Chapter 3
PEST factors

A PEST analysis examines the Political, Economic, Social and Technological environments that affect markets and businesses. It is recognised by decision makers that, in the longer term, the survival and success of a business are dependent upon adopting objectives and strategies appropriate to the external environment within which their business operates. It is not enough to say we have the right marketing mix or the best product portfolio without being aware of the external environment. It is also worth bearing in mind that the external environment is continually changing and businesses have to adapt to such changes if they are to remain competitive.

Political factors

- Instability – One of the major objectives of government is to provide a stable economic and legal framework within which businesses can operate and grow and individuals thrive. Competition needs to be fair; the rule of law and clear property rights must apply. Businesses that venture into countries that are politically unstable are taking considerable risks.

- National security – This is an increasingly important issue for many countries as terrorist attacks have become commonplace across the world. As governments seek to protect their citizens, they introduce measures that may well restrict the movement of goods, people and capital. Many businesses may suffer negative impacts as a result, especially when attempting to resolve skill shortages.

- Major trading partners – Whilst the UK has decided to remove itself from membership of the European Union, the 27 remaining countries are still a vital market for many UK businesses. The UK may not be the only country that decides to make such a move. Such uncertainty has the impact of disrupting financial markets and creating considerable uncertainty in the European Single Market and the Eurozone.

- Changes in government – New governments may well have a more, or less, positive attitude towards business activity. For example, legislation may be put in place that lifts restrictions on businesses in terms of such matters as pollution or workers' rights. This may result in cost increases for businesses and impact upon future profitability. Republican governments elected in the USA, for instance, have tended to be more pro-business than Democratic governments.

- Pressure groups – The activity of such groups can have a significant impact upon political decision-making. Campaigns against the tobacco, alcohol and gambling industries have all had a significant impact upon bringing about changes in legislation. Businesses are required to put in place measures to comply with such legislation and this inevitably raises costs and lowers profits. Pressure groups are an increasingly significant factor in bringing about political change and businesses need to be fully aware of their activities.

Economic factors

Business activity can be hugely affected by the state of the economy and during times of recession many fail to survive. There are numerous factors that businesses have to contend with and the impact can be both positive and negative.

Taxation, subsidies and the government's role as a purchaser of goods and services

Governments can affect business decision-making using fiscal policy. This involves both changing taxation and government spending to influence the economy.

Fiscal policy can be used to target political economic or social objectives so expenditure or increased taxation is sometimes targeted at specific industry sectors or alternatively subsidies can be paid to industries.

- Taxation

Taxes can be broadly split into two types. Direct taxation (taxation on income) and indirect taxation (taxes on spending).

Major direct taxes	Major indirect taxes
Income Tax	Value Added Tax (VAT)
National Insurance	Excise Duties
Corporation Tax	Customs Duties
Capital Gains Tax	Council Tax
Inheritance Tax	Business Rates

Typical effects on business of changes in taxation.

Increasing or decreasing the **level of consumer spending** will inevitably have an impact on the majority of businesses. For example, if the government choose to lower the level of income tax this will stimulate consumer demand. On the other hand, a rise in council rates will have the opposite effect and reduce demand for goods and services.

Prices can be impacted by a rise in VAT or Excise Duties. Businesses will try to pass such increases onto their customers if they can, but this will depend upon the degree of competition they face in the marketplace. The brewing industry often complains about the level of taxes on beers and spirits, arguing that increases in taxes on these products is depressing demand.

Increased rates of Corporation Tax or Business Rates will increase the **costs** of businesses, as will such measures as new landfill taxes.

National Insurance (paid by employer and employee), is sometimes described as a tax on jobs, as increases in this tax increase the **costs** of employing workers.

- Subsidies

Subsidies are payments to producers. They have the effect of reducing costs and therefore increasing output. The main sources of subsidies in recent years have been payments from the EU to farmers (Common Agricultural Policy). These payments help support farmers, ensuring domestic production of food. Subsidies in various forms are also paid to green power generators helping provide a guaranteed price for their electricity. The argument supporting payment of these subsidies is that green energy helps reduce the amount of CO_2 emissions from fossil fuel power stations and therefore helps protect the environment.

- Expenditure – Government's role as a purchaser of goods and services

The government buys goods and services from UK businesses; this comes to over £100 billion a year. For some types of business the government may be the only or the key purchaser of the goods they produce. Examples include UK defence contractors, shipbuilders and some road builders. Government purchasing had been seen by many businesses as a source of easy profits, but the culture has now changed with all government departments looking for cost savings and efficiencies. Competitive tendering and regular reviews of supply contracts are now the norm, putting pressure on traditional suppliers but offering opportunities for new entrants.

Private sector businesses also have the opportunity of supplying services that had previously been provided 'in house'. The most obvious examples of these are private companies running chains of academy schools and private prisons owned by companies like G4S.

