

Global Manufacturing

Modern manufacturing companies operate in increasingly competitive markets. In the fast developing global economy they must constantly monitor and respond to the costs of production.

Globalisation is the term used to describe the manufacture of products across the globe.

An example of this would be a children's wear manufacturer who has the product designed in Europe, made in the Far East and then sold in North America.

Product price is influenced by a range of factors, including what customers are willing to pay. This must be based to a large extent on the cost of making the product in the first place. Factors in the cost of production will include:

Variable

- Cost of materials – raw materials and components sourced from suppliers
- Services – cleaning, supply of materials and components, machinery, maintenance and tooling
- Cost of labour – manufacturing staff
- Cost of energy to manufacture / run machinery
- Cost of packaging
- Cost of delivery

Fixed

- Cost of factory / ground rent
- Cost of business taxes
- Cost of administration and management
- Cost of design and marketing
- Cost of storage
- Cost of factory maintenance and depreciation of equipment
- Cost of energy – heating and lighting
- Cost of transport

Manufacturers cannot survive by simply breaking even i.e. only covering their costs. They must budget for the development of future products, new buildings, and new equipment in order to expand and develop their business and ultimately make a profit.

Many large manufacturing companies have become truly multi-national with operations all over the world.

They take advantage of the economies available and:

- base their large scale operations in industrial centres.
- site their factories near to sources of raw materials.
- site their factories where labour costs are low.

The rapid expansion of global manufacturing has been largely due to:

- the development of high speed ICT that allow managers / engineers based in different parts of the world, to work on aspects of the same product.
- the readiness of newly industrialised nations e.g. China, to allow multinational companies to operate in their countries. This brings investment and jobs that benefit local people and economies.
- efficient airlines and shipping companies who can move products to the global markets.

How many products you own are made in the Far East?

The following pictures typify mass production systems currently in operation in Sri Lanka and China.

The products being manufactured are for a major high street retailer known for fashionable but competitively priced clothing and textiles.

- Manufacturing in cheaper labour countries.
- Cheaper costs are passed on to the consumer.
- Availability of workers.
- Wages paid to workers considerably less than in western European countries.



The following tend to speed up or increase the use of natural resources:

- Modern methods of production – mass or high volume production.
- Increasing consumerism across the world.
- Marketing trends and fashions that encourage product replacement in short cycles.
- Shorter product life.
- Rapid industrialisation of countries in Asia, Africa and Eastern Europe.

It is impossible to make products without using materials – finding more sustainable ways of doing so is the challenge!

Effects of commercial production on the environment

Pollution discharge into the atmosphere, waterways and land contribute to:

- poor air quality
- poisoned water
- poor soil fertility and poisoning of crops
- Global Warming

Over exploitation and extraction of natural resources and minerals cause and contribute to:

- fossil fuels and finite mineral shortages in future
- irreversible damage to the landscape
- soil erosion and loss of vital nutrients from the soil – leading to desert landscapes
- loss of habitat for both animal and human populations

Reducing the impact

Adopt sustainable methods of using resources.

- Use fewer finite materials / sources of energy e.g. coal / oil / gas fired power stations.
- Use alternatives e.g. sustainable sources such as wood from managed forestry or bio fuels and plastics from crops.
- Use energy from renewable sources e.g. wind, wave, geo-thermal.

Developing sustainable products.

- Reversing the trend for more lifestyle products.
- Designing to use recycled materials in production.
- Designing products that can be reused / recycled easily.
- Using low-impact materials: non-toxic, sustainably-produced or recycled materials which require little energy to reprocess.
- Being energy efficient: using manufacturing processes and production which require less energy.
- Designing for quality and durability: longer-lasting and better-functioning products which have to be replaced less frequently, reducing the impact of producing replacements

Develop the use of Sustainable manufacturing technologies.

- Use less energy.
- Use fewer of the limited resources.
- Do not deplete natural resources.
- Do not directly or indirectly pollute the environment.
- Reuse or recycle products at the end of their useful life.