Project Management
QQI Level 6 6N4090
Course Manual

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Introduction to Quality and Qualifications Ireland (QQI)

QQI – Quality and Qualifications Ireland is an independent, State agency responsible for promoting quality and accountability in education and training services in Ireland. It was established in 2012.

QQI's mission is to:

- promote the enhancement of quality in Ireland's further and higher education and training, and quality assure providers;
- support and promote a qualifications system that benefits learners and other stakeholders.

QQI's role as directly stated is to:

- promote, maintain and develop the Irish National Framework of Qualifications (NFQ), a 10-level framework for the development, recognition and awarding of qualifications in Ireland;
- approve programmes offered at a variety of schools, colleges and further and higher education and training institutions. These programmes lead to qualifications (QQI awards) listed in the NFQ, which are recognised internationally;
- regulate and promote the quality of programmes offered by schools and colleges leading to qualifications in the NFQ for the benefit of learners, employers and other interested parties;
- ensure that providers* offering national qualifications provide a positive, high-quality experience to international learners coming to study in Ireland. We will do this by authorising the International Education Mark (IEM);
- provide academic advice on the recognition of foreign qualifications in Ireland through a service called NARIC Ireland – the National Academic Recognition Information Centre. We also provide advice on the recognition of Irish qualifications abroad;
- inform the public about quality assured education and training programmes and qualifications through a database of programmes and a register of providers;
- advise the Minister for Education and Skills about national policy on quality assurance and improvement in education and training;
- manage a national scheme for the quality assurance of English language services (Accreditation and Coordination of English Language Services – ACE)

The National Framework of Qualifications (NFQ)
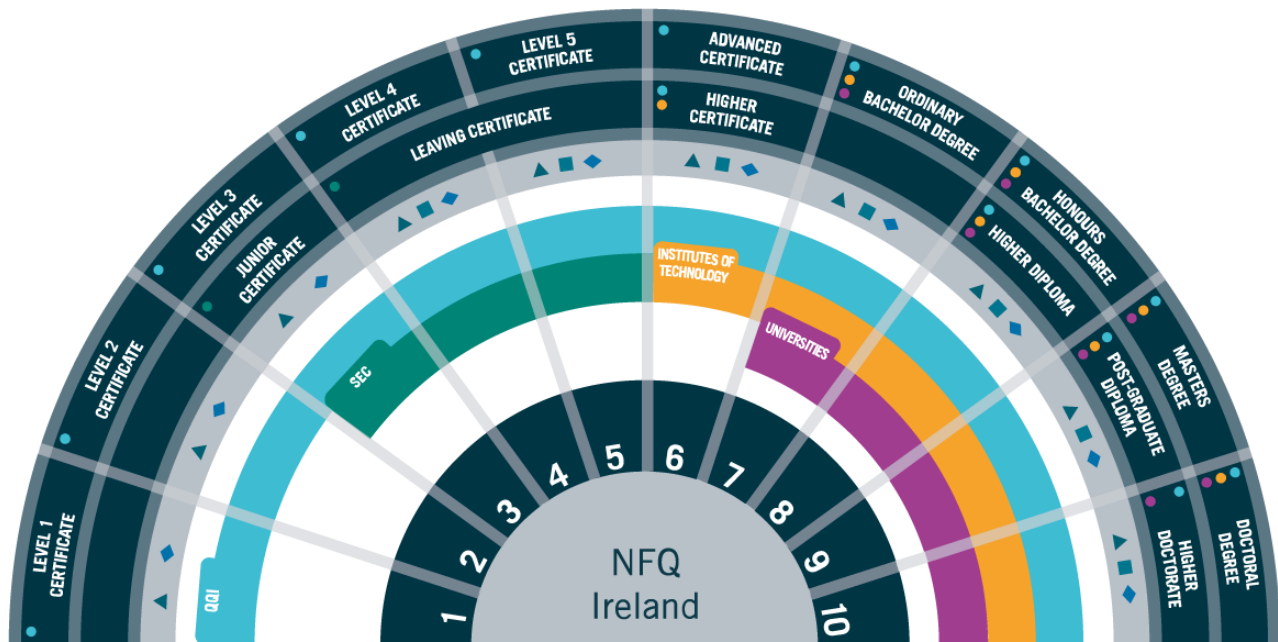
Qualifications frameworks describe the qualifications of an education and training system and how they interlink. National qualifications frameworks describe what learners should know, understand and be able to do on the basis of a given qualification. These frameworks also show how learners can move from one qualification, or qualification level, to another within a system. Over 150 countries are now developing, or have developed, a national qualifications framework.

The Irish NFQ, established in 2003, is a framework through which all learning achievements may be measured and related to each other in a coherent way. The many different types and sizes of qualifications included in the NFQ, are organised based on their level of knowledge, skill and competence. Because all NQF qualifications are quality assured, learners can be confident that they will be recognised at home and abroad.

Quality and Qualifications Ireland (QQI) has the responsibility to develop, promote and maintain the Irish NFQ. QQI also facilitates the recognition of foreign qualifications.

This course is at Level 6 on the NFQ.

Topic 1 – Introduction to Project Management

What is a project?

According to the Project Management Body of Knowledge (PMBOK) 6th edition, a project is defined as "A temporary endeavour undertaken to create a unique product, service or result."

A project is unique in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal. So a project team often includes people who don't usually work together – sometimes from different organizations and across multiple geographies.

The development of software for an improved business process, the construction of a building or bridge, the relief effort after a natural disaster, the expansion of sales into a new geographic market — all are projects.

- **A Program** is a group of related projects managed in a coordinated way to obtain benefits not available from managing them individually.

- **A Portfolio** is a collection of projects or programs and other work that are grouped together to facilitate effective management of that work to meet strategic business objectives. Projects or programmes of the portfolio may be interdependent or directly related.

What is Project Management?

Project management is the "application of knowledge, skills, tools and techniques to project activities to meet project requirements."

Project management is accomplished through the application and integration of the project management processes of initiating, planning, executing, monitoring and controlling and closing.

REMEMBER: There is no single way to manage a project. The project manager must draw on knowledge, skill, and required processes in a different order and with varying rigour to achieve the desired project performance.

The Project Manager's Role and Responsibilities

Project managers are the point person in charge of a specific project or projects within an organisation. They plan, budget, monitor and report on the project with project management tools, sometimes pitching the idea of the project or being assigned to it once it's already been approved. The project manager is the bridge between upper management and the teams tasked with the actual execution of the project. They make sure the scope of the project is sound, reporting regularly on the progress of the project and that it is staying on the approved schedule.

The project manager's responsibilities include:-

Planning Project Resources: The project manager's first role is making a feasible plan that achieves the goals and objectives of the project and aligns with the organisation's overall business strategy. This is not only a blueprint with which to run the project but a critical part of the pitch to get approval for the project. Part of the plan is defining the project's scope and determining what resources are available, estimating time and financial commitment, as well as how to monitor and report on the project's progress.

Assembling and Leading the Project Team: Project managers need resources to complete the project tasks, which includes skilled and experienced workers. They need to either take a leadership role with an existing team or create one. Once a team is created, you assign them tasks and deadlines, give them the tools to collaborate. It is important to meet with the team regularly and get status updates to chart their progress and to reallocate resources as needed to avoid blocking team members or overburdening them.

Time Management: Time is always ticking towards the project deadline. While communication is key to address changes and make sure everyone is doing what they need to do when they need

to do it, the project manager must also define, schedule and accurately estimate the task duration to develop and maintain a realistic schedule.

Budgeting: Figuring out what the proper funding for the project is, getting the costs accepted and then keeping the project within or under that figure is often what makes or breaks a project. Making an accurate estimate is only the first part. Next, the actual spend must be monitored and compared to the planned budget. If the figures are off, they must be adjusted accordingly.

Quality and Satisfaction: The final product delivered to stakeholders should be what they expected or better. This requires constant communication with them, reporting on progress and being open to their feedback to keep them happy.

Manage Issues and Risk: Problems will inevitably arise in a project. That's called an issue. Project managers need to be ready for them and work towards resolving them quickly, so they don't take the project off-track. Then there are risks, which are potential problems, ones that have yet to occur or might not ever. These risks must be figured out beforehand and a plan of action put in place if they occur.

Monitoring Progress: To make sure a project is progressing as planned, project managers must constantly measure it and compare those metrics against the plan created. This requires the collection of project data, such as status reports from the team, to see if the actual progress of the project is meeting the initial plan. Things will change along the way which requires the reallocation of resources to accommodate these changes.

Reporting and Documentation: Reporting is one of the ways to communicate with the team and stakeholders. While teams need more detailed information and stakeholders are looking for broader data to check the project's progress, both are essential tasks for the project manager. This documentation, along with all paperwork, must be collected, signed off on and archived by the end of a project, which provides a history that can be revisited when planning for a similar project in the future.

The Triple Constraints

The triple constraint theory in project management says every project operates within the boundaries of scope, time, and cost. A change in one factor will invariably affect the other two.

Successful projects must be:

- Within cost
- Delivered on time

- Within scope (

The *time* constraint refers to the amount of time available to complete a project.

The *cost* constraint refers to the budgeted amount available for the project.

And the *scope* constraint refers to what must be done to produce the project's end result.

The three factors are often competing constraints. For example, if the scope is increased mid-way through the project, the other two factors (time and cost) will also be increased.

It's the Project Manager's responsibility to balance these triple constraints and manage expectations so everyone understands what it takes to achieve project success. A project can be deemed as successful if it delivers what the client and PM agreed to deliver, within the agreed budgets and timeframe.

Project Life Cycle

The Project Life Cycle refers to a series of activities which are necessary to fulfil project goals or objectives. Projects vary in size and complexity, but, no matter how large or small, all projects can typically be divided into 5 phases:

- Initiation
- Planning
- Execution

- Monitoring and Controlling
- Closure

Each phase has a number of activities associated with it and the number of activities recommended depends upon the scope and duration of the project. A Basic project will involve only a few of these activities while a Major project may involve all the activities in the framework for more effective control over deliverables.