Inflation and its effect on businesses

Inflation is the rate at which the general level of prices is rising

Measuring Inflation

The government measures inflation through the use of regular pricing of a nominal 'basket of goods'. This basket of goods is meant to reflect the spending habits of the average person within the UK economy and includes over 600 goods and services. So the basket contains such things as petrol, cars, travel, holidays, consumer electrics, food, medicines, housing, and even lottery tickets and online dating. By judging and measuring the difference in the cost of purchasing this basket of goods on a monthly basis we are able to obtain an inflation figure. It is worth noting that there is more than one measure of inflation used in the UK. The target rate of inflation is known as The Consumer Prices Index (CPI). This is measured using the basket of goods as indicated: other measures of inflation include RPI, the RPIX, and a measure of Factory Gate Prices.

The United Kingdom is currently in an extended low inflationary period and relatively low levels of inflation have been with us for the last 18 years, with CPI inflation varying between 0% and 5%. This low level of inflation contrasts with inflation peaking at 27% in 1977 and an average rate inflation of around 10% during the 1980s.

In May 2016 the CPI inflation rate was just 0.3%. This means that the basket of goods that the government uses to measure CPI inflation was 0.3% more expensive than 12 months previously. Inflation has been lower than government targets for 2015–16.

The government regards achievement of the target level of inflation as being good for the economy. This is because low inflation encourages investment by business and spending by consumers. It also has the effect of increasing our competitiveness with overseas producers, so in theory limiting imports and increasing exports.

In an attempt to control the level of inflation, the government has handed its main inflationary policy tool, which is the setting of interest rates, to the Monetary Policy Committee of the Bank of England. The government sets targets for inflation between narrow bands (CPI of 2%, + or – 1%) and requires the Monetary Policy Committee to maintain inflation between these bands by the use of interest rate policy.

Causes of inflation

Inflation is primarily caused by either cost-push factors or demand-pull factors.

Cost-push factors are those related to the costs of production, and cause these costs of production to increase. Examples would be an increase in the cost of raw materials, increasing cost of labour or increasing interest rates and therefore the cost of capital increasing.

Demand-pull factors are those factors that enable businesses to increase prices because demand is increasing. Higher demand leads to higher prices. We often see this happening when demand outstrips supply, then prices start to increase. The main causes of increased demand are: increased confidence amongst consumers, higher real incomes (incomes allowing for inflation), or higher disposable incomes (incomes after taxation).

When these two sets of factors, cost-push and demand-pull, come together, we can have what is known as a wage/ price spiral. We see how the inflationary spiral is created below.

The Wage Price Spiral
Increasing inflationary expectations can lead to demand for higher wages. This situation is often seen during a period of recovery in the economy when a shortage of labour can give workers the confidence to demand increased pay. These higher wages increase the cost of production and also increase levels of demand.
Businesses pass on these increased costs to consumers, therefore prices will increase. Increased prices will lead to another round of wage increases, as workers try to protect their spending power (real incomes). Therefore the cycle continues. Inflation becomes self-perpetuating.

The effects of inflation on businesses

- The major effect of high inflation on businesses is to **discourage investment** because of the **uncertainty** it creates. High inflation brings with it less predictable returns on capital purchased and also the expectation that demand will fall in the future. Low inflation will encourage investment and help businesses develop a long-term view. Remember that investment is not just capital investment but also investment in labour, such as training schemes, and the incorporation of modern working practices.

- **Increasing menu costs**. If inflation is at a high level, businesses will have to continuously reprice goods. This repricing brings with it costs such as reprinting of brochures, sales details, etc.

- **Increased management time spent negotiating wage increases with employees**. If inflation is high, there will be more regular and continuing pressure for increase in wages. Negotiations with employees may be almost permanent and there will be an increased threat of industrial action.

- **International competitiveness**. If inflation is higher in the UK that in competitor countries, costs of UK businesses are increasing faster. The effect of this will be to reduce competitiveness of exports and to encourage imports.

- There is one major advantage of inflation, and that is it will **reduce the real cost of repaying loans**. However, this saving has to be balanced by the high interest rates that are likely to go with high levels of inflation.

Effects of deflation

It is worth noting that some level of inflation in the economy is desirable, hence the government's target of 2%. Deflation (a general fall in price levels) can be a real problem if it gets hold in an economy. For individuals it can lead to falls in wage levels, and increasing real debt burdens (value of debts increase relative to value of assets and income). Both of these factors discourage expenditure.

Deflation also brings major problems to businesses. Firstly as a result of the above described impacts on consumers, demand will fall; also consumers will defer purchases, waiting for the price of goods to fall further, so again reducing demand. Businesses will also be nervous of investing as the return that investments will produce will be uncertain, as businesses do not know for how much the goods produced will be sold. Also real debts of businesses increase, pushing up the risk of failure. These factors severely limit growth in an economy.

Interest rates and their impact on business activity

The interest rate is the price of borrowing or saving money

The period 2009–2016 has seen the Base Rate of Interest (set by the Bank of England) at a historically low level of 0.5%. In September 2016, the Base Rate reached a record low of 0.25%. The impact of such low interest rates on businesses has been generally beneficial. However, the very high rates of interest in the 1980s – when they reached a peak of 15% – were very damaging to many businesses. Using interest rates to help control the UK economy is known as ***Monetary Policy***. If the government wishes to dampen demand in the economy it raises interest rates in order to discourage people from borrowing money which they would use to purchase goods and services.

