Intro.

Introduction to this document

This document depicts a flow within an organization, whether that organization is structured as a Vertical, Matrix or Hybrid entity, the Project Management process will apply with moderate fluctuations to the process. Regardless of an Entities' structure, Project Management will be utilized in the operations of that organization.

The document attempts to flow the reader through the Project Management process without leaving them stranded with unanswered questions and incomplete process control. It is believed to be a good comprehensive and complete Management tool for a solid operational experience to process control.

Entering this document will first take you through the Authors Work History and background to give you a level of confidence pertaining to professional accuracy of the presented information and then you will be lead into the specifics of Project Management as a management tool. It is comprehensive and will require some patience to maneuver through, but after completion you will have a sound understanding of organizational Project/Program management.

It is recommended to the reader to begin the journey at the glossary once introduced in the flow controls, then return to the document and continue the experience. Once complete, you will have tools to operate at any position, and assigned to any function, within any organization at a more complete professional level.

Document Control System

As you enter this document you will see the symbols below. Every attempt to complete an "outgoing" ("Home-plate" pentagon shape) depicting the outgoing flow of information, with its counterpart "Incoming" ("reverse Home-plate" pentagon shape representing the incoming flow of information and returning you back to the incoming point of origination, has been made.

Double clicking on these "bases" will flow you to the next intended point of information and back again.

OUTGOING Information - this will SEND you to the next intended page of information.

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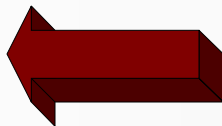
DOUBLE CLICK -
these Pentagon shapes to TEST the concept.
.... go ahead try it now.

INCOMING Information - this will TAKE you BACK to the ORIGINAL page of information.

Incoming Info -

Mark S. Schuyler
Work History

Program/Project Manager - with 20+ years in the field.

To Author Work History

Project Management
Organizational Structure

Project Management - defined graphically in an organizational structure layout.

From end of Glossary

Mark S. Schuyler Sr.

5/14/2013

Program / Project Manager

Dossier

My job, as management for your company, is to take my assignments of design concepts through operation implementations and develop non-convoluted project management reports for the leaders of the company, allowing them to direct the company with the proper fiduciary responsibility assigned to them by the Board of Directors.

Good management is what great Leaders hire to perform their jobs most effectively.

Education & Leadership Training

EDUCATION:
B.S., Engineering Management - University of Illinois
B.S., Equivalent, Electrical Engineering - University of Illinois
U.S. Marine Corps Training - Crypto/Teletype Technician

Courses:
University of Michigan - Project Management;
Designing for EMC - Practical Tools and Techniques
UL - ISO14000/9000 Compliance;
UL - Key to International Compliance;

Extension Courses/Software:
MS Project, Excel, Access, Visio, Office;
Database Engineering;
minor in ORCAD, AUTOCAD

Work History

General Dynamics, Space Systems Division   August 1988 - January 1993
Test Operations & Laboratories
Information / Operations Research Control Systems Engineer

·   Organized work breakdown structures (WBS);
Identified responsibility assignment matrix;
Implemented cost account effectiveness;
Utilized cost/schedule control systems criteria (C/SCSC);
Automated cost/schedule control systems;
Designed internal cost performance monitoring system;
Organized database cost/parts tracking system;
Monitored integrated management systems;
Systematically time phased budgets;
Scheduled work authorization;
Developed milestone reports and variance analysis;
Generated work package histories;
Created and monitored schedules;
Supported management/program office;
Developed, integrated, and implemented mainframe and P.C. systems.

Secret security clearance.

Work History

Hitachi Home Electronics (America), Inc.   August 1993 - September, 23 2004
Design Engineering
Safety / Compliance Assistant Manager - Accomplishments/Duties/Functions:

·   Review electrical and mechanical designs of Television Receivers to ensure compliance with UL, FCC, FDA, Environmental, Energy Star and NAFTA standards, codes, and directives.

·   Research, recommend, implement, and manage design and testing of standards and directives concerning product safety and Electromagnetic Compatibility for TV Receivers and Monitors (Analog and Digital) including: applications, samples, and in-house testing for UL, FCC, FDA, and NAFTA products.

·   Design, construct, implement and control system for distribution of applications, procedures, and reports from all regulatory agencies, which include implementation of ISO14000/9000 process controls.

·   Designed, constructed, implemented, operated and managed UL Client Test Data Program for UL and C-UL in-house test laboratory; including Laboratory design and construction test site, MS Project management implementation, test equipment, procedures, and reports; decreasing UL test schedules by 60% and reducing cost by 40%.

·   Research, recommend, implement, configure, and manage Chase Pre-Compliance EMC/EMI in-house test facility saving company 25% per model including: implementation of 3 meter Screen Room and related test equipment, FCC Class A and B (Radiation & Conducted) of Title 47- Part 15; Attend continuing education seminars; Knowledge of CE and International Standards, Medical and Machine Directives, and GMP.

·   Extensive experience with UL Standards: UL/IEC60065, UL 1492 - Audio/Video Products and Accessories, UL1950 - Safety of Information Technology Equipment (Second & Bi-National) and all interrelated standards.

·   Extensive experience with FCC Title 47; Parts 2, 15, 68, 73 and 76. Experience with Title 16 and Title 21.

·   Plan, coordinate, conduct, manage and report formal FCC testing of products at local NRTL reducing schedule by 15%. Liaison to UL for formal testing of cost prohibitive in-house tests.

·   Research, recommend and configure test equipment for Design and Pilot Laboratories including: pre-compliance Chase EMC/EMI test facility, UL Client Test Data Program, DaqBook Data Acquisition system (LabTech/LabView Software), IEEE 488/GPIB test equipment.

·   Research, recommend, configure, and manage Electronic CAD system (Zuken-Redac CR5000) which converts UNIX Japanese PWB and Schematics (CR3000) to editable NT-based English PWB and Schematics (CR5000).

·   Represent, vote, report and make recommendations on all issues involving the company and EIA/CEMA Standards Committees and Working Groups which include: R1.0 - Product Safety Committee, TC108-US TAG, R4.0 - Video Systems Committee, R4.3 - Television Data Systems Subcommittee (Closed Captioning and V-Chip development), R4.6 - A/V Bus Subcommittee and JEC (Joint Engineering Committee).

·   Study, report and make recommendations on HDTV/NTSC concerns including: Closed Caption Display and V-Chip development and testing for HDTV and current NTSC TV Receiver issues.

·   Confirm by design review and testing that Engineering Change Notices comply with regulatory specifications at both the system and component levels.

·   Developed and implemented cost management system reducing schedule and increasing accuracy of budgeting for all regulatory activities by 20%.

·   Develop and submit budgets for all regulatory activities including: samples, materials, manpower, applications and reports.

Work History

Hitachi Home Electronics (America), Inc.   August 1993 - September, 23 2004
Design Engineering
Desktop Publishing Manager - Accomplishments/Duties/Functions:

- Designed, developed, constructed, implemented, and managed "in-house" Instruction Book and Service Manual process and procedures including: software, hardware, networking, integration, configuration, document and graphics control.

- Designed, implemented and manage configuration control processes for graphics, document and drawing control.

- Eliminated label repairs of Instruction Books and Service Manuals and implemented Quality Control system reducing cost by 35% and schedule impacts by 75%.

- Created design specifications to implement creation of Instruction Books and Service Manuals.

- Created, managed, interviewed, and reviewed Engineering Technical Writing positions to create Instruction Books and Service Manuals to specifications.

- Recommend, authorize and implement hardware and software to network DTP system.

- Review, interview, recommend and manage vendor implementation for all printed materials.

- Developed and implemented cost management system reducing schedule and increasing accuracy of budgeting for all printed materials by 30%.

- Research, recommend, and manage project to convert existing paper Service Manuals to electronic (CD-ROM) format (*.pdf) including: D/E size schematics, Troubleshooting Guides, Adjustment Specs., and Theory of Operation.

Work History

Hitachi Home Electronics (America), Inc.   August 1993 - September, 23 2004
Design Engineering
Design Engineering Network Administrator - Accomplishments/Duties/Functions:

Organized, designed and implemented design engineering computer network including:

· Systems analysis on 25 PC workstations and Level/Category 5 cabling.

· Installed cable, PC workstations, hardware and software for the network.

· Connectivity of workstations using Windows, Win95 and WindowsNT to Novell based server.

· Proficient in all Windows environments including: workstation, remote and network environments.

Proj. Defn.

WHAT IS A PROJECT?

PM Glossary

Proj. Defn.

PM Benefits

Examples of a project:-

A project is generally defined as a program of work to bring about a beneficial change and which has:-

PM Glossary

Requires expertise and support from other functions , e.g. - a multi-disciplinary team brought together for the project

A defined Goal with a start and an end

Yes

The Project Life Cycle

PLC

a scope of work that is unique and involves uncertainty

constraints of cost, time and quality (or functionality)

Using a project team approach will help you to achieve the beneficial gain in a structured, controlled and cost effective way.

The development and introduction of new services

The development of a management information system

The introduction of an improvement to an existing process

Setting up a new care initiative

The creation of a large tender or the preparation of a response to it.

The production of a new customer newsletter, catalogue or Web site

Project Management is a methodology and a discipline which can bring significant benefits to organizations by:-

Ensuring limited resources are used on the right projects

Assessing risks, defining goals and key success areas and setting quality objectives.

PROJECT MANAGEMENT

Managing complex changes in an organized way

Harnessing the energy of staff in achieving beneficial change
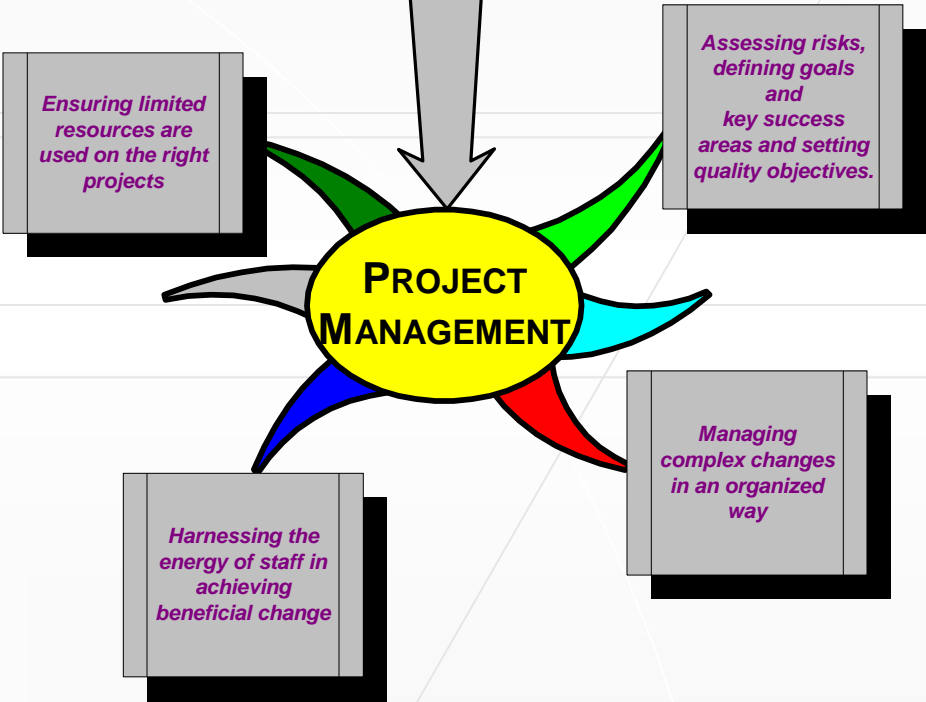
However, every organization has finite resources and, therefore, a limit to the number of projects it can initiate and control. Pushing too many projects through a resource limited organization causes gridlock and stress. Managing the project portfolio efficiently is a fundamental principle of good project management.

