

### Importance of Intellectual Capital? [5].

- i) It allows the business to be more innovative because good quality labour and operation methods can help the company gain a cost advantage.
- ii) Intellectual capital increases the value of the business, because it is added in the balance sheet of the company, as part of intangible assets.
- iii) Intellectual capital can help the company to gain a competitive advantage because it is not only difficult to replicate it but also time consuming for the business to build.

### DRAWBACKS:- (Intellectual Capital)

- costly to acquire, because good quality labour takes time to get trained, and even if the worker is recruited externally, they will cost the company in terms of salary.
- Difficult to calculate, because most of the judgement is subjective, and the shareholders and the management would tend to overvalue the figure.

## AS – BUSINESS (9609)

### (SECTION 4)

Easy Section / Theoretical / only 1- calculation

### Topics

1. The nature of operations

Two functions of management: i) Inventory - the operations department is responsible  
www.megalecture.com

no make sure that the company never overstocks or understocks. This ensures a regular production in the company.

Efficiency and Quality: - Operations ensures that the factors of production are minimized  
AS-Level - Business (9609) - SECTION 4 - [Operations and Project Management]  
whereas output is maximised.

AS-Level  
How can productivity be increased?  
Method  
1. Increase no. of workers  
2. Increase no. of machines

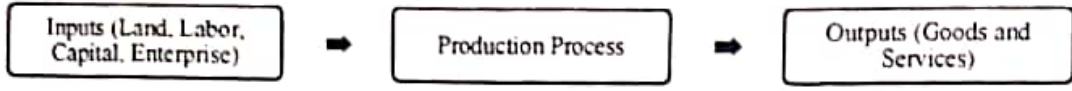
## TOPIC 1: THE NATURE OF OPERATION

### 1. INPUTS, OUTPUTS AND THE TRANSFORMATION PROCESS

Definition | Operations Management: It is concerned with using factors of production to produce goods and services. It deals with various departments efficiency, quality, flexibility etc.

#### The Production Process / The Transformation Process

Definition: An activity (process) or group of activities that takes inputs Land, Labor and Capital, and converts them into outputs which consist of goods and services.



#### Resources

These are Land, Labor and Capital. All of them were discussed in Section 1 except Intellectual Capital.

#### Intellectual Capital

Definition | Intellectual Capital: Intellectual capital is defined as the amount by which the market value of a company exceeds its tangible assets (physical and financial). In other words it is the brains and minds of a firms staff to come up with new ideas and to find solutions to problems and be creative in sectors like advertising and consulting. This is due to the collective knowledge and skills of a company. This includes human capital, structural capital and relations capital.

whole para

### 2. EFFECTIVENESS, EFFICIENCY AND PRODUCTIVITY

Definition | Effectiveness: It is the ability of an operation process to achieve its set objectives and meet customers' needs in a profitable manner.

Definition | Efficiency: It describes a process that uses the lowest amount of inputs to create the greatest amount of outputs.

Definition | Productivity: It describes how efficiently are inputs converted into outputs. It is the measure of efficiency. This can be calculated in two ways, Labor productivity and Capital Productivity. Labor productivity can be enhanced by employing few but skilled labor and capital productivity can be enhanced by deploying technologically advanced machinery. Productivity can be calculated using the following formulas:

Q Explain the importance of transforming process (5)  
P20: It helps the company to combine factors of production and produce goods and services to generate revenue.

$$\text{Labor Productivity} = \frac{\text{Total Output}}{\text{Average Number of Worker}}$$

$$\text{Capital Productivity} = \frac{\text{Total Output}}{\text{Capital Employed}}$$

Higher the value generally better for the business

- This explains the company which areas need to be modified to improve efficiency loss.
- It helps the businesses to calculate production time and give realistic deadlines to workers and the clients.

AS-Level - Business (9609) - SECTION 4 - [Operations and Project Management]

For every method, one pro & con.

How can productivity be increased?

