

## **Role of Operations Management**

Operations refers to the transformation processes that are involved in the business either manufacturing a product or providing a service.

- ***Strategic Role of Operations Management***

The strategic role of operations management refers to how operations can assist in achieving the broader strategic objectives of a business.

The overarching goal of a business is to maximise profit by focusing on:

- Revenue / Income
- Costs / Expenses

### ***Cost Centres***

Some large businesses divide their costs / expenses into cost centres, breaking down their financials into sections, in order to target certain areas of business that need cost reduction and keep more precise records of expenses. The five main centres include:

- Processing costs (Electricity, machinery maintenance)
- Input costs (Capital, land, interest on investment)
- Quality Management costs (Sampling and inspection, production errors and injury)
- Inventory costs (Storage, insurance)
- Labour costs (Employees, training)

### ***Cost Leadership***

Aims to have the lowest cost or be the most price competitive in the market while still remaining profitable.

### ***Economies of scale***

Refers to cost advantages that can be created as a result of increase in scale of a business operations. Generally, savings are achieved when the business can lower its cost per unit of input through efficiencies by using technology, machinery etc.

Economies of scale assist in achieving cost leadership because the price of inputs is usually cheaper per unit if buying in bulk, or because machinery and technology use is improved.

## ***Good / Service Differentiation***

Distinguishing products in some way from competitors.

'Good' transformation process:

### *Inputs*

Ideas, information  
Natural resources  
Raw materials  
Labour resources  
Capital

Transformation and value  
adding.

### *Outputs*

Finished goods and  
Immediate goods.

'Service' transformation process:

### *Inputs*

Skills  
Education  
Time  
Qualifications  
Materials  
Technology

Transformation and value  
adding.

### *Outputs*

The result/effects of  
The service.

- **Goods and/or Services in Different Industries**

Operations depends on whether the goods/services are standardised or customised:

*Standardised:*

- Mass produced
- Predetermined quality

*Customised:*

- Varies based on customer needs
- Tailor - made

Self-service encourages customers to help themselves or process their transaction for themselves.

For services, self-service is becoming increasingly important as it enables them to concentrate on customisation in other ways.

Operations processes also vary for perishable and nonperishable goods:

*Perishable:*

- Short life span
- Might be easily damaged
- Transport, packaging and storage must be considered

*Nonperishable:*

- More durable
- Longer lasting
- Quality and inventory management must be considered

- **Interdependence with other KBF's**

Interdependence refers to the mutual dependence that the KBF's have on one another.

*Operations* - deals with manufacturing, provision of services and other value adding.

*Marketing* - deals with sales and advertising, product design and marketing strategies.

*Finance* - deals with administration, financial management and planning, management and change.

*Human Resources* - deals with industrial relations, human resources management and personnel.

Benefits of interdependence = Synergy

*Blackmores decides to change its packaging from bottles to blister packs*

*Operations* - must change production methods, adjust production of goods and utilise ease of use.

*Marketing* - must advertise the benefits of the change, push sales of the new product and design it effectively.

*Finance* - must track sales progress of the change, assess customer reactions and plan with forecasted sales.

*Human Resources* - must teach employees how to deal with the change, educate any changes to industrial relations and train production employees.

**Influences - Globalisation, technology, quality expectations ... etc**

**- Globalisation**

Globalisation refers to the process of increasing connections and relationships worldwide.

*Global markets* - refers to the selling of a product out of its base country and around the world.

Globalisation has had an enormous impact on business due to the accessibility of overseas production for cheap costs and the ease by which business officials can communicate around the globe, making decisions quicker and more effectively. It has also allowed quicker growth of business due to the ability to gain revenue easily from other countries markets.

**For business in Australia**

<b>Threats</b>	<b>Opportunities</b>
Competition <ul style="list-style-type: none"><li>- Global</li><li>- New tech</li></ul>	Technological change
Broad target market	Cheaper labour o/s
Global economic shocks affect Australian business	Cheaper inputs
Other jurisdictions	Globally source inputs (rare)
	Outsourcing
	Obtain capital o/s

Globalisation has impacted the supply chain by allowing access to cheaper labour overseas and cheaper, more abundant inputs. This has led to overall cheaper operations and ultimately a more cost efficient use of the supply chain. Also, globalisation has allowed much faster communications overseas and around the world transportation.

