What are the benefits ?

- Helps forge a shared vision of what software process improvement means for the organization
- Defines set of priorities for addressing software problems
- Supports measurement of process by providing framework for performing reliable and consistent appraisals
- Provides framework for consistency of processes and product

Why measure software and software process?

Obtain data that helps us to better control:

- Schedule
- Cost
- Quality of software products

Consistent measurement provide data for:

- Define clear goals, requirements, and success criteria
- Track progress and detect problems early
- Make smart decisions about resource allocation
- Accurately estimate time, cost, and quality

Measurements

1. **Historical** – Data from past projects (used for comparison and learning).
2. **Plan** – What we expect to happen (like timelines and costs).
3. **Actual** – What really happened during the project.
4. **Projections** – Forecasts for future progress based on current trends.

SEI Core Measures

Unit of Measure	Characteristics Addressed
Physical source lines of code Logical source lines of code	Size, reuse, rework
Staff hours	Effort, cost, resource allocations
Calendar dates for process milestones Calendar dates for deliverables	Schedule, progress
Problems and defects	Quality, improvement trends, rework, readiness for delivery

Examples of measurements for size of work products

Estimated number of requirements

Actual number of requirements

Estimated source lines of code (SLOC)

Actual SLOC

Estimated number of test cases

Actual number of test cases

Example of measurements of effort

- Estimated man-hours to design/code a given module
- Actual man-hours expended for designing /coding the module
- Estimated number of hours to run builds for a given release
- Actual number of hours spent running builds for the release

Examples of measurements of quality of the work product

- Number of issues raised at requirements inspection
- Number of requirements issues open
- Number of requirements issues closed
- Number of issues raised during code inspection
- Number of defects opened during unit testing

Examples of measurements of quality of the work product

- Number of defects opened during system testing
- Number of defects opened during UAT
- Number of defects still open
- Number of defects closed
- Defect age

Examples of measurements of quality of the work product

- Total number of build failures
- Total number of defects fixed for a given
- release
- Total number of defects verified and accepted
- Total number of defects verified and rejected