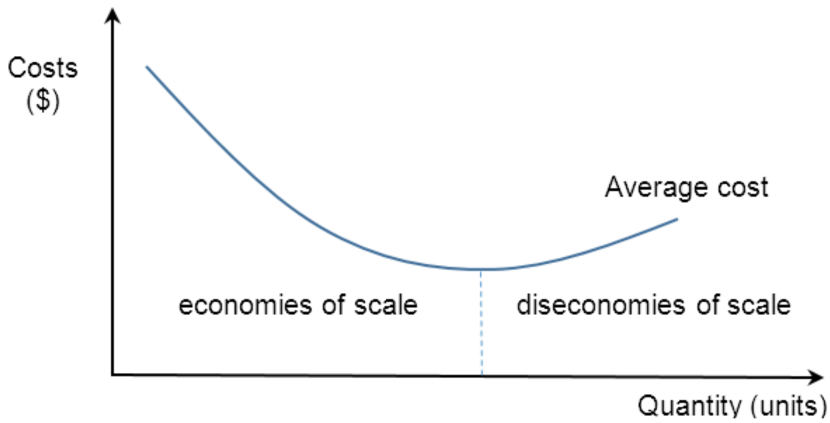
1.5 a) Internal & external economies and diseconomies of scale (AO2)

Economies of scale enable a business to benefit from lower average costs (the cost per unit) by increasing the size of its operations. Hence, these are often described as the cost-saving benefits enjoyed by a firm as it grows.

However, **diseconomies of scale** will occur if the firm grows beyond its ability to operate efficiently. This causes the firm's average costs of production to rise due to problems such as miscommunication, misunderstandings, and poor (inefficient) management of resources.



The level of output where the average cost of production is at its lowest value is called the **optimal output level**, i.e., the level of output where economies are fully exploited. At this level of output, profit is maximised.

The average cost of production is calculated using the formula:

$$\text{Average cost} = \frac{\text{total cost}}{\text{quantity produced}}$$

or in annotation form:

$$AC = \frac{TC}{Q}$$

Total costs of production are made up of both fixed costs and variable costs (see Unit 3.2):

$$TC = TFC + TVC$$

So long as a business can spread its fixed costs of production over a larger quantity of output, average costs should fall, allowing the firm to benefit from economies of scale.

Top tip!

It is incorrect to state that economies of scale means that as a firm increases its output, its costs will fall.

Notice that this statement refers to costs, rather than average (per unit) costs. When referring to economies of scale, it is vital to specify average costs. It does not make sense that Coca-Cola can manufacture 100,000 cans of cola for *less* than it can for producing only 1,000 cans of cola. However, it is cheaper to for Coca-Cola to make *each* can on a larger scale.

In other words, economies of scale reduce the average costs of production (costs per unit) when a business is able to operate on a larger scale

Economies and diseconomies of scale can be further categorised as internal or external economies and diseconomies. These are covered in the sections below.

Internal economies of scale (AO2)

Internal economies of scale occur for a particular organization (rather than the industry in which it operates) as it grows. These cost savings are generated within the business by operating on a larger scale. For example, the costs of hiring an advertising agency such as WPP or Omnicom Group to design, arrange, and execute advertising campaigns for a firm's existing and new products, can be spread over a higher level of sales for a large firm.

All in all, when a firm grows and expands, the firm is able to lower its production costs and overheads. With lower average costs, the firm can reduce its prices to gain competitive advantages and attract more customers.

Categories or types of internal economies are shown in the table below. Click on the icon to read more about each specific type of economies of scale.

Type	**Explanation**

Financial economies of scale	Banks and other lenders charge lower interest to larger businesses for overdrafts, loans and mortgages because they represent lower risk. Large firms enjoy favourable terms and conditions when it comes to raising finance. They tend to be able to borrow very large amounts of money from banks or other lending institutions and at lower interest rates. Consequently, lower interest payments mean larger firms enjoy higher profit margins due to the lower average costs of finance. Lenders show preference for lending to larger businesses with a proven track record and a diversified range of products. By contrast, higher interest rates are charged to smaller businesses (especially start-up firms) because banks consider them to be of higher risk. This is because large firms with a strong balance sheet are more likely to repay their loans on time and in full, and have more collateral (financial security) to offer in case they default on repaying those loans. In general, smaller firms such as sole traders not only tend to struggle to raise external sources of finance, but are also charged higher interest rates on their borrowings. There is also strong competition amongst commercial banks to lend money to large multinational businesses. Hence, a large and established business looking to borrow money is

