SOFTWARE DESIGN AND ANALYSIS
CS 3004

Understanding Requirements

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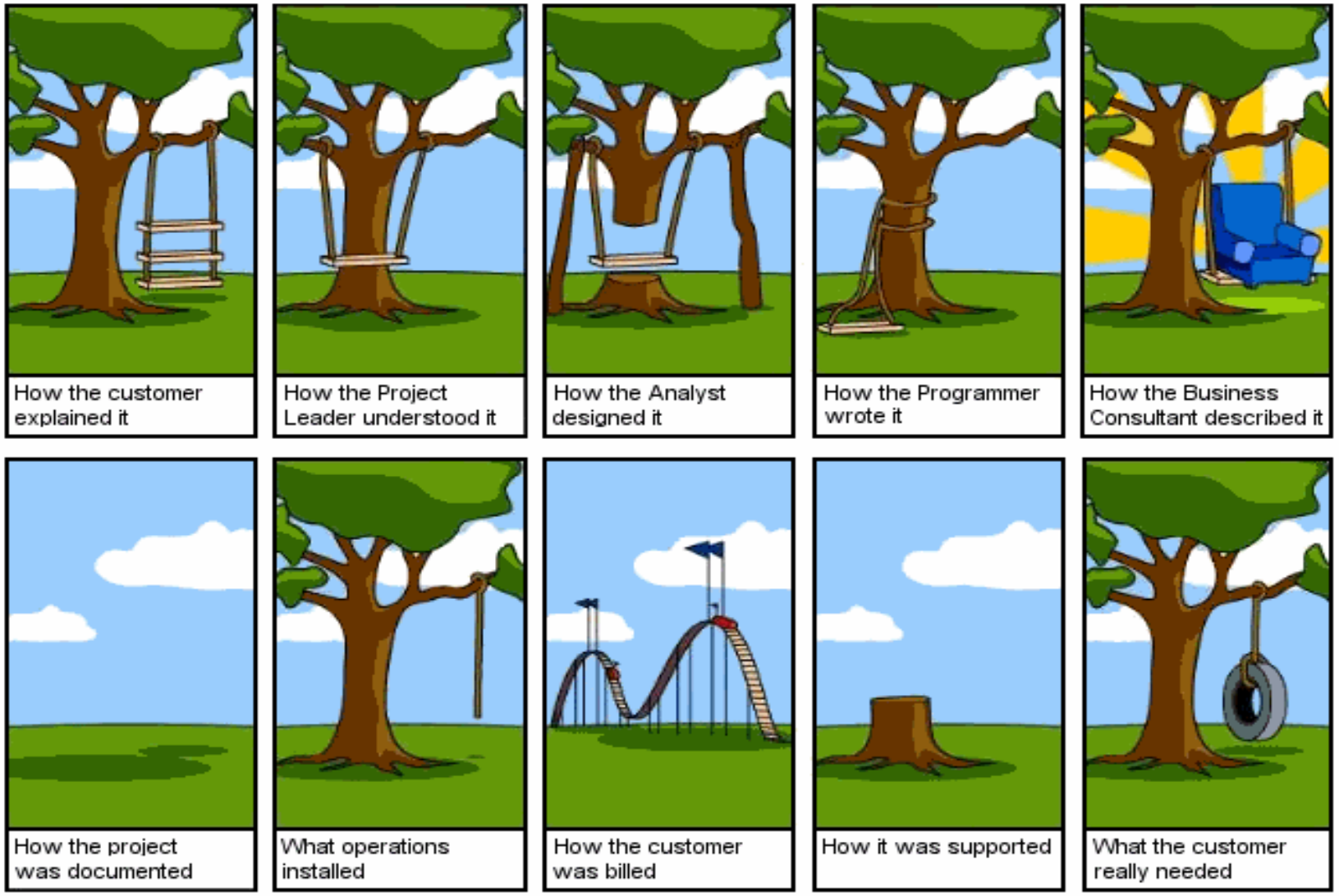
Outline

1. Define the FURPS+ model.
2. Relate types of requirements to UP artifacts.


How the customer explained it
How the Project Leader understood it
How the Analyst designed it
How the Programmer wrote it
How the Business Consultant described it
How the project was documented
What operations installed
How the customer was billed
How it was supported
What the customer really needed

Requirements

- These are the capabilities and conditions that the system, the project, and the product must provide and meet.
- Managing requirements is a best practice for project managers.
- Requirement issues are the leading cause of project failure. Even if you do a perfect job of building the wrong thing, its no good!

