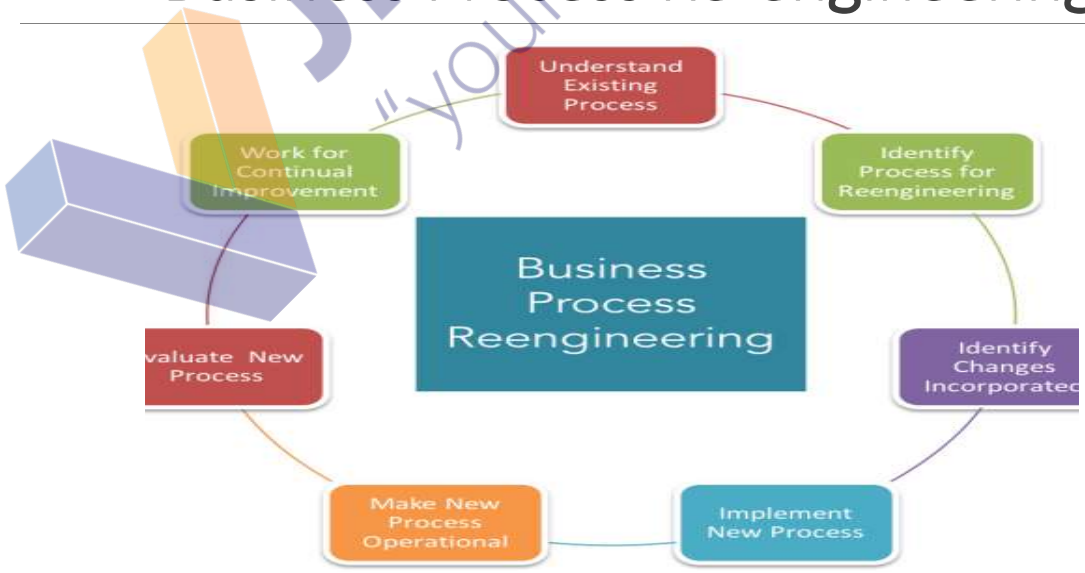
Dramatic means that BPR should achieve 'quantum leaps in performance', not just marginal, incremental improvements.

Process. BPR recognizes that there is a need to change functional hierarchies. A process is a collection of activities that takes one or more kinds of input and creates an output.

Characteristics of Business Process re-engineering

- Often several jobs are combined into one.
- Workers often make decisions.
- The steps in the process are performed in a logical order.
- Work is performed where it makes most sense.
- Checks and controls may be reduced, and quality 'built in'.
- One manager provides a single point of contact.
- The advantages of centralized and decentralized operations are combined.

Business Process Re-engineering



Business Process re-engineering Example

A company employs 25 staff to perform the standard accounting task of matching goods received notes with orders and then with invoices. About 80% of their time is spent trying to find out why 20% of the set of three documents do not agree.

One way of improving the situation would have been to computerize the existing process to facilitate matching.

This would have helped, but BPR went further: why accept any incorrect orders at all? What if all the orders are entered onto a computerized database? When goods arrive at the goods inwards department they either agree to goods that have been ordered or they don't. It's as simple as that.

Goods that agree to an order are accepted and paid for. Goods that are not agreed are sent back to the supplier. There are no files of unmatched items and time is not wasted trying to sort out these files.

The re-engineering of the process resulted in gains for the company: less staff time wasted, quicker payment for suppliers, lower inventory and lower investment in working capital.

Principles of BPR

Processes should be designed to achieve a desired **outcome rather than** focusing on existing **tasks.**

Personnel who use the output from a process should perform the process. For example, a company could set up a database of approved suppliers; this would allow personnel who actually require supplies to order them themselves, perhaps using online technology, thereby eliminating the need for a separate purchasing function.

Information processing should be included in the work which produces the information. This eliminates the differentiation between information gathering and information processing.

Principles of BPR

Geographically dispersed resources should be treated as if they are centralized. This allows the benefits of centralization to be obtained; for example, economies of scale through central negotiation of supply contracts, without losing the benefits of decentralization, such as flexibility and responsiveness.

Parallel activities should be linked rather than integrated. This would involve, for example, co-ordination between teams working on different aspects of a single process.

'Doers' (performer) should be allowed to be self-managing. The traditional distinction between workers and managers can be abolished: decision aids such as expert systems can be provided where they are required.

Information should be captured once at source. Electronic distribution of information makes this possible.

BPR Further examples

A move from a traditional functional plant layout to a JIT cellular product layout is a simple example.

