Lesson Proper for Week 14

Everybody “knows” what quality is. But the way the word is used in everyday life is a little different from how it is used in project management. Just like the triple constraint (scope, cost, and schedule), you manage quality on a project by setting goals and taking measurements. That’s why you must understand the quality levels your stakeholders believe are acceptable, and ensure that your project meets those targets, just like it needs to meet their budget and schedule goals.

Customer satisfaction is about making sure that the people who are paying for the end product are happy with what they get. When the team gathers requirements for the specification, they try to write down all of the things that the customers want in the product so that you know how to make them happy. Some requirements can

unstated. Those are the ones that are implied by the customer's explicit needs. For example, some requirements are just common sense (e.g., a product that people hold can't be made from toxic chemicals that may kill them). It might not be stated, but it's definitely a requirement.

"Fitness to use" is about making sure that the product you build has the best design possible to fit the customer's needs. Which would you choose: a product that's beautifully designed, well-constructed, solidly built, and all around pleasant to look at but does not do what you need, or a product that does what you want despite being ugly and hard to use? You'll always choose the product that fits your needs, even if it's seriously limited. That's why it's important that the product both does what it is supposed to do and does it well. For example, you could pound in a nail with a screwdriver, but a hammer is a better fit for the job.

Conformance to requirements is the core of both customer satisfaction and fitness to use, and is a measure of how well your product does what you intend. Above all, your product needs to do what you wrote down in your requirements document. Your requirements should take into account what will satisfy your customer and the best design possible for the job. That means conforming to both stated and implied requirements.

In the end, your product's quality is judged by whether you built what you said you would build.

Quality planning focuses on taking all of the information available to you at the beginning of the project and figuring out how you will measure quality and prevent defects. Your company should have a quality policy that states how it measures quality across the organization. You should make sure your project follows the company policy and any government rules or regulations on how to plan quality for your project.

You need to plan which activities you will use to measure the quality of the project's product. And you'll need to think about the cost of all the quality-related activities you want to do. Then you'll need to set some guidelines for what you will measure against. Finally, you'll need to design the tests you will run when the product is ready to be tested.

14.1 Quality and Grade

According to the International Organization for Standardization (ISO), quality is "the degree to which a set of inherent characteristics fulfill requirements." The requirements of a product or process can be categorized or given a grade that will provide a basis for comparison. The quality is determined by how well something meets the requirements of its grade.

For most people, the term quality also implies good value—getting your money's worth. For example, even low grade products should still work as expected, be safe to use, and last a reasonable amount of time.

14.2 Statistics

Determining how well products meet grade requirements is done by taking measurements and then interpreting those measurements. **Statistics**—the mathematical interpretation of numerical data—are useful when interpreting large numbers of measurements and are used to determine how well the product meets a specification when the same product is made repeatedly. Measurements made on samples of the product must be within **control limits**—the upper and lower extremes of allowable variation—and it is up to management to design a process that will consistently produce products between those limits.

Instructional designers often use statistics to determine the quality of their course designs. Student assessments are one way in which instructional designers are able to tell whether learning occurs within the control limits.

14.3 Quality Planning Tools

High quality is achieved by planning for it rather than by reacting to problems after they are identified. Standards are chosen and processes are put in place to achieve those standards.

Measurement Terminology During the execution phase of the project, services and products are sampled and measured to determine if the quality is within control limits for the requirements and to analyze causes for variations. This evaluation is often done by a sepa-rate quality control group, and knowledge of a few process measurement terms is necessary to understand their reports. Several of these terms are similar, and it is valuable to know the distinction between them.

The quality plan specifies the control limits of the product or process; the size of the range between those limits is the tolerance. **Tolerances** are often written as the mean value, plus or minus the tolerance.

14.4 Defining and Meeting Client Expectations

Clients provide specifications for the project that must be met for the project to be successful. Recall that meeting project specifications is one definition of project success. Clients often have expectations that are more difficult to capture in a written specification. For example, one client will want to be invited to every meeting of the project and will then select the ones that seem most relevant. Another client will want to be invited only to project meetin

need client input. Inviting this client to every meeting will cause unnecessary frustration. Listening to the client and developing an understanding of the expectations that are not easily captured in specifications is important to meeting those expectations.

Project surveys can capture how the client perceives the project performance and provide the project team with data that are useful in meeting client expectations. If the results of the surveys indicate that the client is not pleased with some aspect of the project, the project team has the opportunity to explore the reasons for this perception with the client and develop recovery plans. The survey can also help define what is going well and what needs improvement.

14.5 Source of Planning Information

Planning for quality is part of the initial planning process. The early scope, budget, and schedule estimates are used to identify processes, services, or products where the expected grade and quality should be specified. Risk analysis is used to determine which of the risks to the project could affect quality

14.6 Quality Assurance

The purpose of quality assurance is to create confidence that the quality plan and controls are working properly. Time must be allocated to review the original quality plan and compare that plan to how quality is being ensured during the implementation of the project.

14.7 Process Analysis

The flowcharts of quality processes are compared to the processes followed during actual operations. If the plan was not followed, the process is analyzed and corrective action taken. The corrective action could be to educate the people involved on how to follow the quality plan, or it could be to revise the plan.

The experiments that sample products and processes and collect data are examined to see if they are following statistically valid sampling techniques and that the measurement methods have small enough tolerances to detect variation within control limits.

Because projects are temporary, there are fewer opportunities to learn and improve within a project, especially if it has a short duration. But even in short projects, the quality manager should have a way to learn from experience and change the process for the next project of a similar complexity profile.

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