E2 Theory Recap

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Managing People Performance

How do we distinguish between Leadership and Management?

Quite often, the terms management and leadership are used interchangeably. There is, however, a difference between the two and it does not follow that every leader is a manager, or that every manager is a leader.

Leadership can be viewed as providing direction, creating a vision, and then influencing others to share that vision and work towards the achievement of organisational goals. Leadership can be seen as ***'getting other people to do things willingly'*** and can occur at all different levels within the organisation. We will look at leadership in more detail later in our next chapter.

Management is the ***process of getting things done through the efforts of other people***. It focuses on procedures and results. Managers tend to react to specific situations and be more concerned with solving short-term problems. Management suggests more formality, and the term 'manager' refers to a position within a structured organisation with prescribed roles. A century ago, in 1916, Fayol identified the common features of management, which are still relevant today.

- Planning
- Organising
- Co-ordinating
- Commanding
- Controlling.

Leadership Styles

2.1 Autocratic or Authoritarian style - 'Do this'

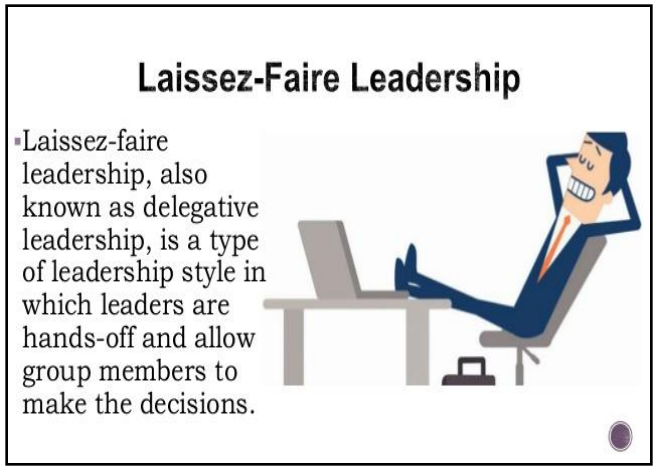
With this style the leader takes complete control, imposes all decisions on the group and neither asks for or listens to the opinions of others. Autocratic leaders tend to distrust the members of the group and as a result closely supervise and control the actions of the group. While in many circumstances this style can cause resentment, in other situations it can be necessary. For example, in the military, or where safety and security is paramount.

2.2 Democratic or Participative style- 'Let's work together to solve this'

With this style there is open discussion between the leader and the group. Ideas from the group are encouraged and while the leader will still ultimately make the decisions, the reasons for the decisions will be explained to the group. This style is more likely to encourage innovation and creativity and group members are normally more motivated under a democratic leader.

2.3 Free rein or delegative style. 'You go and sort out the problem'

With this style, the leader provides little or no leadership and expects the group to make decisions and solve problems on their own. Like the autocratic style, this style of leadership can also lead to resentment within the group.



Transformational and Transactional Leadership

Transactional leaders see the relationship with their followers in terms of a trade: they give followers the rewards they want in exchange for service, loyalty and compliance.

Transformational leaders see their role as inspiring and motivating others to work at levels beyond mere compliance. Only transformational leadership is said to be able to change team/organisational cultures and move them in a new direction. Transactional leaders tend to be more passive and transformational leaders more proactive.

Leadership in Virtual Teams

The leader of a virtual team must be able to inspire and lead their team without meeting them, without seeing them each and every day and without being able to model appropriate and desirable behaviour in a physically visible way. Leadership skills in virtual teams are different to leadership skills needed in a co-located team. Leaders of co-located teams need to be able to inspire and direct a team they see around them every day; they can lead by example and by modelling in ways that all of their team members can see visually each day. They develop their communication skills to be effective in face to face environments and in casual discussions around the office, their external communication skills are typically honed around dealing with suppliers, subcontractors and clients.

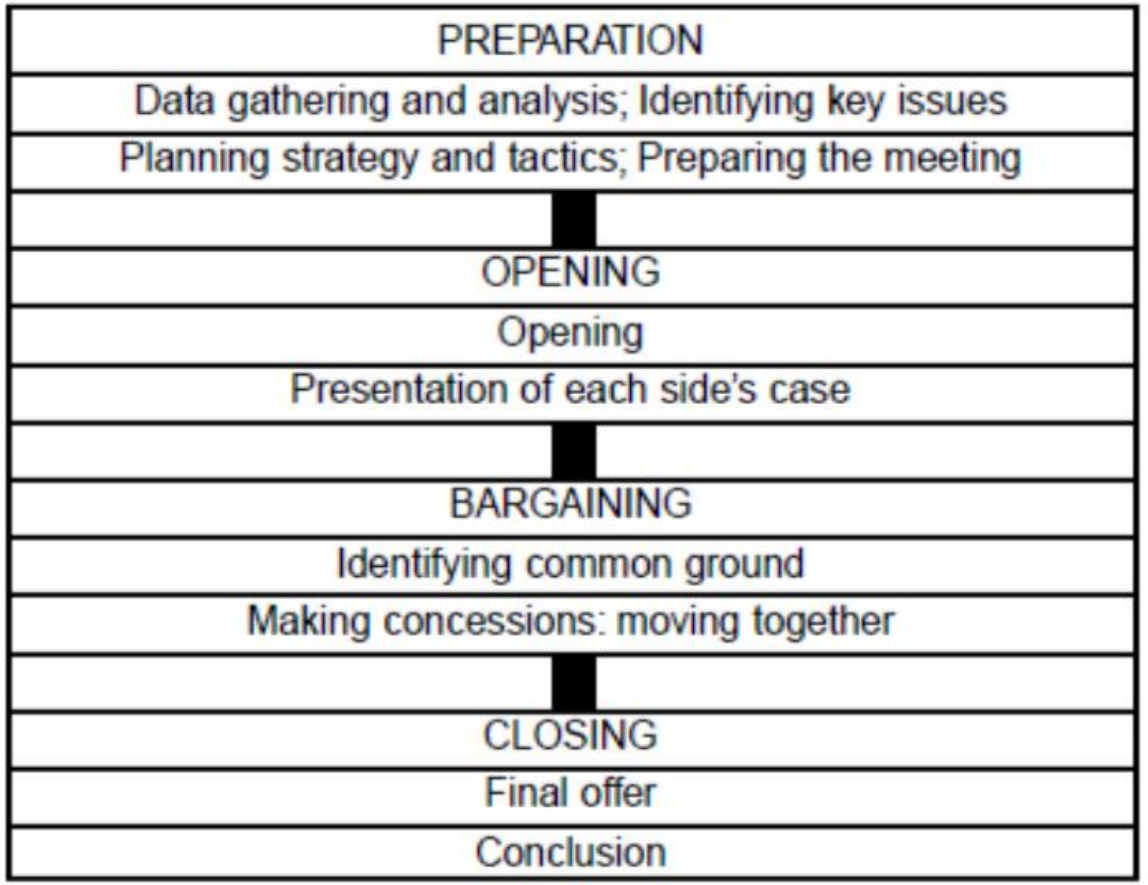
The effective leader of a virtual team must also be able to deal with higher levels of ambiguity, understand and lead across cultural boundaries and lead a distributed team of personnel who, themselves, may never meet and rely on communicating using electronic media. In short, the skills required to effectively lead a virtual team are all those of a leader of co-located personnel with many additional skills added on.

Negotiation

Negotiation is an important leadership skill required within organisations. Negotiation can be used by managers in their relationships with not only subordinates but with other stakeholders such as suppliers and customers.

The aim of negotiation is to *settle differences between people or groups, and to allow them to come to an agreement which both parties accept.*

***A formal negotiation process includes 4 steps**:*



Teams

A work team is a formal group. It has a leader and a distinctive culture and is geared towards a final result. An effective team can be described as 'any group of people who must significantly relate with each other in order to accomplish shared objectives'.

In order to ensure that the team is truly effective, team members must have a reason for working together. They must need each other's skills, talent and experience in order to achieve their mutual goals.

Team Development

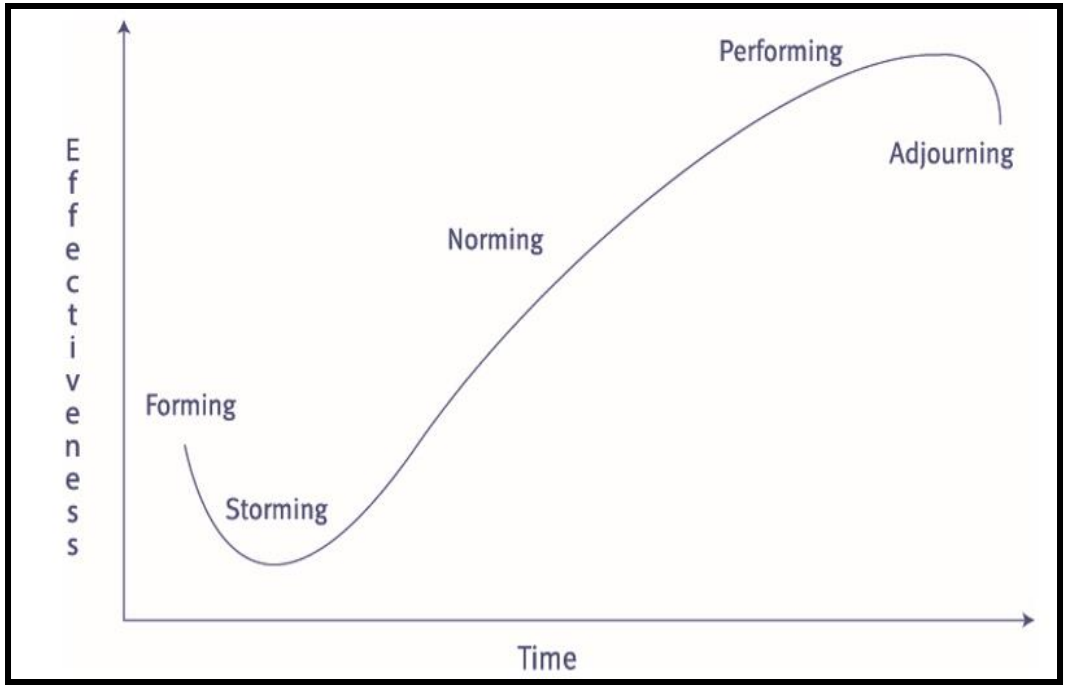
The level of group performance is affected by the manner in which teams come together. According to Tuckman, teams typically pass through four stages of development: The stages are:

- **Forming:** At this initial stage, the team members are no more than a collection of individuals who are unsure of their roles and responsibilities until the manager clearly defines the initial processes and procedures for team activities

- **Storming:** As tasks get underway, team members may try to test the manager's authority and team preconceptions are challenged. Conflict and tension may become evident. The conflict resolution skills and the leadership skills of the manager are vital at this stage.

- **Norming:** This stage establishes the norms under which the team will operate and team relationships become settled. Team procedures are refined and the manager will begin to pass control and decision-making authority to the team members.

- **Performing:** Once this final stage has been reached the team is capable of operating to full potential. Progress is made towards the set objectives and the team feels confident and empowered.



