

Engineering Research

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Why are we doing research to design? It is always a good idea to start knowing why you want to do something. The justification is also a major reason. We are about to begin an engineering design, which is an expensive process. We need to make sure we do the right design, and that there was not a better solution out there.

1 Know Who is Involved

The first thing we want to do is identify our stakeholders. Stakeholders are anyone who is involved in or is affected by the design. The basic list is:

- client
- user
- anyone affected
- management
- manufacturing
- purchasing

2 Know the Project

Many people design great solutions to the wrong problem. Often what the client asks for is the wrong solution, because of an assumed solution. A good engineer needs to be entrepreneurial in finding the real problem, and thus designing a solution that really works. You need to find out:

- problem or situation that motivated the project
- need that was not met
- who will use it and how it will be used

- regulations
- any past attempts or current work that has been done
- existing (similar) solutions from other sources
- time constraints
- resources available

3 Be SMART

Ultimately you want to take your research and make SMART goals.

- specific
- measurable
- achievable
- relevant
- time-bound