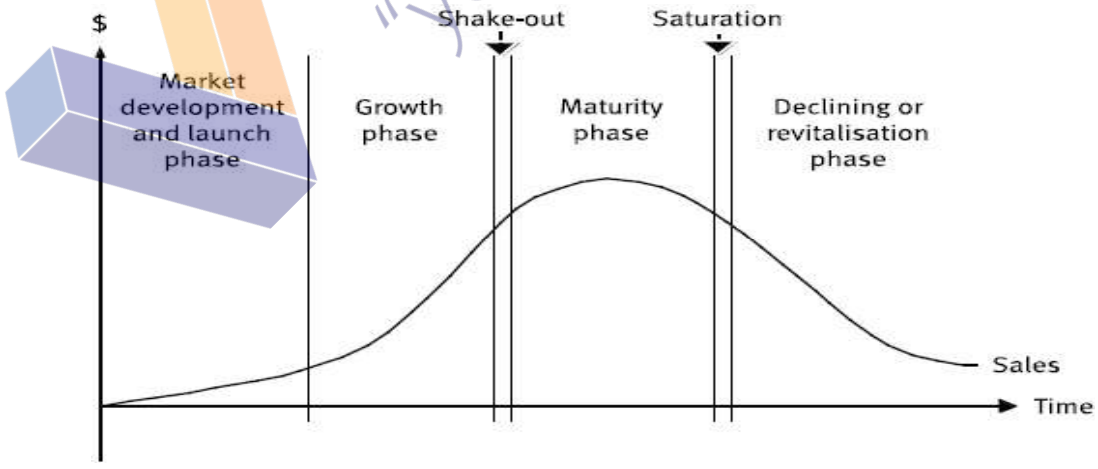
Elimination of non-value-added activities. Consider a materials handling process which incorporates scheduling production, storing materials, processing purchase orders, inspecting materials and paying suppliers.

This process could be re-engineered by sending the production schedule direct to nominated suppliers with whom contracts are set up to ensure that materials are delivered in accordance with the production schedule and that their quality is guaranteed (by supplier inspection before delivery). Such re-engineering should result in the elimination or permanent reduction of the non-value-added activities of storing, purchasing and inspection.

LIFE CYCLE COSTING

Life cycle costing

Most products have a distinct product life-cycle:



Life cycle costing

(1) Pre-production/Product development stage

A high level of setup costs will be incurred in this stage (preproduction costs), including research and development (R&D), product design and building of production facilities.

(2) Launch/Market development stage

Success depends upon awareness and trial of the product by consumers, so this stage is likely to be accompanied by extensive marketing and promotion costs.

(3) Growth stage

Marketing and promotion will continue through this stage.

In this stage sales volume increases dramatically, and unit costs fall as fixed costs are recovered over greater volumes.

Life cycle costing

4) Maturity stage

Initially profits will continue to increase, as initial setup and fixed costs are recovered.

Marketing and distribution economies are achieved.

However, price competition and product differentiation will start to erode profitability as firms compete for the limited new customers remaining

(5) Decline stage

Marketing costs are usually cut as the product is phased out

Production economies may be lost as volumes fall

Meanwhile, a replacement product will need to have been developed, incurring new levels of R&D and other product setup costs.

Alternatively additional development costs may be incurred to refine the model to extend the life-cycle (this is typical with cars where 'product evolution' is the norm rather than 'product revolution').

MARGINAL COSTING

Marginal costing

Marginal costing is the accounting system in which variable costs are charged to cost units and fixed costs of the period are written off in full against the aggregate contribution. Its special value is in recognising cost behaviour, and hence assisting in decision making.

The **marginal cost** is the extra cost arising as a result of making and selling one more unit of a product or service, or is the saving in cost as a result of making and selling one less unit.

Contribution is the difference between sales value and the variable cost of sales. It may be expressed per unit or in total.

Throughput accounting

Throughput accounting (TA) is an approach to production management which aims to maximize sales revenue less materials cost, whilst simultaneously reducing inventory and operating expenses.

The concept of throughput accounting has been developed from TOC (Theory of Constrains) as an alternative system of cost and management accounting in a **JIT environment.**

The theory of constraints (TOC) is a manufacturing strategy that focuses on reducing the influence of bottlenecks on production processes. The TOC assumes that the performance of a firm is adversely affected by its constraints. The TOC then develops a specific approach to manage constraints to maximize operating income and continuous improvement.

Throughput accounting

Concept 1

In the short run, most costs in the factory (with the exception of materials costs) are **fixed (the opposite of activity based costing (ABC), which assumes** that all costs are variable). These fixed costs include direct labour. It is useful to group all these costs together and call them **total factory costs (TFC).**

Concept 2

In a JIT environment, all inventory is a 'bad thing' and the **ideal inventory level is zero. Products should not be made unless a customer has ordered** them. When goods are made, the factory effectively operates at the rate of the slowest process, and there will be unavoidable idle capacity in other operations.

