Revision and Discussion of Types of production

- **Job production**
- **Batch production**
- **Mass production**

Initiating and Planning a Project


communication
hardware
computer
support
database
Information
Technology
servers
internet
network
security
applications
software
design

What is common among all the above activities ? and What is unique?

What is your observation?

Definition of a Project

A project is a temporary endeavor undertaken to create a unique product, service, or result.

- Projects are undertaken to fulfill objectives by producing deliverables.
- An objective is defined as an outcome toward which work is to be directed
- Deliverables may be tangible or intangible
- A deliverable is defined as any unique and verifiable product, result, or capability to perform a service

PROJECT DELIVERABLES

- A unique product that can be either a component of another item, an enhancement or correction to an item, or a new end item in itself (e.g., the correction of a defect in an end item);
- A unique service or a capability to perform a service (e.g., a business function that supports production or distribution)
- A unique result, such as an outcome or document (e.g., a research project that develops knowledge that can be used to determine whether a trend exists, or a new process will benefit society); and
- A unique combination of one or more products, services, or results (e.g., a software application, its associated documentation, and help desk services).

Categories of Projects

1. **Derivative projects** These are projects with objectives or deliverables that are only incrementally different in both product and process from existing offerings. They are often meant to replace current offerings or add an extension to current offerings (lower priced version, upscale version).

2. Platform projects The planned outputs of these projects represent major departures from existing offerings in terms of either the product/service itself or the process used to make and deliver it, or both. As such, they become "platforms" for the next generation of organizational offerings, such as a new model of automobile or a new type of insurance plan. They form the basis for follow-on derivative projects that attempt to extend the platform in various dimensions.

Heartect Platform

Categories of Projects

3. **Breakthrough projects** Breakthrough projects typically involve a newer technology than platform projects. It may be a "disruptive" technology that is known to the industry or something proprietary that the organization has been developing over time. Examples here include the use of fiber-optic cables for data transmission, cash balance pension plans, and hybrid gasoline-electric automobiles.

4. R&D projects These projects are "blue-sky," visionary endeavors, oriented toward using newly developed technologies, or existing technologies in a new manner. They may also be for acquiring new knowledge, or developing new technologies themselves.

Project is a Temporary endeavor

- The temporary nature of projects indicates that a project has a definite beginning and end.
- Temporary does not necessarily mean a project has a short duration. The end of the project is reached when one or more of the following is true:

- The project's objectives have been achieved
- The objectives will not or cannot be met
- Funding is exhausted or no longer available for allocation to the project
- The need for the project no longer exists (e.g., the customer no longer wants the project completed, a change in strategy or priority ends the project, the organizational management provides direction to end the project);
- The human or physical resources are no longer available
- The project is terminated for legal cause or convenience.

Characteristics of a Project

Projects are not homogeneous.
Each project is different. The distinctive characteristics of a project are as follows.

Characteristics of Project

1. Objectives
2. Single entity
3. Life span
4. Require funds
5. Life cycle
6. Team Spirit
7. Risk and uncertainty
8. Directions
9. uniqueness
10. Flexibility
11. Sub-Contracting
12. Cost

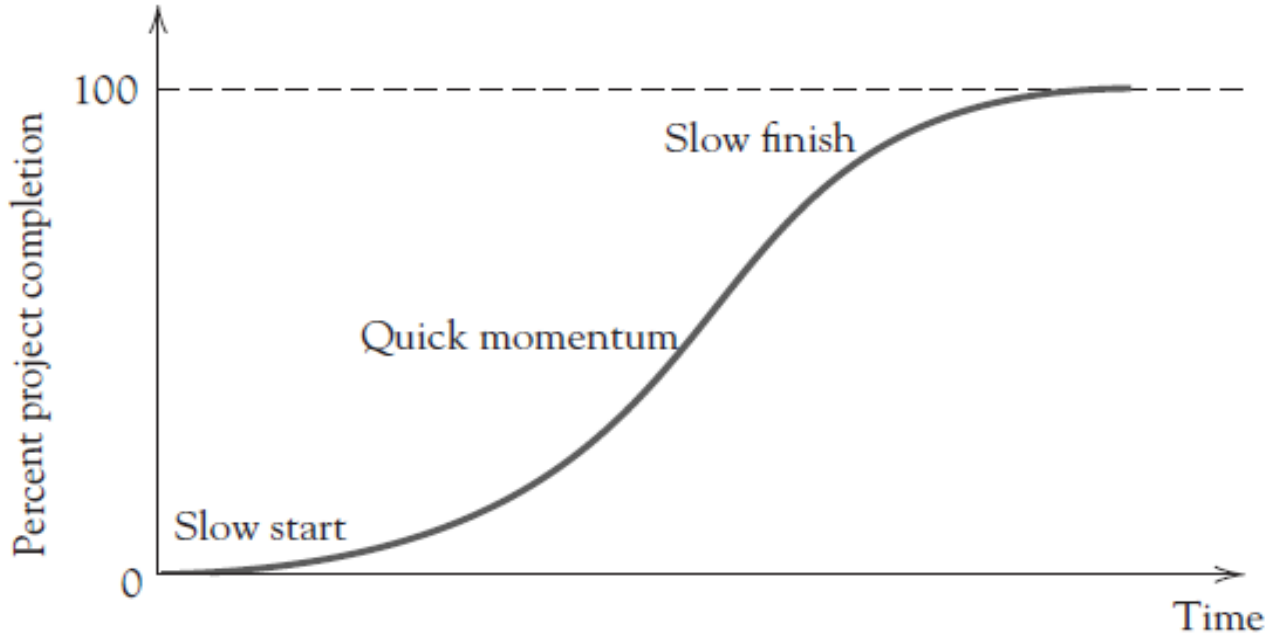


Figure 1-2 The project life cycle.

