Module No. 1
Project Management Foundation

by

Jayen Modi

Assistant Professor & Coordinator – Placements

Department of Electronics & Computer Science

Fr. Conceicao Rodrigues College of Engineering

What is a Project ?

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

- **Project Characteristics:**

1. **Temporary**

2. **Unique**

3. **Progressive Elaboration**

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Temporary

- **Temporary means that every project has a definite beginning and a definite end.**

- **The end is reached when**
  - ➢ the **project's objectives** have been **achieved**, or
  - ➢ it becomes clear that the **project objectives** will **not or cannot be met**, or
  - ➢ the **need** for the project **no longer exists** and
  - ➢ the project is **terminated**.

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Unique

- **A project creates unique deliverables, which are products, services, or results.**

- **Projects can create:**

  - ➢ **A product or artifact that is produced, is quantifiable, and can be either an end item in itself or a component item**

  - ➢ **A capability to perform a service, such as business functions supporting production or distribution**

  - ➢ **A result, such as outcomes or documents.**

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Progressive Elaboration

- **Progressive elaboration is a characteristic of projects that accompanies the concepts of temporary and unique.**

- **Progressive elaboration means developing in steps, and continuing by increments.**

- **For example, the project scope will be broadly described early in the project and made more explicit and detailed as the project team develops a better and more complete understanding of the objectives and deliverables.**

- **Progressive elaboration should not be confused with scope creep.**

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Examples of Projects

- **Developing a new pharmaceutical compound for market,**

- **Expanding a tour guide service,**

- **Merging two organizations,**

- **Improving a business process within an organization,**
- **Acquiring and installing a new computer hardware system for use in an organization,**
- **Exploring for oil in a region,**

- **Modifying a computer software program used in an organization,**
- **Conducting research to develop new manufacturing process**
- **Constructing a building or facility**

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Examples of Projects

- **Pyramids of Giza,**
- **Organizing Olympic games,**
- **Great Wall of China,**
- **Taj Mahal,**
- **Publication of a book,**
- **Panama Canal,**
- **Development of commercial jet airplanes,**
- **Human beings landing on the moon,**
- **Commercial software applications,**
- **Placement of the International Space Station into Earth's orbit.**
- **Developing new transportation facility like train route, metro**
- **New product development**

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What is an Operation?

- Operations are the ongoing execution of activities and they follow an organization's procedures to produce the same result or a repetitive service.

- Operations are permanent in nature.

- Production, manufacturing, and accounting are examples of operations.

Project Vs Operation

- Projects are unique and temporary, while operations are ongoing and permanent with a repetitive output.
- Projects have a fixed budget, while operations have to earn a profit to run the business.
- Projects are executed to start a new business objective and terminated when it is achieved, while operational work does not produce anything new and is ongoing.
- Projects create a unique product, service, or result, while operations produce the same product, aim to earn a profit and keep the system running.
- There are more risks in projects as they are usually done for the first time, while in operations there are fewer risks as they are repeated many times.
- Projects are performance intensive while operations are efficiency intensive.
- Projects are managed through project management and operations require business process management.

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A Real-World Example of Projects and Operations

- Assume you were given a project to build a car manufacturing facility.

- You build the facility and deliver it to the client. Your job is completed, and the client has started manufacturing cars.

- In this example, building the facility is an example of a project, because here you constructed a car manufacturing facility and handed it over to the client and signed off.

- However, once the facility starts working and the car manufacturing process begins, this is an example of operations, because here the facility is producing a repetitive output, cars.

- Therefore, this is an example of an operation.

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Non-projects and Quasi-projects

- Non-projects are all routine. They are tasks that are performed over and over again. This is not true of projects.

- Each project is a one-time event.

- The use of a manufacturing line to produce a flow of standard products is a non-project.

- The production of weekly employment reports, the preparation of school lunches, the delivery of mail, the flight of Delta-1288 from Dallas to Dulles, checking your e-mail, all are non-projects.

- In addition to projects and non-projects, there are also quasi-projects.

- Quasi - Question Answering with Statistics and Inference

- Quasi-Project are without specific targets or deliverables. These don't have a well defined project scope. So they require iterative approach, rolling wave techniques to accommodate changing nature of projects and prototyping for validating the product.

- Example of Quasi-project are Website Design, Architecture Design.

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Key Stakeholders of Projects

- Sponsor

- Customer/User

- Sellers

- Business Partners

- Organizational Groups

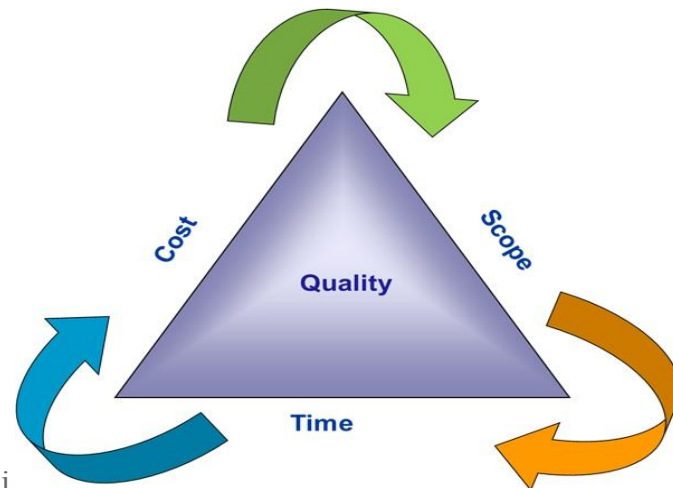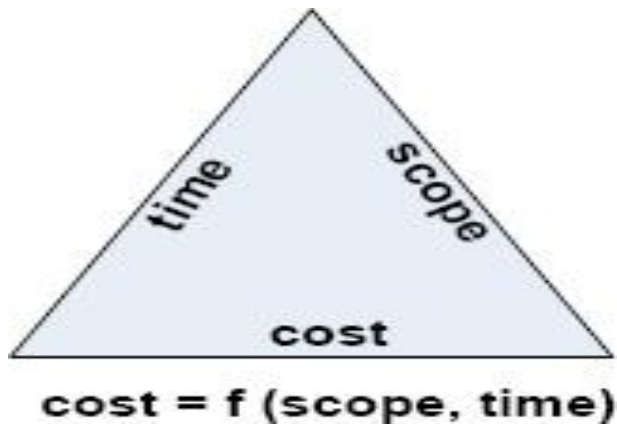- Functional Managers

- Other Stakeholders

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What is Project Management?

