

Software Reviews



Outline:

- **Reviews**
- **Desk Checks**
- **Buddy Checking**
- **Walkthroughs**
- **Inspections**
 - **Fagan Inspection**
 - **Gilb Inspection**

Reviews:

A process or meeting during which a work product, or a set of work products, is presented to project personnel, managers, users, customers, or other interested parties for comment or approval.

(IEEE)



Reviews:

- A technical assessment of a work product created during the software engineering process.
- A meeting conducted by technical people for technical people to evaluate a work product.



Why Reviews?

- **To err is human.**
- **Lots of errors escape the originator more easily than anyone else.**
- **Reviews are educational.**

Purpose of Reviews:

The primary function is to use the skill of a group of people to:

- Identify needed improvements
- Certify correctness
- Encourage uniformity
- Enforce subjective rules

Other Objectives of Reviews:

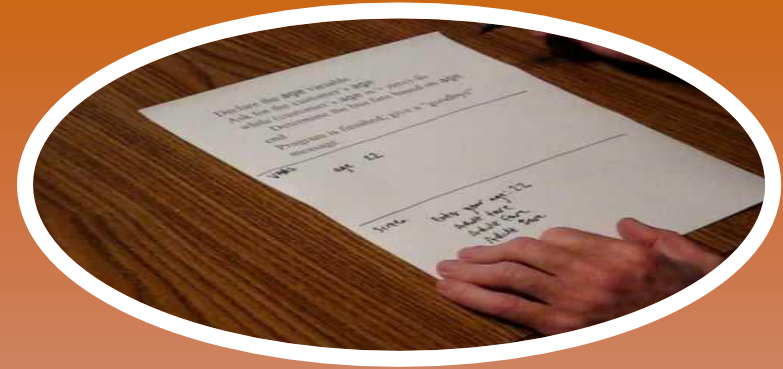
The secondary functions of reviews include:

- **Communication**
- **Milestone**
- **Visibility to management**

Types of Reviews:

- **Desk Checks**
- **Buddy Checking**
- **Walkthroughs**
- **Inspections**

Desk Checks:



- **Reviewing your own work.**
- **The intention is to find the defects by the creator himself/herself.**
- **Checklists can be helpful.**
- **Code Reviews, Design Reviews are examples of Desk Checks.**

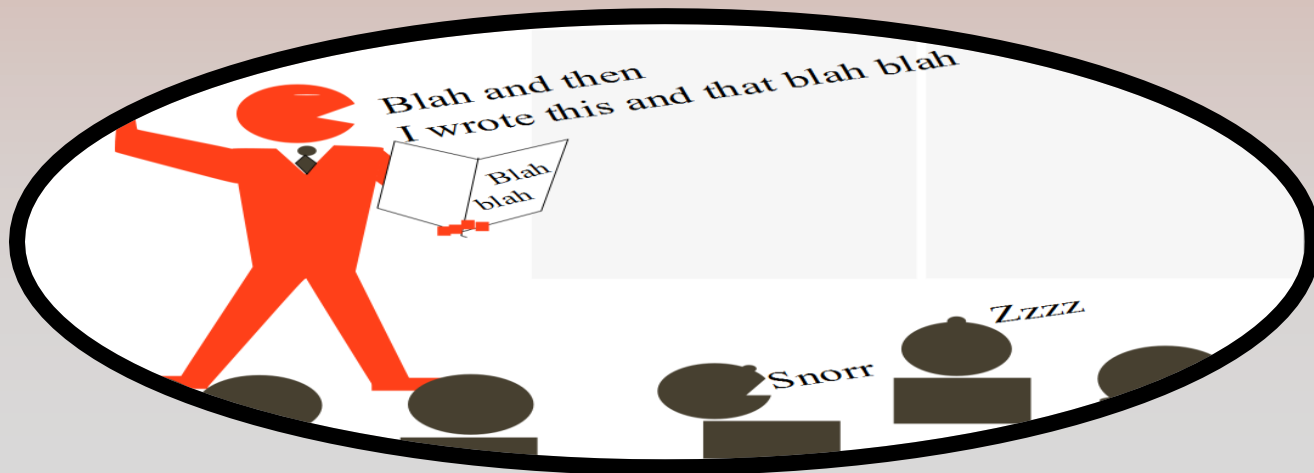
Buddy Checking:

- **A person other than the author informally review a piece of work.**
- **Generally does not require collection of data.**
- **Difficult to put under managerial control**
- **Generally does not involve the use of checklists to guide inspection and is therefore not repeatable.**



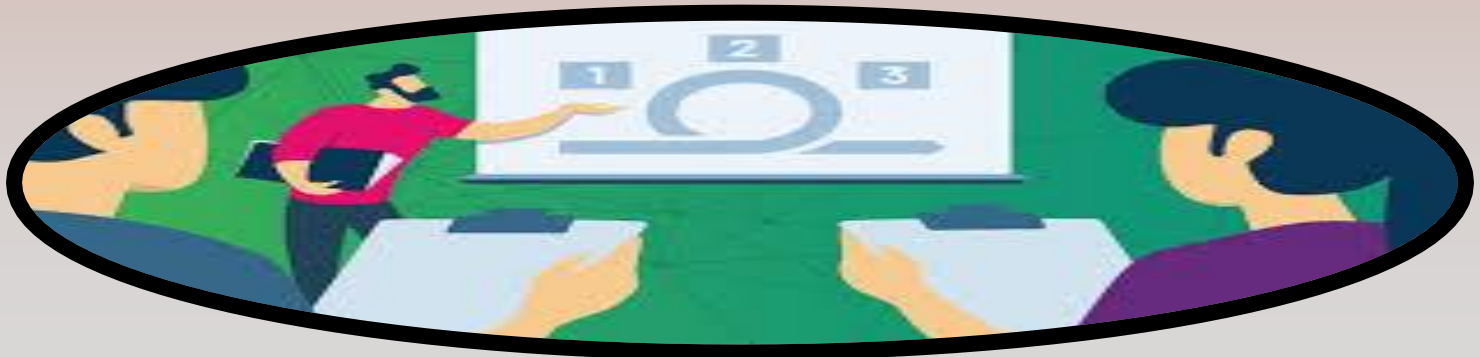
Walkthroughs:

- Author of an artifact presenting a document or program to an audience of their peers.
- The audience asks questions and makes comments on the artifact being presented in an attempt to identify defects.
- Often break down into arguments about an issue.
- Also known as “**Team Debugging**” or “**Peer Reviews**”.