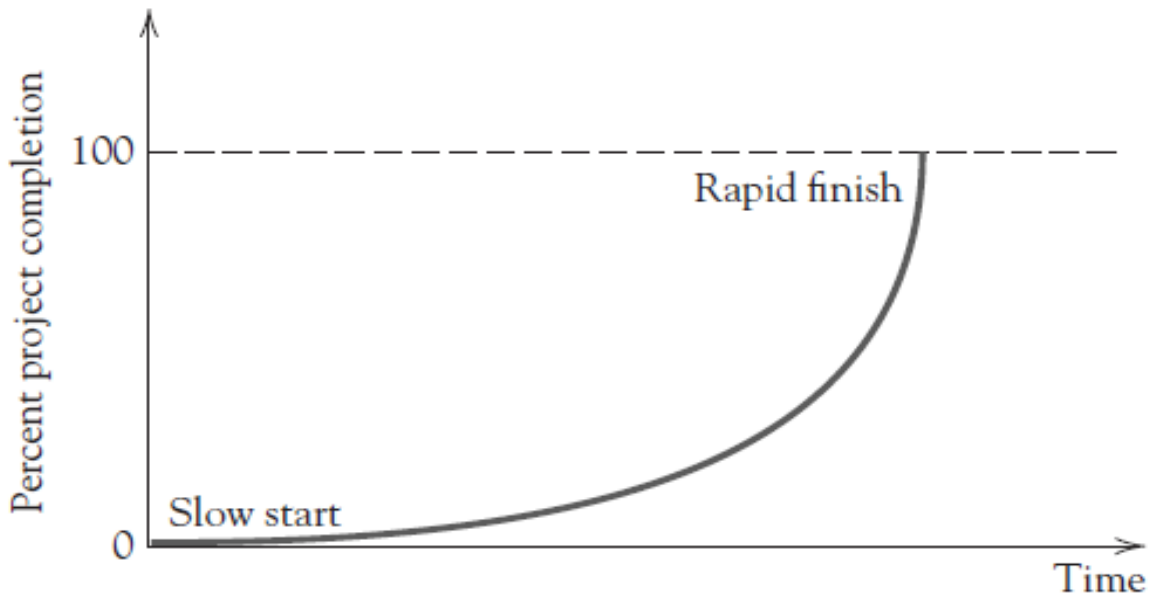
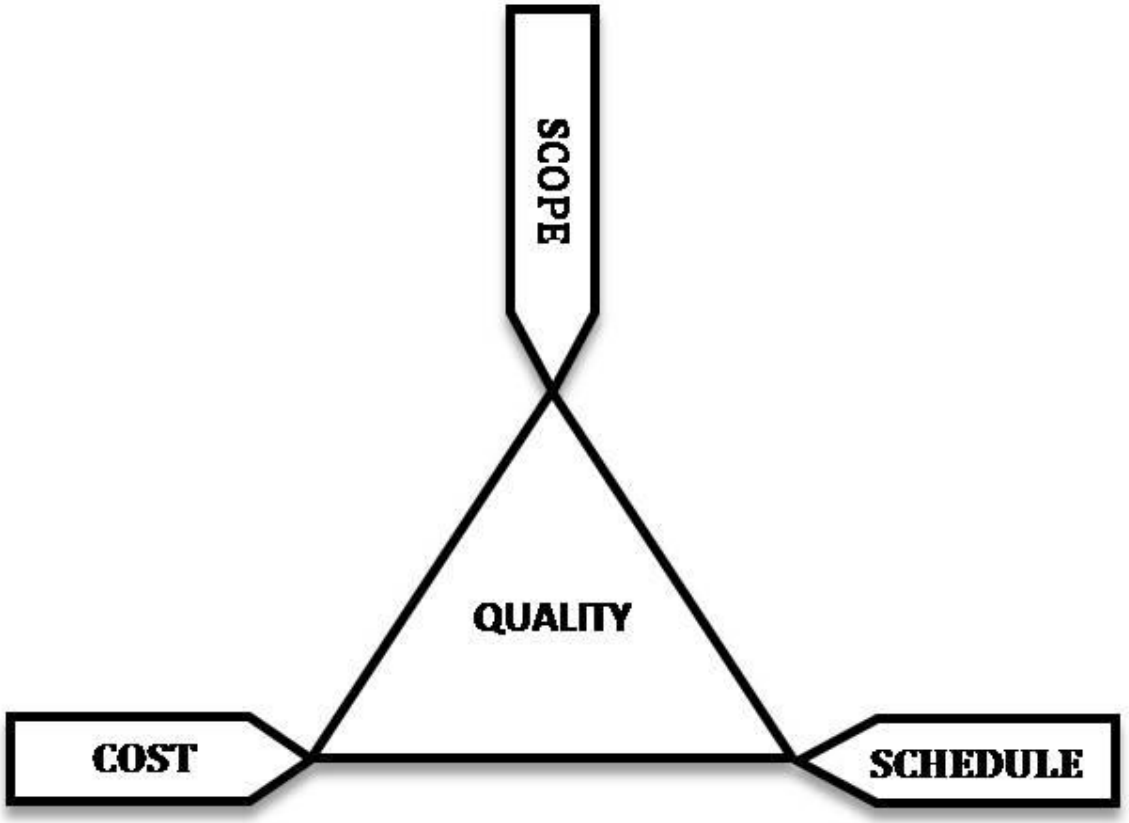


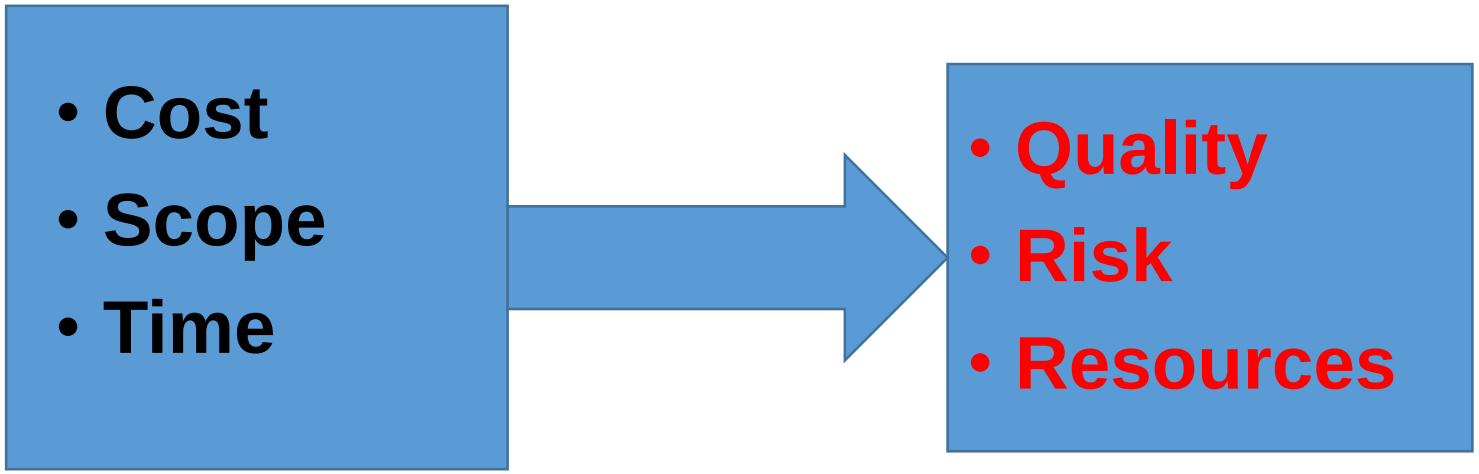
Figure 1-3 An alternate project life cycle.

Triple constraint

- All the constraints can be grouped into these three:



Project constraints



Project Organizational Structure

What is Organizational Structure?

An organizational structure is a system that outlines how certain activities are directed in order to achieve the goals of an organization. These activities can include roles, rules, and responsibilities.

What is Project Organizational Structure?

The project organizational structure is an essential configuration for determining the hierarchy of people, their function, workflow and reporting system.

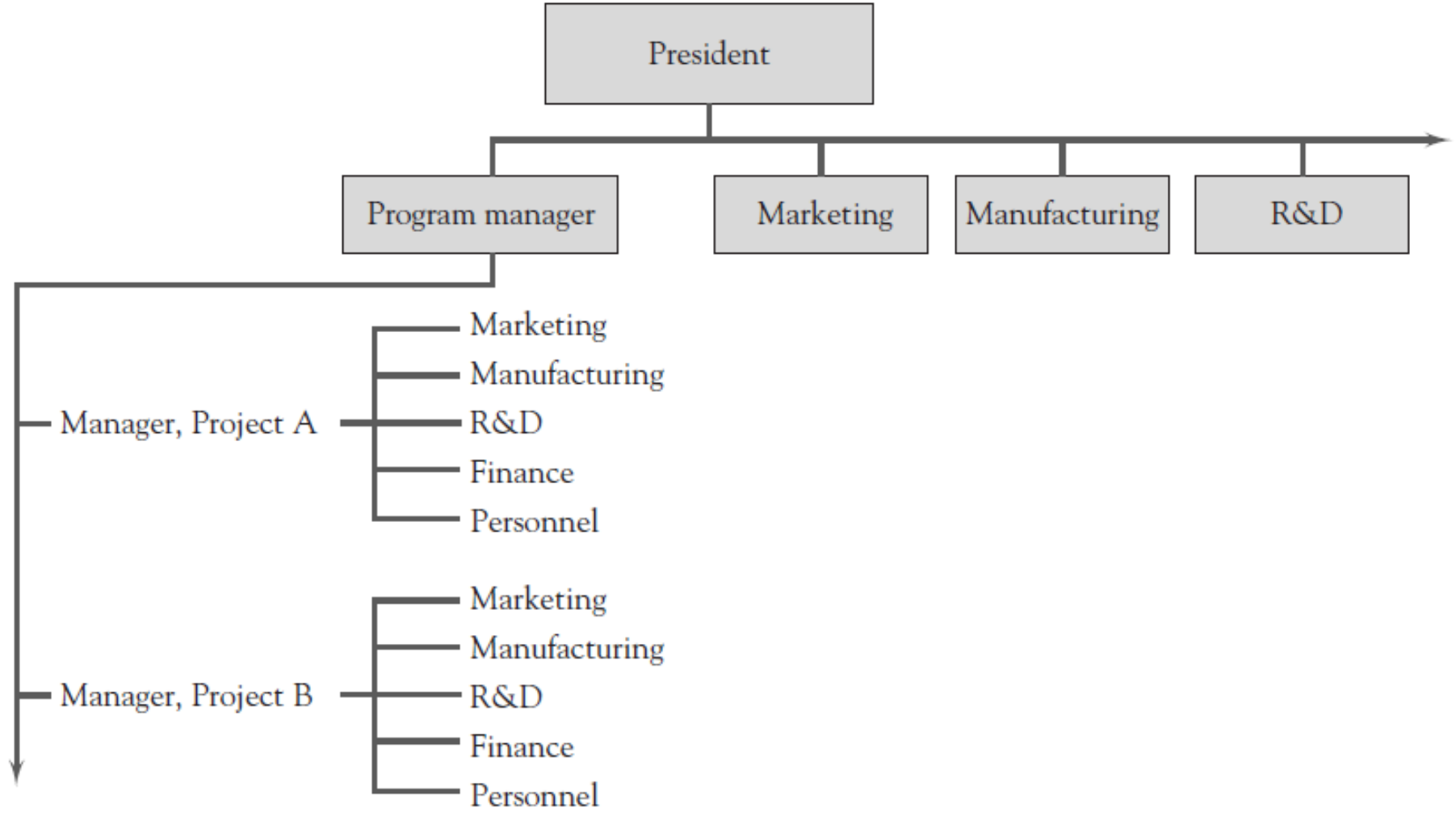
Types of project organizational structures

