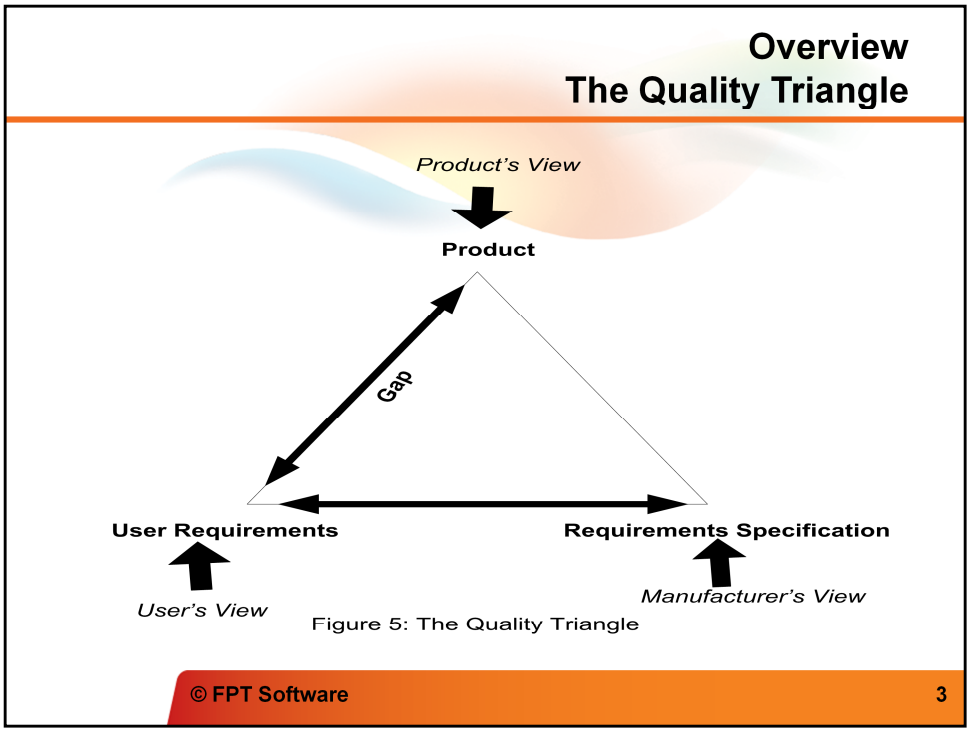
Review Concepts & Process

Instructor << >>

Agenda

- Overview
- Verification vs. Validation
- Review Concepts and Process



If the three views of quality are not well aligned, the sides of the triangle representing gaps between the views, will be long and the triangle will be large.
If the view of quality become better aligned, the sides of triangle will become shorter and the triangle will become smaller. If more better then views of quality be represented by a single dot

Overview
The UR-RS gaps

The gaps between User Requirement (UR) and Requirement Specification (RS) is likely to include:

- Misunderstood requirements
- Ignored requirement
- Missing requirements
- Outdated requirements
- Unneeded requirements

Overview
The RS-Software Gap

The gap is likely to include:

- Wrong interpretation of requirement due to vagueness and ambiguity in the specification
- Requirements identified after development commenced and included in the software but not described in the specification
- Changes to specified requirements identified after development commenced
- Features added by the developers to exploit technical opportunities
- Requirement ignored by the developers because they were too difficult to implement

Overview
The Software-UR Gap

- The gap occurs because the software doesn't satisfy the user requirements
- The size of the gap is directly dependent on the side of other 2 sides of triangle
- The gap is most expensive to close since extensive rework will be necessary to modify the software

Overview
Closing gaps between 3 views

- Spend more money on quality by V&V activities:
  - Static test: verify products without execution
    - Review: online/offline
    - Inspection
  - Dynamic test: verify products with execution
    - Unit Test
    - Integration Test
    - System Test
    - Acceptance Test
- Improve the processes that create the product