Tuckman added a fifth stage:

- **Adjourning -** If a team remains for a long time in the performing phase, there is a danger that it will be operating on automatic pilot. 'Groupthink' occurs to the extent that the group may be unaware of changing circumstances. Instead, maintaining the team becomes one of its prime objectives. In this situation it may be necessary for the group to 'adjourn' or be suspended.

High Performing Teams

Vaill said that high-performing teams may be defined as human systems that are doing dramatically better than other systems. He claimed that they have a number of common characteristics:

- Clarification of broad purposes and near-term objectives.
- Commitment to purposes.
- Teamwork focused on the task at hand.
- Strong and clear leadership.
- Generation of inventions and new methods.

Employee Performance Appraisal

A performance appraisal system involves the *regular and systematic review of performance and assessment of potential,* with the aim of producing action programmes to develop both work and individuals. It aims to improve the efficiency of the organisation by ensuring that the individual employees are performing to the best of their abilities and by developing their potential for improvement.

Benefits to individuals

- ✓ Feedback about *performance at work* and an assessment of competence through comparison of performance against established standards and agreed targets
- ✓ *Identifies work of particular merit done* during the review period
- ✓ Provides a *basis for remuneration*
- ✓ May be used as an *opportunity to discuss future prospects and ambitions*
- ✓ Identifies *training and development needs.*

Benefits to organisation

- ✓ Provides a *system for assessing competence of employees* and identifies *areas for improvement*
- ✓ Provides a *fair process for reward decisions*
- ✓ Helps *identify and formulate training needs*
- ✓ *Improves communication between managers and subordinates*
- ✓ Provides *clear targets linked to corporate objectives*
- ✓ Provides a *basis for HR planning*
- ✓ *Monitors recruitment and induction process* against results.

Formal Process of Employee Performance Appraisal (TARA)

Targets - Targets must be set which employees understand and agree to. If they do not 'buy into' them, they will not put any effort in to accomplishing them, especially if they do not feel that the targets are achievable. This can lead to demotivation.

Actual results monitored - During the period, the manager should monitor the actual employee performance and provide regular feedback. Managers can offer rewards for good performance and support and help where it looks as though the employee is failing to meet their targets.

Review - At the end of the period, the manager and employee will usually have a formal appraisal interview where they discuss the employee's performance and investigate how successful the employee has been at meeting the pre-agreed targets.

Action plan - The manager and employee then agree on new targets that will be set for the coming period.

Process for handling disciplinary procedures

Process for handling disciplinary procedures:

- **The informal talk.**
- **The oral warning.**
- **First written warning**
- **Second (final) written warning**
- **Suspension pending inquiry**

Unless employers follow the statutory procedure, employment tribunals will automatically find dismissals unfair. The statutory procedure involves the following three steps:

, A **statement in writing** of what it is the employee is alleged to have done.
, A **meeting** to discuss the situation.
, The **right of appeal.**

The statutory procedure is the minimum standard. Employment tribunals expect employers to behave fairly and reasonably.

Health and Safety

A legal requirement which management must adhere to is health and safety legislation.

Management have a responsibility to manage the health and safety risks in their workplace. They must think about what, in their organisation, might cause harm to people and ensure that they are doing enough to prevent that harm.

Management must identify the health and safety risks within their organisations and decide how to control them and put the appropriate measures in place.

Health and Safety at Work Act (HASAWA)

In the UK, the Health and Safety at Work Act 1974 (HASAWA) requires every organisation employing five or more persons to prepare and regularly

revise a health and safety policy statement of:

, their policy for health and safety

, the organisation to enforce it

, the arrangements to implement it and bring it to the attention of the employees.

The following are key areas:

, Provision and maintenance of risk-free plant and systems of work.

, Ensuring the safety in use, handling, storage and transport of articles and substances.

, Provision of information, training, instruction and supervision.

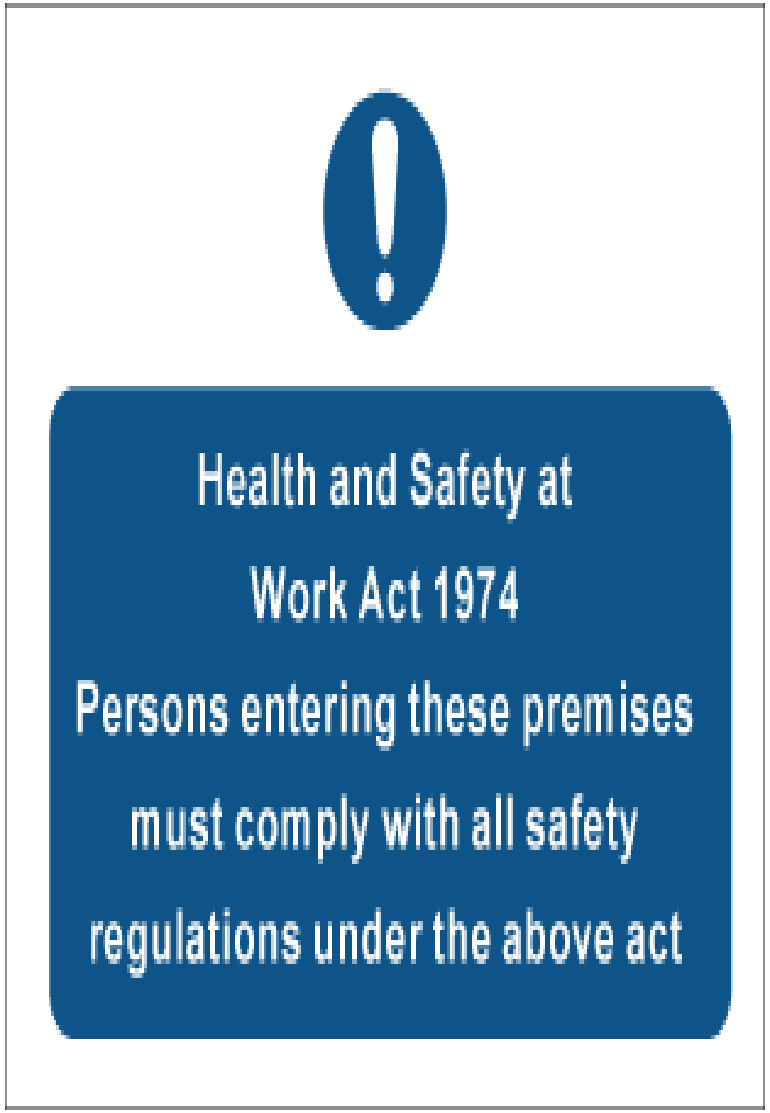
, Maintenance of a safe workplace.

, Provision of means of entry and exit.

, Provision of a safe working environment.

, Adequate facilities.

A senior member of the organisation should be responsible for implementing the policy and may be supported by safety officers. **Employees** also have basic responsibilities in this regard. Most companies have a **safety committee and representatives** who have some experience, are entitled to training and are consulted about arrangements to ensure the effectiveness of the health and safety policy implementation.



Organisational Culture

Organisational culture is an important concept since it has a widespread influence on the behaviours and actions of employees. It represents a powerful force on an organisation's strategies, structures and systems, the way it responds to change and ultimately, how well the organisation performs.

Handy described culture as: ***'the way we do things around here***' By this, Handy means the sum total of the belief, knowledge, attitudes, norms and customs that prevail in an organisation.

Influences on Culture

- **Size -** How large is the organisation in terms of turnover, physical size and employee numbers?
- **Technology -** How technologically advanced is the organisation either in terms of its product, or its productive processes?
- **Diversity -** How diverse is the company either in terms of product range, geographical spread or cultural make-up of its stakeholders?
- **Age -** How old is the business or the managers of the business? Do its strategic level decision makers have experience to draw upon?
- **History -** What worked in the past? Do decision makers have past successes to draw upon; are they willing to learn from their mistakes?
- **Ownership** - Is the organisation owned by a sole trader? Are there a small number of institutional shareholders or are there large numbers of small shareholders?

Project Management

1. Introduction to Projects

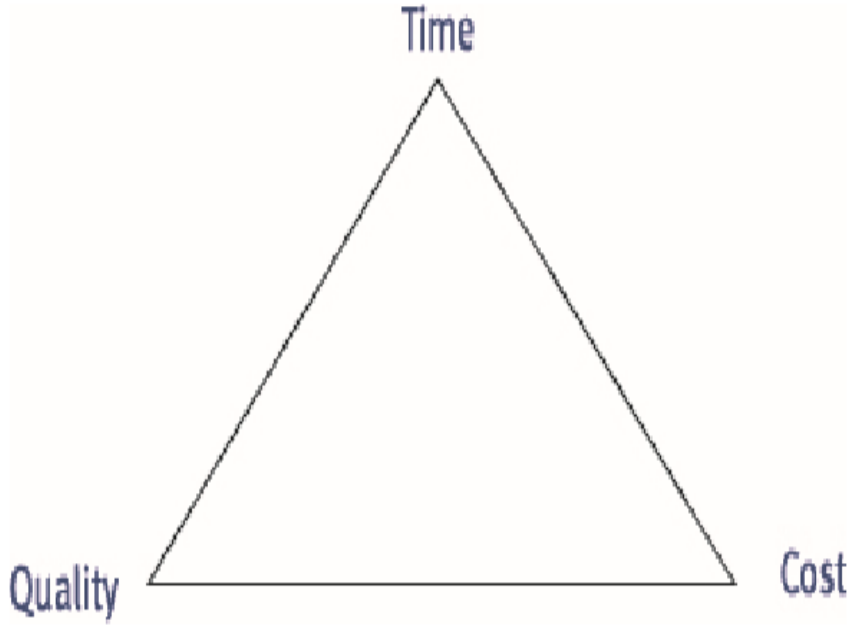
The Association of Project Managers define a project as: ***'A human activity that achieves a clear objective against a time scale.'***
A project has a number of key attributes which differentiate it from business as usual:

- Unique undertaking to achieve a specific objective.
- Defined beginning and end.
- Has resources, like staff and funding allocated specifically for the length of the project.
- Have stakeholders, i.e. all those who are interested in the progress and final outcome of the project.
- A project will inevitably have some degree of uncertainty as the uniqueness of it will lead to some degree of risk in the deliverables and the activities to achieve the deliverables.