	likely to be able to choose a lender that offers the most attractive (the lowest) interest rates, with preferential repayment terms and conditions.
Marketing economies of scale	Larger businesses can spread their fixed costs of marketing by promoting and advertising a greater range of brands and products. While total marketing costs tend to increase as a business grows, they do not rise proportionately to sales revenue. If a business doubles its sales, it does not have to double its marketing expenses. This means that the average cost of marketing falls as a firm's sales increase. For example, global firms such as Nike, Toyota, Samsung, and The Walt Disney Company can spread the high costs of advertising and promotion by using the same marketing campaign across the whole world for all of their products. Very often, these multinational companies will promote their brand (such as Nike) rather than each single product from their vast product portfolios (such as Nike football, athletics, or basketball shoes). Large firms can also benefit from lower average costs by *selling* in bulk, thus benefiting from reduced time and transactions costs. A small

	retailer will have to spend a lot more time and effort to sell 10,000 bottles of Pepsi Cola to hundreds of different individual customers than for PepsiCo itself to sell 10,000 bottles of Pepsi Cola in one transaction to a single wholesaler or supermarket.

Managerial economies of scale	Larger businesses can afford to hire specialist functional managers, thus improving the organization’s efficiency and productivity. Large firms can attract the best managers who can create a more productive working environment and encourage higher efficiency and goodwill from workers. As managers cannot be equally good at everything, specialisation and division of labour lead to higher productivity which then leads to lower average costs of output for larger firms. Through growth, a larger business can avoid the duplication of tasks in planning, communications, marketing, distribution, and production processes, all of which help to increase efficiency. As a firm expands, it can afford to hire specialist managers for different functional areas of the business such as Marketing, Finance, Production (Operations management) and Human Resources (HR). These specialist managers will be operating more efficiently than a sole trader who would need to perform a range of different managerial roles that s/he may not be specialised in. Sole traders who have to perform many different tasks will not be efficient at any of those tasks, therefore does not benefit from this type of economy of scale.

	The skills of specialist managers which allow them to do the job faster and without costly mistakes (because of their knowledge, skills, and experience) is a potential economy for larger organizations. Specialist managers improve the quality of business decisions compared with non-specialist managers or a sole trader trying to do everything on their own.

Technical economies of scale	Cost savings by greater use of large-scale mechanical processes and specialist machinery (such as mass production techniques). Modern technology enables businesses to produce very high levels of output at much lower unit costs than smaller firms can do. Large firms can afford to use sophisticated and specialised machinery to mass produce their output using flow production techniques. They are able to justify huge investments in mass production technologies (such as assembly lines) because working at a high capacity level can significantly lower average costs of production. However, as mass production uses expensive capital equipment, only very large businesses can afford the level of capital investment required. Nevertheless, large firms can spread the high fixed costs over the high number of volume of output. For example, due to the extremely large scale of its production, the Foxconn's megafactories in Taiwan and China can produce iPhones and iPads 24/7 for Apple. The high fixed costs of their capital equipment and machinery are spread over the huge scale of output being produced for Apple, thereby reducing Foxconn's average costs of each product.

	By contrast, small businesses find no practical reason for use of such technology. Even if small firms could afford to purchase the latest capital equipment and production technologies, they would be unlikely to keep these operating continuously due to the lower demand for their products.