The Project Management Plan

The project management plan is a formal, approved document or collection of documents used to manage project execution, monitoring/control and close a project. The plan is created by the project manager with the project team and input from the stakeholders. The project plan includes many plans: -

- Scope management plan
- Change management plan
- Schedule management plan
- Cost management plan
- Quality management plan
- Process improvement plan
- Resource management plan
- Communications management plan
- Risk management plan
- Procurement management plan
- Stakeholder management plan
- Schedule baseline
- Cost baseline
- Scope baseline

The Project Management Office (PMO)

Where one exists, the PMO works to ensure that projects proceed on the basis of their strategic alignment to the goals of the Department. A PMO can be created for the specific purpose of supporting the Department's ongoing portfolio of programmes/projects. There are typically 3 different types of PMO, which are briefly summarised below:

- **Directive**
  High level of control and influence held by the PMO

who has direct oversight over projects and manages projects directly

- **Controlling**
  Moderate level of control and influence held by the PMO who provide general support to the organisation's projects and requires compliance with standard methodologies or governance dictated by the PMO.

- **Supportive**
  Low level of control and influence held by the PMO who offers consultative services in the form of best practices, training, templates, lessons learned and project management information.

The Project Management Institute PMI®

The PMI is the Project Management Institute, a worldwide body who aim to provide a standardised approach to managing and describing projects, and a high-level certification path for Project Managers.

The Institute produces its approved PM methodology and standards in its Project Management Body of Knowledge (PMBOK® Guide 6th Edition). The PMBOK® is structured as follows:

- Project management standards and best practices
- Five project management process groups
- 10 Project Management Knowledge Areas

The 5 process groups highlight the 'life' stages each project must go through in order to bring it to successful completion: -

- **Initiation**
  Initiation is about agreeing on the terms of reference within which the project will be run. Time planning and communicating benefits are not time wasted. In fact, it will help improve the overall probability of success.

- **Planning**
  Here you need to complete a high-level work breakdown structure. Determine the project's high-level plan at the milestone level. This is also the stage where you identify and recruit project team members and secure key resources.

- **Execution**
  This is all about benefits realisation. With all the planning and designing complete, the project team can start to develop and build the components of the project output.

- **Monitoring & Control**
  Regular reporting and monitoring keep you in control of your project when it's up and running. As part of this phase, you need to test the components to confirm that they work as they should.

- **Closing**
  It's important that the project lifecycle is closed. During this phase, all documentation should be completed and stored. It's a good idea to complete a post-implementation review – so you can see what you did well, and areas for improvement next time.

The 10 Knowledge areas highlight the areas that commonly need to be managed by the lead Project Manager and associated team.

- **Integration**
  Project Integration Management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups.

- **Scope**
  Project Scope Management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.

- **Time/Schedule**
  Project Schedule Management includes the processes required to manage the timely completion of the project.

- **Cost**
  Project Cost Management includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so the project can be completed within the approved budget.

- **Quality**
  Project Quality Management includes the processes for incorporating the organisation's quality policy regarding planning, managing, and controlling project and product quality

requirements, in order to meet stakeholders' expectations.

- **Procurement**
  Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team.

- **Human resources**
  Project Resource Management includes the processes to identify, acquire, and manage the resources needed for the successful completion of the project.

- **Communications**
  Project Communications Management includes the processes required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and ultimate disposition of project information.

- **Risk Management**
  Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project.

- **Stakeholder Management**
  Project Stakeholder Management includes the processes required to identify the people, groups, or organisations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution.

The 10 knowledge areas interact with the 5 process groups as shown below.

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality	
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources	
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement	

Waterfall vs Agile

Traditional Project Management is often referred to as Waterfall project management. The waterfall model is a sequential (non-iterative) design process, in which progress is seen as flowing steadily downwards (like a waterfall) through each phase.
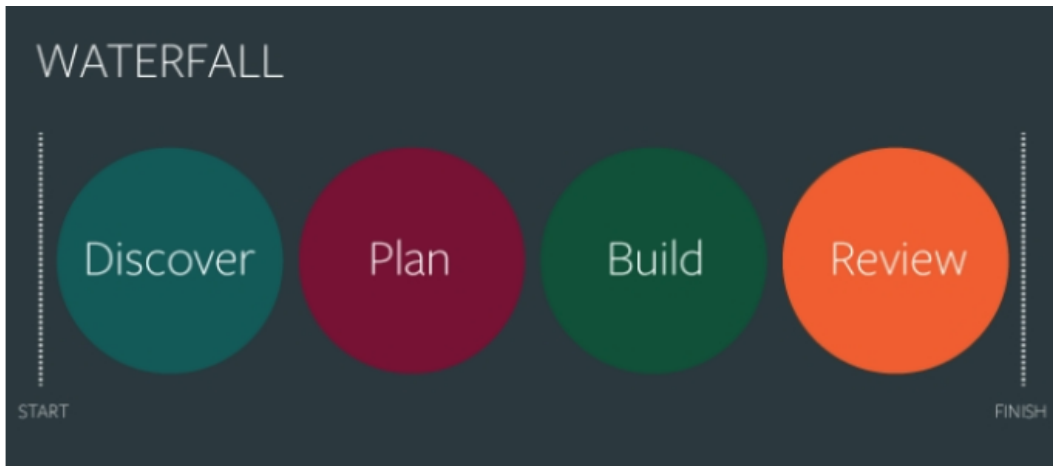
Agile is a time-boxed, iterative approach to delivery that builds incrementally from the start of the project, instead of trying to deliver it all at once near the end.

There are some key differences between a traditional waterfall project and an agile project and these include the following:

Waterfall

- Detailed, long-term project plans with a single timeline
- Definitive and rigid project management and team roles
- Changes in deliverables are discouraged and costly
- Fully completed product delivered at the end of the timeline
- Contract-based approach to scope and requirements
- Customer is typically involved only at the beginning and end of a project
- The linear-phased approach creates dependencies

Agile

- Shorter planning based on iterations and multiple deliveries
- Flexible, cross-functional team composition
- Changes in deliverables are expected and less impactful
- Product delivered in functional stages
- Collaborative and interactive approach to requirements
- Customer is involved throughout the sprint
- The concurrent approach seeks to reduce dependencies

Agile and Waterfall are very different and it will not always be possible to choose between them both. Waterfall could be applied to virtually any type of project. Agile requires specific conditions to be in place to be possible but is not applicable to certain projects.

My notes on The Introduction to Project Management

Topic 2 – Project Initiation

The Project Initiation Phase is the first phase in the Project Management **Life Cycle** and involves starting up a new project. This phase involves defining the project objectives, scope, purpose and deliverables to be produced.

The Project Charter

The Project Charter formally authorises the project, names the Project Manager, and provides them with the authority to use the organisation's resources to accomplish project objectives.

The charter provides the project with a defined start and established boundaries and senior management with the opportunity to formally accept and commit to the effort. The charter should be created at the very beginning of the Project Life Cycle – before any substantial project planning on the part of the Project Manager and project management team.

Elements of a project charter:

- Project title and description purpose, justification
- Business case
- Project Objectives – Measurable SMART
- Stakeholders and Known Requirements – high level
- Product or service description & deliverables
- Project Risk – high level
- Summary of Milestones
- High-level summary of costs as known
- Approval requirements
- Project Manager – responsibility and authority
- Pre-assigned resources
- Sponsor authorising project charter

Scope Definition and Management

The Scope Statement or Goal, which was developed at the end of the Initiation Phase is very useful to help control scope creep. Typical components of a project scope statement include a project objective, justification, product description, expected outcomes, assumptions and limitations.

Scope management is primarily concerned with defining, documenting, verifying and controlling what is and what is not included in the project. This process is integrated with the other project management processes so that the project will deliver the intended scope.

Without scope management, *Scope Creep* can occur. This is the unauthorised increase in scope or functionality. 'Scope creep' is a major cause of time and cost delays as well as the reduction in quality. It can often be caused by overcommitment as a result of casually taking on more work than initially agreed. A stakeholder will request something in addition or something different from what has already been planned and agreed. Changes to scope will have impacts on time, cost and quality and could also trigger other kinds of risks.

Scope management includes: -

- **Collecting Requirements**
  The Project Charter together with the Stakeholder Register is used to define the project requirements (objectives and deliverables) that are aligned to the Organisational Strategy.

- **Defining Scope**
  Once defined these requirements are then used to develop a "Scope Statement" that describes in detail the project deliverables and the work required to create these deliverables.

  The Scope Statement can also be used to confirm the project stakeholder's expectations. The scope statement will also comprise of deliverables, a detailed description of the scope, assumptions, exclusions, constraints and acceptance criteria.

- **Creating a Work Breakdown Structure**
  When finalised the scope statement is used to generate the project Work Breakdown Structure (WBS).

- **Verifying Scope:**
  This step involves obtaining formal acceptance of the completed project deliverables by the Project Sponsor.

- **Monitoring and Controlling**
  The Project Scope Statement and accompanying WBS are used as the baseline to monitor the progress of the project against and may be revised to reflect realistic project conditions.

  This Project Scope Statement is also used to support the Project Execution Plan and is one of the overall set of tools integrated by the project team to ensure successful delivery of the project objectives and deliverables e.g. risk register, resource plan, stakeholder management and communication plan etc.

Making the Business Case

In any organisation, there are usually many proposed projects competing for limited funds. The purpose of the Business Case is to demonstrate why a project is viable in its own right and why it should be favoured over others. The business case should contain enough information to enable a decision to be made as to whether to carry on with the project. This information should include: -

- A description of the problem/opportunity

- Cost-Benefit Analysis (CBA) results
- Project Selection Methods (PSM) employed
- Principal reason(s) for conducting the project
- Project deliverables/objectives
- Expected costs/benefits (tangible and intangible)
- How the project fits in the organisation's business strategy
- Emphasis on schedule, cost, and quality
- High-level risks, success criteria, assumptions

Once the Business case has been completed the following two questions should be answered before continuing to the planning stage:

Is the Project in line with Company and Market needs?

Do we have the capability to deliver the project successfully?

Stakeholder Engagement and Communications Management

What is a Stakeholder?

"Persons or organisations (customers, sponsors, performing organisations or the public) who are actively involved in the project or whose interests may be positively or negatively affected by the performance or completion of the project" (PMBOK® Guide 6th Edition).

Effective stakeholder management is critical to the effective development, specification and delivery of all projects. Each project will be expected to place great importance in the development of healthy and proactive relationships with stakeholders at the relevant stages of the project life cycle.

