

# Procedures and Work Instructions

Week 11, Session 1



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# Objectives

- Explain the contribution of procedures to software quality assurance
- Explain the difference between procedures and work instructions
- List the activities involved in maintaining an organization's procedures manual.

# Topic Coverage

- The need for procedures and work instructions
- Procedures and procedure manuals
- Work instructions and work instruction manuals
- The organizational framework for preparing, implementing and updating procedures and work instructions.

# Software Quality Infrastructure

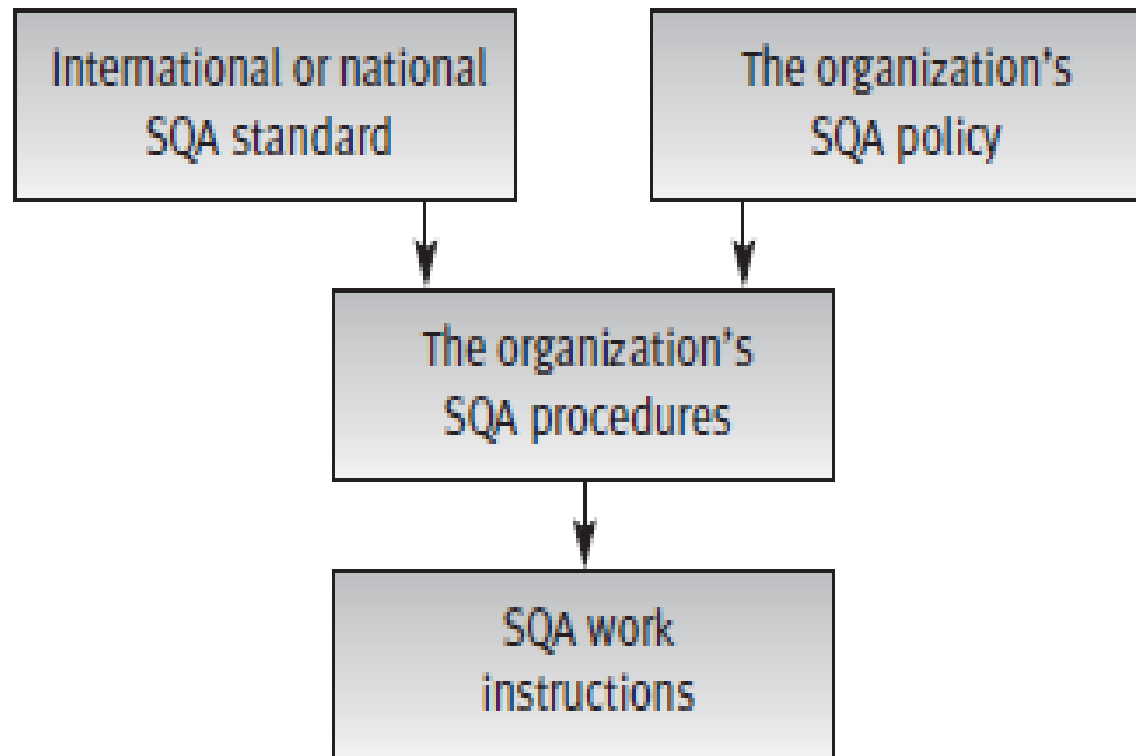
What are typical infrastructure components?

- Procedures and work instruction
- Quality support devices like templates and checklists
- Staff SQA training and certification activities
- Preventive and corrective actions
- Software configuration management
- Documentation and quality records control.

# The need for procedures and work instructions

- “Why should we use SQA procedures and work instructions?”
- “Wouldn’t it be better if every professional relied on his own experience and performed his task the best way he knows?”
- “What are the benefits to the organization of forcing me to perform a task only in the way chosen by them?”

# Procedures and Work Instructions



**Figure 14.1:** A conceptual hierarchy for development of procedures and work instructions

# Procedures and Work Instructions

- **Procedure:**
  - Detailed activities or processes to be performed according to a given method for the purpose of accomplishing a task
  - Tend to be universal within the organization → they are applied whenever the task is performed (irrespective of the person or the organizational context)
- **Work Instruction:** is a supplement to a procedure → providing explicit details that are suitable solely to the needs of one team/department/unit

# Procedures and Work Instructions

- SQA procedures are required to conform to the organization's quality policy but also tend to conform to international or national SQA standards → ISO 9000-3 (ISO, 1997; ISO/IEC, 2001)



# Procedures and Work Instructions

- Aiming at:
  - Performance of tasks, processes or activities in the most effective and efficient way without deviating from quality requirements.
  - Effective and efficient communication between the separate staffs involved in the development and maintenance of software systems.
  - Uniformity in performance, achieved by conformity with procedures and work instructions, reduces the misunderstandings that lead to software errors.
  - Simplified coordination between tasks and activities performed by the various bodies of the organization. Better coordination means fewer errors.

# Procedures

- **The Five W's: issues resolved by procedures**
  - **W**hat activities have to be performed?
  - Ho**W** should each activity be performed?
  - **W**hen should the activity be performed?
  - **W**here should the activity be performed?
  - **W**ho should perform the activity?

# Procedures Manual

- The collection of all SQA procedures is usually referred to as the *SQA procedures manual*. Usually contains:
  - Type of sw development and maintenance activities carried out by the organization
  - Range of activities belong to each activity type
  - Range of customers

- 1 Introduction \*
- 2 Purpose
- 3 Terms and abbreviations \*
- 4 Applicable documents
- 5 Method
- 6 Quality records and documentation
- 7 Reporting and follow-up \*
- 8 Responsibility for implementation \*
- 9 List of appendices \*

Appendices \*

\* Sections included only if applicable

# Work Instructions and Work Manuals

- Work instructions deal *with the application of procedures*, adapted to the requirements of a specific project team, customer, or other relevant party.

**Departmental work instructions**

- Audit process for new software development subcontractors (supplier candidates)
- Priorities for handling corrective maintenance tasks
- Annual evaluation of software development subcontractors
- On-the-job instructions and follow-up for new team members
- Design documentation templates and their application
- C++ (or other language) programming instructions

**Project management work instructions**

- Coordination and cooperation with the customer
- Weekly progress reporting by team leaders
- Special design report templates and their application in the project
- Follow-up of beta site reporting
- Monthly progress reporting to the customer
- Coordination of installation and customer's team instructions

# Updating Procedures

The motivation to update existing procedures is based, among other things, on the following:

- Technological changes in development tools, hardware, communication equipment, etc.
- Changes in the organization's areas of activity
- User proposals for improvement
- Analysis of failures as well as successes
- Proposals for improvements initiated by internal audit reports
- Learning from the experience of other organizations
- Experiences of the SQA team

# References

- Galin, Daniel. Software Quality Assurance. *From theory to implementation.* Procedures and Work Instructions, Chapter 14.