Project Quality Planning

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Overview

Every project should have a quality plan. In reality, very few do. It is something that has puzzled me for some time. A few years back I had the opportunity to talk to a group of Project Managers about QA. Surprisingly the two main reasons they didn't produce a plan were:

- It was too complicated to do a plan

- They were overwhelmed by the jargon of quality in relation to compliance with standards, metrics and a range of acronyms that left them confused

This white paper will provide a common sense approach, and give you the basic tools you need to put together a quality plan.

Quality Definition

So what is quality? There are numerous definitions of quality:

  "Quality is fitness for use" - J.M. Juran
  "[Quality is] meeting or exceeding customer expectations at a cost that represents a
    value to them." - H. James Harrington
  "Quality should be defined as surpassing customer needs and expectations
    throughout the life of the product." - Howard Gitlow and Shelley Gitlow

A simple layman's definition is to make sure whatever is delivered is within the quality expectations of the organisation. The expectations of the organisation are important to understand. If it is NASA building rocket control systems, the expectations are likely to be higher than if it is a small retailer building a marketing database…..hopefully.

Another important component of the definition is the focus on what is being delivered. Quality of what is not delivered is not necessarily important unless it will impact the ultimate deliverable. I know of one organisation that checks the quality of all documentation including email and memos. The question needs to be asked

> "If I spend an extra 10 minutes on each email to ensure it has the standard layout, font etc. is it going to significantly improve the quality of the project deliverables?"

The answer is that such an exercise cannot be cost justified.

Judging Quality

From a business perspective, project quality is usually judged on the following criteria:

- Was the project completed on time?
- Was the project completed within budget?
- Did the system meet my needs when it was delivered?
- Is it stable?

From a technical perspective, project quality is usually judged as:
- Does the system comply with corporate standards for such things as user interface, documentation, naming standards etc.?
- Is the technology stable?
- Is the system well engineered so that it is robust and maintainable?

As you can see, the perspective of quality varies depending on who we are talking to. Generally speaking however, the "fit for purpose" aspect of quality is the one we judge. Does the deliverable do the job it was designed to do?

Project Quality v Deliverable Quality

The situation above illustrates the difference between judging the deliverables and judging the project. You need to decide how much focus you put on the quality of the project, and how much on the quality of the deliverables.

- The project quality refers to things like applying proper project management practices to cost, time, resources, communication etc. It covers managing changes within the project.

- The deliverable quality refers to the 'fit for purpose' aspect mentioned earlier. It covers things like how well it meets the user's needs, and the total cost of ownership.

A quality project may deliver low quality deliverables and vice versa. It is more likely however that a high quality project will deliver high quality deliverables. You can see that if you were checking project quality you would look at completely different things than if you were looking at the quality of the deliverables.

Quality Definitions

The following definitions will help us understand quality:

Term	Definition
Quality Materials	The artefacts used within an organisation to assist a Project Manager improve quality in the project e.g. Templates, Standards, Checklists. These materials are used in "Quality Events".
Quality Events	How the "Quality Materials" are applied to a project. They are the activities undertaken using "Quality Materials" to validate the quality of the project.
Quality Plan	A plan as to how and when "Quality Events" and "Quality Materials" are applied to a project.
Quality Control	The implementation of the "Quality Events" in the "Quality Plan".

Term	Definition
Quality Assurance	QA is an umbrella term. It refers to the processes used within an organization, to verify that deliverables are of acceptable quality and that they meet the completeness and correctness criteria established. QA does not refer to specific deliverables. • The preparation of a "Quality Plan" for a project is part of QA • The development of standards is part of QA • The holding of a "Quality Event" is part of QA
Quality Metrics	Statistics captured during the various activities undertaken as part of "Quality Assurance". Metrics are captured to: • Identify areas where quality improvements can be made • Measure the effectiveness of quality improvement activities
Continuous Quality Improvement	Use of captured metrics, and lessons learnt to continually improve quality. They are the main reason for capturing statistics around quality.
Well Engineered versus Correct	The purpose of quality assurance is to ensure outputs of an organisation are both well engineered and correct. • Well engineered means the construction is sound and reliable. It does not necessarily mean it is correct. • Correct means the end results are an accurate reflection of the requirements. It does not necessarily mean it is well engineered. Many systems are well engineered but fail to meet the business need. On the other hand, there are also systems that meet the business need, but are unstable, unscaleable and expensive to run. Similarly a document can be well constructed but the content is deficient. Alternatively, the information can be there, but it is difficult to interpret.