### ***Supply Chain Management***

Supply Chain Management refers to the relationship a business has with its suppliers.

Sourcing and supply chain management is integral to business success because it can reduce costs if done effectively, maximising business profitability. It can also provide consumer confidence if done in socially responsible ways.

The three approaches of supply chain management are:

- **Global Web Supply Chain**

Refers to a network of suppliers from all around the world that can provide a range of inputs at the right price, quality and reliable delivery.

The global web is the linking of connections, people, suppliers from one country to another country, enabling overseas trade. The global web provides a range of inputs at the right price, quantity and reliable delivery.

- **Imitating other companies**

The imitator sources existing inputs at the cheapest price that can be negotiated.

- **Making own components**

The innovator will require suppliers that are innovative and can create new inputs that are not similar to other suppliers.

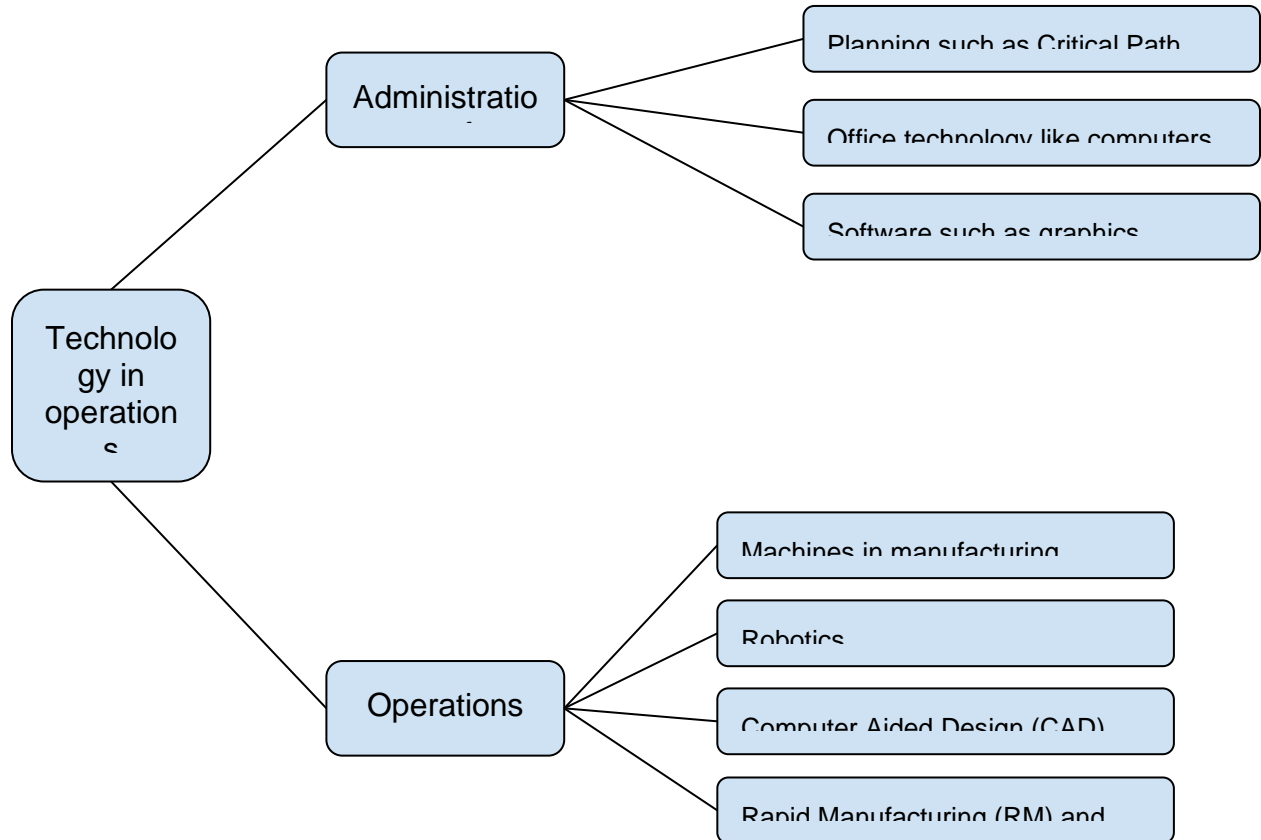
The link between these two alternative management approaches and the strategic role of operations is the ability to maximise profitability through reducing input costs and outsourcing, reducing labour costs. This is done through the use of cheaper existing inputs through imitation, and through innovative, cheaper inputs with innovation.

