



The lack of standardization of terminology in various industries is the cause of much confusion. Although different entities may use different terms, for this book there will have to be a clear distinction between some important, related terms, in order to avoid misunderstandings. The definition of terms here may not agree with some other definitions used, but the authors have endeavoured to keep definitions and meanings as close to industry accepted norms as possible.

One such example are the two terms "planning" and "scheduling", and because they are often misinterpreted, and they are also instrumental in the science of project management and project scheduling, specific mention is made to them here – rather than just providing definitions in chapter 2.

3.1 PLANNING

Planning is universal, and not only limited to project management. It is a way of trying to predict or control future outcomes involving actions, time and money (see the definition of planning in chapter 1 – Definitions). Because planning tries to predict and/or control outcomes, it guides critical decisions involving capital expenditure of sometimes large amounts of money. It's no wonder then that some project owners spend substantial amounts of money on consultants to ensure that plans are accurate. On the contrary, there are project owners who do not plan properly in spite of putting large investments in jeopardy.

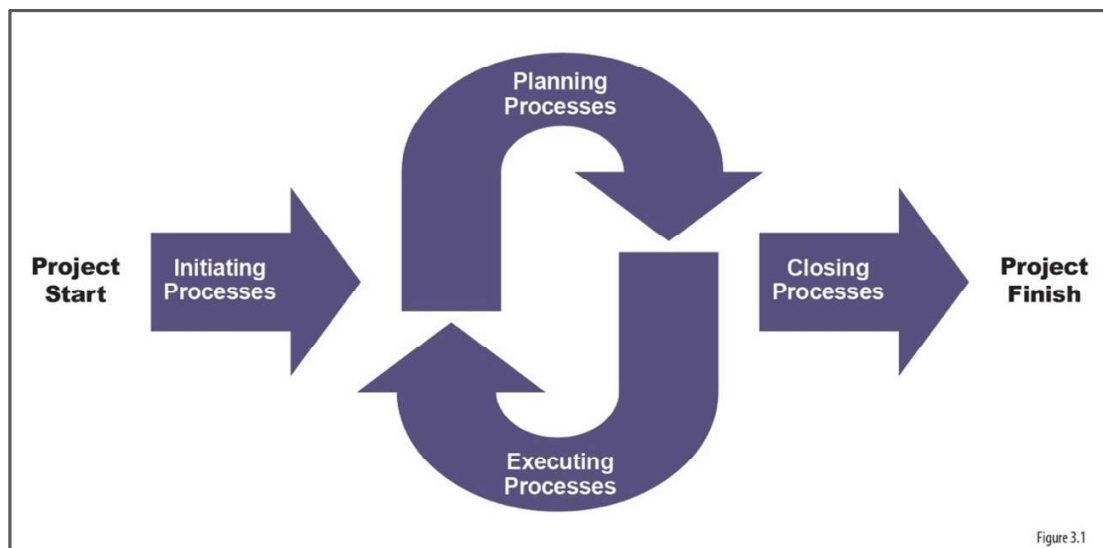
Good planning is the key to successful project management. Project planning is done by a project planning team, and the composition of such planning teams can vary considerably. A planning team may include many or all of the following:

- Project Manager
- Project owner
- Project sponsor

3. Planning vs Scheduling

- Project planner
- Procurement officials
- HR officials
- One or more site managers
- Design engineer/s
- Consultants (e.g. technical, environmental, safety)
- Client management
- Information technology representatives
- Production representatives
- Logistics officers
- Shipping agents
- Suppliers
- Various contractors
- Other stakeholders

Figure 3.1, below, represents the project life cycle, and aptly so the project planning process occupies the same space, and hence importance, to the project execution phase. Planning processes precede execution processes, while they also play an important role during project execution to allow for varying conditions, changing risks and practical execution variables.



3. Planning vs Scheduling

In terms of effort and timelines, the graph depicted in figure 3.2, below, gives a good indication of the timing and related effort which should be allocated to project planning in most projects. The graph clearly shows the planning process overlapping the execution process.