Verification 1/3

- Verification confirms that work products properly reflect the requirements specified for them.
- Did we build the system right?
- Example: SRS, design and code review by development team. Unit test, integration and system test

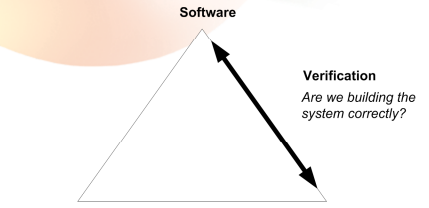


Figure 2: Verification and the Quality Triangle

Sample: SIM.APPCODE_Screen Unit Test Checklist_Screen name.doc

Verification 2/3

- ***Step 1 - Prepare for Verification***
  - Select Work Products for Verification
  - Establish the Verification Environment
  - Establish Verification Procedures and Criteria
- ***Step 2 – Perform Verification on selected Work Products***
  - Perform Verification
- ***Step 3 - Analyze Verification Results***
  - Analyze Verification Results
  - Follow up

Verification 3/3
Verification Products

Typical Work Product

- List of work products
- Verification methods
- Verification environment, procedures, criteria
- Peer review schedule and checklist
- Entry and exit criteria for work products
- Criteria for requiring another peer review
- Peer review training material
- Selected work products to be reviewed
- Peer review results, issues, data, action items
- Verification results, reports
- Demonstrations
- As- run procedure log
- Analysis reports
- Trouble reports
- Change requests for the verification method, criteria and environment
- Corrective actions to verification methods, criteria and environment

Fsoft:

✓ Review & Test Schedule
✓ Review & Test Strategy
✓ Test Plan
✓ CM Plan
✓ Test Cases
✓ SRS, Design, Code, Test plan, Test case, Product Integration plan, Project plan Review Checklists
✓ Review Meeting Minutes
✓ Defects found in DMS tool
✓Metrics measured & analyzed in meetings & reports
✓ Test Report
✓ Defect analysis and monitoring reports, corrective/preventive actions logged in DMS, comments in review checklists, brainstorming meeting minutes to solve test/review defects/comments

Validation 1/3

- Validation check whether a function needed and expected by customers is present in a software product
- Did we build the right system, appropriate, fit-for-use?
- Example: SRS, Requirement prototype review by customer, acceptance test, beta test, operational support

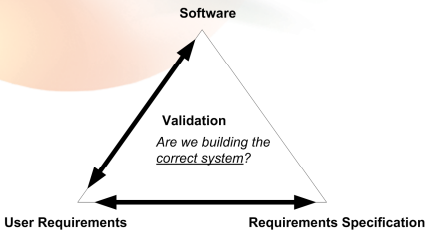


Figure 1: Validation and the Quality Triangle

Validation 2/3

- ***Step 1 - Prepare for Validation***
  - Select Product for Validation
  - Establish the Validation Environment
  - Define Validation Procedures and Criteria
- ***Step 2 - Validate Product/Product Component***
  - Perform Validation
- ***Step 3 - Analyze Validation Results***
  - Analyze Validation Results
  - Follow up

Validation 3/3
Validation Products

Typical Work Product

- ✓ List of products & product components selected for validation
- ✓ Verification methods
- ✓ To-be validated requirements
- ✓ Validation constraints
- ✓ Validation environment
- ✓ Validation procedures, criteria
- ✓ Test and evaluation procedures for maintenance, training & support.
- ✓ Validation results, reports, cross-reference matrix
- ✓ Validation deficiency reports
- ✓ Validation issues
- ✓ Procedure change request

Fsoft:

- ✓ Delivery schedule
- ✓ Simulated environment, facilities and customer-supplied products for testing purpose such as Test data, Test cases, Test Devices, Software, Hardware, etc
- ✓ Customer Acceptance Criteria
- ✓ Acceptance Test report & defects
- ✓ Analysis and monitoring reports, corrective/preventive actions logged in DMS, comments in review checklists, brainstorming meeting minutes to solve test/review defects/comments

Review Concepts & Process General Introduction

- (1) To **identify**, **analyse** and **find-out** solution(s) for all defects and issues of material need to be reviewed;

OR

- (2) To **summarize** and **evaluate** progress of a stage in project's life cycle, as well as **assess** the status of the project in order to **make decision** of whether to let project go into the next stage or not.

