UNIT 1:

Introduction to Software Development Organization and Roles

The Project Spectrum

For properly building a product, there's a very important concept that we all should know in software project planning while developing a product. There are 4 critical components in software project planning which are known as the **4P's** namely:

- Product
- Process
- People
- Project

These components play a very important role in your project that can help your team meet its goals and objective. Now, Let's dive into each of them a little in detail to get a better understanding:

- **People**
  The most important component of a product and its successful implementation is human resources. In building a proper product, a well-managed team with clear-cut roles defined for each person/team will lead to the success of the product. We need to have a good team in order to save our time, cost, and effort. Some assigned roles in software project planning are **project manager, team leaders, stakeholders, analysts,** and other **IT professionals**. Managing people successfully is a tricky process which a good project manager can do.

- **Product**
  As the name inferred, this is the deliverable or the result of the project. The project manager should clearly define the product scope to ensure a successful result, control the team members, as well technical hurdles that he or she may encounter during the

building of a product. The product can consist of both tangible or intangible such as shifting the company to a new place or getting a new software in a company.

- **Process**

  In every planning, a clearly defined process is the key to the success of any product. It regulates how the team will go about its development in the respective time period. The Process has several steps involved like, documentation phase, implementation phase, deployment phase, and interaction phase.

- **Project**

  The last and final P in software project planning is Project. In this phase, the project manager plays a critical role. They are responsible to guide the team members to achieve the project's target and objectives, helping & assisting them with issues, checking on cost and budget, and making sure that the project stays on track with the given deadlines.

What is a flat organizational structure?

A flat organizational structure is one in which there are few levels of middle management between leadership and employees, or in certain situations, none at all. Small businesses and startups frequently have an organizational structure that is flat due to their small size and no need for hierarchical administration. There are fewer steps between an entry-level employee and the company's CEO within a flat structure, so most employees have a greater sense of accountability and autonomy in their job. They also have a greater capacity to make major decisions without consulting others.

Benefits of a flat organizational structure

Here are some benefits of a flat organizational structure to consider:

Reduced operating expenses

In an organization with a flat structure, individuals below management level may handle decision-making. As a flat organizational structure doesn't use middle management roles, it may also result in reduced operating expenses due to less staff. This enables the organization to reinvest those expenses in areas such as growing the business, developing new product lines, improving employee training, providing bonuses and increases to employees, or acquiring extra production equipment.

Increased responsibility

Because of the absence of middle management, most employees have a greater responsibility than they may have had in a traditional organizational structure with many levels of management. This can make individuals feel more encouraged, appreciated, and involved in the organization where they work. This increased responsibility has its own set of advantages, such as increased job satisfaction and a greater desire to work with the team.

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nformation transmission

archical organizational structure, company news and other forms of information edural modifications, typically pass through many channels before reaching employees. The transmission of information is considerably easier and faster in ed organizational structure, and there is a reduced risk of the employee getting te or wrong information. When information exchange is straightforward, es can incorporate it into their tasks, which benefits the entire business.

Improved coordination

You may discover a flat organizational structure enables greater collaboration amongst teams co-managing a project. With fewer layers of administration to navigate, employees are frequently accountable for their own work, which allows them to develop stronger collaboration skills and reach consensus on processes more quickly. This can improve efficiency and productivity for the company overall.

Increased productivity

Employees are often more productive as a result of the autonomy, empowerment, and cooperation that comes with this style of organizational structure. Project approvals may be accelerated, allowing staff to begin work sooner and complete tasks more quickly. Increased productivity can help an organization thrive and increase employee motivation, which often results in increased job satisfaction, willingness to take on additional tasks, and loyalty to the company.

What is a network organization?

A network organization is a business structure where employees form small, multidisciplinary teams that work independently to achieve common goals. In this type of model, the organization does not rely on the traditional top-to-bottom supervisory mechanisms. Rather, the organization creates groups specifically to handle problems or tasks as they occur without direct supervision.

In a network structure, an organization's units comprise teams that work together to achieve an overarching organizational goal, and the teams use an iterative approach to accomplish their tasks. When management creates a team to solve a problem, the team:

1. Assesses the task
2. Creates a specific strategy
3. Creates or adjusts its action plan for optimal efficiency
4. Executes the plan until it meets its goals

When the team in a network organization achieves its goals, the company can disband or reorganize it for a new strategic need. Regardless of the size, structure or history of your company, the network model can help improve productivity and efficiency. You can adapt the model for aspects of your operations that will benefit from enhanced flexibility and innovation. Examples of areas where the network model can deliver results include:

- Creating new product development teams

☐ Forming new sales/marketing units to compete favorably with new products
☐ Driving innovation in a fast-moving market
☐ Increasing competition among different companies or departments owned by the same organization

The hierarchical organizational structure is usually shown as a top-down pyramid system and can be used to illustrate the relationships between the entities in an organization.