1. Pure Project Organization

2. Functional organizational structure

3. Matrix organizational structure

Pure Project Organization

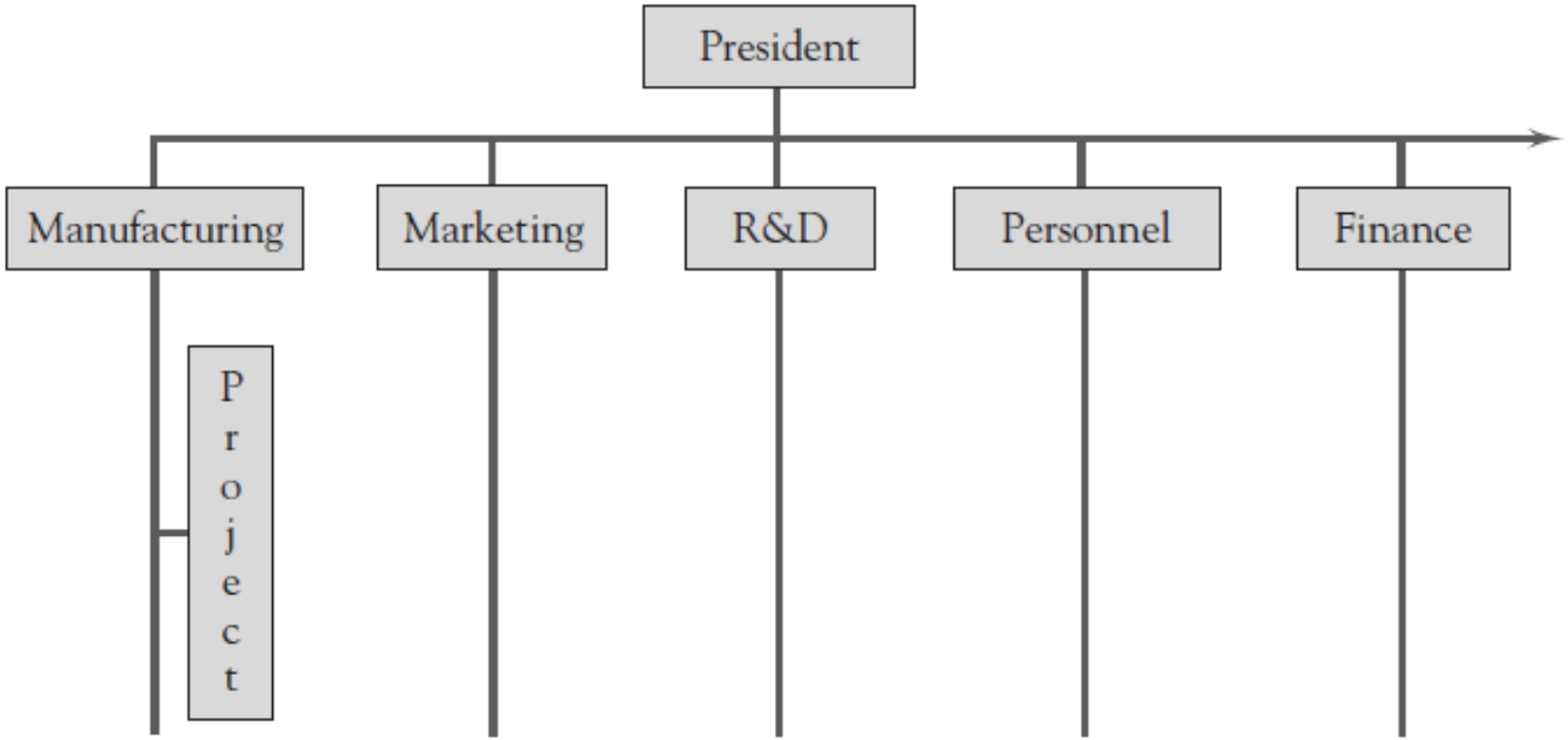


Limitations of Pure Project Organizations

1. One challenge that pure project organizations face is planning the smooth transition of resources from one project to another

2. People assigned to the project tend to form strong attachments to it and a disease called “projectitis” is developed

Functional Project Organizations



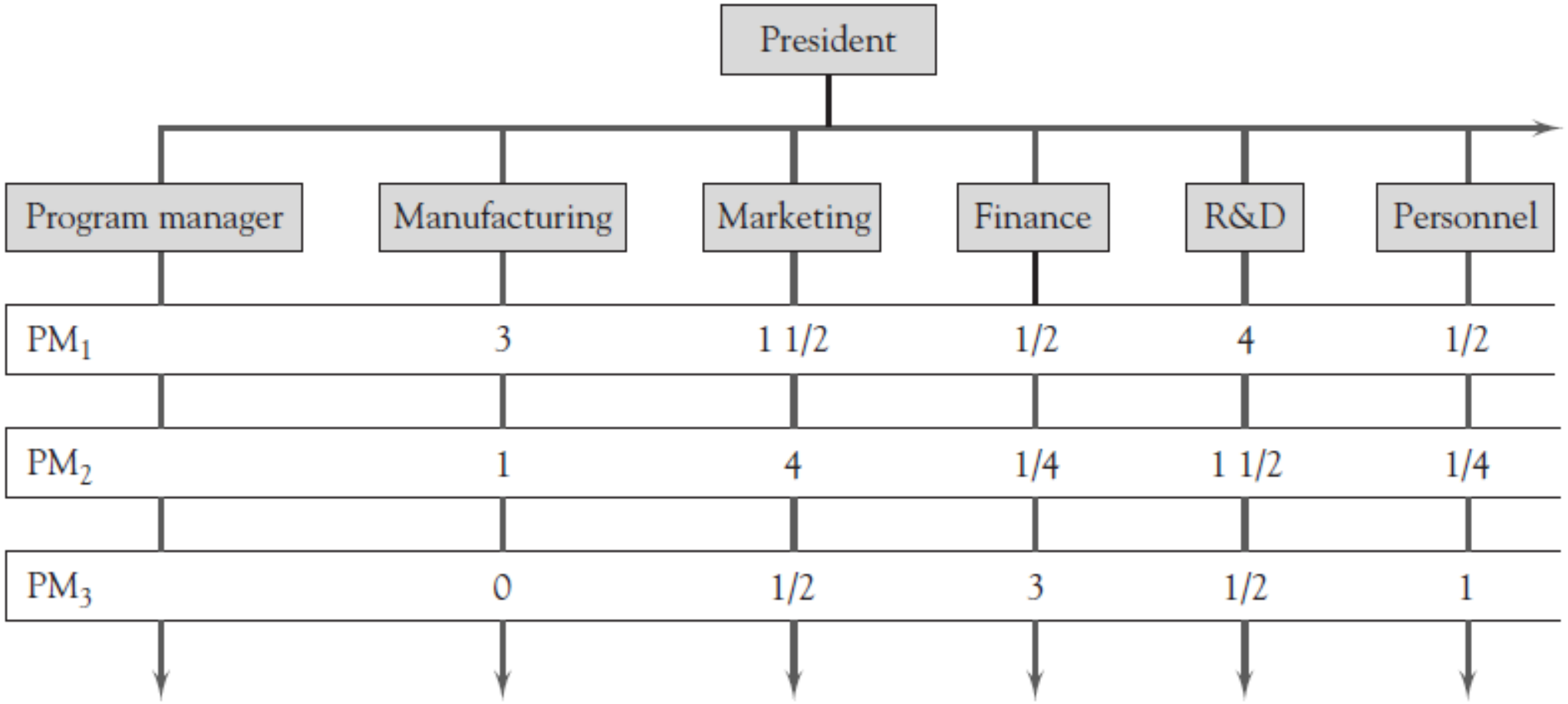
Advantages

- **The functional project has immediate, direct, and complete contact with the most important technologies it may need, and it has in-depth access**
- **Because the project is housed in the department that will benefit from the project, the department's leadership team has more leeway in determining the priority of the project relative to other departmental work and is subjected less to the concerns and priorities of other departments.**

Challenges

- Communication gap across functional departments
- Communications across functional department boundaries are rarely as simple as most firms think they are.
- When technological assistance is needed from another department, it may or may not be forthcoming on a timely basis.
- Technological depth is certainly present, but technological breadth is missing.
- In most functionally organized projects, the lines of communication to people or units outside the functional department are slow and tortuous.