Once completed, it should then become integrated into the normal day-to-day activities of the business. A few examples of projects in a business - ***Closure of an industrial plant, Investment logic mapping (ILM), Implementation of a financial management system etc.***

1.2 Project Constraints

Every project has constraints. Constraints ***are anything which restricts, limits, prevents or regulates activities being carried out***. When running a project, it is critical that the constraints are known, so they can be taken account of throughout the project. The primary constraints are ***time, cost*** and ***quality.*** These are often referred to as the ***'project triangle'.***

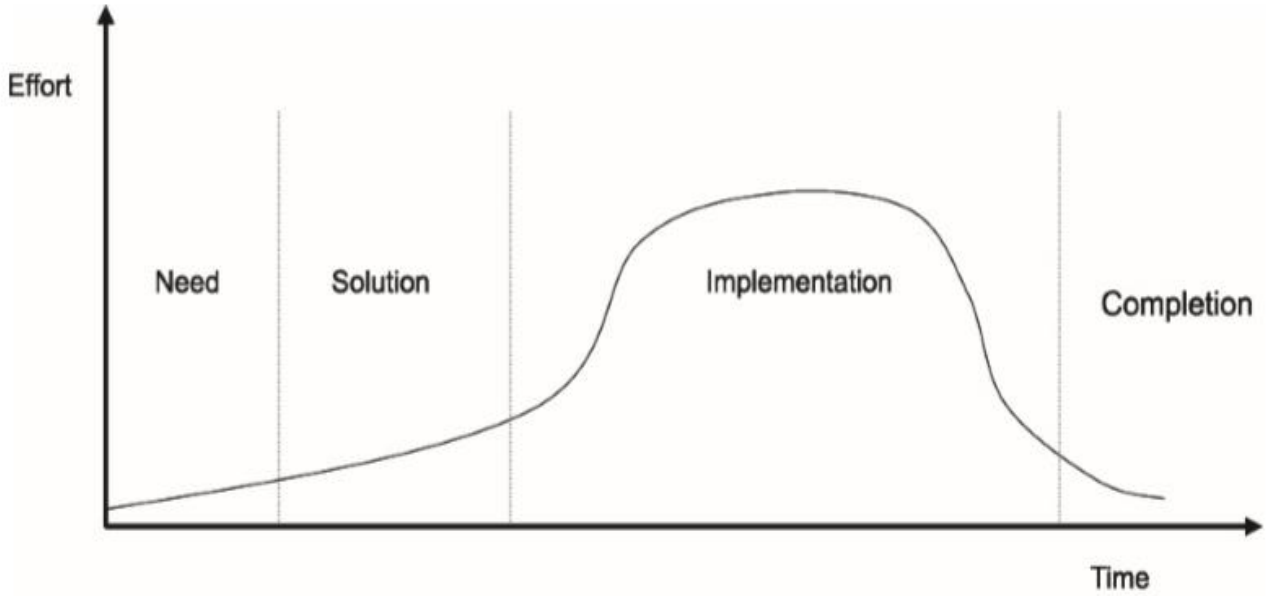


It is worth thinking about the conflicting nature of these constraints. Time and cost tend to be positively correlated in projects (i.e. when time increases, so does cost), as taking longer to complete a project generally means that human resources are needed for longer. However, this is not always the case. If there is a degree of urgency in a project, it may be possible to reduce the timescale to completion by allocating additional resources, or by scheduling expensive overtime working. Both of these situations will increase cost while reducing time.

Project quality tends to be positively correlated with both cost and time, in that increasing the quality of the project will normally lead to an increase in both the cost of the project and its overall duration. In additional to these three main constraints, there are a number of other constraints which will affect the project's delivery, such as legal, technological, political, environmental and ethical constraints.

1.3 Project Life-cycle

Large-scale projects usually follow a life cycle made up of separate phases, which occur in sequence. There are a number of models which detail these phases. Regardless of which model is used, it is important to highlight the separate stages which the project goes through from beginning to end, and to understand what happens during each stage. A project life cycle is shown below:



The project life cycle

Phase 1 – Identification of a Need - The first phase of the project life cycle involves identification of a need, opportunity or problem. Initially, a feasibility study will be conducted to check the size of potential benefits and evaluate in broad an outline of the potential alternative solutions and their lifetime costs. At the end of this phase, the company will decide whether to proceed with the project. If it does, then a project team is formed and a project initiation document (PID) is raised. This will include a vision and a business case for the project. The business case is an important guide to decision-making throughout the project, and the vision encourages motivation and congruent goals in the project team.

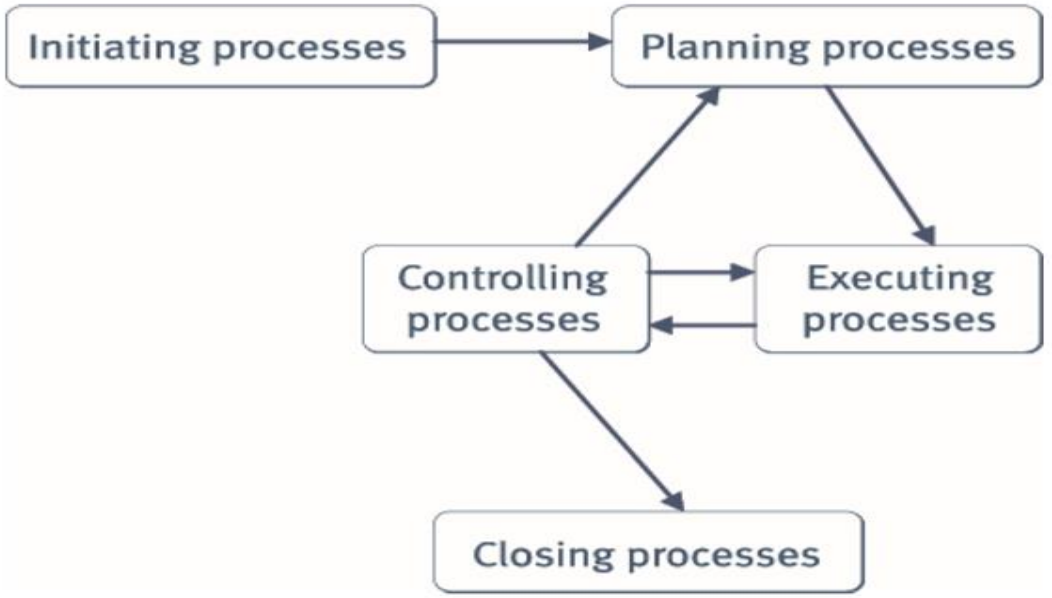
Phase 2 – Development of a Proposed Solution - The second stage of the project life cycle is the development of a proposed solution. All proposals for the solution will be submitted and evaluated and the most appropriate solution to satisfy the need will be selected.

Phase 3 – Implementation - The third stage of the project life cyde is the implementation of the proposed solution. This phase is the actual performance of the project and will involve doing the detailed planning, and then implementing that plan to accomplish the project objective. The overall solution is subdivided into separate deliverables to be achieved at fixed points (milestones) throughout this stage of the project. Achievement of these deliverables may be linked to stage payments. The project's objectives of functionality, quality, cost and time are monitored regularly against each deliverable to ensure they are being met. Timely appropriate action can then be taken if any slippage has occurred.

Phase 4 – Completion - The fourth stage of the project life cycle is the completion or closure of the project. When a project closes, important tasks need to be carried out, such as confirmation that all deliverables have been provided and accepted, and all payments have been made and received. Project performance is evaluated and appraised in order to learn from the project for future reference. Obtaining customer feedback is important in improving the quality of future project provision. The original business case is also revisited to check whether any subsequent actions are needed to ensure achievement of the anticipated benefits.

An alternative five stage project life cycle based on the Project Management Institute's 5 Project Management Process Areas identifies the stages as:

- Initiating
- Planning
- Executing (Implementing)
- Controlling
- Closing.



This model is very similar to the project life cycle discussed, However, it places greater emphasis on the 'planning' and 'controlling' activities, as is to be expected from a professional project management institute. It is important to understand the purpose of each stage of the project life cycle and the activities which are carried out at each stage.

2. Project Initiation

Projects are initiated ***when a need or objective is defined.*** Objectives are those things that the organisation wants to achieve. Typically, top-level objectives are profit-oriented, or in not-for-profit organisations objectives will be to improve the standard of living or education, and so on of members. It is usually a function of the board of directors to determine the high level organisational objectives. There are a number of reasons why a project would be initiated:

- To help meet the company's long-term goals and objectives.
- Process/service enhancement.
- Solve problems identified internally or externally.
- To take advantage of new opportunities.
- Statutory/legal requirement.

Companies may have a number of potential projects they would like, or need to undertake, but they may not have the resources to carry them all out. They often have to go through a selection process to establish the most worthwhile projects. The purpose of the initiation stage is to identify the most worthwhile projects to undertake. Only these projects will be taken forward to the planning stage. One of the main ways companies select the most worthwhile projects is by considering the feasibility of the proposed projects and the risk and uncertainty relating to the project.

2.1 Feasibility Study

The development of any new project requires careful consideration and planning. It will consume large volumes of resources, both financial and nonfinancial, and is likely to have a major effect on the way in which the organisation will operate.

Feasibility studies may be carried out on a number of potential strategies and the aim of the study is to decide on which proposal to choose. Sometimes the potential project manager is involved in the feasibility study stage of a project, but not always.

However, it is important for project managers to understand the process of feasibility assessment. **This covers 4 aspects:**

1. **Technical Feasibility –** can it be done?

2. **Social (Operational) Feasibility –** does it fit with current operations?

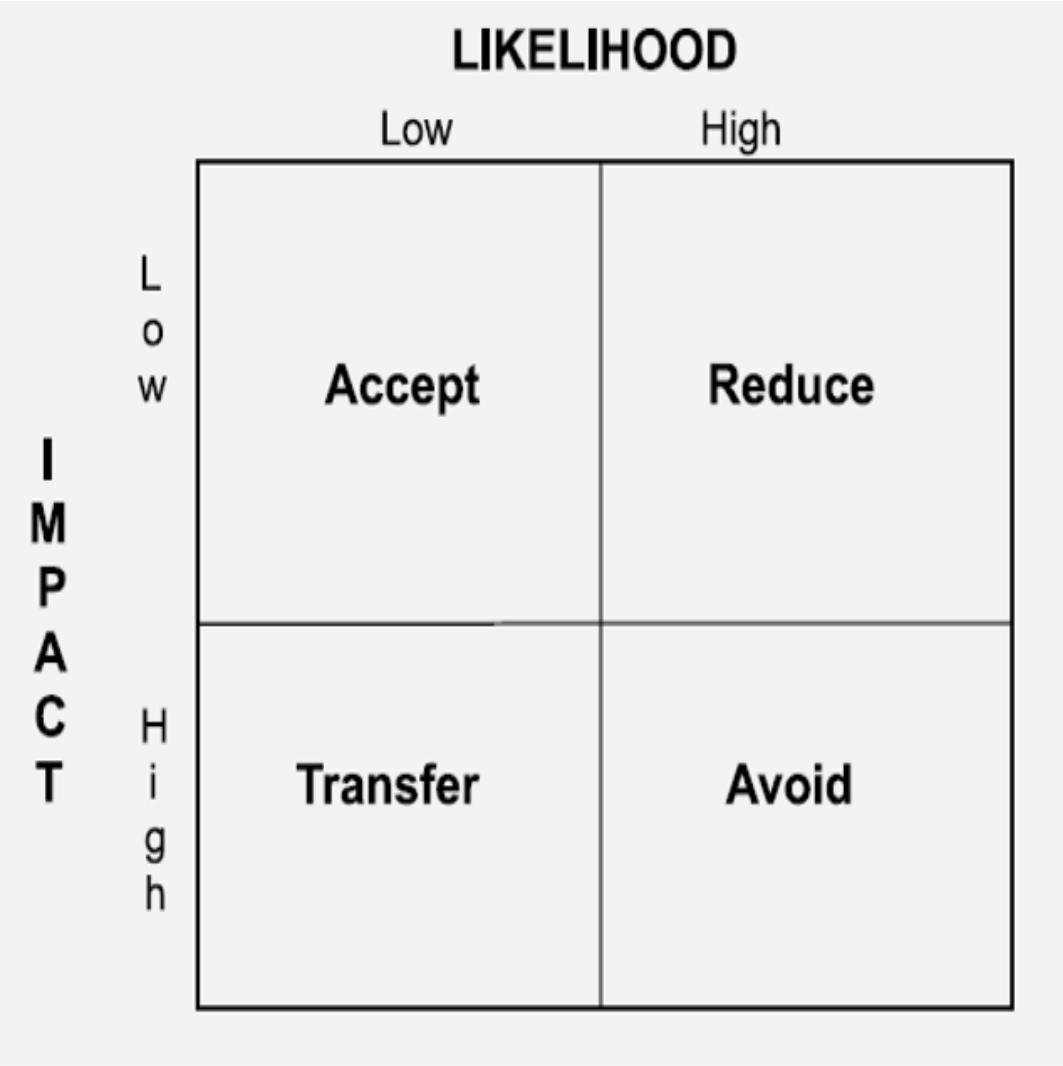
3. **Ecological (Environmental) Feasibility –** how does it affect the environment?

