

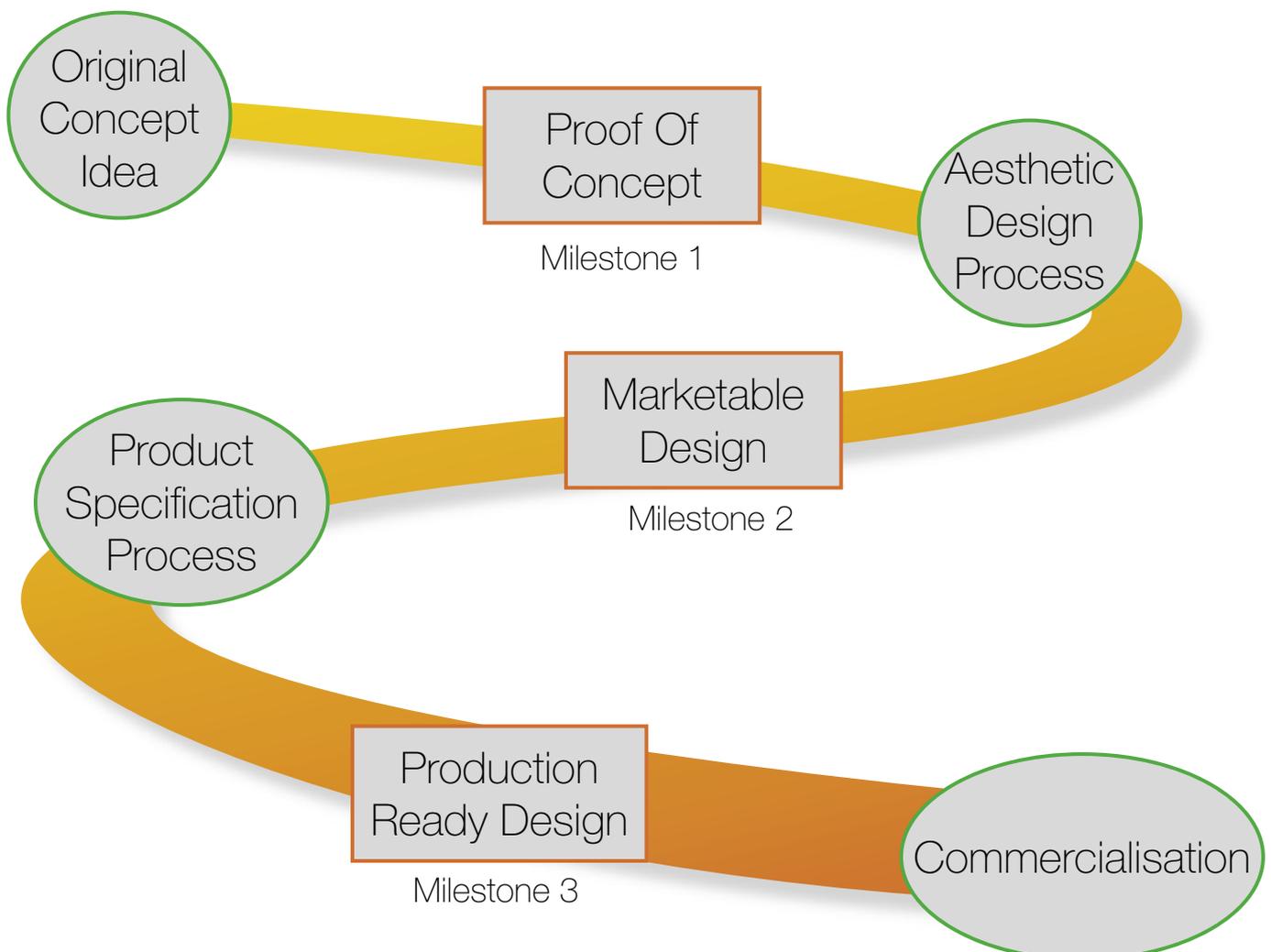
# A Sequential Design Process where form follows function.

When developing a new product, often the concept needs to be proven before a look or style can be designed and applied. This is often the case with inventions of a practical nature that subsequently need to be made attractive to the user, once the decision to proceed to market has been made.

As with any goal oriented task it is important to follow a detailed plan in order to achieve success. The design process is one such plan that is tailored to a specific product and its ultimate goal of retail sales.

Together with the design process, commercial planning must be undertaken so the product can be launched in the quickest and most efficient timeframe. In addition, adequate measures must be taken to protect initial Intellectual Property and any further developments that occur as a result of the design process.

The design process is broken down into stages with specific milestones and defined outcomes that need to be achieved before progression to the next stage is viable. Once a Production Ready Design is achieved the commercialisation phase can progress to putting the product on the retail shelf.