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

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Why is There a Need For Project Management?

- **Control Scope Creep and Manage Change**
- **Deliver Project Results On Time and On Budget**
- **Focus the Project Team on the Solution**
- **Obtain Project Buy-In from Disparate Groups**
- **Define the Critical Path to Optimally Complete your Project**
- **Provide a Process for Estimating Project Resources, Time, and Costs**
- **Communicate Project Progress, Risks, and Changes**
- **Surface and Explore Project Assumptions**
- **Prepare for Unexpected Project Issues**
- **Document, Transfer, and Apply Lessons Learned from Your Projects**

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Triple Constraint

- It's a model of the constraints inherent in managing a project. Those constraints are threefold:
  - **Cost:** The financial constraints of a project, also known as the project budget
  - **Scope:** The tasks required to fulfill the project's goals
  - **Time:** The schedule for the project to reach completion

cost = f (scope, time)
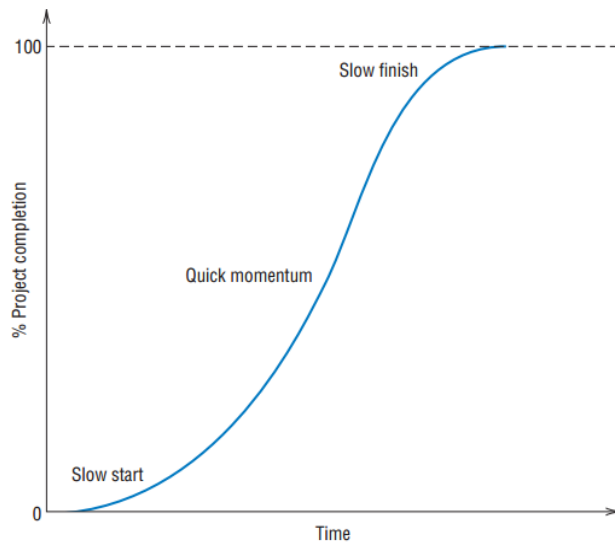
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Project Life Cycle

Figure 1-3 The common stretched-S project life cycle.

Figure 1-5 The stretched-J project life cycle.

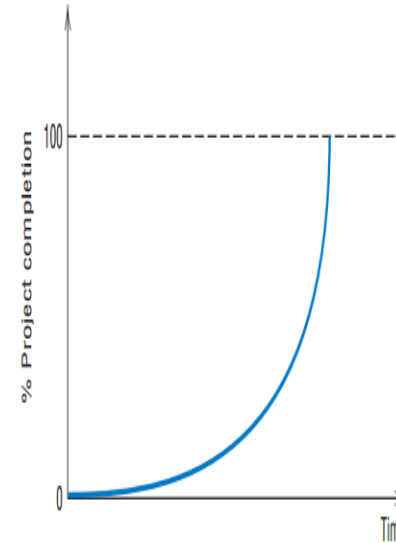Time distribution of project effort is characterized by slow-rapid-slow concept.

Continued inputs of effort at the end of the project produce significant gains in returns. (e.g. Baking a cake, chemical reaction project, software project, writing a book/thesis)

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Project Management Life Cycle (Phases)

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Initiation Phase

- This is the beginning phase of the project.

- Project has not been formed yet.

- This is the phase where literature review and secondary data analysis is done.

- It includes information such as:
  - Purpose, vision and mission of the project
  - High level project description
  - Summary milestones of the project

- Here, the idea of project is seeded.

- The problem is identified and checked if the project can solve it.

- Basically, the feasibility of the project is assessed and identified.

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Things to complete during initiation phase

- Undertaking the feasibility study of the project
- Assessing the scope of work of the project
- Identifying the deliverables
- Identifying stakeholders of the project
- Comparing the potential costs and benefits of the project

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Planning Phase

- Planning phase is an important phase of project. The better the plan, easier will be the execution.
- In this phase, we need to break down larger activities into smaller tasks.
- It is the phase where the plans for conducting the project are formed in detail.
- Project planning involves two parts:
  - Strategic Planning: Here, we develop overall approach to the project
  - Implementation Planning: Here, we figure out the details of how the project will be implemented
- SMART (Specific, Measurable, Achievable, Realistic and Timebound) goals and objectives are set.
- It includes planning of resources, risk, finances etc.
- Roles and responsibilities of the staffs are clearly defined.
- At the end of this phase, the plan is documented for the future purpose.

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Things to complete during planning phase

- Project plan

- Resource (3M- Money, Manpower and Materials) plan

- Budget and financial plan

- Quality plan

- Risk plan (Anticipating the risks)

- Acceptance plan

- Communication plan

- Procurement plan

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Execution Phase

- Project execution is the phase where plan is now brought into action, after the final approval and completion of all planning.
- This is the phase of project where we can see the actual work happening.
- A series of activities is carried out to meet the goals.
- Earlier drafted plan acts as the guide to all the action.
- **Monitoring of the work goes side by side during execution**.
- Monitoring is done to ensure that the activities are moving on track, as planned.
- Moreover, it will also involve immediate rectification and changes required to meet the overall goal and objective of the project .
- This phase also involves mid-term evaluation of the project.