Method	Description
1. Increase numbers or hours worked	When workers will work more hours they will produce more which will increase output however workers might get tired if the hours are too long.
2. Training & new skills acquired	When workers have new skills they produce more in less time and cause less wastage. <i>(cost)</i> leads to the cost of training including profit for workers.
3. Investment in equipment and technology	Machines allow workers to work faster and reduce wastage which will improve productivity. <i>(cost)</i> This increases the capital cost resulting in higher pay levels. Also machines have a higher fixed cost making a higher working point.
4. Change the way the work is done	Here companies modify the production process. Example from assembly lines to project teams. <i>(cost)</i> Some workers tend to resist change.
5. Motivating employees	This is done through financial and non-financial rewards. Motivated employees work better and are more productive. <i>(cost)</i> The performance of every employee can vary and this depends on the company's identity and how the preferences for every worker.

Management  
 more labor  
 Capital & labor both  
 PRO: Allows the company to be more innovative.

can become other being trained!  
 higher pay levels  
 cost the business  
 the performance of every employee can vary and this depends on the company's identity and how the preferences for every worker.

3. VALUE ADDED

**Definition:** Creating value is selling the product for a higher price than it was initially bought in. Added value is the difference between selling price of the finished good and cost of bought in materials. The concept of value added in linked is linked to marketing, the operations process and operations decisions in the following ways:

1. Marketing: The impact of promotional strategies can convince consumers to pay more for the product.
2. Operations Process: The efficiency with which the input resources are combined and managed. Example: Reduction in wastage can lead to value addition.
3. Operations Decision: An attractive design and high quality can justify high prices by the firm.

4. CAPITAL VERSUS LABOR INTENSITY

While deciding what combination of resources to be used a firm can adopt one or a combination of two approaches. The decision depends on the nature of the product, the relative prices of the inputs and the size of the firm to afford a particular method.

**Definition | Capital Intensive:** This involves employing more quantity of capital as compared to labor. This method is more appropriate for industries that choose batch or flow product where the goods need to be produced in bulk and there is some sort of standardization.

Advantages	Disadvantages
1. Due to large scale production the company can achieve <u>economies of scale</u> which can reduce the per unit cost.	1. There is therefore usually a <u>higher break-even output</u> due to high fixed costs.
2. There is generally a <u>better consistency</u> than manual labor. This leads to <u>standardized quantity and give customer's quality assurance</u> .	2. <u>Machinery may become obsolete</u> which will increase the replacement costs.
	3. Resistance from <u>labor force</u> since it might create redundancies. <i>Trade unions &amp; government might take action against business.</i>

(3) Capital intensive uses more machines hence the labor cost go down

TOPIC 2.1  
1. OPERATIONS  
The following LINK  
1. Marketing  
department

**Definition | Labor Intensive:** This involves employing more quantity of labor as compared to capital. This method is more appropriate for industries that choose job production like hand made goods and unique products.

Advantages	Disadvantages
<p>1. There is generally better quality if it is not a fast process. <i>which can build the brand image &amp; can help create product differentiation.</i></p> <p>2. Businesses can benefit from premium pricing for 'hand crafted' goods. <i>because they provide a more valued product.</i></p> <p>3. Labor costs can be lower if businesses hire on temporary contracts. Individuals will not need to operate specialized machinery.</p>	<p>1. Production is not fast enough, as compared to machinery.</p> <p>2. <u>Lack of standardization</u> because the accuracy and quality of work from person to person can vary which leads to decline in productivity.</p> <p>3) <i>Labor intensive is required to make</i></p>

4) *No customized plants are hired which reduces the capital cost and prevents the business from over-investing in replacement costs.*

*invested in machinery which is not as flexible in terms of use and other uses as labor is important.*

**Adv:** Innovation allows the company to develop better products, which can help to create product differentiation leading to sales.

**CONS:** Innovation is expensive because R&D is a large scale expenditure with no guarantee of recovering the money.

② Innovative companies have a higher chance of securing investments because they have more potential for the long run.

The company requires skilled labor which is not only motivated but also flexible to change. This costs the company in the form of high salaries which are fixed expenditures.

③ Methods like process innovation allow the business to reduce costs and improve the customer experience.

③ Innovation involves opportunity cost as the business might be facing crisis in one department due to transfer of funds to the R&D.

④ Business that become innovative are more flexible, which allows the business to plan against external environmental changes, which increases its chances of survival.