The effects on businesses of changing interest rates

If interest rates increase, the cost of borrowing increases which will limit demand in the economy. If interest rates fall, the cost of borrowing falls, so demand will increase. Businesses are not generally impacted by small changes in interest rates – say an increase from 0.5% to 0.75%. However, if there is an increasing trend over time, the cumulative impact can be significant.

When interest rates rise, **domestic consumption** falls. This is because people spend more on paying off mortgages and credit cards, so less money is left over for spending on other goods and services. In addition, higher interest rates discourage borrowing and encourage saving. As a result, demand falls but this fall in demand is not evenly spread. Those businesses that target people's surplus income are likely to lose out the most. Higher interest rates mean consumers cut back on luxuries like weekends away and restaurant meals; instead they might switch to day trips and having pizzas delivered. People are also less likely to borrow as the cost has increased; this will affect demand for products like cars, caravans and home extensions.

Higher interest rates mean that businesses borrow less for **investment** – firstly because higher interest rates mean that consumption is likely to fall, and also because the cost of investment has increased. Those businesses producing items such as machinery and new buildings find their sales decrease. Increased interest rates also push up the cost of existing borrowing, so increasing costs to businesses. These increasing costs can reduce profitability and reduce the competitiveness of businesses, meaning lost orders and exports.

With falling interest rates, the reverse effect is often seen, with people spending less on paying mortgages and credit cards, so there is more money left over for consumption. Borrowing by households increases, businesses are more likely to invest and also business costs are likely to have fallen – all leading to increased demand in the economy. Businesses who gain the most are those with large debts and those operating in the luxury end of the market. Middle-market businesses will adjust their product mix and marketing to target the extra disposable income.

Increasing interest rates:

- people spend more on paying mortgages, so less money left over for spending on other goods and services
- people are less likely to borrow as the cost of loans has increased, so less spending
- businesses borrow less for investment – too costly
- the value of the £ may increase against other currencies

Decreasing interest rates:

- people spend less on paying mortgages, so more money left over for spending
- people are more likely to borrow as the cost of loans has fallen, so there is more spending
- businesses borrow more for investment – greater chance of success
- the value of the £ may fall against other currencies

Economic growth and the business cycle

The measure of the level of economic output in the UK is known as **Gross Domestic Product** (GDP). GDP is a measure of annual output of an economy. An increase in real GDP (real means allowing for inflation) has always been important. Without growth, people's standard of living will not increase. Growth reduces the real level of government debt in relation to GDP and increases tax receipts. The underlying trend for growth in the UK economy has been around 2.25% a year, which, if sustained, doubles GDP every 25 years. However, since 2008 growth has averaged about half this rate.

Economic output (GDP), the amount of goods and services produced within an economy, does not increase steadily over time. Instead, we see a regular rise and fall in all types of business activity. This regular change is called the **business cycle** (also called the economic or trade cycle).

This rise and fall clearly has an impact on all stakeholders. Sometimes the economy is rolling along, people feel well off, they take out credit, buy expensive holidays, extend their houses and trade-up cars. Unemployment is low, jobs are plentiful, wages are good and bonuses are paid. However, there are other times when the economy is not doing so well: unemployment is relatively high, real wages may be falling, people do not like to spend a great deal and businesses, both large and small, may struggle to survive or even go out of business.

The elements of the business cycle

Boom

The boom period benefits most businesses and consumers. Unemployment is low, consumer demand is strong, profits for businesses are high and there can be a budget surplus for the government caused by high tax revenues and lower expenditure on Social Security. However high levels of demand can increase prices, workers often demand higher wages, thereby pushing up costs. Businesses focus on marketing goods that match with economic prosperity, and look to invest in order to take advantage of high levels of consumption. Business confidence is high and lots of new businesses are set up by optimistic entrepreneurs.

Downturn

During an economic downturn, there is less investment by businesses and business owners and managers become nervous about the future and may start to cut back. Higher inflation in a boom may have caused the Bank of England to increase interest rates, so people are spending less and unemployment starts to creep up. The economy may still be growing, but at a much lower rate. In a boom, the economy can grow by 4% in a year;, in a downturn, growth will slip to around 1%. Now businesses cut back on stockholding, worried that falling sales will leave them with unsold merchandise. Marketing strategies are based on providing value for money to customers in order to remain competitive.