Matrix organizational structure



Advantages

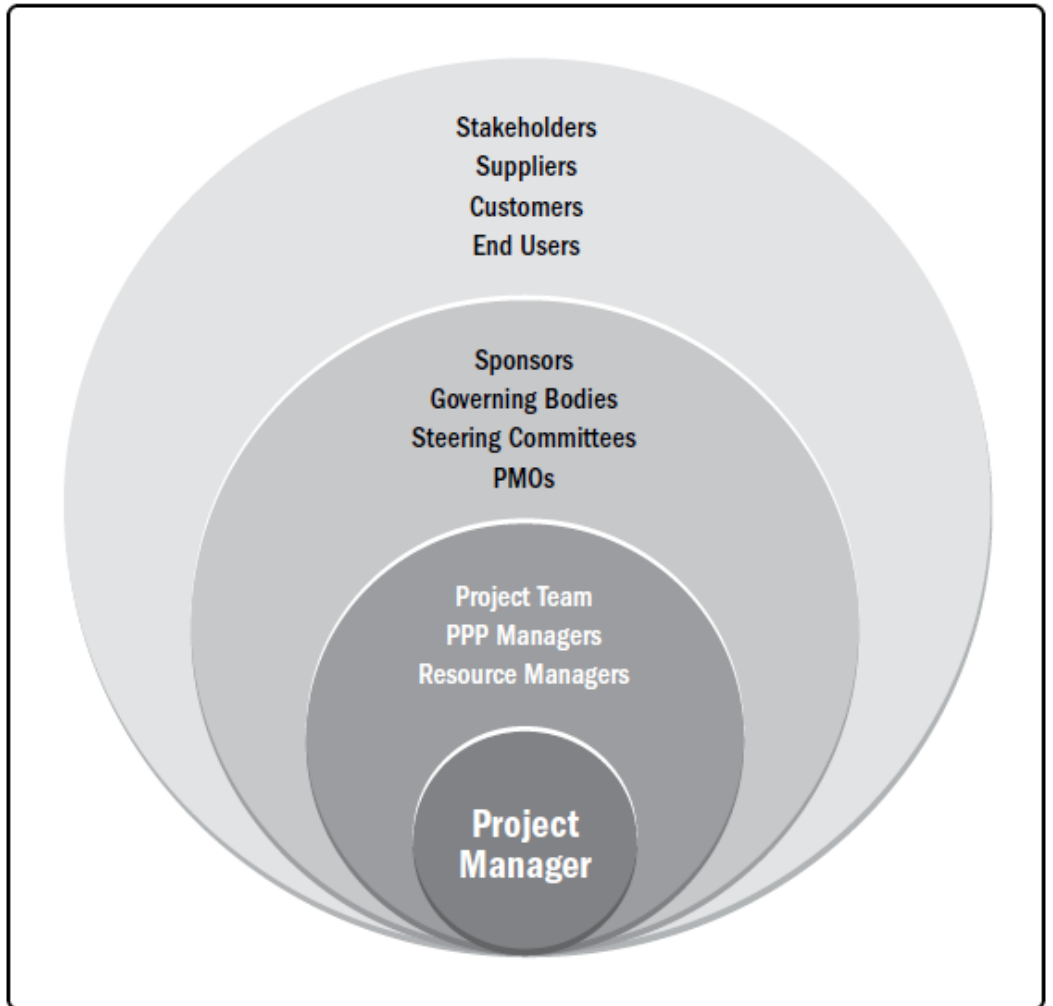
- If the project is likely to require complex technical problem solving, it will probably have the appropriate technical specialists assigned to it.
- Flexibility in the way it can interface with the parent organization.
- In general, matrix organized projects have the advantages of both pure and functional projects.

Disadvantages

- The Unity of Command principle in management theory ,i. e : for each subordinate, there shall be one, and only one, superior is violated
- In matrix projects, the individual specialist borrowed from a function has two bosses. Thus, project workers are often faced with conflicting orders from the PM and the functional manager. The result is conflicting demands on their time and activities.
- In matrix organizations the PM controls administrative decisions and the functional heads control technological decisions. This distinction is simple enough when writing about project management, but for the operating PM the distinction, and partial division of authority and responsibility, is complex indeed. The ability of the PM to negotiate anything from resources to technical assistance to delivery dates is a key contributor to project success.
- The organization's full set of projects must be carefully monitored by the program manager, a tough job. Further, the movement of resources from project to project in order to satisfy the individual schedules of the multiple projects may foster political infighting among the several PMs. As usual, there are no winners in these battles.

DEFINITION OF A PROJECT MANAGER (PM)

The role of a project manager is distinct from that of a functional manager or operations manager. The project manager is the person assigned by the performing organization to lead the team that is responsible for achieving the project objectives.



ROLES OF A PROJECT MANAGER

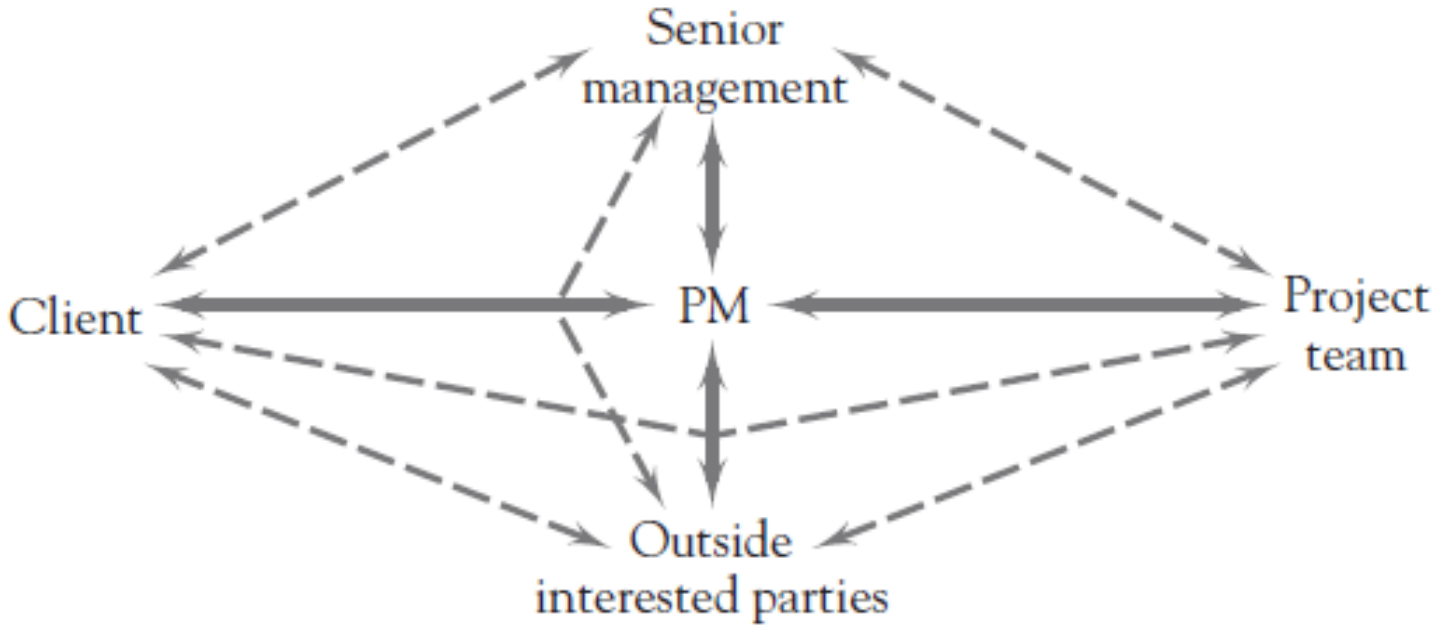
1.Facilitator

Because projects are often multidisciplinary, the PM (Project Manager) rarely has technical competence in more than one or two of the several technologies involved in the project. As a result, the PM is not a competent overseer and thus has a different role. The PM is a ***facilitator***.