Project Management Objectives:

Because most projects involve new ideas and learning (even a project to build houses or flats may involve new materials or unusual soil conditions or there may be new initiative for tenant selection or co-ownership schemes) project management has evolved a discipline to manage the new and unusual.

define the project

Single Project

reduce it to a set of manageable tasks

obtain appropriate and necessary resources

build a team or teams to perform the project work

plan the work and allocate the resources to the tasks

report progress to senior management and/ or the project sponsor

review project to ensure the lessons are learned and widely understood

monitor and control the work

close down the project when completed

It is this structured approach that makes project management the best method for change management.

PROJECT MANAGEMENT

Total Quality Management (TQM)

Improvement projects use the principles of project management especially where the improvements are cross functional ones.

The introduction of TQM aims to encourage 'divine discontent' in staff and to give them the tools to achieve continuous improvements in the way they work.

Performance Management

Performance management brings together all the best practice for managing staff to achieve their full potential.

Effective project leaders use all the principles of performance management to motivate the team but do not have the authority of a line manager.

Business Process Re-Engineering (BPR)

BPR focuses on optimizing the processes in an organization and, if necessary, redesigning them to meet the customer's needs.

In a major survey on BPR by the Harvard Business School Review the second most significant factor in the recent failure of BPR initiatives was the lack of Project Management expertise and culture. The first was the failure to analyze and understand the process requirements. The research and the implementation should be managed as a project.

Doesn't Project Management stifle creativity?

No

No - in fact a well managed project will encourage cross functional creativity because that is what is needed in 'change projects'. An experienced project manager will know when to tap into this creativity and when to drive the project forward. It is only when project methodologies become bureaucratic and override common sense that creativity can be stifled.

Project Manager

How to get started?

As with most other things in life, good preparation is essential to success. In practice this requires that you spend time discussing, agreeing, and then approving:-

The overall aim of the project and the benefit of doing it

The scope (or terms of reference) of the project

The key objectives project

The specific deliverables

The resources available to the project

Roles and responsibilities within the project

Often it is not possible to define the overall requirements until some feasibility work has been done, in which case a short feasibility study may be required. Once feasibility has been established and approved then the work may be planned in the appropriate detail. This process of planning will help the team to understand its mission better and resolve outstanding research questions. The next stage is to implement the plans and monitor progress continuously until the goal is achieved. The final stage is to close down and review the project so that the lessons learnt are passed on to the next project.

PLC

The Project Life Cycle

Simple Project

Yes → **Defined Milestones** → **Checklists & Inspection**

No →

For complex projects in a large organization a more structured approach is needed, to set up and approve the project, monitor and guides its progress, solve its problems, deliver the end product (or gain) and close it down.

In order to understand the methodology we need to look at the project life cycle. The detailed life cycle will be dependent upon the size and type of organization and the size and type of the project. However, in outline they all have very similar elements.

Preparation → Preparation

Start Up → StartUp

Feasibility → Feasibility

Definition & Planning → Definition & Planning

Implementation → Implementation

Close Down → Project Close Down

Preparation

Preparation

P.I.D. Plan

Project Initiation Document (PID) - Configuration Management System

The configuration management plan should be produced as part of the project initiation document (PID).

The preparation stage involves the project manager and sponsor in the preparation and approval of an outline project justification, plan and project budget.

Board of Directors

Management

There is no reason why a project sponsor should not also be the project manager. A senior manager who has a strong business reason to drive the project will have the organizational authority and "clout" with other senior managers and will often make an excellent project manager.

Project justification?

Can Project be modified to meet requirements, or should project be scrapped?

EVA Reports

EVA Monitoring

Yes

No

No

Yes

to Project Start UP

Yes

Create the Project Plan Outline

Monitoring EVA

Create the Project Budget Outline

Close Down

Research & Development

VISIO CORPORATION

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Finance

QA Criteria

Product Descriptions.

The product description should **describe the purpose, form and components** of a product.

It should also list, or refer to, the quality criteria applicable to that product.

Product Descriptions.

Each product description may **either apply to a specific item, or to all the products of a given type.**

Complex Product

The **component products** of a complex product *may be described in separate descriptions*, giving rise to a *hierarchy of product descriptions* for that product.

StartUp

StartUp → **Start Up**

to Project Start UP

Selection and **Briefing** of the project team

The Project Sponsor

The project sponsor should be a senior person in the organization who has the most to gain from the project's success and the most to lose if it fails.

The project customer

The project 'customer' should either be a member of the steering team or represented on that team.

Middle management

Ensuring that all projects are selected, allocated, steered and closed down satisfactorily. Ensure that projects that are not approved are not worked on.

The Steering Team

a large project a formal cross functional senior team

The steering team may only be one person on a small project (perhaps the project sponsor) who meets informally with the project manager.

discussion on the roles of the Project Team

discussion on the roles of the Organization

Feasibility or Research stage

On a large project a formal cross functional senior team will be set up to meet regularly to review progress and provide strategic guidance.

Setting the conditions and culture such that the business can select and implement appropriate projects to support the business.

Functional or line managers

The line manager of each team member will want to be kept informed about the progress of the project and be involved in setting of individual objectives.

To use the tools and techniques to manage projects effectively.

Feasibility or Research stage

Definition & Planning

work will be undertaken by the team (which may include external consultants)

Project Manager coordinates the work

Feasibility or Research stage

Feasibility

Research & Development

Establish the risks

Establish key success measures

This team should consist of the key users or main beneficiaries of the beneficial change the project is delivering (hence the term 'project deliverables' or 'products'. They may be line managers, supervisors or staff with particular skills. They must be the best people available and never those 'who can be spared' because they have difficult or awkward personalities. The object is to build a team that is better than the sum of the individuals.

Identification of External Resources

Specialist consultants required?

Product and Service providers required?

NOTE: it is often the difficult people who consider and manage the detail. Their expertise and diligence should not be ignored but they are usually happier working in a solitary way or with like minded individuals.

Unless the organization undertakes research or new product development, feasibility often means 'can this process or technology be cost effectively applied to the organization or department', rather than is it generally feasible.

Tender services, for the project.

Tender software, for the project.

Tender goods, for the project.

Definition & Planning

Definition & Planning

Project Manager coordinates the work

work will be undertaken by the team (which may include external consultants)

Defining and planning the project in more detail by writing and publishing a full definition of the project.

Config. Item Baseline

Determining a project plan.

Quality Assurance Specification

An important part of defining the end-product of the project is the specification of its quality related features - which the project must then aim to deliver.

Configuration Item Baseline

In the first instance, a configuration item should be created and _documented as the first version._

The first baseline for a configuration item will be established when the specification of the item has been prepared, reviewed and agreed.

Quality planning is an integral part of the planning activity.

Quality related activities should also be explicitly integrated into the resource and technical plans.

Quality planning should have a significant effect on the overall size and scope of the projects plans

Both should be communicated widely to ensure maximum understanding of the project's objectives by all staff who will be affected by the project. Now is the time to ensure their input to minimize surprises at a later stage.

QA Spec.

Quality planning manifests itself in the product descriptions , specifically in their quality criteria.

The _tasks required to ensure the quality_ of the delivered products _are often overlooked,_ with the result that the PERT chart fails to represent quality related work.

This can have serious consequences for either: the quality levels achieved, the overall budget, or both.

The PERT chart also clearly identifies the critical path, which is the sequence of related activities which will take the longest time to complete.

It is important that every task required to accomplish the project _is included_, _or accurate project planning will be jeopardized._

Quality planning manifests itself in the scheduling of quality related activities in the PERT charts. .

PERT contains detailed information on the duration of each activity and the sequence in which they should be performed.

QA Pert

Implementation

Project Implementation

Is PM an integral part of this organization's culture?

No

Yes

Develop Team Building Events

Events that allow the team to work together in a competitive but non-threatening environment.

As people get used to forming and dissolving teams the need for and style of such team building events will be decided by the team.

The implementation stage involves the execution of the project as agreed

QA Plan

while carefully monitoring progress

while carefully managing changes

The team may need to be expanded at this stage to resource all the tasks

If so, it is essential they are fully briefed and feel 'included' as part of the team.

Project Close Down

The close down stage involves the satisfactory delivery (satisfactory to the project 'customer' that is) of the products or services that achieve the beneficial gain.

Project Review

What lessons learned?

Lessons learned should be formally documented .

Having attended seminars in which very senior managers have disclosed the best and worst features of their most critical projects; They are always received with respect because people like to learn from the experience of others and bad experience is often more informative than good.

Lessons learned should be formally published 'warts and all'.

Be honest about your mistakes

Mistakes are not failures, they are how we learn.

Ignoring or denying mistakes is how we fail.

Project Manager

So what does a Project Manager do?

Typically a project manager will be nominated to lead a project and will be expected to be fully accountable for meeting its objectives.

The project manager will be the leader of the project team and will be responsible for ensuring the following are completed in a timely way:-

What skills does a project manager need?

