CDC Unified Process

Project Management

Newsletter

Supporting a Common Project Delivery Framework

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Quality Management - Planning, Assurance, and Control

The Project Management Institute (PMI) and American Society for Quality (ASQ) define quality as the degree to which a set of inherent characteristics fulfill requirements. The discipline of quality planning involves identifying organizational and/or regulatory quality standards relevant to the project and how to satisfy them. The practice outlines rules that define project quality needs, any required standards for the project's product or service and how it will be confirmed that they are provided in the project's final product. Quality planning techniques include:

- Cost-Benefit Analysis – Cost-benefit analysis is the process of comparing the various costs associated with an investment with the benefits that it proposes to return in order to choose the best or most appropriate option. While the idea is simple, the analysis can be quite complex often involving the use of mathematical calculations such as time value of money formulas. Monetary values may also be assigned to less tangible effects such as risk, agency goals, prospects of regulatory changes, etc.
- Benchmarking – A benchmark is a point of reference for a measurement which is usually recognized as best practice. Benchmarking is the process of evaluating and comparing project performance against an identified benchmark with the purpose of continuously measuring and improving project efficiency with the goal of improving project performance.

Quality planning is one of the key processes when planning the project and is also important during development of the Project Management Plan. Quality planning should be performed in parallel with other project planning processes and involves:

- The creation of a quality management plan.
- The identification and the definition of quality measures and metrics.
- The identification of acceptance criteria for the product's performance requirements and essential conditions that must be achieved before project deliverables are accepted.

The quality management plan is a formal document that encompasses both quality assurance and quality control procedures that address key aspects of assessing project quality standards. It is developed in the planning phase of a project and focuses on the processes used to plan, implement, document, and asses the project's level of quality. The plan defines the project's policies, objectives, principles, responsibilities, and accountability as it relates to project quality and outlines how the project team will implement, perform, and measure those policies. The detail of the quality management plan will vary depending on the needs of the individual project.

Quality measures and metrics are parameters or ways of quantitatively assessing a project's level of quality, along with the processes to carry out such measurement. Metrics outline the standard that work will be measured against and are often unique to each project and/or product. Quality metrics are defined in the planning phase of the project and then measured throughout the project's life to track and assess the project's level of conformity to its established quality baseline.

When identifying metrics by which to measure project quality against, an established standard is identified and then used to establish a quality baseline for each defined quality metric. This baseline is then used as a barometer to measure overall project quality throughout the project's life. Sources of quality baseline information include:

- The organization's quality plan.
- Similar projects completed within the last six months.
- Industry standards.

Acceptance criteria are pre-established minimum standards or requirements that must be met before deliverables are accepted. Acceptance criteria are defined in the planning phase of the project and then tracked throughout the project's life to ensure the project's conformity to established quality standards. Acceptance criteria can include

functionality requirements, performance measures, essential conditions, regulatory compliance, etc.

The Project Management Body of Knowledge defines quality assurance as the application of planned, systematic activities to ensure that the project will employ all processes needed to meet requirements. Quality assurance provides the confidence that project quality is in fact being met and has been achieved. These actions and the metrics used to measure them, are defined in the project's quality management plan. It is the responsibility of the project manager and the project team to ensure the diligent execution of the quality management plan and to assure the project is performing according to the standards defined within that plan. An example of a quality assurance technique is:

- Quality Audits – Quality audits are used as an approach to determine whether project activities comply with quality policies, processes, and/or procedure and whether the appropriate controls are being applied. Quality audits are typically performed at defined project intervals (at the end of a project phase, iteration, month, etc.) and are geared toward determining if project quality complies with the quality metrics and measures defined in the quality management plan.

Quality control is an iterative process that should be performed throughout the project's life and involves monitoring and controlling project results to determine whether they comply with defined quality standards outlined in the quality management plan and then identifying ways to eliminate causes of unsatisfactory results. To more easily manage quality within a project, especially large complex projects, it is a common practice to define quality measurement thresholds that identify when and what corrective action may be needed to eliminate causes of unsatisfactory project performance.

Quality standards for the project are defined in the quality management plan and should include standards for project processes, product functionality, regulatory compliance requirements, project deliverables or project management performance. The practice of quality control focuses on areas such as:

- Prevention – Keeping errors out of the process.
- Inspection – Keeping errors out of the hands of the customer.
- Tolerances – The degree to which results are within an acceptable range.

Some outcomes of quality control activities include:

- Acceptance decisions – Decisions as to whether the products or services are accepted or rejected.
- Rework – Actions taken to correct rejected products or services.
- Process adjustments – Action taken to correct to correct or prevent future quality problems.

For more information about quality management, the Project Management Community of Practice or the CDC UP please visit the CDC Unified Process website at http://www.cdc.gov/cdcup/. ▮

Project Management Community of Practice

- ***October 26, 2012***
  The Value of Alternative Analysis
- ***December 07, 2012***
  Managing Risk

For more information on the Project Management Community of Practice visit the PMCoP website at http://www2.cdc.gov/cdcup/library/pmcop/ ▮

CDC Unified Process Presentations

The CDC UP offers a short overview presentation to any CDC employee and/or contractor group. Presentations are often performed at your facility, on a day of the week convenient for your group, and typically take place over lunch structured as one hour lunch-and-learn style meeting.

Contact the CDC Unified Process at cdcup@cdc.gov or visit http://www.cdc.gov/cdcup to arrange a short overview presentation for your group. ▮

Contact the CDC Unified Process

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