# Milestone 1: Proof of concept.

In order to assure that the production will in fact perform as required and reduce the risk of further development work after production commences, it is highly advisable that the concept is tested. As with any product development process this may involve more than one iteration and may involve several stages:

## 1. Research

It is vital to know and understand as much as possible about all aspects of the product. Design decisions made without knowing what to expect can lead to costly changes down the track.

## 2. Technical design

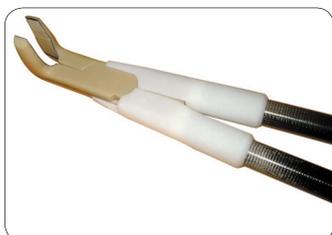
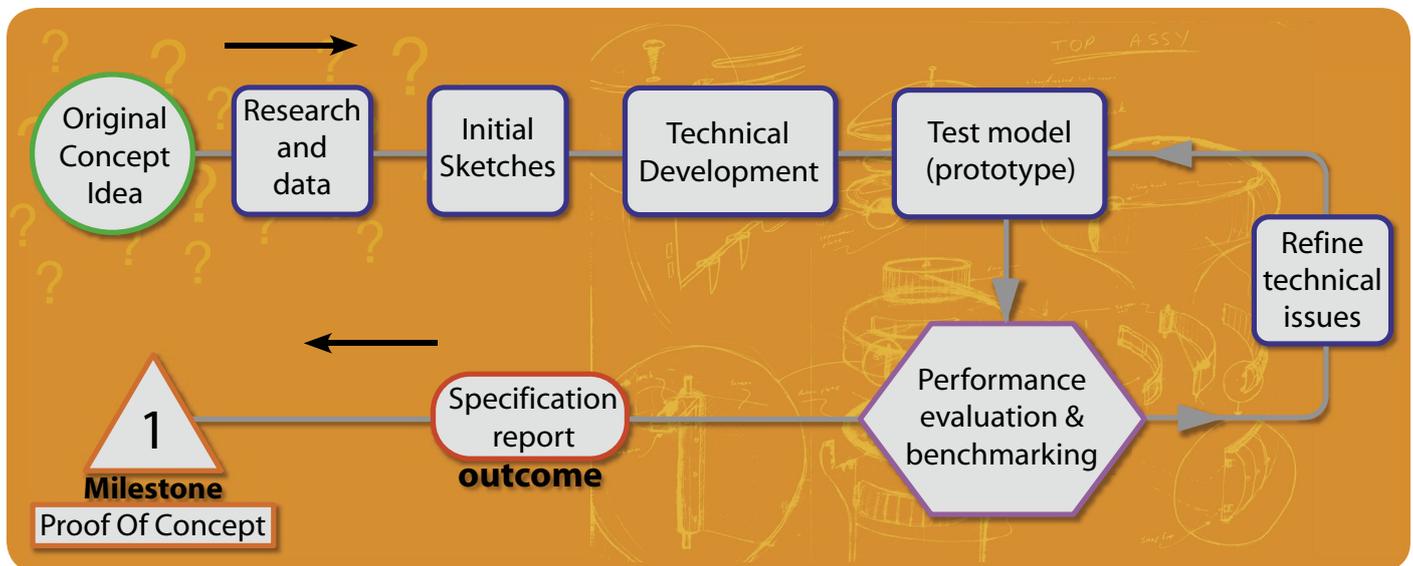
As with all product development, technical aspects of the function of the product must be proven. Initially this would involve the production of basic sketches and CAD models to work out the main components and features required to achieve the desired performance. Where required, some of this design could be performed with the aid of experts and engineers to reduce the amount of trial and error required when fine tuning the performance.

## 3. Test model production

From the outcome of the technical design test, models should be built and their performance evaluated and documented. Changes and modifications made at this stage are not as costly as if they were left until later on in the design process. Concepts should be refined until a satisfactory performance benchmark is achieved.

Outcome:

A report outlining all elements of the design including performance of the test models is produced summarising the concept development and providing a basis on which decisions can be made to progress to the next stage of design.



## Milestone 2: A Marketable Design

The purpose of the aesthetic design process is to create a style and appearance for the physical attributes of the product that have been dictated by the technical requirements learned in the previous stage. The intention, of course, is for the product to be attractive to the target market. The process is tailored to specific market demands factoring demographics, ergonomics, price points, technical limitations, user interface, styling, colour and material selection, manufacturing processes and more. This may also be conducted in stages:

### 1. Definition of target market

Who is the product designed for, how and where they will use it, how much will they comfortably spend on it.

### 2. Style research

Evaluation of similar styles and features in existing products, price points, colours and materials used by the target market.

### 3. Design development

Sketches and computer generated concept images. Generally these are quick, rough designs to establish a look and feel as well as outline specific features and benefits.