4. **Economic (Financial) Feasibility –** is it worth it? (cost-benefit analysis)

2.2 Risk and Uncertainty

Another important activity which is carried out at the initiation stage is to undertake a risk assessment to consider the risks associated with the proposed project and to consider how these risks can be managed.

2.2.1 TARA Framework



Transfer	***Low Likelihood, High Impact***. Can be transferred ex: subcontracting the risk to those more able to handle it, such as a specialist supplier or by insuring against the risk.
Accept	***Low Likelihood, Low Impact***. Inevitable risks. No choice but to accept. It is important to continue to monitor these risks to ensure that their potential impact or likelihood don't increase.
Reduce	***High Likelihood, Low Impact***. Alternative course of action with lower risk exposure could be taken or investment in additional capital equipment or security devices to reduce risk or limit consequences. Could also implement more internal controls.
Avoid	***High Likelihood, High Impact***. Project should be abandoned as risk is too great.

2.2.2 Uncertainty

Unlike risk, uncertainty is impossible to evaluate because it is impossible to assign probability to an uncertain event. If the event is uncertain, we cannot put in place management control to reduce the probability of its occurrence, simply because we do not know that probability. Instead we must use contingency planning.

Contingency Planning

Contingency planning involves considering alternative actions which could be taken if uncertain events occur. The purpose of contingency planning is to avoid unnecessary delays in the project. The contingency plans may never be used, but we can do our contingency planning when it suits us. If we wait for the uncertain event before doing any planning, this may further delay the project.

Contingency plans may include:

- Contacting lenders to discuss possible additional finance.
- Re-planning the remaining project with a longer duration.
- Identifying if required materials are available from other possible suppliers.

2.3 Project Initiation Document (PID)

The main output of the initiation stage of the project is the project initiation document (PID). There are two primary reasons for having a PID:

a) To ***secure authorisation*** of the project.

b) To ***act as a base document*** against ***which project progress and changes can be assessed*****.** The PID can be used to ensure that the project team and project stakeholders are in general agreement about the nature of the project and exactly what it is trying to achieve.

This document therefore:

- ❑ Defines the project and its scope.
- ❑ Justifies the project.
- ❑ Secures funding for the project, if necessary.
- ❑ Defines the roles and responsibilities of project participants.
- ❑ Gives people the information they need to be productive and effective right from the start.

Contents of a Project Initiation Document (PID

There is no set format required for a PID, but it would generally contain the following sections:

- ***Purpose statement*** – explains why the project is being undertaken.
- ***Scope statement*** – puts boundaries to the project by outlining the major activities. This section is important in preventing 'scope creep', where additional activities are added making achievement of the cost and time objectives totally impossible.
- ***Deliverables*** – tend to be tangible elements of the project, such as reports, assets and other outputs.
- ***Cost and time estimates –*** it is a good idea to start with some feel for the organisation's expectations in terms of the project budget. These estimates will be modified later in the project but are necessary to give a starting point for planning.
- ***Objectives –*** a clear statement of the mission, CSFs and key milestones of the project.
- ***Stakeholders –*** a list of the major stakeholders in the project and their interest in the project.
- ***Chain of command –*** a statement (and diagram) of the project organisation structure.

3. Project Planning

Planning is a systematic process of taking decision in order to achieve a specific objective. Therefore, planning will be developed based on the objective of project. This is the responsibility of the project manager.

In the planning stage, a number of separate detailed plans will the drawn up:

a) Time – the time plan lists all the activities, who will do what and how long each is planned to take.
b) Cost – the cost plan uses a rate per hour for each activity in the time plan, plus cost of purchases from the resource plan.
c) Quality – the quality plan includes identification of the clients, the key outcomes each expects, acceptance criteria that has been agreed with them, a test plan for how each outcome will be tested and responsibility for each test.
d) Resources – the resource plan checks peaks and troughs of workload to ensure the plan is feasible and lists purchases to be bought. Contingency – contingency plan includes assessment of risk and decides what additional activities and buffer of cost and time need to be added to the plan to ensure a reliable budget and completion date.
e) Communication – the communication plan identifies the key people in the project, their likely concerns, message needed, planned method of communication and who will be responsible.
f) Deliverables – the deliverables plan will detain exactly what has been agreed as the deliverables of the project.

3.2 Project Planning Tools

There are a number of tools, techniques and documents which are used throughout a project, particularly at the planning stage. These can be summarised as follows:

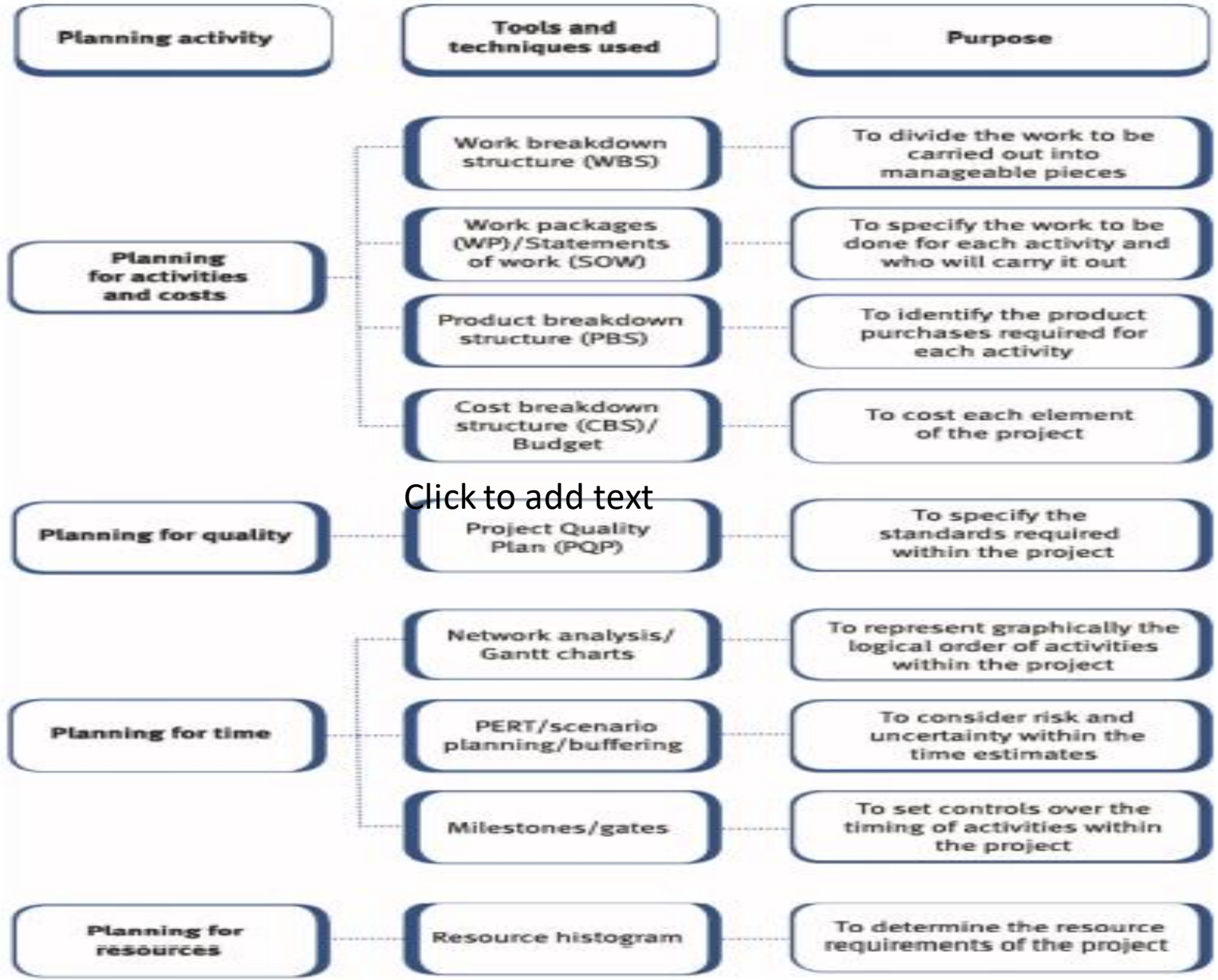
3.2.1 Planning for Activities and Costs

3.2.2. Planning for Quality

3.2.3. Planning for Time

3.4.3. Planning for Resources

The tools under each of these are as below:



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3.2.1 Planning for Activities and Costs

Work Breakdown Structure

The WBS is an important starting point for planning. It contributes to planning in the following ways:

– Breaks complex tasks into manageable pieces.
– Sets out the logical sequence of project events.
– Provides a logical framework for making decisions.
– Provides an input into subsequent project processes, such as estimating time and resources.
– Provides a framework for continuous assessment of the project progression.
– Provides a communication tool. An extract from a possible WBS for planning the Olympic Games is shown below.

Work Packages (WPs) and Statements Of Work (SOWs)

– The work package specifies the work to be done for each package described in the work breakdown structure.
– The statement of work describes the deliverables against which the project can be measured.
– Both types of document identify in detail work to be done and may state the standard to which the work is to be done.
– The statement of work also indicates who is responsible and when the work needs to be delivered.

Product Breakdown Structure (PBS)

– The products required for each activity would then be listed, for example the Long Jump would require: Sand pit, White board, Measuring equipment etc.
– A description of the machinery and equipment required for the project would be made.
– This allows different suppliers to be compared.

Cost Breakdown Structure (CBS)

This will include information gathered from:
– The WBS, WP, SOW and PBS.
– Capital and revenue costs identified in the cost-benefit analysis and feasibility study documents. It describes the categories that require costing to ensure nothing is left out of the budget process. Numbers and costs would be allocated to each product. This creates the detailed financial plan (budget) for the project.

