8 Project Management

Project management is the key factor in any software development projects. Project management is the discipline of planning, organizing, motivating, and controlling resources to achieve specific goals.

In Figure 8-1 we see the well-known project triangle.

Figure 8-1: Project Triangle

Here are some Key factors for successful project management:

- Proper Planning
- Kick-off and Brainstorming
- Planning and Estimation
- Project Tracking
- Communication and Collaboration
- Meetings
- Using proper Tools, such as e.g., TFS

8.1 Project Planning

Software development involves lots of activities that need to be planned and synchronized. To do that we need good tools for these activities. The Gantt chart is probably the most used tool. In addition, we need to have different meetings to plan and coordinate the different activities.

Agile Development needs also some kind of Project Management and Planning, which we will discuss in more detail later in this chapter.

PART 1: PROJECT PLANNING
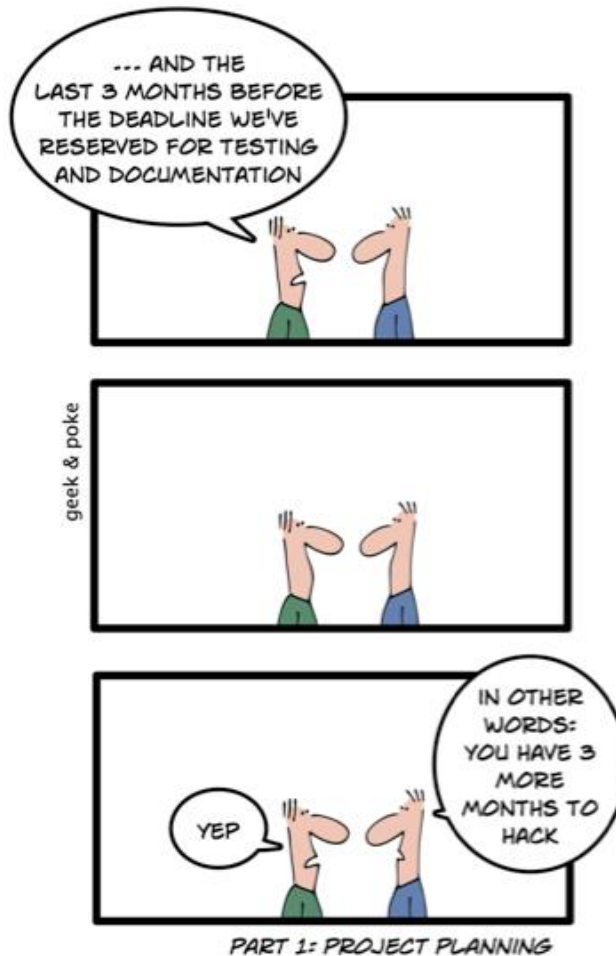
8.2 Kick-off/Brainstorming

A Project should always start with a Kick-off meeting where a brainstorming session is important of that meeting.

During the brainstorming, you should:

- Involve all in the group

- Discuss what you are going to do in the project

- How are you going to solve the project?

- etc.

In addition to get good ideas for solving the project, you should learn from previous projects.