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Steps for project execution phase

- Creating tasks and organizing workflow

- Provide necessary guidance, briefing and trainings to the team members

- Regular communication with the team members

- Monitoring the quality of work

- Managing budget

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Things to ensure during execution phase

- Time management

- Cost management

- Quality management

- Change management

- Risk management

- Issue management etc.

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Termination Phase

- This phase is also known as the closure step or closure phase.

- As the project is temporary it has to come to an end.

- By this time all the activities have been carried out.

- The contractors hired, staffs of the project are terminated.

- At the end evaluation report is created that would evaluate the overall success of the project and are useful for future reference as well.

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Things to ensure during termination phase

- Analysis of project performance regarding its goals and objectives

- Analysis of team performance

- Documentation of project closure

- Conducting a final analysis of the project

- Closing the finances and budgetary aspects of the project

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Reasons for Project Termination

❑ 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; or

➢ The project is terminated for legal cause or convenience.

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Role of Project Manager

- A project manager is a person who has the overall responsibility for the successful initiation, planning, design, execution, monitoring, controlling and closure of a project.

- Roles and Responsibilities of Project Manager:

1. Communicating with team members
2. Communicating with key stakeholders
3. Issue identification and resolution
4. Budgeting
5. Time management and approval
6. Team building

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Conflicts in Project Management

- A conflict is a common phenomenon in the workplace.

- A conflict is a situation when the interests, needs, goals or values of the project stakeholders interfere with one another.

- Project managers should see conflicts as opportunities to growth and as opportunities to move the project forward towards delivery.

- The major causes of conflict are poor communication, inadequate leadership, irresponsible behavior, insufficient resources and limited budget.

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Conflicts in Project Management

- Since conflicts are unavoidable, how do you view conflicts?

From the Traditional view points, the following are noted:

- Conflicts are considered as bad

- Conflicts are caused by trouble makers

- Conflicts should be avoided

And from the Contemporary view points, the following are noted:

- Conflicts are inevitable

- Conflicts are often beneficial

- Conflicts should be managed

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Approaches to Conflict Resolution

There are 5 modes for conflict resolution in project management. They are:

1. Confronting – win-win style
2. Compromising – give and take style
3. Smoothing – accommodating style
4. Forcing – competing style
5. Avoiding – withdrawal style

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Confronting Strategy

- This is also described as problem solving, integrating, collaborating or win-win style.
- It involves the conflicting parties meeting face-to-face and collaborating to reach an agreement that satisfies the concerns of both parties.
- This style involves open and direct communication which should lead the way to solving the problem.
- Confronting should be used when:

1. Both parties need to win.
2. You want to decrease cost.
3. You want to create a common power base.
4. Skills are complementary.
5. Time is sufficient.
6. Trust is present.
7. Learning is the ultimate goal.

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Compromising Strategy

- This is also described as a "give and take" style.
- Conflicting parties bargain to reach a mutually acceptable solution.
- Both parties give up something in order to reach a decision and leave with some degree of satisfaction.
- Compromising should be used when:

1. Both parties need to win.
2. You are in a deadlock.
3. Time is not sufficient.
4. You want to maintain the relationship among the involved parties.
5. You will get nothing if you do not compromise.
6. Stakes are moderate.

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Smoothing Strategy

- This is also referred to as accommodating or obliging style.
- In this approach, the areas of agreement are emphasized and the areas of disagreement are downplayed.
- Conflicts are not always resolved in the smoothing mode.
- A party may sacrifice it's own concerns or goals in order to satisfy the concerns or goals of the other party.
- Smoothing should be used when:

1. Goal to be reached is overarching.
2. You want to create obligation for a trade-off at a later time.
3. Stakes are low.
4. Liability is limited.
5. Any solution is adequate.
6. You want to be harmonious and create good will.
7. You would lose anyway.
8. You want to gain time.

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Forcing Strategy

- This is also known as competing, controlling, or dominating style.
- Forcing occurs when one party goes all out to win its position while ignoring the needs and concerns of the other party.
- As the intensity of a conflict increases, the tendency for a forced conflict is more likely.
- This results in a win-lose situation where one party wins at the expense of the other party.
- Forcing should be used when:

1. A "do or die" situation is present.
2. Stakes are high.
3. Important principles are at stake.
4. Relationship among parties is not important.
5. A quick decision must be made.

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Avoiding Strategy

- This is also described as withdrawal style.
- This approach is viewed as postponing an issue for later or withdrawing from the situation altogether.
- It is regarded as a temporary solution because the problem and conflict continue to reoccur over and over again.
- Avoiding should be used when:

1. You cannot win.
2. Stakes are low.
3. Stakes are high, but you are not prepared.
4. You want to gain time.
5. You want to maintain neutrality or reputation.
6. You think problem will go away.
7. You win by delaying.

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PM knowledge areas as per PMI

- Project Integration Management
- Project Scope Management
- Project Time Management
- Project Cost Management
- Project Quality management
- Project Human Resource Management
- Project Communication Management
- Project Risk Management
- Project Procurement Management
- Project Stakeholder Management

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Project Integration Management

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.

1.Develop Project Charter—The process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.

2.Develop Project Management Plan—The process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan. The project's integrated baselines and subsidiary plans may be included within the project management plan.

3.Direct and Manage Project Work—The process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.

4.Monitor and Control Project Work—The process of tracking, reviewing, and reporting project progress against the performance objectives defined in the project management plan.

5.Perform Integrated Change Control—The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition.

6.Close Project or Phase—The process of finalizing all activities across all of the Project Management Process Groups to formally complete the phase or project.

Project Scope Management

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. Managing the project scope is primarily concerned with defining and controlling what is and is not included in the project.

1. **Plan Scope Management**—The process of creating a scope management plan that documents how the project scope will be defined, validated, and controlled.

2. **Collect Requirements**—The process of determining, documenting, and managing stakeholder needs and requirements to meet project objectives.

3. **Define Scope**—The process of developing a detailed description of the project and product.