PM Skills

Gaining approval for the project aim and terms of reference

Motivating the team

Selecting and leading the team and setting individual objectives

Reporting progress back to the organization

Ensuring a feasibility study is complete

Helping the team to solve project problems

Ensuring that the project is planned in appropriate detail

Achieve, through the team, the goals

Allocating and monitoring the work and cost

Reviewing and closing down

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┌──────────┐                    ┌──────────────┐
│ PM       │───────────────────▶│ What skills  │
│ Skills   │                    │ does a       │
└──────────┘                    │ project      │
                                │ manager      │
                                │ need?        │
                                └──────────────┘
                                        │
                        ┌───────────────┴───────────────┐
                        ▼                                ▼
              ┌──────────────────┐            ┌──────────────────┐
              │ Very broad skills │            │ A deal of         │
              │ are needed to     │            │ experience are    │
              │ manage a large    │            │ needed to manage  │
              │ project           │            │ a large project   │
              │ successfully.     │            │ successfully.     │
              └──────────────────┘            └──────────────────┘
```

- **PM Tools & Techniques**
- **They include business knowledge**
- **They include technical skills**
- **They include individual and team leadership skills.**

- **Technical Skills**
- **Individual Skills**
- **Team Skills**

They will have technical skills in setting objectives

They will have technical skills in monitoring skills

They will have technical skills in planning complex tasks

They will have technical skills in managing creative thinking

They will have technical skills in negotiating resource

They will have technical skills in problem solving

They will have technical skills in financial planning

They will have technical skills as well as their own specialist topic

They will have technical skills in contract management,

Good presentation skills

Good persuasive skills

Good written skills but allied to goal orientation

High energy

Credibility

They will appreciate the differing needs of both individuals and the project team at different stages of the project.

They will be aware of different team types.

Having high energy does not mean you play squash five times a week but that you have the intellectual energy and commitment to deliver the project with a positive 'we can do it' team approach.

Good project managers know their own strengths and weaknesses and will compensate for these in selecting the team.

PM Tools & Techniques

WBS

Verifiable objective setting

This ensures that the objectives for the project can be measured and verified to ensure that they have been met.

Brain storming

This technique is used at all stages of the project to encourage creative thinking and solve problems

Work Breakdown Structures

This is a technique to analyze the content of work and cost by breaking it down into its component parts.

It is produced by :-

Identifying the key elements

Breaking each element down into component parts

Continuing to breakdown until manageable work packages have been identified. These can then be allocated to the appropriate person.

Below is a work breakdown structure for the recruitment of a new person to fill a vacant post.

Filling A Vacant Post

The Job
- The Need
  - Budget
  - Options
  - Approval
- Job Spec
  - The Job
  - Timing
  - Person

The Candidate
- Attracting
  - Advert Content
  - Advert Location
- Shortlisting
  - Criteria
  - Review C.V.'s
  - Shortlist

The Selection
- The Interview
  - Venue
  - Interview
  - Tour
  - Decide
- Post Selection
  - Terms
  - Induction
  - Relocation

Project Evaluation Review Technique (PERT) or Network Analysis

PERT

PERT

Network analysis or PERT (Program Evaluation and Review Technique)

Used to analyze the inter-relationships between the tasks identified by the work breakdown structure

Used to define the dependencies of each task.

While laying out a PERT chart it is often possible to see that assumptions for the order of work are not logical or could be achieved more cost effectively by re-ordering them. This is particularly true while allocating resources; it may become self evident that two tasks cannot be completed at the same time by the same person due to lack of working hours or, conversely, that by adding an extra person to the project team several tasks can be done in parallel thus shortening the length of the project.

CPA

The PERT chart also clearly identifies the critical path, which is *the sequence of related activities which will take the longest time to complete.*

Milestone Planning

Below is the PERT chart of the WBS shown above after network analysis as been applied.

Critical path analysis (CPA)

Milestone planning is used to show the major steps that are needed to reach the goal on time.

Work Breakdown Structure - WBS

Network Analysis applied

Yes

CPA is used in conjunction with PERT analysis to identify the tasks that are critical in determining the overall duration of the project.

Gantt Chart

Accrued cost and Earned Value Analysis

Milestone Report

Senior Management

Critical Path is shown by the tasks with heavy outline boxes.

Information Systems

EVA

Management

Quality Assurance

Accounting

QA Pert

Agree Format

Devise Tests

Set Criteria

Establish Need | Job Desc | Write Advert | Place Ad | Short List | Invites | Interview | Take Decision

Choose Ad Loc

Set Target Date

Establish Lead Times

Book Venue

EVA

Finance Management

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Finance

Accrued cost and earned value analysis

These measures enable the progress of the project to be monitored in financial terms.

Earned value analysis, or EVA, represents a practical approach to measuring the progress of a project against the plans and this approach is based on variance analysis.

Relies on the measurement of the actual amount of work that has been done at a given date

✕

multiplication of this by the associated cost rates

Cost/Schedule Control System Criteria

C/SCSC

(used by Governments and Large Contractors)

Since EVA relies on the measurement of the actual amount of work that has been done at a given date and the multiplication of this by the associated cost rates, many of the delays associated with variance analysis can be eliminated.

EVA requires the ongoing measurement of the actual work done, which is normally taken from timesheets.

The useful work completed also requires measurement, normally by physical observation.

EVA Variables

Timesheets

Physical observation.

EVA should reflect all of the significant non-productive manpower costs associated with the project

Tasks which have **started** but are not yet complete the problem of quantifying the earned value is compounded if **tasks of long duration are involved**

for example costs incurred for project management and administration should be factored in to give a realistic figure.

Therefore EVA is made easier by having a larger number of shorter tasks in the plan.

Earned value analysis has several advantages;

EVA compares like terms

A single piece of paper can often adequately summarize the progress of the project.

EVA is quick to apply in practice

ID	Task Name	Duration	'97 F	S	S	28 Jul '97 M	T	W	T	F	S	S	4 Aug '97 M	T	W	T	F	S	S	11 Aug '97 M	T	W	T	F	S
1	Establish the need	2d				■	■																		
2	Set target date	1d						■																	
3	Establish leadtimes	1d							■																
4	Book venue	1d								■															
5	Choose advert location	1d						■																	
6	Agree format	2d						■	■																
7	Devise tests	5d								■	■	■	■	■											
8	Job description	2d						■	■																
9	Set criteria	1d								■															
10	Write advert	2d								■	■														
11	Place advert	1d												■											
12	Shortlist	3d													■	■	■								
13	Invite candidates	1d																			■				
14	Conduct interviews	3d																				■	■	■	
15	Take decision	1d																							■
16																									
17																									

Running Multiple Projects?

Yes →

If an organization is considering managing a portfolio of projects it needs to consider 5 key areas:-

→ **Commitment of the senior management team to the effective use of project management and its acceptance by staff.**

→ **People in the organization who have been trained in the principles and practice of project management are required.**

→ **Systems that provide the information needed by senior management to manage the portfolio of projects.**

→ **A methodology that is clearly understood by everyone and which every project will follow.**

→ **An organizational structure to select the projects that support the strategy, guide them, prioritize them and close them down.**

No

Single Project

Yes →

Program Manager (sometimes known as a Change Manager)

The role is a strategic one. He or she will have command of Project Managers and Project Leaders who report for individual projects.

The Program Manager is responsible to the Senior Management for the portfolio of projects under his control.

The Program Manager is responsible for ensuring that the portfolio of projects deliver the beneficial business gain intended.

Project Manager

A Project Manager is experienced in the skills and disciplines of project management, may manage more than one project at a time and may have Project Leaders as directly reporting staff.

Project Leader

A project leader usually manages a project stage or a small project where his or her particular skills or expertise are a large part of the work. A Project Leader may report to a Project Manager or to the Program Manager.

EVA Variables

The Earned Value Analysis Variables.

The earned value approach to project control overcomes the problem of managers making decisions based on isolated information.

Three basic variables relating to budgetary and actual costs

These variables can be used to analyze the project, at any level, to establish a variety of useful parameters.

BCWS

The Budgeted Cost for Work Scheduled (BCWS) is the value of work that should have been done at a given point in time.

BCWP

The Budgeted Cost for Work Performed (BCWP) is the value of work actually done at a given point in time.

ACWP

The Actual Cost for Work Performed (ACWP) is the actual cost of the work done and it may vary from that budgeted.

It indicates the budget and work targets at a given point.

It takes the work that has been done and the budget for each task and indicates what portion of the budget should have been spent to achieve it.

ACWP is the amount reported as actually expended in completing the work accomplished within a given time period.

Earned Value ___ **Percentage Complete** ✖ **Budget**

As defined by the Budgeted Cost for Work Scheduled (in either cost or man-hour terms). (BCWS)

This variable is sometimes referred to as Earned Value.

Cost Variance. ___ **A measure of the deviation between the Earned Value** ___ **and the actual cost of the work performed (ACWP)**

Example: A project has a EVA Variables

Example:
A project has a
EVA Variables

#1: Example
Project
(at specific point
in time)

BCWP
$25,000

ACWP
$30,000

Cost Variance

BCWP - ACWP =
- $5,000

In other words it
is overspent by
$5,000 or 20%.

Percentage Cost
Variance

Cost Var. / BCWP =
-20%

BCWP
$25,000

BCWS
$30,000

Schedule (Cost)
Variance

BCWP - BCWS =
- $5,000

Schedule variance (cost),
is a measure of the
deviation between the
actual progress and the
planned progress. This is
usually measured in
units of cost rather than
time.

Cumulative
Cost
Curves

#2: Example
Project
(at specific point
in time)

the project
may be on
schedule but
under-
spending

Scheduled
expenditure is
$50,000 per week
for the first four
weeks,

BCWS = $200,000
ACWP = $170,000

It is only when the earned value (BCWP) is known that the status of the
project can be determined.

or it may be
behind
schedule and
over-spending

BCWP

= $150,000

Cost Variance

BCWP - ACWP =
- $20,000

Percentage Cost
Variance

Cost Var. / BCWP =
-13.3% over-spent

Schedule (Cost) Variance

BCWP - BCWS =
- $50,000 or 25% behind
schedule

Cumulative Cost Curves

Understanding Cumulative Cost Curves.

The three variables BCWS, BCWP and ACWP should be plotted graphically as the project progresses.

Note: that normally the solid curves represent actual data and the dotted curves represent projections.

Board of Directors

EVA Reports

Management

BCWS curve

Only the BCWS curve can be plotted in advance

It is these 'cumulative cost curves' that enable analysis of the project to be undertaken at any point in time.

ACWP

The ACWP curve is plotted by measuring the actual work done as recorded on timesheets.

BCWP and ACWP curve

The BCWP and ACWP cumulative cost curves are normally plotted on a weekly or monthly basis.

Cost Variance

The cost variance can be established at any point in time by referring to the difference between ACWP and BCWP.

Remember, cost variance is a measure of the deviation between the earned value and the actual cost of the work performed.

BCWP

The BCWP can be calculated by multiplying the assessed percentage complete by the budget (BCWS).

Schedule Variance (Time)

The schedule variance (time) can be established at any point by referring to the difference between BCWS and BCWP - but with reference to the horizontal axis.

Schedule Variance (Cost)

The schedule variance (cost) can be established at any point in time by referring to the difference between BCWS and BCWP.

Remember, schedule variance is a measure of the deviation between the actual progress and the planned progress.

This variance is normally converted to a percentage value to avoid representing the schedule variance in cost units.

Project Variance Report - 00000039: Tellicom Ltd Alpha

Values Shown: Costs
Date Range: 23-May-2005 to 06-Oct-201
Graph Type: Cumulative

Chart | Data

3D

Project Variance Report

00000039: Tellicom Ltd Alpha

— Earned
— Planned
— Actual
— Current
— Time Now

Cost (£)

7,000
6,000
5,000
4,000
3,000
2,000
1,000
0

01/02/2007   01/06/2007   01/10/2007   01/02/2008   01/06/2008   01/10/2008

Time (Weekly for whole of Project Lifespan)

Monitoring EVA

Monitoring Efficiency.

In addition to calculating the cost and schedule variances earned value analysis can also supply figures that quantify how efficiently the project is progressing.

The formulae on this page provide feedback on performance efficiency in relation to the Budgeted Cost of Work Performed.

An index value of 1 indicates that the project is entirely in line with the plan.

An index value >1.0 indicates exceptional project performance.

An index value < 1.0 indicates performance below planned expectations.

Monitoring Progress.

One of the most important benefits of EVA is the calculation of the Overall Percentage Complete of either a complete project or sub-project.

This is obtained by dividing the total earned value, which is the sum of all the individual earned values, by the original budget.

It is this variable together with the predicted final cost and cost variance that will be of most interest to senior management.

EVA Monitoring

Budget Variance.

As a project progresses it is usually important to monitor the overall costs of the project in relation to the original budget.