- The PM ensure that those who work on the project have the appropriate knowledge and resources, including that most precious resource, time, to accomplish their assigned responsibilities
- Manage the conflict between members of the project team, conflict between the team and senior managers, conflict with the client and other outsiders
- Ensure that the required resources are available and that the task is properly concluded.

2. Communicator

The PM is responsible to the project team, to senior management, to the client, and to anyone else who may have a stake in the project's performance or outcomes.



Responsibilities of a Project Manager

The PM has four overriding responsibilities to the project.

1.Acquiring Resources

- Acquiring the necessary quality and quantity of resources and personnel is difficult
- It is the PM's responsibility to ensure that the project has the appropriate level of resources
- Most human resources come to the project on temporary assignment from the functional departments of the organization

2. Fighting Fires and Obstacles

- A key responsibility of the PM is to deal with obstacles
- Early in the project's life cycle, fires are often linked to the need for resources. Budgets get cut, and the general cuts must be transformed into highly specific cuts in the in the quantities of highly specific resources
- As work on the project progresses, most fires are associated with technical problems, supplier problems, and client problems.
- Most experienced PMs are good fire fighters. If they do not develop this skill, they do not last as PMs

3. Leadership

- PM is also responsible for making the trade-offs necessary to lead the project to a successful conclusion and proactively managing project related risks through the development of contingency plans
- The PM is the key figure in making trade-offs between project cost, schedule, and scope.
- At times, two or more projects may compete for access to the same resources. PM managing two or more projects do everything possible to avoid this problem by making sure that the projects are in different phases of their life cycles.
- Exhibit high emotional Intelligence and social awareness

4. Negotiation, Conflict Resolution, and Persuasion

- The acquisition of resources requires negotiation. Dealing with problems, conflict, and fires requires negotiation and conflict resolution.
- For new PMs, training in win-win negotiation is just as important
- Success at any of these stages depends on the PM’s skill at persuading others to accept the project as well as changes in its methods and scope once it has been accepted.
- Exhibit high emotional Intelligence and social awareness

Typical causes of conflict within project-based organizations

1. Conflicts over costs and budgets
2. Ego and personality clashes
3. Differing views, ways of working and internal biases
4. Verbal miscommunication and misunderstandings
5. Lack of trust and respect between team members

PROJECT STAKEHOLDERS

A stakeholder is an individual, group, or organization that may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project. Project stakeholders may be internal or external to the project, they may be actively involved, passively involved, or unaware of the project. Project stakeholders may have a positive or negative impact on the project, or be positively or negatively impacted by the project.

Internal stakeholders:

- Sponsor
- Resource manager
- Project management office (PMO)
- Portfolio steering committee
- Program manager
- Project managers of other projects
- Team members.

External stakeholders:

- Customers
- End users
- Suppliers
- Shareholders
- Regulatory bodies
- Competitors

MONITOR STAKEHOLDER ENGAGEMENT

- It is the process of monitoring project stakeholder relationships, and tailoring strategies for engaging stakeholders through modification of strategies and plans.
- The key benefit of this process is that it maintains or increases the efficiency and effectiveness of stakeholder engagement activities as the project evolves and its environment changes.

Stakeholder Power/Interest Grid

PROJECT MANAGEMENT STAGES

Project Charter

Project Initiation

Scope & Budget

Work Breakdown Schdue

Gantt Chart

Communication Plan

Risk Management

Status & Tracking

KPIs

Quality

Forecasts

Objectives

Quality Deliverables

Effort & Cost Tracking

Performance

Post Mortem

Project Punchlist

Reporting

PROJECT CHARTER

- The project planning process begins with the development of a project charter
- It is a high-level description of the project.
- It generally include a statement of work and the business case for the project.
- The statement of work describes the major deliverables of the project
- Business case provides the financial and strategic justification for the project (e.g., cost benefit analysis, analysis of market demand).

Following additional items also be included in a project charter:

- The business need for the project.
- The assumptions underlying the project (e.g., customer preferences, the state of the economy).
- Key constraints.
- Customer requirements.
- Identification of high-level risks.
- Key project milestones.
- A high-level budget.
- A list of key stakeholders.
- The PM assigned to the project.
- The boundaries of the project (i.e., what is in and out of the scope of the project).

Project Description

Purchase and implement SAP module to automate substance volume tracking for all chemical plants. This data is necessary for accurate chemical inventory reporting to the EPA and local/state authorities.

Business Need

Our manufacturing plants and distribution centers presently estimate hazardous substance inventory levels using manual methods that are subject to error. Annual EPA reporting requires sound calculation methodologies and accurate resutls for Teir II and TRI reporting. Inaccurate calculations/methodologies can result in $1M+ fines. While there is no direct financial payback for this project, the Chief Supply Chain officer and our external legal counsel see this project as a must-do for enterprise risk reduction.

Project Ownership / Approval

Project Manager	Brian Frizzel	Project Champion	Michael Cote	Approval Date	11/1/14
Project Number	PR4030				

Financial & Project Timing Goals

Payback	Goal	Actual
Incremental Sales		
Profitability (% OI)		
Payback Period (yrs)		
Annual Savings		

Capital/Expense	Goal	Actual
Expenses Incemental to Operating Budget	$ 12,000	
Capital	$ 55,000	
Other		

Milestones (Schedule)	Goal	Actual
Initial Consultation/Data Readiness	1-Oct	
Project Plan Complete	1-Nov	
Purchase Software Module	15-Dec	
Implementation for 3/1 Reporting	1-Feb	

Resources & Project Risks

Internal Resouces	Total Hours	Peak Hrs/Wk
Compliance Specialist	320	40
IT Support	80	20
Product Data Management	360	60

External Services	Budget	Actual
SAP Consultant	$ 12,000	
Other		
Other		
Other		
Other		

Project Risks	Medium	High
Data Readiness	X	
Project Runs Past March 1 Deadlin	X	

CONSTRUCTION

Project Charter

PROJECT NAME

Construction of a Site Office building at a power plant site

PROJECT OVERVIEW & SCOPE

The state government of Nevada has laid plans to build a power plant in Washoe County, which draws need to have a Site Office building for planning department officials. The building will be constructed five hundred meters south of the power plant, near the water filtration plant.

PROJECT DELIVERABLES

30-meter site office building complex

55 office rooms with 5 restrooms

One restaurant on the ground floor with a capacity for 100 persons

PROJECT ASSUMPTIONS & CONSTRAINTS

Assumptions

- Milestone payments will not be delayed
- No more than ten non-working days due to adverse and uncontrollable conditions

Constraints

- The building must be ready before the groundbreaking of the power plant
- Any budget overruns must be audited and approved by the state government

STAKEHOLDERS

Scott Jordan
Project Manager
Whitestone Construction

Jasper Trent
Sponsor Reppresentative
Nevada Power Supply Corporation

Frank Miller
Sub-Contractor
Link Solutions

David Mulder
Local Authority
Nevada Building Control Authority

PROJECT MILESTONES

MILESTONE	DUE DATE
Groundbreaking of the building site	March 1, 2022
Excavation	March 15, 2022
Laying the foundation	April 10, 2022
Superstructure construction	May 1, 2022
Electrical connections	June 20, 2022
Plumbing	June 20, 2022
Internal and External Finishing	August 1, 2022

