INSEM
UNIT 1

Why is software project management required?
Software Project Management is a part of **IT Project management** that deals with the development of software solutions. It includes planning, implementation, monitoring, and control of software projects.
A Project can be defined as a properly planner well-defined collection of operations required to achieve any specified goal. It has its start time and end time. It ends with the achievement of a specified goal. It requires resources to achieve the specified goal. Resources required may be in terms of manpower, money, time, knowledge, materials etc.
The main purpose of **software project management** is to manage software projects efficiently and deal with all those constraints that bring risk in software development. It enables the software engineers to work efficiently towards successful completion of the project. The 3 main constraints of software projects are **Scope of software**, **Time Required in implementation**, and **Development Cost**. These 3 constraints are called triple constraints of software projects that must be balanced properly.
Time required in implementation: Every software project has some specified time period for the completion of the project. It is essential to implement and deliver the software solution within the schedule.
Scope of Software: Scope means the purpose of the software implementation. The set of specified requirements for which the application is developed, should be addressed properly.
Development cost: Every software project has some cost. It must be under the client's budget.

- Good qualitative judgment and decision-making capability.
- Good grasp of the latest software project management techniques like cost estimation, risk management, configuration management.
- Good communication skills and capability to get work done.
- Tracking and controlling project progress, customer interaction, managerial presentations, and team building.

What is a Project? Project Management?
A project is a unique, transient endeavour, undertaken to achieve planned objectives, which could be defined in terms of outputs, outcomes or benefits. A project is usually deemed to be a success if it achieves the objectives according to their acceptance criteria, within an agreed timescale and budget. Time, cost and quality are the building blocks of every project.

Time: scheduling is a collection of techniques used to develop and present schedules that show when work will be performed.

Cost: how are necessary funds acquired and finances managed?

Quality: how will fitness for the purpose of the deliverables and management processes be assured?

Project management is the application of processes, methods, skills, knowledge and experience to achieve specific project objectives according to the project acceptance criteria within agreed parameters. Project management has final deliverables that are constrained to a finite timescale and budget.

A key factor that distinguishes project management from just 'management' is that it has this final deliverable and a finite timespan, unlike management which is an ongoing process. Because of this a project professional needs a wide range of skills; often technical skills, and certainly people management skills and good business awareness.

What is Contract Management?
Contract management is the overseeing of a project's contracts from their initial pre-award phase through to completion. Proper contract management ensures that the project's budget and resources are in alignment with its overall objectives. Tracking contracts as they progress and identifying and managing any issues as they come up is an important project management process.
Contract management, as a part of the project management, deals with the vendors, sellers, and/or suppliers, and the managing of procurements according to the terms and conditions set within contracts.

Contract management systems can ease the workload needed to get to contract creation and its following stages of contract management. Contract software often has a contractor database built-in, can generate Requests for Proposals (RFPs), and perform bid analysis. Once a contractor is selected, contract systems help project organizations to award the contract, send letters of regret to those not chosen, and manage contractor changes and invoicing all within the software.

1. **Contract creation** **2. Contract negotiation**
3. **Contract approval** **4. Contract finalization**
5. **Contract change management**

Activities covered by software project management

1. Project planning and Tracking
2. Project Resource Management
3. Scope Management
4. Estimation Management
5. Project Risk Management

6. Scheduling Management
7. Project Communication Management
8. Configuration Management

1. Project Planning: It is a set of multiple processes, or we can say that it is a task that is performed before the construction of the product starts.

2. Scope Management: It describes the scope of the project. Scope management is important because it clearly defines what would do and what would not. Scope Management creates the project to contain restricted and quantitative tasks, which may merely be documented and successively avoids price and time overrun.

3. Estimation management: This is not only about cost estimation because whenever we start to develop software, we also figure out their size(line of code), efforts, time as well as cost.

If we talk about the size, then Line of code depends upon the user or software requirement.

If we talk about effort, we should know about the size of the software, because based on the size we can quickly estimate how big a team required to produce the software.