Budget variance is a key measure of the anticipated cost of the whole project at some time after project initiation.

Once again a negative value indicates a budget overrun.

Estimated Cost at Completion (ECAC)

Estimated Cost at Completion is a revised prediction of how much the project will cost (it takes into account the money spent so far and your current estimate of the total resources required to complete the project).

Budgeted Cost at Completion (BCAC)

Budgeted Cost at Completion is the original budget for the whole project.

QA Plan

QA Criteria

QA Spec.

Quality

"Quality is the totality of features and characteristics of a product or service which bear on its ability to satisfy a given need".

Quality Conscious Industrial and Business Practices

This has been identified as being of the utmost importance in gaining and retaining a competitive edge.

In the context of a project that aims to deliver a complex end-product, the quality aspects of that end-product will need to be _planned, designed and worked fo_r.

Quality Criteria.

Quality criteria should be used to define the characteristics of a product in terms that are quantifiable, and therefore allow it to be measured - at various points in its development life cycle, if required. .

The _criteria_ effectively _define 'quality' in the context of the product_ and are _used as a benchmark against which to measure_ the finished product.

Quality criteria should be _detailed_, or referred to, in the related product description.

Quality Criteria.

Quality criteria should be _established by considering what the important characteristics of a product are_ in satisfying the need that it addresses, and they should _always be stated objectively._ Subjective or descriptive criteria such as 'quick response' or 'maintainable' are unsatisfactory - _as they do not permit meaningful measurement._

Quality Policy

Defines the reporting policy and responsibility of management in the QA function of the corporation.

Results of Quality Plans

Reflected in the resource and technical plans, at each level of the project.

Quality Assurance

Its aim is to achieve and assure quality through **the adoption of a cost effective quality control system**

Its aim is to achieve and assure quality through the adoption of a cost effective quality control system

Quality Management

Defines the reporting policy and responsibility of management in the QA function of the corporation.

QA requires agreement on the level of quality controls to be adopted, both specifically relating to the project and to the overall organizational policy.

It is important that all three interests represented by the project owner are taken into account when deciding the mechanisms to be adopted.

Combine to assure the client that the product will be consistently manufactured to the required condition.

Quality Control Functions

Quality control is concerned with ensuring that the required qualities are built into all of the products throughout their development life cycles.

...and through _external inspections and audits._

QC Functions

QC Functions

Quality Control Functions

Quality control is concerned with ensuring that the required qualities are built into all of the products throughout their development life cycles.

Quality Control Functions

Quality control utilizes measurable quality criteria and is exercised via:

Change Control

Quality Reviews

Project Reviews

Testing of Products

Quality Reviews

Quality reviews are planned and documented inspections of a review item.

The review item may be a product, a group of related products or part of a product.

The quality review is a formal procedure for reviewing a product, or group of related products, against an agreed set of quality criteria.

The review meeting should be **run by a designated chairman** and brings together the reviewers and a designated presenter

Config Mgmnt DUR change

Chairman of Review Committee

This role is normally undertaken by the lead developer of the product to be reviewed.

Review Committee Chairman

Chairman of Review Committee

The chairman should be responsible for organizing the review, including the initial selection of reviewers.

Error Detection

The **earlier an error is identified the less costly** are the implications and the penalty <u>for failing to conduct adequate reviews</u>

The early detection of errors also minimizes the degree to which faults in one product can be compounded - either in its later development or in the development of related products.

Quality Reviews

The *scheduling of quality reviews* is likely to represent a *significant effort* in terms of *required resources.*

Chairman of Review Committee

The presenter should ensure that all reviewers have the information they require, ahead of the review meeting.

Chairman of Review Committee

The Presenter is *normally responsible for correcting errors found at the review and therefore <u>should record</u> all the agreed points.*

Quality Review Personnel

Quality Reviewers

They should set the agenda for, and ensure the smooth running of the review itself, *striving to minimize deviation and protracted discussion of potential solutions*.

Quality Reviewers Follow-Up Phase

During the **<u>follow-up phase</u>** one or more reviewers should confirm that the corrective work was carried out and that no undesirable side effects occurred.

QR Phases

Quality Reviewers

The *main duty* of the reviewers is to <u>check the item under review against the relevant criteria as defined in the product descriptions and other review checklists.</u>

QR Phases

Quality Reviewers

Quality reviews should be seen as a *three phase process*

ConfigM gmnt

Phase 1 –
Preparation.

Preparation, which *precedes* the actual review meeting.

Chairman Preparation

Invitations and copies of the products being reviewed should be issued, allowing sufficient time for *each reviewer to compile an error list -* which they should **bring to the review meeting.**

Quality Reviewers Error Lists

Compiled independently by each reviewer -

error lists detail any significant defects observed in the review item.

Each reviewer should *inspect* the review item *from a particular viewpoint -* for example, a user or operator.

Chairman Preparation

Following the quality review meeting the follow-up action list; as agreed by the reviewers and *completed by the chairman* should be forwarded along with all copies of the annotated product *to the presenter.*

Complete Reviews

action list tasks are allocated along with designated reviewers, to verify that the work is done.

Complete Reviews

the chairman should forward the *follow-up action list* and all *copies of the annotated product* to the presenter together these represent all of the errors identified.

Complete Reviews - Results Notification

The chairman should also **distribute copies** of the *result notification* to the presenter and the reviewers.

Non-Review Items - Project Exception Report

A project exception report should be raised for any errors detected in non-review items.

Phase 2 –
The Review Meeting.

The central phase of the quality review process is the review meeting itself.

Quality Reviewers Error Lists

During the review meeting the emphasis should be on error detection, in line with the criteria, and only limited discussion of corrective action should occur.

error lists detail any significant defects observed in the review item.

'personalities' and 'politics'

It is important that 'personalities' and 'politics' are kept out of the review - in particular it is essential that the review remains focused on the review item and not on the presenter.

Incomplete Reviews

If the review ends abnormally it should be deemed 'incomplete'.

Phase 3 –
The Follow-Up.

Following the quality review meeting there should be a follow-up period during which the errors identified at the review that were committed to the follow-up action list are rectified and signed off.

Change Control

Project Exception Report

If there is an *urgent need for the product, and the rework cannot be carried out in the allotted time, then a project exception report should be generated, requiring the project manager's approval.*

Phase 3 –
End of the Follow-Up.

At the end of the follow-up period, which is **typically restricted to one week,** the follow-up action list should be signed-off by the chairman.

QA Further Actions

Phase 3 –
End of the Follow-Up.

A reviewer may be delegated to sign-off areas of remedial work, usually those that they identified.

ConfigMgmnt

DUR Status

Config Mgmt DUR change

Config. Mgmnt.

PID SetUp

Configuration Management System
Once *the follow-up action list* has been signed-off *the re-worked product should be resubmitted to the configuration management system.*

DUR - Configuration Management System
The appropriate project manager is responsible for scheduling all of the work for approved document update requests. This work must take into account all of the changes to every configuration item that requires change.

DUR - Project Monitor CMS
This work should be *monitored* and *if planned resources and/or deadlines may be violated* then this should be *brought to the attention of the overall project manager.*

Configuration Management System
Configuration management is a method for administering an evolving, and often interrelated, set of products and project documentation.

CMS Procedures
The **application of effective procedures** should ensure the *accurate* and *up-to-date* documentation and distribution of all relevant product components and project information.

Configuration Management System
On receiving a *completed Document Update Request* the **person responsible** for the Configuration Management System should *ensure* that *all* of the *products* that *should have been changed are returned and document this.*

Configuration ITEMS
All of the *products* and *documents* that require the administrative controls of the configuration management method being used are *called configuration items.*

Configuration Management System
Configuration Management should be **applied to projects of any significant size**, and should be the *day-to-day responsibility of a single individual.*

Configuration Item Audit System
Configuration audits consist of cross checking the configuration item description records with the current version of the configuration item as held in its development folder.

WBS

Configuration Item Description Record
A configuration item description record should be used to record the information needed to identify and track each configuration item through its development life cycle.

Configuration ITEMS
Initially the overall end-product (*or project deliverable*) can, theoretically, be viewed as the only identifiable configuration item. However, an increasing number of configuration items will usually be identified as the end product is sub-divided into the manageable elements represented in the *work breakdown structure (WBS).*

Configuration Management System
Where products constitute sub-assemblies of more complex products, the approach used must be able to track all such relationships, enabling the accurate analysis of all associated information.

CM Item Release
A release consists of a specified set of products from one or more base-lined configuration items, which are issued as a set for a specific purpose. Releases should be authorized by the project or sub-project manager.

Configuration Item Description Record Procedures
Configuration control is concerned with the **procedures for the issue** and **submission of configuration items.** *These procedures should address both physical and electronically stored configuration items.*

Configuration Item Baseline
In the **first instance**, a configuration item should be created and *documented as the first version.*

The first baseline for a configuration item will be established when the specification of the item has been prepared, reviewed and agreed.

Configuration Item Baseline Version System
The configuration item may then undergo a number of modifications as it is tested and errors corrected, or as changes are requested and these subsequent submissions should be reflected by an increasing version number.

Subsequent Baselines
Subsequent baselines will normally be established at points at which the configuration item is ready to be used as a basis for further work in which a major transformation of it will take place.

P.I.D. Plan

Config. Item Baseline

QA Further Actions

Phase 3 –

End of the Follow-Up Review

Further Actions

At the end of a review the chairman should designate it as 'complete' or 'incomplete'.

Re-Review of *Incomplete Review*

The *objective* of the re-review is *to ensure that the review item receives adequate quality review,* given that the initial review was designated 'incomplete'..

Re-Review of *Supporting Documentation*

The supporting documentation should be passed, along with the *Chairman's recommendation,* to the appropriate project manager who should decide, as soon as possible, on *subsequent action*.

Re-Review of *Subsequent Action.*

Declare Complete

Declare Complete, on reviewing the information the *project manager may decide that most, or all, of the errors have in fact been identified and that a further review is not justified.*

Re-Review of *Subsequent Action.*

Reorganize,

Reorganize, this option is useful in situations where the *project manager wishes to change the composition of the review team,* perhaps to *include people with more specialist skills.*

Re-Review of *Subsequent Action.*

Re-Work

Re-work, this option is *useful where the product was deemed inadequate, or requires a second review* to *verify that all errors have been satisfactorily resolved.*

Re-Review of *Subsequent Action.*

Reconvene

Reconvene, if *key reviewers* were unable to attend or the review ran out of time **this option** enables the later continuation of the meeting.

Re-Review of *Subsequent Action.*

Abandon

Abandon, in *exceptional circumstances* where the *product under review is urgently required* the *decision may be taken to abandon further review, using the product 'as is'.*

Re-Review of *Subsequent Action.*

Declare Complete

This is *effectively bypassing the normal rigors of the quality control system* and *should only be considered in exceptional circumstances -* for *example, severe resource shortages,* and *within the context of a non-critical product.*

Re-Review of *Subsequent Action.*

Project Delay?

This may delay the project if the reconvening moves the product completion date back.

Re-Review of *Subsequent Action.*

Abandon
Project Exception Report

Errors identified in the initial review will not be corrected but noted on a project exception report recommending that a document update request is used to highlight these deviations in the delivered product.

Re-Review of *Subsequent Action.*

Abandon
Document Update Request

A *Document Update Request is used to highlight deviations in the delivered product.*

Change Control

The Big
4 Threats

No matter how carefully planned a project has been, changes will need to be made as it progresses. These will result from both external influences as well as problems that arise within the project environment.

Business Changes

Business changes, which may result from:

changes in *legislation*,

changes in *government policy* or

changes in *business strategy.*

Marketing / User Changes

Marketing/user changes, which may result from:

changes in the *requirements of the customer*, who may be either part of, or outside of, the organization.

