

23

Managing large projects



Technique sheet

Problem-based learning resources

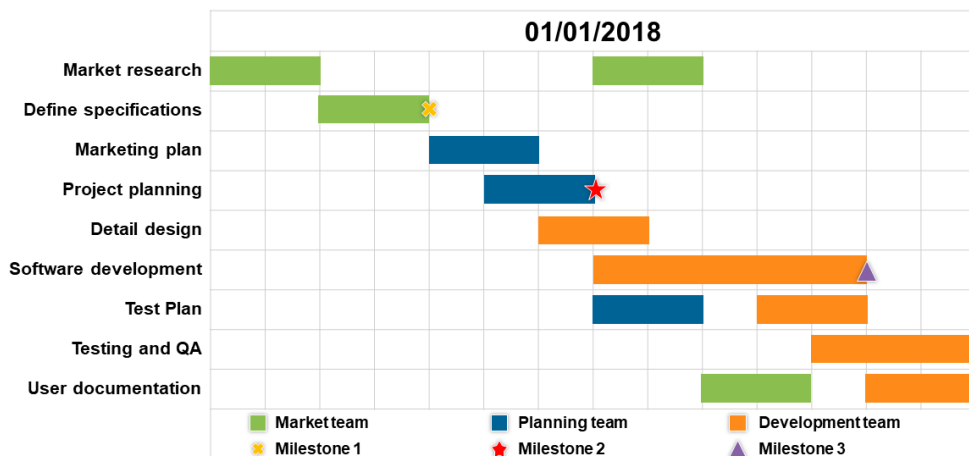
Introduction

Managing a complex project like building a factory to produce batteries for solar cars or maintaining the safety of the London underground is not easy! However, a few rules can make the difference between a project finished to specification, on time and budget and a project that never delivers or delivers late.

What do you need to do to complete this project?

Even the simplest project (e.g. making a cup of tea) can be broken down into simpler tasks (e.g. filling the kettle, getting a mug, getting the teabag etc.). Large projects have many more tasks and each of these could be broken down into simpler ones. When planning a project identify the final product and then start to list the tasks that need to be done

Marketing Activities Gantt Chart PPT Design



to produce that product. Think of it as a shopping list of jobs. The tasks should be small enough to be clearly recognizable, but large enough to be worth bothering with – so ‘making sure tea is available for 20 at 11:00am’ is probably OK but ‘boiling the kettle’ is probably too detailed!

- Make sure you are clear about what the project has to produce and then list the tasks that must be completed to get that done.

How long will each task take?

The next job is to look at your list of tasks and decide how long you need to complete each one. It's important to be honest at this point – if you think replacing the boiler will take 12 hours then put that down. Remember you may need to wait for some tasks to complete even after your work is done (e.g. waiting for paint to dry, adhesives in joints to harden, software to propagate through the system). After you have your list of tasks and the time for each you can calculate the maximum project time by adding them all up. This is how long it would take for you to complete the project doing one thing after another.

- Make sure you give realistic times for all of the tasks – and include any ‘waiting time’ needed. This will give you the maximum time the project should take.

What order do the tasks need to be completed in?

Some tasks need to be done first (e.g. making sure all power is disconnected before starting servicing) and some must be completed before you can move on (e.g. installing the power supply before fitting the sockets and connectors). The links between jobs are called dependencies and if Task B cannot be started until Task A is completed then Task B is dependent on Task A. These dependencies can be because of the nature of the task (e.g. you can't put the roof on the structure until the walls are built) or component delivery issues (e.g. you must have the transformer onsite before you can install it) or staffing (if you are working on Task A you cannot do Task B at the same time). The sequence of tasks to be completed, including any dependencies, is called the project timeline.

- Make sure you know what order the tasks must be completed in and identify any dependencies in the project timeline.

How can you save some time?

It may be possible to reduce the time needed by doing some jobs in the gaps created while you wait for other jobs to complete (e.g. most people

will put the tea bag in the mug and fetch milk and sugar while they wait for the kettle to boil). Could you have two teams working in parallel on different parts of the project so that all the components were ready at the same time for the final assembly? Are there any times when people are waiting around for something to happen? Could they be doing something useful on another task at this point? You may need to split your project up into different tracks and let each one progress at different rates.

- Make sure you use all the time available efficiently. Look for opportunities to get ahead by completing tasks early. This can be helpful when you have multiple people working on a project.

What is going to go wrong?

Make sure you update your project plan regularly and expect to change things when tasks are finished late, perhaps due to accidents or illness, or even if they are finished early. A quick look at your plan can help to minimize, problems and take advantages of opportunities that arise (e.g. if the work is delayed because a delivery is late the team might be able to move on to another task that you were expecting to do later – provided this task does not need the equipment or component that is delayed in customs).

- Make sure you keep your plan updated and use it to find ways to use any spare time created – by early finishes or delays.

How can I communicate the project plan and progress?

There are various software tools to display the mix of tasks and times in your project timeline. A popular approach is to produce a Gantt chart which shows each task as a bar that corresponds to the time the task is due to take. The start of the bar depends on any dependencies it has and when staff will be available. Sometimes arrows show the links between the tasks or markers indicate milestones. Other types of charts can also be useful. A PERT chart is similar to a Gantt one but does not use bars to show the tasks. For simpler projects a piece of paper or a diagram on a whiteboard can do the job – but make sure no-one loses the paper or cleans the whiteboard!

- Make sure you have a system to record your project plans and progress so that people working on it can see where they are and what comes next. Software packages can be helpful, but pen and paper will do for simpler projects.



Check yourself

You should be able to answer these questions easily after reading this sheet.

1. What does it mean if Task B is dependant on Task A?
2. How could you save time in a complex project with many different task tracks?
3. What should you do if an unexpected event causes a problem with the timeline?



Taking it further

These activities will deepen your understanding of this topic.

1. The building where you work has stairs leading to all floors but no lift. The building development plan includes the installation of a lift to improve access. List the tasks that would have to be completed to install the lift. Estimate the time required and produce a timeline and a Gantt chart to show the overall project.
2. Review some of the software packages available for Project planning and creating Gantt charts. Pick a package that suits your needs and create a Gantt chart for an existing project.
3. You have ordered a sheet of metal to create a box for a particular component that needs protection from water. The metal sheet has been delayed but you have a piece in the store cupboard that is needed for a later part of the project but is larger than the piece you need now and would involve some waste. Draw up the benefits and drawbacks of using this piece now for the project progress and decide what to do giving the reasons for your decision.