

Writing a Design Brief

Identifying a Problem

A design brief is a written plan that identifies a problem to be solved, its criteria, and its constraints. Completing a design brief encourages thinking through all aspects of a problem, and it can serve as the deliverable for step one in the design process, Define Problem.

A design brief helps identify the details around product creation. A brief should begin to address what the designers are thinking about the design, including the following:

- What purpose(s) will their creation serve?
- What problem(s) will their creation address?

Design Brief Components

Design Brief Component

Description

Client	A person, company, organization, or group that requires the talents of an engineer or designer to develop a solution.
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Target Customer	People who will use the design.
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Note: Often the target customer and the client are one and the same.

Designer	The creative person who is designing a solution to the problem or addressing the opportunity.
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Problem Statement	A clear and concise identification and description of the design problem or opportunity. (See the Problem Statement section below for more guidance when writing a problem statement.)
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Design Statement	Statement that describes the anticipated design effort to address the needs of stakeholders and problem statement. What exactly will you do and provide as part of your solution?
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Criteria 	A list of specific, concise design requirements that describe what the design solution must do to meet the needs of stakeholders and be successful. Criteria should be measurable  . This is also called success criteria.
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Constraints 	The limits on the design and production of a product, expressed with specific, measurable values. These might include time constraints, budget, codes, safety, or physical attributes (size, weight, color).
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Problem Statements

A clear description of the problem allows you to focus your efforts and avoid wasting time working on a design that does not address the issue at hand. Clear problem statements provide information to determine whether a design is successful—does it actually solve the problem?

Example

Consider the following problem statement:

Lots of people go fishing for red fish and do not catch anything. There aren't as many red fish as there used to be.

What details would make this a stronger problem statement with enough information to help provide a measure of success?

■ **Compare your thoughts**

A good problem statement...

- Is concise.
- Leaves room for multiple solutions.
 - Does not imply a solution.
- Is specific enough to be solvable in the given time frame, with available resources.
- Answers the questions:
 - Who has the problem?
 - What exactly is the problem?
 - Where does the problem exist?
 - When has it happened and for how long?
 - How prevalent is the problem (statistics)?
 - Is the problem valid? (Who says there is a problem?)

Sample Design Briefs

Infant/Toddler Toy

Client	Playskool® (large toy manufacturer)
Target Consumer	Parent (purchaser) and infant/toddler (end user)
Designer(s)	You and your teammates
Problem Statement	Most parents expect their children to be able to walk, talk, sing, count, and recite the alphabet before they enter elementary school. A growing expectation is that infants and toddlers will also develop cognitive abilities and fine motor skills during the first three years of life.
Design Statement	Design, market, test, and mass produce a multifunction, educational toy that is an infant activity center and a toddler walking aid.
Criteria and Constraints	1. Easy to assemble (typically in under 10 minutes). 2. Contains multiple shapes, numbers, and letters. 3. Appeals to multiple senses (visual, tactile, and auditory). 4. Complies with all applicable health and safety codes. 5. Easy to clean (using only mild detergent and water). 6. Avoids small parts that a child could choke on. 7. Configures between infant and toddler modes in under 30 seconds. 8. Weighs less than 4 pounds. 9. Retail price is less than \$20. 10. Parts are primarily injection moldings.

Assistive Device

Client	Assistive Technology Company
Target Consumer	Person with hemiplegia
Designer(s)	You and your teammates
Problem Statement	A 2013 study by the Christopher and Dana Reeve Foundation found that approximately 1.7 percent of the U.S. population, or more than 5.5 million people, are living with some form of paralysis. A person with hemiplegia experiences paralysis on one side of the body. At-home, self-care tasks such as grooming and eating are difficult to accomplish with the use of one hand. Individuals with hemiplegia desire to perform these tasks independently.
Design Statement	Design, prototype, and test a device that enables a person with hemiplegia to conduct personal grooming tasks such as fingernail clipping and filing.
Criteria and Constraints	1. Usable by a single right or left hand. 2. Does not shift or tip over during normal use. 3. Cuts only nails, not skin, to ensure the safety of the user. 4. Uses only an additive manufacturing process (3D printing). 5. Compact design (all dimensions less than 3 inches). 6. Weighs less than 4 ounces. 7. Uses non-toxic material that can be disinfected.

Job Aid

Client	Parcel Logistics
Target Consumer	Parcel Logistics Company Employee
Designer(s)	You and your teammates
Problem Statement	In the last year, Parcel Logistics experienced an increase of 15% (over the previous year) in complaints about on-the-job injuries. The complaints have come from across the call center, distribution, and warehouse teams. A continued increase in complaints would impact company culture and cause additional fiscal physical side effects.
Design Statement	Identify and design a mechanical system for a Parcel Logistics employee to improve lifting efficiency of package-handling tasks performed in the warehouse.
Criteria and Constraints	1. Does not reduce productivity in job functions. 2. Results in an ergonomic improvement for one work area. 3. Achieves 80% approval rating (ease of use, comfort, degree of improvement...) from all testers. 4. Weighs fewer than 10 pounds. 5. Costs less than \$50.

RESOURCES



Design Brief Template