Throughput accounting

Work in progress should be valued at material cost only until the output is eventually sold, so that no value will be added and no profit earned until the sale takes place. Working on output just to add to work in progress or finished goods inventory creates no profit, and so should not be encouraged. Make sure that you understand this - TA values inventory strictly on totally variable cost (material cost) only - without labour or overhead.

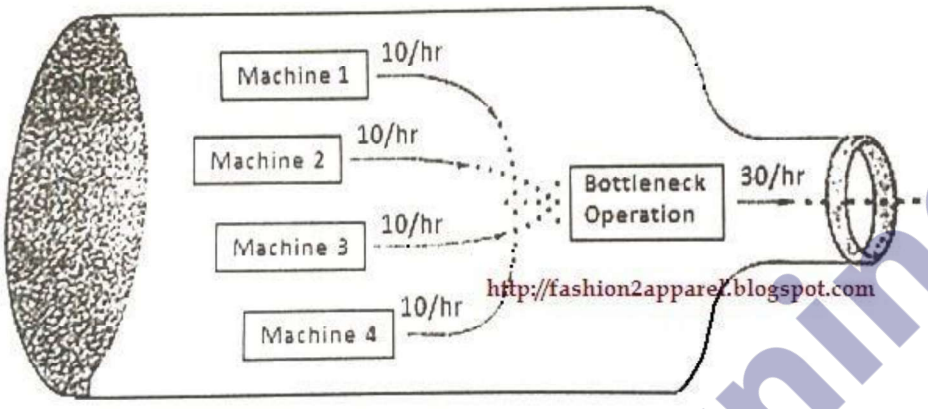
Concept 3

Profitability is determined by the rate at which 'money comes in at the door' (ie sales are made) and, in a JIT environment, this depends on how quickly goods can be produced to satisfy customer orders. Since the goal of a profit-orientated organization is to make money, inventory must be sold for that goal to be achieved. The bottleneck resource slows the process of making money.

Conventional cost accounting vs Throughput accounting

Conventional cost accounting	Throughput accounting
Inventory is an asset.	Inventory is not an asset. It is a result of unsynchronised manufacturing and is a barrier to making profit.
Costs can be classified either as direct or indirect.	Such classifications are no longer useful.
Product profitability can be determined by deducting a product cost from selling price.	Profitability is determined by the rate at which money is earned.
Profit can be increased by reducing cost elements.	Profit is a function of material cost, total factory cost and throughput.

Bottleneck resources



Throughput accounting

Throughput accounting aims to make the best use of a scare resource (bottleneck) in a JIT environment.

Throughput is a measure of profitability and is defined by the following equation:

Throughput = sales revenue - direct material cost

The aim of throughput accounting is to maximize this measure of profitability, whilst simultaneously reducing operating expenses and inventory (money is tied up in inventory).

Throughput accounting

The goal is achieved by determining what factors prevent the throughput from being higher. This constraint is called a *bottleneck*, for example there may be a limited number of machine hours or labour hours.

In the short-term the best use should be made of this bottleneck. This may result in some idle time in non-bottleneck resources, and may result in a small amount of inventory being held so as not to delay production through the bottleneck.

In the long-term, the bottleneck should be eliminated. For example a new, more efficient machine may be purchased. However, this will generally result in another bottleneck, which must then be addressed.

Assumptions in throughput accounting

The only totally variable cost in the short-term is the purchase cost of raw materials that are bought from external suppliers.

Direct labour costs are not variable in the short-term. Many employees are salaried and even if paid at a rate per unit, are usually guaranteed a minimum weekly wage.

Throughput accounting ratio

When there is a bottleneck resource, performance can be measured in terms of throughput for each unit of bottleneck resource consumed.

1. Throughput (return) per Factory Hour = $\frac{\text{Throughput per unit}}{\text{Product's time on the bottleneck resource}}$

2. Cost per Factory Hour = $\frac{\text{Total factory cost}}{\text{Total bottleneck resource time available}}$

3. Throughput Accounting Ratio (TPAR) = $\frac{\text{Return per factory hour}}{\text{Cost per factory hour}}$

Note: The *total factory cost* is the fixed production cost, including labour. The total factory cost may be referred to as 'operating expenses'.

Throughput accounting ratio

Interpretation of TPAR

TPAR>1 would suggest that throughput exceeds operating costs so the product should make a profit. Priority should be given to the products generating the best ratios.

TPAR<1 would = suggest that throughput is insufficient to cover operating costs, resulting in a loss.

Criticisms of TPAR

It concentrates on the short-term, when a business has a fixed supply of resources (i.e. a bottleneck) and operating expenses are largely fixed. However, most businesses can't produce products based on the short term only.