3.2.2. Planning for Quality

2.1.1. Project Quality Plan (PQP)

This major document details the standards that must be adhered to in order to ensure a successful development process. It will provide a clear indication of procedures and policies that must be followed to maintain quality within the work carried out. It generally includes:

- **Risk assessment –** of the possible internal and external risks that are likely to affect the project and the alternative actions which are required to reduce the risks.
- **Project overview** – outline of the main activities to be carried out.
- **Project requirements** – details a description of the work to be carried out, timescales and deliverables and is cross referenced to the requirements specification.
- **Project organisation – stating management roles and responsibilities, this will help to determine the allocation of resources to each of the** project activities.
- **Monitoring and reporting procedures** – cross referenced to the project standards, this section identifies how the project will be monitored and what to do if slippage occurs. It also states the frequency and content of reports as well as key control processes, such as end of stage meetings, for example, when the steering meetings will take place and procedures for evaluating the final installed system.
- **Key development stages and processes** – the activities that will need to be completed during the life cycle.
- **Key standards to be used in) the project (quality assurance** – this will help to ensure quality outputs, standards that need to be evaluated and will include hardware, software and development standards such as notation of modelling techniques.
- **Testing strategy** – this will identify the stages of development where testing is to be carried out, by whom and of what.
- **Procurement policy –** the procedures and standards for procurement will be stated and any variation from the normal procedure noted, with reasons.
- **Configuration management –** how this will be dealt with should be set out so that each version of the deliverables is identified.

3.2.3 Planning for Time

3.2.3.1. Network Analysis

Network analysis is a general term, referring to various techniques adopted to plan and control projects. It is used to analyse the inter-relationships between the tasks identified by the work breakdown structure and to define the dependencies of each task. Whilst laying out a network it is often possible to see that assumptions for the order of work are not logical or could be achieved more cost effectively by re-ordering them.

Critical Path Analysis (CPA)

One of the component parts of network analysis is critical path analysis or CPA (this is often called network analysis). It is the most commonly used technique for managing projects. The steps:

1. Analyse the project. The project is broken down into its constituent tasks or activities. The way in which these activities relate to each other is examined, for example which activities cannot be undertaken until some previous activity or activities are complete?

2. Draw the network. The sequence of activities is shown in a diagrammatic form called the 'network diagram'.

3. Estimate the time and costs of each activity. The amount of time that each activity will take is estimated, and where appropriate the associated costs are estimated.

4. Locate the critical path. This is the chain of events that determines how long the overall project will take. Any delay to an activity on the critical path will delay the project as a whole; delays to other activities may not affect the overall timetable for completion. That is the distinction between critical and non-critical activities.

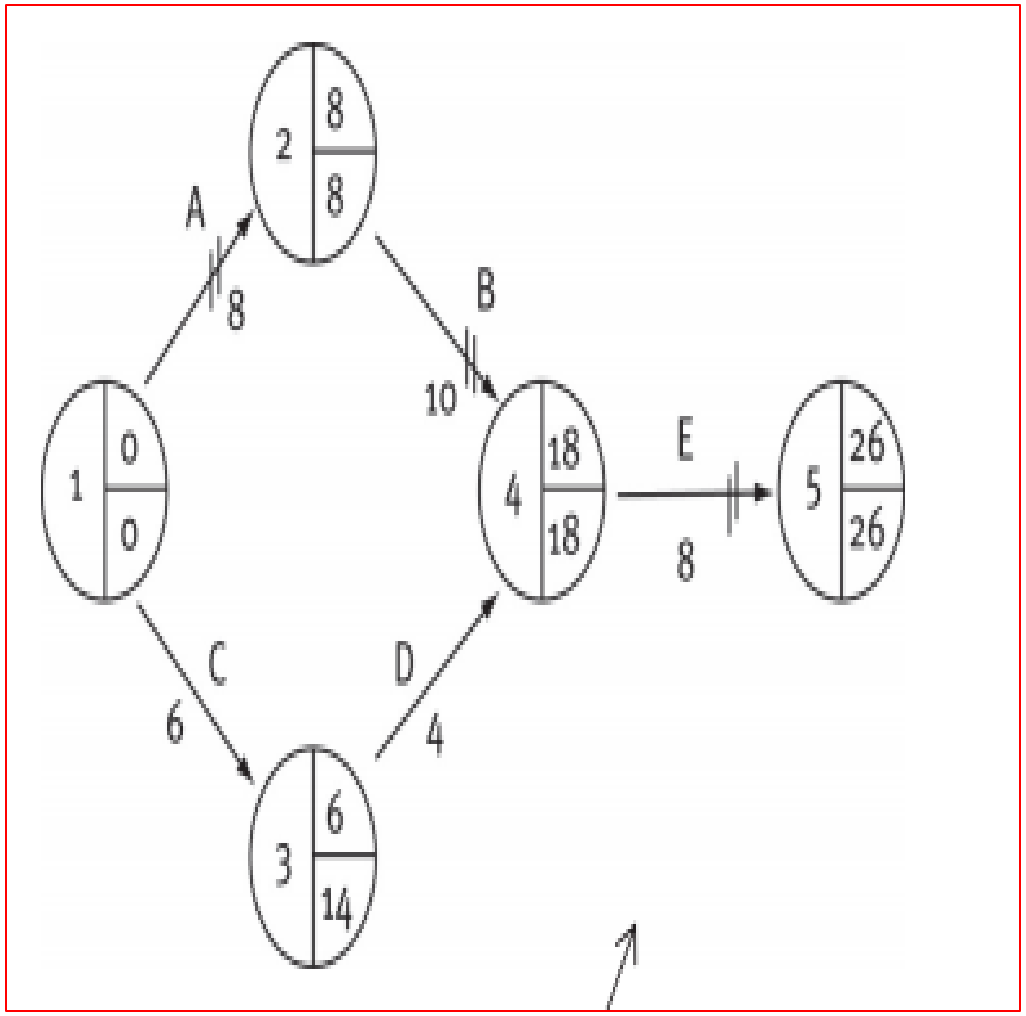
5. Schedule the project. Determine the chain of events that leads to the most efficient and cost effective schedule.

6. Monitor and control the progress of the project. This implies careful attention to the schedule and any other progress charts that have been drawn up, to monitor actual progress in the light of planned achievement.

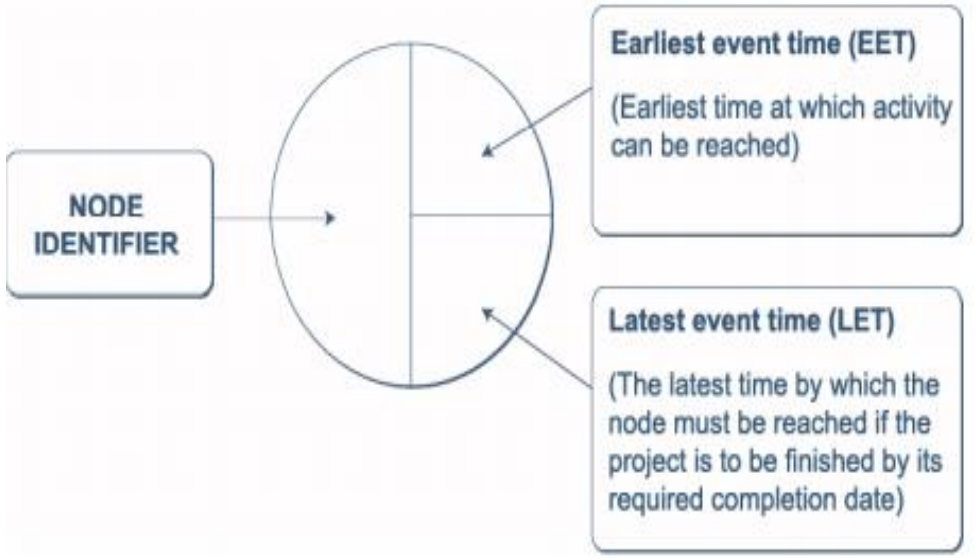
7. Revise the plan. The plan may need to be modified to take account of problems that occur during the progress of the project.

The Network Diagram

The diagram is made up of two parts: activity lines and nodes. The diagram is drawn and read from left to right. A complete network diagram (CPA) would look like the image outlined in red.

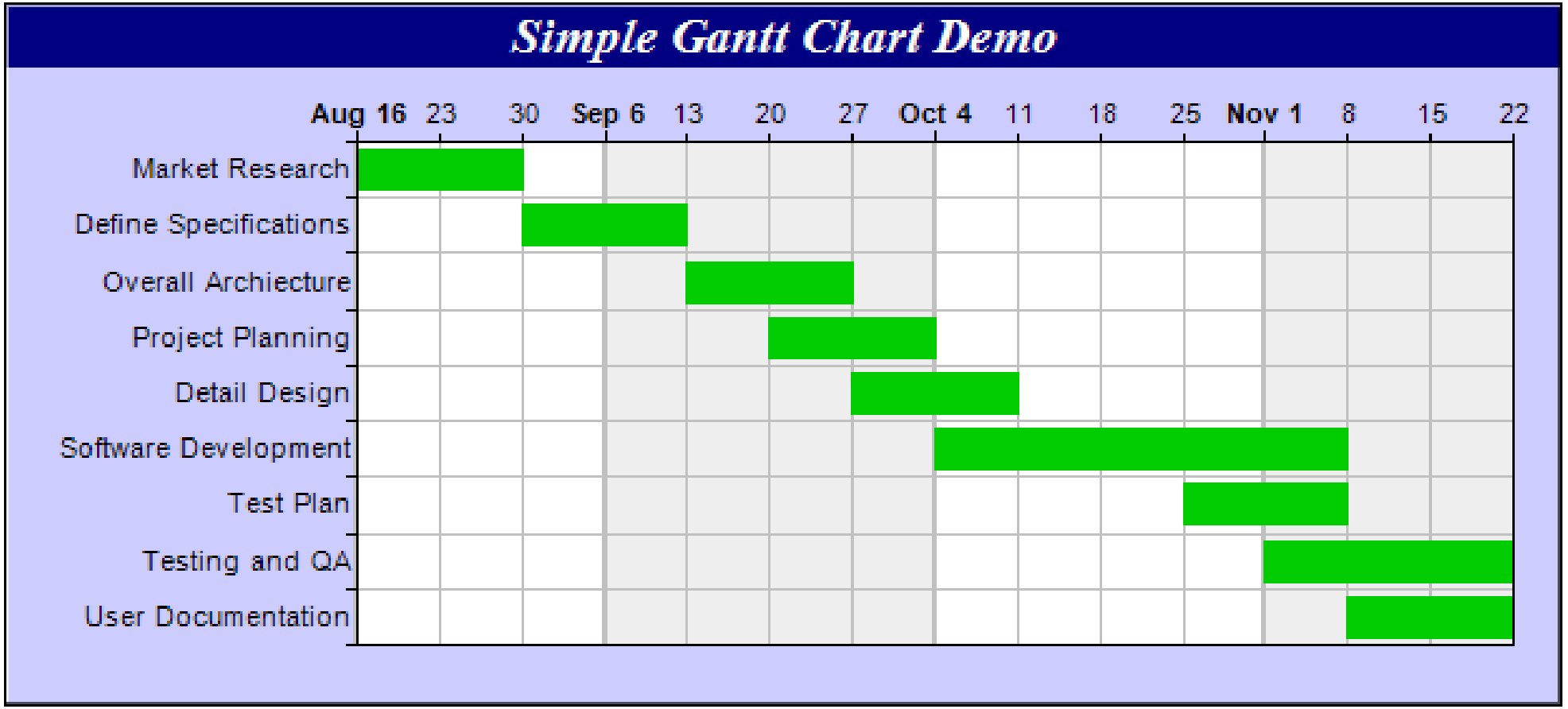


- ✓ Each activity is represented by an arrow ↗
- ✓ The activity letter or description (or both) is written on the arrow.
- ✓ The activity duration is written below the arrow.
- ✓ The activities on the critical path are identified with //
- ✓ Activities start and finish in circles known as nodes (O).
- ✓ Nodes are numbered so that each node has a unique identifier.
- ✓ The nodes also contain information on two times: – The earliest event time (EET) – The latest event time (LET).