The power of the organization is centralized at the top of the pyramid, and all the decisions or commands will flow from the top to the bottoms. However, if someone at the bottom of the organization hopes to make a decision, he or she needs to ask for approval of the higher authorities. Finally, the decision will flow back to the original level.

The following picture displays the hierarchical organization chart of a manufacturing enterprise. More organizational chart examples can be found on our website, and Edraw Orgchating can help you customize them to fit your own purpose.

The hierarchical organizational structure also has its advantages and disadvantages. When the company wants to control all aspects of a few products, such as the designs, quality, production, distribution, publicity, and marketing, the hierarchical organizational structure

can be of great help. The employees will have clear career paths and have the chance to build up working experience and become senior specialists.

But when there are too many levels of management, the flow of the information and decisions will be slowed down, and it may influence the speed of the company to cope with various crises.

Matrix Organizational Structure

A *matrix organizational structure* is set up on a grid to demonstrate staff reporting patterns to more than one authority. It is a hybrid of functional and projectized organizational structures, and project managers share authority with other program managers in this structure. Depending on the decision-making capacity of the project manager, a matrix structure is one of three subtypes: weak, balanced, or strong.

Weak Structure

A weak structure is similar to the functional organization structure, in which coordination occurs horizontally among staff without a designated project manager. The primary difference between a weak matrix and a functional structure is that the staff across departments, rather than the functional managers, coordinate the project (but the functional manager maintains decision-making authority).

Job Role in Software Development

In the role of a software developer, you could work in a variety of industries which means you could work on a variety of projects. You will likely work closely with developers, product managers, graphic designers and business analysts to find out what clients want and the most efficient way to achieve them. You will be responsible to work on either the replacement of a whole system or modifying software and integrating it into existing networks. Using several programming tools and languages, your daily tasks may include:

- **Talking through requirements with clients**
- **Testing software and fixing problems**
- **Maintaining systems once they're up and running**
- **Being a part of technical designing**
- **Integrate software components**
- **Producing efficient codes**
- **Writing program codes for reference and**

  reporting

Factor Influencng Project Management

Many factors are affecting the success or failure of an application implementationrelated project. A talented project manager is one of the key contributors.

Many fundamental steps and guides in the project management processes are taken for granted because they seem very basic and obvious. This includes better and more factual testing methods, communication processes and protocols, and the role of key staff members and project manager. This results in many problems like

- Delays in execution that result in missed deadlines
- Uncertainty about the exact deliverables and expectations
- Confusion about the direction of the execution, work requirements, and project status □ Dissatisfaction in the client due to the quality of deliverables.

Very broadly, the key to finding success in your projects and business is vigilant management and a strong project closing. Let's evaluate the internal factors affecting project management and implementation, and the different steps that help you achieve success in.

1. Get a Solid Contract with Your Software Provider

Words change every day, but contracts don't. Don't go for a verbal contract, get the deal in writing. There are a number of details you need to work out in your contract with your vendor, and also ensure their implementation in all future contracts. This includes

- Your payment schedule
- An outline of the system performance criteria
- Penalties for performance issues and delays in delivery
- All the documents required
- The necessary training and orientation
- Inclusion of a test system and a training system for professionals
- A comfortable turnaround time and escalation policy
- Any support you may need from the vendor while the application or project goes live

2. The Right Smart People for the Job

Without the right kind of people for the job in the right positions, even the best project will fizzle out. To make sure your application project meets its full potential, all stakeholders and experts should be a part of the dynamic process. Make sure your team has the following:

1. Project sponsor
2. Leadership committee
3. Project team
4. Project manager

Inadequate support and resources can hamper your capabilities as a project manager to a great extent. It is important for the success of your project that you assign the right person for the right task.

3. Have a Plan of Action

Make sure you set processes and protocols for all possible situations. It is very easy for the work process to stop because of uncertainty regarding how to proceed. Putting protocols in place smoothes out any lumps in the system, so you also have to ensure that all your resources and team members are aligned to it. These protocols should include

- A process for changes that impact scope, budget, deadlines or resources of the project
- A process for escalations
- Schedule management protocols
- Communication and hierarchy protocols

4. Define the Scope of the Project

Often there is a tendency for the scope of work to be increased at the last minute. This puts undue pressure on you because it means delivering something you neither promised nor prepared for. Write out the exact expectations for your project every time.
This includes

- All assumptions and deliverables
- Quantify all requirements that are discussed. In case anything is yet to be discussed, make sure it is done before you start working on the project.
- Include all dates for WIPs, progress reports, and the final delivery date. Don't leave any dates ambiguous.
- Have all members of the team aligned to the scope and get it approved by all sponsors and stakeholders before initiating work on it.

