Reviews

By: MSMZ

Why Review??

- Every process from phase DESIGN in Software Development Process will have “design document”.
- “Design document” is a document that will record all the progress of the development work in every stage.
- The system analysts who prepared the document will check in order to detect any error. In addition, development team leader are also will check this document before granting their approval to the next phase.
- However, it is clear these are also the people that involved in producing the document, they are unlikely to detect some of their own error.
- Therefore, only “others” such as peers, expert or customer representative are capable to review the document.

Objective

- After completing this chapter, you will be able:-
  - Explain the direct and indirect objectives of review methodologies.
  - Explain the contribution of external expert
  - Compare the three major review methodologies.

Review Objective

- The review objectives can be divided into two categories which are *Direct Review Objectives* and *Indirect Review Objectives.*
- Direct review objectives deal with the current project.
- Indirect review objectives are more general in nature, dealing with the contribution to member knowledge and improvement of the development methodologies applied by the organization.

Objective of review

- Direct Objective
  - To detect analysis and design errors as well as subjects where corrections, changes and completions are required
  - To identify new risks likely to affect the project.
  - To locate deviations from templates, style procedures and conventions.
  - To approve the analysis or design product. Approval allows the team to continue on to the next development phase.

Objective of review

- *Indirect objectives*
  - To provide an informal meeting place for exchange of professional knowledge about methods, tools and techniques.
  - To record analysis and design errors that will serve as a basis for future corrective actions.

Review methods

- Formal design reviews
- Peer reviews (inspection and walkthroughs)
- Expert opinions

Formal Design Review (DRs)

- Variously called “design review”, “DRs” and “formal technical review (FTR)”.
- Different with other reviews where these are the only reviews that are necessary for approval of the design product.
- Without this approval, the development team cannot continue to the next phase.
- Conducted at any development milestone requiring completion of analysis or design document.

Common FTRs

- DPR – Development Plan Review
- SRSR – Software Requirement Specification Review
- PDR – Preliminary Design Review
- DDR – Detailed Design Review
- DBDR – Data Base Design Review
- TPR – Test Plan Review
- STPR – Software Test Procedure Review
- VDR – Version Description Review
- OMR – Operator Manual Review
- SMR – Support Manual Review
- TRR – Test Readiness Review
- PRR – Product Release Review
- IPR – Installation Plan Review

Participants in a DR

The choice of appropriate participants is of special importance because of their power to approve or disapprove a design product

- Review leader

  Because review leader is a major factor affecting the DR's success, certain characteristic are to be looked for this position:-

  - Knowledge and experience in development of projects of the type reviewed.
  - Seniority at a project level is similar if not higher than that of the project leader.
  - A good relationship with the project leader and his team.
  - A position external the project team

  Therefore, example of the candidate will be development department's manager, chief software engineer, leader of another project, head of software quality assurance unit.

Participants in a DR

- Review team

  Should be selected amongst the
  - Senior members of the project team
  - Customer-user representatives
  - Software development consultant
  - Recommended for non-project staff to make up majority of the review team.

  Three to five members of proper diversity are sufficient for efficiency.

Preparation for DR

- Review leader preparations
  - Appoint team members
  - Schedule the review sessions
  - Distribute design document among the team members
- Review team preparations
  - Review design document
  - List their comments prior to the review session
- Development team preparations
  - Prepare short presentation of the design document, focusing on main issues awaiting approval
- It is important that review session be scheduled shortly after the design document has been distribute to the review team members. Because to reduce the risk of going off schedule.

DR Session

1. A short presentation of the design document.
2. Comments made by members of the review team.
3. Verification and validation of comments is discussed to determine the required action items (corrections, changes and additions).
   - Verification:- Process of evaluating a system or component to determine whether the product of a given development phase satisfies the condition imposed at the start of the phase.
   - Validation:- Process of evaluating a system or component during or at the end of the development process to identify whether it satisfies specified requirements.