Purchasing economies of scale	Larger firms can gain huge cost savings by buying vast quantities of stocks (raw materials, components, semi-finished goods and finished goods). Also known as ‘bulk-buying economies of scale’, purchasing economies of scale materialise when a firm buys in bulk, so can save money per unit purchased. Large firms can reduce their average costs by purchasing resources in bulk as they usually buy greater quantities of inventory (such as raw materials, component parts, and/or finished goods ready for sale). The more items purchased at one time, the larger the savings (discounts) that their suppliers are likely to offer, thereby leading to a lower average cost of production. This is because it is cheaper for suppliers to process and deliver a large single order for one customer rather than smaller orders for many different smaller firms. Also, suppliers will be more keen to keep a very large customer happy due to the size of the order made on the large quantities sold. Although small businesses can also gain some purchasing economies of scale due to bulk-buying discounts, the larger the order, the greater the reduction in unit costs. Hence, larger firms gain far more from purchasing economies of scale than smaller firms. Large firms are also

	usually able to hire specialist buyers who travel both nationally and internationally to visit various suppliers in order to negotiate and secure the best deals at the lowest prices possible.
Risk bearing economies of scale	Large businesses can bear greater risks than smaller firms due to a greater product portfolio. Hence, inefficiencies will harm smaller firms to a greater extent. These cost savings can be enjoyed by a conglomerate (a diversified company made up of numerous different businesses in unrelated industries). Conglomerates can spread their fixed costs, such as Research and Development (R&D), accounting, recruitment, or advertising across a wide range of operations and their diversified product portfolios. Unfavourable trading conditions for certain products in one market can be offset by more favourable trading conditions in other markets, or countries in which the firm operates. Hence, the loss in one industry, or in one market, does not

	jeopardize the overall existence of the conglomerate. For example, it takes a considerable amount of investment and time for research and development to commercialise a product in the pharmaceutical industry, especially as new medicines have no guarantee of any commercial success. Therefore, this process can only be undertaken by large pharmaceutical companies with significant resources, such as the likes of AstraZeneca, GlaxoSmithKline, Johnson & Johnson, Merck, Novartis, Pfizer, and Sanofi.

Specialization economies of scale	Larger firms can afford to hire and train specialist workers, which help to boost output, productivity, and efficiency (thereby cutting average costs of production). This type of economies of scale results from the division of labour of the workforce (rather than the specialization of managers) in different parts of the production process. Division of labour happens when the production process is split into different tasks and each worker repeatedly performs one of these tasks. When workers are trained in just one task (or a narrow range of tasks) and specialize in it, efficiency and output can be increased because the worker is able to complete her/his assigned task faster and more effectively. Also, less time is wasted moving from one workstation to another. For example, Honda , the Japanese car manufacturer, uses mass production techniques and benefits from having specialist employees such as designers, production workers, engineers, and sales representatives. These specialists are responsible for a single part of Honda's overall production process. Their unique

	expertise brings greater productivity and efficiency to the company.

External economies of scale (AO2)

External economies of scale occur when a firm's average cost of production falls as the industry as a whole (rather than the firm itself) grows. This means that *all* firms in the industry benefit.

For example, the **location** can reduce unit costs for all firms in the area. This could be due to improvements in the location's **infrastructure** (such as improved transportation and communications networks) and **specialist labour**. Examples of locations with specialist labour include:

- The City, London - for bankers and financiers
- Silicon Valley, California (USA) - for high-tech software companies
- Bengaluru, Karnataka (India) - for IT and software developers
- Hollywood, Los Angeles - for movie actors.

Specialist labour can help to cut recruitment costs and increase labour productivity.

Other examples of external economies include:

- Specialist research and development facilities in the local area
- The relocation of suppliers and other support services to the area
- New production processes and techniques that improves the efficiency of all firms in the industry.

Internal diseconomies of scale (AO2)

Diseconomies of scale occur when an organisation becomes inefficient due to the scale of its operations being too large to manage effectively. This results in higher average costs of production.

Internal diseconomies of scale occur due to problems within the organization, which cause productivity to fall and inefficiencies to occur. Most of these problems arise because the larger business makes **communication** and **coordination** more difficult. **Bureaucracy** refers to any combination of excessive corporate policies, procedures, and paperwork. Bureaucracy often gets in the way of doing things efficiently, due to stringent and excessive company rules, policies, and procedures.

External diseconomies of scale (AO2)

External diseconomies of scale occur when issues outside of the organization raises the average costs of production for all businesses in the industry. Examples include:

- Traffic congestion and delays due to overcrowding in central business districts
- Increasing costs of rent due to the high demand for land in central business districts
- Higher costs of labour due to labour shortages in urban areas.