

7.11a: Quality in Project Management: PRINCE2 and ISO 9000

(PRINCE2™ is a Trade Mark of the Office of Government Commerce)

by Peter Whitelaw, Rational Management Pty Ltd, Melbourne

An overview of the PRINCE2 Method

PRINCE2 is a structured project management methodology. It consists of a series of processes that a project manager, and other members of a project team, can follow to effectively undertake a project.

PRINCE was developed in the United Kingdom in 1975 and underwent several enhancements after acquisition by the UK government in 1979. A consortium of 150 European organisations contributed to the revision and PRINCE2 was released in 1996. It is now a de facto world standard in use in over 40 countries and many thousands of organisations.

The method is a complete and logical set of processes that ensures that all aspects of a project are addressed. It is based upon common sense.

PRINCE2 encompasses:

- Starting up a project
- Initiating a project
- Planning
- Controlling a stage
- Managing product delivery
- Managing stage boundaries
- Directing a project
- Closing a project

The method has components to guide project participants through the development of the Business Case, Project Organisation, Plans, Controls, Management of Risk, Quality in a Project Environment, Configuration Management and Change Control. It also offers techniques for Product Based Planning, Change Control and Quality Reviews.

It can be tailored to suit any type of project and is scaleable to align with any size of project.

Adoption of PRINCE2 offers the following to organisations who manage projects:

- Eliminating the need to re-invent a management method for each new project
- Delivering a standard, but flexible, project management framework for the organisation
- Ensuring stakeholders are represented and share in project ownership
- Ensuring clarity and congruence of project objectives
- Agreement between stakeholders of quality and performance expectations
- Investing in sufficient planning prior to commencing a project
- Establishment of quality controls, configuration management and control of changes
- Anticipating current and potential problems and risks and planning to meet these
- Co-ordination of project resources
- Decision making milestones incorporated within the plan
- A mechanism for early warning and dealing with deviations from plan
- Communications, both within and external to the project
- Control and progress reporting of project status, specifically achievement of the Business case

Quality in a Project Environment

Project Quality is the ability of the solution delivered by a project to meet the needs and expectations of those who sought the solution. It therefore encompasses product features, fitness for purpose and compliance with stated requirements.

PRINCE2 recognises the importance of quality in project management and provides the project team with several processes to ensure that quality solutions are delivered by the project.

The method also recommends that the implications of quality in a project should be addressed whether the organisation has embraced a quality standard (such as ISO 9000) or not. If the organisation has implemented ISO quality standards then the method is intended to be compatible with those standards.

Quality in a project environment is achieved by:

- Defining the project to recognise agreed quality expectations
- Planning the project to incorporate products and activities required to ensure quality
- Monitoring and assuring the quality of the project's products (and the overall solution) during the conduct of the project and on project closure.

Reasons for Quality in a Project Environment

Organisations often commit significant investment and resources to projects in the expectation that they will deliver new and improved products and services and ways of operating. The benefits to be derived from projects are most often traceable back to the organisation's vision, mission and strategic plans.

The stakeholders in projects may have diverse views of the performance and quality requirements of the solution to be delivered by a project. If the project under-achieves these expectations in the view of some stakeholders then the project may be deemed a failure. If the project over-achieves in the opinion of other stakeholders then it may be viewed as a waste of money and resources.

Therefore, one of the keys to success in projects is to negotiate an agreed set of performance and quality criteria between the stakeholders and then deliver a solution that meets these criteria.

A project management method such as PRINCE2 must provide the tools to define and achieve the agreed quality criteria of the project solution.

How PRINCE2 achieves Quality in a Project Environment

PRINCE2 recommends the development of several project documents that are designed to ensure quality at various times in the project and at various levels of detail. They include:

Customer's Quality Expectations (and Acceptance Criteria)

The process of Starting Up a Project requires a Project Brief to be created that provides a preview of the project ahead. Within the Project Brief are stated the agreed Customer Quality Expectations. These are likely to have been determined through consultation with the customer (and users) and discussion with those who are likely to be engaged in providing the solution. If there are divergences in expectations it may be necessary to conduct some negotiation (possibly with senior management arbitration) to come to an agreed set of criteria.

Acceptance Criteria may include:

- Accuracy
- Appearance
- Availability
- Capacity
- Development cost
- Ease of use
- Major functions
- Performance levels
- Personnel level
- Reliability
- Running costs
- Security
- Target dates
- Timings

Quality expectations are also likely to be influenced by the Project Approach (also documented in Starting Up a Project) where, if possible, the type of solution is defined. There may be marked differences in the quality expectations between an off-the-shelf solution versus an internally developed solution versus an outsourced development.

Project Quality Plan

When the project has been approved to proceed into detailed planning (PRINCE2 calls this Authorising Initiation) it will be necessary to define how the Customer's Quality Expectations can be achieved.