4. **Create WBS**—The process of subdividing project deliverables and project work into smaller, more manageable components.

5. **Validate Scope**—The process of formalizing acceptance of the completed project deliverables.

6. **Control Scope**—The process of monitoring the status of the project and product scope and managing changes to the scope baseline.

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Project Time Management

Project Time Management includes the processes required to manage the timely completion of the project.

1. **Plan Schedule Management**—The process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.
2. **Define Activities**—The process of identifying and documenting the specific actions to be performed to produce the project deliverables.
3. **Sequence Activities**—The process of identifying and documenting relationships among the project activities.
4. **Estimate Activity Resources**—The process of estimating the type and quantities of material, human resources, equipment, or supplies required to perform each activity.
5. **Estimate Activity Durations**—The process of estimating the number of work periods needed to complete individual activities with estimated resources.
6. **Develop Schedule**—The process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model.
7. **Control Schedule**—The process of monitoring the status of project activities to update project progress and manage changes to the schedule baseline to achieve the plan.

Project Cost Management

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

1. **Plan Cost Management**—The process that establishes the policies, procedures, and documentation for planning, managing, expending, and controlling project costs.

2. **Estimate Costs**—The process of developing an approximation of the monetary resources needed to complete project activities.

3. **Determine Budget**—The process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline.

4. **Control Costs**—The process of monitoring the status of the project to update the project costs and managing changes to the cost baseline.

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Project Quality Management

Project Quality Management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken.

1. **Plan Quality Management**—The process of identifying quality requirements and/or standards for the project and its deliverables and documenting how the project will demonstrate compliance with quality requirements.
2. **Perform Quality Assurance**—The process of auditing the quality requirements and the results from quality control measurements to ensure that appropriate quality standards and operational definitions are used.
3. **Control Quality**—The process of monitoring and recording results of executing the quality activities to assess performance and recommend necessary changes.

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Project Human Resource Management

Project Human Resource Management includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. Project team members may have varied skill sets, may be assigned full or part-time, and may be added or removed from the team as the project progresses.

1. **Plan Human Resource Management**—The process of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan.

2. **Acquire Project Team**—The process of confirming human resource availability and obtaining the team necessary to complete project activities.

3. **Develop Project Team**—The process of improving competencies, team member interaction, and overall team environment to enhance project performance.

4. **Manage Project Team**—The process of tracking team member performance, providing feedback, resolving issues, and managing changes to optimize project performance.

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Project Communication Management

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

1. **Plan Communications Management**—The process of developing an appropriate approach and plan for project communications based on stakeholder's information needs and requirements, and available organizational assets.

2. **Manage Communications**—The process of creating, collecting, distributing, storing, retrieving and the ultimate disposition of project information in accordance with the communications management plan.

3. **Control Communications**—The process of monitoring and controlling communications throughout the entire project life cycle to ensure the information needs of the project stakeholders are met.

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Project Risk Management

Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project. The objectives of project risk management are to increase the likelihood and impact of positive events, and decrease the likelihood and impact of negative events in the project.

1. **Plan Risk Management**—The process of defining how to conduct risk management activities for a project.
2. **Identify Risks**—The process of determining which risks may affect the project and documenting their characteristics.
3. **Perform Qualitative Risk Analysis**—The process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact.
4. **Perform Quantitative Risk Analysis**—The process of numerically analyzing the effect of identified risks on overall project objectives.
5. **Plan Risk Responses**—The process of developing options and actions to enhance opportunities and to reduce threats to project objectives.
6. **Control Risks**—The process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project.

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Project Procurement Management

Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team. The organization can be either the buyer or seller of the products, services, or results of a project.

1. **Plan Procurement Management**—The process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.
2. **Conduct Procurements**—The process of obtaining seller responses, selecting a seller, and awarding a contract.
3. **Control Procurements**—The process of managing procurement relationships, monitoring contract performance, and making changes and corrections as appropriate.
4. **Close Procurements**—The process of completing each project procurement.

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Project Stakeholder Management

Project Stakeholder Management includes the processes required to identify the people, groups, or organizations 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.

1. **Identify Stakeholders**—The process of identifying the people, groups, or organizations that could impact or be impacted by a decision, activity, or outcome of the project; and analyzing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success.

2. **Plan Stakeholder Management**—The process of developing appropriate management strategies to effectively engage stakeholders throughout the project life cycle, based on the analysis of their needs, interests, and potential impact on project success.

3. **Manage Stakeholder Engagement**—The process of communicating and working with stakeholders to meet their needs/expectations, address issues as they occur, and foster appropriate stakeholder engagement in project activities throughout the project life cycle.

4. **Control Stakeholder Engagement**—The process of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders.

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# Project Management in the Various Organizational Structures

- Functional Organizational structure,
- Pure Project Organizational structure and
- Matrix organizational structure

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Functional Organizational structure

- For functionally organized projects, the project is assigned to the functional unit that has the most interest in ensuring its success or can be most helpful in implementing it.