(3) Review Advantages:

- Reviews help preserve team motivation by giving people a sense of achievement, participation, and recognition.
- Through reviews, team members can develop their skills and senior people can mentor less-experienced colleagues.
- Reviews help prevent defects by creating more awareness about them.

Review Concepts & Process
General Introduction

- ***Offline (an informal review):***
  - *Critical reading and analysis software artifacts (code, design, specification, test plan, etc.)*
  - *By individual reviewer*
  - *Defect found will be sent to author*
  - *Follow-up actions*

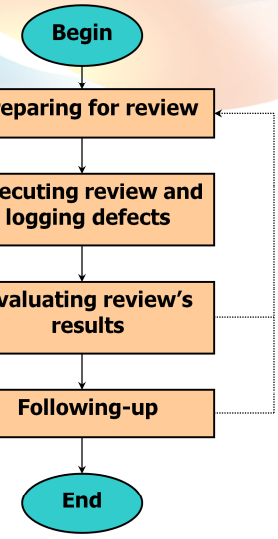
Review Concepts & Process
General Introduction

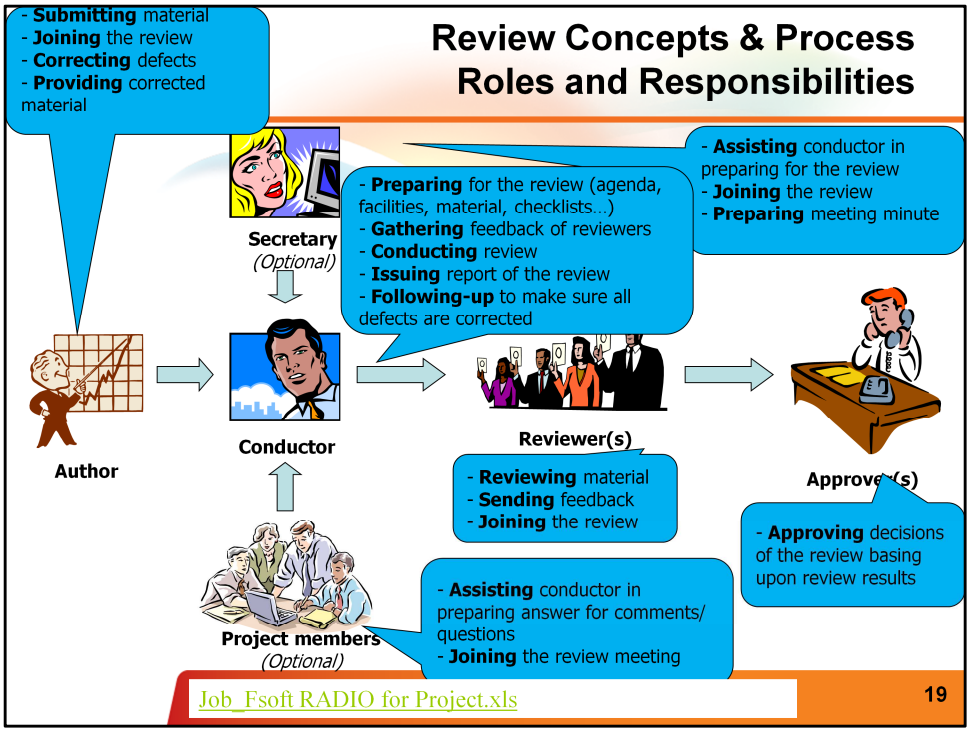
- ***Online (a formal review):***
  - *Phases: Preparation, Review meeting, Rework, Follow-up*
  - *By a group of reviewers with specific roles and responsibilities*
  - *Faults need to be removed and the removal needs to be verified*