Effective, clear and concise communication is also critical for stakeholder engagement, for motivating a project team and for performance reporting. Therefore it is important to manage and plan communications throughout the project to satisfy the requirements of and resolve issues with project stakeholders.

Identifying and Mapping Potential Stakeholders

The Project Manager in conjunction with the project team members commences the process of identifying all potential people or organisations (internal or external) impacted by the project and documenting relevant information regarding their interests, expectations, degree of involvement relating to the project purpose. A Stakeholder Register is developed.

Stakeholders may be internal or external and may include:

- Employees
- Management
- The Client/Sponsor
- Statutory and regulatory bodies
- Suppliers and Contractors
- End users
- People affected by the project
- People on the sidelines who may have strong feelings about the project; both positive and negative

Stakeholder Analysis

Once all potential stakeholders are identified the project team assesses the impact or influence each stakeholder could generate, and classifies them in order to develop an appropriate communication strategy to meet their expectations.

What must we try and discover about our stakeholders?

- Will they benefit from the success of the project?
- Will they be openly supportive of the project?
- Do they have reasons for wanting the project to fail?
- If their views are negative or ambivalent can they be persuaded to change?
- What is their level of power and influence?
- Are there any conflicts of interest?

The Power and Interest Grid

If a business analyst wants to determine the impact that stakeholders have on his project, the stakeholder power/ interest analysis can help in this. It can also help to select the proper communication approach for each stakeholder group. This technique is also known as stakeholder power/interest matrix, Stakeholder power/ interest grid, PI grid, Influence/Interest matrix.

	Low Interest	**High**
High POWER	Keep Satisfied	Manage Closely
Low	Monitor with Minimum Effort	Keep Informed
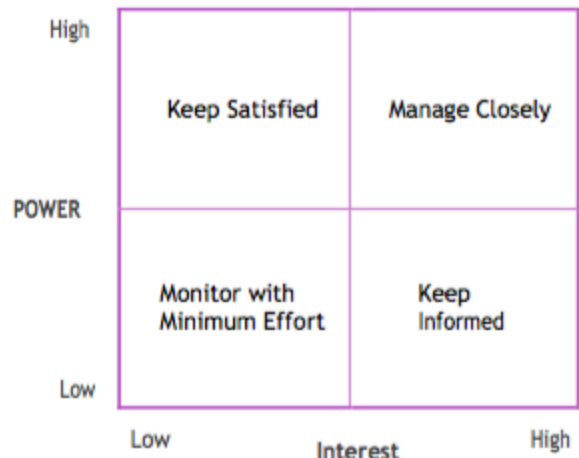
This model classifies stakeholders based on their power and interest in the project. It allocates the stakeholders of the categories:

- high power/ high interest
- high power/ low interest
- low power/ high interest
- low power/ low interest

The Salience Model
The word Salience means relative importance, so the Salience model depicts the relative importance of stakeholders. It is based on the Venn diagram and classifies stakeholders in terms of 3 major attributes.
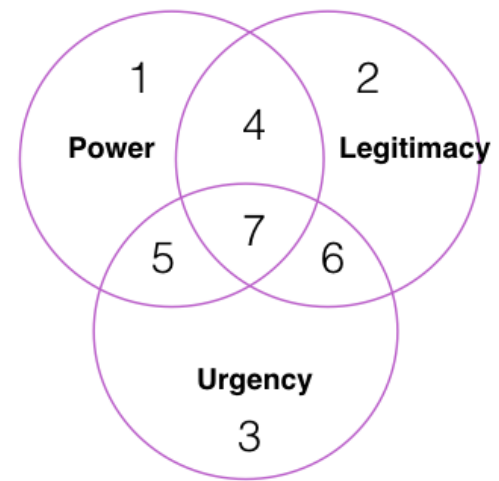
Power – The ability of the stakeholders to influence the project and project deliverables.

Legitimacy – A measure of the desirability, properness and appropriateness of the relationship

Urgency – The time criticality of the project to the stakeholder

Level 3 (High Priority)	7 – Definitive (Power, Legitimacy & Urgency)		
Level 2 (Medium Priority)	4 – Dominant (Power + Legitimacy)	5 – Dangerous (Power + Urgency)	6 – Dependent (Legitimacy + Urgency
Level 1 (Low Priority)	1 – Dormant Power	2 – Discretionary Legitimacy	3 – Demanding Urgency

Stakeholder Communication Plan

The next step is to prepare a communications plan that responds to the information needs of the stakeholders in terms of who, what (type and format), when and how. Once the plan is prepared, project resources are used to communicate information that contributes to success, or where a lack of communication can lead to project failure. This will require the consideration of the appropriate communication channel, method and frequency and determine ownership for communication with each stakeholder.

Managing Stakeholder Expectations

This is the process of communicating and working with stakeholders to meet their needs and address and resolve issues as they occur. This may also require anticipating concerns that may not have become issues so that any associated risks or issues can be assessed. Once identified these issues should be clarified and resolved in the interests of the project. The resolution may also introduce a change that is to be managed and reported in the project progress reporting and incorporated into the overall project execution plan.

My notes on Project Initiation

Topic 3 – Planning the Project

Work Breakdown Structure (WBS)

A work breakdown structure (WBS) is a key project deliverable that organises the team's work into manageable sections.

The Project Management Body of Knowledge (PMBOK) defines the work breakdown structure as a "deliverable-oriented hierarchical decomposition of the work to be executed by the project team."

The work breakdown structure visually defines the scope into manageable chunks that a project team can understand, as each level of the work breakdown structure provides further definition and detail.
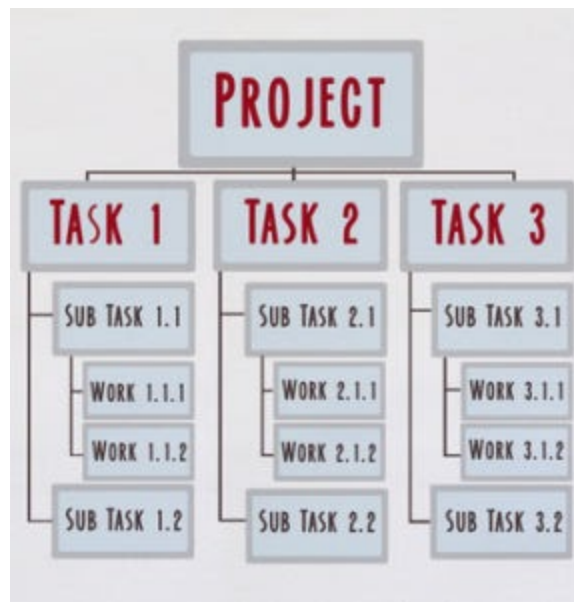
The project team creates the project work breakdown structure by identifying the major functional deliverables and subdividing those deliverables into smaller systems and sub-deliverables. These sub-deliverables are further decomposed until a single person can be assigned.

Benefits for having a WBS include: -

- Sets out what is going to be delivered
- Allows you to start planning the 'how' and 'when'...
- Acts as a blueprint for the project schedule and budget

- Creates clarity for all stakeholders – 'this is what you're getting'
- Forces stakeholders to focus on deliverables rather than activities

Estimating Activity Durations

There are various tools and techniques to estimate the duration of each activity: -

- **Expert Judgement**
  Guided by historical information and input from experts

- **Analogous Estimating Top Down**
  Analogous estimating uses an "analogy" – comparing a past similar project to your current project. Parametric is more accurate, specifically when the underlying data is scalable. Parametric uses a relationship between variables (a unit cost/duration and the number of units) to develop the estimate.

- **Parametric Estimating**
  Parametric estimating is a more accurate technique for estimating cost and duration and uses the relationship between variables to calculate the cost or duration. Essentially, a parametric estimate is determined by identifying the unit cost or duration and the number of units required for the project or activity.

- **Three-point estimates**
  Three-point estimate is a technique that uses three estimates to better understand the duration and cost of an activity.

  Tm = Most likely time (given resources, availability, productivity, interruptions, dependencies)

  To = Optimistic time – best case scenario

  Tp = Pessimistic time – worst-case scenario

  Te = Estimated time

$$Te = (To + 4\ Tm + Tp) / 6$$

- **Reserve analysis**
  All estimates should include a contingency to account for uncertainty.

MoSCoW Prioritisation

The MoSCoW method is a prioritisation technique used to reach a common understanding with stakeholders on the importance they place on the delivery of each requirement; it is also known as MoSCoW prioritisation or MoSCoW analysis.

M means Must. Here you place the requirements that are critical and must be applied as a matter of priority.

S means Should. The important but not critical requirements should be placed there. These requirements are not very sensitive to time.

C means Could. It's about desirable but not mandatory requirements for your release.

W means Would. The Would-requirements are not critical or may not correspond to the product strategy at all. They can be ignored.

Schedule Sequencing Activities

Using estimated durations for each activity outlined in your WBS you can start to build a schedule for your project to determine: -

- How many days of work are there in my project?
- What work packages are dependent on others being completed?
- What work package delays will delay the entire project?

● What work packages can be delayed without delaying the entire project?

Precedence Network Diagram

The network diagram is the foundation for the project schedule. It is a graphical way to view tasks, dependencies, and the critical path of your project. Unlike the work breakdown structure (WBS), a network diagram also takes into account the chronological order of activities according to their dependencies, and not just the logical order of the project activities.

Main functions of a network diagram are:

● To determine the total duration of the project
● To show activity interdependencies & constraints
● To allow priorities to be quantified based on activity duration, estimates & floats
● To identify activities which can be delayed without delaying the entire project
● To identify the *critical path* of the project

The precedence diagramming method represents activities by boxes called nodes. If a certain activity logically comes before another activity that it is dependent upon, then that is called a predecessor activity. If a certain activity logically comes after another activity in a schedule, then that is called a successor activity. It is the next technique, Dependency Determination and Integration, which can help determine which activities are connected logically in this manner.

This is the "precedence" part of the method. The diagramming part comes next, where the activities are represented by rectangular boxes called nodes. These nodes are then linked depending on the type of dependency or a logical relationship between them.

There are four types of logical relationships between a predecessor and a successor activity. Two are series relationships, where the activities are done one after the other. Two are parallel relationships, where the activities partially overlap in time.

With the following four designations that consist of the two letters "F" (for "finish") and "S" (for "start"), the first letter refers to the predecessor activity and the second letter refers to the successor activity.

