

FACTORS INFLUENCING DESIGN

This mobile revision pdf is based on detailed work found in the 'Product Design' section.

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PRODUCT DESIGN ISSUES (1)

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OBSOLESCENCE?

2. WHAT IS PERCEIVED
OBSOLESCENCE?

3. CROWD FUNDING – FAIR
TRADE - COOPERATIVES

4. FACTORS THAT AFFECT
PRODUCT DEVELOPMENT

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WHAT IS PLANNED OBSOLESCENCE?

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This is when a product is designed so that it works for a limited time and then breaks down. This is deliberate and was once a common design principle (1960s - 70s).

The product is designed to last long enough, to ensure customer loyalty, so that the customer purchases a replacement or an upgraded version, from the original manufacturer.

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E.G. OF PLANNED OBSOLESCENCE

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Washing machines in the 1960s and 1970s tended to last about 2 to 3 years before they needed repair / replacing.

They were designed, so that crucial parts would wear out within two years. The original manufacturer supplied the replacement parts (increasing their profit). Within 3 to 4 years, the washing machine would need replacing. Modern washing machines are much more reliable, as quality control is much more stringent and customers are more likely to research product reliability, before making a purchase.



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ENVIRONMENTAL CONSEQUENCES OF PLANNED OBSOLESCENCE

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Planned Obsolescence is bad for the environment. If the 'life cycle' of a product is short, it may need replacing or repairing frequently. Manufacturing replacement parts, requires materials and energy, using the world's limited natural resources and damaging the environment.

If obsolete products are difficult to recycle, they tend to be 'dumped' in landfills. This harms and pollutes the land. Also, recycling has a cost, in terms of energy, labour and time. Although this is better than dumping parts, it should be the last resort and carried out at the end of a products long life cycle.

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~~PLANNED OBSOLESCENCE~~

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buttons below, to go
to detailed information
and exercises on
**PLANNED
OBSOLESCENCE.**
Ideal for revision.



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WHAT IS PERCEIVED OBSOLESCENCE?

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Perceived Obsolescence is when a customer decides to upgrade a product, because the one he / she owns, is considered out of date, even though it still works.

Manufacturers try to persuade potential customers to update / upgrade an existing product. This is often carried out through advertisements, that imply the customers 'existing' product is old fashioned and that he/she needs the new product.

Central to 'perceived obsolescence', is the customer's perception of himself / herself.

Manufacturers try through advertising, to 'plant' the need for the potential customer to upgrade to the new product, so that their personal image is 'enhanced'.

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E.G. PERCEIVED OBSOLESCENCE

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A customer with a mobile phone, has been persuaded through advertising, that a new hi-tech smart phone will enhance his personal image. The old phone works well, but he now thinks it is out of date and regards it as old fashioned.

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OLD PHONE
OLD IMAGE



UPDATED PHONE
NEW PERCEIVED
STYLISH IMAGE



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CROWDFUNDING

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A person / company seeking funding for a new product, sets up a 'page' on a crowd funding website.

The members of the crowd funding website may respond to the sales pitch of the person / company deciding to invest and in return they are given shares in the business. Making a profit is not always the motivation for investing through crowd funding. Sometimes funding is given to help communities or for moral and ethical reasons.

Crowdfunding can also be achieved through using social media, business acquaintances or even family and friends.

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FAIRTRADE

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The Fairtrade system, ensures realistic prices for farmers goods and aims to protect the rights of workers and guarantee good working conditions.

A symbol that is occasionally seen on packaging is the Fairtrade symbol. This means that the contents of the package has been produced in the Third World and that the producer (ie. the farmer) has received a fair and realistic price. This provides a financial safety net for the farmers and their workers. It also means that the produce is not from countries whose Governments help their industry / agriculture undercut those of much poorer countries, by giving them subsidises.

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COOPERATIVES

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There are over 7000 cooperatives in the UK, ranging from farming, distribution and retail outlets, to even Leisure Centres.

They contribute significantly to the economy. Cooperatives are owned by their members, who are usually their employees and customers. They have social aims as well as economic ones, reinvesting some of their profits in the local community.

The cooperative movement developed from the ideas of Robert Owen and his book in 1813, called 'A New View of Society'.

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FREE TRADE AND
COOPERATIVES.**
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FACTORS THAT AFFECT PRODUCT DEVELOPMENT

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FUNCTIONS – ENVIRONMENT –
COST – ERGONOMICS –
MATERIALS – CUSTOMER
SPECIFICATION – INDUSTRIAL
PRODUCTION – COMPANY
IDENTITY – AESTHETICS –
FASHION CULTURE

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INCLUSIVE DESIGN

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Definition: An inclusive design, is one that allows maximum use, by the widest range of people, without the need to adapt or add accessories.