### 4. Design refinement

Production of visualisations and application images that are exchanged back and forth with the client until a satisfactory style or look is achieved and all desired features are in place.

## Outcome

A design presentation including images and views of a variety of style options of the product in its working environment, outlining all the features and benefits. Also included are colour and material specifications, style variations and suggestions of optional features that may enhance the products value or increase the range variety. This presentation may also include packaging, retail display design, branding and logos.



## Milestone 3: The Production Ready Design

This stage involves design for manufacturing and involves the technical detailing of all components and parts. It will include many facets of design and engineering detailing to ensure a successful product and reduce the risk associated with the costly process of setting up the manufacturing process. This may include:

### 1. Product specification

Describing exactly what the product should look like, how it works and how it should perform. It should also include a Bill Of Materials specifying which parts are manufactured and which are sourced elsewhere and their technical specifications.

### 2. Design detailing

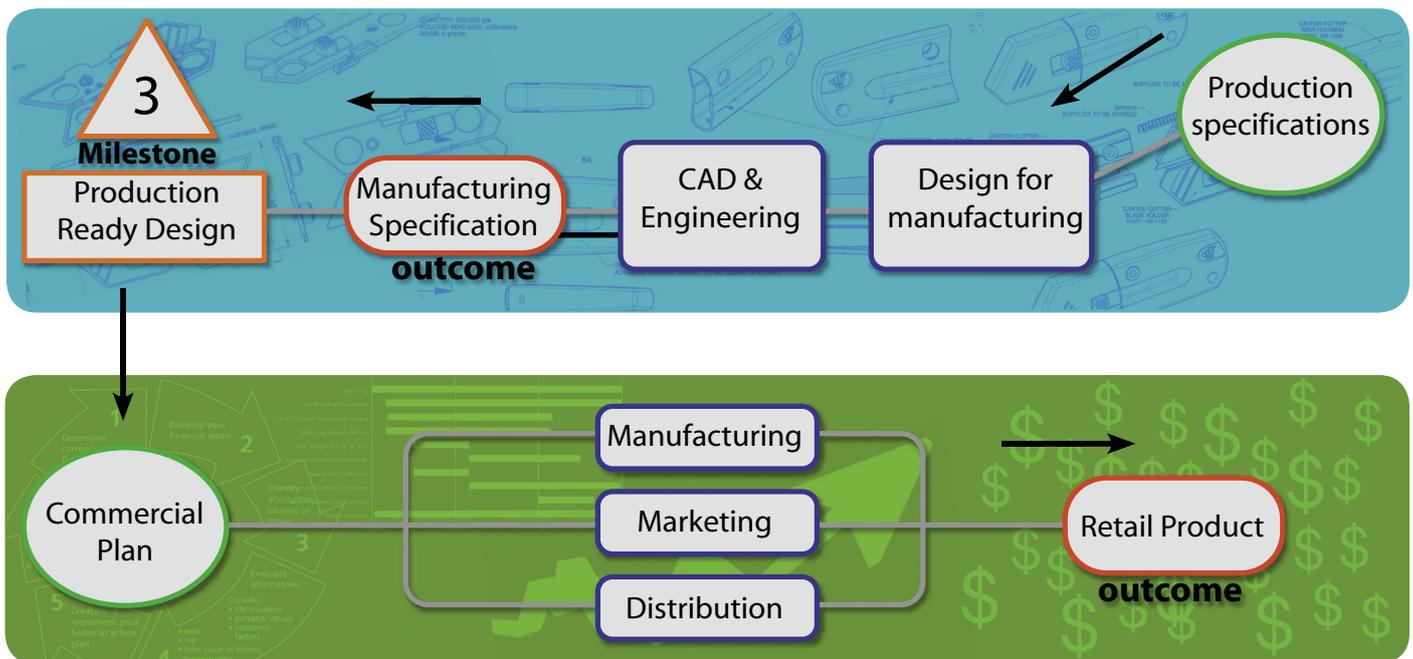
Production of detailed CAD drawings and models, generally in 3D, of all components to be manufactured and specification of all “off the shelf” components and systems.

### 3. Engineering analysis

Assurance that parts and components will perform as required. This may involve structural stress analysis, technical evaluation of component performance as well as determining manufacturing processes, materials to be used and assembly processes.

### Outcome:

A full set of engineering and production drawings describing every aspect of the manufacture and assembly of the product and its components. It is also advisable to produce a fully detailed prototype as a benchmark, against which manufacturing accuracy and quality can be measured.



### Commercialising the Final Retail Product

Manufacturing, marketing and distribution are essentially not part of the design process as they apply to a finished design that is ready to be commercialised. However it needs to be mentioned as these are essential parts of the plan and should be planned separately on a case by case basis in conjunction with the design process and the parties involved.