● **Finish-to-start (FS)**
  This is the most common type of logical relationship, where a successor activity cannot start until the predecessor activity has finished.

● **Finish-to-finish (FF)**
  This is the next most common type of logical relationship, where a successor activity

cannot finish until the predecessor activity has finished. However, the activities can overlap in time. The example used in the PMBOK® Guide is where you must finish writing a document (the predecessor activity) before you can finish editing it (the successor activity).   However, once you get a few pages of the document written, you can start editing those pages before you continue writing the rest of the document, so the writing and editing of a document can overlap in time.

- **Start-to-start (SS)**
  This is the next most common type of logical relationship, where a successor activity cannot start until the predecessor activity has started.   The example used in the PMBOK® Guide, the activity of leveling the concrete (the successor activity) cannot begin until pour foundation (successor activity) begins. Although you can start leveling the concrete that has already been poured in one section of the foundation while another section of the foundation is being poured, you cannot level concrete before it has been poured.

- **Start-to-finish (SF)**
  This is the least common type of logical relationship, where a successor activity cannot start until the predecessor activity has started.   This is very rarely used, although the example used in the PMBOK® Guide is that a new accounts payable system (successor activity) has to successfully start up before the old accounts payable system is shut down (predecessor activity).

Each activity in your WBS is represented by a node as follows: -

Early Start	Duration	Early Finish
	Activity	
Late Start	Float	Late Finish

- **Early Start**
  The earliest time that an activity can start according to the logical constraints.

- **Duration**

  The estimated time to undertake the activity.

- **Early Finish**

  The earliest time that an activity can finish according to logical constraints.

- **Late Start**

  The latest time that an activity can start according to logical constraints and without affecting the overall project duration.

- **Float**

  The time by which an activity may be delayed without affecting the overall project duration.

- **Late Finish**

  The latest time that an activity can finish according to logical constraints and without affecting the overall project duration.
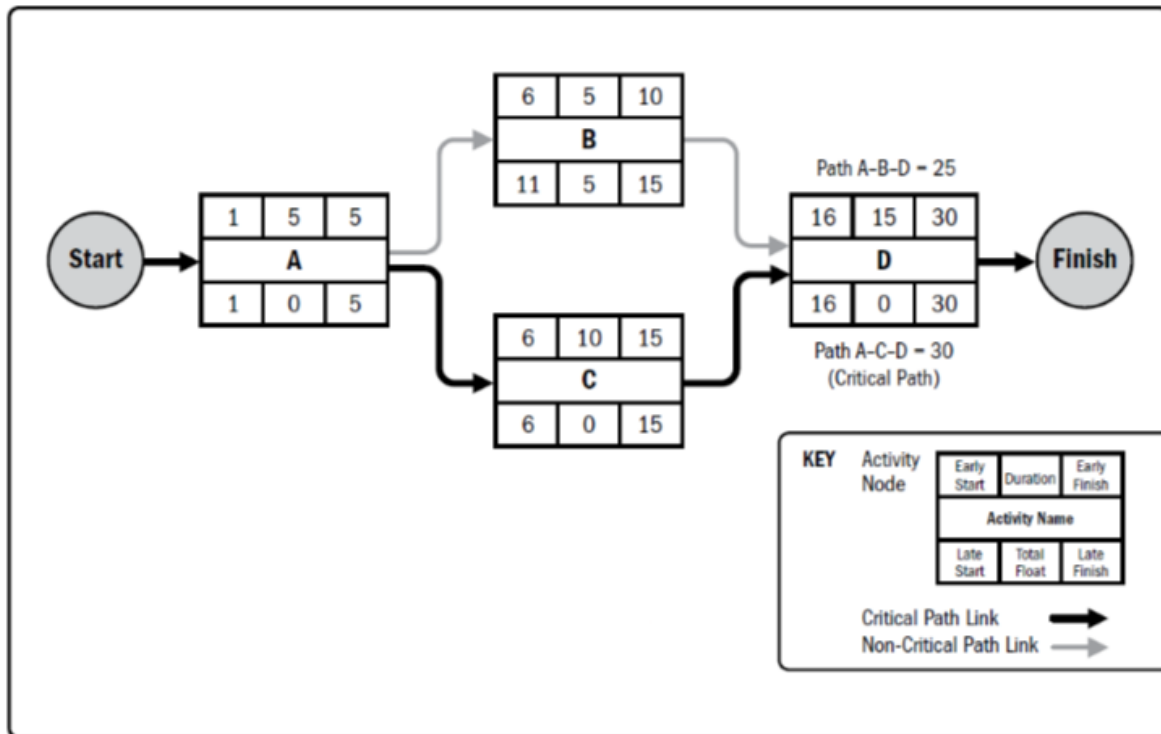
The ***critical path*** is the longest sequence of activities in a project plan which must be completed on time for the project to complete on the due date. Activity on the critical path cannot be started until its predecessor activity is complete; if it is delayed for a day, the entire project will be delayed for a day unless the activity following the delayed activity is completed a day earlier.

Gantt Charts

Originally designed in 1910, Gantt charts are one of the Project Managers' most valuable tools. Gantt charts are used to outline all of the tasks involved in a project, shown against a timescale.

Benefits for using a Gantt Chart include: -

- **Visualise your Project**
  At the starting point of any project, it can be a huge advantage to be able to visualise the start to finish. The first step to creating a Gantt chart is to write down or type all the individual tasks that will need to be completed. You can then start to see how long the project will take to complete and map your timeline.

- **Bite-Sized Tasks**
  When you take a look at the project objective it can be overwhelming. Using a Gantt chart allows you to break down large projects into manageable chunks.

- **Managing Deadlines**
  Project timelines are often altered by the tiniest of changes. It could be a slight change in scope or a project team member on holiday. If you record all of this on your Gantt chart, you can see how this will change the timing of the entire project – and therefore you can predict actual deadlines.

- **Project Critical Path**
  In a project, there are tasks which depend on other tasks before they can be started or completed. If you don't identify these dependencies in a Gantt chart, it is impossible to determine your critical path (or simply, how long the project will take to complete).

- **Monitor Progress**
  A Gantt chart is a living document. It's not printed out and stuck on a wall. So as long as you keep on top of your Gantt updates, you can always get a live up to date view of your project's progression.

My notes on Planning the Project

Topic 4: Managing Project Costs & Procurement

Cost Management

Project Cost Management involves planning, budgeting, and managing costs. Cost management does not happen in isolation – the project manager needs input from the project team and key stakeholders. Cost management should occur early in project planning in order to establish a framework for all cost management processes and ensure that the project does not go over budget.

In developing a project budget and a supporting business case, costs should be identified as either project build costs or future operational costs as follows:

- **Build costs**
  All of the costs associated with the implementation and deployment of the project, including capital/current procurement of services and equipment and staff costs associated with the project implementation. Contingency may need to be provided for when identifying the project build costs.

- **Operational costs**
  Any additional and ongoing costs that will be incurred by the Service after the project has been implemented: additional staff, building upkeep, insurance, maintenance, licence fees, etc.

The project cost management plan will define how the project costs will be estimated, budgeted, managed ,monitored, and controlled. The plan should establish: -

- **Units of measure:** Time measures (hours, days, weeks). Quantity measures (meters, litres, tons) or lump sum

- **Level of precision:** Degree to which cost estimates will be rounded up or down

- **Level of accuracy:** Acceptable range used in determining realistic cost estimates

- **Organizational procedures links:** WBS provides the framework for the cost management plan ,allowing for consistency with the estimates, budgets, and control of costs.

- **Control thresholds:** Variance thresholds for monitoring cost performance may be specified to indicate an agreed-upon amount of variation to be allowed before some action needs to be taken and usually expressed as percentage

- **Rules of performance measurement:** Earned value management (EVM) rules of performance measurement are set. Cost management plan may define WBS points which measurement of control will be performed, Establish EVM techniques (weighted, milestone) and specify tracking methodologies and EVM computation

- **Reporting Formats:** Formats and frequency for the various cost reports are defined.

- **Additional details:** Additional details about cost management activities include a description of strategic funding choices, currency exchange rate and project cost recording

Tools for estimating costs

Expert judgement

Using this technique a judgment is made based upon a specific set of criteria and/or expertise that has been acquired in a specific knowledge area, or product area, a particular discipline, an industry, etc. This knowledge base can be provided by a member of the project team, or multiple members of the project team, or by a team leader or team leaders or from an external group or person.

Analogous estimating

This technique uses expert judgment and historical information to estimate costs. While this is a simplified approach it requires vast experience to achieve an accurate estimate and it is very difficult to account for risks or uncertainties.

Parametric estimating

Parametric estimating is a project estimation technique whereby a unit rate is used and multiplied by the number of units. E.g. A house building project is estimated at ***€120 per square foot.***

Parametric estimating is a more accurate technique for estimating cost and duration and uses the relationship between variables to calculate the cost or duration. Essentially, a parametric estimate is determined by identifying the unit cost or duration and the number of units required for the project or activity.

Three-point estimates

Three point estimating is a technique which utilises an optimistic and pessimistic estimate to determine the ideal estimate value for a project task.

Tm = Most likely time
(given resources, availability, productivity, interruptions, dependencies)

To = Optimistic time – best case scenario

Tp = Pessimistic time – worse-case scenario

Te = Estimated time

$$Te = (To + 4\ Tm + Tp) / 6$$

Bottom-Up estimates

Using this technique estimates are done for each activity or work package and the costs are rolled up into accounts and an overall project cost. This method is very accurate, achieves buy-in from team members, and establishes a basis for managing costs throughout the project. However, this method requires significant time and effort (greater cost) and very detailed activity definition from the outset.

As the project team develops its cost estimates it should be mindful of the accuracy of the estimates. As we stated earlier, it is unlikely that we will ever know the exact cost of a project before it is completed. Therefore, estimates are provided with a range. The more information and detail the team has for its estimates the narrower the range should be. Ranges may be rough order of magnitude (ROM) with a range of +/- 50%, budget estimate with a range of -10% to +25%, or a definitive estimate with a range of +/- 10%. Upon completion of the estimate costs process, the output should be a cost estimate and range for all project activities and resources.

Tools for determining the budget

Once the total costs of the project have been estimated and budgeting can begin, the amount of funding the organisation needs to make available for the project can be decided. This may include a time-phased approach to allocating funds and determining when various levels of funding will be required throughout the project. This is why the project schedule is an integral part of managing costs. In the determined budget process, activity costs are rolled up into work package costs.

