



**desitech**

Product design & development

# OUR PRODUCT DESIGN PROCESS

*“A guide explaining how we apply the product design process at Desitech”*

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## Introduction

The product design process is the design and development stage of bringing new products to market.

It begins with an idea for a product and can sometimes end only when the product is successfully manufactured on a commercial scale. The role of a design team in this process varies, depending on the client's capabilities and facilities. How closely this process is followed will also vary to suit a product's specification.

Our process has evolved from a number of other processes which our team have followed whilst at other companies. It centres around two main phases – Concept Development and Product Development.

This guide aims to familiarise you with the design process we use so that you can better understand the journey you might take when developing new products with us.

# 1. Concept development

Every project starts with a Product Evaluation. It is an opportunity to meet with a client to discuss their project and identify the challenges it presents. At this stage it's important to listen to the client and gather information about the project. After the Evaluation a project brief is written which is agreed and signed off by the client. The project brief lays down the specific product requirements which must be met by the final design outcome.

After the evaluation our team can start exploring a wide range of ideas and influences. Information is gathered on target markets, market trends, competitor products, consumer needs, commercial opportunities, feasibility and any manufacturing technologies which may give a competitive edge.

*“Its important to work closely with the client until a final concept is agreed and signed off.”*

Colours, textures, materials, usability and ergonomics are all given careful consideration which is why and up to date knowledge of available processes, materials and technology is essential.

From here a selection of potential solutions are created and explained using a combination of hand sketches and computer models and prototype samples. These solutions are used to give an approximate description of form and features.

The selection of designs are assessed for feasibility across a number of targets including; whether or not a design will appeal to the target market, how it can be produced and on what budget. After assessment weak designs are put on hold and strong designs are improved and re evaluated. A series of design improvements and re-evaluation steps take place until a fully defined final concept is settled on.

Its important to work closely with the client until a final concept is agreed and signed off to ensure that they are happy with the direction of future development set for the product.

## 2. Product Development

In this phase Product Styling and Product Engineering are applied to the final concept as it is developed into a commercially viable product.

Product Styling is the refinement of form, function, and the connection between a product and its user. It is used to ensure that a product looks and feels appealing to the target market as laid out in the project brief. To generate the required styling we use advanced surface modelling techniques and create complex forms which we can analyse on screen and with models.

*“Multidisciplinary working is essential to the Product Development phase since it speeds up problem-solving.”*

Product Engineering is the process of developing a design to be structurally suitable for its working environment as well as full scale manufacture. Features from the concept are developed and tweaked for reliability and ease of manufacture. The use of computer simulations such as stress analysis and mould flow analysis help to guarantee that a product is designed for low cost, easy manufacture and reliable performance.

Multidisciplinary working is essential to the Product Development phase since it speeds up problem-solving and identifies potential issues, delays and bottle-necks early on. It is also important for the design team to have a robust manufacturing knowledge. This gives them the ability to assess what is possible from an engineering or manufacturing perspective as well as helping to ensure that fewer problems are discovered during testing, reducing the budget needed for prototypes.

Prototypes are required to prove a design in the real world once it has been proven with simulations on screen. Models are made to assess form and function and are refined until the product meets the design brief. The client will be asked to sign off on a final set of prototypes to confirm that they are happy with them.

When Product Development has been signed off the manufacturing tools can be produced. This can take up to 12 weeks depending on complexity of the product. Once the tools are completed, production samples can be manufactured and tested to ensure they meet the project brief. If necessary changes can be made until the production samples are approved. Once approved full scale product manufacture can begin.