3.2.3.4. GANTT Chart

This is an alternative or complementary approach to network analysis. It also provides a graphical representation of project activities and can be used in both project planning and control. A Gantt chart is a horizontal bar chart where the length of the bar represents the duration of the activity. When a Gantt chart is used to help control a project it is usual to use two bars, one showing the planned duration and the second showing the actual duration.



3.2.3.5. Milestones and Control Gates

One of the main reasons for constructing a network diagram is to improve the control of the project duration. In order to facilitate this, a number of milestones can be identified in the network. They are not specifically shown on the diagram (except of course for the end activities), but they are shown on a Gantt chart as a small triangle or other symbol.

A milestone, as the name implies, ***is an event that is clearly identifiable as a measure of how far the project has progressed, and how far it has to run.*** This involves partitioning the project into identifiable and manageable phases that are well defined key events and unambiguous targets of what needs to be done and by when, and should be established during the project planning phase. Milestones are important in assessing the status of the project and quality of the work. Monitoring the milestones enables the project manager to keep control over the projects progress, and allows any delays to be identified immediately.

Some milestones are ***key points in the project life cycle which give the project sponsor or steering committee an opportunity to review project progress, and make a decision whether to proceed further or to terminate the project.*** These milestones are called ***control gates*** and represent the significant completion of milestones. A gate can only be 'passed' if the progress meets pre-defined performance standards. This could take the form of technical reviews or completion of documents. Control gates should be identified in the project plan and a review will be required to formally pass each gate. If at the gate review the criteria have not been met, the project should not continue. This may mean changes are needed to the overall project plan.

3.2.4 Planning for Resources

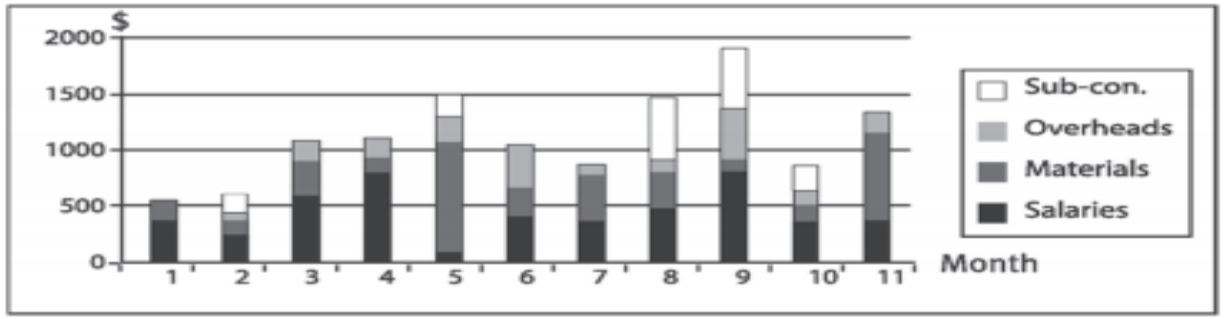
Resource Histogram

This is a graphical aid for determining the total requirement for a specific resource during the project. The histogram identifies, in block graph form, the fluctuating need for finance, staff, technology resources or vendor services at any stage in the project. This can assist in planning. Reallocation of key tasks can reduce the excessive requirement at certain periods, providing a smooth flow of resources throughout the project. This smooth flow is easier and cheaper to plan for. The histogram may also assist in control activities. A resource histogram shows the amount and timing of the requirement for a resource or a range of resources using a stacked bar chart.

It is very common for a project budget to be constructed as shown below. Variance analysis and financial control are much easier when a spreadsheet package is used for project budgeting.

Month	1	2	3	4	5	6	7	8	9	10	11	Total
	$	$	$	$	$	$	$	$	$	$	$	$
Salaries	420	285	662	850	122	453	411	502	850	421	409	5385
Materials	0	125	0	0	1000	250	400	325	100	125	800	3125
Overheads	180	55	320	123	249	402	111	122	451	123	201	2337
Sub-con.	0	200	200	200	200	0	0	560	560	250	0	2170
Total	600	665	1182	1173	1571	1105	922	1509	1961	919	1410	13017

Such a budget can be shown as a histogram for immediate visual impact, as shown below:



Resource histograms can be used for all resources, such as equipment or human resources.

4. Project Execution and Controlling

Once the project plan has been developed and agreed by the customer and project team, the project ***can commence***. At this stage, the project manager must provide leadership and co-ordination to the project team members and other stakeholders with the aim of successfully delivering the project objectives. This is the ***stage where stakeholders need to be focused upon the project tasks and the project team will perform the tasks they are responsible for, as and when scheduled in the plan.*** This stage can be weeks, months or years long. The executing stage is closely linked with the controlling stage.

Change Control

Change is an inevitable part of any project and it must be managed carefully during the execution stage. Change may arise from ***internal or external factors***, and can often change the outcome of the project. It is therefore important to have an ***agreed change management process in place*** so that everyone involved in the project is ***aware of how change will be managed***. Change can be required ***at all stages of the project***, very ***often during the execution phase*** as new factors emerge. It is important that the initial project documents, such as the PID and the detailed project plan, remain as 'baselines' so that all changes can be carefully monitored and controlled. A change control process is not to stop change happening, but to ensure that the changes, which will inevitably be required during the project, are agreed and communicated to all parties before they are implemented.

Configuration Management

Configuration management ***involves tracking and controlling all aspects of the projects and all documentation and deliverables.*** This would include:

- ✓ ***Version control*** for documentation
- ✓ ***Ownership and responsibility*** for documentation
- ✓ ***Authorisation and tracking procedures for any changes required*** to documentation
- ✓ ***Monitoring and control procedures*** to ensure only authorised documents and records are held
- ✓ ***Access control*** over project records.

Purposes of Control System

- ✓ ***Prevention*** of deviations
- ✓ ***Correction*** of deviations
- ✓ ***Prevention*** of any ***future*** deviations
- ✓ ***Implementation of recommendations*** from monitoring, reviewing and evaluating the project.

Reports and Meetings

The two most important elements used in the control of projects are reports and meetings.

Project Reports

To enhance and facilitate the communication of control and progress throughout the life of the project, the following main reports are produced:

1) ***Progress reports*** – both formal and regular, these note what has happened in the report period and project status to date. This may include: - Status against plan in terms of cost, timetable and scope - Status and progress of resolving issues - New issues - Corrective action plan - Expected achievement of milestone before next report - Next report date
2) ***Exception reports*** – this is when everything is in accordance with the plan. Only exceptions are reported.

Project Meetings

Regular meetings are essential part of control within a project. As well as communicating the progress of the project, they can also enhance relationships with the project team and with other stakeholders. The meetings include:

1) ***Team meetings*** – the project manager should hold regular meetings with members of the project team. Regular meetings ensure that all team members are aware of the progress of the project and any issues which have arisen.
2) ***Project progress review meetings*** – In many projects, such a meeting might take place quarterly and the project manager would present their summary report. The purpose of the meeting is to provide an update on the project status, identify any issues and establish action plans from that point.
3) ***Project problem solving meetings*** – these would be held on ad hoc basis as required to deal with problems which have arisen.
4) ***Meeting with external parties*** – the project manager will also have to arrange meetings with external resource providers such as suppliers and contactors.

Techniques/Tools/Approaches of Controlling

As the project evolves it is important to monitor it continually in order to ensure that it is progressing as expected towards the final objective. This requires a ***continual measurement of actual activities.*** The most important aspect of project control is ensuring that monitoring progress is carried out on a regular basis and that corrective action is considered and implemented immediately when required. In this process project management techniques can be used.

Project management techniques describe the ways how to gather information, communicate and generally get things done in the most efficient and effective way. The monitoring techniques are;

1) Earned Value Management
2) PRINCE 2
3) PMBoK

Earned Value Management (EVM)

EVM helps project managers to ***measure project performance***. It is a systematic project management process ***used to find variances in projects based on comparison of work performed and work planned.*** It takes account not only what has been done to date but also what ***value has been added for that effort or expenditure***. Deferent values that are needed to assess earned value on a project are:

- Planned value (PV) – This is the ***proportion of the approved total cost estimate to do spent on an activity during given period***.
- Actual cost (AC) – This is the ***total direct and indirect costs incurred in carrying out work on a particular activity during a given period***.
- Earned value (EV) – This is ***estimate of this value of the physical work completed***.
- Rate of performance (RP) – This is the ***ratio of actual work completed to the percentage of work planned to have been completed by a particular point in time.***

PRINCE 2 (PRojects IN Controlled Environments, Version 2)

PRINCE 2 is a ***process-based approach for project management*** providing an easily tailored and scalable method for the management of all types of projects. The main purpose of PRINCE 2 is to deliver a successful project, which is defined as;

- Delivery of agreed outcomes
- On time
- Within budget
- Conforming to the required standards

The main control features are:

- It enforces a ***clear structure of authority and responsibility***.
- It ***ensures the production of key products*** – PID, project budget, plan & progress reports.
- It gives a ***clear understanding*** of the tasks to be completed.
- It contains ***several quality controls***, such as clearly defined procedures

PRINCE 2 Structure

The major component parts of the PRINCE 2 method address issues of;

- ***Organisation*** – PRINCE 2 suggests using an organisation chart for the project so that there is a clear structure of authority and responsibility. Everyone on the project should understand their roles and responsibility for the delivery of objectives. Within PRINCE, responsibilities are defined in terms of roles rather than individuals.

- ***Plans*** – Successful control includes setting plans/ standards for everything that needs to be delivered (time, quality, responsibility, communication).