Review Concepts & Process
Review Techniques

- **Walkthrough**: *go through document with author*
- **Technical review**: *discussion meeting that focuses on achieving consensus about the technical content of a document*
- **Inspection**: *the most formal review type*
- **Peer review**: *A review of a software work product by colleagues of the producer*

Review Concepts & Process
Review process in Fsoft




Review Concepts & Process
Roles and Responsibilities
- Submitting material
- Joining the review
- Correcting defects
- Providing corrected material
Author
Secretary
(Optional)
- Preparing for the review (agenda, facilities, material, checklists…)
- Gathering feedback of reviewers
- Conducting review
- Issuing report of the review
- Following-up to make sure all defects are corrected
- Assisting conductor in preparing for the review
- Joining the review
- Preparing meeting minute
Conductor
Reviewer(s)
- Reviewing material
- Sending feedback
- Joining the review
Approver(s)
- Approving decisions of the review basing upon review results
Project members
(Optional)
- Assisting conductor in preparing answer for comments/ questions
- Joining the review meeting
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Review Concepts & Process
Reviewing Inputs

- Statement of **objectives** of the review
- **Material** to be reviewed
- **Checklists** to be used
- **Report** templates

Sample: Checklist_Test Case Review.xls

Sample: Checklist_Quality Gate Review.xls

Review Concepts & Process Reviewing Tasks

(1) Preparing

- Preparing **agenda** and **facilities** for the review
- Contacting with SQA Coordinator to identify list of **reviewers**
- Sending **agenda** along with all **material** to reviewers
- If a meeting is necessary, gathering all **comments/questions** of reviewers and prepare **answers/solutions** for each one

Review Concepts & Process
Reviewing Tasks (cont.)

(2) Executing review & logging defects

- Performing **review** by using checklists and templates
- Logging and sending to conductor all **defects** found and **comments/questions**
- Conducting the **review meeting** (if any). Prioritising all **defects** and **comments/ questions** during the meeting
- Logging all **new defects** or **unsolved questions** found during the review meeting

Review Concepts & Process
Reviewing Tasks (cont.)

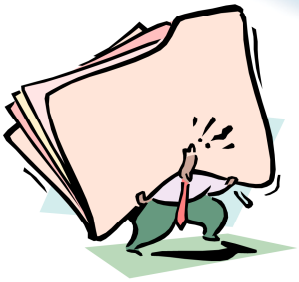
(3) Evaluating review results

- Preparing and issuing **Review report** to all attendees
- Making **approval** or **reject** basing upon the review's results

(4) Following-up

- Monitoring to make sure all **defects** are closed as planned
- If necessary, preparing for the **new review** again.

Review Concepts & Process
Review Outputs



- **Review Report**: reviewer list, defect list, statistic and analysis… (see Test Guidelines for more information)
- Filled-up **checklists**
- **Minute of meeting** (if any)
- **Approval** or **Reject** of approver

Review Concepts & Process
Types of review

(1) Contract review

- **Purposes**: understanding customer reqs, identifying issues and risks as well as plan to solve them
- **Attendee**:
  - ✓ **Conductor:** Group Leader
  - ✓ **Required attns:** Ops, SQA
- **Tools**: Contract Review Checklist
- **Meeting**: required

Review Concepts & Process
Types of review

(2) Work product review

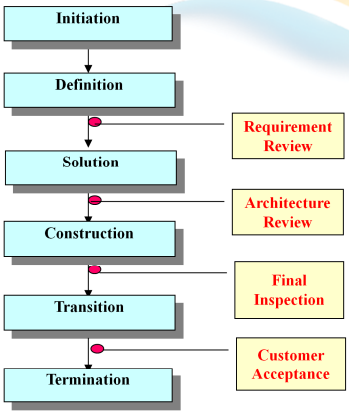
- **Purposes**: approving work products of the project, which are identified in the project plan
- **Attendee**:
  - **Conductor:** PL or PD
  - **Required attns:** Technical reviewer, SQA
- **Tools**: set of work product review checklists
- **Meeting**: if necessary

