面向对象程序的分析与设计
Object-Oriented Analysis and Design

Lecture 4

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Contents

- Other Requirements

Other Requirements

Other Requirements

- Besides use cases, what other UP requirement artifacts? Use cases are not the whole story!

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Other Requirements

- Put all these other requirements into perspective

Table 7.1. Sample UP artifacts and timing. s – start; r – refine

Discipline	Artifact	Incep.	Elab.	Const.	Trans.
	Iteration→	I1	E1..En	C1..Cn	T1..T2
Business Modeling	Domain Model		s		
Requirements	Use-Case Model	s	r		
	Vision	s	r		
	Supplementary Specification	s	r		
	Glossary	s	r		
	Business Rules	s	r		
Design	Design Model		s	r	
	SW Architecture Document		s		
	Data Model		s	r	

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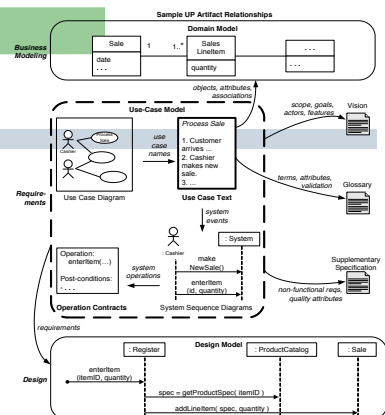
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Other Requirements

- **Supplementary Specification**
  - captures and identifies other kinds of requirements, such as documentation, packaging, supportability, licensing, and so forth.

- **Glossary**
  - captures terms and definitions

- **Vision**
  - summarizes the "vision" of the project - an executive summary.

- **Business Rules (or Domain Rules)**
  - capture long-living and spanning rules or policies, such as tax laws, that transcend one particular application.

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Supplementary Specification

- The **Supplementary Specification** captures
  - other requirements, such as system-wide "URPS+" (usability, reliability, performance, supportability, and more) quality attributes or requirements.

  - information, and constraints not easily captured in the use cases or Glossary,

  - Where is F in FURPS+?

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Supplementary Specification

- **Elements of the Supplementary Specification include:**

  - FURPS+ requirements, ie, *functionality*, usability, reliability, performance, and supportability
  - reports
  - hardware and software constraints (operating and networking systems,..)
  - development constraints (for example, process or development tools)
  - other design and implementation constraints
  - internationalization concerns (units, languages)
  - documentation (user, installation, administration) and help
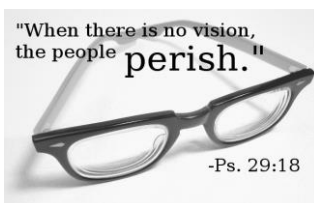 - licensing and other legal concerns

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- etc

Supplementary Specification

- **Sample document**

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Vision

- Vision is *an executive summary that briefly describes the project, as a context for the major players to establish a common vision of the project.*

"When there is no vision, the people perish."

-Ps. 29:18

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Vision-The "Key High-Level Goals and Problems of the Stakeholders " Section

- Vision summarizes the goals and problems at a high level often *higher than specific use cases,*

- It reveals important *non-functional and quality goals* that may belong to one use case or span many, such as:
  - We need fault-tolerant sales processing.
  - We need the ability to customize the business rules.

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Vision-The "Summary of System Features " Section

- System features are **_high-level_**, terse statements summarizing system functions.

- Features vs. functionality of a system
  - An alternative, complementary way to express system functions is with features, or more specifically in this context, system features, which are

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Vision-The "Summary of System Features " Section

- Simply listing the use case names is not sufficient in the Vision to grasp the major features. Why?

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Vision-The "Summary of System Features " Section

- Simply listing the use case names is not sufficient in the Vision to grasp the major features. Why?
  - Too detailed or low-level. People want a short summary of the big ideas. There could be 30 or 50 use cases.

  - The use case name can hide interesting major features stakeholders really want to know about.
    - For example, suppose that the description of automated payment authorization functionality is embedded in the Process Sale use case.

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Vision-The "Summary of System Features " Section

- Functional system features are to be contrasted with various kinds of non-functional requirements and constraints, such as:
  - The system must run on Linux,
  - must have 24/7 availability, and
  - must have a touch-screen interface.

  These are non-functional requirement?

  How do you know?

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Vision-The "Summary of System Features " Section

- How to write a system feature list?

- Terse, for example,
  - Here is a features example at a high level, for a large multi-system project of which the POS is just one element:

  - The major features include:
    - POS services
    - Inventory management
    - Web-based shopping
    - …

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Vision-The "Summary of System Features " Section

- The major features include:

- POS services:
  - sales capture
  - payment authorization
  - …

- Inventory management:
  - automatic reordering
  - …

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Vision-The "Summary of System Features " Section

- How many features do you list?

- **Guideline**

  – A Vision with less than 10 features is desirable,

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Vision

- In the Vision, system features briefly summarize functional requirements often detailed in the use cases.

- Likewise, the Vision *can* summarize other requirements (for example, reliability and usability) that are detailed in the Supplementary Specification.

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Vision

- Sample document

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Glossary

Glossary

Revision History

Version	Date	Description	Author
Inception draft	Jan 10, 2031	First draft. To be refined primarily during elaboration.	Craig Larman

Definitions

Term	Definition and Information	Format	Validation Rules	Aliases
item	A product or service for sale			
payment authorization	Validation by an external payment authorization service that they will make or guarantee the payment to the seller.			
payment authorization request	A composite of elements electronically sent to an authorization service, usually as a char array. Elements include: store ID, customer account number, amount, and timestamp.			
UPC	Numeric code that identifies a product. Usually symbolized with a bar code placed on products. See www.uc-council.org for details of format and validation.	12-digit code of several subparts.	Digit 12 i s a check digit.	Universal Product Code
...	...			

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Glossary

- In its simplest form, the Glossary is a list of noteworthy terms and their definitions.

- This needs to be resolved to reduce problems in communication and ambiguous requirements.

- **Guideline**
  – Start the Glossary early. It will quickly become a useful repository of detailed information related to fine-grained elements.

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Glossary

- For example, in the Process Sale use case, consider the following statement:
  – System sends payment authorization request to an external Payment Authorization Service, and requests payment approval.

- "Payment authorization request" is a nickname for an aggregate of data, which needs to be explained in the Glossary.

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Domain (Business) Rules

- **Application-Specific Domain (Business) Rules**
  - General, broad domain rules such as tax laws belong in the UP Business Rules artifact.

  - However, more narrow application-specific rules, such as how to calculate a line-item discount, can be recorded in the Supplementary Specification.

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Future Houses

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