

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:

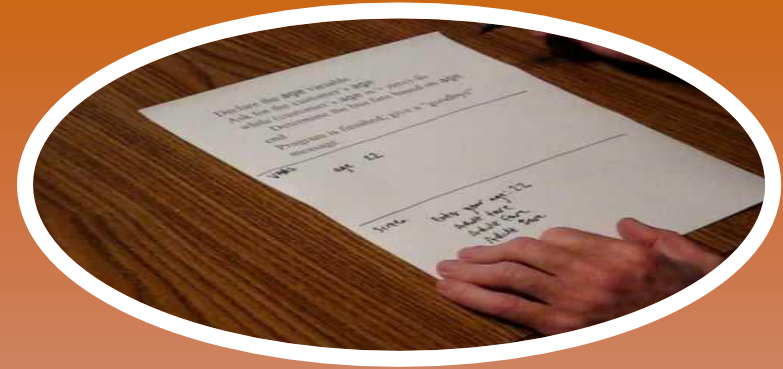
The secondary functions of reviews include:

- **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.**

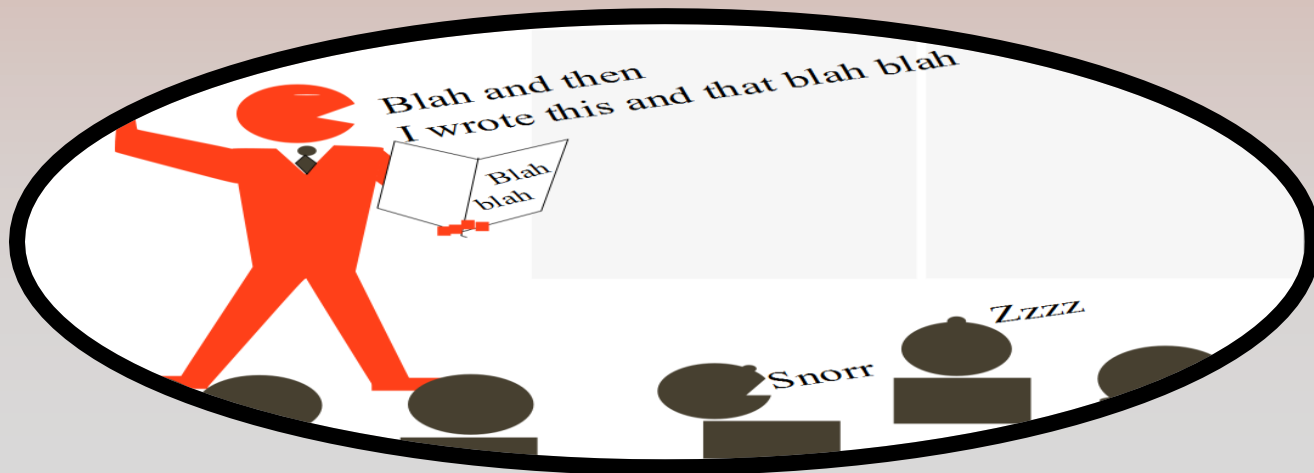
Buddy Checking:

- **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**”.

