Parul® University

Software Engineering(303105253)

Computer Science & Engineering

Parul® University

DIGITAL LEARNING CONTENT

Module-2

Software Project Management:
Management Spectrum, People ´Product ´Process-Project, W5HH Principle, Importance of Team Management Planning a Software Project : Scope and Feasibility, Effort Estimation, Schedule and staffing, Quality Planning, Risk management-identification, assessment, control, project monitoring plan, Detailed Scheduling

Software Project Management:

A Software Project is the complete procedure of **software development from requirement gathering to testing and maintenance, carried out according to the execution methodologies,** in a specified period of time to achieve intended software product.

Management:

- The process of dealing with or controlling things or people is called management.
- Management is a set of principles relating to the functions of **planning, organizing, directing and controlling a process or job** to complete successfully within the time period.

Software Project Management:

Software project management is an art and discipline of planning and supervising software projects.
There are three needs for software project management.
These are:

1. Time 2. Cost 3. Quality

Management Spectrum: People ‘Product ‘Process(3 Ps)

- **P**eople, **P**roduct & **P**rocess provide principles for successful engineering leadership.
- **People** are at the heart of solving problems. **Software engineers, testers, program/project managers, product managers, researchers, technical writers, support engineers**, etc make an engineering team.
- **Product** is any **physical device or service** that gets the job done for a customer.

Product

- Why are we doing this project? What is the problem we are trying to solve? Are we doing this to save cost, grow revenue, improve customer satisfaction, meet regulatory requirements, etc.?
- What should the final product look like by the end of the project? What are the business and technical requirements and needs? What functionality do the users of this product need?

Product

- Delivering a service
- Creating a product
- Making a sales presentation
- Responding to emergencies
- Answering the phone
- Providing information to customers
- Keeping track of supplies on hand

- This addresses how we **plan** to achieve the project's outcome and deliver the final product, including answering the following questions:
- What delivery strategy best suits this project and environment (internal organization, external stakeholders)?
- Are vital stakeholders risk-averse or open to new approaches and technologies?
- Are they open to Agile practices, in which details are elaborated during the project, or are they more comfortable with a plan-driven approach, in which details are defined upfront?
- Is a hybrid model suitable for this project and environment?
- What is the project ***governance*** model?
- How are vital executives and business sponsors engaged and supportive of the project?
- How will decisions be made?

W5HH Principle

- The W5HH principle in software management exists to **help project managers guide objectives, timelines, responsibilities, management styles, and resources.**

W5HH questions :

Why the system is going to be developed?
For the purpose of software work, all stakeholders must assess the validity of the system product/project. Here Barry questions that whether the project's purpose will justify the cost, time spent on it by people?
What is activities are needed to be done in this?
In this Barry questions what task is needed to be done for a project currently.
When is this done?
Project Scheduling is done by the team after recognizing when project tasks will be started and when they enter into the final stage to reach the goal.
Who are the reasons for these activities in this project?
Every member who is part of the software team is responsible for this. And their roles are defined.
Where are these authoritatively located?
Not only do software practitioners have roles in this but also users, customers, stakeholders also have roles and responsibilities organizationally.
How is the **job technically and managerially finished?**
All technical strategies, management rules of the project are defined after knowing the scope of the project which is being built.
How much part of each resource is required?

The **W5HH principle** outlines a series of questions that can help project managers more efficiently manage software projects. Each letter in W5HH stands for a question in the series of questions to help a project manager lead. (Notice there are five ”W” questions and two ”H” questions).

Why?	Why is the system being developed?	This focuses a team on the business reasons for developing the software.
What?	What will be done?	This is the guiding principle in determining the tasks that need to be completed.
When?	When will it be completed?	This includes important milestones and the timeline for the project.
Who?	Who is responsible for each function?	This is where you determine which team member takes on which responsibilities. You may also identify external stakeholders with a claim in the project.
Where?	Where are they organizationally located?	This step gives you time to determine what other stakeholders have a role in the project and where they are found.
How?	How will the job be done technically and managerially?	In this step, a strategy for developing the software and managing the project is concluded upon.
How Much?	How much of each resource is needed?	The goal of this step is to figure out the number of resources necessary to complete the project.

Human resources Financial resources
Space resources

Importance of Team Management Planning a Software Project

Team management is a term referring to a variety of activities that bring a team together to carry them out. This means completing projects or running day-to-day tasks.

1. Effective team building

2. Productivity booster

The importance of team management also is evident through the **increase in employee performance and organizational productivity**.

3. Promotes learning

Among the benefits of teamwork for an organization is the opportunity for everyone to **learn and explore new perspectives**. For example, new employees will surely gain knowledge from more experienced workers in the long run.

4. Employee satisfaction

One equally significant point towards understanding the importance of team management is **increased employee satisfaction**. When individuals come together to form a strong team, they also learn to rely on each other and thus, bond.

5. Increased performance

Inevitably, we reach the conclusion that **teamwork is a key driver for increased performance**. An organization has to **meet targets on time** and without teamwork, this is extremely difficult to achieve. Individuals alone, cannot easily make decisions single-handedly or carry out tasks. It might seem counter-intuitive, but individuals do **thrive through a team**.

