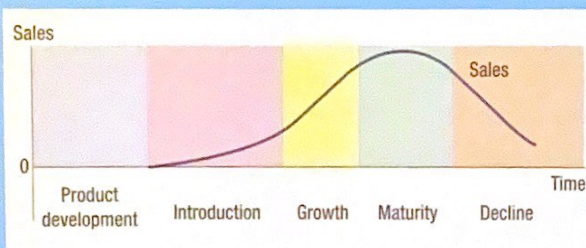
17 The product life cycle

The product life cycle

Product is one part of the marketing mix. For marketing to be effective a business must be aware of its PRODUCT LIFE CYCLE. The product life cycle shows the different stages that a product passes through over time and the sales that can be expected at each stage. By considering product life cycles businesses can plan for the future. Most products pass through six stages - development, introduction, growth, maturity, saturation and decline. These are illustrated in Figure 1.

Figure 1: The product life cycle



Development During the development stage the product is being **researched** and **designed**. Suitable ideas must be investigated, developed and tested. If an idea is considered worth pursuing then a prototype or model of the product might be produced. A decision will then be made about whether or not to launch the product. A large number of new products never progress beyond this stage and will **fail**. This is because businesses are often reluctant to take risks associated with new products. During the development stage it is likely that the business will spend to develop the product and **costs** will be high. As there will be no sales at this stage, the business will initially be spending but receiving no revenue

Introduction At the start of this stage the product will be **launched**. As the product is new to the market, sales initially are often slow. Costs are incurred when the product is launched. It may be necessary to build a new production line or plant, and the firm will have to meet promotion and distribution costs. A business is also likely to spend on **promotion** to make consumers aware of the new product. Therefore, it is likely that the product will still not be profitable. **Prices** may be set high to cover promotion costs. But they may also be set low in order to break into the market. Few outlets may stock products at this stage. The length of this stage will vary according to the product. With brand new technical products, e.g. computers, the introduction stage can be quite long. It takes time for consumers to become confident that such products 'work'. At first the price of such products may be quite high. On the other hand, a product can be an instant hit resulting in very rapid sales growth. Fashion products and some **fast moving consumer goods** may enjoy this type of start to their life.

Growth Once the product is established and consumers are aware of it, sales begin to grow rapidly, new customers buy the product and there are repeat purchases. Costs may fall as production increases. The product then becomes **profitable**. If it is a new product and there is a rapid growth in sales, **competitors** may launch their own versions. This can lead to a slowdown of the rise in sales. Businesses may need to consider their **prices and promotion**. For example, a high price charged initially may need to be lowered, or promotion may need to increase to encourage brand loyalty.

Maturity and saturation At some stage the growth in sales will level off. The product has become established with a stable market share at this point. Sales will have peaked and competitors will have entered the market to take advantage of profits. As more firms enter the market, it will become saturated. Some businesses will be forced out of the market, as there are too many firms competing for consumers. During the maturity and saturation stages of the product life cycle many businesses use extension strategies to extend the life of their products. These are discussed below.

Decline For the majority of products, sales will eventually decline. This is usually due to changing consumer tastes, new technology or the introduction of new products. The product will lose its appeal to customers. At some stage it will be withdrawn or sold to another business. It may still be possible to make a profit if a high price can be charged and little is spent on promotion or other costs.

Different product life cycles

Many products have a limited life span. Their product life cycles will look similar to that shown in Figure 1. For some products there is a very short period between introduction and decline. They are sometimes called **fads**. The slope of the product life cycle in the introduction and growth period will be very steep and the decline very sharp. Examples of such products include Micropets in 2003, Heelies in 2006 and Pokemon cards in 2005. Once consumers lose interest in a product and sales fall, a business may withdraw it from the market. It may be replaced with another new product. Sometimes poor selling products are withdrawn in case they damage the image of the company. However, businesses must take care not to withdraw a product too early. Over time, certain products have become popular again. For example, skateboards, which were popular in the 1980s regained popularity in the mid-1990s and the early 2000s.

Question 1.