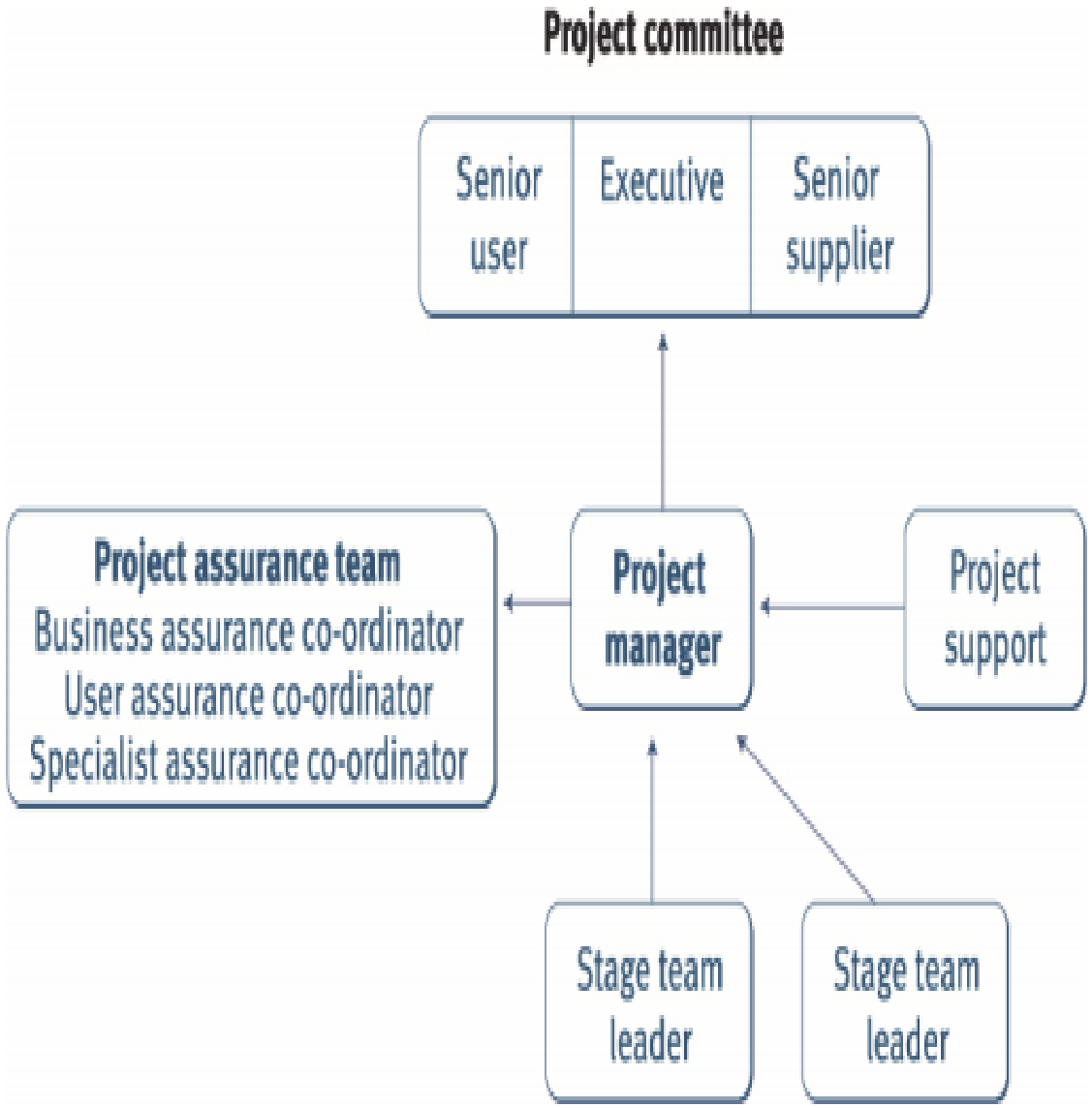
- ***Controls –*** Regular and formal monitoring of actual progress against plan is essential to ensure the timeliness, cost control and quality of the project.

- ***Products –*** This includes a number of tools associated with the control of projects (PID, budget, progress reports)

- ***Quality –*** Quality should be defined and controlled on the project.

- ***Risk management –*** Identifying different types of risk will allow us to plan to reduce them or avoid them.

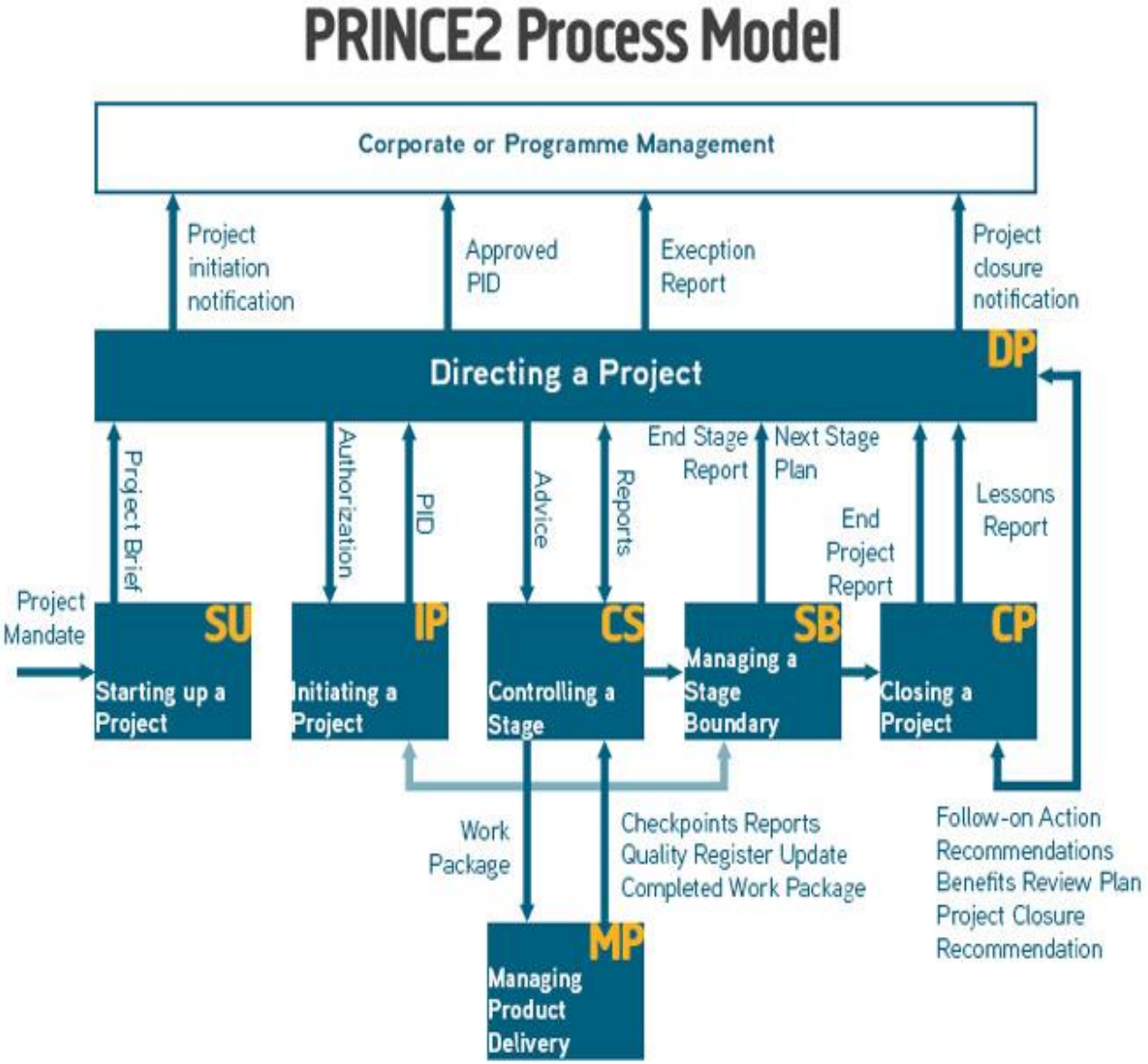
- ***Control of change management and configuration management –*** Any changes to the project should only be after the appropriate approval has been authorised.



PRINCE 2 Process Areas

Starting up a project – A pre-project process, this stage involves designing and appointing the project management team creating the initial planning stage.

- ***Initiation*** – Akin to a feasibility study, this stage establishes whether or not there is the justification to proceed with the project.
- ***Managing stage boundaries*** – The primary objective at this stage is to ensure that all planned deliverables are completed as required.
- ***Controlling a stage*** – Monitoring and control activities are carried out by the project manager at each stage of the project.
- ***Managing product delivery*** – This includes effective allocation of Work Packages and ensuring that the work is carried out to the required quality standard.
- ***Project closure –*** Bringing the project to a formal and controlled close approved by the Project Board.



The Project Management Body of Knowledge (PMBoK)

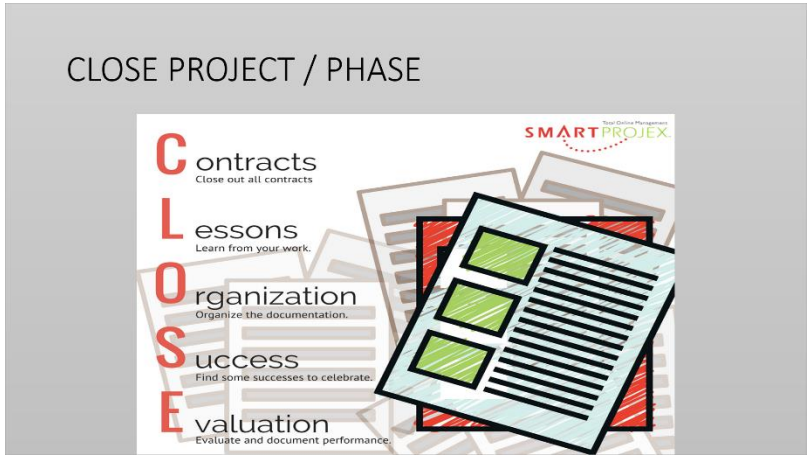
The PMBoK is developed by the Project Management Institute (PMI) is a collection of processes and knowledge areas generally accepted as ***best practice within the project management discipline***. The PMBoK describes 9 project management areas;

1) ***Project Integration Management*** – processes for ensuring that the various elements of the project are properly coordinated.
2) ***Project Scope Management*** – processes for ensuring that the project includes all the work required.
3) ***Project Time Management*** – processes for ensuring timely completion of the project.
4) ***Project Cost Management*** – processes for ensuring that the project is completed within the approved budget.
5) ***Project Quality Management*** – processes for ensuring that the project will satisfy the needs for which it was undertaken.
6) ***Project Human Resource Management*** – processes required to make the most effective use of the people involved in the project.
7) ***Project Communications Management*** – processes required to ensure timely and appropriate generation, collection, dissemination, storage and distribution of project information.
8) ***Project Risk Management*** – processes concerned with identifying, analysing and responding to project risk.
9) ***Project Procurement Management*** – processes for acquiring goods and services from outside the performing organisation.