Quality Materials

The following are examples of "Quality Materials" that might be used in a quality plan:

Quality Materials	Description
Standards	"Standards" are instruction documents that detail how a particular aspect of the project must be undertaken. There can be no deviation from "Standards" unless a formal variation process is undertaken, and approval granted.

Quality Materials	Description
Guidelines	Unlike "Standards", "Guidelines" are not compulsory. They are intended to guide a project rather than dictate how it must be undertaken. Variations do not require formal approval.
Checklists	"Checklists" are lists that can be used as a prompt when undertaking a particular activity. They tend to be accumulated wisdom from many projects.
Templates	"Templates" are blank documents to be used in particular stages of a project. They will usually contain some examples and instructions.
Procedures	"Procedures" outline the steps that should be undertaken in a particular area of a project such as managing risks, or managing time.
Process	A description of how something works. It is different to a "Procedure" in that a "Procedure" is a list of steps – the what and when. A "Process" contains explanations of why and how.
User Guides	"User Guides" provide the theory, principles and detailed instructions as to how to apply the procedures to the project. They contain such information as definitions, reasons for undertaking the steps in the procedure, and roles and responsibilities. They also have example templates.
Example Documents	These are examples from prior projects that are good indicators of the type of information, and level of detail that is required in the completed document.
Methodology	A methodology is a collection of processes, procedures, templates and tools to guide a team through the project in a manner suitable for the organisation.

Quality Events

Below is a list of "Quality Events" that typically are used to review the quality of deliverables. They tend to have a different mix of reviewing the structure and reviewing the content. In other words they check to see if the document is "Well Engineered" and/or "Correct" (see definitions):

Quality Events	Description
Expert Review	Review of a deliverable by a person who is considered an expert in the area. For example, a review of a data model by a senior DBA. The person may not currently hold a position (e.g. currently be a DBA) but has expert knowledge in the area. This type of review is good when the focus is on accuracy of content rather than of structure.

Quality Events	Description
Peer Review	Review of deliverables by one's peers. Peer reviews are better suited where the emphasis is on structure rather than content. A peer review will focus on ensuring the deliverable is well engineered. Neither an "Expert Review" nor a "Peer Review" is exclusively focused on content or structure. They each however, have a different emphasis.
Multi person Review	A review carried out independently by several people is likely to pick up more points however it does bring the difficulty of trying to reconcile different viewpoints. It is best undertaken when the purpose is to gain agreement between different stakeholders. Time should be allowed to reach agreement of conflicting opinions. This may entail a meeting or workshop to resolve differences.
Walk-through	A walk-through is a useful technique to validate both the content and structure of a deliverable. Material should be circulated in advance. If particular participants have not done their homework, they should be excluded from the walk-through. Too much time can be wasted bringing one person up to speed in a walk-through.
Formal Inspection	A formal inspection is a review of a deliverable by an inspector who would typically be external to the Project Team. The inspector captures statistics on suspected defects. It is a useful technique for use with documentation.
Standard Audit	A "Standard Audit" is carried out be a person who is only focused on ensuring the deliverable meets a particular standard(s).
Process Review	In this case a defined "Business Process" is reviewed to ensure all necessary actions are being undertaken, information recorded, and procedures followed. A "Process Review" is useful to validate the existing processes in an organisation. For example, modification to an existing IT system may be based on the assumption an existing business process is being followed. If the business process is either not being followed or is different, the modification to the IT system may have unexpected results. For a project quality check, a "Process Review" may be carried out to ensure proper change control procedures are in place. Typically someone like a Project Office or Internal Audit would complete a "Process Review".

Planning Quality

A quality plan needs to cover a number of elements:

- What needs to go through a quality check?
- What is the most appropriate way to check the quality?
- When should it be carried out?
- Who should be involved?
- What "Quality Materials" should be used?

What needs to be checked?

Typically what needs to be checked are the deliverables. Any significant deliverable from a project should have some form of quality check carried out. A requirements document can be considered significant. A memo or weekly report may not be significant.

For the project itself, it may be appropriate to have the project management practices reviewed for quality once the project is initially established. This may be useful to give the Sponsor and Steering Committee a level of confidence in the team.