**AATIK TASNEEM**

- before investing in innovation the expected return should be compared with the investment.
- The success depends on what competitors are doing in the market. The company cannot simply innovate to gain benefits, the innovation must be significant enough to outperform the competition.
- Building innovation and flexibility is part of the strategic vision of the company and will not generate results in the short term.

AATIK TASNEEM | AS/A-LEVEL BUSINESS (9609) | 03041122845

*It is only beneficial if the company can sustain the cost for the short run.*

8-12 marks

AS-Level - Business (9609) - SECTION 4 - [Operations and Project Management]

## TOPIC 2: OPERATIONS PLANNING

### 1. OPERATIONS DECISIONS

The following THREE factors influence the operations decisions:

**1. Marketing** - They provide the detail on the future demand levels. This helps the operations department adjust their resources according to the demand. This is known as operations planning. This helps reduce costs, reduce wastage and prevents over or underproduction.

**2. Resources** - The resources (Land, Labor and Capital will shape the operations decisions). As the business, would want to locate where there is abundant land, good labor available and decide between labor and capital based on the cost.

[Treated as a separate definition]

**3. Technology** - It can influence the decision making in the following ways:

**Definition | CAD (Computer Aided Design):** This is the use of computer software to design items being designed more quickly and with precision. This is used to design new products and re-style existing products. Example AutoCAD.

Advantages	Disadvantages
1. Lower development costs 2. Improved product quality 3. Accuracy and good visualization	1. Training and expertise to operate the software. Highly labour training expenses 2. Expensive computers and rendering machines required to run the software

**Definition | CAM (Computer Aided Manufacturing):** This is the use of computers to monitor the production process and control machines or robots on the factory floor. Example: Robots controlling the production of cars in Honda's factory. This helps in the process of automation. CAD and CAM combined are known as CIM (computer integrated manufacturing)

Advantages	Disadvantages
1. Fast production leading to cost 2. Quality manufacturing with less wastage 3. Can help generate both mass and customized products when linked with CAD.	1. Cost to install and maintain are high. 2. Training costs 3. Breakdowns may lead to production failure leading to high costs and production lags.

(NEW QUESTION) [ESSAY TYPE]

### 2. FLEXIBILITY AND INNOVATION

**Definition | Flexibility:** This is the ability of a business to adjust its level of production and modify its products with the changing customer demand. This can be done by adjusting volume, delivery time and product/service specifications, labor force etc.

**Definition | Product Innovation:** This is developing new products. These can be an updated version of an old product or a completely new product.

**Definition | Process Innovation:** This is regarded as changing current processes or adopting new ways of producing products (e.g. automation/robotics) or delivering services (e.g. improving workflow). Example Amazon using octocopters to deliver its goods.

It influences (competitors...): Can force the company to shift its production methods from job to flow production - by pushing to replicate intense production methods.  
 • Competition can reduce prices which might force the company to buy cheap raw materials

to maintain profit margins.

Sth - Financial resources of the business can also influence the operations decisions. If the company lacks resources, they will not be able to implement methods like CAD & CAM.

In P-1, its mostly towards short questions.  
in P-2, 8-12 marks essay.

AS-Level - Business (9609) - SECTION 4 - [Operations and Project Management]

**3. OPERATIONS METHODS**

These are ways different goods and services can be produced. They are classified into FOUR methods:

1. Job Production
2. Batch Production
3. Flow Production
4. Mass Customization

Question on shifting.

From Job → batch → flow → mass

**1. Job Production**

Definition: This is a production method in which unique, non-standardized goods are made. The products are one-off specifically designed for the customer. Example Tailor made suits, handmade cars etc.

Advantages	Disadvantages
1. Able to undertake specialist projects or jobs with <u>high added value</u> . hence a premium price can be charged.	1. Labor cost would be high due to labor being skilled leading to higher wages.
2. <u>High levels of worker motivation</u> due to tasks being carried out require variety of skills.	2. The process is <u>time consuming</u> . Example the construction of house for which the cost won't be recovered until it is sold.
3. <u>Organization of job is simple</u> . Since only one job is handled at a time it is easier to coordinate and communicate.	3. Wide range of tools and equipment due a variety of jobs which can prove to be expensive.