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Functional Organizations

Project is managed with the existing functional hierarchy

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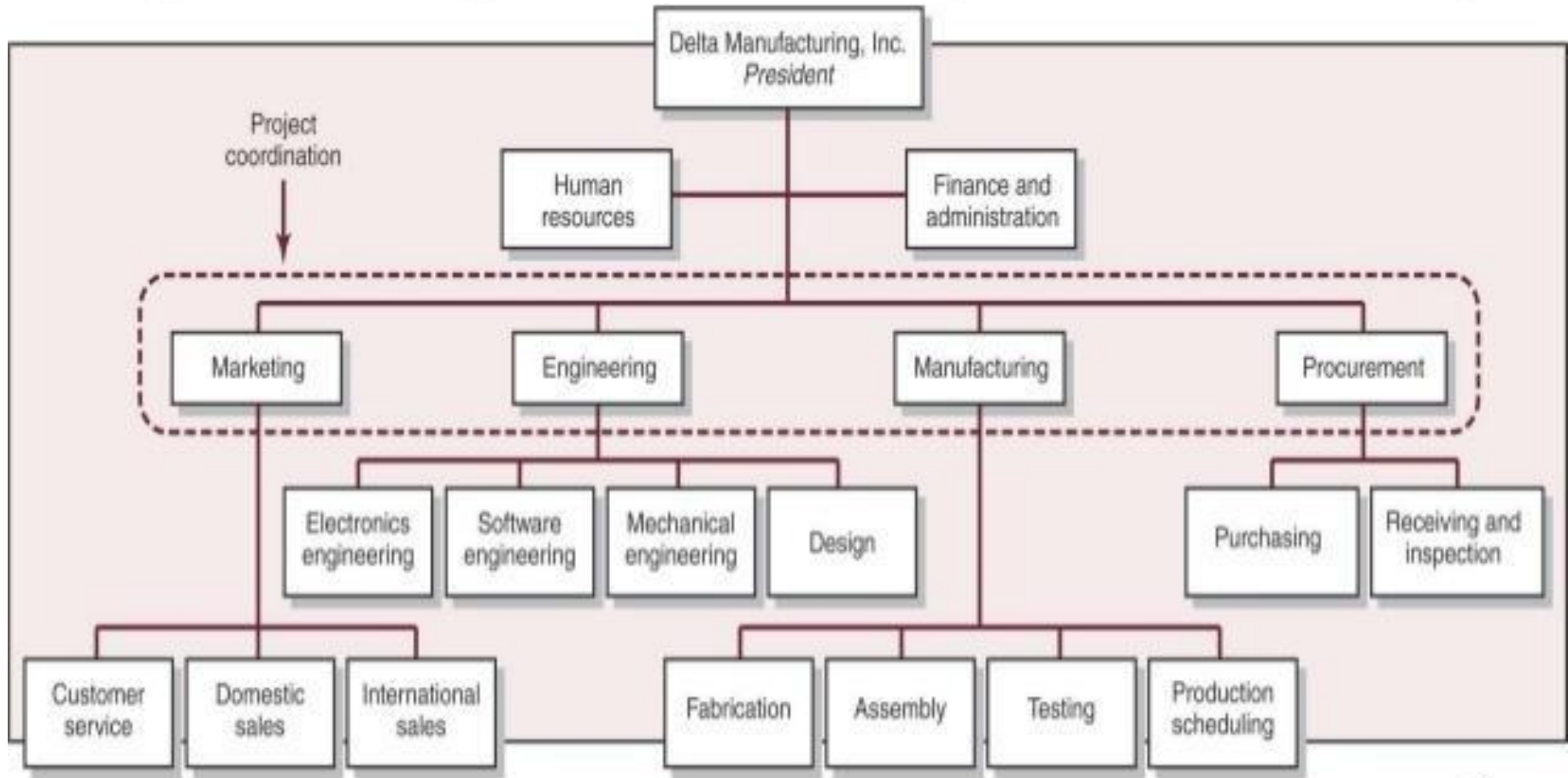
Functional Organizational structure

Advantages

- There is maximum flexibility in the use of staff.
- Individual experts can be utilized by many different projects.
- Specialists in the division can be grouped to share knowledge and experience.
- The functional division also serves as a base of technological continuity when individuals choose to leave the project, and even the parent firm.
- The functional division contains the normal path of advancement for individuals whose expertise is in the functional area.
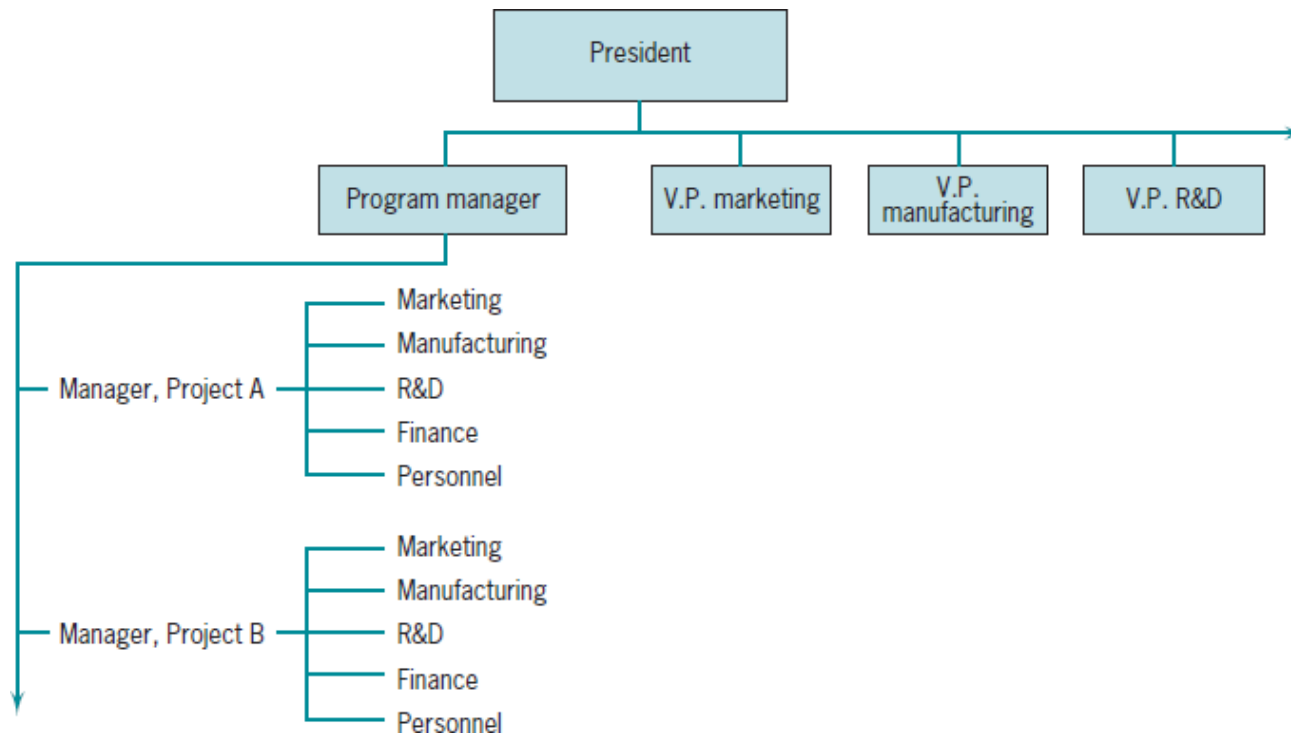
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Functional Organizational structure

