Mass/flow production and mass customisation

Two further operations methods – mass/flow production and mass customisation – are covered in this section. These methods are capital intensive and relate to products that are created on a very large scale. The economies of scale they achieve mean that production costs are lower than with job production and batch production methods, which were discussed in Section 5.2.1 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/the-big-picture-id-39052).

Mass/flow production

Mass production (also known as flow production) involves the production of large amounts of standardised products on an assembly line. Mass/flow production is a continuous process whereby a product moves on an assembly line from stage to stage. At each stage, a worker or robot performs some operation on the semi-completed product, which then flows to the next stage. Products are continuously being started and completed.

If you look at the box of any Apple product, you will find the words, 'Designed by Apple in California, assembled in China'. Almost all consumer electronics, such as phones or computers, are produced using mass production.

Mass production is likely to be capital intensive as it uses more machinery relative to workers. Often there may be no workers involved at all. But mass production may also involve production lines where workers remain at a single station, performing the same task over and over again, perhaps thousands of times a day. This generates massive economies of scale and high productivity, leading to low average costs. The downside, however, is that workers are unlikely to find their job motivating. This can cause problems with product quality.

Mass production is well suited to large, consumer product companies. If the company enjoys a large, perhaps even global, demand for its goods, then mass production may be the only way this demand can be met within a reasonable time scale. In addition, companies that make standardised items are likely to use mass production, since machinery can produce massive quantities of identical products. If mass production is used, companies must be able to implement robust quality control techniques so that output can be regularly checked. **Table 1** outlines the advantages and disadvantages of mass/flow production as an operations method.

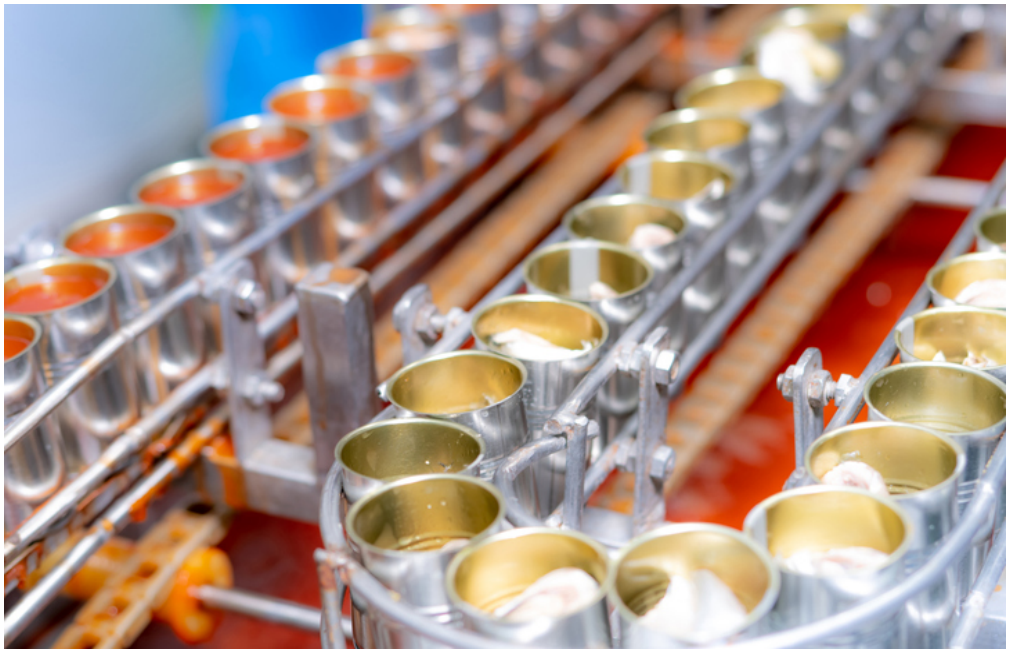

Figure 1. Canned goods are often produced using mass/flow production.

Credit: Artinun Prekmoung / 500px, Getty Images

Table 1. Advantages and disadvantages of mass/flow production.

Advantages of mass/flow production	Disadvantages of mass/flow production
Large-scale production. Large quantities of products can be made due to the efficient, capital-intensive production of standardised products.	**Set-up, running, replacement and storage costs.** Capital-intensive production requires expensive machinery and large volumes of resource stocks (inventory) that need to be stored, which can increase costs of production.
Standardised quality. Mass/flow production uses machinery to produce products, which can result in uniform quality of goods and fewer defects.	**Less flexibility.** Once production begins, there is little to no chance of altering the specifications or design of the product.

Lower costs of production. Large volumes are produced using machines so costs are spread across large quantities with little expensive labour involved, reducing average costs.	**Lower worker motivation.** When workers are involved, they may be demotivated by the repetitive work of mass/flow production.

