

Influences in D&T Knowledge Organiser

What are the opportunities and constraints that influence design and making requirements?

Learning from Existing Products and Practice

When beginning a design project, designers can learn from existing products and practice through the exploration and critique of existing designs, systems and products to identify features and methods.

Materials, Components and Processes

Through product analysis, a designer can determine which materials are effective or necessary for a particular need. The function of a product is determined by the components used and a designer can evaluate the performance of the product by looking at these. Through careful consideration, it is possible to understand the manufacturing processes used to create parts of a product and to assemble it.



The Impact on Usability

As products evolve, with the use of better manufacturing techniques and new technology, usability is enhanced. This impacts different products in different ways. For devices like mobile phones, the usability of modern smart phones is enhanced beyond measure with the introduction of the internet, app software and Wi-Fi connectivity.



Fashion, Trends, Taste and Style

All consumer products are subject to fashion, trends, taste and style. Popular colours, shapes, patterns and forms can all be identified through the analysis of existing products. Some materials are more fashionable than others for different products. Market research is an important factor in understanding trends and taste. Designers also need to be aware that trends can change quickly.



Marketing and Branding

A product's success is partly due to how it is introduced to its target market group. If a consumer is made to feel that they need a product and it will somehow help them, or improve their lives, they are more likely to consider buying it. Some of the best-designed products have not been branded or marketed properly and therefore people are not aware of their existence!



The Impact on Society

It is possible for a product to have a profound impact on society. This could be a positive or negative effect. Medical products, such as asthma inhalers, undoubtedly have a powerful positive impact on society. Other products, such as mobile devices, have both positive and negative impact on society. Communication is quick and easy, information is available on demand, however, road traffic accidents can occur when drivers use their phones, some people spend more time looking down at their phones than interacting with their surroundings.



The Impact on the Environment: Life Cycle Assessment

Designers must be aware of the impact that the manufacturing, use and disposal of their products may have. Understanding the materials used, components and energy sources involved help to build a picture of how environmentally friendly a product's production and use could be.

The main stages of Life Cycle Assessment are:

Raw Materials

- product requires reduced amount of raw materials;
- product uses recycled materials extensively.

Manufacturing

- production conserves energy;
- production conserves materials/allows recycling of raw materials;
- prevention of pollution to air, water and underground water.

Distribution

- product uses simplified packaging;
- product is distributed more efficiently;
- product is delivered by low-emissions vehicle.

Consumer Use

- product consumes less power;
- reduced use of additional materials (for instance water, oils, detergents).

Post-Consumer Use

- product is designed for disassembly/easier recycling;
- product uses lower amounts of harmful substances.



Influences in D&T Knowledge Organiser

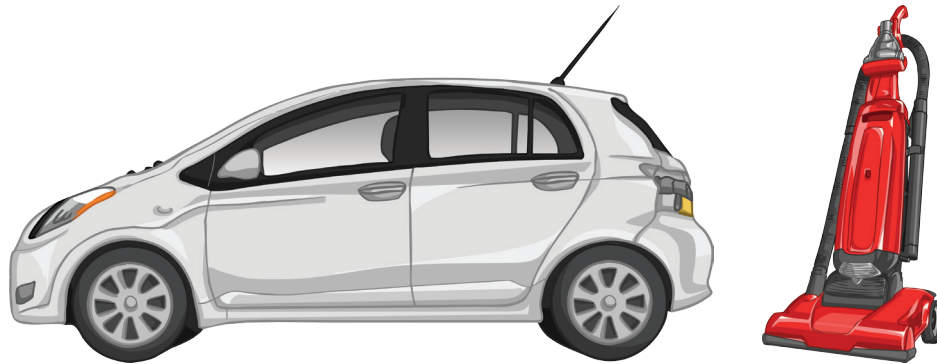
What are the opportunities and constraints that influence design and making requirements?

Learning from Existing Products and Practice

When beginning a design project, designers can learn from the work of past and present professionals and companies in the area of design & technology.

Product Analysis

You can understand a great deal about how a designer has worked by fully analysing one of their products. This will not only tell you about the design decisions that they have made, but it will help you to understand the fashion and trends at the time the product was created.



When you look at the key design features (e.g. colours and form) of products such as upright vacuum cleaners, similarities with contemporary products can be identified. Nearly 30% of all new cars sold in the UK in 2017 were grey or silver, making these metallic tones a safe bet for domestic machines such as vacuums and washing machines.

Contextual Research

When a product is created, its development will be constrained or supported by a range of factors particular to the time period.

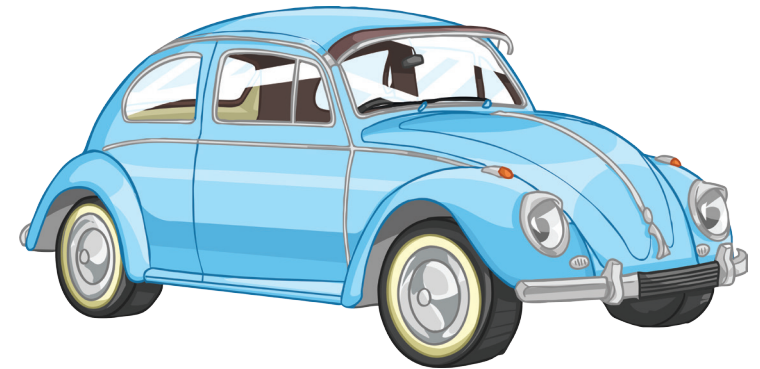
For example:

- Products created before 1960 did not have access to the range of polymers that are now commonly available, so exotic hardwoods were commonplace. Today, there are tight restrictions governing the felling and exporting of certain timbers, this has reduced the amount of hardwood products.
- Electronic products are governed in size by the components they use. Until the invention of the transistor, products such as radios were large, bulky items. When integrated circuits were developed in the 1970s many products reduced in size.



Political Understanding

All products are somehow governed by the political/social economic times in which they are manufactured. When investigating an existing product, you can often understand a lot about the time period from which it comes from by analysing the manufacturing processes, materials used and functional features.



The iconic Volkswagen Beetle is synonymous with the 1960s and freedom. The Beetle is popular among young people, surfers and custom car enthusiasts alike.

Its origins are quite different...

During the 1930s, as Nazi Germany was preparing to go to war with Europe, Hitler enlisted Germany's leading automotive engineer, Ferdinand Porsche, to design an economic and practical vehicle for the people of Germany. The outcome was the Volkswagen Beetle. In Hitler's Germany, citizens would have been able to buy the car for the same price as a motorcycle through a government savings scheme. Production began in 1938 with manufacturing taking place in Germany until 1979. During that time, more than 21 million original Beetles were produced.

