



PRE-PROJECT CHECKLIST

INTRODUCTION

ManGo Product Design develops products for our clients through a structured ISO9001 certified process. A balanced approach with the goal to deliver production ready designs on schedule that can be manufactured easily and certified for safe use. Our process contains five consecutive phases; throughout which diverging and converging actions are taken in order to create the best possible solutions leading to sustainable and profitable products.

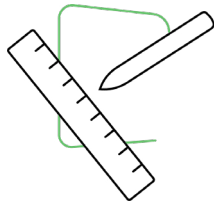
Not all projects require to go through all stages of the development process, what ManGo needs to work on depends on your project status, desired deliverables, deadlines and your own skillset.

You can fill in this checklist before or after having scheduled a meeting with us. In any case the information you share will be treated confidentially, ManGo also has an NDA template that can be signed first if preferred. What you share in this checklist creates the foundation of a Development Briefing that will be constructed by ManGo, once the briefing is approved by the client the quotation for your product design project can be made. Should you not understand or find something in this checklist complex to answer, the last page of this document contains links to blogs on our website that explain in detail all the topics surrounding product development.

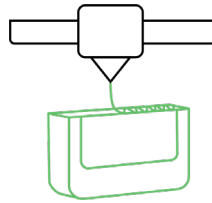
INTRODUCTION



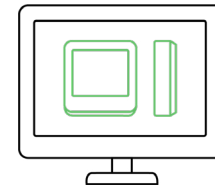
PHASE 1.
Analysis & design strategy



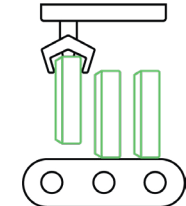
PHASE 2.
Concept development



PHASE 3.
Engineering for prototyping



PHASE 4.
Design for Manufacturing



PHASE 5.
Industrialisation

PHASE 1.

Create the foundations of your product development: avoid patent infringements, complying with international regulations, market & user research and creation of mood boards. The research will be summarized in the Program of Demands (POD) to be approved by the client and forms the backbone of your project.

PHASE 2.

Execution of brainstorm sessions with our design team, focusing on the creation of the best aesthetics, smart technical solutions and optimized usability. The most promising ideas are combined in concept designs and evaluated with the client. After a selection has been made a 3D CAD concept is created and fine-tuned to perfection in close collaboration.

PHASE 3.

In this stage of product design your innovation truly comes to life with a working prototype. As there is no better way to identify improvements and filtering out design flaws before executing the design for manufacturing. Also it is very important that clients as well as the intended users thoroughly test the prototypes as well.

PHASE 4.

Engineering of your product design so that it can be manufactured in series and is easy to assemble. Once the 3D CAD is completed 2D CAD drawings, including tolerances are created, crucial to allow manufacturers to make a quotation for moulds and production. During DFMA products requiring certification for CE-marking, UL or FDA approval go through that process at a Notified Body, a process we can support in.

PHASE 5.

Once your product design has been completed, the next step is arranging production. We can work with your production partner, or you can choose to use our network of trusted manufactures. ManGo has experience in all kinds of production methods from low-volume series without tooling to mass production requiring complex molds. ManGo can guide the mold making process, setup assembly procedures and draft your quality control documentation.

CHECKLIST

Client
Project
Date

1. Introduction

Global description (individual, start-up, scale-up, SME, corporate). Goal of the company (mission, vision).

1.1. Global description of the product to be developed.

2. Development

2.1. Does the project concern a new product, an optimization of an existing product?

2.2. What motivates the need for this development or what is the purpose of this product? Name the aspect that makes this product distinctive.

2.3. What is the current status of the project?

2.4. What is the main goal of working with ManGo and what deliverable would you like to achieve?

2.5. Can you refer to a competing or similar product which you regard as being an example of excellence?

3. Technical aspects

- 3.1. Are any specific geometric requirements of importance (size, weight, etc.)
- 3.2. Does the product need to work with or fit onto other devices?
- 3.3. Are there any specific environmental factors that need to be taken in account (outdoor, low/high temperature range, impact, ventilation etc.)?
- 3.4. Are there any desired materials that need to be taken into account?