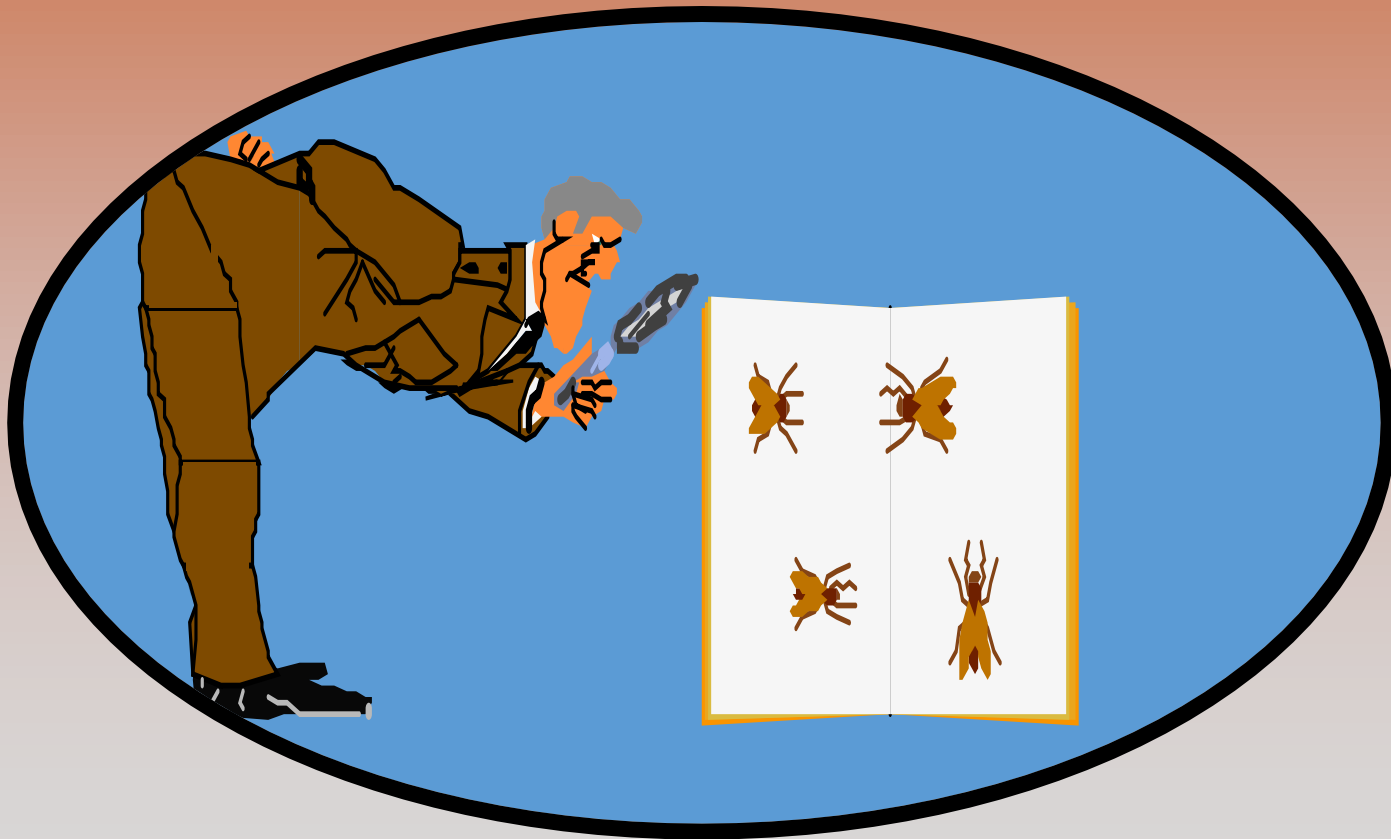


Walkthroughs:

- Minimal documentation of the process and of the issues found.
- Process improvement and defect tracking are therefore not easy.
- More work for presenter.
- May be difficult to control interactions.
- No prior preparation on behalf of the audience.



Inspections



Inspections

- A formal evaluation technique in which software requirements, design or code are examined in detail by a person or group other than the author to detect faults, violations of development standards, and other problems.

(IEEE)

- *A highly structured, clearly defined process by which software documents are reviewed in detail by a team including the author and, ideally, the customer.*

Inspections:

- Formally structured and managed peer review processes.
- Involve a review team with clearly defined roles.
- Specific data is collected during inspections.
- Inspections have quantitative goals set .



