

Design Thinking

Design thinking is a method used to solve complex problems. It starts by identifying a problem and developing a solution using a series of steps to guide you. These steps are not linear (see Figure 1) and can be returned to at any stage of the process. The steps are as follows:

Problem definition

Understanding the problem is the first step in the design thinking process. For each problem a number of questions must be answered in order to satisfy the needs of users. Depending on the context of the problem you may ask the following questions:

- What is wrong with the current state?
- How significant is the problem?
- Who is directly affected? Indirectly?
- How are they affected?
- Are there other stakeholders and what are their concerns?
- What are our specific goals and objectives?
- What are our constraints?
- What are our criteria for success?

By answering these questions, you can then develop a design brief: a working document that states: the problem, the user profile, constraints, criteria for success and project goals.

Generate Ideas

In order to create a solution, a large number of ideas must be generated. Some methods include:

- **Observing** – other strategies that address similar problems.
- **Researching** – other solutions that have been tried before.
- **Brainstorming** – structured techniques for coming up with solutions.

By the end of this stage, a wide array of ideas should be available to the designers for further investigation.

Idea Selection

In order to select the best solution from our large list of ideas, it is important to return to the problem and apply constraints. This will allow you to create a solution that is:

- **Feasible:** technologically possible in a reasonable time frame
- **Viable:** to have the financial and human resources for implementation
- **Desirable:** the solution will fulfill the stakeholders needs
- **Sustainable:** the solution is able to remain effective indefinitely

Implementation

This step involves creating a prototype of the selected idea. This can take many forms depending on the context of the problem. The prototype does not have to be high quality, it only has to serve as a learning tool to further understand the problem. It is often shown that once the solution is implemented, new problems arise, and the process can begin again.

Evaluate

This step is concerned with the effectiveness of the solution. A few questions must be answered to evaluate:

- Did we solve the right problem?
- Does the solution work as expected?
- Does our solution meet the user's needs?
- Are there unintended consequences?
- Is it economically, socially, and environmentally sound?

Once the solution has been evaluated for effectiveness, it may require you to return to any of the previous stages to make adjustments to the solution.

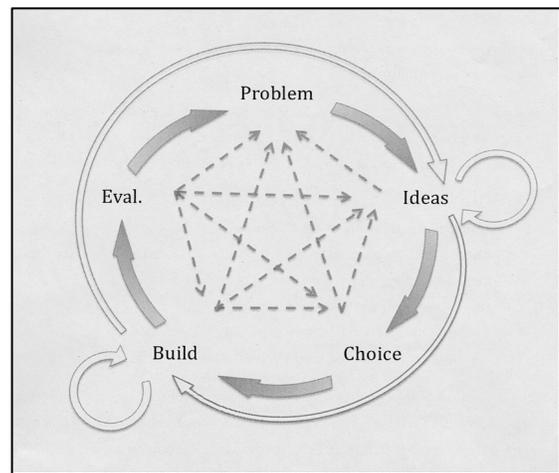


Figure 1: The Design Process Model