Work package costs are then rolled up into control account costs. Control account costs are then rolled into an overall project cost.

Cost aggregation

Cost aggregation is defined as summing the cost for the individual work package to control the financial account up to the project level. This is achieved by the summation of the lower-level cost estimates that are associated with different work packages within the work breakdown structure. The given cost control account can also be used to calculate the cost aggregation. In most cases, the cost aggregation is coupled with other tools to determine the budget such as funding limit reconciliation and reserve analysis.

The main benefit of cost aggregation is that it allows the project management team to see scheduled spending for every time period. This will allow project managers to see the activities as well as the corresponding costs

Reserve analysis

During Reserve Analysis, a project is analysed from a cost overruns point of view and buffers are placed in appropriate places. These buffers are called Contingency and Management Reserves.

- Contingency Reserves are buffers to account for risks that you know will occur. For example, you may have a Contingency Reserve for lack of skilled human resources in a certain technology.
- Management Reserves are for risks that have not been identified. Every project is hit by unidentified risks.

Regardless of the type of reserve, the amount of buffer is proportional to the cost risk foreseen in the project or individual activities. The norms within an organisation may also dictate the level of buffering applicable. There is no prescribed method to perform Reserve Analysis. However, the guiding principle is that you should buffer or pad according to the risk levels identified for the project or individual activities.

Tools for controlling project costs

The foundation of controlling costs is in the tracking, measuring, and reporting of costs during the monitoring and controlling phase of the project. The project manager must be in a position where he/she can provide oversight. He/She must be able to prevent unnecessary changes to the project's scope which may result in higher costs. The project manager must also ensure that any required changes are done through a formal change control process and that the cost impacts are

understood by all stakeholders. The ability of a project manager to exert influence on factors which may cause project costs to rise is extremely important in controlling costs.

Earned Value Management (EVM)

Most projects use earned value management to measure and control project costs. While the Communications Management Plan and the Cost Management Plan will establish the frequency of measuring and reporting the cost status against the cost baseline, earned value is the methodology used to obtain those measurements.

Earned value measures a project's performance against scope, schedule, and cost baselines. It is an extremely valuable tool in allowing the project manager to measure performance as well as to be proactive in identifying potential issues which may negatively impact scope, schedule, or cost. We can use the progress of project activities to determine what work has been done (scope), how much the work cost against the cost baseline, and how long the work took against the schedule baseline.

To Completion Performance Index (TCPI)

The To Complete Performance Index (TCPI) is the estimate of the future cost performance that you may need to complete the project within the approved budget. This budget may be your initial approved budget (BAC), or a newly calculated budget/estimate at completion.

You can calculate the TCPI by dividing the remaining work by the remaining funds; i.e.

$$TCPI= (Remaining\ Work) / (Remaining\ Funds)$$

Procurement Management

Many projects will require the procurement of goods and services from outside suppliers. It is important that project budgets and actual costs are determined and documented correctly, and that this information is concisely reflected in specifications and statements of work in supply contracts.

Procurements are first identified during the planning phase of the project. For every external contractor, there needs to be a statement of work to serve as a document outlining the work being contracted.

Prior to the contract, however, is a request for proposal in which multiple contractors get to bid on the job, and the project manager can determine from their bids who will get the contract.

These requests are well-thought out as they work as guiding documents through the project. The more specific they are, the better. This avoids confusion later and helps develop more accurate plans.

This process is collected in the procurement management plan, which includes requirement documents, risk register, activity resource requirements, project schedule, activity cost estimates and more. The purpose of the Procurement Management Plan is: -

- To document purchasing decisions
- Specify Purchasing approach
- Identify vendors

To guide these decisions there are tools and techniques, such as make-or-buy analysis, which helps to determine if the activity needs an external supplier or can be done in-house. Seeking help from experts, doing market research and meeting with stakeholders also helps guide this decision.

Make or Buy Analysis

Before a decision to purchase goods or services is made the following make or buy analysis should be made…

- Can the work be performed by the project team?
- Consider Skills, Availability, cost, resources, budget constraints, risk, control
- If the decision is to BUY, consider purchase or lease?
- Analyse direct and indirect costs

Statement of Works (SOW)

The SOW allows the project management team to fully understand their needs and communicate these needs to prospective sellers. This will allow the sellers to determine if they can provide the product or service.

The SOW includes the following:

- Specifications - performance, functions, designs
- Quantities
- Quality levels

- Performance data
- Period of performance
- Work locations
- Other - e.g. Response specification, length, deadline

Contracts

There are a number of factors to consider when selecting the type of contract: -

- Level of risk
- Risk share between the buyer and vendor
- Cost, Time, Performance priorities & Trade-offs
- What you are purchasing?
- How well is the scope defined?
- How much time can you spend managing the seller?
- Do you want to Offer incentives?

Common contract types include Fixed Price Contracts, Cost Reimbursable Contracts and Time & Material Contracts.

Fixed Price Contracts

- **FFP Firm Fixed Price** - Set fixed total price for a defined product or service
- **FPIF Fixed Price Incentive Fee** - Financial incentives for achieving or exceeding agreed objectives

Seller: Legal obligation to complete with possible financial damages if they don't.
Buyer: Must specify precisely product or service

COST RISK: SELLER

Cost Reimbursable Contracts

- **CPFF Cost Plus Fixed Fee** - Cost reimbursable to the seller for all legitimate actual costs for completed work plus agreed fee to provide profit
- **CPIF Cost Plus Incentive Fee** - Allowable costs reimbursable to seller for the work plus incentive for achieving or exceeding agreed objective (e.g. cost, time)

Uses: When work at the start of the project is difficult to define and may need to be altered. Also, when risks are high.

COST RISK: BUYER

Time & Material Contracts

Hybrid of Fixed Price and Cost Reimbursable

Uses: Difficulty prescribing statement of work (e.g. acquisition of experts)

The full value of the contract and exact quantities may not be defined by the buyer at the time of awarding the contract. May apply "Not to exceed" terms and time limits to control costs.

Vendor Selection Criteria
The selection criteria allow the PM to rate proposals from vendors and select the best suited provider. Some areas to consider:

- Purchase price
- Understanding of need
- Overall life cycle
- Capability
- Risk
- Management approach
- Warranty financial capacity
- Product capacity
- Change requests

Awarding the Contract

In project management all contracts are deemed as mutually binding legal agreements that oblige the seller to provide the specified product or service. That obliges the buyer to pay the seller.

Contract components could include some or all of the following…

Statement of works	Warranty	Termination
Schedules	Product support	Delivery address
Performance reports	Limitation of liability	Change requests
Period of performance	Fees and retain age of	

Roles & responsibilities	Penalties	
Seller location	Incentives	
Pricing Payment terms	Insurance Subcontractors	

My notes on Managing Project Costs and Procurement

Topic 5: Managing Risk & Quality

Risk Management

Risk can be defined as "An uncertain event or condition that, if it occurs, has a positive or negative effect on at least one project objective, such as time, cost, scope or quality. (PMBoK®).

Risk can be thought of as a possible loss or other adverse consequence that has the potential to interfere with the ability to achieve project objectives and fulfil its mission, miss project deadlines or priorities. Risks to the achievement of objectives can be due to both internal and external events.

Risk Management is the structured process of identifying, analysing and responding to risk factors throughout the life of a project in order to provide a rational basis for better decision making through understanding the risks inherent in a project and their likely impact.

Proper risk management implies the control of possible future events, and is proactive rather than reactive; it is embedded into the project planning process. It will reduce not only the likelihood of an event occurring, but also the magnitude of its impact.

Communicating about risks is very important and project risks should be made part of the default agenda for all team meetings. This shows risks are important to the project manager and gives team members a natural moment to discuss them and report new ones.

The following are some of the steps that can be taken to manage risks effectively:

Identify the risks early on in your project

There are many ways to identify risks such as brainstorming with the project team, interviewing experienced people - these can be the project team, colleagues or stakeholders. Find those individuals with relevant experience and set up interviews to gather the information needed to both identify and resolve risks.

Look both forward and backwards. That is, imagine the project in progress. Think of the many things that can go wrong. Do the same with historical data on past projects.

All potential risks should be noted in a risk register.

Analyse the risk

The next step is to determine how likely each of those risks are to happen. This information should also go into the risk register. When you assess project risk you can ultimately and proactively address many impacts, such as avoiding potential litigation, addressing regulatory issues, complying with new legislation, reducing your exposure and minimising impact.

Prioritise Risks

Each risk should be categorised as high, medium or low. With this perspective, a plan can be created around how and when each risk will be handled. Some risks have the potential to derail a project and are going to require immediate attention. Other risks will have little to no impact on the overall project's schedule and budget and can be somewhat ignored.

Assign an owner to the risk

Each risk should have a person assigned to them who is responsible for that risk, identifying it when and if it should occur and then leading the work towards resolving it.

Respond to the risk

Each risk that is identified needs to be linked to a strategy to manage the risk when it occurs: -

- **Avoidance** - plan in such a way to avoid the risk altogether
- **Mitigation** - plan to reduce the risk
- **Acceptance** - simply accept the risk if there is no alternative or if it is very unlikely or of little impact
- **Procurement** - contract out the risk - however the contract still needs to be managed carefully
- **Contingency Planning** - determine alternative strategies if the risk is triggered
- **Insurance** - transfer the risk through insurance

Monitor the risk

Whoever owns the risk will be responsible for tracking its progress towards resolution. The project manager will also need to stay updated to have an accurate picture of the project's overall progress to identify and monitor new risks.

Quality Management

A project's quality management criteria can be considered to have three main components: quality assurance, quality control and quality improvement. Quality Management not only applies to the product that a project may deliver but also to the methods, process and tasks used to deliver. The project quality systems, plans and procedures should be reviewed regularly to ensure all lessons learned, suggestions and discoveries from audits are taken into account to continuously improve the project quality management processes and procedures.

There are three key quality management concepts that will help deliver a high quality project...

- Customer Satisfaction
- Prevention over Inspection
- Continuous Improvement

Customer Satisfaction

Customer satisfaction is a key measure of a project's quality. It's important to keep in mind that project quality management is concerned with both the product of the project and the management of the project.

