

# Analysis

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## Plans

*Dropbox today*

### Document:

- What you are going to do (your goal)
- How you intend to do it (a sentence or two)
- Who is in the team
  - Define the tasks of each team member

## Analysis

*Textbook pp278-283*

A process to answer the \*what\* questions:

- What will solve the problem(s)?
- What benefits will the solution give the client?

## Solution Requirements

Attributes, capabilities, characteristics, or qualities of a system that the client finds valuable and useful

### Functional Requirements

Specification of what the system must be able to do

### Nonfunctional Requirements

Describes a characteristic of the system:

- Response rates
- User friendliness
- Reliability
- Portability
- Robustness
- Maintainability

## Constraints

Constraints are typically grouped into 4 groups:

- **Economic:** *budget available to create an information application*
- **Technical:** *availability, capabilities and limitations of equipment*
- **Social:** *culture, ethnicity, age, location, education, special needs and status of end-users*
- **Operational:** *the need to use specific techniques and procedures*

Some examples:

- performance (e.g. a system might have to process 4 million accounts overnight to be ready for the next business day)
- hardware limitations (e.g. the amount of RAM or hard disk space a system has; its display dimensions and colour range)
- compatibility with other equipment (e.g. a new monitor must be both HDMI and DVI compatible)
- the amount of time available to produce the solution (e.g. the new portal must be ready for the start of the new year)
- the skill levels of the team producing the solution (e.g. they have no WPF experience)
- the equipment available with which the production team can produce the solution (e.g. they have a Visual Basic compiler but no C# compiler)
- laws governing the creation, content or behaviour of the solution (e.g. health regulations, copyright or patent laws)
- social attitudes to the use of the solution (e.g. a camera that does not produce an audible click)

when a picture is taken to warn people of the event might not be acceptable to the people fearing surreptitious infringement of their privacy in changing rooms)

- the quality level expected of the product (e.g. A tennis robot can get away with 95% accuracy but a missile defence system cannot)
- the conditions under which the product is expected to be used (e.g. a PC designed for use by farmers might need to be rugged and weatherproof)

## Scope

**Scope = how much the solution should be able to achieve**

Scope states the boundaries or parameters of the solution in terms of their efficiency and effectiveness so the scope of a project defines how:

- big it is going to be
- how broadly it will search for causes and possible solutions to the problem

Questions to answer:

- What should the solution be able to do?
- What limitations are acceptable in the solution?
- What should be the benefits of the solution to the client?

A **broad scope** entails a lot of changes and lots of work

- A broad scope makes fewer assumptions about the cause and solution of a problem, and requires more investigation of different factors before deciding on a solution
- A broad scope will affect more parts of the information system. (Information systems are made up of people, equipment - hardware and software, procedures and data)

While a broad scope is bigger and slower, it is more likely to accurately identify the true cause of a problem and fix the problem effectively

A narrow scope

- more tightly limits the changes required, so the project is smaller and quicker to finish
- makes more assumptions about the true cause and best solution of the problem. If any of the assumptions are wrong, the problem may not be solved when the project terminates

An example

If a faster internet connection is needed:

- bandwidth could be increased (a narrow scope, because it assumes inadequate bandwidth is the cause of the problem)
- or an investigation could be made of all the system's internet hardware and software (a broad scope) before designing a solution

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