DR Session

4. **Decisions about the design product (document), which determines the project's progress:**
   - *Full approval*

     Enables immediate continuation to the next phase of the project.
   - *Partial approval*

     Approval of immediate continuation to the next phase for some parts of the project with major action items (corrections, changes) needed for other parts.
   - *Denial of approval*

     Demands a repeat of the DR. This decision is applied in case of multiple major defects or critical defects.

Post-review activities

DR Report

- One of the review leader responsibilities is to issue the DR report after review session.
- Early distribution enables the development team to perform the corrections earlier and minimize the delays of the project schedule.

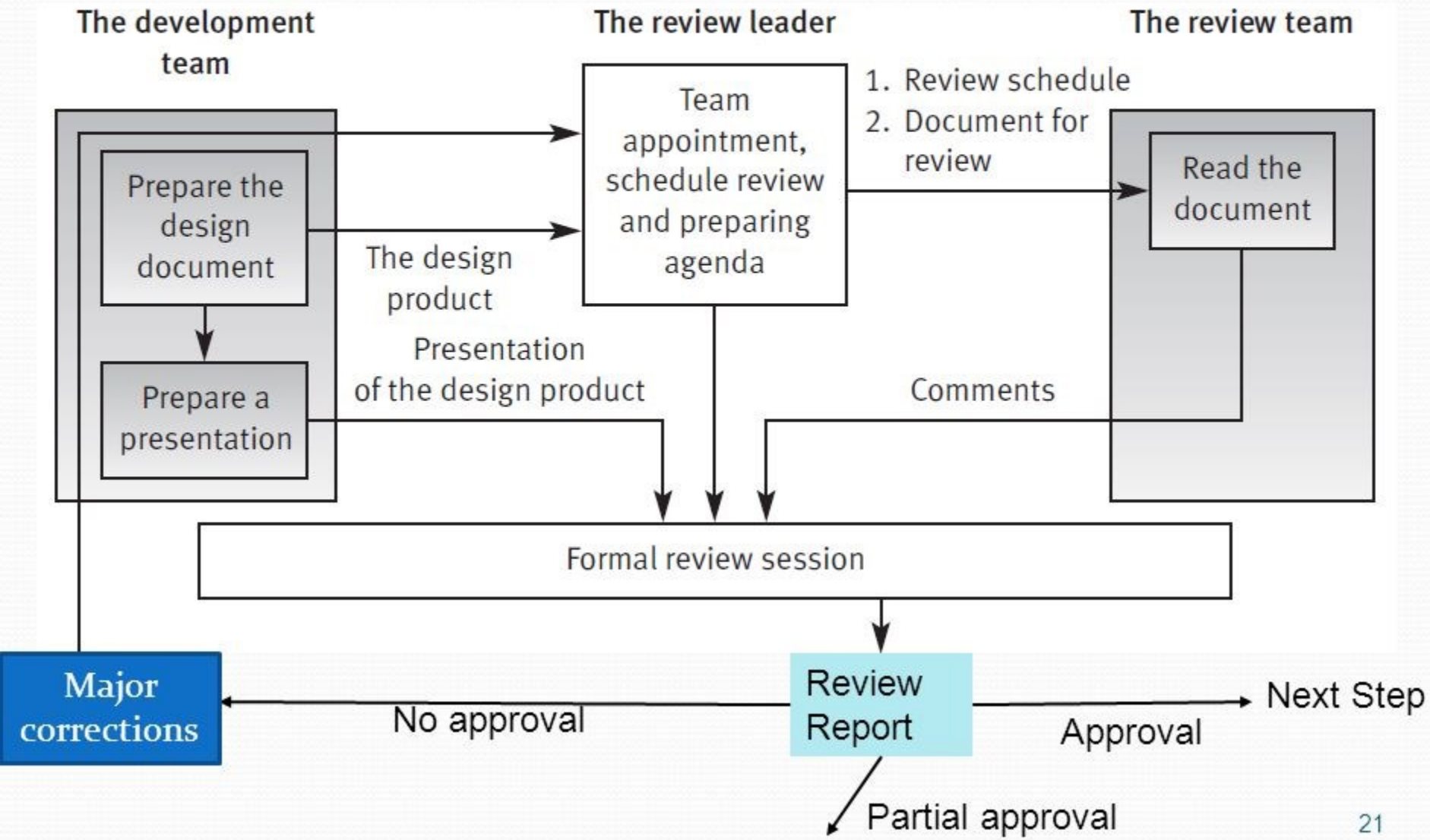
Report major sections contain:-

- Summary of the review discussions
- Decision about continuation of the project
- Full list of the required actions
- Name of the review team members assigned to follow up corrections performance

Post-review activities

Apart from DR report, the DR team is required to follow up performance of the corrections and check the corrected session.

Design Review process



Peer Review

- Two peer review method
  1. Inspection
  2. Walkthrough
- Major difference between formal design and peer review is their participant and authority.
- Participants