BUDGET

$15.75

Million

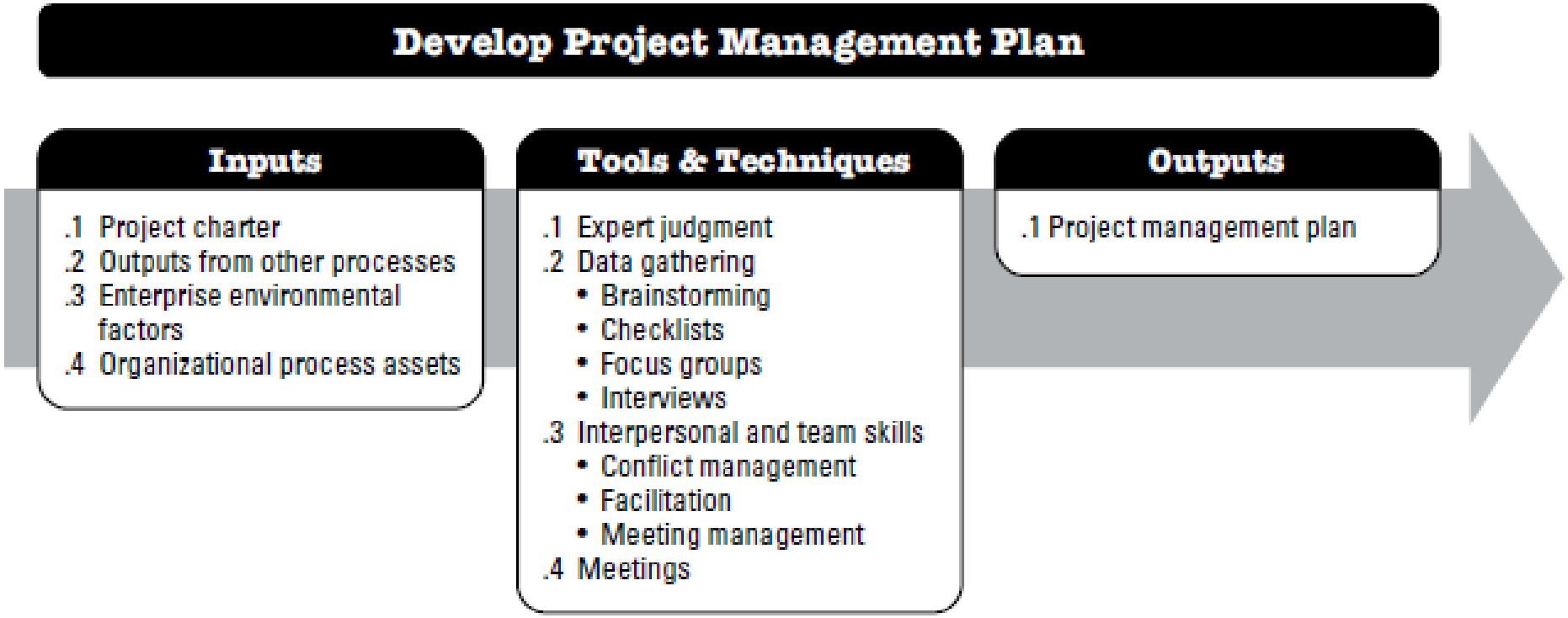
PROJECT RISKS

Unstable terrain may require more foundations than planned

Excavation may break into an aquifer, which may increase excavation costs

DEVELOP PROJECT MANAGEMENT PLAN

- Develop Project Management Plan is the process of defining, preparing, and coordinating all plan components and consolidating them into an integrated project management plan.
- The key benefit of this process is the production of a comprehensive document that defines the basis of all project work and how the work will be performed.


Develop Project Management Plan
Inputs
.1 Project charter
.2 Outputs from other processes
.3 Enterprise environmental factors
.4 Organizational process assets
Tools & Techniques
.1 Expert judgment
.2 Data gathering
• Brainstorming
• Checklists
• Focus groups
• Interviews
.3 Interpersonal and team skills
• Conflict management
• Facilitation
• Meeting management
.4 Meetings
Outputs
.1 Project management plan

Project Management Plan	Project Documents	
1. Scope management plan	1. Activity attributes	19. Quality control measurements
2. Requirements management plan	2. Activity list	20. Quality metrics
3. Schedule management plan	3. Assumption log	21. Quality report
4. Cost management plan	4. Basis of estimates	22. Requirements documentation
5. Quality management plan	5. Change log	23. Requirements traceability matrix
6. Resource management plan	6. Cost estimates	24. Resource breakdown structure
7. Communications management plan	7. Cost forecasts	25. Resource calendars
8. Risk management plan	8. Duration estimates	26. Resource requirements
9. Procurement management plan	9. Issue log	27. Risk register
10. Stakeholder engagement plan	10. Lessons learned register	28. Risk report
11. Change management plan	11. Milestone list	29. Schedule data
12. Configuration management plan	12. Physical resource assignments	30. Schedule forecasts
13. Scope baseline	13. Project calendars	31. Stakeholder register
14. Schedule baseline	14. Project communications	32. Team charter
15. Cost baseline	15. Project schedule	33. Test and evaluation documents
16. Performance measurement baseline	16. Project schedule network diagram	
17. Project life cycle description	17. Project scope statement	
18. Development approach	18. Project team assignments	

PROJECT SCOPE STATEMENT

- The project scope statement is the description of the project major deliverables, assumptions, and constraints.
- It describes the project's deliverables in detail. It also provides a common understanding of the project scope among project stakeholders.
- It enables the project team to perform more detailed planning, guides the project team's work during execution, and provides the baseline for evaluating whether requests for changes or additional work are contained within or outside the project's boundaries.

The detailed project scope statement, either directly or by reference to other documents, includes the following:

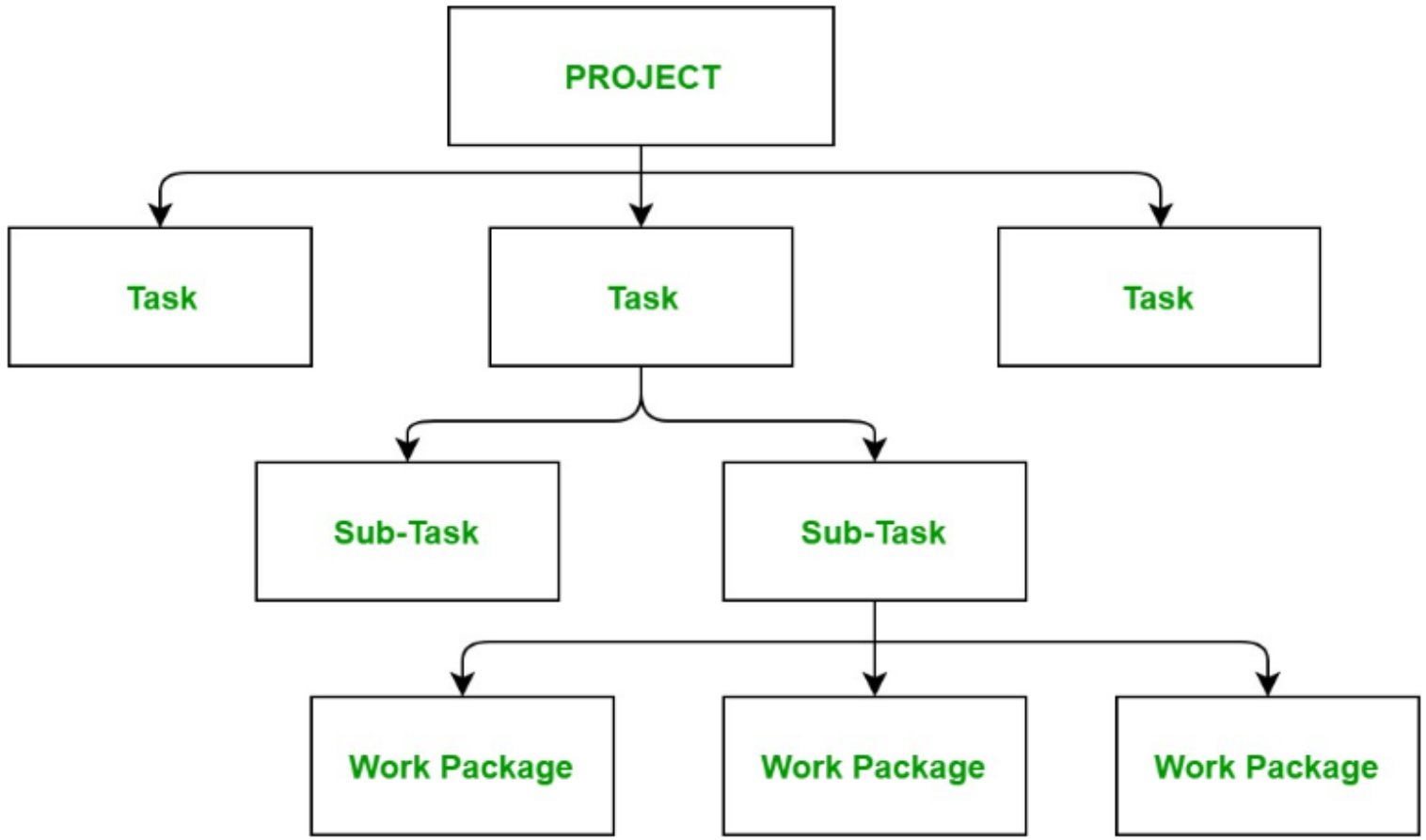
- **Product scope description.** Progressively elaborates the characteristics of the product, service, or result described in the project charter and requirements documentation.
- **Deliverables.** Any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project. Deliverables also include ancillary results, such as project management reports and documentation.
- **Acceptance criteria.** A set of conditions that is required to be met before deliverables are accepted.
- **Project exclusions.** Identifies what is excluded from the project. Explicitly stating what is out of scope for the project helps manage stakeholders' expectations and can reduce scope creep.