If the customer doesn't feel the product produced by the project meets their needs or if the way the project was run didn't meet their expectations, then the customer is very likely to consider the project quality as poor, regardless of what the project manager or team thinks.

As a result, not only is it important to make sure the project requirements are met, managing customer expectations is also a critical activity that you need to handle well for your project to succeed.

Prevention over Inspection

The Cost of Quality (COQ) includes money spent during the project to avoid failures and money spent during and after the project because of failures. These are known as the Cost of Good Quality and the Cost of Poor Quality.

- **The Cost of Good Quality (COGQ)**
  This can be considered a preventive cost and are primarily related to training, the documentation process, equipment needed, and the time required to get the quality done right. Other costs related to this can include testing, destructive testing loss and inspections.

- **The Cost of Poor Quality (COPQ)**
  This refers to internal failure costs and consist of having to rework or even scrap it entirely. Further costs can come from liabilities, warranty work and lost business.

The cost of preventing mistakes is usually much less than the cost of correcting them.

Continuous Improvement

This concept is, as explained in its title, an ongoing effort to address improvements of the deliverables over time. Whether through small, incremental changes or through large ones, the opportunity to identify and address change is always present. This concept of quality project management can be found in Six Sigma and Total Quality Management (TQM).

Applying this concept means constantly monitoring and documenting any issues that come up, so you can then use the lessons learned when managing future projects. This way, you run a more efficient project and likely won't repeat mistakes.

PDCA Cycle

PDCA (plan–do–check–act or plan–do–check–adjust) is an iterative four-step management method used in business for the control and continual improvement of processes and products. It is also known as the Deming circle/cycle/wheel, Shewhart cycle, control circle/cycle, or plan–do–study–act (PDSA).

ISO 9001:2008

Provides a set of standardised requirements for a quality management system, regardless of what the user organisation does, its size, or whether it is private, or public.

Key Quality Management Processes

Project Quality Management has three key processes that should be performed for every project

- **Plan Quality**
  Plan Quality involves identifying the quality requirements for both the project and the product and documenting how the project can show it is meeting the quality requirements.

  The outputs of this process include a Quality Management Plan, quality metrics, quality checklists and a Process Improvement Plan.

● **Perform Quality Assurance**
Quality Assurance is used to verify that the project processes are sufficient so that if they are being adhered to the project deliverables will be of good quality. Process checklists and project audits are two methods used for project quality assurance.

There are many QA tools and techniques: -

- ○ Cost-Benefit Analysis
- ○ Cost of Quality (COQ)
- ○ Control Charts
- ○ Benchmarking
- ○ Design of Experiments (DOE)
- ○ Statistical Sampling
- ○ Flow Charting
- ○ Quality Management Methodologies (i.e. Six Sigma, CMMI, etc)
- ○ Cause and Effect Diagrams (i.e. Fishbone Diagram)
- ○ Histogram
- ○ Pareto Chart
- ○ Run Chart
- ○ Scatter Diagram
- ○ Inspection

● **Perform Quality Control**
Quality Control verifies that the product meets the quality requirements and includes all the activities that are used to evaluate whether the product or service meets the quality requirements specified for the project. Project quality control should be performed throughout the project.

Some of the tools and techniques used to perform quality control include: -
- ○ Cause and Effect Diagram (Fishbone Diagram)
- ○ Control Chart
- ○ Flow Chart
- ○ Pareto Chart
- ○ Histogram
- ○ Run Chart
- ○ Scatter Diagram
- ○ Statistical Sampling
- ○ Inspection

Many people get confused between quality control and quality assurance.

To differentiate between the two, remember that quality control is about evaluating whether the product of your project meets the quality standards.

Quality assurance, on the other hand, is about ensuring that the product is produced in the right way. It is proactive and concerned about the processes and activities during the product's development.

My notes on Managing Risk and Quality

Topic 6: Managing the Project Team

Leadership Styles

Project management is all about people and relationships, about people working together to innovate, to transform, and to improve. As a project manager, you should empower your team to become leaders in their own right. This will make for a fulfilled team and more project success.

As project manager, you should think about the leadership skills you will need to motivate the team, engage stakeholders, and deliver great results.

Leaders exercise their authority in different ways. In doing so, they are said to exhibit a "leadership style". Leadership styles are essentially about:

- The way that the functions of leadership are carried out
- The way that a leader behaves

There has been substantial research into the types and effectiveness of various leadership styles. The "Hersey-Blanchard Situational Leadership Theory" implies leadership depends upon each individual situation, and no single leadership style can be considered the best.

For Hershey and Blanchard, tasks are different and each type of task requires a different leadership style. A good leader will be able to adapt her or his leadership to the goals or objectives to be accomplished.The four most common generally accepted styles are: -

The key features of each of these leadership styles can be summarised as follows:

Authoritarian / Telling

- Autocratic leaders hold onto as much power and decision-making as possible
- The focus of power is with the manager
- Communication is top-down & one-way
- Formal systems of command & control
- Minimal consultation
- Use of rewards & penalties
- Very little delegation
- Most likely to be used when subordinates are unskilled, not trusted and their ideas are not valued

Paternalistic / Selling

- The leader decides what is best for employees
- Links with Mayo – addressing employee needs
- Akin to a parent/child relationship – where the leader is seen as a "father figure"
- Still little delegation
- A softer form of authoritarian leadership, which often results in better employee motivation and lower staff turnover
- The typical paternalistic leader explains the specific reason as to why he has taken certain actions

Democratic / Participating

- The focus of power is more with the group as a whole
- Leadership functions are shared within the group
- Employees have greater involvement in decision-making – but potentially this slows-down decision-making
- Emphasis on delegation and consultation – but the leader still has the final say
- Perhaps the most popular leadership style because of the positive emotional connotations of acting democratically
- A potential trade-off between speed of decision-making and better motivation and morale?
- Likely to be most effective when used with skilled, free-thinking and experienced subordinates

Delegating

- Laissez-faire means to "leave alone"
- Has little input into day-to-day decision-making
- Conscious decision to delegate power
- Managers/employees have the freedom to do what they think is best
- Often criticised for resulting in poor role definition for managers
- Effective when staff are ready and willing to take on responsibility, they are motivated, and can be trusted to do their jobs
- Importantly, laissez-faire is not the same as abdication

The leadership style used should be adapted depending on the maturity of the team (followers) - where 'maturity' entails experience, skills, confidence, commitment.

Follower	Leader

The follower lacks experience or skill, and confidence to do the task, and may also lack willingness.	Telling - Leader gives precise firm instructions and deadlines and closely monitors progress.
The follower lacks the ability, perhaps due to lack of experience, but is enthusiastic for the work.	Selling - Leader explains goals, tasks, methods and reasons, and remains available to give support.
The follower is capable and experienced, but lacks confidence or commitment and may question the goal or task.	Participating - Leader works with follower(s), is involved with the group, seeks input and encourages efforts.
The follower is capable, experienced, confident and committed to the goals.	Delegating - Leader gives responsibility to followers for setting goals, planning and execution.

Leadership Skills

Next, you need to hone key leadership skills to use in any situation. These include: -

Communication

Project managers spend up to 90% of their time on communication-related activities, ranging from in-person meetings and emails to instant messaging and conference calls. Communication affects every element of your project from team dynamics to task delivery, stakeholder engagement, and end-user adoption.

Conflict Management

Conflict is an unavoidable presence in our personal and professional lives. As noted in PMBOK, managing conflict is a major challenge for project managers. To manage conflict, you should establish acceptable team behaviors to reduce tensions and disagreements within the team. You will likely also need to tackle conflict more directly as it occurs.

Resilience

Failure is part of life, and projects are no exception. Often, the fear of failure limits our appetite for risk and experimentation. However, failure is necessary to success. Learning to 'fall upwards' –

becoming resilient – will enable you to deal both with failure positively and become more tolerant towards the failures of others.

Coaching and Mentoring

Coaching and mentoring helps team members to reach their full potential, improving overall performance. Coaching helps individuals develop the skills needed for their current role. Mentoring is focused on long-term personal and professional development.

Emotional Intelligence

Emotional intelligence (EI) refers to your ability to recognize your emotions and these emotions can impact on the people around you. EI spans self-awareness, self-regulation, motivation, empathy, and social skills. Within project management, strong emotional intelligence will help you motivate the team, deal with conflict, communicate effectively, and make better decisions.

Managing Meetings

Good meetings are essential to project management. Poor meetings are detrimental to project harmony and project success. Be intentional about how you facilitate meetings and do not take this for granted. You need good project meetings so the team feels connected, involved, and informed. You need positive meetings to make good decisions for the project. Think of the cost of a poor meeting. Four people in a meeting for one hour is pretty close to one working day by the time you add up preparation time and follow-up. That is a lot of wasted time and energy. Poor meetings often lead to poor decisions, which carry the cost much further than the direct meeting time. Bad meetings can be very expensive!

Decision Making

Making good and transparent decisions with the team is a critical part of Project Management. Every decision you make as a project manager helps or hinders the project; can make the project; shorter or longer; less or more expensive; simpler or more complex; can improve or dis-improve team morale. There are many decision making techniques but it is best practice to have a considered approach to your decision making that includes the following steps: -

- **State the Problem**
  Only when there is a clear understanding of the problem or decision to be made, the project manager can proceed to seek a solution.

- **Identify Alternatives**
  The project manager and the project team should then start to explore and list all possible alternatives.

- **Evaluate the Alternatives**
  Each alternative on the list should be ranked using a set of criteria for viability.

- **Make a Decision**
  Once the alternatives have been evaluated two or more of the high ranked alternatives should be selected for review by the Project Manager and reviewed against the problem statement to decide on the solution that has the best chance at solving the problem.

- **Implement the Decision**
  Before the chosen solution is implemented the project manager will need to make a revision of the project plan, schedule, budget and other resources to ensure the solution can be implemented.

  Once the decision or solution has been implemented the project manager should monitor and evaluate if the decision resulted in the expected results or benefits.

Developing and Managing the Project Team

The success of any project is highly influenced by the project team tasked with delivering it. Even the best planned projects may fail to meet their objectives if the project team does not perform to the best of their ability. The effective development and integration of the project team is essential in the success of a project, as it is the project team who will be responsible for delivery of the scope throughout the project life cycle. The effective performance of a team is dependent on the way the team is able to interact, and draw on the strengths of its members.