Risk management- identification,

- Risk identification is the process of documenting any risks that could keep an organization or program from reaching its objective.
- It's the first step in the risk management process, which is designed to help companies understand and plan for potential risks.
- Examples of risks include **theft, business downturns, accidents, lawsuits or data breaches.**

This phase aims to dig deeper into the risks you identified in the first phases. Four tools can help you do that work:

Brainstorming
Interviewing
Document reviews
Assumptions analysis

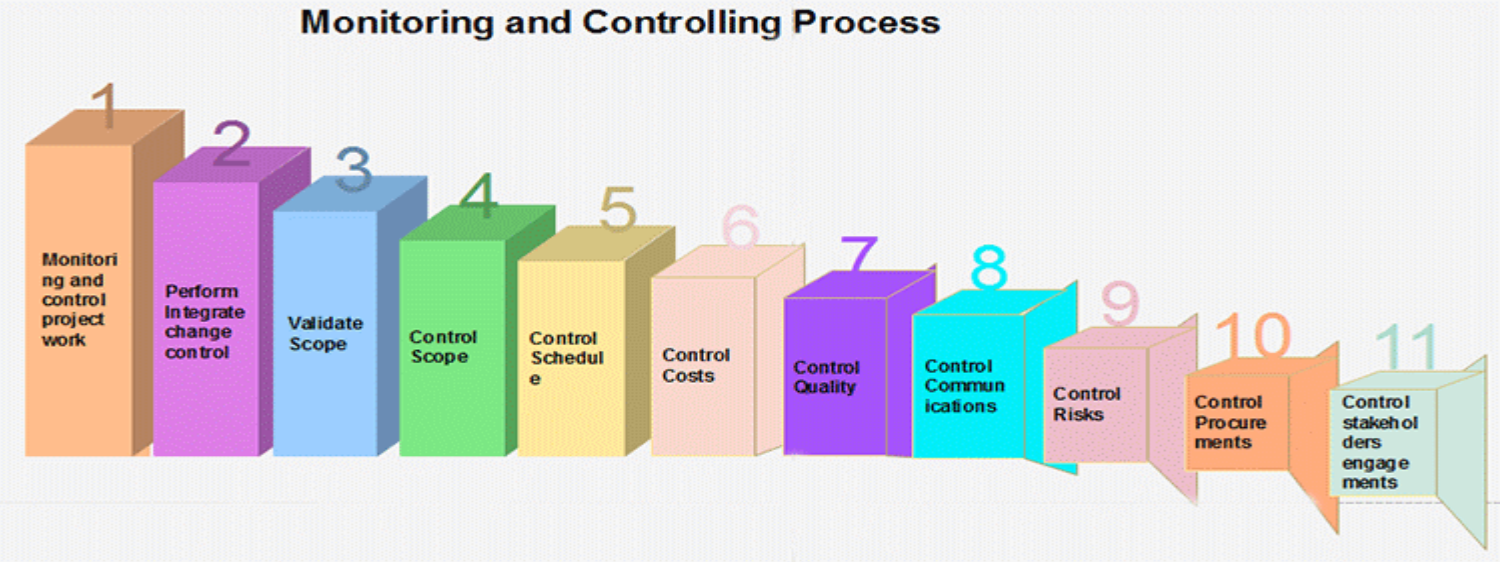
Project Risk assessment, control

There are many different types of risks which affects the software project:

1. Technology risks
2. Tools risks
3. Estimation risks
4. People risks
5. Requirement risks
6. Organizational risks

project monitoring plan

It also identifies any areas where changes to the project management method are required and initiates the required changes.



2. Key Performance Indicators (KPIs)

Establish metrics to measure project success, such as:

- Schedule adherence (e.g., milestone completion rates).
- Budget utilization.
- Defect density or quality metrics.
- Resource utilization.

3. Monitoring Schedule

Define the frequency and intervals of monitoring activities:

- Daily or weekly stand-ups.
- Sprint reviews in agile projects.
- Monthly progress reports.

4. Tools and Techniques

Specify tools and platforms used for monitoring:

- **Project Management Tools**: JIRA, Trello, Microsoft Project, or Asana.
- **Version Control Systems**: GitHub, GitLab, Bitbucket.
- **Testing and Quality Assurance**: Selenium, JUnit, TestNG.

Techniques may include:

- Earned Value Analysis (EVA).
- Performance testing.
- Risk assessments.

5. Roles and Responsibilities

Assign who is responsible for monitoring:

- **Project Manager**: Oversees overall project performance.
- **Team Leads**: Monitor individual team progress.
- **Quality Assurance Team**: Tracks adherence to quality standards.
- **Stakeholders**: Review periodic updates.

6. Risk Management

Define how risks will be identified, monitored, and mitigated:

- Use a risk register for tracking.
- Schedule risk review meetings.

7. Communication Plan

Outline how monitoring results will be shared:

- Daily/weekly reports.
- Dashboards for real-time tracking.
- Status meetings with stakeholders.

8. Change Management

Plan for handling deviations from the baseline:

- Processes for updating project plans.
- Reassessing priorities or reallocating resources.

9. Data Collection and Reporting

Methods for gathering data (e.g., automated logging, manual entry).

Templates or formats for presenting progress reports.

10. Continuous Improvement

Periodically review the monitoring plan for effectiveness.

Adjust metrics, tools, or methods as needed.

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