5. Proper Testing and Risk Management

Project managers need to be aware of all the things that could possibly go wrong and prepare for them. You also need to know exactly how the project is coming along and fix any hiccups immediately. For this, you should i) document the kind of testing you will need (data flows, data conversion etc) ii) test things that are standard operations and also things where malfunctions occur infrequently iii) use staff members who are familiar with the project objective for user testing iv) keep a buffer time to fix errors and glitches that may creep in.

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6. Ensure Strong Project Closure

If the project handover and closure do not take place strongly, it might continue to consume your resources and time. Both parties must be in agreement at the same time when the sign-off happens. As a project manager, you lead the sign-off on behalf of your organisation. During project closure, you need to ensure

- Both parties agree that all terms and conditions of the contract were followed
- All deliverables have been met and timelines have been followed
- All schedules regarding payment and delivery have been followed till the last step and all dues in terms of payment/ deliverables have been made
- All quality standards have been met and there are no discrepancies on either.

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What Is a Stakeholder?

A stakeholder is a party that has an interest in a company and can either affect or be affected by the business. The primary stakeholders in a typical corporation are its investors, employees, customers, and suppliers.

However, with the increasing attention on corporate social responsibility, the concept has been extended to include communities, governments, and trade associations.

KEY TAKEAWAYS:

- A stakeholder has a vested interest in a company and can either affect or be affected by a business' operations and performance.
- Typical stakeholders are investors, employees, customers, suppliers, communities, governments, or trade associations.
- An entity's stakeholders can be both internal or external to the organization.
- Shareholders are only one type of stakeholder that firms need to be cognizant of.
- The public may also be construed as a stakeholder in some cases.

Stakeholder

Understanding Stakeholders

Stakeholders can be internal or external to an organization. Internal stakeholders are people whose interest in a company comes through a direct relationship, such as employment, ownership, or investment.

External stakeholders are those who do not directly work with a company but are affected somehow by the actions and outcomes of the business. Suppliers, creditors, and public groups are all considered external stakeholders.

*Stakeholder capitalism is a system in which corporations are oriented to serve the interests of **all** of their stakeholders.*

Example of an Internal Stakeholder

Investors are internal stakeholders who are significantly impacted by the associated concern and its performance. If, for example, a venture capital firm decides to

invest $5 million in a technology startup in return for 10% equity and significant influence, the firm becomes an internal stakeholder of the startup.

The return on the venture capitalist firm's investment hinges on the startup's success or failure, meaning that the firm has a vested interest.

Example of an External Stakeholder

External stakeholders, unlike internal stakeholders, do not have a direct relationship with the company. Instead, an external stakeholder is normally a person or organization affected by the operations of the business. When a company goes over the allowable limit of carbon emissions, for example, the town in which the company is located is considered an external stakeholder because it is affected by the increased pollution.

Conversely, external stakeholders may also sometimes have a direct effect on a company without a clear link to it. The government, for example, is an external stakeholder. When the government initiates policy changes on carbon emissions, the decision affects the business operations of any entity with increased levels of carbon.

What is Project Communication Management?

Project communication management is a collection of processes that help make sure the right messages are sent, received, and understood by the right people.

Project communication management is one of the 10 key knowledge areas in the PMBOK (Project Management Book of Knowledge). The processes included in this area have changed over the years but, in the current version, there are three primary project communication management processes.

These are:

1. Plan communications management

2. Manage communications

3. Monitor communications

How to create a project communication management plan

Project managers need to clearly outline how they will manage communications across their projects. This is done by creating a project communication management plan.

When creating a plan, project managers should follow these five steps:

1. **Decide your objectives:** What will be the purpose of your communication? You may use some communication tools for awareness, such as a status report. Others may require action, such as requiring a sponsor to authorize spending or a customer to approve project testing.

2. **Determine your audience:** Who are the stakeholders in this project? You should make an extensive list of everyone involved. Consider anyone impacted by the project or who influences its success. This list should include team members, sponsors, customers, and other interested parties.

3. **Write your message:** What will the message be for each type of communication? This is the actual content that will be shared. Key components to be communicated include scope, schedule, budget, objectives, risks, and deliverables.

4. **Choose your channel:** How will the message be delivered? Will it be a formal report emailed out to all stakeholders? Or will it be an informal verbal debrief during a team meeting?