*Imitation = Cost Leadership*

*Innovation = Goods and services differentiation*

- **Technology**

Technology refers to the design and construction of innovative devices, methods and machinery used in the operations process.



Three examples of technological change over the past 200 years is the introduction of electricity and telephony. As well as this, the more recent introduction of the microchip has revolutionised the electronics industry.

It has been argued that technological change is exponential. This means that the rate of change accelerates over time.

Technological change can lead to:

- Changes in products
  - Introducing new tech can speed up the production of new, innovative technologies, vital to long term business success. It can also increase the quality of the goods being produced.
- Changes in the production process
  - New tech can produce goods faster and cheaper with less defects
  - CAD, CAM

Introducing new technology into the workplace can be disruptive to production because it takes time and money to install, and that will then require retraining and the possibility and likeliness of staff resistance to change. It can also be hard to integrate new tech into the production line.

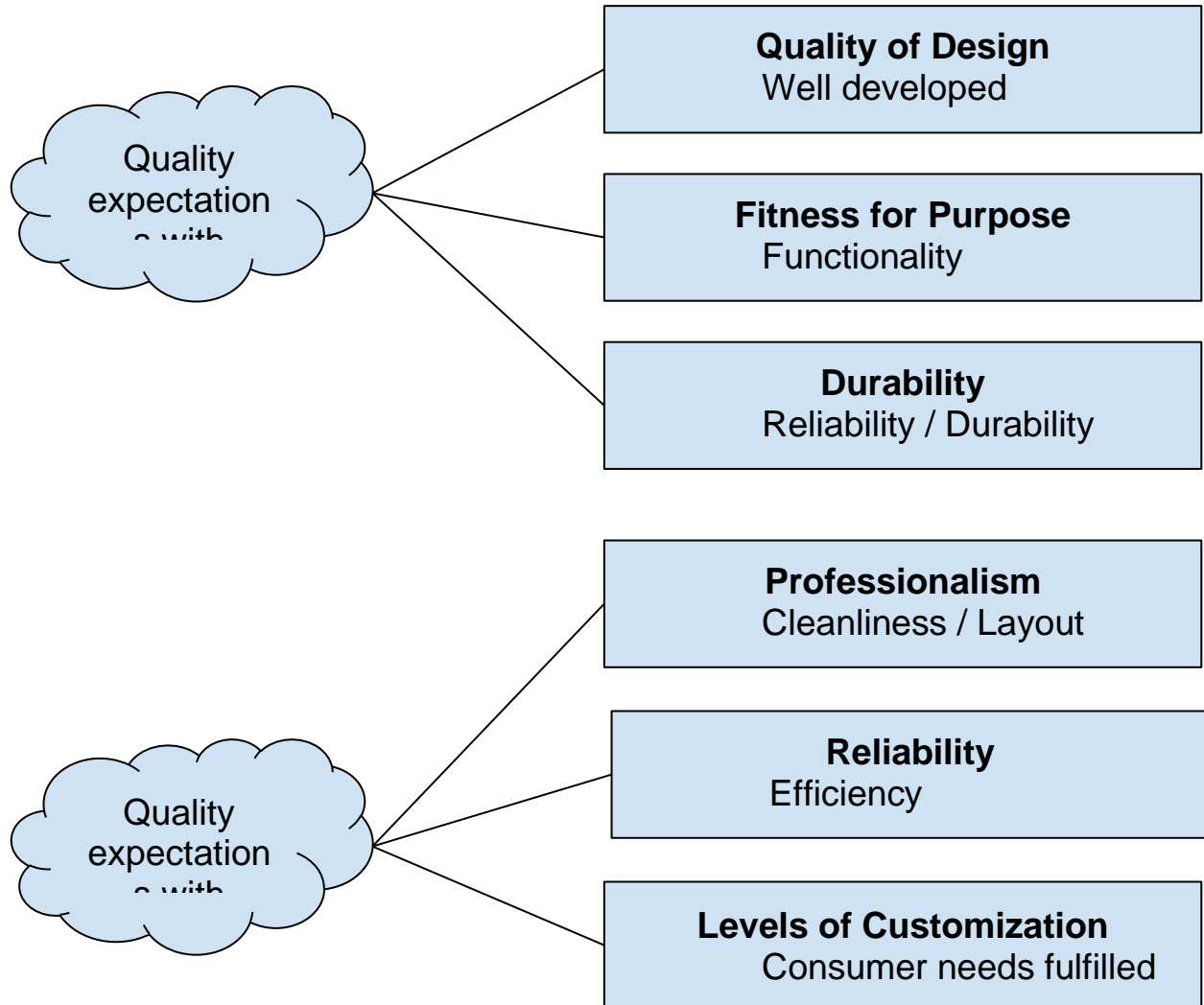
New technology introduction can impact training and development as workers can be resistant to change. New tech can make many workers redundant.