Examples: Who are going to solve the different parts, what kind of Frameworks are you going to use, what kind of development tools shall you use, etc.
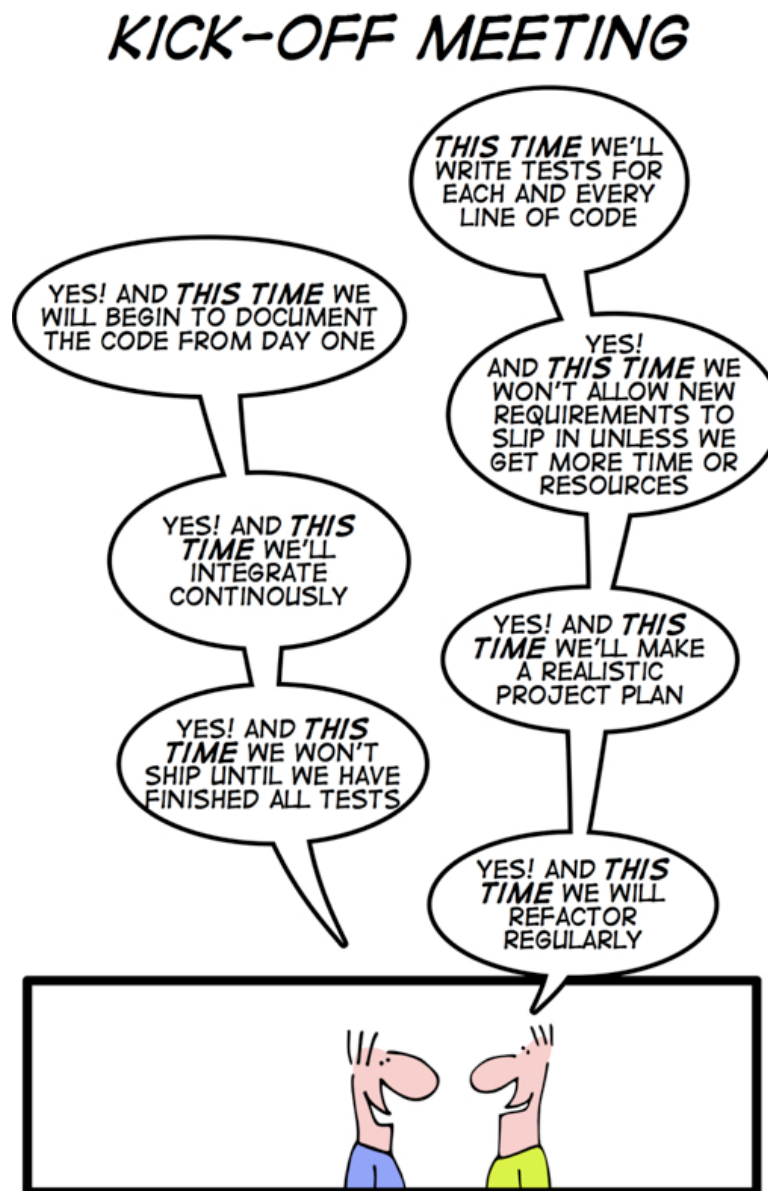
8.3 Software Development Plan (SDP)

Communication is the key to success! Below we list some examples how to avoid Communication Problems [12]:

- Listen to all with concentration
- Don't pre-judge
- Give all team members a turn
- See the value in every idea
- Don't make assumptions
- Ask questions to clarify
- When in doubt, communicate

A good idea is to create a Software Development Plan. The Software Development Plan gives an overview of all the communication within the project or within the team, i.e., what kind of communication, how the communication should be done, etc.

Examples of Communication:

- Meetings: The Team will meet every Monday from …
- Standards: Which Word processor, Templates, etc.
- E-mail… or other communication platforms, …
- Collaboration: How will you communicate? Work together on Tuesdays, …
- Other Tools: Microsoft Project, …
- etc.

The Software Development Plan typically includes the following sections:

1. **Introduction**: This briefly describes the objectives of the project and set out the constraints (e.g., budget, time, etc.) that affects the management of the project

2. **Project Organization**: This section describes how the development team is organized, the people involved and their roles in the team.

3. **Risk Analysis**

4. **Hardware and Software Resource Requirements**

5. **Work Breakdown** (WBS, Work Breakdown Structure): Break down the project in into activities and identifies milestones

6. **Project Schedule**: Shows dependencies between activities, the estimated time required to reach each milestone, allocation of people to activities. (5) and (6) is typically done in a Gantt Chart (created in e.g. Microsoft Project)

7. **Monitoring and Reporting Mechanisms**: Definition of the Management Report that should be produced, when these should be produced, etc.

Other words for the Software Development Plan may be "Communication Plan" or "Project Plan".

A Software Development Plan (SDP) is all about the Internal Communication within the Development Team and how it Communicates with rest of the Organization, the Customers, etc.

8.3.1   Gantt Chart

One of the most used tool for project planning is the Gantt chart. The Gantt chart gives an overview of tasks, subtasks, milestones, resources, etc. in a project.

