

Design Brief I : Design Problem Statement

Objective

In this first phase of the capstone project, learn to transform a design challenge to a design problem statement. Develop a truly interesting design problem worth solving. Below, a guide and grading rubric are provided to facilitate your project completion.

Choose a design challenge from the Design Challenges 2024

There are three design challenges to choose. You may also combine them, but in this case, be specific what is the main challenge. Design challenge is intentionally vague. The transformation and its process will make it more concrete and more solvable.

Domain analysis

After selecting a challenge (music search, change, empower), research basic information about its domain, primarily via the Web. Scientific papers can also support your findings when relevant. Ensure all domain research is backed by credible sources. Ensure your report concludes with a reference list, including the author's name, publication date, title of the work, and where it can be found, ensuring clarity and ease of verification for readers.

A good way to start is to follow the questions we proposed in the challenge document and expand your research. For example, if you choose the challenge to help people become physically more active, you need to know something about fitness, sedentary life, and how harmful it is, psychological and social science theories on motivation strategies, gamifications, etc. This part takes time and is quite messy (it's the purpose of research).

It's hard to say whether you have done enough domain research. Our suggestion is that you can stop when you have identified three important users' unmet needs (or pain points) and a design insight.

Competitive analysis

Competitive analysis is key for identifying products that target similar users and goals as yours but fail to fully meet their needs, revealing critical pain points. As you develop your product concept, focus on at least three competitors within your market segment that exhibit shortcomings in satisfying user expectations.

Use a Competitive Analysis Map (CA Map) to directly compare these products against your own, highlighting how your solution, informed by your domain research, addresses unmet

needs and stands out. This comparison should clearly link to domain research, showing your product's unique value in filling the gaps left by competitors. Finally, clearly indicate your product's position on the CA Map, illustrating how it stands out in the competitive landscape.

Define the design problem (DPS)

Now it's time to finalize and formulate your design problem statement (DPS). In this statement, you combine three elements:

- 1) users: who are the users, or user segment, your product is serving
- 2) needs: what are their unmet needs
- 3) insight: information you learned from your domain research showing the solution you are seeking is likely to address users' needs successfully.

The aspect of deriving insights is often perceived as challenging to articulate. Considering the significance of a Design Problem Statement (DPS), we will delve deeper into this subject in our upcoming lectures.

SUNA analysis

Please provide some explanations of why you believe your conceptual product meets the following criteria: the product you are designing has challenging interaction issues to address (suitableness), the solution entailed by the DPS is useful for the targeted user population (usefulness), the solution uses technology in a novel way (novelty), and the technology being assumed in this project is adequate for this user population (adequate).

The SUNA analysis helps you iterate your initial DPS until you are fairly sure about it.

Submission

Submit your comprehensive report in pdf on the due date specified in the Moodle page. This report must include all sections outlined in the design brief and the grading rubric.

Grading rubric

Highlight from domain research Within the allocated space, provide a synthesis of the most crucial insights obtained from your domain research. Focus on identifying the primary unmet needs of users and how these insights inform an interactive technology solution to address these needs. Your description should reflect not just the collection of information, but also its careful analysis and refinement. Please do not exceed 1 page.	35%
Competitive analysis and the CA map Clearly name the three competitive products, a brief description of each of them, and the final CA map. Clearly indicate where your product is on this map. Do not exceed one page.	25%
Design problem statement Please articulate your Design Problem Statement (DPS), a refined version of the initial design challenge, using the following template: [Your target users] need [users unmet need], because [your insight from domain analysis] Do not exceed 150 words.	20%
SUNA analysis Describe in maximum 300 words how your final DPS meets the SUNA criteria.	20%