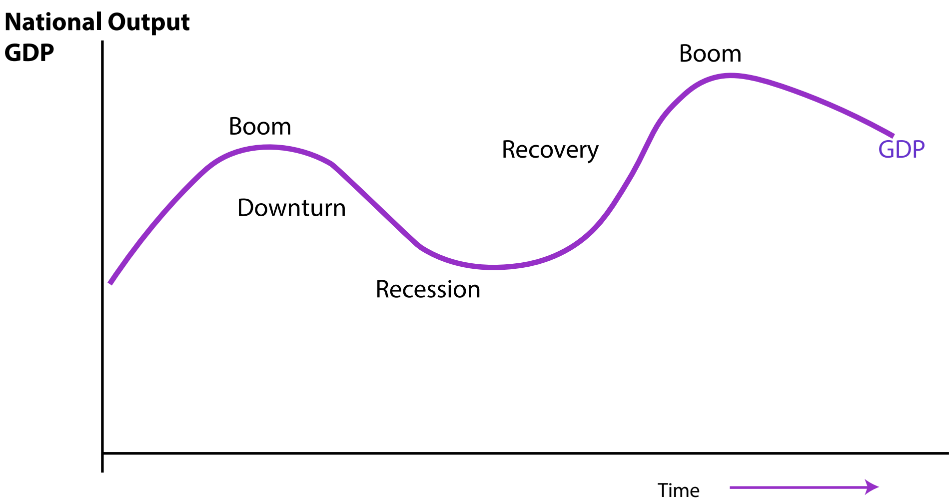
Recession

Sometimes a downturn turns into a recession; the economy starts to shrink in size. The strict definition of a recession is two consecutive quarters where GDP growth is negative. If we have a recession, we see rapidly increasing unemployment, falling demand from consumers, falling investment by businesses and a decline in the levels of inflation and interest rates. Between 2008 and the middle of 2010 we saw in the UK the longest recession since the Second World War. Unemployment increased by over 1 million. A recession will have a material impact on businesses. Generally, demand will fall, there is likely to be the cost of redundancies, businesses will cut back on investment and levels of stock. Product ranges and pricing strategies will change to suit the new economic environment. Small businesses set up during a period of boom struggle to survive and many run out of cash – forcing them to close.

Recovery

Hopefully, the recession will soon turn into a recovery. Businesses start to see business opportunities, the cost of borrowing can be low and, therefore, investment by some businesses will start to increase. New jobs are created and unemployment falls and consumers start to spend again.

The business (economic/trade) cycle
The Rise and Fall of Economic Activity



Exchange rates and their impact on businesses

An exchange rate is the value of one currency expressed in terms of another currency.

The fact that different countries use different currencies means that there is an impact on businesses when the price of these currencies changes in relation to one another. The price of a currency is largely determined by market forces – in other words, demand and supply. When the demand for UK exports rises in China, so will the demand for pounds: this is because Chinese consumers and businesses can only use pounds to purchase UK goods. They therefore have to exchange yen for pounds sterling.

This results in an appreciation of the pound i.e. the value of the pound has increased against the yen. This also works in the opposite way when the demand for UK imports falls. A fall in the exchange rate is known as a depreciation of the pound.

The impact of a fluctuating exchange rate on UK businesses can be very significant – depending on the degree to which they purchase goods and services from, or sell goods and services to, other countries.

Impact of a **FALL** in the value of the £ (Depreciation)

Importers

In terms of their own currency, importers will find imports more expensive to buy. They can react to this in one of two ways. Firstly they can reduce their margins and so avoid passing the increased cost on to the consumer, or secondly they can pass increased costs onto the consumer in the form of higher prices. The decision will come down to how large are the margins and what the price elasticity of demand for the product is.

Exporters

Exports will be cheaper in terms of the purchasing businesses own currency, so businesses should find attracting export markets easier. They can react by increasing the price in £'s, so maximising their profits; or keeping their prices the same, and trying to win new customers.

Impact of a RISE in the value of the £ (Appreciation)

Importers

In terms of their own currency, they will find imports less expensive to buy. They can react to this in one of two ways. Firstly, they can increase their margins by not passing the reduced cost on to the consumer; or secondly, they can pass reduced costs onto the consumer and thereby increase sales. The decision will come down to balancing short-term profit maximisation against winning consumer loyalty.

Exporters

Exports will be more expensive in terms of the purchasing businesses' own currency. Businesses will find winning and keeping export markets a great deal harder. They can react by reducing the price in £s, so reducing their profits; or keeping their prices the same. How the business acts will depend upon factors such the strength of their brand or quality of their goods or services.

The mnemonic **SPICED** may help you to remember the impact of a change in the value of the pound against other currencies on businesses which import and export:

S– Strong

P – Pound

I – Imports

C – Cheaper

E – Exports

D – Dearer

Worked example:

A British importer of mountain bikes from the USA places an order for 400 Muddy Badger bikes at $200 each with the manufacturer. At the time of order, the exchange rate is £1: $1.60. However, when the invoice arrives for payment, the exchange rate is £1: $1.47 (the value of the pound has fallen against the $). How much extra in £s has the change in the exchange rate cost the importer?

400 Bikes @ $200 = $80 000

Then divide $80 000 by the exchange rate to find the cost in £s

$80 000 divided by 1.60 = £50 000

At the time of invoice, the exchange rate is £1 to $1.47 (the value of the £ has weakened in relation to the $)

$80 000 divided by 1.47 = £54 421

So, the change in exchange rate has increased the importer's costs by £4 421.