Inspections Rolls

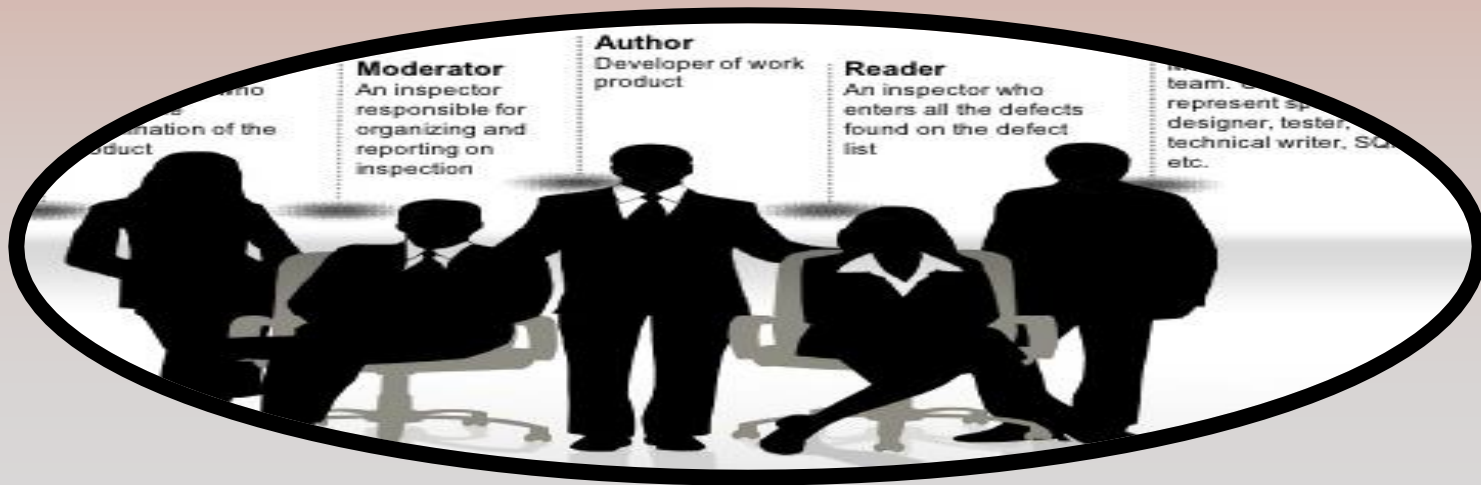
➤ Inspection Leader / Moderator

➤ Author / Producer

➤ Inspector / Reviewer

➤ Recorder / Scribe

** IEEE-1028-1997 establishes five rolls for the Inspection (Reader).*



Inspections Team: Moderator

- **Manages the entire Process**
- **Manages the inspection meeting**
 - **Discussion leader? Facilitator?**
 - **Controls order of participation**
- **Is technically competent.**
- **Stimulates participation of all team members.**
- **Consensus driver (defect, and where, or ...)**
- **Ensures that team follows inspection process.**



Inspections Team: Author

- **Originator of work product being inspected**
- **Has vested interest in ensuring that all defects are found.**
- **Provides inspection team with overview of work product.**
- **Actively participates in Inspection Meeting.**
- **Confirms reader and tester understanding.**



Inspections Team: Reviewer

- Recipient of work product being inspected
- Obtains complete understanding of the document
- Determines the path to be followed through the document
- Paraphrases and interprets the document



Rules for Reviewers:



1. **Well prepared**
2. **Evaluate product, not people**
3. **Courteous language**
4. **When you are shown to be wrong, forget it**
5. **Raise issues, don't resolve them**
6. **Record all issues in public**
7. **Stick to technical issues**

Inspections Team: Recorder :

- Provide info for accurate report of review.
- Short, public notes.
- Capture essence of each issue.
- Must ensure group has reached conclusion.
- Don't video tape.



Inspection Constraints

- Maximum time allotted for the inspection meeting is 2 hours
- Over and above the four roles described, two additional *“INSPECTORS”* may participate; all must prepare and participate, usually as
 - Reader (perhaps diagram interpreter)
 - Tester (with special focus)
- Maximum of 6 participants allowed in inspection meeting.
- Management is not invited.