A good example of an inclusive design is a table that can be adjusted to a variety of heights. It allows people of different heights, including wheelchair users, to use it effectively. People can decide whether to stand or sit at the table.

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A DESIGNER CHECKING A PROTOTYPE FOR INCLUSIVITY
(TABLE ADJUSTS AT A TOUCH OF A BUTTON)



CHECKED FOR WORK
WHILST STANDING



CHECKED FOR WORK
WHILST BEING SEATED



CHECKED FOR
WHEELCHAIR USE

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INCLUSIVE DESIGN ANTHROPOMETRICS AND ERGONOMICS

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Good inclusive product design, is based on detailed research into anthropometric data and then applying that data at the design stage.

This can lead to a wider range of potential customers.

EXAMPLE: Compared to a standard gardening trowel, this gardening tool can be used by a wide range of people, including the elderly and those suffering from arthritis of the hands and fingers.

Example of good ergonomics leading to an inclusive design.

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INCLUSIVE DESIGN AND ENVIRONMENTAL ISSUES

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Many potential customers think that products should be environmentally friendly.

To attract an inclusive customer base, product designers consider the 6Rs during a product's design and development.

'Carbon footprint' is a growing environmental issue.

The further away a product is manufactured from potential customers, the greater it's carbon footprint.

SOLUTION: manufacture close to the place of sale / the marketplace.

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ADJUSTABLE PRODUCTS

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Many products are designed so that they are adjustable. A selection are shown below.

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WHY ARE SOME PRODUCTS ADJUSTABLE?

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1. The product can be used by a wide range of users.
2. It can be sold to more customers.
3. The product will be more comfortable to use because it can be adjusted.
4. Health and safety issues are reduced. E.G. a table with height adjustment will reduce the possibility of back pain.
5. The same product can have multiple users, as it can be adjusted to suit all their needs.

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An adjustable table can be set to different heights

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AN ADJUSTABLE OFFICE CHAIR

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This office chair can be adjusted in many ways to suit a range of potential users.

The seat can be raised and lowered.
The angle and height of the back can be adjusted.

Arm rests can be adjusted by height.
The wheels allow for comfortable movement.
Including adjustments to this chair has ensured that it is suitable to a wide range of people.

This is called 'inclusive design'.

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ADVERTISING

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Advertising draws the attention of potential consumers to a product.

Persuades potential customers to buy the product.

Informs potential customers of the products functions and features.

Creates a demand for a product.

Good advertising may create a brand identity.

Advertising seeks to create an image surrounding a product.

Promotes a new product and increase sales of existing products.

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METHODS OF ADVERTISING

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TV - commercials between programmes.

Product placement in TV programmes.

Audio advertisements on the radio.

Printed advertisements in a newspaper or magazine.

Internet, such as GoogleAds.

Sports sponsorship, such as Formula One Racing.

Direct Marketing - letters / leaflets to the home.

Telephone marketing.

Logos and symbols on clothing.

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ADVERTISING - MINI COOPER

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The Mini Cooper seen in many films, including the 1960s film called 'The Italian Job'. This is an example of product placement. Film was extremely successful and still popular today, continuing to advertise the Mini Cooper.

Mini Cooper also advertised through TV commercials, improving sales - making general public aware of new models.

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WHAT IS BIOMIMICRY?

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Biomimetic design (biomimicry) is where nature inspires a designer / scientist / engineer, to design a product. Sometimes a designer / scientist will look at the way nature has solved a problem through evolution and then he / she will apply it to a design problem.

Designers often look at nature for answers to design problems. There are many examples.

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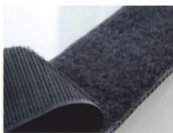
EXAMPLE OF BIOMIMETIC DESIGN

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In 1941 Swiss engineer Georges de Mestral was walking his dog through a field, when he realised that the dog's fur and his trousers had numerous burrs attached to them. Burrs have natural hooks that attach to almost any type of fur and also textiles. A consequence of this event, is that he invented velcro.

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BURR → **VELCRO**



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EXAMPLE OF BIOMIMETIC DESIGN

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The shape of the 'nose' of the Japanese bullet train, was inspired by the kingfisher. The shape is very efficient and helps the train to move at very high speeds, due to reduced drag. The shape also reduced the noise of the train, as it exited tunnels at high speed. Other trains create a loud deep resonant sound when leaving a tunnel at high speed.

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KINGFISHER → **JAPANESE
BULLET
TRAIN**



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