Space-x can land their first stage rocket, the most expensive stage to produce and most costly to the customer of the space launch service. It costs Space-x 10x less to produce a rocket than its competitors - United Launch Alliance (ULA), NASA, JAXA

Satellite companies are now able to produce bigger, heavier satellites that can store more data and perform at higher qualities.

- **Quality Expectations**

Customers expect a certain level of quality in the goods and services they demand.





- ***Cost Based Competition***

Refers to the competition between business that is only progressed through lowering the break-even point and achieving cost leadership.

- This influence usually drives costs lower at the expense of quality
- Business will usually look to grow the business in order to drive costs lower and increase outputs - ECONOMIES OF SCALE
- Overall, the business grows (size- employees, machinery, location) to meet this competition

- ***Government Policies***

Political decisions affects rules/regulations which impact various KBF's.

- Government policy increases the costs for business. This could be to compensate for anticipated new WH&S regulations

- ***Legal Regulation***

The range of laws and regulations that a business must follow. Often referred to as 'compliance'.

- Links with government policy, usually policies become law after party that initiates the policies gain power
- Legal regulation can also be costly to a business. This could also be to meet WH&S requirements (ie. safe worksites)

- ***Environmental Sustainability***

Refers to the practice of ensuring that there are sufficient resources for future generations.

- Operations processes should be shaped around practices that preserve, protect and minimise harm to the environment
- Focus on the use of renewable resources where possible
- Manufacturing business' should implement recycling practices

- **Corporate Social Responsibility**
  - *Blackmores CSR document*

CSR is the responsibility a business has to its internal and external stakeholders. CSR usually manifests into a policy document which the business creates and abides by. Usually it comprises the triple bottom line:

1. Financial Returns
2. Social Responsibility
3. Environmental Responsibility

The main areas of CSR are:

- Employment - fair wages, employing local people, safe work conditions
- Human rights - not sourcing cheap labour inputs, labour conditions, no sweat shops
- Community - Bilgola surf club has Blackmores sponsorship
- Business integrity and ethics - ethics of using private info and employee info
- Product responsibility - not testing on animals, sustainable product
- The environment - recycling waste, energy, necessary equipment and products; reducing pollution; carbon footprint

- ***Legal compliance and ethical responsibility***

*Legal compliance* - a business must abide by laws and regulations

*Ethical responsibility* - the business has a choice or not to exhibit ethical responsibility in its dealings with stakeholders.

- ***Environmental Sustainability and Social Responsibility***

*Environmental sustainability* - means that business operations should be shaped around practices that consume resources today without compromising access to those resources for future generations.

*Social responsibility* - refers to a business's management of the social, environmental, political & human consequences of its actions.

## Operations Processes

- **Inputs**

**Transformed Resources** - are those which will be changed into the finished products by the operations process. Resources that will have value added. These include:

1. Materials
  - Raw materials and intermediate goods are transformed into resources in the operations process
2. Information
  - Useful for research, investigation and instruction throughout the operations process
3. Customers
  - Transformation process acts on customer requirements and ideas, turning that person into a transformed resource

**Transforming Resources** - are those which will cause the change or transformation process to occur in business operations. These include:

1. Human Resources
  - People who combine resource inputs, operate machinery and manage overall operations
2. Facilities
  - Refers to buildings, plant, equipment and fittings essential for business to produce its outputs

- **Transformation Processes**

The transformation process is the conversion of inputs into outputs. It creates value adding (the amount by which the value of an input is increased at each stage of production, excluding initial costs).

Sony, for example, takes plastic, metal, glass and electronic parts, and transforms them into numerous electronic products using innovation and processes of design, manufacturing and assembly.