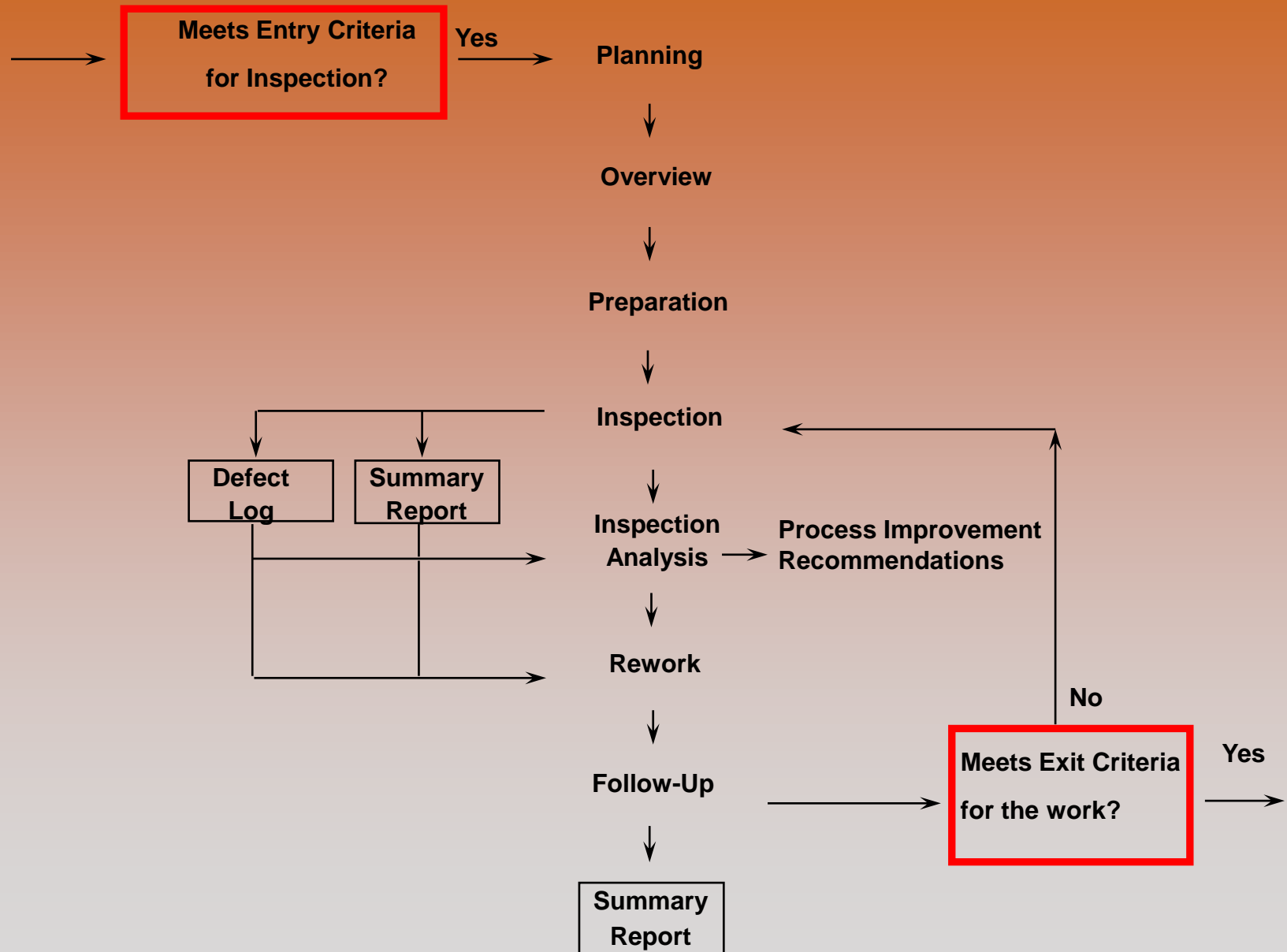
Fagan Inspections



Fagan Inspections:

- **Michael Fagan divided the inspection process into seven steps:**
 - 1. Planning**
 - 2. Overview**
 - 3. Preparation**
 - 4. Inspection**
 - 5. Inspection Analysis**
 - 6. Rework and**
 - 7. Follow-up**

Fagan Inspections



The Seven Step Inspection Process

1. Planning

- Materials meet inspection entry criteria
- Assign Inspector roles
- Schedule meeting time/place for steps 2, 4 & 5

2. Overview

- Educate inspection team. Provide work product background, context, rationale

3. Preparation

- Prepare to fulfill role
- Completely understand document from role's perspective

4. Inspection

- Identify, classify and record defects
- No solutions or improvements

The Seven Step Inspection Process:

5. Inspection Analysis

- Review/analyze inspection steps 1 - 5 for improvement
- Identify defect causes
- Recommend process improvements