The Project Quality Plan includes:

- Customer's Quality Expectations (and Acceptance Criteria)
- Quality responsibilities (identifying who has responsibility)
- Standards applicable to this project
- Quality control and audit procedures
- Change control procedures
- Configuration Management Plan
- Quality tools and techniques required

Stage or Team Quality Plans

PRINCE2 recommends that the quality products and activities necessary to assure quality of the specialist or technical products to be delivered by the project should be integrated into the Stage and Team plans. The quality products and activities could include:

- Interim quality checks or inspections
- Final quality checks or inspections
- Formal Quality Reviews
- Pilots or trials
- User Acceptance Testing

Product Descriptions

As an essential part of planning, PRINCE2 utilises a technique called "Product Based Planning" which is similar to the Work Breakdown approach, but focused upon deliverables (products). Product Descriptions are the documents that define each of the individual products that in aggregate will provide the project solution.

Product Descriptions include:

- Purpose of the product
- Composition (its main parts or components)
- Derivation (source)
- Format and presentation
- Allocated to (who is responsible)
- Quality criteria (for this product – may refer to a detailed specification)

- Quality tolerances
- Quality method (test, inspection, review required)
- Quality responsibility (who will conduct the check)

Issue Log

PRINCE2 utilises an Issue Log to capture (amongst other issues) any quality problems including Off-Specifications detected during quality checks and the actions required to remedy the problem.

Some Off-Specifications may be able to be corrected without adversely affecting the project manager's budget and schedule for the stage, others will require escalation to the Project Board. In some situations the product may be accepted containing an error (called a concession) because it's impact may not be significant and the cost and time involved in correcting the error may be substantial.

Quality Log

This log, created during Initiating a Project, tracks all of the products of the project, their planned quality checks and the outcomes of these. It also logs the number of errors detected, action items required and the final outcome of any remediation.

The Quality Log is therefore a useful monitoring tool to assess the progress of the project.

Responsibility for Quality in a Project Environment

The responsibilities for quality in a project environment may include:

Quality Assurance (Organisation-wide and external to the project)
Setting and monitoring or the organisation's quality standards. Participating where required in Project Assurance.

Project Board members

Approval and monitoring of the Project Quality Plan. Approval of Product Descriptions. Overall responsibility for the project meeting the Acceptance Criteria.

Project Assurance

Independent monitoring of quality within the project from their specialist perspectives. Ensuring adherence to quality assurance standards.

Project Manager

Preparation of the Project Quality Plan and Product Descriptions. Incorporation of quality products and activities into plans. Management and monitoring of all quality aspects of the project. Maintain the Quality Log.

Project Support

Administer Quality Reviews if required. May also be required to administer Configuration Management, Change Control, and the Issue Log.

Teams, Contractors, Suppliers

Plan, manage and monitor quality in relation to their contribution to the project. Ensure all quality checks on products and work packages are conducted as required. Update the Quality Log.

Quality Review Technique

A Quality Review is an optional procedure that offers a more formal approach to quality checking of the products of a project.

It requires the appointment of a panel of reviewers who are engaged to assess the product for conformance against its Quality Criteria defined in its Product Description.

Because the procedure usually involves the commitment of time and effort of several people it is generally only applied to key products in the project. Attempting to conduct a formal Quality Review on all products of a project is likely to be unproductive.

It may be appropriate to conduct a Quality Review over a period that covers assessment early in the creation of the product, during development and then prior to delivery of the product. In this way defects can be detected early and remedied.

Reasons for using the Quality Review Technique

Early detection of defects has obvious benefits to the ability of the project to achieve quality outcomes and minimise threats to budget and schedule.

The formal nature of a Quality Review should ensure that all key stakeholders have the opportunity to assess the conformance of the product and contribute to the quality outcomes. This has the effect of enhancing ownership of the final products, particularly where the user community has been actively engaged.

Conduct of the Quality Review Technique

During Planning it is appropriate for the project manager, possibly with guidance from the Project Board or Project Assurance, to identify the key products and the timing of Quality Reviews. These will be incorporated into the Stage Plans and the individuals appointed to conduct the review are notified.

These are the likely appointments to a Quality Review and their responsibilities:

Review Chairperson (may not necessarily be any member of the project organisation)

Checks that the product is ready and that arrangements for the review are in place.

Collects questions and publishes the review agenda.

Chairs the formal meeting.

Agrees the result of the meeting and signs off on the product if appropriate.

Advises the project manager of the outcome or any problems.

Producer (of the product)

Provides the reviewers with the product and the Product Description prior to the meeting.

Assesses questions from the reviewers and assists with the agenda.

Responds to questions during the meeting.

Agrees to any remedial actions or changes.

Obtains sign-off on the final approved product.

Reviewers (may be specialists, may include Project Assurance)

Review the product against the quality criteria in the Product Description.

