Tools

Software Metrics

- Measurements – allows us to detect problems early on in the software life-cycle, i.e., milestones. Missed major milestones are usually an indicator that something is amiss in the project.
- Metrics can serve as an early warning system for potential problems.
- Many different metrics have been suggested depending on product and goals.
- Five fundamental software metrics:
    - Size (LOC – lines of code)
    - Cost (monetary)
    - Duration (usually in months)
    - Effort (in person-months)
    - Quality (number of faults detected over a particular time period)

Software Versions

- Once a product has been delivered there will be at least 2 versions
    - The version delivered to the customer
    - The version the developers are currently working on.
- Also, sometimes the same functionality has to be implemented slightly differently in order to support different platforms/devices; this gives rise to variations.

    example: different printer drivers.
- Most organizations use a version control system such as CVS or ClearCase in order to manager software versions effectively.

How does a versioning system work?

→ Controlled Collaboration

- All source files are under the control of the versioning system.
- In order to work on a file a developer needs to check it out → file is locked for other users.
- Once done, the developer checks the file back in.
- Releases are labeled in the versioning system; very powerful idea, this implies that the organization has access to all software versions it has ever produced.

→ Controlled access to source files – changes will not be lost due to overwriting, etc.

Configuration Management

Of course products do not only consist of source files, but they also depend on:
- Compilation
- Linking
- Runtime support
- Runtime configuration

Tools that help organizations to manage the additional steps are called "configuration management tools".

Very similar to version control with the addition that these tools can also handle objects other than source files.

Examples: PVCS, Microsoft SourceSafe.