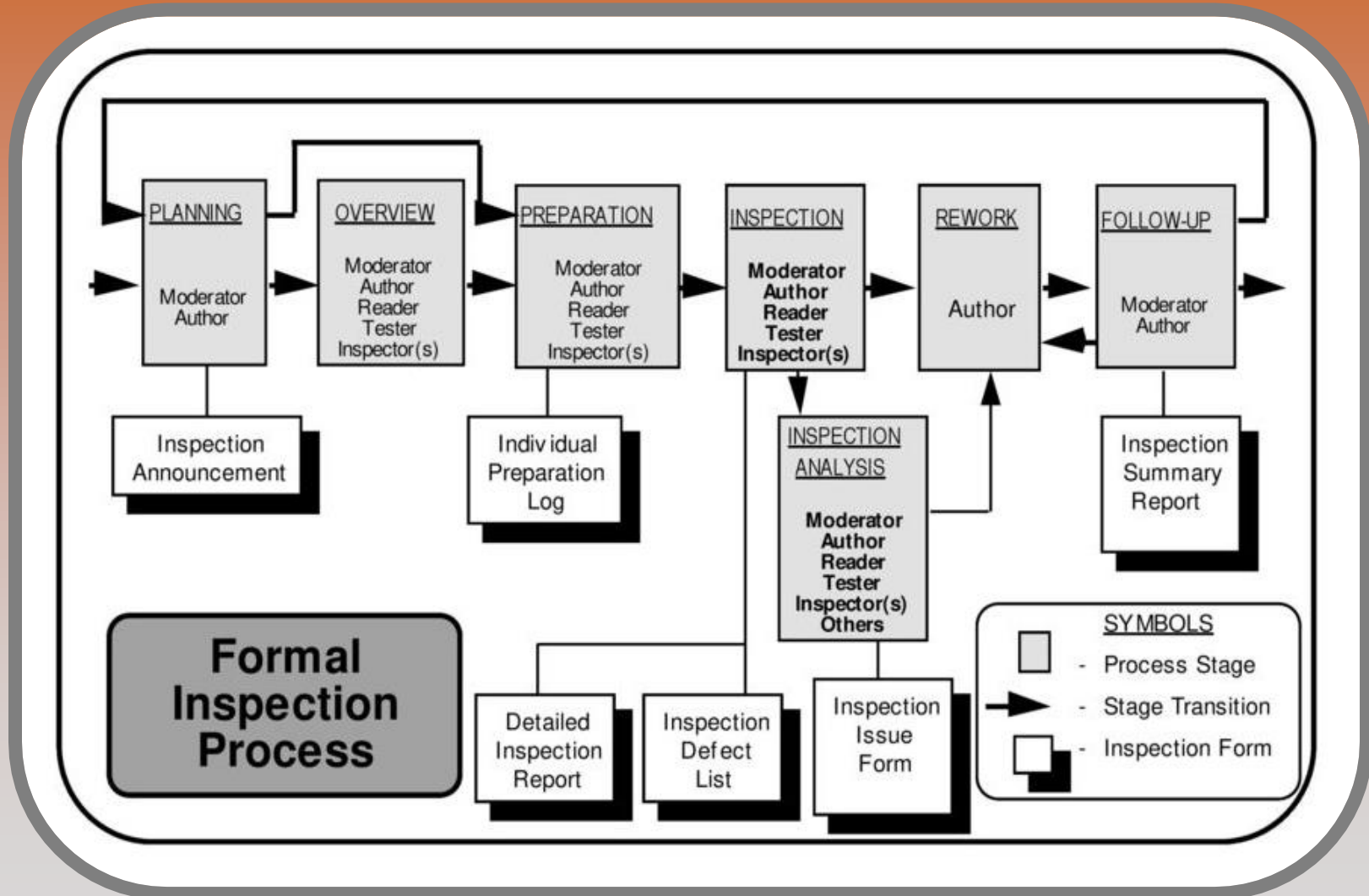
6. Rework

- Correct ALL defects

7. Follow-up

- Ensure all defects identified are corrected
- Ensure no new defects are introduced

Inspection Process & People:

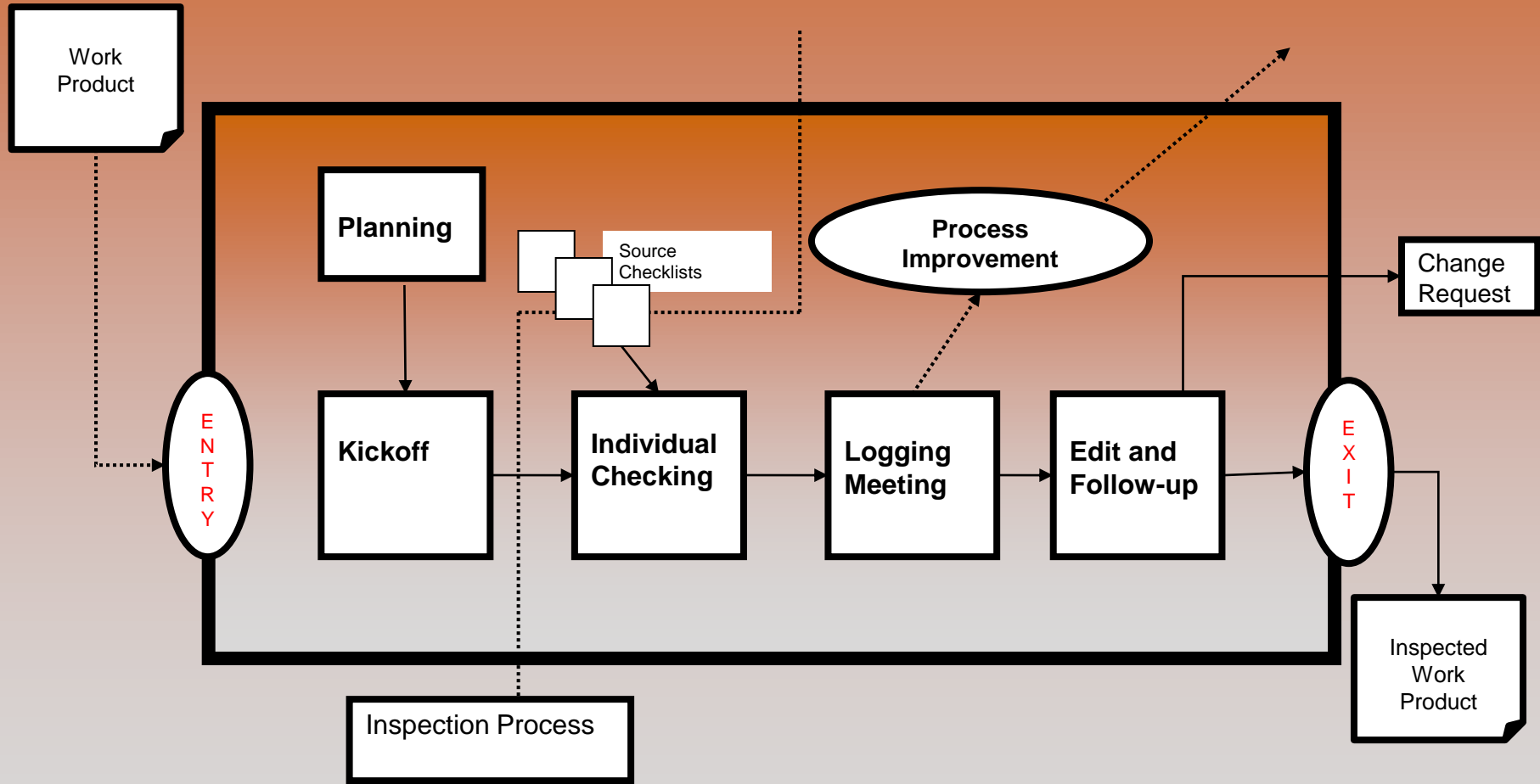


Gilb and Graham Inspection

Gilb and Graham Inspection:

- **Gilb and Graham [GilbGraham93] divide inspection process into the following inspection steps:**
 - 1. Entry**
 - 2. Planning**
 - 3. Kickoff Meeting**
 - 4. Individual Checking**
 - 5. Logging Meeting**
 - 6. Edit**
 - 7. Follow Up**
 - 8. Exit**

Gilb and Graham Inspection Process



Entry

- **The author of the artifact requests that it be inspected.**
- **The artifact to be inspected is checked by the inspection moderator to ensure that certain entry criteria are met.**
- **The primary purpose of this stage is to ensure that inspection time is not wasted on artifacts that contain defects which the author should rightly have found.**

Planning

- The moderator determines the practical aspects of the inspection. This may include:
 - Determining the size and composition of the inspection team.
 - Determining the goals of the inspection.
 - Determine the timing and purpose of the meetings.

Kickoff Meeting

- **Roles for the inspection team are assigned and clarified.**
- **Documents, including the artifact, its source document, the inspection checklist, and inspection rules are distributed and checked**
- **The author(s) of the artifact may be required to give a quick walkthrough of the artifact to be inspected and its relation to the other documentation.**

Individual Checking

- **The majority of defects found in inspection processes are found in the individual checking stage.**
- **During this stage an individual reviewer reads the artifact and with the guidance of an inspection checklist attempt to find defects in the artifact.**
- **The reviewer should record any issues found.**
- **Determines the severity of defects and classifies the defects.**

Logging Meeting

- **A planned and moderated meeting with the primary purpose of logging the issues found by the reviewers.**
- **All reviewers should be given a chance to raise their issues as a scribe logs the issues being raised**
- **It is important that an issue is only logged once.**
- **Moderator should ensure that discussion about issues is kept to a minimum in order to maintain the continuity of the meeting.**
- **Some variations of this process include group defect finding as an activity at the end of this meeting**

Edit

- **The editor (usually the author) is responsible for addressing all logged issues in the inspected artifact.**
- **The editor decides if something is a defect or not.**
- **All defects must be corrected.**
- **All non-defects should also be addressed in some way.**

Follow Up

- Moderator checks that all defects have been addressed.
- Moderator must also ensure that any defects found in a source document during inspection are forwarded to the owner of that document for correction.
- Moderator may calculate certain metrics in this stage to be analyzed to assess the effectiveness of an inspection.
- May also be used to hold a meeting to evaluate and recommend inspection process improvement.

Exit

- An inspection will be exit when pre-defined set of inspection exit criteria have been satisfied.

Inspection Exit Criteria

- *All issues raised were addressed*
- *Changes made were made correctly*
- *Revised document spell-checked*
- *All TBDs closed*
- *Document “baselined” (entered into configuration management system)*

Thank You!