It is also possible that feedback gained during the review or testing of a product *may show that it is inappropriate in some unforeseen way*.

Technical Changes

Technical changes may be required as *emerging technology may offer a better solution* to that originally planned.

Alternatively, *technical problems* may prevent a product from working in the way that it was supposed to.

High Level Business Decisions

High level business decisions may change the *basic terms of reference of the project* - for example there may be a change to the overall scope of the project.

Proposed Project Alterations / Changes

Prioritize and *plan* the necessary work, and finally *control its implementation.*

It is important that no action is taken without the authority of the appropriate level of management.

Change Control Process

This process, called change control, should ensure that proposed changes are interpreted in terms of their potential effect on:

Change Control Process

Project Timescales

Change Control Process

Project Costs

Change Control Process

Project Benefits

Change Control Process

Project Quality

Change Control Process

Project Personnel

Proposed Project Exceptions

There are 3 possibilities:

Firstly, *that the impact of the change does not exceed the sub-project tolerance.* In this case the *decision rests with appropriate sub-project manager*.

Secondly, that the *impact of the change falls outside of sub-project tolerance but within project* tolerance. In this case the *decision rests with the overall project manager, who may wish to consult the project owner.*

Finally, the impact of the change may exceed the project tolerance - in which case the *decision is the responsibility of the project sponsor.*

Project Exception Report (PER).

Any person associated with a project should be able to <u>raise any concern they have at any time.</u>

The concern *may involve a perceived problem or a suggestion for an improvement* to:

some area of the work, documentation or project organization.

Proj Exception Rpt

Proj Exception Rpt

Project Exception Report (PER).

Any person associated with a project should be able to <u>raise any concern they have at any time.</u>

The concern may involve a perceived problem or a suggestion for an improvement to:

some area of the work, documentation or project organization.

Project Exception Report (PER). Meeting

All project exception reports should be reviewed at regular meetings (a PER Meeting).

<u>*The meeting should recommend one of the following outcomes shown for each project exception report:*</u>

Project Exception Report (PER). Meeting

All project exception reports should be reviewed at regular meetings (a PER Meeting).

<u>*The meeting should recommend one of the following outcomes shown for each project exception report:*</u>

DUR & CR

Document Update Request (DUR)

A document update request (DUR) will be the preferred option where <u>a product is found not to conform to its product description</u> but where <u>changing the product description is considered preferable to re-working the product</u> in line with its original description.

Project Exception Report (PER) - Rejected

Rejecting a project exception report <u>indicates that, after due consideration, it is not felt to represent a significant concern.</u>

Project Management Decision

This will enable project management to decide whether to proceed with the change or not.

The appropriate project manager <u>should use the impact analysis</u> to <u>assess the change in terms of its effect on timescales, cost, benefit, quality, personnel and risk</u> and to decide at what level the decision to proceed should be taken. The appropriate <u>project manager should then determine whether or not the proposed change will exceed the permissible tolerance.</u>

Change Request (CR)

A change request (CR) will be the preferred option where there is a <u>requirement to change the design or features of a product,</u> even though that product currently agrees with its specification or product description.

Impact Analysis Report (IAR)

The purpose of the impact analysis is to <u>arrive at a balanced view</u> of the <u>effect of the proposed change on the projects ability to satisfy its mandate</u>.

The reviewers, who should include all project coordinators, may decide that they require more information before a decision can be taken.

<u>*This process looks at the knock-on effects of the change on other products, and also the effect if the changes are not implemented. The analysis will ideally be carried out from the business, marketing or user and technical viewpoints - as appropriate.*</u>

IAR

DUR & CR

Project Manager - Document Update Request (DUR) or Change Request (CR)

A __Document Update Request__ or __Change Request__ can __only be raised on the authority of the Project Manager.__

Project Manager - Document Update Request (DUR)

It should refer to the __Project Exception Report (PER)__ which originated it and should contain sufficient detail to enable the fault it is concerned with to be recreated.

Change Request (CR)

This is a __standard form that is used to change a product design - to reflect a significant amendment to the original design.__

It records a proposed modification to the products to be developed, or a change in the management or technical approach adopted.

Document Update Request (DUR)

This is a standard form that is used to update a product design to reflect how it is in its current implementation, rather than how it was in its original design.

Document Update Request (DUR) or Change Request (CR)

Once it has been assessed a Project Exception Report (PER) may be classified as a Document Update Request (DUR) or Change Request (CR).

IAR

DUR Status

Document Update Request (DUR)

Even though the document update request indicates a change (update) to the documentation rather than a change to a product or procedure it will usually __still warrant an impact analysis__ - in order to record the ramifications of the identified product deviation on the project as a whole.

Document Update Request (DUR) - Status

When the status of a document update request is changed from __'outstanding'__ - which is its original status, it should be returned to the Configuration Management System.

Config. Mgmnt.

Technical Analysis Team - Priority Rating

They should also assign the __Document Update Request or Change Request__ with a priority rating – either:

__high__, __medium__ or __low__.

The technical team member should also conduct an __Impact Analysis (IAR)__ to ensure __no implications__ of the __proposed change have been overlooked.__

Technical Analysis Team

The __Document Update Request__ or __Change Request__ should then be passed to an appropriate person to analyze it.

A technical member of the team, with assistance from others as required, should perform a technical analysis on the document update request and establish the resources required for its implementation.

PID SetUp

Configuration Management Plan

The configuration management plan should be produced as part of the project initiation document (PID), for approval by the project owner at project initiation.

Configuration Management Plan

The *following list* is the recommended *minimum scope required* of a configuration management method. This should be adjusted to suit the needs of each particular project.

Synopsis & Purpose

This should provide a *brief overview* of the plan and *highlight any differences* in approach *to existing site standards* - with a justification thereof.

Synopsis & Purpose - Aim of the Activities

It should also *explain the aim of the activities defined* in the plan.

Any dependencies on configuration management plans from other projects should be identified.

Configuration Management Plan

Where appropriate configuration management should continue throughout the life of the delivered end-product, and therefore the *approach adopted should be transferable to the client organizations operational and maintenance sections at the end of the project.*

Configuration Management Plan

If other projects within the organization are using a configuration management method then this should be seriously considered for the current project, particularly if the two projects share any areas of interest.

References

This serves to *identify all other standards to be used* by the configuration management method.

Configuration Item Identification

This section should specify the *naming and numbering conventions to be used* for all types of configuration items.

Config. Item ID

Responsibilities

The *clearest representation i*s a *responsibility matrix,* showing which role should carry out each activity in the plan.

The configuration administrator will feature often.

Scope

This should *outline the full range of tasks* in the plan, in particular it should *consider all areas that have links with associated projects* or that may be bringing in prefabricated components.

Scope - Special Operating Requirements

Any *special operating requirements* should also be considered.

It should *also define* which *items* are to be managed under the plan and *which are outside the plans control.*

Filing

This section *defines in detail the filing structure to be used for each category of configuration item.*

This should cover hardware, software, documentation, human and machine readable items.

Definitions, Abbreviations and Acronyms

This is a short glossary; that should be produced to support the plan if necessary.

Document Issue Procedures

This should *define* the *procedures* to be *used for issuing and distributing copies of all managed documents.*

Security

This should *define* the *access security measures for the master copies of all configuration items.*

Config. Item ID

Configuration Item Identification

When any member of the project team *creates any new item of project documentation that requires distribution to a variety of other project staff,* they should *submit it to the configuration administrator,* or whoever is designated as being responsible for administering the configuration management procedures - *in order that they can decide whether or not it constitutes a configuration item (CI).*

If the configuration administrator decides that the article does require the formal procedures of the configuration management method they should give it the status of CI.

Configuration Item Identification - CI Description Record - Configuration Administrator

As CI's are identified, each should have a *CI description record created for it* - which *should then be forwarded to the* **configuration administrator** *for filing*.

The *CI description record* should *contain all of the information needed to identify and track the item through its development life cycle.*

CI Audits

Configuration Item Identification - *Not Required*

The *configuration administrator may decide* that the *article does not require all the rigors of configuration management* and therefore not create a corresponding CI.

In this case the **article should be distributed & administered outside of the configuration management system.**

Configuration Item Identification - CI Description Record - Configuration Administrator - *Configuration Item Issue & Submission Procedures*

Issue and submission procedures are concerned with the submission of and access to the identified CI's.

These procedures will relate to administrative items as well as those pertaining to the evolving products.

Without careful control over the issue and submission of CI's the configuration management process can collapse.

Configuration Item Issue & Submission Procedures - Re-Submission

Only when the *author of a new or revised product or document* is satisfied that it is complete or ready for review should it be *re-submitted to the configuration administrator.*

The submission procedure should not be used to introduce new CI's.

Configuration Item Identification - CI Description Record - Configuration Administrator - *Configuration Item Issue & Submission Procedures - Software Control*

Due to the increasing use of computer networks to support project work, *control can be significantly more difficult* than for products and hardcopy documents.

The *use of password protected files and directories* should help, *but the recall of obsolete versions can cause problems*.

CI Control

CI Control

Configuration Item Identification -
CI Description Record -
Configuration Administrator -
Configuration Item Issue & Submission Procedures -
Software Control

In relation to quality reviews, the administrator should be responsible for *issuing a copy* to each reviewer, in line with the issue procedures, and *filing the original in the relevant development folder*.

The configuration administrator should never issue the master copies of base-lined CI's.

It is important that current official copies are readily identifiable, to avoid any obsolete documentation being used as the basis of future work.

Configuration Item Issue & Submission Procedures - Software Control Issue Log

The administrator should *maintain an issue log* for each CI, which records:

the
1) identity and
2) version of documents issued,
the
3) name of the recipient,
the
4) authority for and
5) purpose of the issue
and the
6) date of issue.

Configuration Item Change Request - Document Control Issue Log

When a **document** is the subject of an approved **change request**, the *administrator should issue a copy to the appropriate person to carry out the work and notify all other copy holders of the impending change.*

On completion it should be passed back to the administrator, who should only then make it available for further changes.

Ideally when a new version of a CI is issued, earlier and now obsolete, copies should be recalled and destroyed.

C.I. - Property Report *Issue Log*	
1) Based on: PM_Draw_20130514.vsd	Range of data:
4) Creator: Money	**5)** Purpose of report:
3) Spreadsheet:	
2) Created: 7/12/2010, 7:55:15 PM	CONFIDENTIAL

Configuration Item: Configuration Audits.

Configuration audits consists of *cross checking the CI description records with the current version of the CI as held in its development folder.*

These **audits** are normally carried out ahead of each project review, although they can be requested at any time by the project manager or the project owner.

Configuration Item: Configuration Audits.

Configuration **audits** should establish **that:**

1) the current physical representation of each CI matches its current specification,

that there is
2) consistency in design between each CI and its parent, if there is a parent.

Finally it also
3) establishes that the documentation is up to date and

4) all relevant standards are being adhered to.

CI Audits

Configuration Item: Configuration Audits - Log

The configuration administrator should be responsible for *producing all scheduled and ad hoc reports on the status of the CI's* at an given point in time.

Typical reports that may be required include:

1) numbers of change requests and
2) number of project exception reports opened during a specific period,
3) closed during a specific period,
4) those currently open and
5) unresolved document update requests.

Acceptance Criteria.

Acceptance criteria, or quality criteria, are those characteristics of a product against which it can be objectively measured in order to determine whether it meets the
specified requirements. These criteria therefore define 'quality' in the context of that product and are specified in the appropriate product description.
ACWP.

Baseline.