**2. Batch Production**

Definition: It is a technique used in manufacturing in which a group of identical products pass through each stage of the production process. This occurs when items move from one stage of production to the another. Example cereal made in a factory, pens of different colors etc.

Advantages	Disadvantages
1. Large quantities are produced which allow EOS. more for a fixed production but still lower price flow.	1. Workforce might be demotivated by doing repeated tasks.
2. Flexibility in design. Each batch can be changed to meet customer's needs.	2. Complex machinery required leading to high fixed capital costs leading to lower profits.
3. Employees can concentrate on one operation leading to lower costs due to less need for skilled labor.	3. Can lead to production delays since the goods cannot be dispatched until the whole batch is finished.

④ Batch production requires production to become more capital intensive which can give labour expertise.

**3. Flow Production**

Definition: It is a production method where items are made in a continuously moving process. In flow, large quantities of standardized products are produced and used in case of items that are high in demand. The production can move from stage to stage as they are ready, without having to wait for other products. Example: Oil refining, water purification, production of coca cola etc.

Advantages	Disadvantages
<p>1. Large quantities are produced which allow EOS. (Higher than batch &amp; job).</p> <p>2. Due to continuous working of machines it leads to <u>low labor costs</u>. Most of the production is intensive, where labour is only of a</p> <p>3. Less stock pile of goods since the demand is usually high. (Leads to less storage costs &amp; stable revenues)</p>	<p>1. <u>Setup costs are high</u>. The company needs <u>huge investments</u> to fund its operations. (A higher pay back period)</p> <p>2. Product is <u>standardized</u> which makes it difficult to meet different customer's needs.</p> <p>3. Breakdowns can prove to be <u>costly</u>. Even if one part breaks down the whole production system stops.</p>

(u) Due to automated products are highly standardised which can lead to higher quality.

**4. Mass Customization**

**Definition:** This is producing product on a large scale with the flexibility to produce a number of different models. The company keeps a basic product and allows the customers to change a few key components to customize it to his/her own needs. This is usually done through flexibility in technology and using a multi skilled labor force. Example: Apple mass customizes its MacBook's. There is a standard version on which customers can add or remove features like RAM, flash storage etc. based on their own needs.

Advantages	Disadvantages
<p>1. Large quantities are produced which allow EOS. (Use lower than flow production)</p> <p>2. The products can have a higher added value. This allows the company to charge a premium price and satisfy a wide variety of customer needs.</p> <p>3. Since the manufacture is just changing a few key components but keeps the rest of the product the same it will result in a low unit cost and greater product choice to be maintained.</p>	<p>1. The layover time is one of the biggest problems of Mass Customization. Since it is a custom product it will take longer to reach the consumer.</p> <p>2. Another disadvantage would be that customers cannot return a custom product if they are not satisfied because it was created specifically for them.</p>

(u) This price value for money for the consumers because they can add features which they before believe are valuable to them & remove the ones which they do not need.

**Problems of changing from one method to another**

Nature	Description
<p><b>1. Job to Batch</b></p> <p>Summary points</p>	<p>i) Cost incurred by the firm to handle large numbers of goods in batch production.</p> <p>ii) The company needs spend money on hiring and training employees so that they become familiar with handling batch equipment.</p> <p>iii) Batch production sometimes causes demotivation in employees since the machines would be performing most of the task whereas the employees would only be of a supervisory nature. This results in less emphasis on the craft skills.</p>

Note: Along  
THREE tech  
I. Profit Estimat  
alone don't

<p><b>2. Job or Batch to Flow</b></p>	<p>i) Capital requirements in flow are much greater than Job or Batch. This results in more fixed and working capital needed to finance the shift. This move can result in a cash flow problem for the firm</p> <p>ii) The company needs to spend money on hiring and training employees so that they become familiar with handling flow equipment.</p>
---------------------------------------	---

Case based questions

Direct charges

PROS of right location

opening statement

**4. LOCATION [12-20 Marks Essays]**

**Definition:** Selecting the right location to set up a business can really influence the overall success of it. There are several advantages of setting up on the optimal location. Optimal location is the one that has best combination of quantitative and qualitative factors:

1. Lower costs: This will help the business achieve a quicker breakeven and increase return to shareholders.
2. More customers: This allows the business to be closer to the customers which in return increases sales.
3. Avoid trade barriers: This allows the businesses to avoid trade barriers which create a problem in trade.
4. Improve Brand name: Businesses that locate in an expensive area may create a premium brand image. *Limitations: optimum locations although break even quickly, the initial cost of purchase are not as significant.*

The factors to determine location can be divided into **TWO** categories:

1. Quantitative factors (numeric)
2. Qualitative factors (opinion based)

② Finding the right location can be a time consuming process

**1. Quantitative factors**

**Definition:** These factors can be measured in financial terms and will directly affect costs and revenues.

Factor	Description
1. Site and capital costs	The firm must look into the cost of purchasing and building a site. The cost of building must be compared with the potential revenue that site makes.
2. Labor Cost	Availability of skilled labor at a competitive rate, particularly in the case of labor-intensive industries.
3. Transportation Cost	If the plants are located far away from the factory it would increase the transport cost. Hence the company should prefer to locate near the source of raw material.
4. Sales Revenue Potential	The level of sales can be influenced by the location. For luxury brands like Gucci the location should be in expensive areas since they can add status and image to the product which can increase the value in the eyes of the stakeholders. Furthermore, for convenience stores being close to the customers might be the key factor in success.
5. Government Grants (Government support)	Areas of the country which are not developed or areas where government wants to attract investments it offers tax holidays, interest free loans etc. This can help the business increase profitability.



AS-Level - Business (9609) - SECTION 4 - [Operations and Project Management]

Note: Along with the quantitative factors have been identified above the business can use **THREE** techniques to assist location decisions:

- 1. Profit Estimates:** The area with the max profit potential should be chosen. However, profits alone don't tell anything. They must be compared with the costs of buying and developing. *[Q2 - concept] - 3 marks 4 - lines*
- 2. Investment Appraisals:** These are financial techniques that help a business choose between various capital investments. Techniques like pay-back, ARR and NPV can assist in choosing the best option. Lower the payback the better, and higher the ARR and NPV the better. However, it should always be noted if there is an error in the data these results might be wrong.
- 3. Break-even Analysis:** This tells the business what level of production must be sold for each site for the revenues to equal total costs. Lower the break even the better the location. However, costs and revenues might not be accurate which lead to misleading decisions.

**2. Qualitative factors**

**Definition:** These are non-measurable factors that might influence a business decision

Factor	Description
1. Safety	To ensure public safety the business might locate outside the city if it creates pollution.
2. Infrastructure	The quality of transportation, advertising, communication etc. links influence the decision.
3. Ethics and Environmental factors	The business also considers effects of stakeholders and environment. Example: The company might locate it areas with high unemployment to act ethically. Furthermore, the company might also locate it areas which have green technology to avoid pollution.

*Govt laws: The business also considers the legal policies that the govt has set up.*

**Advantages and Disadvantages of Locating Abroad**

Advantages	Disadvantages
1. Expand Market	1. Language and other communication barriers.
2. Reduction in Costs	2. Cultural differences
3. To avoid protectionist trade barriers	3. Ethical issues

*If only location needs to be decided even its profitable.*

**5. SCALE OF OPERATION** [3] marks *For evaluative comments*

**Definition:** It is the maximum output that can be achieved using the available resources. More the resources the greater the potential to increase the scale of operations.

**Factors that influence the scale of a business**

Factor	Description
1. Owner's Objective	If the aim is to growth then scale of operation would expand.
2. Capital Available	More the capital larger the scale of operations
3. Size of the market	Larger the size of the market, greater the scale of operations
4. Economies of Scale	Higher the EOS, larger the production.