4. Aesthetics & branding

- 4.1. Is there an existing or new brand identity to which this new product must comply? If not, can you perhaps name some brands (they don't have to be related to your industry) which you see as great design examples?
- 4.2. Do you have any requirements regarding colours, textures, experiences?
- 4.3. What are the most important properties the design should express? (Examples: clean, minimal, comfortable, robust, etc.)

5. Use & ergonomics

- 5.1. What is the field of use and who are the typical users?
(Consumers, professionals, maintenance, hobby, etc.)?
- 5.2. Describe the most likely user experience (when, why, how often and what for the product is used).
- 5.3. Describe the most likely environment of use.
- 5.4. Describe situations when the product is not in use (storage, travel).
- 5.5. Describe the desired maintenance required for the product (by user/ owner, non-user serviceable, maintenance staff).
- 5.6. Do you have any specific requirements for user testing or focus group analysis during the product development process?

6. User interface / interaction UI/UX

- 6.1. Is there also an user interface to be redesigned (buttons, sliders, screen, GUI, etc.)
- 6.2. What signals should be communicated by the device and how can users give their input? (LED's, screen, vibration, sound, etc.)

7. Electronics & firmware

- 7.1. Are there any new electronics (PCBA + firmware) to be developed or already under development? Or existing to be used?
- 7.2. In the case of new electronics developments: Who will develop the hardware and software; Client, Development partner of the client, or do you prefer to work with one of the developers from the Mango network?
- 7.3. Globally describe the tasks to be executed by the electronics.

8. Regulations & certification

- 8.1. Of which regulations are you aware that your product needs to comply?
- 8.2. Are there any specific approvals which you need or desire for the product? For example, CE-marking, FDA, FCC, etc.
- 8.3. Will you as client take care of the certification process with the Notified Body, possible trials (if required) or do you need assistance for this?

ManGo Product Design always works according regulations for sustainable product development, material use and recycling, for example: RoHS, REACH, WEEE, NEN 15270, NEN 62075, etc.

9. Sustainability

- 9.1. Besides the above mentioned regulations (if applicable) are there any additional sustainable requirements and/or desires for your development?
- 9.2. Are there any requirements concerning minimizing or compensating CO2 emissions on production and logistics?

10. Marketing & sales

- 10.1. Where will the products be made available?
- 10.2. How will the product be sold (B2B / B2C, shop, online, crowd funding, etc.)?
- 10.3. How many years of warranty do you want/need to give on the product?

11. Packaging & manual

- 11.1. Is a fitting packaging also to be designed for the product?
- 11.2. Are there materials you want to use or avoid in the packaging (sustainable image etc.)?
- 11.3. Manual design to be executed by client or Mango, any special requirements besides the regulatory?
- 11.4. Copy writing of manual by client or third party (specify languages)?

12. Production & price

- 12.1. How does the product price-wise relate to competing products?
- 12.2. What are the target manufacturing and sales prices of the product?
- 12.3. What are the expected production numbers?
- 12.4. Is there a budget available for tooling / molds and if so how much?

12.5. Where is the product preferred/expected to be produced/assembled?

12.6. Do you have any preferred suppliers to be used or have certain components/materials already been selected?

13. Patents

13.1. Has research for patent infringements already been done?

13.2. Is a patent or design registration desired for this product?

14. Planning

14.1. When and where do you want to present first results / prototypes?

14.2. When do you want introduce the product on the market?

15. Other

Other comments.

APPENDIX - PROCESS EXPLANATION

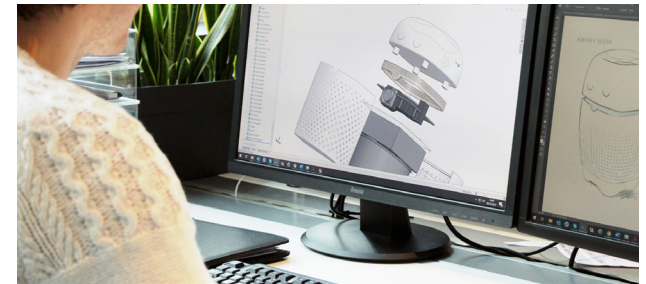
We can imagine that certain aspects of the product development process are new to you, making it hard to fill in the checklist. The following blogs on our website explain everything you need to know.