A baseline is a snapshot of the state of a configuration item (or a plan) and its component configuration items at a point in time. Baselines, plus approved changes from those baselines, constitute the current configuration identification. Baselined plans represent those which have been formally agreed and accepted; each baseline should be permanently recorded - so that it can be recalled at any future time.

ACWP - Actual Cost for Work Performed

This is the actual cost of the work done, which may vary from that budgeted. You do not need to know how much has actually been spent - just the amount of work done multiplied by the associated unit costs.

BCWP - Budgeted Cost for Work Performed.

BCWP - Budgeted Cost for Work Performed

This is the value of work actually done at a given point in time. It takes the work that has been done and the budget for each task and shows what portion of the budget should have been spent to achieve it. This variable is often referred to as 'earned value' as it represents the true value of the work that has been completed.

Approval to Proceed.

This formal approval is given by the project owner at project initiation and at each main project review, prior to commencement of the work involved in the next phase. It represents a commitment to further expenditure up to the end of the next phase of the project.

BCWS - Budgeted Cost for Work Scheduled.

BCWS - Budgeted Cost for Work Scheduled.

This is the value of work that should have been done at a given point in time, it indicates the budget and work targets at that point in time.

Arrow Diagram.

There are two basic networking techniques called :

1. Arrow diagram method (ADM) - also called network-on-arrow.
2. Precedence diagram method (PDM) - which uses activity network diagrams.

The arrow diagram approach depicts activity information on the arrow or relational link. The preceding and succeeding activities are more clearly highlighted and this can be useful when dealing with a large network. However this method has been largely superceded by the PDM approach which has been incorporated into most project management software packages.

PMG_
B-C

PMG_ B-C

Budget Variance.

As a project progresses it is important to monitor the overall costs of the project in relation to the original budget. These values are :

ECAC - Estimated Cost at Completion

This is a revised prediction of how much the project will cost (it takes into account the money spent so far and your current estimate of the total resources required to complete the project).

BCAC - Budgeted Cost at Completion

This is the original budget for the whole project.

% Budget Variance

% Budget Variance = (BCAC - ECAC)/BCAC * 100

Chairman.

The chairman of a quality review should ensure that the review process is properly organized in all three of its phases; preparation, review and follow-up. He/she chairs the review, records the actions noted by the reviewers and ensures that the direction of the review does not stray from its main aim - to detect errors.

Business Case.

The business case details the justification for undertaking, and for continuing, a project. It is used to define the financial and other benefits which the project is expected to deliver, and the cost, timescale and other constraints within which the project is required to operate and against which its performance will be evaluated..

Change Control.

The recommended change control framework is administered via the project exception mechanism. Project exceptions enable anybody connected with the project to raise any issue that is concerning them with the confidence that this issue will be analyzed via formal procedures. Project exceptions should be processed within the framework of a formal configuration management scheme.

Business Coordinator.

The business coordinator is responsible for the planning, monitoring and reporting of a variety of administrative aspects of the project. The business co-coordinator should act as the focal point for administrative controls and is responsible for seeing that quality control procedures are followed.

Change Request.

Change requests are a formal means of proposing modification to the proposed end-product. They should only be raised under the authority of the project Manager as a result of analysis of a project exception. Each change request should be evaluated and a decision made whether to reject it, adopt it immediately or adopt it at a later date. In the latter case it is "held over" and may form part of a later enhancement to the product in question.

PMG_ C

PMG_C

Configuration Audit.

Configuration audits involve verifying that all of the required configuration items are, in fact, in the stage of production indicated by the progress reporting information and that the current version agrees with specified requirements. The audits should also ensure that the technical documentation completely and accurately describes the configuration items and that all change requests have been resolved.

CIDR - Configuration Item Description Record .

The configuration item description record contains the information needed to identify and track a configuration item through its development life cycle and correctly position it in the final deliverable. This record should contain the following information :

1) Name
2) Description
3) Life-cycle description
4) List of parent items
5) List of child items
6) Staff responsible
7) Date responsibility started
8) Source - e.g. in-house, externally supplied etc.
9) Current life-cycle phase
10) Latest baseline identity
11) Product list - required for current step
12) Change history - for any associated products

Configuration Control

Configuration control is the process of evaluating, approving and coordinating changes to configuration items after formal establishment of their configuration identification description record.

Configuration Administrator.

The configuration administrator is appointed to administer the configuration management and project exception procedures. They should control the receipt, storage and issue of the products created during the life of the project. This role may exist within the project team, or externally with responsibility for the delivered end-product - rather than being concerned with the project itself.

Configuration Identification.

The process of identifying and designating the configuration items in a project and recording their characteristics. The method and scope of identifying configuration items should be designed to address the requirements of each individual project.

Configuration Management.

Configuration management is the process of identifying and defining the configuration items within the project environment and controlling the release and change of those items throughout the life cycle of the project. Configuration management also encompasses the recording and reporting of the status of configuration items and change requests, and verifying the completeness and correctness of configuration items.

Configuration Item.

Configuration items can be formally defined as; "Any article that is indicated by any component of a configuration that has a defined function and is designated as requiring the controls of configuration management." Configuration items vary widely in complexity, size and type.

Configuration Management Plan.

The configuration management plan should detail the configuration management procedures to be used throughout the project. It should be produced as part of the project initiation document, for approval by the project owner - at project initiation.

PMG_C-D

PMG_ C-D

Control Points.

Project controls should be applied as and when required. The controls are divided between management and product controls - the former being collectively termed control points, i.e.

1) Project initiation
2) Project reviews
4) Project closure
5) Post implementation review

Detailed Resource Plan.

A detailed resource plan should be created when it is considered necessary to plan and control a particular major activity within a stage. The detailed resource plan sets out the costs and resource usage, categorized by resource type, which correspond to a detailed technical plan.

Critical Path.

The critical path is the sequence of activities, as depicted on a PERT chart (activity network), that should take the longest time to complete. This sequence of activities (and there may be more than one such sequence on the network) will have zero float associated with it. The critical path is probably the single most important item of information shown on a PERT chart and is normally highlighted in some way - e.g. by using a contrasting color.

Detailed Technical Plan

Detailed technical plans give a detailed breakdown of certain major activities, for example product testing, and should be produced as and when required.

Dependency.

A dependency indicates a constraint on the sequence and timing of work within a project. Activities may be dependent on other project activities (internal dependencies) or on resources or inputs from outside the project (external dependencies).

Document Update Request.

A document update request (DUR) is used to document any situation where the products being developed will fail to meet their original specification in some respect.
A DUR is a formal document that is used to update the documentation to reflect the product as it now is, rather than as it was in the existing design documentation.

PMG_ E-H

Detailed Plan.

A detailed plan normally comprises two components - a detailed technical plan and a detailed resource plan. Detailed technical plans will exist on most larger projects. They are used to give a detailed breakdown of certain major activities, e.g. product testing, and are produced as and when required. A detailed resource plan will exist when it is considered necessary to plan and control a particular major activity within a stage. The detailed resource plan sets out the costs and resource usage, categorized by resource type, which correspond to a detailed technical plan..

Earned Value Analysis.

Earned value analysis (EVA) is an approach which compares the value of the work done with the value of the work that should have been done. You do not need to know how much has been spent - just the amount of work done and its value. EVA overcomes many of the intrinsic delays associated with variance analysis - the major problem with which is the amount of time it takes to accurately establish actual costs.

Gantt Chart.

Gantt charts, or Barcharts, are one of the most widely used project planning diagrams. The horizontal axis is normally used to represent the calendar time-scale in days and the activities are represented along the vertical axis. These charts should clearly communicate the duration and scheduling of the various activities - each activity being represented by a horizontal line from the its start to its finish date. The length of this line will be in proportion to the scheduled duration of the activity.

End Project Report.

This report should be produced by the overall project manager and tabled at the project closure meeting. It is used to document the projects performance and the major issues that were raised. To ensure that the experience of the project is recorded for the benefit of others it is helpful to hold a post-implementation review, typically around six months after delivery of the projects end-product.

Highlight Report

Highlight reports should be prepared by the project manager at intervals determined by the project owner, often monthly or four-weekly. They can also be generated at any time if the project manager becomes aware of an issue of sufficient urgency that needs to be communicated to the project owner. Highlight reports are also used to collate and distil the information conveyed in the progress reports. They review progress to date and highlight any actual or potential problems which have been identified during the period which they cover.

Exception Memo.

An exception memo is a document that should be used to record situations which have resulted in a significant deviation from the planned quality review activities. They may be raised by the sub-project manager or project manager, or the chairman of a quality review.

Histogram

Histograms are graphical representations of the amount of resources that will be needed over a given period of time. They are a widely used project planning aid and are normally derived from the relevant Gantt chart. The only information that may be required in addition to the Gantt chart is the type of specialist resource required for each activity.

Float.

Activity float is a measure of the flexibility of an activity, indicating how many working days the activity can be delayed or extended before it will effect the completion date of the project - or any shorter term milestone dates that are being applied. In addition to the float associated with a specific activity, there are two other types of float in network analysis:
1) Total float - here the float is shared with all of the other activities in the arm. Therefore using the float in one activity will reduce the float available for the other activities.
2) Free float - this is the amount of float that the activity can use up without affecting the 'earliest start' of any other activity. Only activities that precede a junction can have free float..

Impact Analysis.

Impact analysis is the term given to the process of assessing the ramifications of pursuing a particular course of action - typically a change to the existing project. Impact analysis can be carried out quickly and easily under a configuration management method which contains the following features:
1. A mapping from the requirements onto the configuration items
2. mapping from configuration items back onto the requirements
3. A structure showing the relationships between configuration items, so that no configuration item is changed without checking for implications that may effect its 'associates'.al plan.

Implementation Strategy.

Projects that are delivering a sophisticated or widely used end-product may well require an implementation strategy in order to detail the introduction and initial use of the end-product. Examples would include projects aimed at introducing new technology or at widening its application - for example the introduction of a new computerized accounts system. Other examples include business re-engineering projects and the delivery of large products that have a technical bias.

Individual Work Plan.

The individual work plan is the lowest level of technical plan which defines the tasks and responsibilities of an individual team member. It is derived from a project technical plan, a sub-project technical plan or a detailed technical plan - depending on the size and scope of the project. Individual work plans should be created by team leaders in conjunction with the appropriate project manager.

Informal Review.

Although the main application of quality reviews is for the formal review of an evolving, or complete, product; it is also possible to use a subset of these procedures in order to conduct an informal review. Informal reviews should be designed specifically to address the needs of the product(s) in question - but typically the usual sequence of events consisting of preparation, review and follow-up may be concatenated - as may the staff involved in the process.

Library.