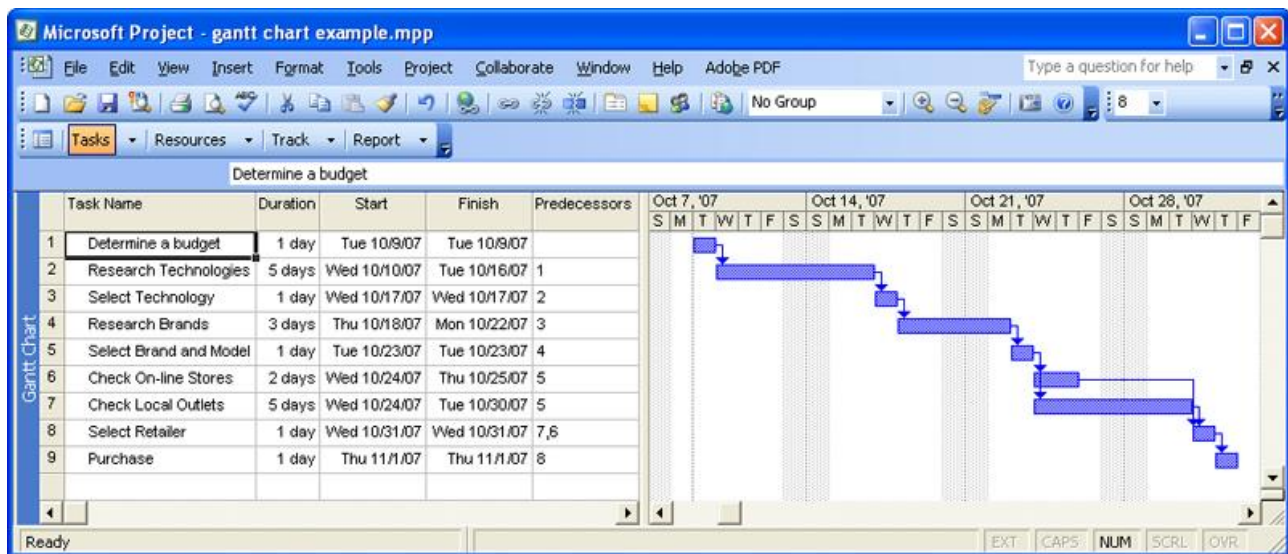In Figure 8-2 we se a Gant Chart example created with Microsoft Project.

Figure 8-2: Gant Chart Example – Microsoft Project

It is important that the Project Management is an active part of your software project. The Gantt Chart should be used through the whole project; it is not something you create in the beginning of the project and put in a drawer.

In Figure 8-3 we see the recommended way of working with the different project activities.

How to work in the project period
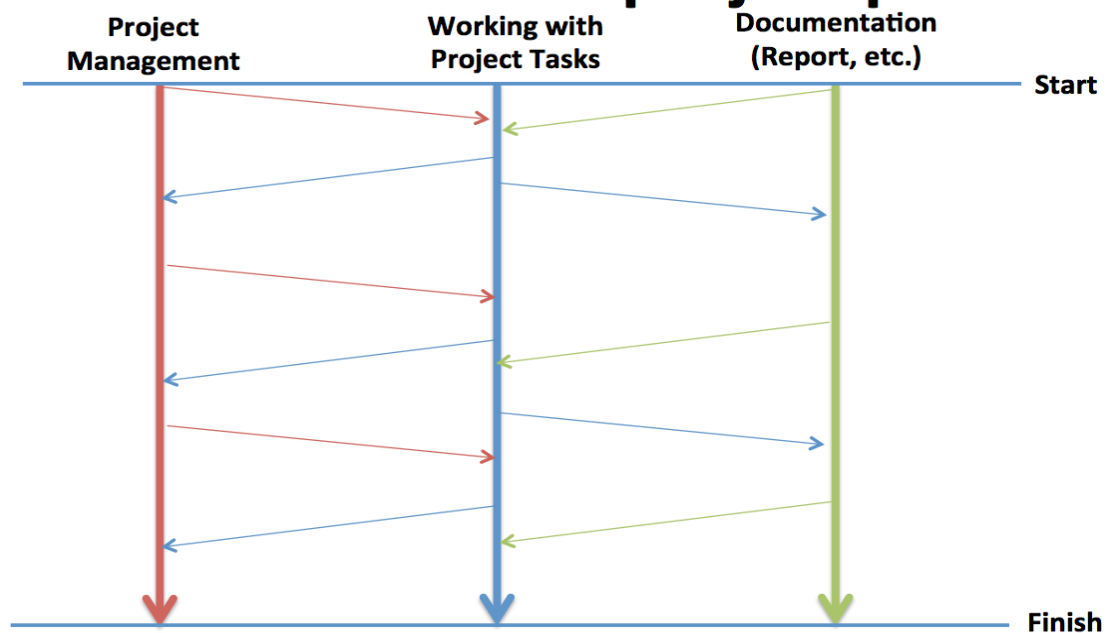
Important: Work with these activities in parallel!!!

Figure 8-3: Project Work

Always create a Project Plan!

8.4 Meetings

It is necessary to have meetings when planning and creating software, but these meetings should not be misused.

Below we list some typical meeting needed during the software development project:

- Kickoff and Planning Meetings
- Project Meetings
- Daily Scrum Meetings
- Review Meetings
- Meetings for Planning next Sprint/Iteration

For meetings in general we have the following guidelines:

- The meeting agenda should be clear.
- All meetings should follow the basic structure that is described for that meeting.
- Meetings should start on time, even if some team members are late.
- Meetings should finish on time.
- Each team member should come to the meeting prepared.