  - DR participants are superior in positions to the project leader and customer representative.
  - Participant in peer review are project leader, member of the department and other unit.
- Degree of authority and objective review method
  - Formal design review are authorized to approve the design document.
  - This authority is not granted in peer review which the main objective for peer review is detecting errors.

Peer Review

- Difference between inspection and walkthrough
  - Inspection is more formal than walkthrough
  - Inspection emphasizes the objective of corrective action
  - Walkthrough are limited to comments on the document review.

Peer Review

- It is commonly recommended to avoid any discussion about solutions during the inspection session.
  - – It saves the inspection team's time.
  - – It avoids the team's inability to complete the session's planned agenda.

Inspection vs Walkthrough

Properties	*Inspection*	*Walkthrough*
Overview meeting	*Yes*	*No*
Participant's	*Yes - thorough*	*Yes - brief*
Review session	*Yes*	*Yes*
Follow-up of	*Yes*	*No*
Formal training of	*Yes*	*No*
Participant's use of	*Yes*	*No*

Inspection vs Walkthrough

Inspection

- Review leader (moderator)
- The author
- Specialized professionals:
  - Designer
  - Coder or implementer
  - Tester

Walkthrough

- Review leader (coordinator)
- The author
- Specialized professionals:
  - Standards enforcer
  - Maintenance expert
  - User representative