Disadvantages

- A primary disadvantage of this arrangement is that the client is not the focus of activity and concern. The functional unit has its own work to do, which usually takes precedence over the work of the project, and hence over the interests of the client.

- The functional division tends to be oriented toward the activities particular to its function. It is not usually problem oriented in the sense that a project should be to be successful.

- Lack of coordinated effort tend to make response to client needs slow and difficult.

- The motivation of people assigned to the project tends to be weak.

- Such an organizational arrangement does not facilitate a holistic approach to the project.

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Pure Project Organizational structure

- The project is separated from the rest of the parent system.
- It becomes a self-contained unit with its own technical staff, its own administration, tied to the parent firm by the strands of periodic progress reports and oversight.

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Pure Project Organizational structure

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Pure Project Organizational Structure

Advantages

- The project manager has full line authority over the project. The PM is like the CEO of a firm that is dedicated to carrying out the project.
- All members of the project work force are directly responsible to the PM. There are no functional division heads whose permission must be sought or whose advice must be heeded before making technological decisions. The PM is truly the project director.
- The shortened communication lines result in faster communications with fewer failures.
- Motivation is high and acts to foster the task orientation.
- Because authority is centralized, the ability to make instant decisions is greatly enhanced.
- Pure project organizations are structurally simple which makes them relatively easy to understand and to implement.
- The organizational structure tends to support a holistic approach to the project.

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Pure Project Organizational structure

Disadvantages

- This can lead to considerable duplication of effort in every area from clerical staff to the most sophisticated (and expensive) technological support units.
- People with critical technical skills may be hired by the project when they are available rather than when they are needed.
- Disadvantages 1 and 2 combine to make the organization of projects very expensive.
- Though individuals engaged with projects develop considerable depth in the technology of the project, they tend to fall behind in other areas of their technical expertise.
- In pure project organizations, the project takes on a life of its own.
- There is considerable uncertainty about what will happen with the project team when the project is completed.

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Matrix Organizational Structure

- The matrix organization is a combination of the two. It is a pure project organization overlaid on the functional divisions of the parent firm.

- Being a combination of pure project & functional organization structures, a matrix organization can take on a wide variety of specific forms, depending on which of the two extremes (functional or pure project) it most resembles.

- The "project" or "strong" matrix most resembles the pure project organization.

- The "functional" or "weak" matrix most resembles the functional form of organization.

- Finally, the "balanced" matrix lies in between the other two.

- The PM controls when and what these people will do, while the functional managers control who will be assigned to the project and what technology will be used.

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Matrix Organizational Structure

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(jayen.modi@frcrce.ac.in)

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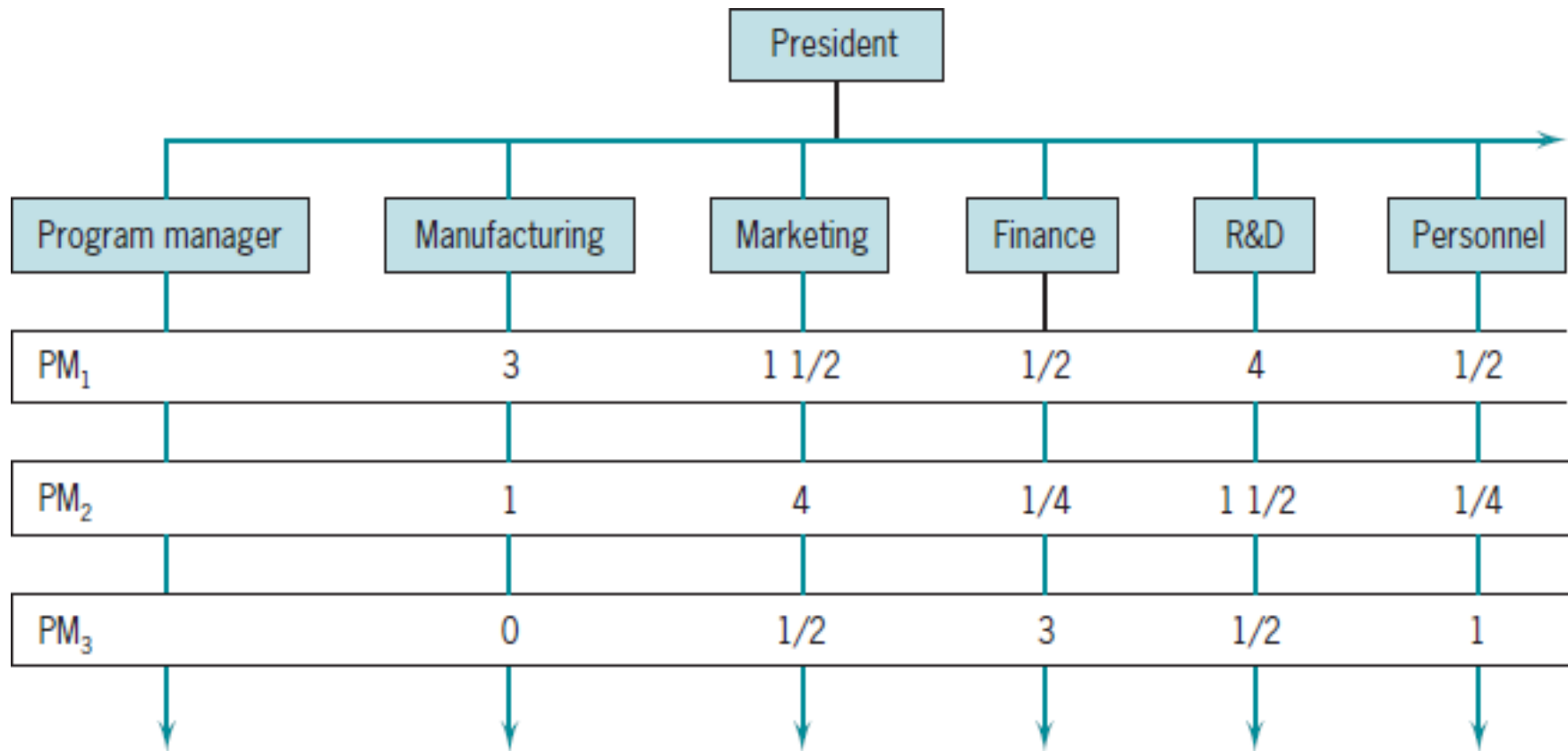
Matrix Organizational Structure