Always be prepared before the meetings (otherwise you don't need to be there)!

8.4.1   Meeting Agenda

A typical meeting agenda could be as follows:

- Project Plan, Gantt Chart (Project Manager)

- Work Items, Overview and Status (Test Manager)

- Demonstration of Applications/Coding (Individual)

- Short Status for each member (Individual)

    o What have you done so far?

    o What shall be the focus the next weeks?

    o Any Technical Challenges/Problems/Issues? (It is very important to get an overview of the challenges in the project, or else the whole project will be at risk if you don't tell about them!)

    o Other matters

- The meeting should last no longer than 60 minutes.

When you are finished with the meeting, write a short Minutes of Meeting as soon as possible.

8.4.2   Minutes of Meeting

Write a "Minutes of Meeting" (send on e-mail to team members and supervisor the same day!). The purpose of this is twofold:

- Important decisions or agreements are recorded, so they are not forgotten!
- The second purpose is to record unsolved issues that require follow up action, so-called action items. Each action item is assigned to one (preferred) or more team members with a specific deadline for completion.

Always create a Minutes of Meeting!

The Minutes of Meetings should include a table like this:

Task	Responsible	Deadline
…	…	…
…	…	…

In this way, we can easily get an overview of the tasks agreed in the meeting, which is responsible for the tasks, and a specific deadline for each task. This task list should be followed up in the next meeting.

8.5 Agile Project Planning and Tracking

Successful projects often have the following characteristics:

- The needs of the customers drive the project.
- The team creates a high-level plan for delivering the project.
- The team develops the product over several iterations and refines the high-level plan over time.
- The team has effective tools for adapting to changes that occur.

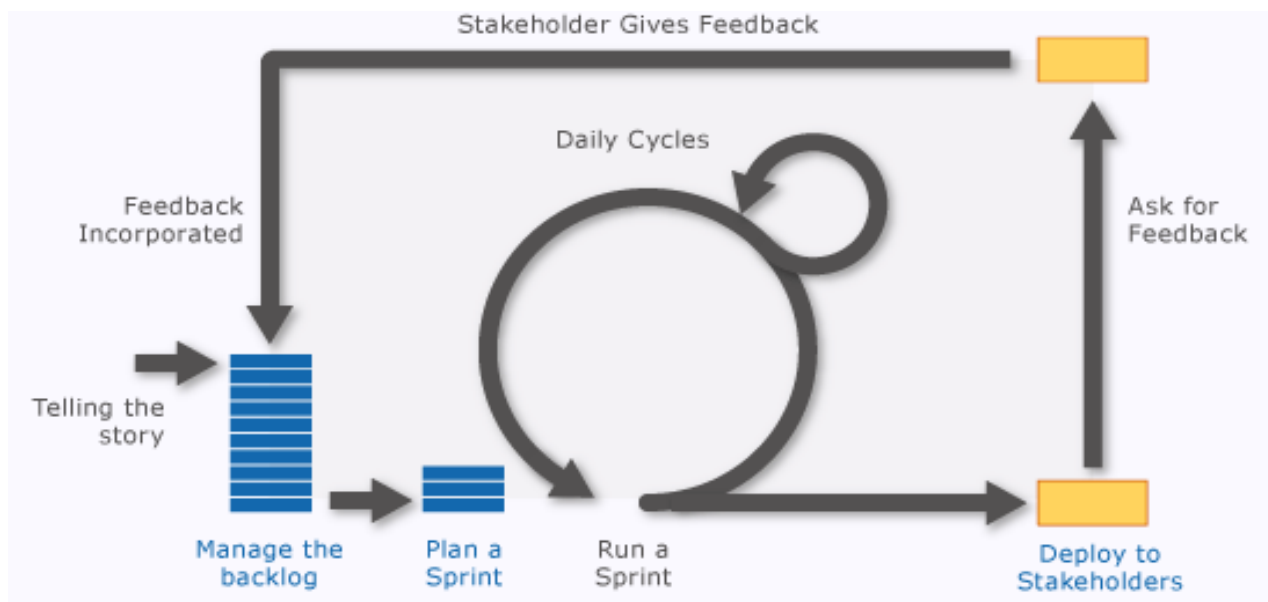Figure 8-4 shows the steps involved in Agile Project Planning and Tracking.

Figure 8-4: Agile Project Planning and Tracking

In Agile Project Planning and Tracking, everything is broken down to so-called iterations, as shown in Figure 8-5.