5. Project Closure/Completion

The final stage is the completion of the project once the project work is finished. The main purpose of closure procedures is ***to evaluate the overall project and to learn from the experiences gained.*** At the end of the project meeting, the closure of the project is confirmed by ***a formal sign-off***. This includes;

- To ***ensure that the project is finally completed and conforms to the latest definition of what was to be achieved***.
- Formal ***comparison between PID and project outcomes***
- To ***evaluate performance of project against agreed level of performance***
- ***Cost of the system in comparison with budgeted cost*** with an ***explanation of variances***
- Comparison of ***time taken with the budgeted time anticipated***
- ***Effectiveness of the management processes***
- ***Significance of any problems encountered***
- To ***complete project termination*** activities



- Organising and filing all project documentation
- Receiving and making final payments to suppliers of resources
- Agreeing formally with the client that all agreed deliverables have been provided successfully, so that full payment can be received.
- Meeting with project team and client to report on project successes and failures - Disbanding the project team

- To ***provide continuous improvement and feedback***
- To ***learn from experience***

Post Completion Audit (PCA)

This is a critical appraisal of performance of project regarding the project in a broader perspective. This will assess;

- The ***extent to which the required quality has been achieved.***
- The ***efficiency of the solution during operation compared with the agreed performance and standards.***
- The ***actual cost of the project compared with budgeted one***.
- The ***time taken to develop the solution compared with the targeted date for completion***.
- The ***effectiveness of the management process***.
- The ***significance of any problems encountered and the effectiveness of the solution generated to deal with them***

Project Failure

Projects fail ***when they do not meet the following*** criteria for success;

- Delivered on time
- On or under budget
- Delivered the benefits required

Reasons for failures of projects

- Lack of user involvement
- Long timescales
- Vague requirements
- Scope creep
- Business change
- Lack of testing

Methods of avoiding project failures

- Greater top management support
- More commitment from users
- More power and decision-making authority
- Greater financial control
- Greater control over staff resources
- Commitment to requirements and scope once specified
- More project management training
- Alignment of IT project initiatives
- Greater realism in setting targets
- Establishment of supportive Project Programme/ Office

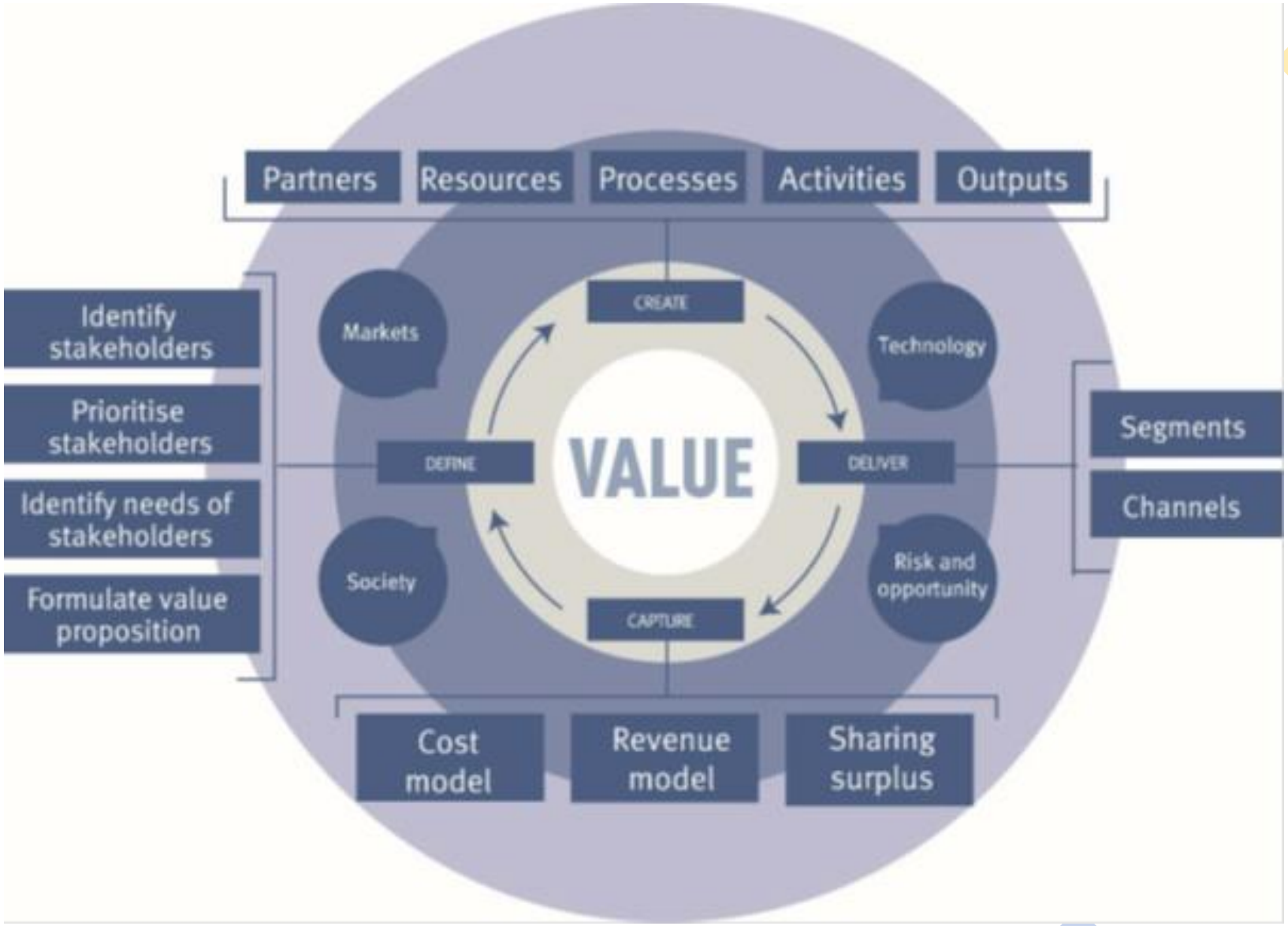
Business Models and Value Creation

What is a business model?

According to KPMG any description of the business model must include ***how the firm is structured***, the ***markets in which it operates***, ***how*** it ***engages with*** those markets, its ***main products and services, its main categories of customers, and its*** main ***distribution methods***.

In more common terminology – "Business models are also stories that explain how firms work, including how they make money and how they deliver value to customers at an appropriate cost" (Magretta, 2002). If this is accepted then the business model depicts not only how a business creates value but also how it delivers value. The traditional business model therefore has four key aspects:

1. **Define value** – firms look at who they create value for and what counts as value for them
2. **Create value** – firms look at how resources are sourced and turned into outputs that customers and others desire
3. **Deliver value** – firms find ways to get value to those it was created for
4. **Capture residual value** for themselves and others to share between the firms, their shareholders and others (i.e. stakeholders).


Partners
Resources
Processes
Activities
Outputs
Identify stakeholders
Prioritise stakeholders
Identify needs of stakeholders
Formulate value proposition
Markets
Society
CREATE
DEFINE
VALUE
DELIVER
CAPTURE
Technology
Risk and opportunity
Segments
Channels
Cost model
Revenue model
Sharing surplus

Disruptive Technology

Disruptive technology relates to **instances where technology is used to fundamentally change and 'disrupt' the existing business model** in an industry.

Technology	Disrupted industry
AI	Car industry - semi-autonomous vehicles
3D printing	Healthcare - personalised hearing aids, personal prosthetics, dental crowns and surgical implants
Mobile tech	Taxis and car rentals - UBER
Data analytics	Energy – General Electric has increased output from wind farms by 20%
Internet of Things (IoT)	Lifestyle and home products - Google Nest and partners can deliver connected houses (e.g. central heating switches on when you are 30 minutes from home)
Robots	Oil – drilling and exploration costs expected to fall by 20% due to automation
Drones	Logistics – Amazon plans to deliver using drones

Strategies to build disruptive business models

1. **Build** - Building new business models might be the best route when an opportunity is related to the company's core business. If companies decide to go for the build route, they can benefit by creating and developing new products and services.
2. **Buy** - Buying another company is usually the most appropriate path when there is a strategic imperative to 'own' a market and may be the only viable option if a significant change market is imminent, hiring the right talent is not possible and the new opportunity bears little relation to the firm's current business model may provide reasons to buy.
3. **Partner** - A firm can use partnering with a digitally disruptor to learn more about the market and its partner's model. A partnering approach is sensible when it makes sense to learn about emergent opportunities, with an eye toward deeper partnerships or acquisitions in the future.
4. **Invest** - Investing in interesting start-ups is often a valid option, allowing an established company to connect with the right skills and capabilities. It will also avoid hindering entrepreneurial forces with a setup focused on internal governance and reporting.
5. **Incubate/accelerate** - Investment and incubation/acceleration might seem similar endeavours. The latter however represents a closer relationship to the funding company, deploying corporate internal capabilities, infrastructure and resources to the start-ups. Having said that, incubators and accelerators need to precisely outline both internal benefits and incentives for start-ups and entrepreneurs, and a clear strategy and vision.

Business Ecosystems

A business ecosystem can be defined as a network of organisations (suppliers, distributors, customers, competitors, government agencies, etc.), who are involved in the delivery of a specific product or service through both competition and cooperation. This network of organisations and individuals will collaborate and evolve roles and capabilities to build value and increase efficiency.

The idea is that each entity in the ecosystem affects and is affected by the others, creating a constantly evolving relationship in which each entity must be flexible and adaptable in order to survive, as is the case in a biological ecosystem.

- Participants – the individual players or organisations within the environment defined by:
- Participants function (or part played in a given environment)
- Participants ability to extend activity or interactions through the environment
- Range of activities that participants are able to pursue or undertake within the environment (key value proposition).

An ecosystem therefore reflects interaction and collaboration between participants to create an opportunity to provide a differentiated experience in line with consumer expectations.

Ecosystem Archetypes

Each organisation will need to pursue different actions to capture value, depending on the underlying nature of the ecosystems in which they operate. Each organisation will face differences within their own ecosystem and therefore a strategy developed and pursued in one environment may differ drastically from strategies pursued in other environments. Key drivers of these differences are firstly the level of complexity in the activities undertaken, and secondly the extent and formality of the orchestration in and around the ecosystem.

Complexity - Complexity is a function of the number and diversity of participants, the sophistication of activities within the ecosystem and the range and nature of relationships that exist within that ecosystem.

- **High complexity** – an environment in which barriers to entry are high and the threat of new entrants is low. It suggests that a participant's role in the ecosystem is relatively secure as their particular capabilities are typically difficult to replicate e.g. nuclear power, or oil exploration.
- **Low complexity** – an environment in which barriers to entry are low and the threat of new entrants is high. In this environment, a participant's position in the ecosystem is vulnerable, as their capabilities are typically easy to copy e.g. production of consumables (bakeries), retailing (individual boutiques), fitness instruction etc.

Orchestration - Orchestration depicts the extent of an organisation's influence over others within an ecosystem, the formality of ecosystem interactions and the degree of enforceability and compliance.

- **Tight orchestration** reflects an environment in which orchestrators have an ability to influence behaviour or actions across the entire ecosystem. For example, in financial services, transactions are governed by stringent and regulated rules of privacy, security and compliance. Interactions will by necessity be rules-based, with orchestrators able to enforce their will over others.
- **Loose orchestration** refers to an environment in which no individual participant has significant influence across the ecosystem. There is often an absence of strong regulation with limited ability for any particular participant to enforce its will over others. For example, the Internet in regimes that have freedom of speech laws. While some content and behaviour is specifically outlawed on criminal grounds in the most part, individuals and organizations are free to express themselves and behave any way they want.

In the IBM Report “The new age of ecosystems: Redefining partnership in an ecosystem environment”

The following matrix depicts how some of these different combinations may be characterised in a “spectrum of ecosystem archetypes”