Review Concepts & Process
Types of review

(3) Code review

- **Purposes**: usually used in coding process to show that a source code is consistent with its specification or coding convention
- **Attendee**:
  - **Required attns:** Programmers
- **Tools**: Code Review Checklist
- **Meeting**: if necessary. Cross checks are recommended

Review Concepts & Process
Types of review



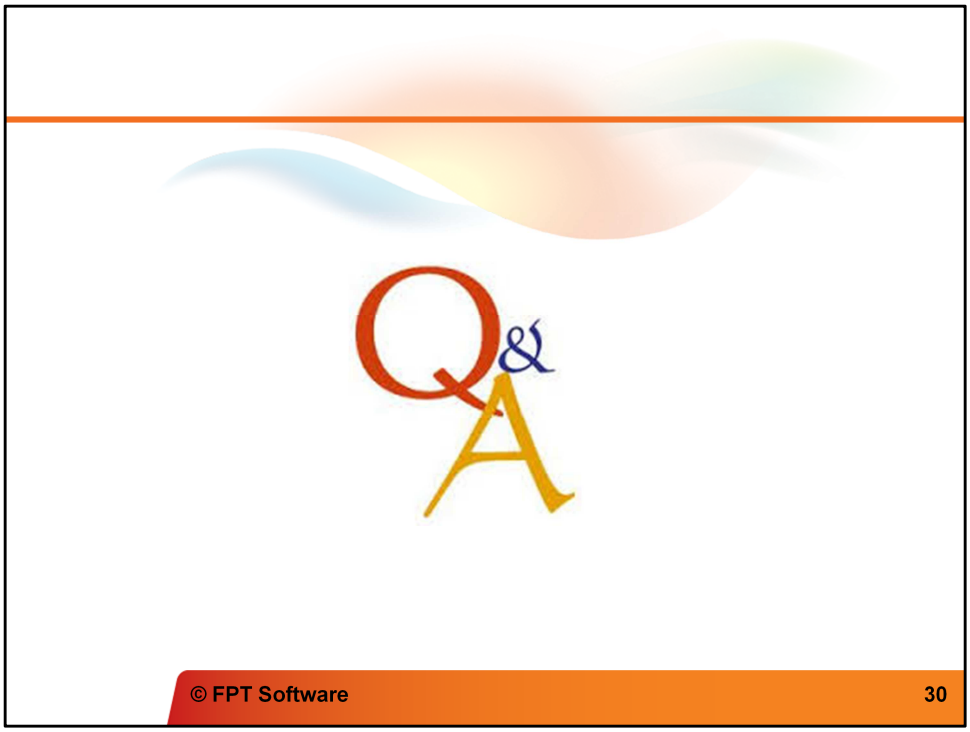
(4) Quality Gate review

- **Purposes**: to make sure all objectives of the current stage are met, all its work products have been approved as planned, and project is able to proceed to the next stage
- **Attendee**:
  - ✓ **Conductor:** SQA
  - ✓ **Required attns:** PD and PL
- **Tools**: set of Quality Gate review checklists
- **Meeting**: if necessary

Review Concepts & Process
Types of review

(5) Post-mortem review

- **Purposes**: review on project thoroughly before its finish; assess project in terms of completion degree as well as lessons learned from the project; and finally, evaluate and archive project's assets
- **Attendee**:
  - ✓ **Conductor:** PD
  - ✓ **Required attns:** Ops, SQA, SEPG, team members and other affected groups/individuals
- **Tools**: Post-mortem Report review checklist
- **Meeting**: required


Q&A
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