A library is a set of configuration items - whether they comprise physical components, software or documentation. The project environment should have only one library, containing references to all configuration items; if not the items themselves. Each individual item within the library, i.e. all versions and all variants of all configuration items, will have a unique identification. Where several projects are working on the same end-product, they will share the library.

Life Cycle.

Projects are temporary structures set up with the specific aim of delivering an identifiable end-product. All projects will therefore have an identifiable life cycle, the characteristics of which will vary according to the size and complexity of the project. A typical life cycle will run from the formal initiation of a project through to a post implementation review of the delivered end-product. This is an important point - that most project life cycles extend beyond the formal project closure and hand over of the specified end-product.

Line Manager.

Line managers are those staff who occupy permanent managerial positions within the organizational structure. The term is used to refer to all levels of organizational management but does not include project management staff - who operate in a fluid environment (projects by their nature being temporary structures). Departmental managers, heads of department etc. are all job descriptions that fall within the general umbrella of line management.

Matrix Management.

A descriptive term for the management environment where projects cut across organizational boundaries and involve staff who are required to report to their own line manager as well as to project management staff. In this environment, staff are required to report to more than one manager - hence the term matrix management.
Marketing/User coordinator. The marketing, or user, coordinator is responsible for the planning, monitoring and reporting on all marketing, or user, related aspects of the project. This role essentially involves representing the marketing department or the users at all times.

Plans.

The plans used should be tailored to match the requirements of each individual project. A flexible framework of plans is proposed, along with an explanation of their use in a variety of project scenarios. Planning is an essential process but one that is frequently under- valued or viewed as 'an unproductive use of resources'. However whilst highlighting the need for effective planning it should be realized that the rigorous adherence to a comprehensive set of plans is not always the ideal solution for each and every project.

Post Implementation Review.

A post implementation review should be viewed as an integral part of the management and control of the end-product, carried out typically some 6 to 12 months after the end-product has been delivered. Its purpose is twofold: to check that the delivery has met the project objectives; and to check that the delivered product is meeting user needs.

Presenter.

A presenter at a quality review is usually the author of the item under review. During the preparation for, and during, the quality review he/she should ensure that the other review attendees (the chairman and a number of reviewers) have all the information they require in order to carry out the review effectively.

Product.

The concept of products is very useful as it facilitates efficient planning, activity identification and resource allocation. The overall deliverable of the project is termed the end-product. Products can be identified as any tangible output, either produced by, or for, a project. Virtually anything can be identified as a product - for the purposes of facilitating their planning and production. A product may be a physical component, an item of software, an intellectual creation, documentation or even a discrete group of tasks or activities (when the planners are desperate). A product may itself be a collection of other products - therefore giving rise to a product breakdown structure (PBS) and associated product specification diagrams.

Product Description.

The product description describes the purpose, form and components of each product and lists the quality criteria which apply to it. Each product in the product breakdown structure is associated with a product description; the component products of a complex product may be described in separate product descriptions, producing a hierarchy of product descriptions for the product.

Product Design.

The product description describes the purpose, form and components of each product and lists the quality criteria which apply to it. These, in association with the information contained in the product breakdown structure and product flow diagram will constitute the product design documentation. Each product in the product breakdown structure is associated with a product description. The component products of a complex product may be described in separate product descriptions, giving rise to a hierarchy of product descriptions for the product.

Product Flow Diagram.

The product flow diagram shows how the products are produced by identifying their derivation and the dependencies between them. Inputs to the production of product flow diagrams include product breakdown structures and product descriptions. The product flow diagrams are one type of product specification diagrams.

Progress Meeting.

This is a regular management control point. Progress meetings should be conducted on behalf of the sub-project manager or project manager. They bring together the project team members and provide the basic information used to measure actual achievement against plans. Ideally they should be run in an open manner, encouraging contributions from all members of the team.

Project Brief.

The project brief is a document initially provided by senior management, which is subsequently refined by the project owner into the terms of reference for the project. Both of these components should form part of the project initiation document.

Progress Report.

Each project should hold regular progress meetings as prescribed by the project owner - when specifying the controls framework they wish to see. Following each progress meeting the sub-project manager (with help from the project coordinators) should prepare a progress report and forward this to the project manager.

Project Closure.

Project closure, signifying the formal end of the project, requires approval by the project owner. This is normally given at the project closure meeting control point. These activities should be led by the project owner and a formal mechanism for project closure, including a structured project closure meeting is advisable for all projects of significant size.

Project

There are numerous definitions of what constitutes a 'project', many of which fail to define the term clearly and concisely. We suggest the following :
"A project is a human activity that aims to achieve a clearly defined objective against time, cost and other constraints."
Projects should be characterized by :
1. A life cycle, defined by start and end dates.
2. A clearly defined objective.
3. A budget that is approved and forthcoming.
4. A team of suitably qualified people.

Projects should aim to :
1. Deliver the specified end-product(s).
2. Meet the specified quality goals.
3. Stay within budgetary limits.
4. Deliver on time.
Projects are unique, no matter how similar a previous project may have been - each project will be different in some respect. If this is not the case then the work being undertaken is not really a project.

Project Closure Meeting.

The project closure meeting is concerned with reviewing the project, particularly with regard to ensuring the completeness of all project deliverables. The agenda should be based upon :
1. Review the end project report
2. Review all other information presented by the project manager
3. Ensure that all acceptance letters are signed
4. Verify hand-over of all maintenance documents
5. Verify hand-over of QA and training materials to the relevant staff
6. Schedule a subsequent meeting if any items remain unresolved
7. Inform the project sponsor and/or senior management of the outcome
8. Distribute minutes of the meeting, if appropriate.

Project Coordinators

Project coordinators can be used to provide support in the planning and control of the project, in the application of standards, quality assurance and user/client liaison. They are usually full time members of the project office and bring continuity to each project they are involved with, by being familiar with its work from beginning to end. Project coordinators may be involved in more than one project at any given time. Four coordinator roles are described in Project Team, and their appointment may shadow the roles appointed to the Project Executive:
1. Business Coordinator.
2. Technical Coordinator.
3. Marketing Coordinator.
4. User Coordinator.

Project Boundary.

A project does not normally exist in isolation. There are various relationships and areas of common interests with other projects, or other activities in the same department, organization, or even externally. The project boundary must therefore be defined in a way which makes it clear how related projects interact, and where the output from one project forms the input to another project, or related area of work.

Project Exception

A project exception is any concern that has been formally raised by any member of the project team. It may address a potential technical problem, such as errors and failures, or identify ideas for improvements. Alternatively it may address a management issue, perhaps related to budgets, plans, schedules or skill shortages. The raising of a project exception report should start a formal process to ensure that it is analyzed and resolved. This process is called change control and should be administered within the context of the configuration management method adopted.

Project Initiation Document.

The project initiation document (PID) should form the basis for gaining formal approval for the project - from the project owner at project initiation. It defines the 'terms of reference' for the project, based on the initial 'project brief' provided by senior management. In a typical project the PID should have the following components :
* Business case
* Project boundary
* Business needs
* Information needs
* Organization and responsibility definitions
* Project plans
* Terms of reference
* Configuration management plan (inc. change control)
* Quality policy

Project Exception Report.

A project exception report enables any member of the project team to raise any concern, in the knowledge that it will be considered and evaluated via a formal mechanism. This mechanism is called change control and should be administered within the context of the configuration management method adopted. The original concern can relate to any aspect of the project - it may address a potential technical problem, such as errors and failures, or identify ideas for improvements. Alternatively it may address a management issue, perhaps related to budgets, plans, schedules or skill shortages.

Project Initiation Meeting

The project initiation meeting is normally the final stage in the project initiation process. It should be convened by the senior business member of the project owner in order to formally initiate the project.

Project Owner.

The project owner is the senior management body (and this can be one individual) that is deemed to have ownership of a project. Its members should be appointed by the 'project sponsor' and be responsible for approving plans, committing resources and assessing the continuing viability of the project. The project owner is not normally responsible for the hands-on management of the project but should appoint staff to manage the project on their behalf and should avoid becoming entangled in day-to-day management decisions.

Project Manager.

The project manager is appointed, by the project owner, to assume overall responsibility for the project throughout its life cycle. The project manager is responsible for : Planning at the project and sub-project level, exercising control (on a day-to-day basis), ensuring product delivery and exerting people management and motivation. On large or complex projects the project manager may be supported by sub-project managers, who are responsible for discrete sub-divisions (called sub-projects) of the overall project. Depending on the resources required and/or the skills available, the project owner may choose to appoint:
1. One project manager, supported by a sub-project manager for each sub-project;
2. One project manager who assumes the role of sub-project manager throughout;
3. A succession of sub-project managers, each assuming the role of project manager for the duration of the sub-project.

Project Initiation.

Certain management activities are required at project initiation to ensure that the project is established with clear 'terms of reference' and an adequate management
structure. These activities should be led by the project owner and a formal mechanism for project initiation, including a structured project initiation meeting is strongly advised for all projects of significant size.

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Project Office.

The most common project management environment combines full time project staff with departmental staff who are used on an as needed basis. Full time project staff who are permanently (and long term) involved in project related work, are often collectively referred to as the project office and their purpose is to support the project manager in carrying out his duties. Typically the project office supplies a variety of key project specialists - e.g. planners and coordinators, to any number of projects that may be being run within the organization. The project office usually includes a variety of staff with expertise in one or more specialist project areas e.g. planning and the application of organizational standards.

Project Office Manager.

Where the project office contains a significant number of people a project office manager may be appointed - to ensure the optimum utilization of its resources. Where this is the case the project managers will normally communicate directly with this individual in order to secure project office resources for their projects.

Project Plan.

A project plan will normally consist of a project technical plan and a project resource plan. The project technical plan is produced at the beginning of the project and shows the products required and the corresponding schedule of major activities that will occur throughout the project. It is a top-level plan produced in conjunction with a project resource plan. The project resource plan is a top-level management resource plan produced at the beginning of the project. It addresses all of the activities necessary in the production of all products - categorized by resource type, which fall within the project boundary. Both the project resource plan and project technical plan are used to monitor progress on the project as a whole. The project technical plan should also address strategic issues related to quality control and configuration management.

Project Resource Plan.

The project resource plan should show the breakdown of the major resource types the project will utilize. Once approved by the project owner the project resource plan becomes the top level business plan for the project. If the project has been divided into sub-projects then this plan should reflect the content of all the sub-project resource plans

Project Review