Figure 2

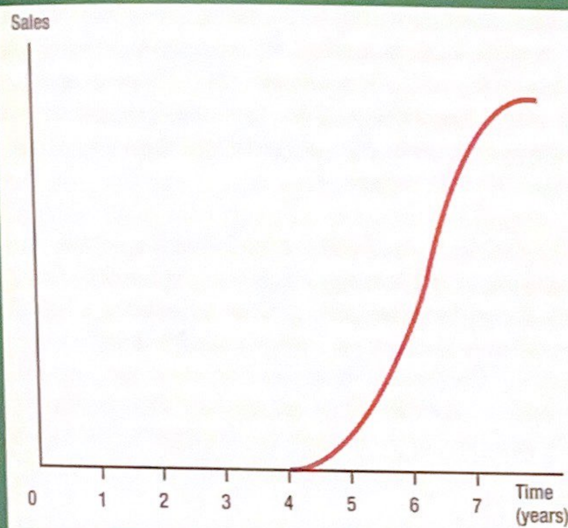
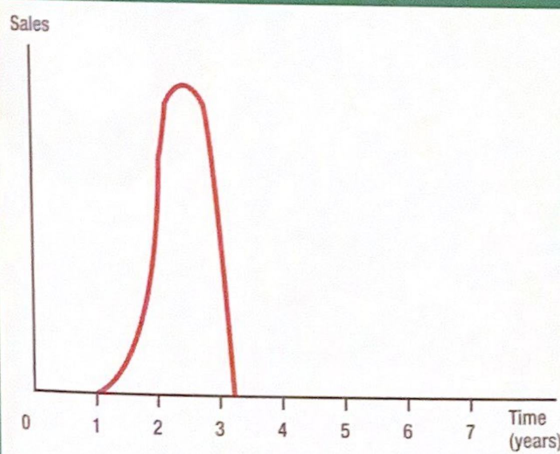


Figure 3



(a) Examine Figures 2 and 3. For each of these, name a product which you think might have a similar product life cycle.

(b) Why do some products have a very long life cycle (greater than 50 years)?

(c) Sketch the current product life cycle of three of the following products:

(i) A compact disc or downloadable song by a leading performance artist/group (you will need to specify the name of the song and the performance artist);
(ii) Walkers cheese and onion crisps;
(iii) Coca-Cola;
(iv) Hovis bread;
(v) Rice Krispie bars;
(vi) Golden Compass DVD;
(vii) the Facebook website;
(viii) a football strip of a Premier League team (you will need to specify the team).

Some businesses still enjoy profits from products which were launched many years ago. The Oxo cube was launched in 1910, Kellogg's Cornflakes were launched in 1906 and Theakston's Old Peculier, a strong ale, was launched in the eighteenth century. These products still sell well today in a form fairly similar to their original.

Because of the high cost of investment, car producers often set product life cycles of ten years for their models. For many products, life cycles are getting shorter, especially in areas like electronics. In the computer industry, some models and software have become obsolete within a very short period as new versions appear which are more technically advanced. For example, in 1995 Microsoft launched its operating software Windows 95. It was later replaced by Windows 98, Windows 2000 and Windows XP.

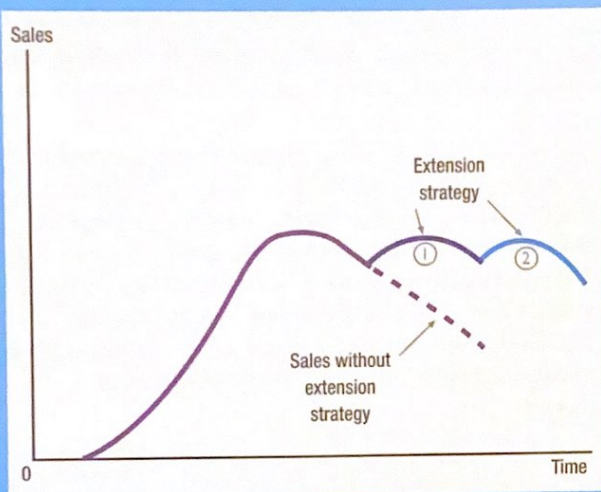
Extension strategies

It is clear from the product life cycle that the sales of products decline, although at different rates. Firms can attempt to extend the life of a product by using EXTENSION STRATEGIES. They may decide to use one or more of the following techniques.