An operations manager will have to decide:

- How much to produce / make (**volume**)
- What range or **variety** should there be?
- How much **variation** in demand will there be?
- How much consumer contact should there be? (**visibility**)

**The FOUR V's**

- **Volume**

Refers to the amount or number of units made / produced. It is important to correctly estimate volume of the product required to avoid:

- Overproduction
- Under production - excess demand
- Waste = environmental damage, high costs for business

Lead time is the time it takes for a business to react to change in demand / volume of orders.

- **Variety**

Refers to the different range of products and product features that a business produces. The higher the number of models and customised features that a business offers, the more complex and costly their operations process is (usually).

- **Variation in demand**

To meet changes in demand, a business will have to change their level of inputs (stock, resources, labour). Quick increases in demand may lead to increased speed of production, creating a need for more staff. However, decrease in demand may lead to waste and reduced sales revenue. Therefore a business which has large changes (variation) in demand will need to have a flexible operations process.

*How can businesses overcome the limitation of labour?*

- **Visibility**

- Direct - customer feedback or surveys
- Indirect - market share analysis or sales analysis which illustrates customer preference

Business must be aware and ready to respond to customer contact / feedback.

- **Sequencing and Scheduling**

Sequencing - the order in which activities in the operations process occur

Scheduling - the length of time activities take within the operations process

Sequencing and scheduling tools include:

1. Gantt Charts

- Outline all activities to be performed by the business so that management can:
  - Plan
  - Allocate time for each task
  - Monitor and control the operations process

2. Critical Path Analysis

- Used by management to determine the number of tasks to be completed and calculate time required
- Can assist to determine whether some tasks / steps can be completely simultaneously or concurrently (at the same time)
- **The critical path is the longest path on the diagram**

- **Technology**

Technology refers to the design, construction and/or application of innovative devices, methods and machinery in the operations process.

CAD - Computer-aided Design

- Programs used to design products and fulfill specifics needed to manufacture

CAM - Computer-aided Manufacturing

- Softwares that take CAD designs and apply it to production machinery

Robotics

- Automated machinery used during the manufacturing process to construct, transport and complete repetitive tasks
  - Usually used in large industries for production of heavy products to consistently high standards

## - **Task Design**

Involves breaking down the complex task of operations into a series of easy tasks. A project manager will design the procedures to enable the operator to complete the tasks quickly and easily.

Each task/step should involve the process of value adding towards the completion of a finished product or output.

Technology such as CAD can be used for task design (software).

Management can use sequencing and scheduling tools to improve task design stages.

Methods such as:

- Assembly lines
- Divisions of labour
- Team-based production

Can be used to improve efficiency of production process once the product has been designed.

## - **Process Layout**

Involves the physical layout or arrangement of the machines/equipment/employees so that they are grouped together in the most efficient way. If the assembly line is poorly designed then the transformation process will be inefficient.

Eg. Holden - uses a very organised and strict layout using assembly line method to enable systems of mass production. They also divide factories into sections.

Three different types of process layout:

- Batch production
  - Deals with high variety, low-volume production
  - Produces many variations of a product using different production sequences
  - Requires general purpose machinery
  - Enables production flexibility
- Mass production
  - Deals with high volume, constant quality goods
  - Assembly line commonly used and ordered into steps of production
  - Each station performs repetitive task
- Fixed position layout
  - Product remains in one location due to bulk or weight
  - All inputs brought to the site
  - Eg. Bridge construction

## - **Monitoring, Controlling and Improvement**

Throughout the operations process management must control, monitor and improve processes.

#### Monitoring - (during)

- Involves measuring actual performance against planned performance. This is done through the use of Key Performance Indicators (KPIs). KPI's include:
  - **Lead times** - delay between initiation and execution of a process
  - **Defect rates** - rates of defective product being produced
  - **Inventory turnover rates** - number of times inventory is sold/used
  - Idle time - when machinery isn't being used
  - Maintenance costs
  - Capacity and volume rates
  - Process flow rates

#### Controlling - (during and after)

- Involves taking corrective action when predetermined targets have not been met. Such actions include:
  - Operations strategies
  - Redesigning plant layout
  - Introducing new technology

#### Improvement - (after)

- Involves the systematic reduction in inefficiencies, wastage and poor work practices. Improvement often involves:
  - Improving quality
  - Minimising time
  - Smoothing processes
  - Improving product standards
  - Reducing costs
  - Reducing wastage

MCI connects the following syllabus dot points:

- Key strategies - Quality management
- Four V's
- Key influences - CSR and enviro
- Sequencing and scheduling tools assist in monitoring
- Technology can assist with controlling and improvement

- **Outputs**

An output is either a finished good or provision of a service. It can be a consumer product (purchased directly by consumer) or an intermediate product which is sold by the manufacturer to another business.