It is more difficult to apply throughput accounting concepts to the longer-term, when all costs are variable, and vary with the volume of production and sales or another cost driver. The business should consider this long-term view before rejecting products with a TPAR <>

In the longer-term an ABC approach might be more appropriate for measuring and controlling performance.

Backflush costing

Backflush accounting is a method of accounting that can be used with JIT production systems. It saves a considerable amount of time as it avoids having to make a number of accounting entries that are required by a traditional system.

Traditional costing systems use sequential tracking (also known as synchronous tracking) to track costs sequentially as products pass from raw materials to work in progress, to finished goods and finally to sales.

If a production system such as JIT is used, sequentially tracking means that all entries are made at almost the same moment and so a different accounting system can be used. In backflush costing/accounting, costs are calculated and charged when the product is sold, or when it is transferred to the finished goods store.

Backflush costing

The definition above omits the fact that budgeted or standard costs are used to work backwards to 'flush' out manufacturing costs for the units produced. (Hence the rather unattractive name for the system!) The application of standard costs to finished goods units, or to units sold, is used in order to calculate cost of goods sold thereby simplifying the costing system and creating savings in administrative effort.

In a true backflush accounting system, records of materials used and work in progress are not required as material cost can be calculated from either finished goods or goods sold.

Possible problems with backflush costing

It is only appropriate for JIT operations where production and sales volumes are approximately equal. It is not appropriate for manufacturing businesses which have high inventory levels.

Some people claim that it **should not be used for external reporting** purposes. If, however, **inventories are low or are practically unchanged** from one accounting period to the next, operating income and inventory valuations derived from backflush accounting will **not be materially different from the results using conventional systems. Hence, in such** circumstances, backflush accounting is acceptable for external financial reporting.

It is vital that adequate production controls exist so that cost control during the production process is maintained.

Traditional costing systems provide more detailed management information than backflush costing systems.

Advantages of backflush costing

It is much simpler, as there is no separate accounting for WIP.

Even the finished goods account is unnecessary.

The number of accounting entries should be greatly reduced, as are the supporting vouchers, documents and so on.

The system should discourage managers from producing simply for Inventory since working on material does not add value until the final product is completed or sold.

Environmental Accounting

Organizations are beginning to recognize that environmental awareness and management are not optional, but are important for long-term survival and profitability. All organizations:

- ✓ are faced with increasing legal and regulatory requirements relating to environmental management
- ✓ need to meet customers' needs and concerns relating to the environment
- ✓ need to demonstrate effective environmental management to maintain a good public image
- ✓ need to manage the risk and potential impact of environmental disasters
- ✓ can make cost savings by improved use of resources such as water and fuel
- ✓ are recognizing the importance of sustainable development, which is the meeting of current needs without compromising the ability of future generations to meet their needs.

The contribution of environmental management accounting (EMA)

EMA is concerned with the accounting information needs of managers in relation to corporate activities that affect the environment as well as environment-related impacts on the corporation. This includes:

- ➢ identifying and estimating the costs of environment-related activities
- ➢ identifying and separately monitoring the usage and cost of resources such as water, electricity and fuel and to enable costs to be reduced
- ➢ ensuring environmental considerations form a part of capital investment decisions
- ➢ assessing the likelihood and impact of environmental risks
- ➢ including environment-related indicators as part of routine performance monitoring
- ➢ benchmarking activities against environmental best practice.

EM and effect on financial performance

There are a number of ways in which environmental issues can have an impact on the financial performance of organizations.

Improving revenue - Producing new products or services which meet the environmental needs or concerns of customers can lead to increased sales. It may also be possible to sell such products for a premium price. Improved sales may also be a consequence of improving the reputation of the business. Ex. Biodegradable bags

Cost reductions - Paying close attention to the use of resources can lead to reductions in cost. Often simple improvements in processes can lead to significant costs savings. Ex. Paper less systems

Increases in costs - There may be increases in some costs, for example the cost of complying with legal and regulatory requirements, and additional costs to improve the environmental image of the organization. However some of these costs may be offset by government grants and this expenditure may save money in the long-term as measures taken may prevent future losses.

Costs of failure - Poor environmental management can result in significant costs, for example the cost of clean-up and fines following an environmental disaster.

Identifying and accounting for environmental costs

INTERNAL COST

- Improved systems and checks in order to avoid penalties/fines
- waste disposal costs
- product take back costs and recycling Ex. Electric car battery
- regulatory costs such as taxes (e.g. companies with poor environmental management policies often have to bear a higher tax burden)
- upfront costs such as obtaining permits (Ex. Environmental Protection License (EPLs).
- back-end costs such as decommissioning costs on project completion

EXTERNAL COST

- carbon emissions
- usage of energy and water
- forest degradation
- health care costs
- social welfare costs