5. **Set a timeline:** When will you deliver your message? Do your stakeholders require weekly or monthly reports? Is there a deadline to meet? Consider varying time zones and employee schedules here.

Your project communication management plan should be detailed enough to lay out why you're sending a message, who you're sending it to, what specific information will be sent, how you're going to send it, and when.

Involving your stakeholders in the creation of this plan is important. You need to understand their communication preferences and expectations. If you over-communicate, they may stop paying attention. But, if you under-communicate, it can lead to misunderstandings and issues.

The golden rule here is that, to be a good communicator, you need to be a good listener. It may seem obvious, but Harvard Business Review points out that listening is an overlooked leadership tool. Pay attention to all the factors and take every opinion into account before creating your project communication management plan.

5 Phases of Project Management Life Cycle You Need to Know

The Project Management Body of Knowledge organizes project phases according to their life cycle, starting with Project Initialization and ending in Project Closure. The Project Management Institute (PMI) created the 5-phase model outlined in the *PMBOK Guide*.

Each phase of the project management life cycle consists of a specific project objective or objectives, and defines results, deliverables, processes, and milestones. Management by project life cycle phase gives the project team a common vocabulary to communicate project progress, resulting in better organizational control over the projects they handle.

What Are the 5 Phases of Project Management?

A project phase is a collection of related project management activities. The relationship of the phases in the project life cycle is often sequential,

and each project phase culminates with the completion of one or more [project](#) [deliverables](#).
The five phases of project management are:

1. Project Initiation
2. Project Planning
3. Project Execution
4. Project Monitoring & Control
5. Project Closure Each stage of the project life cycle has a distinct focus that's different from other stages.

That said, the [project management skill sets](#), tasks, processes, stakeholders, and involved organizations for each of the project phases would differ. Still, repeating processes across all Process Groups is an excellent way to add a degree of control within each phase.

Read more: [14 Important Questions Project Managers Should Ask the Team](#)

Project Initiation Phase

A team's performance during the Project Initiation Phase can result in either authorization, delay, or discontinuation of a new project.

The main goal of the Initiation Phase is to ensure that the project meets business needs and that stakeholders and project teams are aligned on the project success criteria throughout the project life cycle.

To achieve the project goal, it's best to involve internal and external stakeholders from the Initiation Phase. This way, you can effectively align expectations and increase the likelihood of completing all the deliverables throughout the project management life cycle.

During the Initiation Phase, the entire project team defines the project idea, and the project sponsor evaluates it and authorizes the project to proceed. The project manager starts the documentation process, which includes the justification, deliverables, risks, estimated cost, and resource requirements.

The Project Charter is a key deliverable of the Project Initiation Phase and contains all this information. It is the first formal definition of the project. It authorizes the project to exist, establishes the authority of the project manager, and documents high-level requirements, project milestones, and success criteria.

Another important document in the Initiation Phase is the Stakeholder Register. This document includes information about all the stakeholders of the project. It identifies the people, groups, and organizations that have an interest in the task, project, and its results.

Approval of the Project Charter signals the advance of the project to the next phase, the Project Planning Phase.

Project Planning Phase

Once the expectations and success criteria are clear, the next project management life cycle phase focuses on planning each task the team needs to perform to cover the scope, achieve the deliverables, and meet the overall goal.

In the Project Planning Phase, the project team members dive into specific requirements, tasks, timelines, and actions. The project manager works with the entire team to create the design, enumerate the task list, and estimate the budget.

The project team builds the resource plan, the communications plan, and the initial project schedule. The project manager also establishes the roles and responsibilities of the team and stakeholders. The project scope is finalized depending on approved available resources and client priorities.

During the Planning Phase, the project team finalizes the Work Breakdown Structure, Project Plan, Requirements List, Communications Management Plan, and other relevant documents to iron out the workflow and coordination with involved parties.

The Project Plan is a key deliverable and contains a detailed work breakdown structure (WBS) or task list with start and end dates, and estimated effort and duration. It identifies milestones, resources, and the schedule. It also includes task dependencies that will allow the project team to use the critical path method if it chooses.

Other important deliverables are the Communications Management Plan, which helps facilitate effective communication with stakeholders, and the Resource Allocation Plan which identifies the schedule of project team resources as to their availability during the whole project life cycle.

Something PMs should keep in mind: As you discover more information, you may have to adjust your previous Project Plan and related procedures. More complex projects will require more back-and-forth approvals for every task created.

Project planning is an iterative process so the project manager should review, revise, and revisit all the plans at least once a month until the completion of the project. It is crucial for the project team to involve relevant stakeholders in this stage of the project life cycle as well.