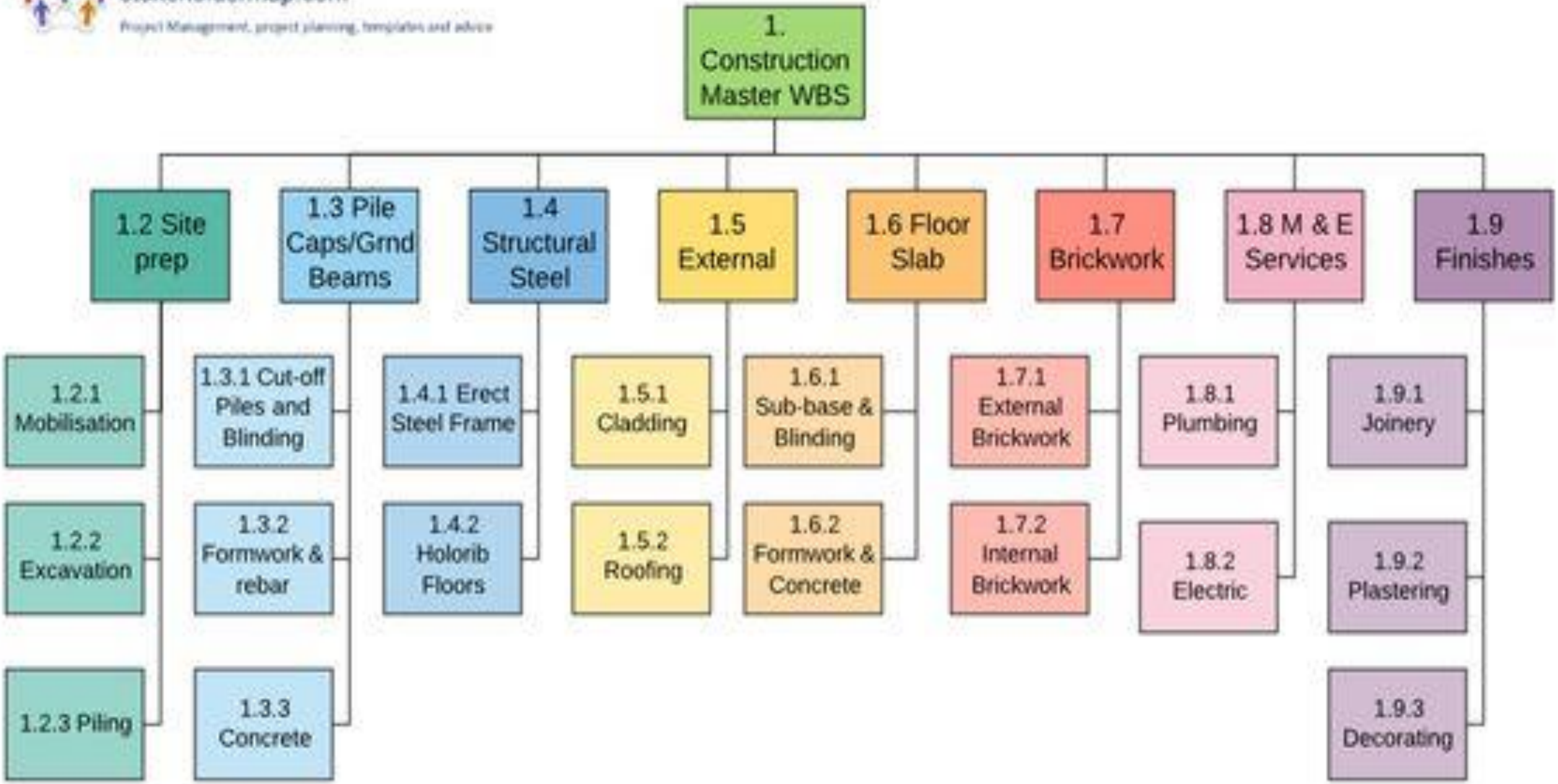
Project Scope Statement Example

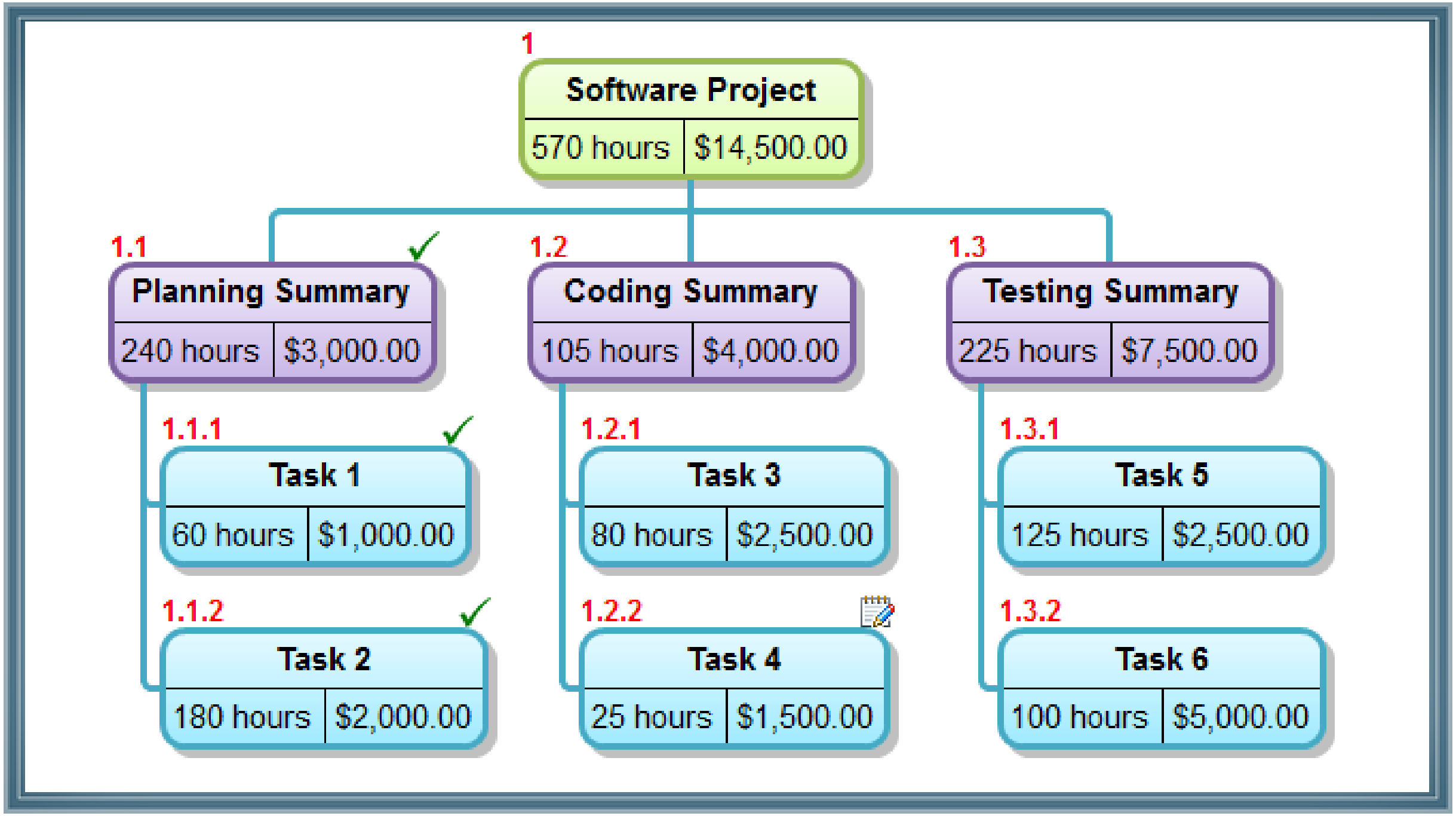
Project Name	IVR Project		
Project Sponsor	Dave Sponsor	Project Manager	Alice Michaels
Date of Project Approval	08 March 2015	Last Revision Date	08 March 2015
Scope Description	IN SCOPE: - An IVR system to handle and direct sales calls. - Setup of the IVR system ready to handle all sales enquiries - Training for the sales team on how to use the system - An administration system so the IVR system can be configured by the sales team OUT OF SCOPE: - Support for any other team other than sales - The ability to route complex sales enquiries, such as partnerships etc.		
Project Deliverables	- A customer facing IVR system - An IVR configuration system - A training manual for new and existing sales team members		
Acceptance Criteria	The project will be accepted when it is agreed by the sale team that the deliverables meet their needs (deliverables signed off). The project will also be considered a success if post launch testing shows that customer satisfaction is over 5 points higher than where it is now.		
Constraints	The sales team are not dedicated to this project, and must fit this around their day-to-day sales jobs.		
Assumptions	A sales team & full project team will be available to co-create the WBS		

