

## DEFINING THE PROBLEM

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### What is the Problem?

Answering this question can be more complex than it appears. It is often an iterative process and requires the application of listening and communications skills.

### Problem Statement

The Problem Statement describes the problem in the *customer's language*. (Remember, not the solution.)

### Requirements Specification

Solution described in “engineering language” – technical terms that define the attributes, interfaces

How different the two are may depend on how “informed” the customer is.

- How well do they understand the problem?
- How well can they tell if a possible solution will satisfy the problem?
- How technical are they?

“Informed” vs “Frontier” customer - Table 3.1 p21

Questioning the Customer - p26, Table 3.2 p27

May require extra effort (research) on the engineer's part to come up with the right problem description.

Differentiating needs and wants - p27 Fig 3.7 p28

Owe it to the customer to spend only what is required to solve the problem (the whole problem and nothing but the problem). (“shoot the engineer and start production”)

Surveying Design attributes - p31 Table 3.3 p32

Look at what already exists. (Incremental design).

Conflicting Needs - Fig 3.9 p33

Can't get a perfect design – many trade-offs.

User Interface / Manual - p34

Helps analyze possible designs, and helps customer visualize how the solution might work.