*Govt laws regarding mergers - The more relaxed these laws are, the easier it would be for business to expand*

**1. Economies of Scale**

**Definition:** These are factors that reduce the average cost as the business grows in size. OR By increasing the scale of production average cost per unit decreases. There are two types of economies of scale

*(a) The strength of competition in that area. Business tend to locate in those areas where the competition is low so that it is easier to establish the brand name*

*Larger scale of operations, larger the size of the business.*

- i) Internal Economies of Scale
- ii) External Economies of Scale

**i) Internal Economies of Scale**

**Definition:** These are reduction in average cost that arise from within the business

Type	Description
1. Purchasing <i>not repeated</i>	A large firm requires raw material in bulk which encourages suppliers to offer discounts. This reduces the unit cost of each item.
2. Marketing <i>The business can bring economies of scale in advertising which reduces cost. The cost of reaching a particular consumer declines</i>	The cost of advertising and distribution rises at a lower rather than increase in output and sales. Furthermore, a large business can afford to purchase its own vehicles and does not depend on other firms.
3. Financial	Large business raise finance at a lower cost of borrowing. Banks are willing to give more capital at a lower interest rate and investors invest at a cheaper rate. This is because a large business is less risky due to low chances of failure.
4. Managerial <i>not repeated</i>	Large business hire specialist managers. This skilled workforce helps being efficiency and increase productivity.
5. Technical <i>not repeated</i>	Large business can deploy specialist machinery and effective manufacturing methods like flow production. These machines generate high output along with better quality.
6. Risk-Bearing <i>This is usually essential when the business is diversified - refer</i>	These occur when a large firm tends to produce a wide range of products and operate in many locations. The diversity spreads the risk. If one product doesn't work, the company can compensate form the others. Example: Unilever has multiple products in in portfolio.
7. Research and Development	Large firms can spend several millions of dollars in product innovation and create products that give them a competitive advantage. <i>OSK invests 36.26 billion on R&amp;D</i>

**ii) External Economies**

**Definition:** External economies of scale occur based on larger changes outside of the firm. External economies of scale are generally described as having an effect on the whole industry.

Type	Description
1. Ancillary Services <i>support</i>	An expanding industry is often assisted by other supporting industries that provide ancillary services such as maintaining an uninterrupted supply of raw material. Example: Leather for footwear industry.
2. Availability of Skilled Labor	Industries are usually concentrated in areas where there is skilled labor. Example: Sialkot in Pakistan for sports goods.
3. Reputation of Geographical Area	This provides the firm with exposure and publicity. Example: Silicon Valley in California for IT firms.
4. Access to Services	Industries in tertiary sector offer commercial services like insurance, transportation, advertising to the industries.

Project Management

Inter-related

AS-Level - Business (9609) - SECTION 4 - [Operations and Project Management]

2. Diseconomies of Scale

**Definition:** These are factors that increase the average cost as the business grows beyond a certain size. **OR** By increasing the scale of production average cost per unit increases.

Type	Description
1. Poor Communication	In large business sending and receiving messages becomes a problem. This results in mistakes and leads to lower efficiency.
2. Clash of Cultures	A merger between the two firms may be unsuccessful due to clash of cultures. Usually in this situation a firm prefers to demerge.
3. New Resources	When a firm expands it needs more capital, land and labor. This results in the overall cost of the firm to increase, which in return increases the average cost.
4. Low Morale	Large businesses are usually structured hierarchically where workers might never see the top managers. This makes the worker feel unimportant which reduces his motivation resulting in low productivity.
5. Slow Decision Making	A large company would need to do research, create an assembly line, determine which distribution chains to use, plan an advertising campaign, etc., before any changes could be made. By this time, the smaller competitors may well have grabbed that market niche.

Handwritten notes on the left margin: "This happens where the ground..."

Note: These DEOS can be reduced or avoided if the organization adopts the following approaches:

1. MBO: Will help to keep an objective oriented approach and assist in coordination.
2. Decentralization: Helps to remove the workload of all the branches and give control to the managers. This way the senior management can focus on the strategic goals.
3. Reduce Diversification: This helps remove wastage and improves the problems of communication and coordination.

**AATIK TASNEEM**

New Resources: When the business goes for rapid expansion

External diseconomies: pollution, traffic congestions, depletion of resources [kind of fall under CSR].

Most (2019) from Section 4

## TOPIC 3: INVENTORY MANAGEMENT

### 1. PURPOSE, COSTS AND BENEFITS OF INVENTORY

**Definition | Inventory:** The term inventory or stocks refers to the raw material, semi-finished (work-in progress) or finished goods held by a company with the basic objective of maintaining continuity of operations.