Mass customisation

Mass customisation involves producing large quantities of goods that can be adjusted to customer specifications. This combines the flexibility and personalisation of custom-made products with the low unit costs of mass/flow production resulting from economies of scale.

Improvements in production technologies make mass customisation possible. A variety of different mass-produced products can be made on the same production line. One of the most well-known examples of mass customisation is in the production of cars. Car manufacturers use the same production line to produce the basic car model. However each car can be customised with a different steering wheel, a different dashboard, and different interior colours, seat coverings and types of wheels.

Mass customisation may be appropriate when economies of scale are needed due to intense competition in the industry but, as with a car, where the high prices of the products bring consumer expectations of individual specifications.

Companies that produce lower priced goods, however, are also using mass customisation to adapt their products to customer specifications. Nike, the footwear manufacturer, allows mass customisation of its shoes in its product range Nike By You (https://www.nike.com/nike-by-you). This gives the customer the opportunity to personalise their own shoes with different colours and styles.

Figure 2. Mass customisation, allowing changes to individual components, is common in the auto industry.

Credit: Monty Rakusen, Getty Images

International Mindedness

Mass customisation may be particularly important for global businesses that face different customer expectations in the countries where they operate. Sociocultural differences may result in a variety of needs and expectations among consumers.

There are several different types of mass customisation used by businesses:

- **Collaborative customisation.** This is where there is close interaction between the business and customer to adapt a mass-produced product according to the customer's specifications.
- **Adaptive customisation.** Customers can choose from pre-set customisations provided by the business. For example, there are a variety of mattresses on the market that can be adjusted from very hard to soft according to the customer's requirements.
- **Cosmetic customisation.** This is where the face of the product, often the packaging, is changed to suit the needs of the customer.

- T**ransparent customisation.** Personalised items are recommended to the customer, based on their online shopping cart. This involves analysing online customer data to make recommendations.

Table 2 outlines the advantages and disadvantages of mass customisation as an operations method.

Exam tip

As you look at **Table 2**, which is the final table of advantages and disadvantages of operations methods outlined both in this section and in Section 5.2.1 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/the-big-picture-id-39052), keep in mind that it often makes sense to compare the advantages and disadvantages of one method with another method. For example, an advantage of mass customisation is that it is more flexible than mass/flow production, but it would be less flexible than job production.

Table 2. Advantages and disadvantages of mass customisation.

Advantages of mass customisation	Disadvantages of mass customisation
Customer satisfaction and loyalty. Because they provide some variety to suit customers' needs, businesses can target a wider range of customers.	**Handling returns.** Reselling of returned products is difficult due to customisation; thus businesses might suffer losses.
Lower costs. Mass customisation provides consumer choice, but it maintains the economies of scale of mass/flow production due to large volumes and capital-intensive production methods.	**Higher costs for customisation.** Customisation costs the business more because a wider variety of stock is needed and more specialised equipment is required. The business needs to be able to price its product so these costs are covered.

Higher prices and profits. Since products are customised according to customer demand, a higher price can be charged.	**Time.** Customised products may take more time to produce, which could result in supply chain problems.

Concept

Change

Change is an act or process through which something becomes different. Businesses operate in a dynamic world with constant change. Understanding change involves researching and responding to signals (feedback) from the external environment and evaluating causes, processes and consequences. Businesses need to adapt their objectives, strategies and operations to respond successfully to internal and external changes.

In the case of mass customisation, changes in technology make it easier to customise products on a very large scale. While this may result in higher costs of production in the short term, increased demand and higher prices could outweigh those costs, increasing profits for businesses that can achieve mass customisation.

Activity

Learner profile: Thinkers
Approaches to learning: Thinking skills (critical thinking)

Copy and complete the following table. Consider the products listed and decide whether each would be more suited to mass/flow production or mass customisation. Explain your reasoning for each.

Product	Mass/flow production or mass customisation?	Explanation
Oil extraction		
Eyewear		

Shampoo		
Cans		
Cars		
Laptop		
Paper clips		

Case study

Levi Strauss & Co

Using the latest technology to keep up with the changing tastes and trends of the fashion industry, Levi Strauss & Co enables customers to design their own pairs of jeans. It does this through its 'Lot-1' service.

Customers can choose a pair of unfinished jeans and choose the style, colour, size, cut and (even) text. There are more than 1000 different combinations of customisation.

By developing its own imaging tool and by using laser technology, the company has digitised the entire experience. This saves time and increases customer loyalty and satisfaction. The self-designed jeans are priced higher than mass-produced jeans, so Levi's revenue and profits increase.

Watch **Video 1** to see how Levi Strauss & Co has transformed its operation methods.

Video 1. Mass customisation at Levi Strauss and Co.

Questions

1. Define mass customisation. [2 marks]
2. Explain **two** advantages for Levi Strauss & Co of adopting mass customisation. [4 marks]