Advantages

- **Collaboration between different departments**
- **Combines project and functional management structures**
- **Allows interdepartmental communication**
- **Employees can develop new skills**
- **Team members and managers keep their functional roles**

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Matrix Organizational Structure

Disadvantages

- **Managerial roles may not be clearly defined.**
- **Team roles may not be clearly defined.**
- **The decision-making process can be slowed down.**
- **Too much work can cause overload.**
- **Measuring employee performance might become difficult.**

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1. Functional Organization

- Functional organizations are organized around the functions the organization need to be performed.

- Functions include: Human Resources, Information Technology, Sales, Marketing, Administration, etc.

- This is the traditional structure of organizations

- The "Project Management" role will be performed by a team member of a functional area under the management of a functional manager.

- Resources are controlled and authorized by functional managers

- The "Project Management" role would act more like a "Project Co-ordinator" or "Project Expediter" who do not usually carry the title of "Project Manager"

- Project Management is considered a part-time responsibility

- Authority of the "Project Manager" is very limited

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(jayen.modi@frcrce.ac.in)

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2. Projectized Organization

- **Projectized Organizations are organized around projects for maximal project management effectiveness.**

- **The Project Manager is given more authority and resources control.**

- **The Project Manager is responsible to the Sponsor and/or Senior Management**

- **The Project Manager is usually a full-time role.**

- **Team members are usually co-located within the same office / virtually co-located to maximize communication effectiveness.**

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3. Matrix Organization

- **Matrix Organizations are organizations with structures that carries a blend of the characteristics of functional & projectized organizations.**

- **Matrix organizations can be classified as weak, balanced or strong based on the relative authority of the Functional Manager and Project Manager**

- **If "Project Manager" is given role of more like "Project Co-ordinator" or "Project Expediter", then the organization is considered "Weak Matrix"**

- **If the "Project Manager" is given much more authority on resources and budget spending, the organization is considered "Strong Matrix"**

- **"Balanced Matrix" lies between Weak and Strong Matrix. Power is shared between Project Manager (PM) and Functional Manager (FM).**
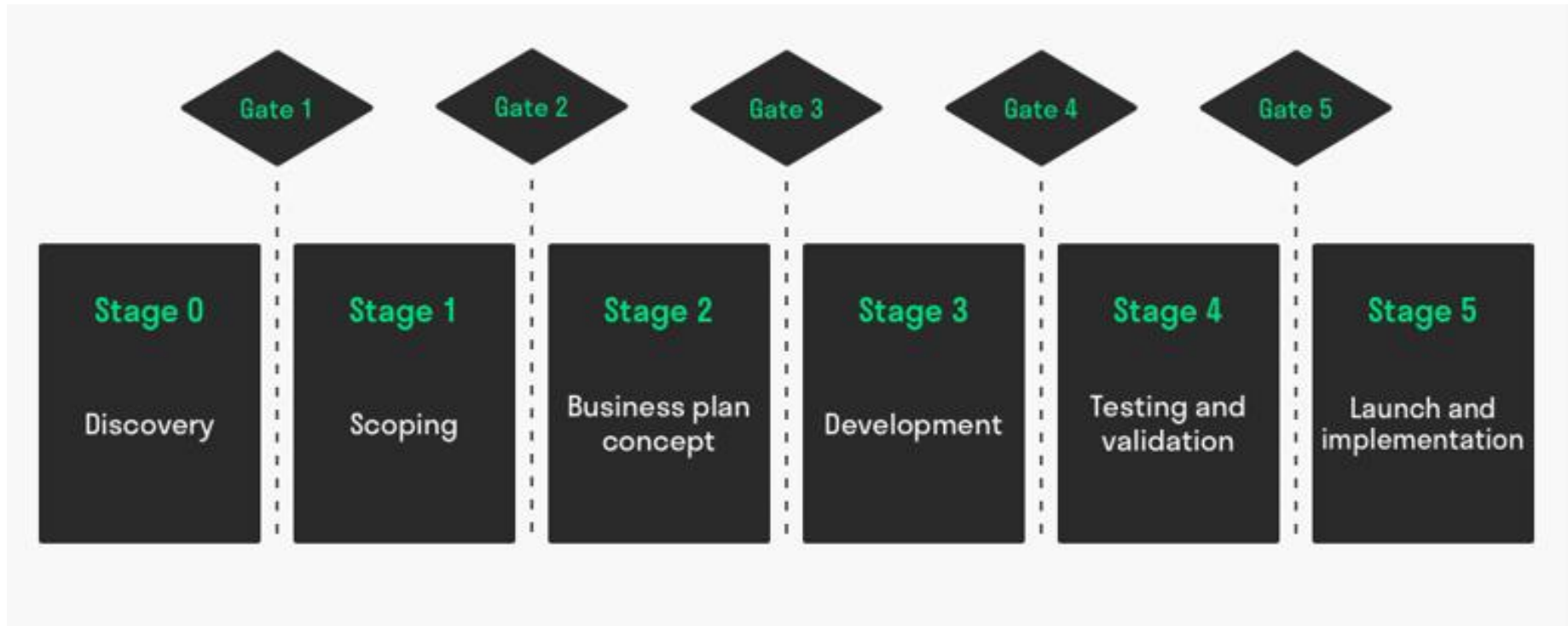
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The Stage Gate Process

