

Identifying Requirements D&T Knowledge Organiser

How can exploring the context a design solution is intended for inform decisions and outcomes?

Where and How the System or Product Is Going to Be Used

The **environment** that a product is going to be used in has to be explored by the designer to ensure the product operates as intended.

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| Is it sandy? | Moving parts could become clogged with sand particles. Polished plastic finishes may get scratched. |
| Is it in direct sunlight? | Thermoplastics can relax and deform. Metals can reflect. |
| Is it really cold? | Metals can be uncomfortable to touch in freezing temperatures. |
| Is there water or moisture? | Ferrous metals rust, while untreated wood can warp and rot. Plastic can be slippery. |
| Is it dark? | Poor visibility may heavily affect the use of the product. |
| Is it really hot? | Some fabrics perform badly in hot climates. |

The **way** a product is going to be used is crucial for the designer to understand if they are to design a product which is fit for purpose.

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| How often will it be used? | Products designed for public use need to be much more durable than domestic products. |
| How many people will use it? | The ergonomics should suit the intended user, even if this is multiple groups. |
| How will it be handled? | In activities such as sports, products experience heavy impacts. |
| Will the user access the product on their own? | If it is designed for young children, the product must be intuitive and easily accessed. |

Identifying the Primary User and Wider Stakeholder: Requirements

The **primary user** is the target user group that a product is intended for at the design and marketing stage. Iterative design identifies the needs of the user to begin to develop the product. The function, style and price are all determined by who the product is aimed at.

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| How much will they pay? | Every market group has an upper limit to what they can pay for a product. |
| Where will they use it? | Studying the user's habits will tell you a lot about the locations that the product might get used in or taken to. |
| What styles would they like? | Look at the intended user's lifestyle. What other products do they own? What brands influence them? |
| How will they use it? | Will the intended user make typical use of the product, or do they require something with different features? |

Wider stakeholders are other groups of people who may be directly or indirectly affected by a product.

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| Who else sees the product? | The physical appearance of the product may be offensive to viewers in some way. |
| Will lots of people use it? | A medical tool may be primarily used by a doctor, but may also be handled by patients. |
| Who changes the batteries? | Products such as fire extinguishers need to be serviced by qualified professionals. |
| Who is responsible for buying it? | Most toys are not bought by children themselves. |



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The more investigation a designer can do into the wider context of the needs and usage of a product, the more accurate they can be in the development of an effective solution.

Social Factors

A designer must work to understand the needs of the user of their product, including wider social factors such as religion, gender, family members, wealth and multiculturalism.

These factors can influence:

- cost of the product;
- where the product can be used;
- who can use the product;
- how the product will be looked after.

Cultural Factors

It is important to an ethical designer to consider the different conventions of the cultures in which the product may be used, which may include:

- colours that may be associated with nationalism;
- the use of icons that may have multiple meanings;
- the use of materials, including animal products;
- people's perception of the product or its use.

Moral Factors

Designers have to consider how a product or its use may affect the moral values of the user, or the society in which it will be used. This might include:

- potential misuse of the product;
- sustainability issues;
- environmental impact of manufacturing and use;
- knowledge of pressure groups associated with the above factors.

Economic Factors

Every stage of a product's lifecycle has a cost attached to it. The more the designer understands about this, the better informed their designing will be. Factors may include:

- material costs and availability;
- manufacturing costs, including outsourcing;
- employment/unemployment data in area of intended use;
- poverty data in area of intended use.