- Finding new markets for existing products. Over the last 20 years there has been a boom in the sales of sports clothing. This has been largely due to the use of sports clothing as fashion wear.
- Developing a wider product range. Lucozade was originally sold as a product to those recovering from an illness. By extending the product range to include a 'Sports' version, a huge increase in sales has been achieved. Lego constantly develops new versions of a product that started out as a plastic set of building blocks.
- Gearing the product towards specific target markets. Mobile phone companies have packages geared to the needs of teenagers. Banks have accounts for young people.
- Changing the appearance, format or packaging. Coca-Cola is available in individual cans, in glass or plastic bottles, or in multipacks. Chocolate bars such as Toblerone are sold in standard sizes, in large bars or in mini sizes.
- Encouraging people to use the product more frequently. Manufacturers of what were previously known as 'breakfast cereals' have used promotional campaigns to encourage the use of their products at different times throughout the day.
- Changing the ingredients or components. Many microwaveable food products are available as 'weight watchers' or 'low fat' meals, as well as more traditional meals. Many cars are equipped with CD or MP3 players and air conditioning as standard.
- Updating designs. Car manufacturers regularly update models. Makers of computer gaming systems bring out new versions after a period of time.

The effect that an extension strategy can have on the product life cycle is shown in Figure 4. As the market becomes saturated and sales begin to fall, the decline in sales is delayed by the use of

Figure 4: Extensions strategies



an extension strategy. It would be sensible for a business to try to extend the life of a mature product before sales start to decline. Firms that can predict falling sales from market forecasts may attempt to use extension strategies before the decline takes place, i.e. in the maturity stage.

The product life cycle and capacity

Capacity utilisation is the extent to which a business uses the capacity that it has to produce a particular product. It is the relationship between what a business actually produces and what it is capable of producing. A business working at full capacity that is unable to produce any more of a product will be at maximum capacity utilisation. A business that can still produce more with its existing technology and machinery is likely to be working at less than full capacity.

The product life cycle is linked to capacity utilisation.

- At launch, sales of a product are likely to be limited. So a business will have spare capacity.
- When a product is at its growth stage a business will often be expanding its production and using up spare capacity to meet the rising demand for the product.
- When a product is in its maturity stage a business may be operating at full capacity. If sales continue to grow it must decide whether to invest to expand capacity.
- In the decline stage the capacity that a business has to produce a product will often be underutilised. This is because sales and therefore production may be cut back.

So during the development, growth and growth phases a business will have to make decisions over its capacity.

Creating new capacity A business may decide to build new capacity to deal with sales of a new product. New capacity could be created as sales grow. This would delay outflows of cash until they were needed. There would be less risk that the new capacity would be greater than sales. But, if sales were higher than expected, the business might find it difficult to invest quickly enough to prevent shortages. Alternatively, new capacity could be created before sales take place. But this carries the risk that the investment would be wasted if sales did not grow in line with expectations. The cash to pay for the investment would flow out of the business earlier. Average costs would be higher too, because the cost of creating and running spare capacity at launch would have to be paid for. However, it would easier to deal with unexpectedly high sales than if investment took place when sales actually happened.

Utilising existing capacity There is less risk if a business uses existing capacity. If a business is operating at less than full capacity, it could use the spare capacity to launch a new product. This would help reduce cash outflow associated with new products. Or a business may be working at full capacity, but have products which are at the end of their life cycle. These could be taken out of production and replaced by the new lines.

A problem with this approach is that the average costs of

Question 2.

Rachel's is a manufacturer of organic dairy products. The business is very much a farm based enterprise. In 1952, Brynllys, a farm in Wales, began the process which made it into the first organic farm in the UK. Initially, its dairy production was confined to selling organic milk. But in 1982 it branched out into making and selling cream and butter, initially sold locally. 1984 saw the first commercial production of yoghurt. By 1987, Marigold, a leading London health food supplier, was an enthusiastic buyer and, in 1989, Rachel's yoghurts were on sale in Harrods.

