SOFTWARE ENGINEERING

Process Framework

IEEE Standard 610.12-1990

- **Software Engineering:** Systematic, disciplined and quantifiable approach to the development, operation, maintenance and refinement of software.

Layered Technology

Quality Focus

- Correctness of the functions required to be performed by the software.
- Maintainability of the software
- Integrity i.e. providing security so that the unauthorized user cannot access information or data.
- Usability i.e. the efforts required to use or operate the software.

Process

- It is the base layer or foundation layer for the software engineering.
- The software process is the key to keep all levels together.
- It defines a framework that includes different activities and tasks.
- In short, it covers all activities, actions and tasks required to be carried out for software development.

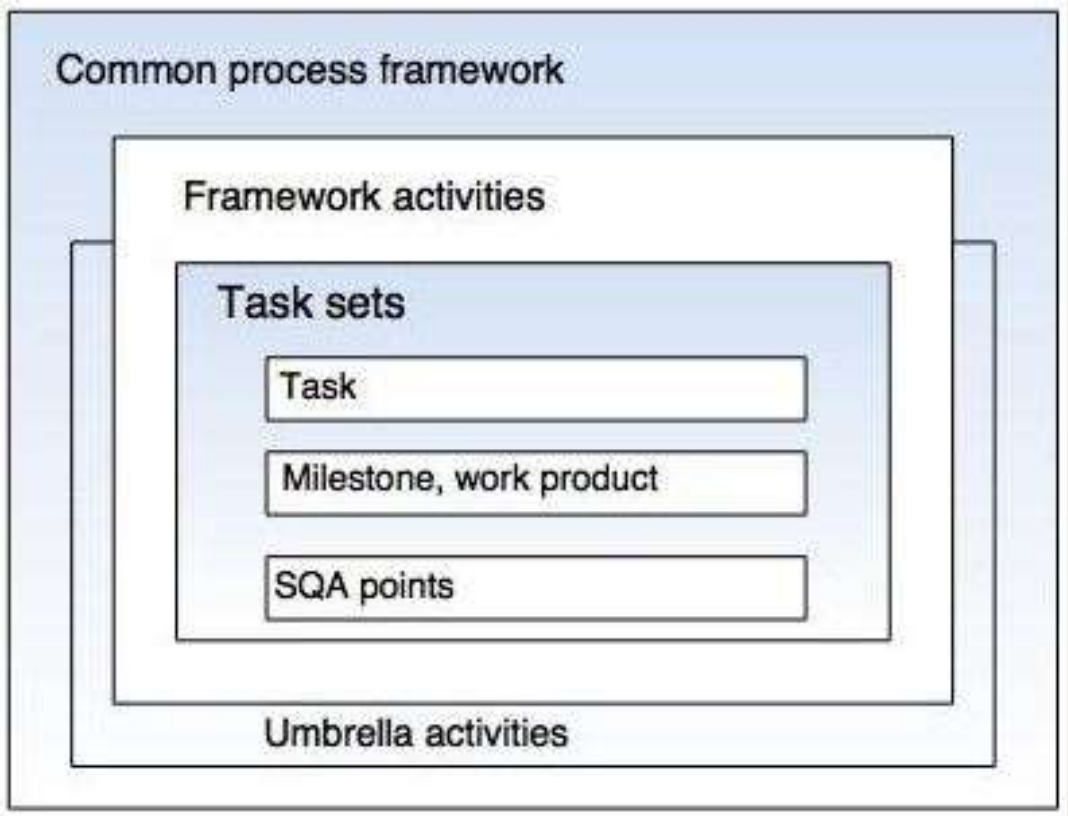
Methods

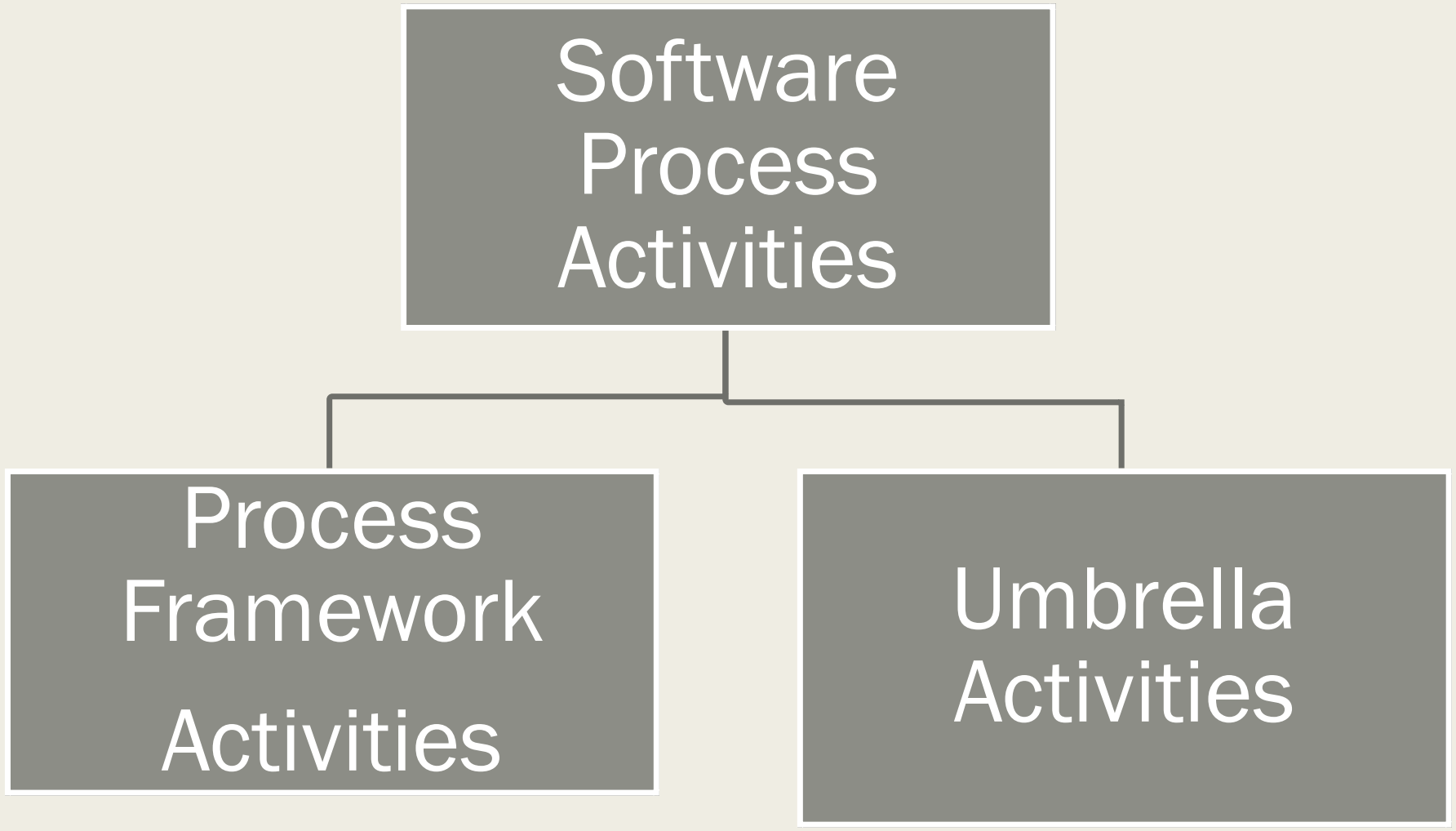
- The method provides the answers of all 'how-to' that are asked during the process.
- It provides the technical way to implement the software.
- It includes collection of tasks starting from communication, requirement analysis, analysis and design modelling, program construction, testing and support.

Tools

- The software engineering tool is an automated support for the software development.
- The tools are integrated.
- **For example:** The Microsoft publisher can be used as a web designing tool.

Process Framework




Software Process Activities
Process Framework Activities
Umbrella Activities

Process Framework

1. Communication
2. Planning
3. Modeling
4. Construction
5. Deployment.

Umbrella Activities

1. Software project tracking and control
2. Risk Management
3. Software Quality Assurance (SQA)
4. Formal Technical Reviews
5. Measurement
6. Software Configuration Management (SCM)
7. Reusability Management
8. Work product preparation and production

