Relevance of software specification

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Slot 16

Why specification matters?

Defines your product

According to many industry surveys, poor software specification is one of the most common sources of project failure.

Why risk?

Systems and software are getting increasingly complex, such that it becomes almost crucial to specify software before actually implementing it, in order to avoid misunderstandings and unclearness as early as possible in the software development process.

What is a specification?

- A specification of a system is a collection of requirements that describe how the system should work.
- Proven methodology of constructing complex systems.

How specification helps?

- The specification is made before the architecture and the actual implementation.
- This allows the users to provide feedback before development is complete, increasing their confidence and involvement.

Benefits

Agreement between the customers and the suppliers

- Allows the involved parts to speak the same "language".
- It tells how the system should behave.

Provide a basis for estimating costs and schedules

- Using specification marketing people can estimate costs and marketing strategies.
- Project managers can estimate the development time.

Benefits

Reduce development effort

- Provides an overview of the system functionality.
- Helps making design decisions in early stages.
- Avoid mistakes in a late phase, which can be costly and harder to correct.
- Easier to divide implementation and test-work, they can be performed in parallel.
- The specification can be used to write the user manual.

Benefits

Provide a baseline for validation and verification

- Easier to test implementation with a specification.
- Many properties can be automatically verified.
- A step towards proving the correctness of the system.

Benefits

Facilitate transfer and collaboration

- Customers can choose the developer which implements the specification.
- Developers can easily present their product to new clients.
- (Parts of) a specification can be reused, because they are (mostly) independent of the implementation.
- A specification can be consulted by other people (like engineers), not only developers.
- Different aspects of a specification can be developed by different kinds of experts (common language).

Doubts?

Question

Is this do-able? Won't we miss our deadlines if we take the time to do this?

Answer

Taking the time up front pays dividends down stream. If you don't have time to specify it up front, you probably don't have the time to do the project.