The first step is to establish the project management team. The most important element about team composition is having a team that is effective working together. Collaboration and communication skills are two of the most critical personal skills demanded of all members. The ability and willingness to recognise and value the different roles and contributions of team members is essential. Every team needs problem solving, influence, process and compliance behaviours and values if it is to be successful.

Each person on the team should bring to the group two key things: -

- Their competency, specialist knowledge, qualifications, experience, etc, which are typically the reasons why they have been hired.

● The way they work with and contribute to a group, thereby enhancing the effectiveness of the group.

Once the project team is decided accurate, useful, timely and credible communication is crucial to maintaining a cohesive team environment and achieving project success. All project information should be communicated consistently throughout each stage of the process so all team members are equally informed. Open sharing of information should be encouraged and a no surprises attitude must be adopted to create a trusting work environment. A variety of communication mediums should also be used. Team members will respond differently to written (email, text, memo etc), verbal (telephone, radio, face to face etc) methods of communication. Recurrent face to face meetings must be scheduled to encourage ongoing discussions and ensure that deliverables are completed within project timeframes.

Collaboration is also key to the success of the project team. Groups that plan together are typically more successful, therefore project managers must realise the importance of collaborative planning and goal setting. Collaborative goal setting allows team members to achieve individual successes while contributing to the overall project goals.

Facilitating relationships among people of very different backgrounds can lead to issues and conflict which the project manager must recognise and take action against. Likewise the project manager will need to watch out for underperformance which may arise from a number of places: -

● Low capability: The person is just not able.
● Low motivation: The person is not bothered.
● Lack of time: Not enough time given to the job.
● Chaotic environment: The systems or processes are all wrong or non-existent.

Each of these four factors should be examined and the question asked "why is this" until the root cause is uncovered: -

● **Low capability**
  The person was not trained. The person just does not have the aptitude for this kind of task.

● **Low motivation**
  The person is not being compensated enough or is suffering a poor manager. The person has a really bad attitude and is displaying aspects of a bad character.

● **Lack of time**
  The deadline was totally unrealistic. The person completely miscalculated the time needed

or planned very poorly.

- **Chaotic environment**
  The customer keeps changing their mind and is very demanding. The person responsible did not deploy proper and needed systems or processes.

Once the root cause is identified the fix for the poor performance will typically become obvious and the project manager will know whether they are in a 'telling', a 'selling', a 'participating' or a 'delegation' situation.

Completion of a project and the steps along the way can be very rewarding for team members. Outwardly celebrating these successes can be very motivating for the team. When project milestones are reached, they should be communicated to the project team members and stakeholders. Recognition and rewards should be established and communicated at the start of the project, as they may impact on other areas of the project, such as cost and time.

Project Roles and Responsibilities

Having brought a project team together, the motivation and performance of the team members can be directly affected by role clarity. Lack of role clarity is where project team members are unsure of their day-to-day roles and responsibilities, the objectives of the project, their level of authority for spending or directing others and the formal reporting structures. This may result in confusion, overlapping effort by project team members, work not being completed and can also result in the erosion of the project teams desire to be part of the team and deliver on additional commitments that may be required.

In addition to the ongoing development of a project team to ensure a suitable mix of subject matter expertise and project management skills it is important that roles and responsibilities are well defined, with lines of authority and accountability clearly identified in the project organisational structure to avoid gaps in ownership and risk to delivery.

A RACI matrix/chart is very useful in showing which members of the project team, and which external stakeholders, are responsible or accountable for the various elements of the project, as well as who needs to be consulted or informed when tasks are being carried out.

RACI stands for Responsible, Accountable, Consulted, Informed. Each letter in the acronym represents a level of task responsibility: -

At its core, a RACI matrix helps to set clear expectations about project roles and responsibilities. That way multiple people don't end up working on the same task or against one another because tasks weren't clearly defined on the front end.

A RACI matrix also encourages team members to take responsibility for their work—or defer to someone else when needed. Essentially, it removes personal judgment and politics from the process and focuses on the project team's ability to act responsibly within a framework.

Further Learning:

Did you know DCM Learning can also provide you with a course in QQI Level 6 People Management this course has been designed to examine the key aspects of people management and provide practical guidance on how to take a holistic approach to improving team performance. Course topics include the dynamics of teams, factors involved in building a strong team, managing different personality styles within a team, communicating effectively and how to support individual team members.

For more information please contact our team or visit our website here;

https://dcmlearning.ie/video-content/qqi-effective-people-management-course.html

My notes on Managing the Project Team

Topic 7 – Closing the Project

By definition, a project has a start and finish so it needs to be closed out. In addition to formally marking the end of project work, it also provides the opportunity to document lessons learned and orchestrate the release of resources.

There are a number of key elements to project closure. The level of detail and sophistication of each depend on the organisation's size and the assignment's complexity. The key actions involved in close-out are:

- **Confirm Satisfaction with Stakeholder**
  The whole point of the project is to deliver what was promised. The project can only end when all stakeholders are satisfied and all acceptance criteria have been met.

- **Identify lessons learned**
  There is a tendency to quickly move onto the next project as soon as one project is over. However, there is a lot to learn from completed projects that can make future projects more successful.

  Best practice is to conduct a post-project review which can be an informal gathering of key project people or a large, formal meeting including: the project team, stakeholders (internal and external) executive management, supervisors and operations staff.

  The group should deliberate on suggestions for improvement and new ideas that were very successful on the mission. Focus on the top 5 or 10 issues. The outcome should be recommendations, procedures and processes that can be adapted to improve the quality of future assignments.

- **Contract Closure**
  Contracts come to a close just as projects come to a close. Contract closure is concerned with completing and settling the terms of the contracts let for the project. It supports the project completion process because the contract closure process determines if the work described in the contract was completed accurately and satisfactorily.

- **Release the Project Team**
  At the conclusion of the project, the project team members need to be released so they can go back to their functional managers or get assigned to a new project. It is good practice to keep their managers, or other project managers, informed as it gets closer to project completion, so that they have time to adequately plan for the return of their

employees.

- **Archive records**

  Before a project is closed, all documents and any notes and data that could prove useful should be archived. There are lessons to be learned from old projects which would be lost if all records are not archived. The records also act as a paper trail of the work done on any project for other people in the organisation including legal teams, or HR teams, or even other project managers.

- **Celebrate Success**

  Acknowledging a job well done helps to create closure and build morale among team members. Giving the team their due for a job well done will create loyalty and ensure they will work even harder on the next project.

My notes on Closing the Project

References and Bibliography

A Guide to the Project Management Body of Knowledge (PMBOK Guide) - 6th Edition
Book - by Project Management Institute - 1997

https://2020projectmanagement.com/

https://www.projectsmart.co.uk/

https://www.projectmanager.com/

Further Reading

A Guide to the Project Management Body of Knowledge (PMBOK Guide) - 6th Edition
Book - by Project Management Institute - 1997

PMP Exam Prep: Accelerated Learning to Pass PMIs PMP Exam
Book - by Rita Mulcahy - 2013

+ PMP Practice Questions with Detailed Solutions: Volume 1PMP Exam Prep Questions,
Answers, & Explanations: 1000
Book - by Christopher Scordo - 2009

Essential Scrum: A Practical Guide to the Most Popular Agile Process (Addison-Wesley
Signature)
Book - by Kenneth S. Rubin - 2012

Project-Oriented Leadership (Advances in Project Management)
Book - by Ralf Muller - 2010

Appendix I: Sample Project Templates

Project Scope Template

<table>
<tr><td colspan="2" align="center">Project Scope Statement</td></tr>
<tr><td>Date:</td><td align="center">Enter Project Charter Date</td></tr>
<tr><td>Version Number:</td><td align="center">Enter Project Charter Version</td></tr>
<tr><td>Project Title</td><td align="center">Insert Project Title</td></tr>
<tr><td colspan="2">1. Project Product or Service</td></tr>
<tr><td colspan="2">Describe in detail the characteristics of the product or service.</td></tr>
<tr><td colspan="2">2. Deliverables and Acceptance Criteria</td></tr>
<tr><td colspan="2">Deliverables should be measurable, so the Project Sponsor and Team can determine whether the deliverable has been successfully completed at the project's conclusion. Describe the acceptance criteria and how they will be measured</td></tr>
<tr><td colspan="2">3. Project Scope and Exclusions</td></tr>
<tr><td colspan="2">Document the scope of work to be delivered.

In Scope is what the project will include to meet the requirements of the Project goals.

Out of Scope excludes responsibilities, activities, deliverables or other areas that are not part of the Project.

The project will include:

The project will not include:</td></tr>
<tr><td colspan="2">4. Work Required to Create Deliverables</td></tr>
<tr><td colspan="2">Provide a high level list of "what" needs to be done in order to reach the goals of the project. Each deliverable should be sufficiently detailed so that the Project Team will understand what</td></tr>
</table>

needs to be accomplished. Describe the deliverable using action words (verbs) such as "deliver, provide, create, research, etc.

Attach WBS

5. Assumptions, Constraints & Dependencies

Identify the assumptions that were made to form the basis of defining scope. Also identify any assumptions that will be made for the purposes of planning the project. The objective here is to set the boundaries and address how the triple project management constraints (scope, time and cost) are potentially impacted/managed.

List any constraints (potential factors that will impact the delivery or make it difficult to manage the project) on the project or dependencies on resources or funding to the project. Consider time, cost, dates and regulatory issues as constraints or dependencies to the project.

6. Related Documents

7. Project Organisational Structure

Identify the key stakeholders and team members by function, name and role.