Work Breakdown Structure (WBS)

- **A Work Breakdown Structure includes dividing a large and complex project into simpler, manageable and independent tasks.**
- **A straightforward and conceptually simple way to attack the problem is the ‘hierarchical planning process’ to build a Work Breakdown Structure (WBS) for the project.**

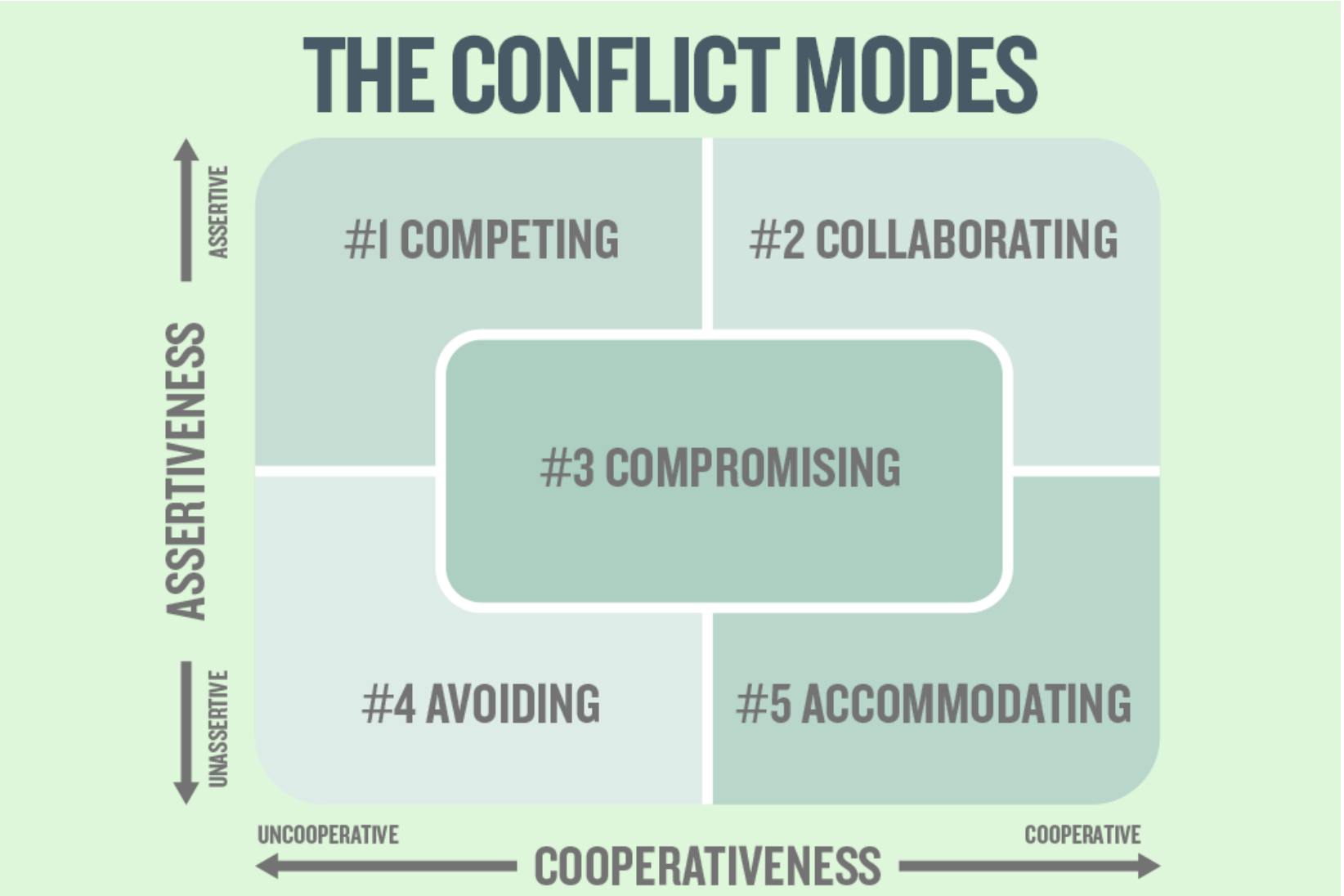

PROJECT
Task
Task
Task
Sub-Task
Sub-Task
Work Package
Work Package
Work Package


stakeholdermap.com
Project Management, project planning, templates and advice
1. Construction Master WBS
1.2 Site prep
1.3 Pile Caps/Grnd Beams
1.4 Structural Steel
1.5 External
1.6 Floor Slab
1.7 Brickwork
1.8 M & E Services
1.9 Finishes
1.2.1 Mobilisation
1.2.2 Excavation
1.2.3 Piling
1.3.1 Cut-off Piles and Blinding
1.3.2 Formwork & rebar
1.3.3 Concrete
1.4.1 Erect Steel Frame
1.4.2 Holorib Floors
1.5.1 Cladding
1.5.2 Roofing
1.6.1 Sub-base & Blinding
1.6.2 Formwork & Concrete
1.7.1 External Brickwork
1.7.2 Internal Brickwork
1.8.1 Plumbing
1.8.2 Electric
1.9.1 Joinery
1.9.2 Plastering
1.9.3 Decorating


1
Software Project
570 hours
$14,500.00
1.1
Planning Summary
240 hours
$3,000.00
1.2
Coding Summary
105 hours
$4,000.00
1.3
Testing Summary
225 hours
$7,500.00
1.1.1
Task 1
60 hours
$1,000.00
1.1.2
Task 2
180 hours
$2,000.00
1.2.1
Task 3
80 hours
$2,500.00
1.2.2
Task 4
25 hours
$1,500.00
1.3.1
Task 5
125 hours
$2,500.00
1.3.2
Task 6
100 hours
$5,000.00

Influence of Project Manager

- **Authority**
- **Expert Knowledge**
- **Professional Advancement**
- **Coercive behaviour**
- **Work Challenge**
- **Friendship**



Conflict resolution strategies (Kenneth Thomas and Ralph Kilmann ,1975)

- Approaching a situation assertively and being unwilling to cooperate is referred to as a “competing” strategy.
- When a competing strategy is employed, someone must lose in order for the other to win
- This competing strategy may be appropriate in situations where the decision must be made quickly

- When the position is not asserted aggressively but the person is still unwilling to cooperate, there is a conflict “avoiding” strategy.
- This is a lose-lose strategy
- An avoiding strategy might be applied when the issue is not that important to you or you deem the detrimental effects from the conflict outweigh the benefits of resolving the issue in a desirable way

- When one assertively state his/her position but do so in a spirit of cooperation ,they are employing a “collaborating” strategy
- Collaborating strategy can be considered a win-win strategy.
- This is the preferred strategy in most situations and particularly in situations where the needs of both parties are important

- In situations where one do not assert their position and focus more on cooperating with the other party, they are employing an “accommodating” strategy.
- Here the situation can be described as I lose, you win.
- Accommodating strategy is employed when one is wrong or the issue is much more important to the other person.

- When one take a middle ground position on both dimensions, it is “compromising.”
- In these cases, nobody wins and nobody loses.
- Arrived at a solution that you and the other party can live with but are not particularly happy about.
- One might employ a compromising strategy when the potential benefits of trying to develop a win-win solution are exceeded by the costs