- ***Customer service***

Involves delivering the good or service and meeting customer expectations.

- ***Warranties***

Involves the process of a customer returning a product due it being faulty, not carrying out its intended purpose or looking unacceptable. Measuring warranty claims is a good control tool to assess operational efficiency.

### **Operations Strategies**

**P****O****G****O**

**P**erformance Objectives

Outourcing

**G**lobal Factors

**O**vercoming resistance to change

**S**upply Chain Management

**Q**uality Management

**I**nventory Management

**N**ew Product or Service Design and Development

**T**echnology



- **Performance objectives**

Performance objectives are goals that relate to particular aspects of the transformation process.

The six main performance objectives are:

- Quality - QM
  - Refers to the ability to produce high quality output according to customer wishes
- Speed - Tech; SCM; QM
  - Refers to the time it takes to respond to customer's needs / orders / market changes
- Dependability - SCM; INV M; QM
  - Refers to the ability to deliver products / services according to a promise made to the customer
- Flexibility
  - Refers to the ability to make changes to operations if and when needed
- Customisation - Tech; New Product
  - Refers to the offering of a product which is exactly suited to individual customer needs
- Cost - SCM; INV M; Tech
  - Refers to the ability of a business to produce its output at a lower cost

- **New product or Service Design and Development**

The operations strategy of designing, developing and producing new products created from innovative research and development (R&D) enables a business to renew itself, grow and attain a competitive advantage.

Whilst the product is central to all marketing activities, it should be flexible to the marketing mix and subject to adaptation.

There is reason for a new product if the question:

- What is there about the product that will satisfy the needs of the customer?

Can be answered substantially and purposefully.

New product or service development describes the complete process of bringing a new product or service to the market.

There are two main areas:

1. Idea generation, product design and detail engineering
2. Market research and analysis

The design and development process is as follows:

1. Idea Generation - SWOT, brainstorming → employees, salespeople, customers
2. Idea Screening - Eliminate ideas that won't work (profit? Benefits? growth?)
3. Concept Development - CAD, estimate production costs, target market, features of product
4. Business Analysis - Estimate selling price, sales volume, break-even point
5. Market Testing - Prototype, test in real situations, feedback, refine, produce small quantity and test on real market
6. Technical Implementation - Engineering operations planning → Identify suppliers, plan logistics, contingency (what if's) planning
7. Commercialisation - Product launch, promotion, advertising → Initiate distribution channels
8. New Product Pricing - Product costs (fixed/variable) - forecast volumes, revenue and profit, and competition

- **Supply Chain Management**

Supply Chain Management (SCM) involves integrating and managing the flow of supplies/inputs throughout the transformation process and the flow of outputs to meet the needs of the customer.

- Refers to managing the chain/link between the business and its suppliers

Factors influencing the choice of supplies:

- Assess consumer demand to calculate amount of input required
- Determine quality of inputs required to meet the promised quality of product
- Assess how reliable the suppliers will be in demand for various inputs
- Evaluate costs of one supplier compared the another

Recent changes in SCM:

- Supplier rationalisation - large businesses reduce suppliers to improve efficiency
- Vertical integration - some businesses become suppliers of their inputs to ensure supply and control costs
- Cost minimisation by offshoring to lower wage countries
- JIT inventory control to reduce storage costs

- ***Global Sourcing***

Sourcing, also called procurement or purchasing, refers to the purchasing of inputs for the transformation process. Globalisation has enabled businesses to purchase supplies that were previously out of reach.

Global sourcing is finding the most cost-efficient supplier for inputs even if the location is overseas. Global sourcing adds complexity to SCM.

Many Multinational Corporations (MNCs) have a global web of suppliers to take advantage of low costs in other countries.

The disadvantages of global sourcing include:

- Disruption to supply chain - due to external events
- Relocation of manufacturing may not benefit business and therefore the business may need to relocate (very costly)

- **E-Commerce**

Refers to the process of conducting business using online/internet services.