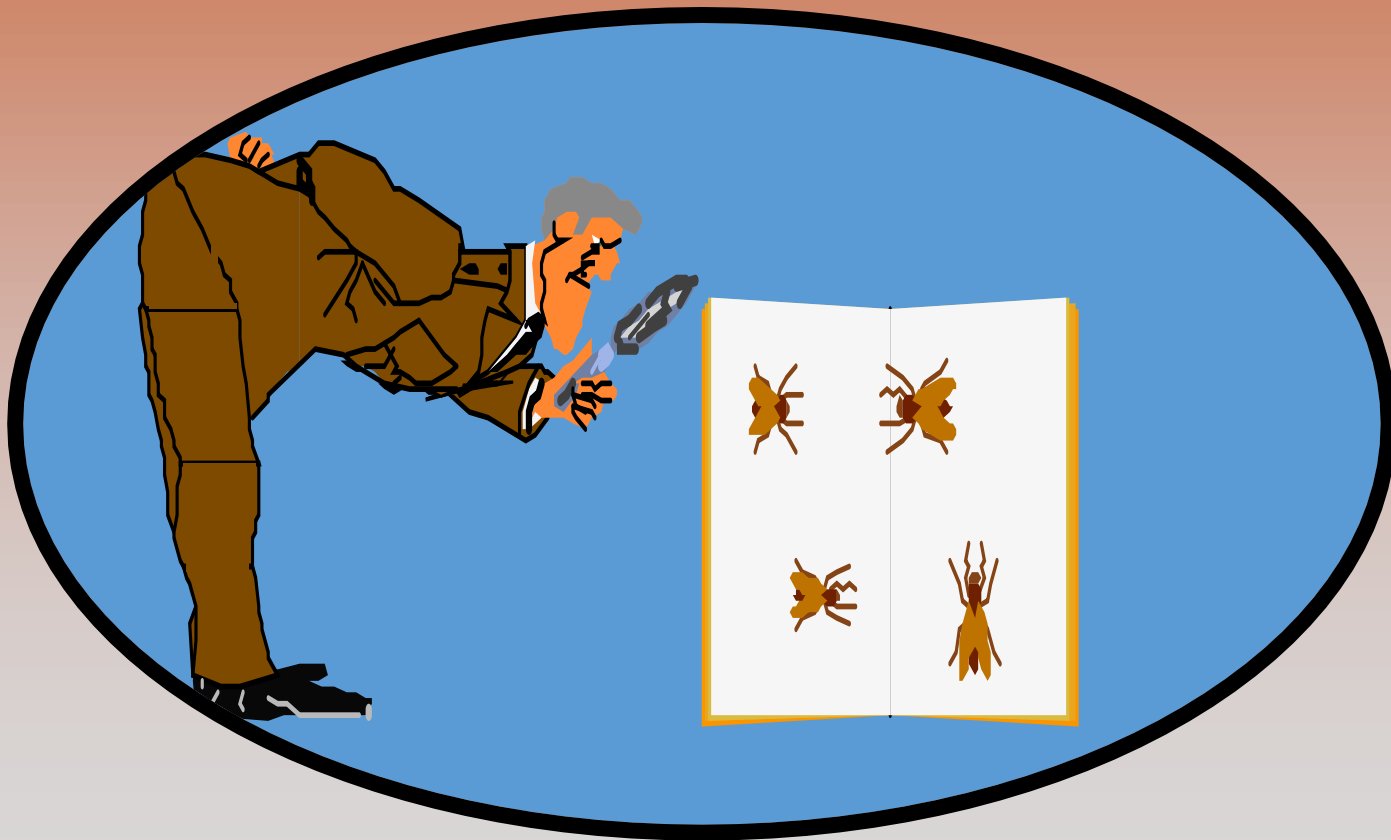


Walkthroughs:

- 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

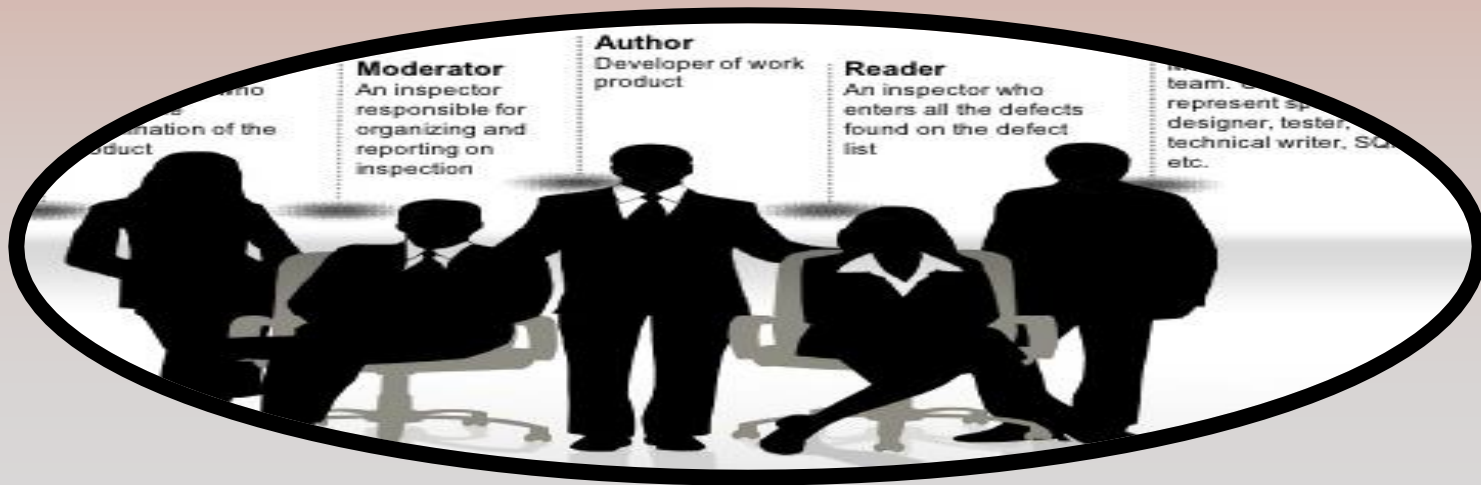
➤ Inspection Leader / Moderator

➤ 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.