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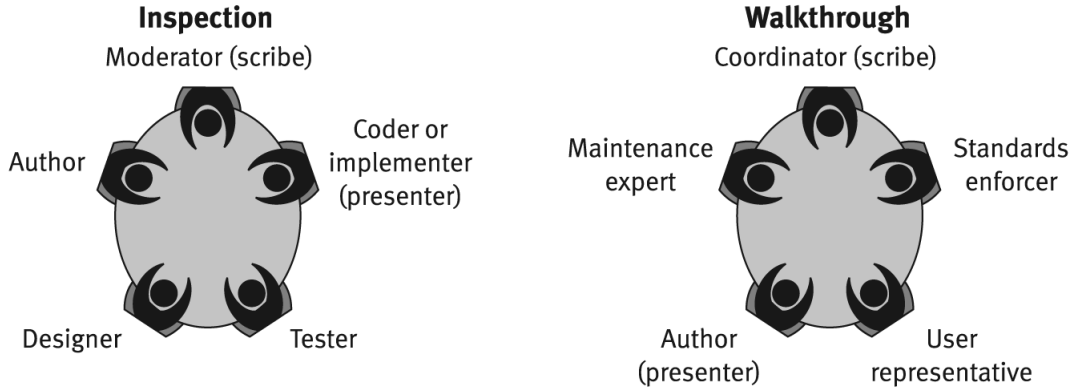
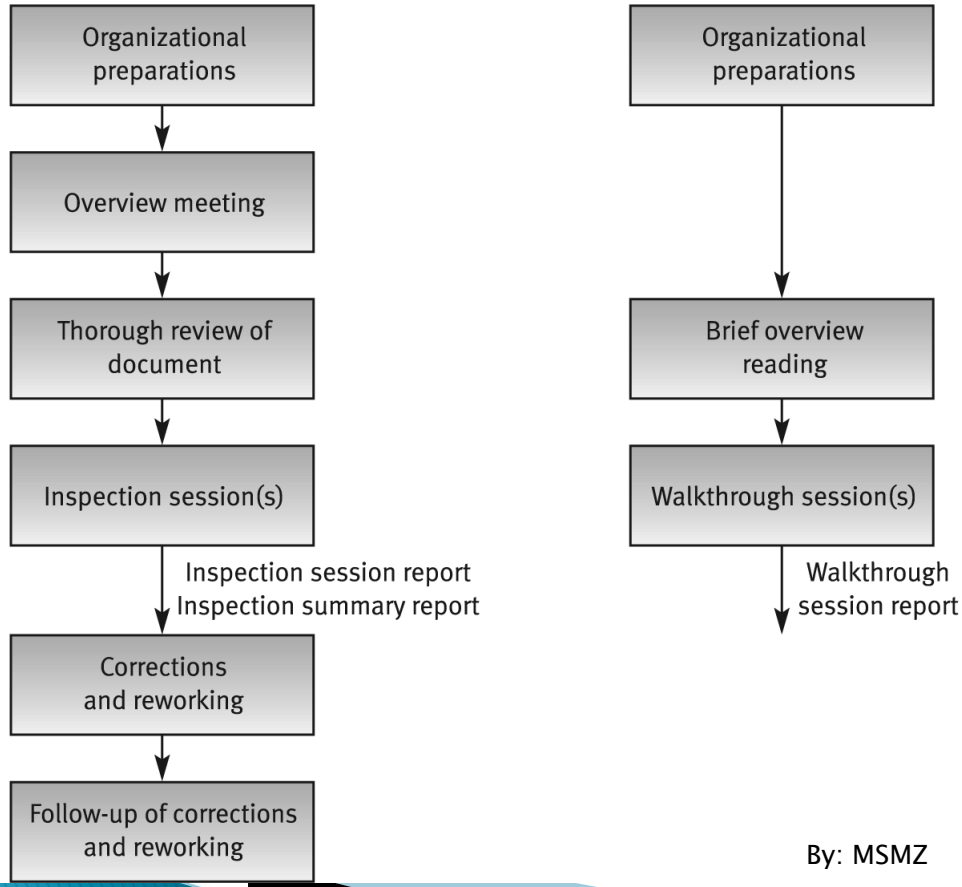
PARTICIPANTS



PROCESS



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Comparison

Properties	Design review	Inspection	Walkthrough
Overview meeting	**No**	**Yes**	**No**
Participant's preparations	**Yes - thorough**	**Yes - thorough**	**Yes - brief**
Review session	**Yes**	**Yes**	**Yes**
Follow-up of corrections	**Yes**	**Yes**	**No**
Formal training of participants	**No**	**Yes**	**No**
Participant's use of checklists	**No**	**Yes**	**No**
Error-related data collection	Not formally required	Formally required	Not formally required
Review documentation	Formal design review report	**1)** Inspection session findings report **2)** Inspection session summary report	

Code Inspection effectiveness at Fujitso (Cusumano)

Year	Defect detection method			Defects per 1000 lines of maintained code
	Test %	Design review %	Code inspection %	
1977	85	---	15	0.19
1978	80	5	15	0.13
1979	70	10	20	0.06
1980	60	15	25	0.05
1981	40	30	30	0.04
1982	30	40	30	0.02

Expert Opinion

- Task:-
  - Preparing expert judgment about document.
  - Participating as a member of internal design review, inspection or walkthrough team.

- Will give more advantage in the following four situations:
  - Insufficient in-house professional capabilities in specialized area
  - Lack of in-house professional due to workload pressures.
  - In small organizations, where the number of suitable candidates for review team is insufficient.
  - Indecisiveness caused by major disagreements among the organization's senior professional

THANK YOU

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