*E-Procurement*

Many businesses have supply chain managed through electronic ordering. This enables a business to place an order automatically when stocks fall low, this is called business to business (B2B)

*E-Commerce & the Consumer*

An increasing use of e-commerce by consumers has had an effect on the supply chain with many businesses choosing to now sell directly to the consumer, this is called business to consumer (B2C)

- **Logistics**

Logistics involves the transport, storage and handling of physical inputs and the distribution of physical outputs to the market.

Logistics is the coordination of the supply chain so that all aspects flow as intended.

The supply chain becomes increasingly complex as businesses become globalised.

Logistics is concerned with strategies to save time and control the flow of materials that add value to the supply chain and transformation process.

Some businesses become vertically integrated, meaning they supply their own inputs, in order to ensure supply and control costs.

*Distribution Centres*

Refers to the short-term storing, handling and wholesale distribution of goods. They usually have easy access to railways and/or road networks. They provide cost savings and efficiency by consolidating local operations and centralising distribution.

- **Outsourcing**

Outsourcing refers to the use of an external firm to complete a non-core business function.

Outsourcing is usually expected to be cheaper and more efficient than performing the task in-house.

A business must select suitable suppliers and locations to outsource from, as well as develop contracts with critical KPI's on quantity, quality, timeliness, dependability, flexibility and cost.

The alternative to outsourcing is vertical integration, whereby the business owns all of its suppliers and can perform non-core functions away from the business headquarters itself.

Advantages:

- Simplification of the operations process
- Efficiency and cost savings
- Increased process capability - due to better technology and higher skill levels
- Increased accountability - due to KPI's
- Capacity to focus on core activities leading to improved in-house performance

Disadvantages:

- Payback period and costs - time taken to recuperate the costs of setting up outsourcing
- Communication and language barriers
- Loss of control of business processes
- Loss of skilled workers if retrenchment/redundancy occurs

- **Technology**

- ***Leading Edge***

Refers to acquiring the most up to date technology for either inputs or processes. The upgrading of technology can be initially very expensive to the business, however it may lead to long-term benefits in relation to efficiency and quality of operations

- ***Established***

Refers to tried and proven technologies, such as barcoding, POS data for inventory management, robotics, CAD, CAM, and IT for logistics. The use of these technologies help to establish basic standards for productivity and speed.

- **Inventory Management**

Stock or inventory - a term used to describe material, work-in-progress or finished products to be on-sold.

There are three stock control methods from syllabus:

1. FIFO
2. LIFO
3. JIT

- ***Holding Stock***

Advantages of holding stock:

- Consumer demand can be met, reducing risk of customers buying elsewhere
- Lead times between order and delivery are reduced
- Stock is an asset, therefore reflects well on balance sheet
- Cost reduction via economies of scale

Disadvantages of holding stock:

- Lead to high costs due to transport and storage
- Funds can be used elsewhere
- Wasted expenses / loss of revenue due to perishable or destroyed products

- ***First-In-First-Out (FIFO)***

FIFO is commonly used in the retail industry, however it applies especially to storage and rotation of perishable goods in other industries.

Why is it used?

- Enables a business to sell oldest stock first to reduce risk of damage and prevent expiration of used-by date or shelf life
- May also be used to sell older product range to ensure rotation of old stock first

Link to performance objectives:

- Quality, flexibility, cost

- ***Last-In-First-Out (LIFO)***

LIFO is used where new stock is placed at the front to be sold first.

LIFO is suitable for:

- Stock that does not have a shelf life
- Used as an accounting strategy to realise the market rate of a good or service
- When there is an overproduction of certain models

Link to performance objectives:

- Cost, flexibility

- ***Just-In-Time (JIT)***

JIT involves management taking a 'lean production' approach and can be used as a working capital and cash flow management strategy as it lowers levels of current assets and amount of cash needed.

JIT is usually used in conjunction with LIFO or FIFO

Stock purchases can be spread over a period of time and involves regular orders (important to get planning, organising and controlling of stock correct and efficient). JIT is suitable for stock orders of perishable goods and customised service industries who require a large range of components/parts.

Advantages of JIT:

- Promotes flexibility
- Reduces cost of storage and warehousing
- Enables payment by regular installments over a period of time - good working capital strategy and cash flow strategy
- Reduces risk of shrinkage - damage to stock, theft
- Improves SCM and efficiency

However, JIT relies upon having reliable suppliers who are efficient, quick and with prompt delivery.