#### Advantages and Disadvantages of holding inventories

Advantages	Disadvantages
<p>1. <b>Quicker response time:</b> You are able to easily and quickly fill all customer orders as soon as they come in, without having to worry about waiting on your stock to come in to ship their order out. Customers can be lost if you can't ship an order quickly.</p>	<p>1. <b>Opportunity Costs</b> The working capital is tied up and cannot be used in other business operations. This could have helped the business increase sales, spend the money on R&amp;D etc.</p>
<p>2. <b>Decreased risk of shortages:</b> By keeping stock on hand, you are able to guarantee, up to a certain point, that you will not run out of a particular item, and you have less to worry about if a product is discontinued. Should there be a shift in the demand for your product, you are more able to meet (or even beat) the competition; you will be more likely to be able to sell your excess inventory at an ideal price.</p>	<p>2. <b>Storage Costs</b> Excess inventory means extra space needed for storage. Extra space also means extra costs, and since you have to include those extra costs in your price, you might end up losing to competition with other sellers because your price is too high. Even if you have your own warehouse, you would still be having extra costs in maintenance, and you also risk not having enough space for new items.</p>
<p>3. <b>Quick replenishment:</b> By keeping excess inventory, you are able to work to make sure that your shelves are always full and that your store always has a neat and tidy appearance.</p>	<p>3. <b>Risk of inventory becoming obsolete:</b> The value and quality of your product decreases the longer you keep it on stock. You have to make it a priority to sell your inventory while they're new to the market. Smart phones, for example, are updated almost every six months, so you have to sell your stock before new versions arrive.</p>

### 2. MANAGING INVENTORY

#### 1. Buffer Inventory

**Definition:** This is the minimum amount of inventory that a business wants to hold just in case of a problem. These problems can be a delay in delivery, production rates increase. The greater the uncertainty the greater would be the buffer stock levels.

#### 2. Reorder Level

**Definition:** It is the level of inventory left at which a business needs to place an order so that new inventories arrive before the business goes below its buffer level.

### 3. Lead Time

**Definition:** Lead time is how long it takes from ordering the supplies from the supplier to them arriving at a business. Higher the time the greater the reorder stock level should be.