What is the most appropriate way to check?

To answer this question requires thinking backwards. If the end result is that a particular deliverable should meet a standard, then part of the quality checking should focus on compliance with the standard. This would indicate a "Standard Audit" could be the best approach.

You also need to differentiate between "correct" and "well engineered". A "well engineered" bridge may never fall down. If it is doesn't cross the river at the right place, it is not "correct". Similarly a test plan may be clear and easy to follow but not test everything it should. Alternatively it may cover all the testing but cannot be clearly followed. Quality checking may be for either "correct" or "well engineered", or it may be for both.

When should it be carried out?
Most "Quality Events" are held just prior to the completion of the delivery. If however there are long development lead times for a deliverable, it might be sensible to hold earlier "Quality Events".

For example, if development of code for a particular module will take 10 weeks, it may be worth holding a code inspection after 4 weeks to identify any problems early and reduce rework.

Who should be involved?

Obviously, the producers of the deliverable should be involved. The others involved will be dependant on the type of quality event. It is also useful to have some representation from the receivers of the information in order to ensure you are not using jargon that makes it clear to the producers, but unclear to the receivers.

What Quality Materials should be used?

The materials used should be a prompt for the reviewers to ensure there are no gaps. The "Quality Materials" will usually be self evident. It may be useful to reduce things like standards to checklists in order to make them more manageable. If the reviewers know the specifications for xyz in standard abc, they only need to be reminded to check xyz. They don't need the full standard as the primary piece of "Quality Material". It can just be a reference.

Example Quality Plan

A typical quality plan for an applications project may look something like this:

Deliverable	Quality Event	Quality Materials	Purpose
Preliminary Business Case	Expert Review	Template for Business Case Approved Business Case for Project ABC	Ensure the information is accurate and well constructed prior to submission to Steering Committee
Final Business Case	Formal Inspection by Sponsor	Template for Business Case	Ensure the Business Case is in a fit state to be submitted to the Finance Review Committee
Project Definition	Walk-through of early draft	Template for Project Definition	Review early draft for completeness
	Peer Review of final draft		Review final draft for completeness and construction
Database Design	Expert Review of physical model	Standard for Database Design	Compliance with standard General accuracy
Etc			

Continuous Improvement

A good story I heard at a conference once referred to the difference between US and Japanese car makers during the 70's. The speaker said in a US factory, if a car came off the production line with only three wheels, everyone scrambled around to find a new wheel, put it on the car and get it out the door. Probably a few days later another car would arrive with three wheels and the process would happen again.

On the other hand if a car came off the production line in Japan with three wheels, they stopped the production line, and found out how it happened. Once they found the cause it would be fixed, and no car would ever come off the line with three wheels again.

The world is bigger than one project. What goes wrong in one project, is likely to go wrong in other projects unless the cause is identified and fixed. If a template is

missing a heading, don't just fix the project document. Fix the template. If a standard has some aspect that cannot be complied with in your environment, either change your environment, or get agreement that all projects are exempt from this part of the standard. If there are no generally accepted availability criteria for business applications, don't just add some to your requirements. Get them published as corporate criteria. This is what continuous improvement is all about.

Quality Metrics

If we are improving quality, we need to measure progress. This means a baseline has to be established. Quality metrics are a whole topic in themselves and are outside of the scope of this document.

Conclusion

Producing a quality plan is not complex. It involves identifying all the deliverables at the start of the project and deciding how to best validate their quality. There is an overhead in undertaking quality checks but this is offset by not having to fix things further down the line. Inevitably, the later you find a problem, the longer it takes to fix.

It is also going to make your customers more comfortable if they see that quality is being addressed during the project. It can even be a good PR exercise to bring them to a quality review. Not only do they see that quality is being addressed, but it also exposes them to the complexity that usually exists in a project.

Finally, having uncovered the quality issues, be sure you have a mechanism in place to fix the problems. There must be some follow up process to allocate fixes to particular people and ensure they actually make the changes. This implies that time must be built into the schedule for rework following quality events.

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Project Perfect sell "Project Administrator" software, which is a tool to assist organisations better manage project risks, issues, budgets, scope, documentation planning and scheduling. They also created a technique for gathering requirements called "Method H"™, and sell software to support the technique. For more information on Project tools or Project Management visit www.projectperfect.com.au