Document their questions and identified defects for the Producer prior to the meeting.

Resolve agreement on remedial actions or changes during the meeting.

Scribe

Assist in administering the review.

Document the assessment and outcomes.

Steps for conducting a Quality Review

The three steps in conducting a Quality Review are:

Preparation

Confirmation that the product is ready.

Distribution of the product with its Product Description to the Reviewers.

Assessment of the product against the quality criteria and submission of questions and identified defects.

Arrangements and agenda for the meeting.

Review Meeting

Discussion, clarification and agreement on points raised.

Agreement of remedial actions or changes.
Agreement on outcome of the review.

Follow-up

Advice to the project manager of the outcome or any problems.
Plan for remedial actions or changes.
Final sign-off of the product.

The outcome of a Quality review may be one of the following:

- The product is free of defects and is approved, signed off and baselined.
- The product has defects that have been agreed to be remedied and when these are completed and checked the product will be approved, signed off and baselined. Note that any Off-Specification will be logged as Project Issue and managed accordingly by the Project Manager.
- The product requires major rework or changes that probably require changes to be agreed to the Product Description before work proceeds. Note that any Request for Change will be logged as Project Issue and managed accordingly by the Project Manager.

PRINCE2 and ISO 9000:2000

PRINCE2 is a project management method that incorporates a number of quality processes and techniques that are provided to ensure quality of the project's products. These processes and techniques are designed to be ISO 9000 compliant however in all organisations where ISO 9000 has been adopted as the basis of a Quality Management System (QMS), the standard takes precedence.

The following are the areas where PRINCE2 exhibits compliance with ISO 9000:

Quality Management System

The PRINCE2 quality processes and techniques may form part of an organisation's QMS. Where necessary the quality aspects of PRINCE2 can usually be tailored to align with any form of corporate QMS.

Management Commitment

The PRINCE2 processes for appointing project board members include the requirement to document and agree to roles and responsibilities that encompass quality.

Customer Focus

PRINCE2 assigns responsibility for monitoring customer satisfaction to the senior user representative on the project board. Through the processes of Starting Up a Project, Initiating a Project the customer's quality expectations are identified and incorporated within plans.

Quality Policy

The organisation's published Quality Policy is a reference document in developing the Project Quality Plan. Project Board members approve and monitor the implementation of the Project Quality Plan.

Planning

PRINCE2 requires the identification of the customer's quality expectations and these form the basis of the Project Quality Plan and the quality aspects of Product Descriptions and Work Packages within the Project and Stage Plans.

Responsibility, Authority and Communication

PRINCE2 requires the project roles and responsibilities that encompass quality be documented and agreed. Project reporting processes are defined and the Communications Plan extends to internal and external participants.

Management Review

PRINCE2 requires that a Lessons Learned Log be maintained throughout a project and a Lessons Learned Report be published. These provide inputs to the review process for the QMS.

Resource Management

Within the scope of the project, PRINCE2 requires that quality products and activities be defined and planned, including the allocation of resources, both human and other, for quality management purposes. Individuals and groups are assigned quality responsibilities ranging from overall Project Assurance to

detailed product quality assurance. PRINCE2 does not cover the organisation's personnel, training, facilities and infrastructure aspects except where these that may be within the scope of a specific project.

Product Realisation

The PRINCE2 Product Descriptions and Work Packages include quality criteria, quality method and quality responsibilities applicable to each product of the project. The Project Quality Plan defines Change Control procedures, the Configuration Management Plan and quality tools and techniques required.

Design and Development

PRINCE2 allows the project planning process to define stages that may encompass design and development. It provides for appropriate quality reporting during these stages and ensures adequate record keeping through Configuration Management and Project Document Management. The conduct of quality checks, including formal Quality Reviews and the maintenance of the Quality Log satisfy the quality verification and review requirements. The PRINCE2 Change Control processes further enhance this requirement.

Purchasing

PRINCE2 does not separately identify purchasing as it may or may not be part of a project. If purchasing is within the scope then the products of purchasing including specifications, tenders, contracts and the purchased products themselves would be quality managed in the same manner as all other products within the project.

Production and Service Provision

PRINCE2 does not separately identify production and service provision as they may or may not be part of a project. If they are within scope then the products required would be quality managed in the same manner as all other products within the project. Specific methods and tools such as monitoring and measuring devices would be defined in the Project Quality Plan and individual Product Descriptions.

Measurement, Analysis and Improvement

Conformity is recorded in the Quality Log. Customer satisfaction is assessed during the project through customer involvement in the quality checking processes and by review of achievement of the Customer Quality Expectations by the Project Assurance roles. Specific customer satisfaction is evaluated in Closing a Project. Non-conformance is managed through the Issue Log and Change Control procedures. The assessment of the organisation's QMS and the function of continual improvement are not usually within the scope of a project however the PRINCE2 Lessons Learned may be an input to this process.