Software project tracking and control

- In this activity, the developing team accesses project plan and compares it with the predefined schedule.
- If these project plans do not match with the predefined schedule, then the required actions are taken to maintain the schedule.

Risk Management

- Risk is an event that may or may not occur.
- If the event occurs, then it causes some unwanted outcome. Hence, proper risk management is required.

Software Quality Assurance (SQA)

- SQA is the planned and systematic pattern of activities which are required to give a guarantee of software quality.

  For example, during the software development meetings are conducted at every stage of development to find out the defects and suggest improvements to produce good quality software.

Formal Technical Reviews (FTR)

- FTR is a meeting conducted by the technical staff.
- The motive of the meeting is to detect quality problems and suggest improvements.
- The technical person focuses on the quality of the software from the customer point of view.

Measurement

- Measurement consists of the effort required to measure the software.
- The software cannot be measured directly. It is measured by direct and indirect measures.
- Direct measures like cost, lines of code, size of software etc.
- Indirect measures such as quality of software which is measured by some other factor. Hence, it is an indirect measure of software.

Software Configuration Management (SCM)

- It manages the effect of change throughout the software process.

Reusability Management

- It defines the criteria for reuse the product.
- The quality of software is good when the components of the software are developed for certain application and are useful for developing other applications.

Work product preparation and production

- It consists of the activities that are needed to create the documents, forms, lists, logs and user manuals for developing a software.

Thank you