Project Execution Phase

The Project Execution Phase is where the project team executes and follows through on tasks based on the Project Plan. At this stage, the team spends most of its time coordinating with people, helping to ensure quality work, keeping track of resources, and updating stakeholders.

Sometimes called the Implementation Phase, this is the phase when the project manager tries to manage every task and aspect of project delivery to keep the project on track for the remaining duration of the project life cycle.

The project team focuses on achieving all the objectives set in the earlier phases. At this phase, the project leader likely uses project management software to assign every task to team members. Tools that centralize task information, along with resource availability and team communication can simplify and optimize the needed project management processes.

Quality Assurance documentation, meeting minutes, and Work Orders are some of the documents created during the Execution Phase of the project management life cycle.

It's also likely that you'll discover new information that will require a revisit and update of the initial project management plans. Be vigilant with change requests, and make sure that the necessary adjustments are managed.

Project Monitoring & Control Phase

The best way to ensure progress and improvement is by tracking and reviewing project performance.

Simultaneously during execution, the project team carefully tracks the progress of the project based on the Project Plan established earlier. Tracking the performance of the project through various metrics is crucial to ensure the project stays on schedule, within budget, and within scope.

The project team keeps track of change management documents, spending records, QA checklists, and team time tracking. They are able to measure where efforts and resources go throughout the project life cycle, crosschecking it with the Project Plan.

Both the Execution Phase and Monitoring & Control Phase are critical times that can determine project success. Aside from monitoring the progress of tasks, the project manager also tries to identify issues or risks, creates a mitigation plan with the team, and reports the project status regularly to stakeholders.

Being diligent in recording and measuring project progress puts the project team in a strategic position. They can identify bottlenecks and initiate essential discussions or project management process improvements.

Having a proactive approach will allow the project team to respond rapidly to any change in the plan. Consistent and appropriate status reporting will update interested stakeholders and provide them the opportunity to intervene in or redirect the project as needed.

If additional planning, time, or resources are needed, you'll need to communicate them to relevant project stakeholders before it's too late. You'll also have the data and results to back up your requests, so you have a better chance of justifying your requests and maintaining their trust despite circumstances.

Project Closure Phase

In the last project management life cycle phase, all the activities related to its completion are concluded. These may involve the submission of a final deliverable, fulfilling contractual obligations, terminating relevant agreements, and releasing project resources.

The causes of a project closure can be completion, cancellation, termination, or transfer to a new organization. The documentation required to complete Project Closure will differ depending on the situation.

In this phase, the project manager communicates the final project disposition and status to all stakeholders. This phase also ensures to inform participants and stakeholders of any follow-on activities or continuing product life cycle so they can communicate and coordinate with the people in charge.

Regardless of the outcome of the project life cycle, however, it would be good for the team to conduct a project retrospective. During this post-mortem activity, the project team can process new lessons and ensure the improvement of current project management processes for a future project.

During the project closeout, documents to turn over can include various project documentation, final meeting minutes, and other closure reports. These documents can identify and capture lessons learned and best practices for future reference and reuse.

It is a good idea to organize and store project materials in a shared team folder. These materials can provide reference during performance evaluation. The opportunity to continuously test, improve, or reinvent ways to manage the whole project life cycle can help grow the organization and its business.

What Is a Project Charter in Project Management?

A project charter is a formal, typically short document that describes your project in its entirety — including what the objectives are, how it will be carried out, and who the stakeholders are. It is a crucial ingredient in planning the project because it is used throughout the project lifecycle.

What is a project charter in project management? A charter overview

The project charter typically documents:

- Reasons for the project

- Objectives and constraints of the project

- The main stakeholders

- Risks identified

- Benefits of the project

- General overview of the budget

Tips for writing a project management charter

Ready to create your own project charter? Here are a few other helpful tips to keep in mind as you work through the above steps.

1. **Rely on insights from your team:** Don't feel like you need to work out all this information on your own. Pull together some of your project team members to pick their brains about goals, milestones, and potential problem areas. Gathering their insights will help you create a far more accurate project charter.

2. **Keep it short and straightforward:** It's tempting to get lost in the amount of information available. But, keep in mind that your project charter is supposed to be a

high-level overview of your project and not a breakdown that covers every detail. Each section of your charter should only require a sentence or two. Additionally, charts and bulleted lists will help you present the information in an organized and digestible way.

3. Create a template: After you realize how helpful a project charter is, you'll undoubtedly want one for all your team's projects. Don't waste time reinventing the wheel. Create a simple template that you can copy and use for all your project charters. Not only will it eliminate some manual effort, but it will also ensure you don't miss any elements.