CHAPTER 18
Requirements reuse

Objectives

- Describes several kinds of requirements reuse, identifies some classes of requirements information that have reuse potential in various contexts, and offers suggestions about how to perform requirements reuse.

- It presents some issues around making requirements reusable.

- Concluding with both barriers to effective reuse and success factors that can help organization better take advantage of its existing body of requirements knowledge.

Contents

1. Why reuse requirements?
2. Dimensions of requirements reuse
3. Types of requirements information to reuse
4. Common reuse scenarios
5. Requirement patterns
6. Tools to facilitate reuse
7. Making requirements reusable
8. Requirements reuse barriers and success factors

Why reuse requirements?

- Faster delivery, lower development costs, consistency both within and across applications, higher team productivity, fewer defects, and reduced rework.

- Reusing trusted requirements can save review time, accelerate the approval cycle, and speed up other project activities, such as testing.

- Reuse can improve your ability to estimate implementation effort if you have data available from implementing the same requirements on a previous project.

- From the user's perspective, requirements reuse can improve functional consistency across related members of a product line or among a set of business applications

- If the implementation varies in different environments, the requirements might be the same.

Dimensions of requirements reuse

TABLE 18-1 Three dimensions of requirements reuse

Dimension	Options
Extent of reuse	■ Individual requirement statement ■ Requirement plus its attributes ■ Requirement plus its attributes, context, and associated information such as data definitions, glossary definitions, acceptance tests, assumptions, constraints, and business rules ■ A set of related requirements ■ A set of requirements and their associated design elements ■ A set of requirements and their associated design, code, and test elements
Extent of modification	■ None ■ Associated requirement attributes (priority, rationale, origin, and so on) ■ Requirement statement itself ■ Related information (tests, design constraints, data definitions, and so on)
Reuse mechanism	■ Copy-and-paste from another specification ■ Copy from a library of reusable requirements ■ Refer to an original source

Types of requirements information to reuse

TABLE 18-2 Some types of reusable requirements information

Scope of reuse	Potentially reusable requirements assets
Within a product or application	User requirements, specific functional requirements within use cases, performance requirements, usability requirements, business rules
Across a product line	Business objectives, business rules, business process models, context diagrams, ecosystem maps, user requirements, core product features, stakeholder profiles, user class descriptions, user personas, usability requirements, security requirements, compliance requirements, certification requirements, data models and definitions, acceptance tests, glossary
Across an enterprise	Business rules, stakeholder profiles, user class descriptions, user personas, glossary, security requirements
Across a business domain	Business process models, product features, user requirements, user class descriptions, user personas, acceptance tests, glossary, data models and definitions, business rules, security requirements, compliance requirements
Within an operating environment or platform	Constraints, interfaces, infrastructures of functionality needed to support certain types of requirements (such as a report generator)

Common reuse scenarios

- Software product lines

- Reengineered and replacement systems

- Other likely reuse opportunities

Requirement patterns

- Guidance

- Content

- Template

- Examples

- Extra requirements

- Considerations for development and testing

- Reuse barriers
  - Missing or poor requirements
  - NIH and NAH
  - Writing style
  - Inconsistent organization
  - Project type
  - Ownership
- Reuse success factors
  - Repository
  - Quality
  - Interactions
  - Terminology
  - Organizational culture