Function	Name	Role

8. Project Authorization

Approved by:	Project Sponsor	Date
Approved by:	Project Manager	Date

Project Charter

Project Charter	
Charter Date:	Enter Project Charter Date
Version Number:	Enter Project Charter Version
Project Title	Insert Project Title
Start date	
Background to the Proposed Word	
REASON FOR DOING IT.	
Project Objectives:	
A Concise List (2 – 4) of The Project Goals. (<u>WHAT IT WILL ACHIEVE)</u>	
Project Scope:	
List the Specification (Processes, Techniques and Departments Included in the Project and also what is not Included). (<u>A HIGH-LEVEL SUMMARY OF HOW THE PROJECT WILL BE DONE in other words a short description of work to be done</u>)	
Business Benefits:	
List the business benefits for the sponsor – separate Objectives from Benefits.	
Project Deliverables:	
Deliverables Must Be Measurable (5) And In-Line With The Project Goals. (A LIST OF THE MILESTONES THAT ARE NECESSARY TO ACHIEVE THE OBJECTIVES	
Project Assumptions:	
List Assumptions and Prerequisites for Project Success	
Project Constraints:	

List all constraints' affecting the Project	
Stakeholders:	
A list of known stakeholder organisations / individuals having a significant interest	

Project Risks	**Response to Risks**
Identified Risks Are Listed. Each Risk Needs to Be Monitored	List How to Deal with Each Risk If It Arises

Staff Resources:			
List the Key People and Materials Needed for The Project			
Other areas of business affected:			
List of known areas that will be impacted by the project			
Major Dependencies:			
A description of any known dependencies with other Projects/Programmes/Initiatives			
Outline Estimates of Cost & Time:			
Initial estimates for financial commitments & for timing of key milestones			
Acceptance Criteria for Project Closure			
List the Criteria for Final Acceptance and Handover. (Who Is Responsible for New System on handover)			
Project Charter Approval			
Project Leader		**Signature/Date**	
Project Sponsor		**Signature/Date**	
Client		**Signature/Date**	

Variance Analysis

Project Title:	Date Prepared:	
Schedule Variance		
Planned Result	**Actual Result**	**Variance**
Root Cause		
Planned Response		
Cost Variance		
Planned Result	**Actual Result**	**Variance**
Root Cause		

Planned Response		

Quality Variance		
Planned Result	**Actual Result**	**Variance**

Root Cause

Planned Response

Project Close Out Form

Project Close Out Form			
Project Close Out Comments			
Describe If Deliverable Met Requirements. Scope Or Requirement Revisions. Reasons For Schedule Variances			
Schedule Summary			
Scheduled Completion Date			
Actual Completion Date			
Variance			
Comments On Variance			
Tracking And Monitoring			
Is Further Tracking Or Monitoring Required? If So Describe			
Lessons Learned			
Comments On - Team Dynamics, Initiative, Timeline, Controls, Requirements, Deliverables, Communications			
Project Close Out Signatures			
Project Leader		**Signature/Date**	
Project Sponsor		**Signature/Date**	
Client		**Signature/Date**	

Stakeholder Register

STAKEHOLDER NAME	STAKEHOLDER INTEREST	PRE-PROJECT	INITIATION	PLANNING	EXECUTION	CLOSURE

Change Request Log

Change No.	Short Description	Priority*	Status	Introduced by	Milestone affected	Request date	Target Date	Date Closed	Owner – named person
1									
2									

Precedence Network Diagram

Gantt Chart

ID	WBS	PHASE NAME	TASK NAME	RESOURCE	CRITICAL	DURATION	EFFORT
1	1	DECO HOUSE					
2	1.1		REMOVE FURNITURE	YOU	YES	3 DAYS	3 DAYS
3	1.2		PREP KITCHEN	PAT	NO	2 DAYS	2 DAYS
4	1.3		PREP BEDROOM	MATT	YES	5 DAYS	5 DAYS
5	1.4		DECO KITCHEN	PAT	NO	5 DAYS	5 DAYS
6	1.5		DECO BEDROOM	MATT	YES	5 DAYS	5 DAYS
7	1.6		REPLACE FURN	YOU	YES	5 DAYS	5 DAYS
8	2	GARDENING					
9	2.1		CUT A TREE	ANN 50%	NO	2 DAYS	1 DAY
10	2.2		WEED	SUE	NO	3 DAYS	3 DAYS
11	2.3		POND	ANN	NO	4 DAYS	4 DAYS

NOTES:
EACH DAY IS A WORKING DAY
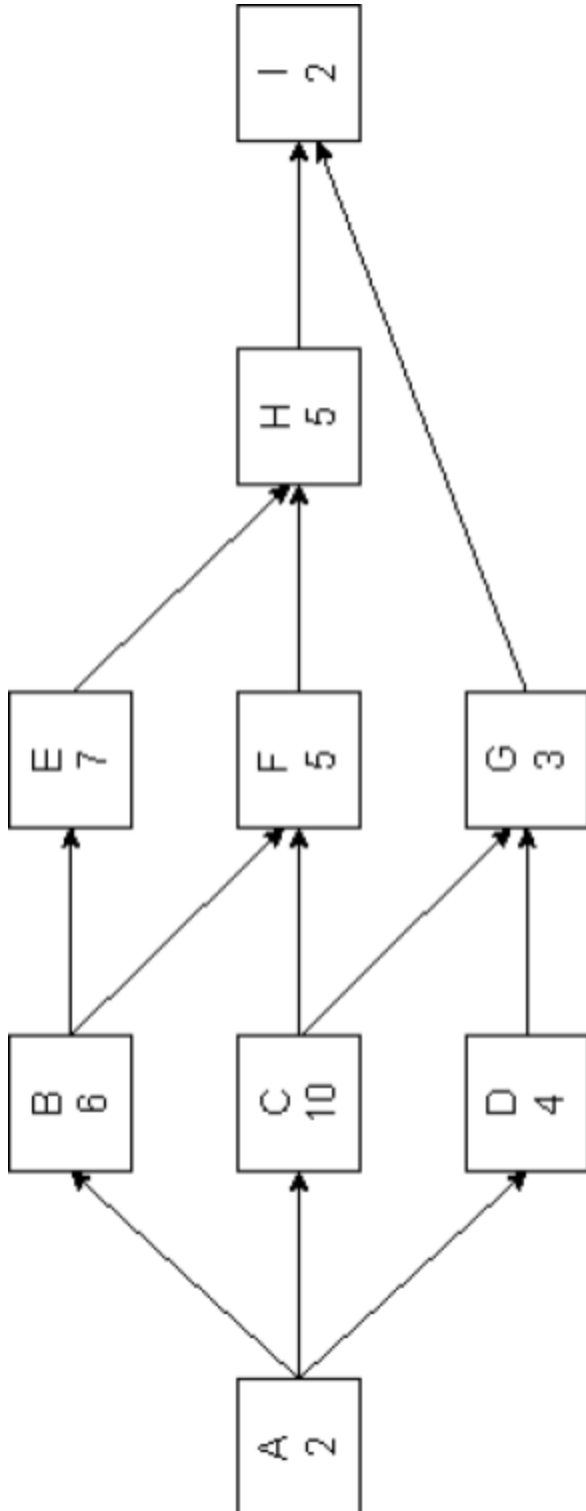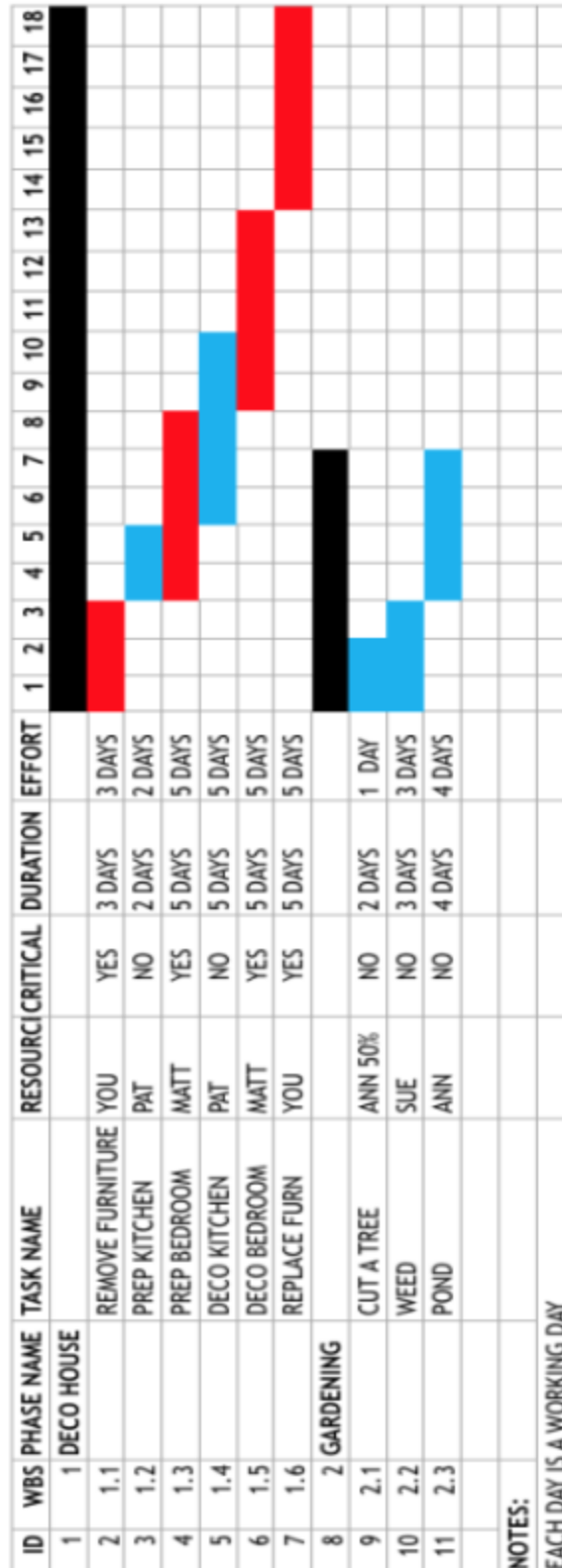
Stakeholder Communications Plan

TYPE OF COMMUNICATION	TARGETED STAKEHOLDER	COMMUNICATIONS CHANNEL (EMAIL, PRESS, WEBSITE, ETC)	FREQUENCY	PREPARED BY	APPROVED BY

Risk Register Log

| IDENTIFY RISKS | WHERE IT HAPPENS | QUALITATIVE RISK ANALYSIS | | | | PLAN RISK RESPONSES | CONTROL RISKS | | |
LEVEL	DESCRIPTION	PROJECT PHASE	A % PROBABILITY	B TIME IMPACT	C COST IMPACT	PI SCORE A*(B+C) RANK RISK	RISK MANAGEMENT PLAN	OWNER	NEXT DUE DATE	STATUS

RACI Matrix

	Steakholders				
R - Responsible for doing the task A - Accountable for the task C -Must be Consulted I - Must be Informed	ANNE	DAN	SUE	JOHN	KEVIN
Task Description	R	A	C	C	I
TASK1					
TASK2					
TASK3					
TASK4					