Fluctuating exchange rates create **uncertainty** for businesses because it is difficult for them to predict the demand for exports and the cost of imports. Planning and budgeting can be badly disrupted by a weakening or strengthening of the pound against another currency and could result in the closure of a business that operates in a very competitive market where profit margins tend to be low.

Unemployment

Unemployment will always be with us. This may seem a slightly contentious statement, but the fact is that every economy has a natural rate of unemployment. This natural rate unemployment does alter over time and will depend on such things as mobility of labour, availability of training, trade union power and the skills of labour. In the UK, it is estimated that current natural rate unemployment is between 3% and 4%. Many economists argue a reasonable level of natural unemployment is good for the economy, as it discourages those in employment seeking higher wages

Types of unemployment

Structural unemployment

This appears when then there have been large changes in patterns of demand or developments in technology which have caused long-term unemployment in regions or industries. These changes mean that the structure of the industry or service has changed, and that jobs in their previous form are unlikely to return. A good example would be the high levels of male unemployment in South Wales valleys and regions of Yorkshire which had previously large coal-mining and steel-producing areas. In this case, decline in the industries has been caused by cheap imports and by the switch to natural gas for heating and in power stations.

A change in technology can also cause structural unemployment. A good example of this is new technology used by Far Eastern textile manufacturers which has caused large unemployment in the previously booming textile industries in Lancashire. More recently, the adoption of automation and robotics is threatening large numbers of jobs across a range of industries.

Providing a solution to structural unemployment when it occurs is one of the largest problems facing any government. Quite often families have previously been employed for many generations within the same industry. It is difficult to encourage retraining and mobility of labour from these regions. It is also difficult to encourage businesses to move to the areas which are so obviously depressed.

Cyclical unemployment

Cyclical unemployment, as its name indicates, appears as part of the business cycle. As an economy enters a downturn, unemployment increases: this will peak during any subsequent recessionary period. This type of unemployment will fall during recovery and reach a minimum at the peak of the boom period.

The government has tried to tackle cyclical unemployment in two ways. Firstly, by encouraging wage flexibility, for example, by making part of employees' wages relate to profits of the company (profit-related pay). It is then not so expensive to employ workers when there is a downturn in profits. Also the government has tried to reduce the nature of the economic cycle and the large variations between boom and bust. One important way of doing this is to encourage investment in labour and so make it more expensive to shed workers during an economic downturn. The benefit of this to business is that labour would be both more productive and flexible, therefore enabling workers to adjust to meet to the demands of new economic conditions. During the recession of 2008 and 2009, it was estimated that the level of cyclical unemployment reached approximately 1.5 million.

Frictional unemployment

This perhaps is the least problematic of the three types of unemployment and occurs when there is a delay in finding a job after losing a previously held job. This unemployment is obviously less long-term than structural unemployment; it tends to be temporary. Nonetheless, the government still tries to reduce it by increasing information available of vacancies that exist. This can be done through jobs centres and other employment recruitment services.

The impact of high levels of unemployment on UK businesses

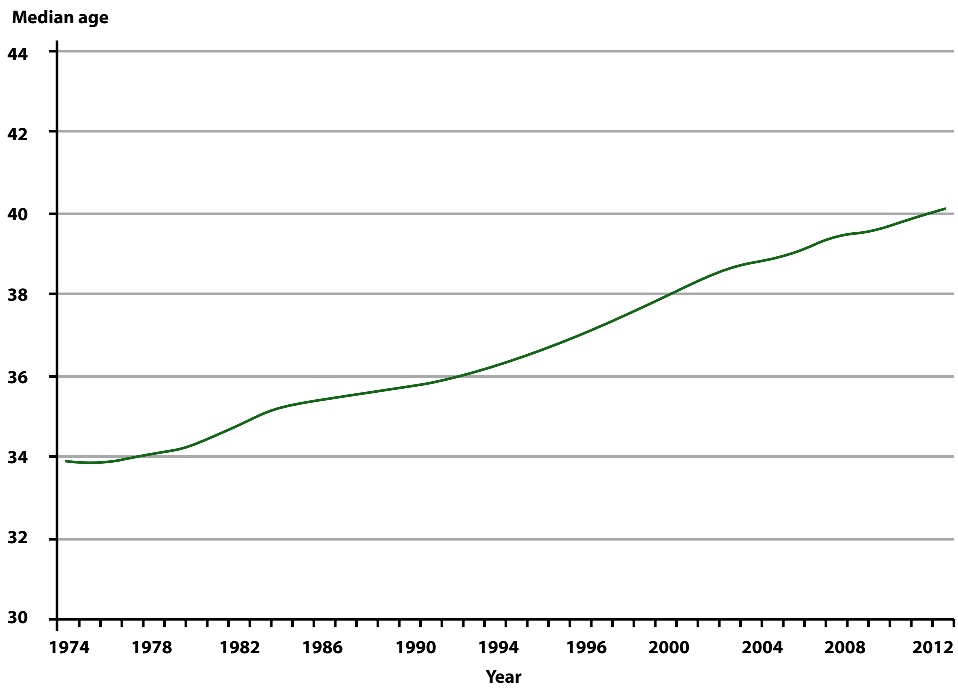
The major impact of unemployment is **to reduce demand** for goods and services. The economic crisis of 2008 saw the unemployment figure reach 3 million and this had a very significant impact on the sales and orders of UK businesses. Sales forecasts were radically revised and survival became the major objective of the majority of enterprises. This fall in demand can result in a fall in output and then possible redundancies for some workers if they are not needed.