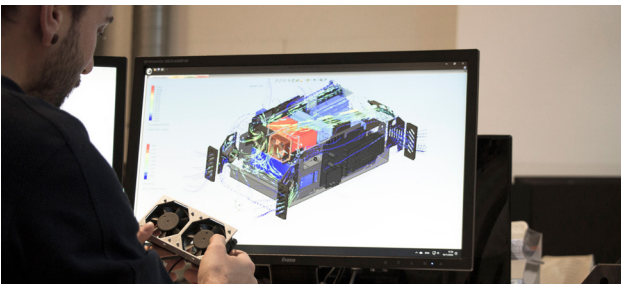
HOW TO CHOOSE THE RIGHT TYPE OF MANUFACTURING



EVERYTHING YOU NEED TO KNOW ABOUT 3D PRINTING



FROM IDEA TO PRODUCT: HOW THE INDUSTRIAL DESIGN PROCESS WORKS



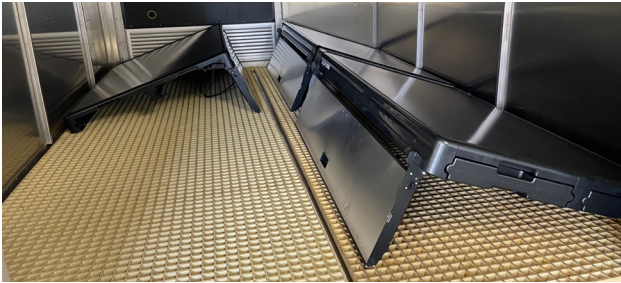
PRODUCT DEVELOPMENT COSTS: WHAT YOU NEED TO KNOW



BEGINNERS GUIDE TO PATENTING A PRODUCT OR IDEA



IMPORTANT ASPECTS OF PRODUCT PACKAGING DESIGN



CERTIFICATION PROCESS OF PRODUCTS



USER-CENTERED DESIGN: WHY IT'S VITAL FOR GOOD INDUSTRIAL DESIGN



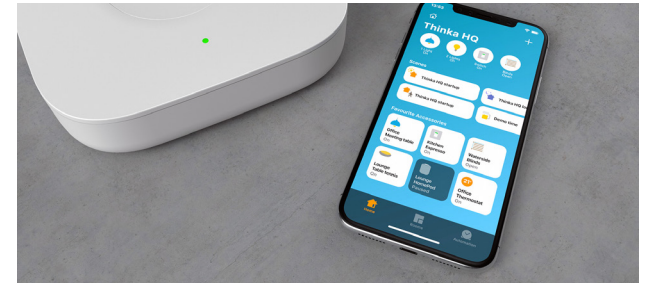
MOULDING A BETTER PRODUCT, EVERYTHING ABOUT MOLD DESIGN



PCB DESIGN, DE SAMENWERKING TUSSEN ONTWERPERS EN ELEKTRONICA ONTWIKKELAARS



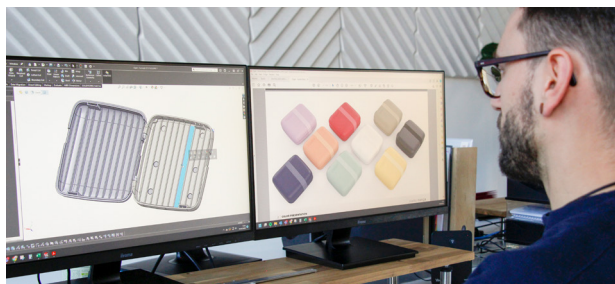
GETTING A PROTOTYPE MADE, ALL YOU NEED TO KNOW



CREATING A PRODUCT USER EXPERIENCE EVERYONE WILL LOVE



MINIMUM VIABLE PRODUCT (MVP): THE PERFECT IMPERFECTION



THE ART OF CMF DESIGN; COLORS, MATERIALS AND FINISHES



HOW TO GET START-UP FUNDING