

Lecturecast Week 9: Quality Management Strategy

The second lecture cast of the module *Software Development Life Cycles* talked about the three constraints quality, time and cost which needs to be effectively managed to meet customer expectations. It is the responsibility of the project manager to ensure that appropriate level of quality is achieved. Corrective actions may need to be taken throughout the project lifecycle to produce an output within the triple constraints and avoid the accrual of technical debt.

Technical debt is accrued when quickly provisioned short-cuts lead to additional work. It could encompass any non-compliance or slip that could lead to more work in future.

According to the project management institute, there are three perspectives to project quality management. These include quality planning, quality assurance and quality control. The PM must ensure that the correct tools are used at each of these stages.

Quality Assurance Standards

ISO/IEC 9126 defines six characters of software quality namely:

Functionality, Reliability, Effectiveness, Usability, Maintainability and Portability. These can be further broken down into 31 sub-characteristics. Some examples under usability are learnability and understandability.

ISO/IEC 25010 (2011)

A more comprehensive version to ISO/IEC 9126 is the ISO/IEC 25010 which has 8 characteristics:

Functional Suitability, Performance Efficiency, Compatibility, Usability, Reliability, Security, Maintainability and Portability.

McCall's Quality Model

It has 11 characteristics including Integrity, Reliability, Flexibility, Accuracy, Efficiency, Maintainability, Testability, Flexibility, Interoperability, Reusability.

Quality Management Planning, Assurance and Control

Having a defined quality management plan helps to achieve a project output which fulfils the agreed quality metrics.

Quality Assurance monitors the quality of the process which has been used to develop the software (system verification)

Software testing helps to ensure that the software that has been developed meets the needs of the user (system validation)

Quality Control processes seeks to examine if what has been delivered meets the needs of the user

Software quality can be monitored in both manual and automatic ways. Best result is achieved when a hybrid approach is used.