- **The State Gate process is a patented trademark of Dr. Robert Cooper.**

- **The model focuses on the innovation process and is also referred as the waterfall process.**

- **It is a project management technique, in which an initiative or project takes place, divided over several stages.**

- **These stages are separated by so-called 'gates'; the decision points for whether or not to proceed to the next stage.**

- **This model can be used when developing new products, process changes or improvements.**

- **Gates: At each gate, a decision is made whether to continue the process or not. This decision is based on the prognosis and information available at that moment and in most cases is made by a manager or steering committee. The quality of an idea is assessed at each of the gates. This concerns the quality of the execution, business motivation to continue financially and the action plan showing what needs to be done in order for the project to have a chance at succeeding. After each gate, one of the following decisions can be made:**

- **Go: The project is good enough to move on to the next stage.**

- **Kill: The project is not good enough to develop further and is shut down right away.**

- **Hold: The project is not good enough to continue to develop it at this moment, but not so bad that it needs to shut down immediately. It is put on hold to possibly be resumed at later date.**

- **Recycle: The project is good enough to develop further, provided some changes are made.**

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The Stage Gate Process

- The Stage Gate process consists of a number of stages, which are connected to each other by gates. Each stage is designed to collect specific information.

- Stage 0: discovery

- Stage 1: scoping

- Stage 2: business plan concept

- Stage 3: development

- Stage 4: testing and validation

- Stage 5: launch and implementation

- Depending on the size of the project, 2, 3 or all 5 stages are completed.

- A project that focuses on major product innovation will go through all 5 stages.

- A project with less risk will suffice with just stage 1 (scoping) & stage 2 (development of the business plan) & developing it to stage 4 (testing and validation).

- With very small or simple adjustments, only stage 3 (development) and stage 4 (testing and validation) will be implemented.

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The Stage Gate Process

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The Stage Gate Process

Stage 0: Discovery

- This **initial preparatory stage** determines which project a company wants and is able to carry out.
- Ideas can be generated in **brainstorming sessions**.
- Employees are not the only ones involved in this part.
- Customers and suppliers also provide useful information.
- An idea is first selected and then proposed. If the idea is not worth the effort, the gate closes here.

Stage 1: Scoping

- This stage is all about **evaluating the product and the associated market**.
- What are the product's strengths and weaknesses and what can it bring to the user/consumer in terms of added value?
- This stage takes all the **possible threats from competitors** into account.
- Based on the assessed threat, production will or will not continue.
- The greater the threat, the greater the chance that the gate will close.

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The Stage Gate Process

Stage 2: Business plan concept

- Now that the product is impervious to competition, a business plan is drawn up.
- This is the last stage of concept development and is crucial before the starting with development of the actual product.
- This stage is very labor-intensive and includes sub-stages that need to be completed:

Product definition and analysis

- The customer value is determined by finding out which benefits the product offers and what conditions and functions it must meet.
- This information can be retrieved with the help of interviews and surveys.
- We also look at the environment and the competition.

Creating the business plan

- In this document the product is described and defined, including the legal health and safety requirements.

Creating the project plan

- This plan contains a list of all tasks that are planned during the entire development process, and the people who will carry them out.
- The expected launch date can also be found in this plan.

Feasibility review

- This includes a feasibility study in which different departments assess the plan's chances of succeeding.
- If, after this stage, it appears that the business concept does not have sufficient potential to generate turnover, the gate will close.

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The Stage Gate Process

Stage 3: Development

- During this stage, the plans from the previous steps are carried out and simple tests are conducted.

- For example, at this stage customers can be asked what they think of the product.

- The development team also creates a timeline with specific milestones that have to be achieved.

- This timeline can be revised and updated regularly.

- It also incorporates multi-functional teamwork; different departments provide input with expert advice.

- This ultimately results in a product prototype, which will be extensively tested during the next stage.

- The gate will remain closed if the product has not been sufficiently developed.

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The Stage Gate Process

Stage 5: Launch and implementation

- The **marketing strategy** comes into play during this stage in the Stage Gate process.
- The product is ready to be launched, which will include an **advertising campaign, free publicity (press releases) and interviews**.
- An **estimate is made** about the quantity that will be sold.
- **Policies** regarding production, inventory and distribution must be set up.
- The **sales team** is predominantly responsible for ensuring a smooth process.

Effective gates

- The transitions between the different stages are in the Stage Gate Process monitored by **the gates** mentioned earlier.
- These gates have the added function of putting a stop to the development of weak projects in order to prevent unnecessary work.
- After all, that can **cost a lot of time and money**.
- In that sense, the gates are the points that **provide an overview of the project** so far.
- This is the crucial moment to make go / kill / hold / recycle decisions & set priorities.
- If the project fails to meet the criteria, the decision is made to stop developing further.

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Advantages of Stage Gate Process

The Stage Gate process has a number of advantages. The most important can be found below :-

➢ **Reducing production errors**

➢ **Reducing errors and waste of raw materials**

➢ **Internal focus on the right projects**

➢ **Good communication between different departments**

➢ **Clarity about all planned projects**

➢ **Good communication between external stakeholders, including customers, partners and suppliers**

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