If we talk about time, when size and efforts are estimated, the time required to develop the software can easily be determined.

And if we talk about cost, it includes all the elements such as:

- Size of software
- Quality
- Hardware
- Communication
- Training
- Additional Software and tools
- Skilled manpower

4. Scheduling Management: Scheduling Management in software refers to all the activities to complete in the specified order and within time slotted to each activity. Project managers define multiple tasks and arrange them keeping various factors in mind.

For scheduling, it is compulsory -

- Find out multiple tasks and correlate them.
- Divide time into units.

- Assign the respective number of work-units for every job.
- Calculate the total time from start to finish.
- Break down the project into modules.

5. Project Resource Management: In software Development, all the elements are referred to as resources for the project. It can be a human resource, productive tools, and libraries.

Resource management includes:

- Create a project team and assign responsibilities to every team member
- Developing a resource plan is derived from the project plan.
- Adjustment of resources.

6. Project Risk Management: Risk management consists of all the activities like identification, analyzing and preparing the plan for predictable and unpredictable risk in the project.

Several points show the risks in the project:

- The Experienced team leaves the project, and the new team joins it.
- Changes in requirement.
- Change in technologies and the environment.
- Market competition.

7. Project Communication Management: Communication is an essential factor in the success of the project. It is a bridge between client, organization, team members and as well as other stakeholders of the project such as hardware suppliers.

From planning to closure, communication plays a vital role. In all the phases, communication must be clear and understood. Miscommunication can create a big blunder in the project.

8. Project Configuration Management: Configuration management is about to control the changes in software like requirements, design, and development of the product.

The Primary goal is to increase productivity with fewer errors.

Some Ways of categorizing projects

Stakeholders in software project management
Stakeholders are those with an interest in your project's outcome. They are typically the members of a project team, project managers, executives, project sponsors, customers, and users. Stakeholders are people who will be affected by your project at any point in its life cycle, and their input can directly impact the outcome. It's essential to practice good stakeholder management and continuously communicate to collaborate on the project.

Objectives of Project management
Effective objectives in project management are specific. A specific objective increases the chances of leading to a specific outcome. Therefore objectives shouldn't be vague, such as "to improve customer relations," because they are not measurable. Objectives should show how successful a project has been, for example "to reduce customer complaints by 50%" would be a good objective. The measure can be, in some cases, a simple yes or no answer, for example, "did we reduce the number of customer complaints by 50%?"

1. Performance and Quality

The end result of a project must fit the purpose for which it was intended. At one time, quality was seen as the responsibility of the quality control department. In more recent years the concept of total quality management has come to the fore, with the responsibility for quality shared by all staff from top management downwards.

2. Budget

The project must be completed without exceeding the authorized expenditure. Financial sources are not always inexhaustible and a project might be abandoned altogether if funds run out before completion. If that was to happen, the money and effort invested in the project would be forfeited and written off. In extreme cases the project contractor

could face ruin. There are many projects where there is no direct profit motive, however it is still important to pay proper attention to the cost budgets, and financial management remains essential.

3. Time to Completion

Actual progress has to match or beat planned progress. All significant stages of the project must take place no later than their specified dates, to result in total completion on or before the planned finish date. The timescale objective is extremely important because late completion of a project is not very likely to please the project purchaser or the sponsor.

Conclusion

Project management has developed over the years, and involves various activities before a project is completed. Objectives should be specific so they are measurable, and although there may be one major project objective, there may be minor objectives throughout the project.

Business case, project success and failure, from book

What is management?

Software project management is an art and discipline of planning and supervising software projects. It is a sub-discipline of software project management in which software projects are planned, implemented, monitored and controlled.

It is a procedure of managing, allocating and timing resources to develop computer software that fulfills requirements.

In software Project Management, the client and the developers need to know the length, period and cost of the project.

Prerequisite of software project management?

There are three needs for software project management. These are:

1. Time
2. Cost
3. Quality

Project Manager

A project manager is a character who has the overall responsibility for the planning, design, execution, monitoring, controlling and closure of a project. A project manager represents an essential role in the achievement of the projects.