In 1990, the owners of the business, the husband-and-wife team of Gareth and Rachel Rowlands, decided to expand. They borrowed the money, using their farm as collateral, to build a state-of-the-art dairy. It was capable of processing not just the 330,000 litres of organic milk a year from their farm, but 3 million litres – the entire organic output of Wales. Their decision to take this risk was helped by their first large contract to supply a supermarket chain, Sainsbury.

In 1999, they sold the business to Horizon Organic, the biggest wholly organic dairy supplier in the US. Horizon has introduced three new yoghurt flavours: low fat vanilla, whole-milk with maple syrup and Greek-style with honey. This month sees the debut of Rachel's organic fat-free yoghurt and a Welsh butter with bilingual packaging. However, Horizon promised not to alter Rachel's yoghurts in content or concept.

Source: adapted from *The Financial Times*, 24.11.2001.

(a) Discuss whether the introduction of (i) organic yoghurt in 1984 and (ii) organic fat-free yoghurt in 2001 were examples of a new product being brought to the market or an extension strategy for an existing product.

(b) Discuss the cash flow requirements of Rachel's yoghurts during and after the decision in 1990 to build a new state-of-the-art dairy.

production, excluding the cost of any investment, may be higher than if new capacity had been built. For example, it may cost 60p to produce an item on old machinery but only 40p if the latest equipment is used. The decision about whether to buy new equipment will depend upon the relationship between the cost of the new equipment and the saving on running costs. If a business only saves £10,000 a year on running costs by buying £100,000 of new equipment, then it probably won't buy. If it saves £90,000 on running costs for an investment of £100,000, it will probably purchase the new equipment.

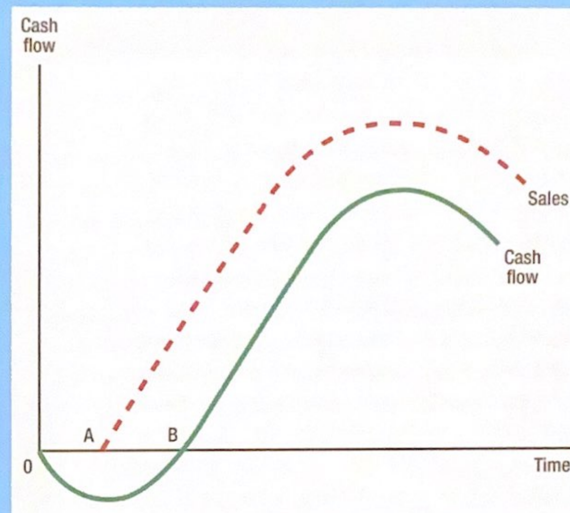
As explained above, average costs of production may be higher at launch and during the growth phase if existing capacity to cope with high levels of sales is set aside for use at launch. But again, if sales exceed expectations, the business is more likely to cope if there is spare capacity.

The product life cycle and cash flow

Figure 5 shows the cash flow of a business over a product life cycle.

- Before product launch a business will spend to develop the product and yet no money is coming into the business from sales. So cash flow is likely to be negative.
- At launch, at point A, a product begins to sell. Cash flowing out of a business is still likely to be greater than cash flowing in, so cash flow will be negative. Sales have yet to take off and a business might be spending on promoting the product.
- In the growth period, eventually revenue from the product will be greater than spending (point B) and so cash flow becomes positive. This is because sales will be increasing and average costs may be falling as output increases.
- In the maturity stage cash flow will be at its highest. The product will be earning its greatest revenue.
- In the decline stage, sales will fall and so cash flow will decline.

Figure 5: Cash flow, sales and the product life cycle



Uses and problems of the product life cycle

Why might a business be interested in analysing the product life cycle of its existing products or anticipating the life cycle of new products?