The PMBOK (Project management body of knowledge) is an internationally accepted guide for professional project management, and it defines important steps in the project planning process:

- Planning scope management
- Planning schedule management
- Planning cost management
- Planning quality management
- Planning human resources management
- Planning communications management
- Planning risk management
- Planning procurement management
- Planning stakeholder management

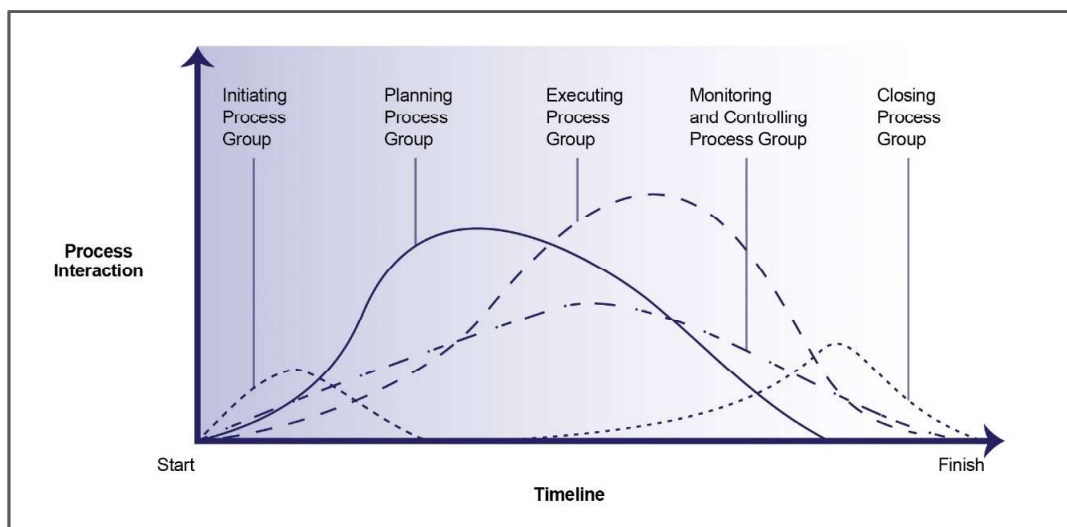


Figure 3.2

Each of these items entails gathering important information, analysing this information, setting procedures, breaking these items down to understandable and manageable actions, drafting strategies, resourcing the actions, defining constraints, and determining interrelationships.

Typical outputs from this project planning process are a project charter document, a project execution plan (PEP), a **project schedule**, a basis of schedule document, a procurement operating plan (POP), a bill of quantities, a cost plan, and a host of other documentation normally specified by the client company or Project Owner. Of these, the project schedule is

the single most important item for project planners/schedulers, although they also provide input for various other documents and processes.

The planning process is not as arbitrary as one might think. A planning team requires a good mix of skill, expertise and commitment to give any project a good chance of success, and in spite of all the time and effort put in by the project planning team, **plans do often go wrong**. After working through this book, the reader should have a good idea what the role of the project schedule in the planning process is, and how to manage the schedule should things go wrong.

3.2 SCHEDULING

Max Wideman defines scheduling as: *“The process of converting a general or outline plan for a project into a time-based schedule based on available resources and time constraints.”* The deliverable of the scheduling process is a project schedule – which may be in one of several different formats. Even a list of activities written on a piece of paper with relevant execution times can strictly be seen as a schedule, although the formal project scheduling process usually culminates in a software-based schedule which contains a Work Breakdown Structure (see chapter 7), activity related information, and a view which can display activity timelines.

In addition, the software normally has a host of features which enable a project planner to analyse various permutations, do optimization and create reports from the schedule. Not only is a schedule a powerful **planning tool**, it is also an effective **work control tool** (or “road map”) for the complete project.