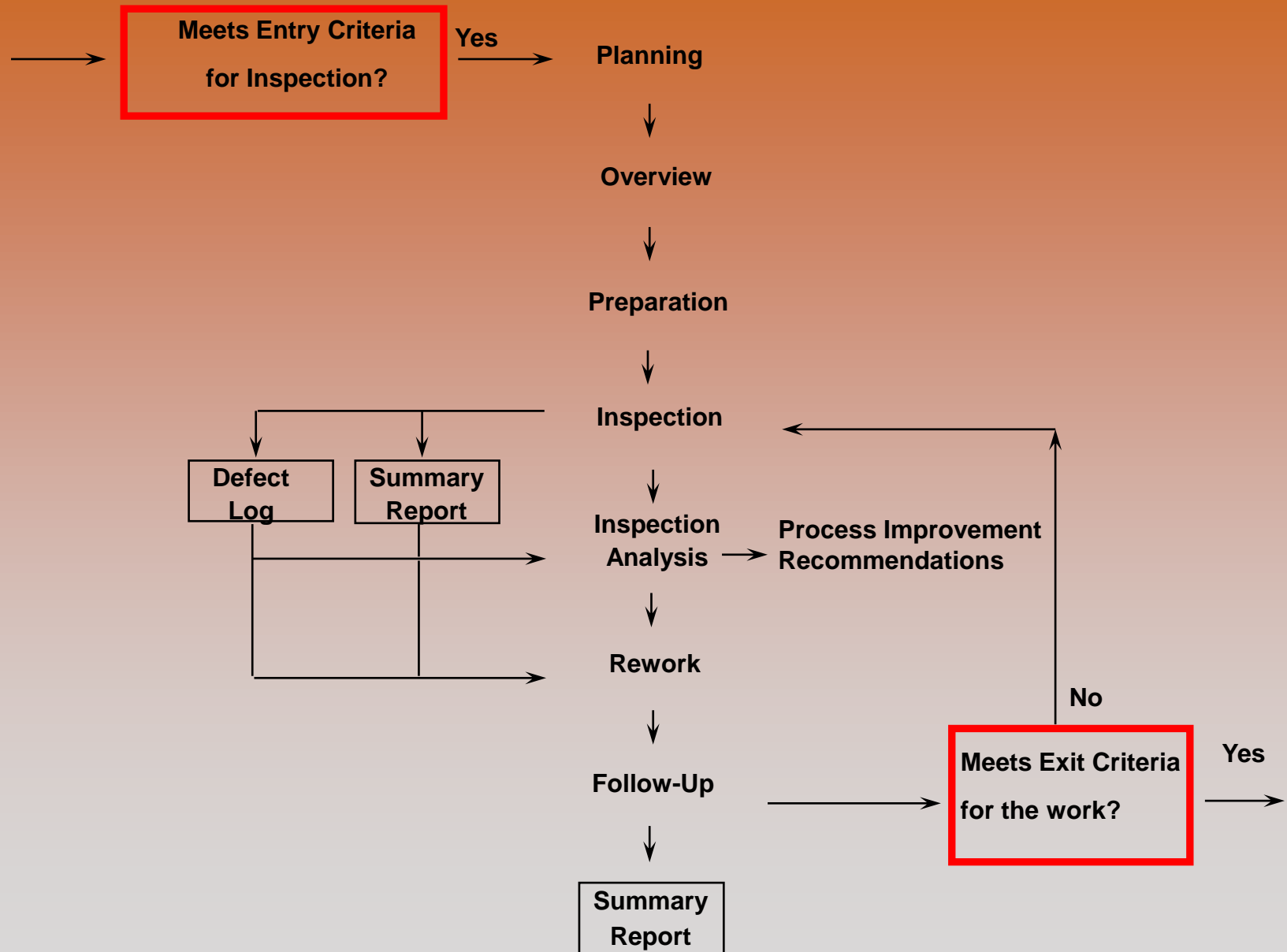
Fagan Inspections



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

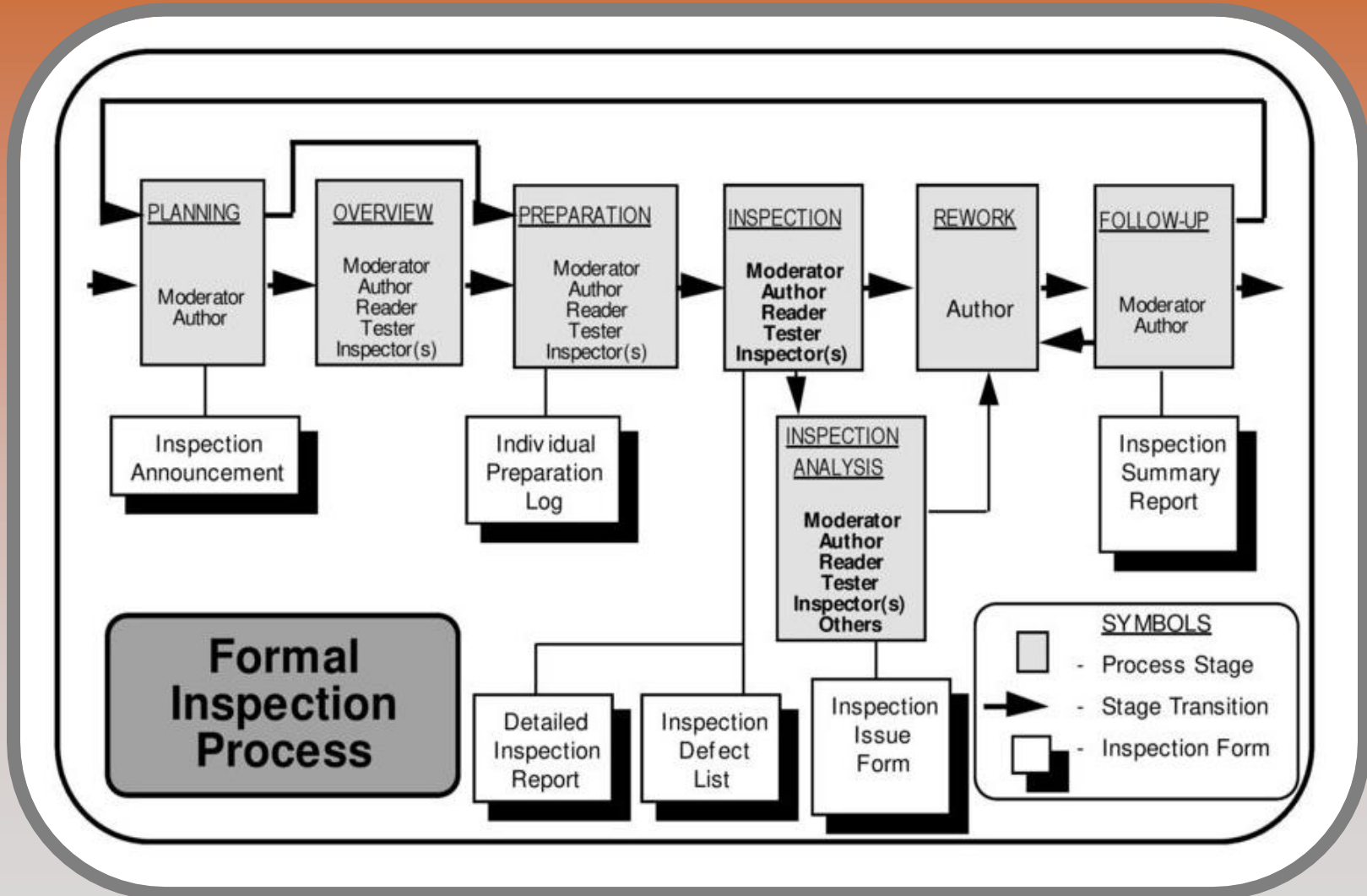
6. Rework

- Correct ALL defects

7. Follow-up

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

Inspection Process & People:

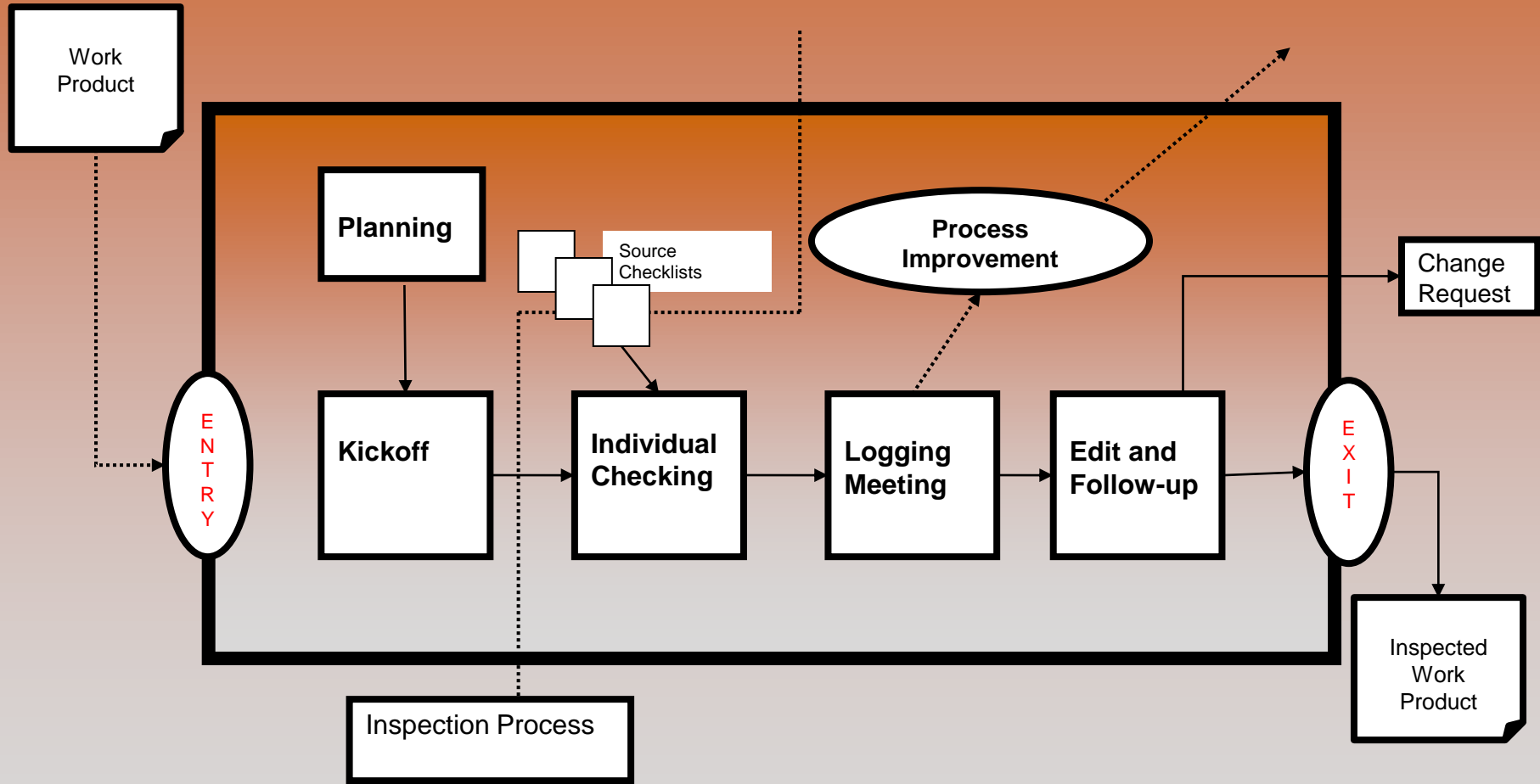


Gilb and Graham Inspection

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!