Social factors

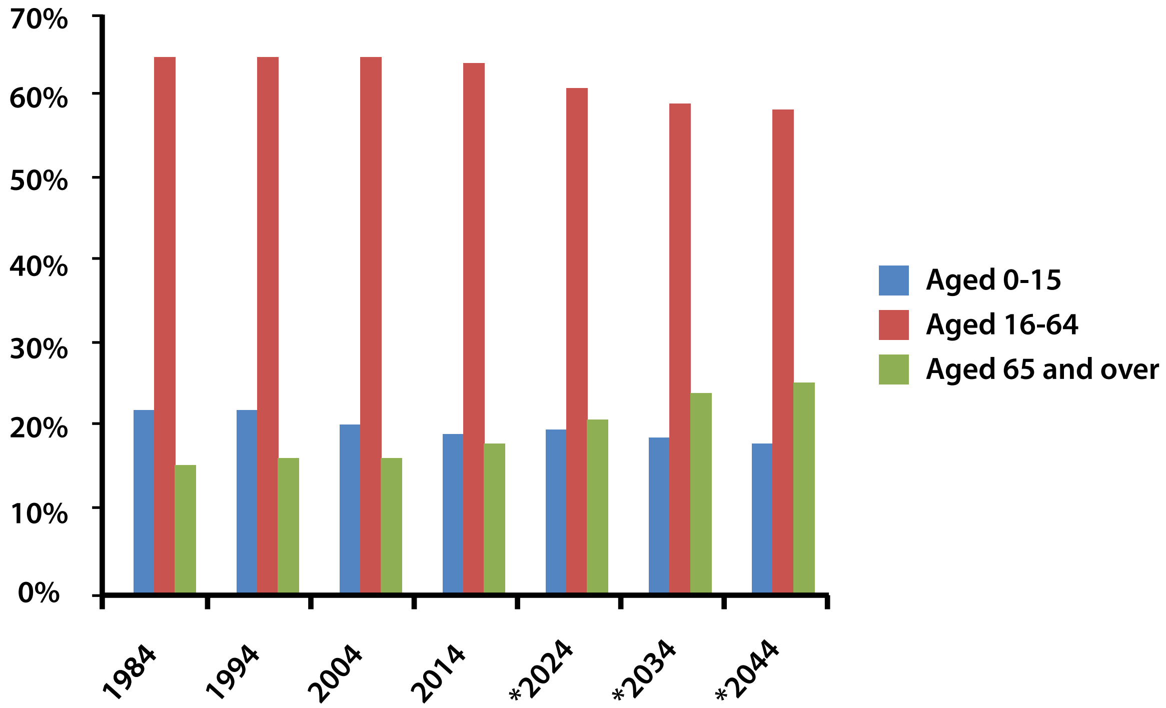
Demographic change

Demographics measure ***the changing structure of the population***. The first important factor is the overall size of the population. This is of interest to businesses since, in general terms, if the population increases, the size of their market will increase and they will be able to sell more goods. Other things being equal, an increase in population will shift the demand curve for a product to the right. In the UK, we have an ageing population and this ageing population of the UK is driving changes in many markets. The baby boomers of the 50s and 60s are now entering or moving toward retirement. These people are generally a well-off section of society, the majority with their own homes and many with high-value final salary pensions. Baby boomers can have large amounts of savings and disposable income which can be used for holidays, conservatories, new cars, etc. The bank of 'Mum and Dad' is now being used to help with deposits for around 25% of first-time buyers.

The chart below (from the Office of National Statistics) shows how the median age of the UK population has increased since 1974, increasing from just under 34 to 40 years of age.



The second chart (ONS) divides the population into three groups and plots the changes in proportion of these groups since 1984. From this we can see that the group aged 65+ has increased from 15% to 18% of the population between 1984 and 2014, and is projected to reach 25% of the population by 2044. Given the past and projected changes, the changing structure of the population will impact the demand patterns across a whole range of industries.



Demographic change in the UK is not just about an ageing population.

Migration is also a major part of the change in UK population structure. For example, young immigrants have added to the working population as they fill the skills gap in the UK and undertake those jobs, such as agricultural labouring, which the UK population has been reluctant to do.

Lifestyle changes provide businesses with opportunities and threats:

- One major change over the last 40 years has been the increase in the number of women who are economically active (i.e. in work). Working women do not comply with the old-fashioned housewife role: they are busy, with little or no time during the working week to cook, mend and sew. Supermarkets and other retailers focus on convenience, time-saving meals, home delivery and 'click and collect'. The childcare industry has boomed and forms a significant element of many household budgets today.