- It will illustrate the broad trends in revenue that a product might earn for the business.
- It will identify points at which businesses may need to consider launching new products, as older ones are in decline.
- It will identify points at which extension strategies may need to be introduced.
- It may help a business to identify when and where spending is required, e.g. on research and development at the start, or on marketing at the introduction and when extension strategies are required.
- It may help to identify points at which a business should no longer sell a product.
- It will help a business to manage its product portfolio – its mix of products. This is discussed in the next section.
- It will give an indication of the profitability of a product at each stage in its cycle.
- It will allow a business to plan different styles of marketing that a product might need over its life cycle.

There may be problems, however, when using this model. It can be used to show changes over the life of a product. But it may not be effective in **predicting** the future sales of a product and how sales will change in future. In practice, every product is likely to have a slightly different product life cycle. Furthermore, it is important that the model does not **determine** decisions. For example, a product that is in the decline stage does not automatically have to be withdrawn. Sales may be falling due to a lack of promotion or poor distribution. The decline in sales may be more to do with management decisions than where the product is in its life cycle.

KEYTERMS

Extension strategies – methods used to extend the life of a product.
Product life cycle – shows the different stages in the life of a product and the sales that can be expected at each stage.

KNOWLEDGE

1. Briefly describe the various stages in the product life cycle.
2. Why might a product have a 'steep' life cycle?
3. Name three uses of the product life cycle.
4. How can a firm extend the life of its products?
5. State three ways in which the product life cycle is linked to capacity utilisation.
6. Name three links between the product life cycle and cash flow.

Case Study: The KitKat

The KitKat was launched as Rowntree's Chocolate Crisp in 1935 and renamed KitKat in 1937. The following year it was the company's most popular product. It first became a national favourite in the war years of the 1940s, when the government endorsed it as a healthy, cheap food. Ever since it has been the most popular chocolate bar in the UK. It was one of the main reasons behind the takeover of Rowntree by Nestlé in 1989. It maintained its supremacy even when faced with competition from Nestlé's own Smarties and Black Magic. According to the KitKat website, 47 bars are eaten every second in the UK and a year's production would stretch around the London Underground more than 350 times.

However, in 2003 sales fell by 5 per cent from nearly £123 million in 2002 to £116 million by the end of 2003. 'Saying the business is in crisis is extreme', argued a consumer brands analyst at the time, 'but maintaining its position in the UK confectionery market is going to be a challenge. It's a cut-throat market.' There was concern that saturation point had been reached.

Nestlé fought back by introducing a number of variants to the KitKat market as from 2004. These included an orange and mint flavour, a lemon and yoghurt flavour and a Halloween variant, Blood Orange. In addition, in 2005 a caramac KitKat was launched and the KitKat Dark has now established itself as a permanent addition to the KitKat range. Both the two and four finger versions of the KitKat have remained popular and they have been joined by the KitKat Chunky as mainstays of the KitKat product range.

There are many different variants upon the KitKat theme in those countries where the product remains popular. In Malaysia there is a hot weather version that is less likely to melt in the heat and in Japan a range of flavours, including green tea, passion fruit and lemon cheesecake, have been introduced. Japanese school children regard the KitKat as a lucky charm for exams and tests and take them into school on test days.

In England, health scares regarding childhood obesity have led to a school ban on vending machines selling crisps, chocolate and fizzy drinks as part of what has been termed the 'great KitKat clampdown'. These and other health moves have seen food manufacturers such as Nestle criticized for encouraging youngsters to eat what are seen as unhealthy foods. Health campaigners have also singled out the KitKat chunky for particular criticism.

Source: adapted from *The Guardian* 10.9.2007, *The Independent*, 15.2.2004; www.nestle.co.uk and www.news.bbc.co.uk

(a) Using information from the article, draw and label the product life cycle for KitKat. (3 marks)

(b) Identify significant periods in the product life cycle of KitKat using examples from the article. (6 marks)

(c) Using information from the article, explain the product extension strategies used by Nestle in relation to the KitKat. (8 marks)

(d) Discuss how changes made in the future might affect the product life cycle of KitKat. (8 marks)