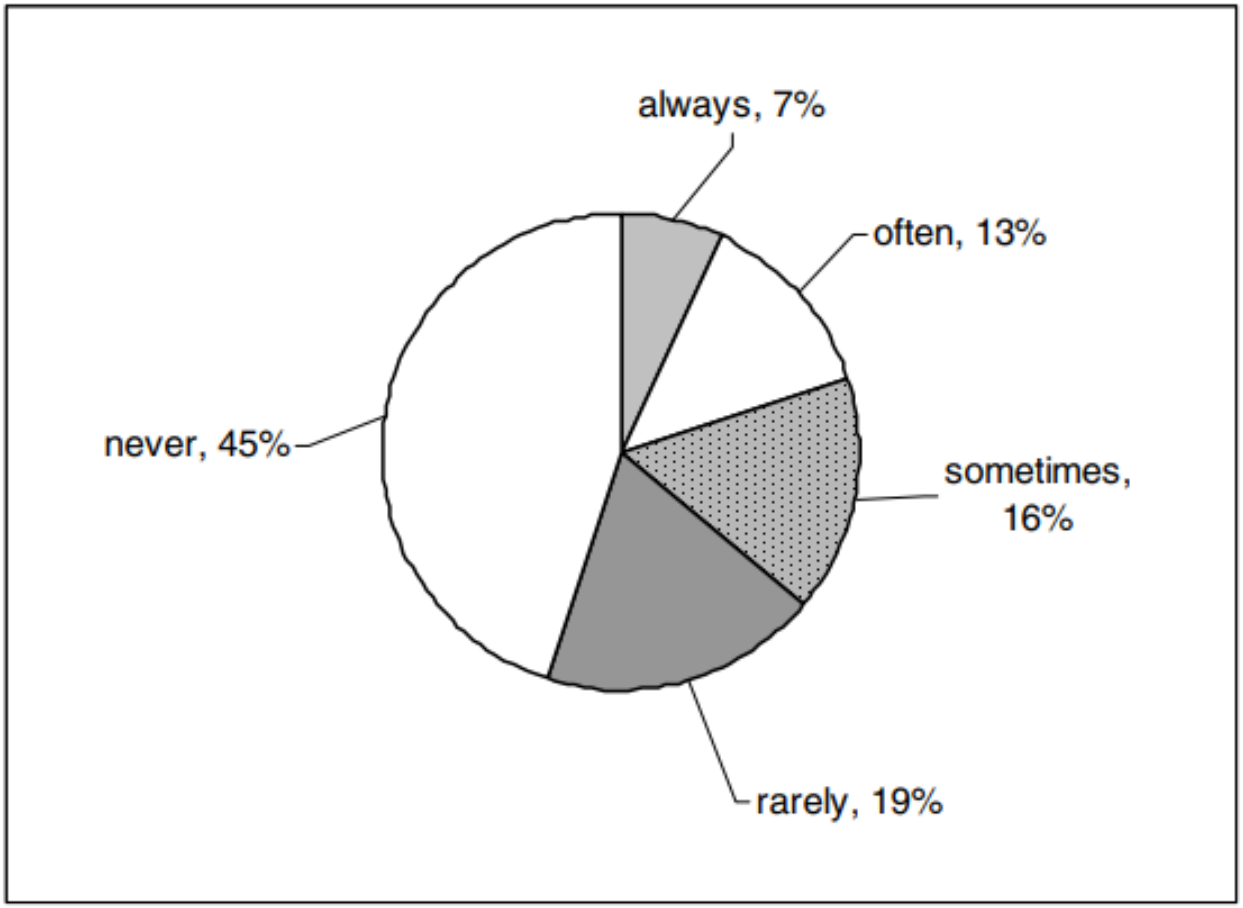
Not Waterfall Requirements

- There is an attempt in the waterfall method to describe the requirements fully and accurately and “freeze” them.
- Unified process realizes that change is constant, so plans for change instead of setting an impossible goal.

Managing Requirements

- Stakeholder requirements are frequently unclear and change over time. Frequently new requirements are discovered as part of the development process.
- There must be a “systematic approach to finding, documenting, organizing, and tracking the changing requirements of a system.” (RUP)

Actual use of waterfall-specified features



FURPS+

- **F**unctional (features, capabilities, security)
- **U**sability (human factors, help, documents)
- **R**eliability (failures, recovery, predictable)
- **P**erformance (response, throughput, etc)
- **S**upportability (maintainability, configuration)
- **+** ancillary and sub-factors (next slide)

Ancillary and sub-factors

- Implementation (includes limitations)
- Interface
- Operations
- Packaging
- Legal Requirements

Functional Requirements

- Detailed in the Use Case Model and in the System Features list of the Vision artifact. They are specified in detail in Operation Contracts where necessary.

Requirement Artifact	Comment
Use-Case Model	Use cases are common in the UP and an input to OOA/D, and thus described in detail in an early chapter.
Supplementary Specification, Glossary, Vision, Business Rules	These are provided for consistency, but can be skipped—not an OOA/D topic.

Non-functional requirements

- Often called the “-ilities” of a system; quality, reliability, usability, performance, etc.
- The glossary, data dictionary and supplemental specifications describe many non-functional requirements.
- In addition, architectural documents may have non-functional requirements.