Scheduling as a planning tool

Scheduling is part of and one of the pillars which support the project planning process, and as such it can provide important functionality and information to support other critical planning processes. Later chapters will provide techniques and tools to utilize a project schedule for planning various project functions.

Various scenarios can be simulated with the project schedule, and the strategies can thus be optimized to ensure success. The process is iterative, refining it with each iteration until the project planning team is happy with the resulting timelines, resource utilization, cost, and other factors.

The scheduling process is very effective for:

- Planning resources.
- Forecasting start and completion dates of deliverables and milestones.
- Displaying and controlling the sequence of events.
- Controlling contractors and subcontractors.
- Planning procurement processes and resulting timeous delivery.
- Managing the critical path.

3. Planning vs Scheduling

- Managing risk.
- Forecasting and managing cost.
- Creating various project management reports.

It is clear from the above that the project scheduling function is a particularly important part of the project planning process, and therefore time and care should be taken to ensure accurate schedules. This book contains the key principles to achieve just that.

Scheduling as a work control tool

Since a project schedule provides the ability to plan activity timelines, which is driven by dependencies, resources and strategy, it can and should be used to control project work. If all project tasks are executed in the time frames stated in the schedule (as planned), the project will finish on time. Naturally it is important then that the complete scope of the project is included in the schedule and that the work is done to the required quality.

The data manipulation tools of the project database in the software can provide various reports and tools to control work and measure progress. Below are a few examples:

- Create task lists per resource for a fixed period into the future.
- Create task lists per contractor for a fixed period into the future.
- Create reports of tasks behind schedule in various formats.
- Create reports of tasks ahead of schedule.
- Create reports to show the amount of slippage of selected tasks.
- Show % complete values based on time, work units or cost.
- Show the % complete values for work allocated to a specific resource.
- Show the % complete values for work allocated to a specific contractor.
- Show the % complete values for work in a certain area.
- To do critical path crashing and/or fast tracking.

Planner or scheduler?

There are individuals in the industry who prefer the term Project Planner, and others prefer Project Scheduler. Some people argue that there are two distinct levels of competency – a lower level named a Project Scheduler, and a higher level named a Project Planner. Another school of thought ignores the scheduler name and defines levels of project planner: Junior Planner, Planner, Senior Planner and Master Planner. These arguments are however all academic. The function and its interaction with the rest of the project planning team remains the same. The only distinction should be that the higher levels might do more management and auditing than scheduling *per se*.

For the purposes of this training manual, we will use the terminology **Project Planner** – simply because it is the most widely used term in the South African industry, where this book originated from. The Project Planner may be at a junior or senior level – but that does not concern us for now.

3. Planning vs Scheduling

The software (or manually) generated plan for the project will be called the **Project Schedule**. Be aware that other terms are used in industry, of which the most common are Project Plan or Project Program, but we will stick to the more descriptive name – **Project Schedule**.

In the broader function of project planning, the **scheduling function** is performed by the Project Planner – with input from the project planning team. Creating the project schedule is a time-consuming process and is typically created during a number of project planning work sessions. On finalisation, it is signed off by the project planning team. Thereafter, the Project Planner will take ownership of the schedule, update it regularly, and then create various important management reports from it.

On larger projects there may be a team of project planners who each have a schedule or part of a schedule they need to manage, and the data is fed into a project master schedule, which shows the overall picture for the total project.

The Project Planner must have an in-depth knowledge of project planning/scheduling principles (the subject of this book) and must know the project scheduling software package well. In addition, he/she must have the ability to use the software functionality to represent the real-life situation on site, as accurately as possible in the schedule. The project start date and activity interdependencies are defined, resulting in specific timelines being calculated for each activity.

The scheduling software will not and cannot schedule the project and deliver answers and reports. This is the work of a skilled project planner. If the project planner has insufficient skill, the schedule and reports will be inaccurate. The old cliché of "garbage in, garbage out", is seldom more relevant than with project scheduling.