- **Quality Management**

Quality management refers to the process that a business uses to ensure consistency, reliability, safety and fitness for purpose.

Quality management involves building quality into each stage of production and can be achieved in different ways:

- Quality Control
- Quality Assurance
- Quality Improvement

Total Quality Management (TQM) is focused on managing the total business to deliver high quality product and service to consumer.

- ***Quality Control***

QC involves setting quality standards for various stages in the production process and then inspecting the product at each stage.

This approach needs to be balanced against a continuous improvement approach as customers' expectations are always changing.

A business may compare its results at inspection to the industry average, establishing a benchmark for continual improvement and constant quality.

- ***Quality Assurance***

QA involves setting up standards in writing that are to be achieved in production. Emphasis is set on getting it right the first time by minimising or removing any factors that could cause quality problems.

For a business to promote itself as a quality endorsed company, it must pass independent inspection of the International Standards Organisation (ISO). Many businesses only deal with suppliers these days who are ISO certified.

- ***Quality Improvement***

QI focuses on continuous improvement and TQM.

Businesses that adopt these quality methods concentrate on looking at the operations processes and achieving gradual improvement over time. It is vital that all staff see all employees as customers that must also be satisfied.



- **Overcoming Resistance to Change**

Resistance to change arises from two main sources within a business:

- Due to financial costs
- Due to psychological / emotional reasons (Inertia)

In a business, workers will resist:

- New technology
- Reorganisation of plant layout
- Redundancy
- Training and retraining

Management will resist:

- Purchasing new equipment
- Reorganisation of plant layout
- Training and retraining of staff
- New technology

And finally, shareholders will resist:

- Redundancy payouts
- Purchasing new equipment
- Reorganisation of plant layout

Many businesses will overcome resistance to change caused by inertia by firing staff, however this can incur redundancy payouts and this can become costly for the business, causing resistance from shareholders.

- **Global Factors**

Operations strategies need to be able to respond to global factors that can influence business operations and provide opportunities to:

- Obtain inputs from cheaper sources overseas
- Expand and achieve economies of scale
- Develop new products for an international market
- Access new technologies
- Access expertise and labour specialisation
- Operate over extended hours (24/7)

- ***Global Sourcing***

Just purchasing from a low-cost source does not guarantee low total costs. Challenges do arise from global sourcing including:

- The need to invest considerably in searching for and researching suppliers and to build up relationships with suppliers
- Lack of experience in international transactions
- Language and cultural barriers
- Increased lead times
- Less control over quality and reliability of inputs
- Risk from exchange rate fluctuations
- Managing different regulatory conditions
- Increasing complexity of overall management of operations

A global web strategy involves a business:

- Sourcing inputs from the cheapest regions
- Manufacturing where it is cheapest
- Obtaining finance from the country with the lowest interest rates
- Distributing products to any nation that demands them - global markets

With this strategy, coordinating the delivery of each input is very difficult and has to be scheduled efficiently to reduce costs. Inputs may be delivered too early (increase storage costs) or too late (delay production) or not delivered at all.

### - ***Economies of Scale***

Cost advantage is gained by producing larger output volume, thus reducing unit costs. This increases profitability.

Through global expansion, a business can achieve economies of scale by:

- Having larger manufacturing facilities
- Moving closer to raw materials and labour
- Delivering services to a larger market

By increasing in size, the business spreads its costs over more units.

The average cost of making or supplying each unit will fall. Other costs can also be reduced, as a large business can obtain discounts for large orders of inputs and the actual process of operations may follow more efficiently.

### - ***Scanning and Learning***

Increased globalisation brings increased competition, new technology and hence continuing change in the business environment.

Scanning and learning means finding out competitive ideas about operations overseas that involves learning from the best practice of business around the world.

These ideas can come from:

- Trade Shows
- Offshore research projects
- Technology exhibitions

### - ***Research and Development (R&D)***

Innovative companies spend time and money on research and development which helps a business to create leading edge technologies and innovative products and solutions.

R&D is used to extend a product's life cycle at the maturity stage by readapting/changing different aspects to increase market demand/sales and also create a new product.

Government encourages R&D and many offer taxation incentives and grants.

Central to R&D is understanding consumers wants and developing innovative products to meet their needs.