A project manager is a character who is responsible for giving decisions, both large and small projects. The project manager is used to manage the risk and minimize uncertainty. Every decision the project manager makes must directly profit their project.

Responsibilities of a Project Manager:

1. Managing risks and issues.
2. Create the project team and assign tasks to several team members.
3. Activity planning and sequencing.
4. Monitoring and reporting progress.
5. Modifies the project plan to deal with the situation.

Modern vs Traditional project management techniques

What is traditional project management?

Frequently referred to as the "Waterfall" method, this project management style requires one task to be completed before the next one can begin. Plans are constructed prior to the start of the project date and the sequential phases are mapped out early to provide clarity on the work that needs to be completed to reach the end goal. It's still used by many businesses today and works well for projects with a fixed budget or deadline.

3 advantages of traditional project management are:

1. No surprises
2. Smooth knowledge transfer
3. Sets expectations internally and externally

1. No surprises

This strategy allows little room for flexibility or changes once the project begins. The plan is laid out and agreed upon early on, meaning there is little need to readjust and the chance of scope creep is decreased. Both parties agree on the project timeline and tasks, which provides clarity on the process and assigns responsibilities early on so everyone knows how they are contributing.

2. Smooth knowledge transfer

Extensive documentation is key with the waterfall methodology. With information readily available at any given time, it's easier for new team members to catch up quickly. Additionally, information won't be lost when an employee chooses to move on to another company.

3. Sets expectations internally and externally

A lot of time is spent putting together a detailed project timeline for the client to review. A major benefit is that the client knows early on what to expect and can plan accordingly. There is also very little involvement needed from then after this initial phase, and they have ample time to gather the assets you need for a particular phase. Internally, team members can plan their time better - which comes in handy when working on multiple projects at once.

What is modern project management?

Modern project management leverages automated tools to help plan, execute, and organize work. It's also viewed as the more flexible method of the two. More professional service businesses are taking on short-term or even one-time projects, so businesses are looking for alternative to the traditional project management method. This is where the modern project management method flourishes - in a fast-paced environment that can handle mid-project changes swiftly and efficiently.

3 advantages to modern project management are:

1. Juggle more projects at once
2. Minimize risk and human error
3. Be more flexible with your time

Juggle more projects at once

Instead of having all of your tasks fully outlined at the start of each project (as they are in true, waterfall fashion), use smart technology to create a more flexible method that allows you to start a project without having a complete idea of the end result. This way, you can easily make adjustments to your project as the vision or needs of a client change (without having to go back to the start every time).

Minimize risk and human error

With a smart platform that offers increased visibility over your team and projects, you'll be able to see when a certain task in your project is going over budget and address it before any real damage is done to your bottom line or client relationships.

The right smart platform will also automatically save client data, calculate billable hours and budgets, and update timelines for you automatically - so that you don't have to do any manual busywork at the end of the day when you're exhausted, short on time, and more likely to make mistakes. Just imagine how much more time you'll have to work on projects when you no longer need to add up your timesheets at the end of every month - the beauty of smart automation!

Be more flexible with your time

With a traditional approach to project management, you'd usually be allocated a fixed amount of days or hours to complete a task. But - what happens when you suddenly get assigned a high priority project, or when you have to work from home for personal reasons?

If you're working with smart automated software that logs time and tracks utilization, this won't be an issue. Why? Because you'll be able to see (in real-time) who is available on your team to take on more work and reassign tasks to them. Or better yet, work remotely on your projects with a true cloud-based platform that lets you share files with your team and communicate with your clients from one interactive dashboard and

integrated system- so that you never have to extend a deadline just because you can't make it into the office.

Choosing the right project management style is crucial to your business. Understanding the differences and benefits of both traditional and modern project management is key before determining which is the better fit for you and your team. At Accelo, our all-in-one system helps you manage business operations so you can get back to the work you love. Manage client projects with ease and get the information you need when you need it with our platform. Sign up for a free 14-day trial today.