- Society is becoming more health-conscious. Fitness is another sustained lifestyle change. This does not just impact on the demand for gyms but also related goods such as low-fat, low-sugar and organic foods.

- For businesses, the problem of how younger people consume media and purchase goods is a major problem. Teenagers (and younger) switch between TV, phones, tablets to consume entertainment. Now, marketing and selling to these segments has to be focussed on a wide spread of media, not just traditional above-the-line methods.

- Cultural changes within a population can also have a major impact on business behaviour and the products they produce.

- Social change also includes fashion changes. Consumers are now happy to pay £3.00 for a coffee – as long as it has the right brand on the takeaway cup.

- Changes in consumers' attitudes toward the environment have changed demand patterns across a range of industries. Electrical goods need to be energy-efficient. When consumers are purchasing cars, the focus can be as much on emissions and fuel efficiency, as on performance.
- Social change can also be seen within businesses in the way they determine objectives and strategies. There is a growing movement in the setting up of social enterprises, where businesses are primarily focussed on a social objective as opposed to profit. This is driven by, and a reaction to, big businesses traditionally having given little thought to their social impact. As a result, some large businesses today go as far as producing a social audit alongside their traditional accounts in order to improve public relations. The social audit measures the environmental and social impact of the business's activities and sets out strategies for reducing any negative impacts.

Technological factors

There are many definitions of technology; one of the most common is 'the application of science to solve problems'. Over the last 20 years, increasing levels of automation and use of information and communications technology (ICT) has had a major impact on all organisations and how they operate.

Some businesses have grasped these new technologies to the maximum extent, whilst others have accepted their impact somewhat grudgingly. Over the last decade, a greater understanding by business managers of the potential impact of robotics and automation, plus the ability to communicate cheaply to any point on the globe, means that all businesses in competitive markets must now accept that these new technologies will have to become an integral part of their operations if they are to stay competitive.

In the 19th century candle making was a huge business as most homes depended on candles or oil lamps for their lighting. However, once people started using electric light bulbs the demand for candles declined.

This could have meant the end of a business like Prices Ltd, one of the biggest candle manufacturers, but instead of giving up and going out of business altogether, the company repositioned its products as lifestyle accessories. Prices introduced a range of coloured and scented candles. Candles were no longer seen as a necessity; through clever marketing they were promoted as a luxury item. Therefore, we see that sometimes businesses are able to adapt successfully to changes in technology.

Automation

Automation used to simply mean robots carrying out repetitive tasks in manufacturing industry, but over the last 15 years the ability to combine different technologies within a process has resulted in widespread automation from the primary resource to the retailer. In agriculture, product quality checking is carried out by machines that take digital photos of vegetables, clean, sort and finally package and label the vegetables to match customer needs.

The main business function where automation has had an enormous impact is in the manufacturing/production of goods. The car industry invests heavily in automation and robotics, and very few cars are built today that have not been produced by an automated process.

Automation is likely to be seen more and more in the following areas:

- **Retailers** – for retailers automation has become one of the key issues in business efficiency. Whether it is automated ordering or the more visible self-checkouts.

- **Banks** – bank clerks are disappearing to be replaced by machines. Those bank staff that are visible are there just to help you use the automated systems and to sell you new products.
- **Warehousing** – staff functions are being replaced by robots that can do more and more tasks. Robots are not yet capable of removing all goods from shelves, but can transport and pack goods.
- **Online services** – whole systems will be automated; mathematical analysis will determine which products are marketed, where they will be placed and what prices are charged
- **Utilities** (gas and electricity) – smart meters will replace the need for manual meter reading; switching to the cheapest provider may become automatic.

Advantages of automation	Disadvantages of automation
Lower employee costs. Not just less wages to be paid, but other benefits like sick pay and pensions. Increased productivity, faster production. Increased quality and repeatability. Increased safety. Less management time spent in disputes and negotiations.	Greater environmental impact. Social costs. Costs of investment. Less flexibility.

Information and communication technologies (ICT)

With the current rate of progress in ICT, it will soon be possible for computers to have an impact on every aspect of business operations. From stock control to monitoring of staff performance, from marketing goods and services to managing budgets – and much, much more – ICT has an important and growing role to play. There are several ICT applications that have had a massive impact on the way businesses are run. The most important of these are:

Internet marketing
Internet sales are increasing year on year. Businesses that have already entered this lucrative market have seen share values rocket, as well as sales (though profits are still to show up in many cases). Tesco and Iceland have a full range of products for sale on the Internet. Amazon.com, initially Internet booksellers, have spread their range to a vast range of products requiring massive warehouses all over the UK to distribute them.
Web-based customer relationships
It is becoming more and more typical for businesses in financial industries to have entirely web-based customer relationships. Banking is done online, bills are paid, direct debits set up and cancelled, loans and overdrafts are arranged without a single visit to a branch: all is done over the Internet. The gambling industry has benefited greatly from the growth of this type of interaction with the customer. Now bets on sports, poker and bingo are played through mobile technology.
B2B (Business to business)
B2B involves the finding of commercial buyers for businesses output, and the sourcing of components and raw materials for businesses production, via the Internet. It has been estimated by industrial economists that there are potential cost savings of between 5 and 10% if businesses operated all their purchasing through the internet. Business to business portals allow full supplier relationships to be established and maintained.
Manufacturing resource planning 2 (MRP2)
This system is used by manufacturing businesses to plan all aspects of business activity. The MRP2 system takes forecasts and turns them into a series of objectives and targets for each function or department in an organisation. This system, when running efficiently, can replace an entire layer of management who have previously been employed running the planning and budgeting processes. MRP2 allows the maximum possible use of 'what if?' questions. Senior managers are able to judge the impacts of otherwise untestable scenarios on the organisation. This ability to use computer modelling reduces costly errors.
Electronic point of sale systems (EPOS)
The reading of bar codes at checkouts is the tip of the iceberg of EPOS systems. Beneath this we have a stock database that controls stockholding and ordering for retailers; warehouse stockholding for manufacturers and supply from businesses in the supply chain. Used most efficiently, retailers can use EPOS to determine promotions, selling space allocations and staff requirements. Manufacturers can use EPOS systems to reduce stockholding and working capital, thus ensuring that suppliers supply only as and when required.

CAD and CAM

Computer aided design (CAD)

Computer aided design is an interactive computer system, which is capable of generating, storing and using geometric and computer graphics. It assists design engineers in solving design problems. This system has reduced lead-in time on products – that is the length of time between the initial design concept and actual production. The shorter the lead-in time, the more competitive the business remains. CAD also allows an infinite variation on design themes, allowing all possibilities to be tested. Modifications or changes can be easily made, without having to go back to the 'drawing board'. Also CAD can identify design problems at an early stage, preventing the need for expensive reworking.

Computer-aided manufacture (CAM)

The use of computers in production is widespread. They can be used in a number of ways, but mainly in the control of machinery – for example robotic welders in vehicle production. These machines always produce welds of the same quality, day in day out. The use of CAM can aid in flexibility of production. For example, reprogramming is quite simple; but retraining a welder may be a great deal more complex and costly. CAM can also cut costs in even small businesses. Tailors and dressmakers use CAM machines to cut material in the most economical way, ensuring that waste is minimised.

Impact of technology in business includes:

- Product life cycle and speed of technological obsolescence

  The more technological input into business operations there is, the greater the impact on product life cycles. The ability to develop and bring to market new products much quicker means that product life cycles of existing products become much shorter, and products become technologically obsolete much quicker. As a result of shorter life cycles, products must become profitable more quickly and the numbers of early adopters, willing to pay a high price, may be critical to this profitability.

- Location of business and ICT

  The rapid increase in the quality of global communications technology and the matching fall in cost of use of this technology have allowed large businesses the option of outsourcing or relocating their 'back office' operations worldwide. For example, call centre operations in India. The costs of these operations are far lower than in the UK – in fact the estimated cost to the call centre operator of each 1 minute call is just 7p. This includes the cost of call and the employee costs. When we consider wages in India can be just $200 dollars a month, (approx. just 15% of UK wage costs), and that many posts are filled by graduates, we can see the attractions of this type of relocation.

- Outsourcing production

  Improvements in technology have also led to outsourcing of production. Because quality can be remotely monitored, the fear that outsourcing leads to quality problems or supply chain delays has, to a large extent, disappeared. This means that many large businesses can reduce financial risk by letting other businesses manufacture their products for them. Apple Computers do not build a single iPad or iPhone, but they still control and monitor production on a daily basis.

ICT in business used to be seen as an expensive method of solving problems. However, increased flexibility of applications and the falling cost of hardware have ensured that all types of business use ICT in many ways. There are of course still expensive mistakes, but ICT is now found in every process in the production chain, from stock ordering to marketing.

Consumers and technological change

Consumers can benefit in a number of ways from the new technology introduced by businesses:

- Internet provides easy price comparison and much more information through review sites
- More choice
- Lower prices
- Improved quality
- Convenience through home shopping and pre-arranged delivery times

But also there can be problems:

- Online shopping and banking can lead to fraud
- No-one enjoys phone calls trying to sell insurance, PPI claims, etc.
- Rapid technological change leads to pressure to buy the latest products, potentially leading to debt

Discussion themes
Why do businesses consider PEST factors?
Explain why political factors will affect business activity.
What is GDP? Why is this important?
What is fiscal and monetary policy? Explain how these policies can affect business activity.
Why is keeping inflation under control important? How can inflation affect business activity?
Low interest rates are good for all businesses. Discuss.
Describe the different types of unemployment.
What is the business cycle?
How can exchange rates affect business performance?
Find out current economic data on the UK, include GDP, unemployment, interest rates, exchange rates and inflation. Summarise what these figures mean for businesses within the UK.
Explain how businesses are affected by demographic change and lifestyle changes.
What is automation? Give examples to explain your answer.
Describe how technology has benefited the different business functions – marketing, finance, operation management and human resources
The only stakeholder who benefits from improved technology in business is the consumer. Discuss this statement.

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