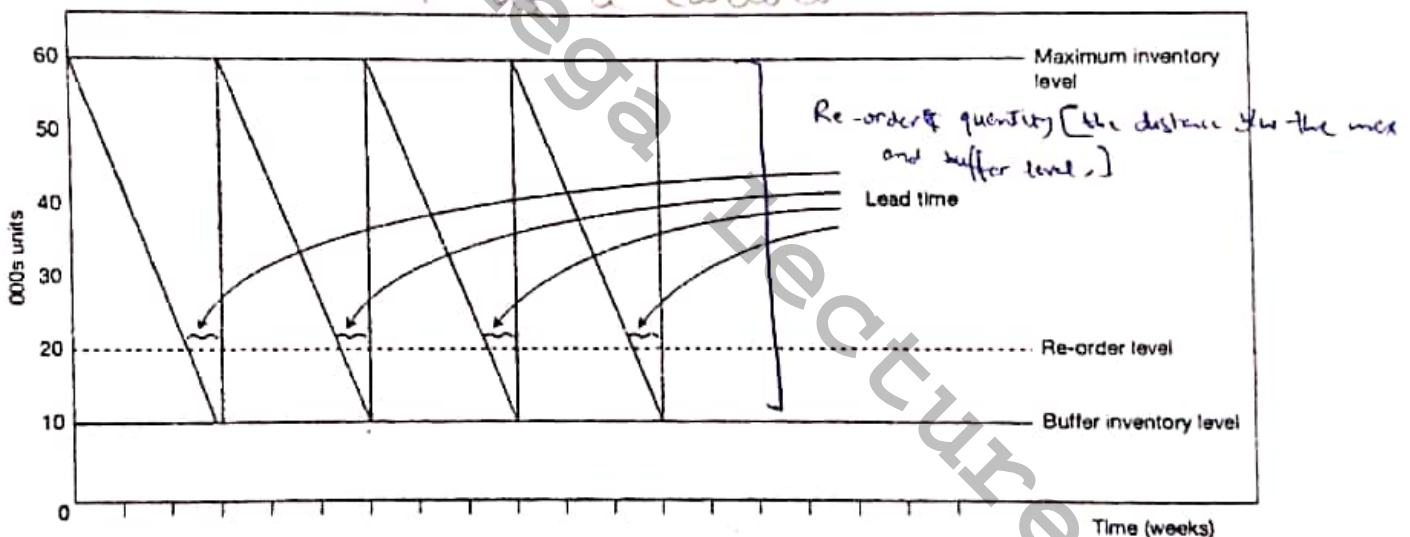
### 4. Reorder Quantity

**Definition:** It is the amount ordered each time.

### Interpretation of simple inventory control charts

A typical inventory or stock control chart is depicted in the following figure. Vertical lines represent new deliveries whereas depletion of stocks through usage or sales is shown with the help of sloping lines. The rate of depletion can be gauged from the gradient of the lines: the steeper the gradient, the faster the depletion. The level of buffer inventory, reorder level, lead time, and reorder quantity can also be seen from the diagram.

The stock control chart assists the management in taking and analyzing numerous interrelated decision such as the size of the buffer or the maximum stock level to be held, the size of the batch to be ordered.



### 3. INVENTORY CONTROL METHODS

There are TWO methods to control inventory:

1. Buffer Inventory *Always done*
  2. Just in Time (JIT) *Pro and Cons seen on pg 11*
- if the Q, asks the pros & cons of buffer inventory control system*

#### 1. Buffer Inventory

**Definition:** This type of inventory control method believes in keeping reserves. The following factors influence the level of inventory a business holds:

1. Rate at which the stocks are generally used
2. Warehouse Space
3. Nature of the Product
4. Supplier lead time

Essay papers in P2  
definition in P-1

AS-Level - Business (9609) - SECTION 4 - [Operations and Project Management]

2. Just in Time (JIT)

Definition It is a Japanese inventory control system that emphasizes low stock levels. It suggests that materials should be ordered or purchases only when it is urgently needed, as opposed to buying in bulk or in excess of immediate requirements. JIT production occurs when firms produce products to order. Firms only produce when they know they can sell the product.

They notes the business to try to deal with the market trends  
more customers  
cost of holding inventory

Advantages	Disadvantages
<p>1. It gives the firm a lot of flexibility. Firms produce what is required, when it is required.</p> <p>2. JIT production also reduces costs as with no inventories the firm does not have to pay for warehousing or security. This also helps the firm avoid the opportunity cost of having money tied up in inventories.</p> <p>3. JIT also helps to minimize wastage. If the goods are produced and left to accumulate they are likely to get damaged, depreciate, stolen or go out of fashion. This makes JIT part of the lean approach.</p> <p>4. JIT leads to improvement in management of funds and cash flow since investment in working capital is reduced and the funds are not tied up.</p>	<p>1. JIT relies on suppliers providing parts and components at exactly the time they are needed. If this type of flexibility and reliability is not available the system is likely to break-down. Even if the supplier fails to deliver on time the business has no buffer inventory which might cause production delays.</p> <p>2. Order administrative cost will increase because of several small orders need to be processed. Furthermore, several expensive IT systems need to be deployed to make it operative.</p> <p>3. The business might lose the chance to gain purchasing economies of scale and increased transportation cost might lead to higher per unit cost. This will increase the per unit cost of production which will lead to lower profits.</p> <p>4. Labor needs to be efficient and trained for JIT to be successful. This adds up to the cost. Furthermore, workers generally resist change and if they are working with buffer inventory before it would be hard and time consuming before they make the shift.</p>

Any 3 of  
or choose

Evaluation: JIT has its pros and cons and in order for it to be effective the company needs good human resource. Several organizations are benefiting from JIT and it helps in the organization move towards lean production however, it should be noted that it cannot be used by small firms because of high capital costs. Furthermore, the production delays and raising prices of transport costs might make it ineffective.

In addition to that the success of JIT depends on:

- i) Investment in machinery
- ii) Training employees
- iii) Negotiations with employees on contracts
- iv) Building relationships with employees

Evaluation, depends on the reliability of the supplier.  
Depends on the frequency of the supply -> the cost of delay must be lower than the benefit gained from LOS.  
Conclusion (handwritten): Overall JIT is beneficial but should only be used for those products which have a guaranteed demand. buffering inventory control system is more beneficial.