Project review meetings should be staged to monitor the actual progress against the baselined plans and to review any current or potential problems. The aim of these meetings is to gather information from project team members and allow them to hear what others involved in the project are doing. These meetings are usually held at regular intervals, for example weekly or fortnightly. Project reviews are primarily a project managers tool for monitoring progress at a practical level. They also consider current and potential problems and can be used to consider corrective action, where appropriate

Project Sponsor

The body responsible for the origination and funding of the project. In the context of critical projects in large organizations the project sponsor would normally be the board of directors; less significant projects may be sponsored at various lower levels. The project sponsor may also be a body that exists outside of the organization that is carrying out the work of the project - in which case it is normally referred to as the 'client'.

Project Team.

All of the staff working on project related tasks should be regarded as members of the project team. On large scale projects more than one team may be set up - to reflect discrete sub-divisions of the project; whilst smaller projects are likely to be serviced by a single team. Because any project team may consist of a mixture of full-time and part-time staff the definition of precisely who is in the 'team' at any given time, e.g. for reporting purposes, may not be clear cut.

Projects may be run on the basis of a single project team, alternatively a number of separate teams may be created - for example to reflect the division of the project into sub-projects. The team organization, responsibility definitions and the allocation of these responsibilities to individuals will depend upon the size and nature of the project and the skill mix available. Task leaders should be appointed, usually by identifying suitably qualified personnel in the project teams.

Project Technical Plan.

The project technical plan shows the products required and a corresponding breakdown of the relationships between the major activities required by the project. Once approved by the project owner the project technical plan becomes the top level production schedule for the major products required throughout the project. If the project has been divided into sub-projects then this plan should reflect the content of all the sub-project technical plans.

Quality Assurance.

Quality assurance is concerned with how quality is achieved and assured through the specification of cost-effective quality control procedures, and through external inspections and audits of the quality control system.

Release.

A release consists of a specified set of products from one or more baselined configuration items, which are issued as a set for a specified purpose. All recipients of the release should be informed, or consulted, before approval of any change to any constituent configuration items. Releases should be authorized by the project or sub-project manager.

Quality Control.

Quality control is the process of ensuring that the required qualities are built into a product throughout its development. Quality control involves the examination and checking of products produced by the project. It is facilitated via the quality review, the various control mechanisms put in place (e.g. progress meetings and reports, highlight reports, change control and configuration management mechanisms etc.) and by the testing of the products against pre-determined acceptance criteria.

Remedial Plan.

Remedial plans may be produced in situations where costs or timescales have already been exceeded, or are anticipated to exceed, the tolerance limits. If this is the case and no easier course of action can be undertaken to resolve the situation then a remedial plan may be appropriate. It is used to detail the work considered necessary to bring the project back in line and effectively replaces the existing sub-project plan.

Quality Criteria

Quality criteria, or acceptance criteria, are those characteristics of a product against which it can be objectively measured in order to determine whether it meets the specified requirements. These criteria therefore define 'quality' in the context of that product and should be specified, in subjective and measurable terms, in the appropriate product description.

Resource Plan.

Resource plans are used to identify the type, size and allocation of the various resources required during the project. There are three levels of resource plans :
1) Project resource plan
2) Sub-project resource plan
3) Detailed resource plan

Resource Planning

Resource planning involves the assignment of resources to each project activity in order to optimize efficiency and effectiveness. This may include scheduling activities so as to minimize fluctuations in day-to-day resource requirements.

Quality Policy

Quality policy, where it is applied, is the documented standard for the application of quality assurance and quality control procedures to the running of projects within an organization. Quality assurance is concerned with how quality is achieved and assured through the specification of cost-effective quality control procedures, and through external inspections and audits of the quality control system.

Requirements Specification.

The requirements specification details the user requirements including any constraints and possible future enhancements. The requirements specification should be written at a level of detail that enables appropriate solutions to be identified and formally proposed.

Reviewer.

A number of reviewers may attend a quality review. They are responsible for checking that the product under review is complete and fault, or error, free. Quality reviews should be undertaken against pre-determined quality criteria - as detailed in the relevant product descriptions.

Quality Review

The quality review is a means whereby a product (or group of related products) is checked against an agreed set of quality criteria (or acceptance criteria). Those criteria will be defined for every type of product and will be supplemented with other documents as appropriate. The review should be conducted by a chairman, a presenter and a number of reviewers. Where only a subset of the complete review process is required, an informal review may be carried out.

Senior Business Role

The senior business role is one of the three representatives of the project owner - the senior management body deemed to have ownership of the project. The senior
business role should chair project owner meetings and provide direction to the other members of the project owner, this responsibility reflecting the importance of the
business interest. The senior business role should also take personal responsibility for ensuring that the project is delivered on time and within budget

Senior Marketing/User Role.

The senior marketing (or senior user) role is one of the three representatives of the project owner - the senior management body deemed to have ownership of the project. The main responsibility of the senior marketing role is to ensure that the project delivers the needs of the marketplace and to monitor progress against these requirements. If the project is going to deliver an end-product for use within the organization, then the senior marketing member should be replaced by a senior user member within the project owner body. The senior users prime responsibility should be to ensure that the users interests are represented at all times, at project owner level.

Senior Technical Role

The senior technical role is one of the three representatives of the project owner - the senior management body deemed to have ownership of the project. The main
responsibility of the senior technical role is to represent the interests of the development and operations departments at project owner level; their other duties include ensuring that the technical activities are properly resourced.

Stage.

Larger projects may be divided into a number of stages; each stage forming a distinct unit for management review purposes. The main reason for dividing a project into stages is to facilitate detailed periodic reviews of the projects progress. The dividing up of a project into stages can be a complex process that benefits from the application of past experience. Generally speaking stages should reflect the completion of defined sets of products.

Sub-Project.

Large or complex projects may be broken down into one or more discrete sub-divisions. These sub-divisions can be identified as sub-projects for the purpose of management control, technical expediency, or both. It is normal to divide projects on the basis of major identifiable deliverables - such as major products, or groups of products; however the division can be based on any appropriate criteria.

Submission.

Formal procedures should be in place controlling the issue and submission of all configuration items (CI's) - those relating to administrative CI's as well as those pertaining to the evolving products. Configuration items are originally created at the time of their identification and then issued to appropriate staff in order that the necessary work can commence. Only when the author of a new or revised product or document is satisfied that it is complete and ready for review should it be re-submitted to the configuration librarian. The configuration librarian should receive and issue copies of all such documentation, in accordance with the formal procedures devised, and update the appropriate configuration item description record - in particular to reflect its current circulation. Without careful control over the issue and submission of configuration items the configuration management process can collapse.

Submission Request Form.

When a new or revised product or document is complete and ready for review, it should be submitted to the configuration librarian accompanied by a submission request form, detailing the following :
1) The identity of the document, and version number
2) The date of submission
3) The configuration item (CI) to which it relates
4) Step and stage number in the CI's life cycle
5) The name of the person submitting it
6) A list of the reviewers - each will need a copy

Sub-Project Manager.

The sub-project manager is appointed, by the project owner, in consultation with the project manager, to assume day-to-day management of one or more discrete
sub-divisions of the project (the sub-projects). The responsibilities of this role are similar to those of the project manager but are restricted to the boundaries of the clearly defined sub-project. The sub-project manager should report directly to the overall project manager.

Sub-Project Plan.

The sub-project plan normally consists of a sub-project technical plan and a sub-project resource plan. A sub-project technical plan is required for each sub-project. It shows all technical products, activities and quality controls in that sub-project. A sub-project resource plan contains details of all the required resources for any one particular sub-project. A sub-project resource plan is produced initially - as the budget for the sub-project is presented to the project owner for approval prior to the formal commencement of the sub-project.

Technical Plan

Technical plans are used to define the sequence and timing of activities, together with responsibilities assigned for producing various parts of the overall product. Technical plans are derived from the product breakdown structure, the product flow diagram (PFD) and the PERT chart (which is itself based on the transformations identified from the PFD). There are four levels of technical plan :
1. Project technical plan
2. Sub-project technical plans
3. Detailed technical plans
4. Individual work plans

Sub-Project Resource Plan.

The sub-project resource plan contains details of all the required resources for any one particular sub-project. It is produced initially as the budget for the sub-project is presented to the project owner for approval prior to the formal commencement of the sub-project. After approval this plan is used by the sub-project manager to report actual financial expenditure and resource usage against that planned.

Terms of Reference.

A definition of the objectives for a project, including any relevant background information.

Sub-Project Technical Plan.

A sub-project technical plan is normally required for each sub-project of a project. It represents all of the technical products, activities and quality controls within the scope of the sub-project. The sub-project technical plan is produced in conjunction with a sub-project resource plan. The plans for the first stage sub-projects should be prepared and submitted at project initiation.

Tolerance

The permitted limits - as set by senior management or the project sponsor, in terms of the cost and timescale of the overall project. Tolerance may also be set by the project owner in terms of the cost and timescale of either a project or a sub-project. These limits may not be exceeded without reference to the appropriate body (the project owner, senior management or the project sponsor - in the case of externally funded projects).

Task Leader.

The task leader fulfils a role in the project organization similar to that of a first line supervisor and will usually be expected to take on the responsibility for delivering discrete areas of work. Task leaders should be appointed, usually by identifying suitably qualified personnel in the project teams.

User Co-coordinator

The role responsible for monitoring, advising and reporting on all user aspects of the project.

Technical Coordinator.

The technical coordinator is responsible for the planning, monitoring and reporting on all technical aspects of the project. The technical coordinator is also responsible for ensuring that the organizational technical standards are applied correctly and that products meet their technical quality criteria.

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Variance.

Variance quantifies the difference between the costs detailed in the plans and the actual costs incurred at any point in
time. It can be used to quantify the difference between the planned costs and the current costs incurred, at whatever level is required - for example for the project as a whole, for a sub-project, a group of related tasks or for individual tasks. In order to calculate variance, up to date and accurate information is essential - this is the main difficulty preventing the practical application of this straightforward technique.

Version.

A configuration item may have a number of versions relating to the continuing development of that configuration item.
In the first instance, a configuration item should be created and documented by the configuration librarian (the first
version). The configuration item may then undergo a number of modifications as it is tested and errors corrected, or as changes
are requested

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Work Breakdown Structure

The work breakdown structure is a product-oriented subdivision of all of the resources, including hardware, services and data that are required to deliver the required
end-product. The projects end-product appears at the top of the work breakdown structure, with the products that are required represented hierarchically beneath it. The work breakdown structure can be split into a series of diagrams, representing discrete sub-divisions; such as product groupings or all of the products relating to specific sub-projects.

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