**From:** Mandla Mthombeni [mailto:pmtombeni@gmail.com]   
**Sent:** Tuesday, 07 January 2020 8:43 AM  
**To:** Mtombeni, Mandla <Mandla.Mtombeni@wesbank.co.za>  
**Subject:** Fwd: FW: DEVELOP PROJECT SCHEDULE - GANTT CHART - [External Email]

---------- Forwarded message ---------  
From: **Mohale, Moloko (MC)** <[Moloko.Mohale@sasol.com](mailto:Moloko.Mohale@sasol.com)>  
Date: Fri, May 5, 2017 at 07:45  
Subject: FW: DEVELOP PROJECT SCHEDULE - GANTT CHART  
To: Anesh <[murugaa@telkom.co.za](mailto:murugaa@telkom.co.za)>, Atish <[atish.harinath@gmail.com](mailto:atish.harinath@gmail.com)>, Bethuel <[bethuel01@gmail.com](mailto:bethuel01@gmail.com)>, Bothwell <[11601151@myregent.ac.za](mailto:11601151@myregent.ac.za)>, Bruno <[bruno.objane@gmail.com](mailto:bruno.objane@gmail.com)>, Busi <[busisiwe.malunga@rmb.co.za](mailto:busisiwe.malunga@rmb.co.za)>, Carla ([carla@stratics.co.za](mailto:carla@stratics.co.za)) <[carla@stratics.co.za](mailto:carla@stratics.co.za)>, Carol <[caroline.makhele@joyglobal.com](mailto:caroline.makhele@joyglobal.com)>, Cassim <[cassim.rabia@gmail.com](mailto:cassim.rabia@gmail.com)>, Chido <[chikwatac@yahoo.co.uk](mailto:chikwatac@yahoo.co.uk)>, Christine <[sharon.shilenge@mailone.co.za](mailto:sharon.shilenge@mailone.co.za)>, David <[davume@gmail.com](mailto:davume@gmail.com)>, Devi <[devi.farrel@hotmail.co.za](mailto:devi.farrel@hotmail.co.za)>, Isabella 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Folks,

Please find below for your information

Courtesy of “the LAW”

Regards,

M.

**From:** Marieta Grundling (M) [mailto:[GrundliM@telkom.co.za](mailto:GrundliM@telkom.co.za)]

Hi,

Below some  info on the Gantt Chart.

Develop Project Schedule (Gantt Chart is one of the techniques)

Look at the RBS study guide page 115

Look at the RBS study guide page 69

The lecturer mentioned that we need to:

         Know how to draft a basic Gantt Chart (activity, start date, end date, predecessor, activity owner, activity duration)

         What are the advantages, disadvantages and shortcomings of using a Gantt

         Know the theory of project schedules and the advantages and disadvantages of each (Networks, PERT, CPM/ADM) – my guess would be PERT

You might have a reasonable size project in your organisation. The activity of the project might occur over several months and have several tasks. Typically, some [tasks are dependent upon another](https://project-management.com/understanding-task-dependency-types-in-project-management/). That is, some of the tasks cannot start until other tasks are finished. One technique for dealing with the management of a project is a Gantt chart. This provides you with a pictorial method of managing your project.

These charts can be made quite sophisticated and complex. For small businesses, you want to avoid this. The purpose of having the chart is to try and make things clearer and simpler for the people that are involved in the project. Too much complexity produces information overload and people will feel overwhelmed.

A Gantt chart is constructed by firstly listing all the things that you can think of that need to be done in a project. This could be quite a long list. Then, you should group those tasks under specific headings. For a Gantt chart that is to be used for people to look at regularly so that they can get an idea of what is happening in a project, the chart should be just kept to these high-level headings. A more detailed version can be kept by the person running the project.

Advantages of Gantt Charts

  **It creates a picture of complexity.** I am quite a fan of diagrams and charts. We think in pictures. Therefore, if we can see complex ideas as a picture, this will help our understanding.

  **It organises your thoughts.** I am also a big fan of the concept of dividing and conquering. A big problem is conquered by dividing it into component parts. A Gantt chart will force you to do this.

  **It demonstrates that you know what you’re doing.** When you produce a nicely presented Gantt chart with high level tasks properly organized and resources allocated to those tasks, it speaks volumes about whether you are on top of the needs of the project and whether the project will be successful.

  **It (should) help you to set realistic time frames.** The bars on the chart indicate in which period a particular task or set of tasks will be completed. This can help you to get things in perspective properly. And when you do this, make sure that you think about events in your organisation that have nothing to do with this project that might consume resources and time.

  **It can be highly visible.** It can be useful to place the chart, or a large version of it, where everyone can see it. This helps to remind people of the objectives and when certain things are going to happen. It is useful if everyone in your enterprise can have a basic level of understanding of what is happening with the project even if they may not be directly involved with it.

Disadvantages of Gantt Charts

  **They can become extraordinarily complex.** Except for the most simple projects, there will be large numbers of tasks undertaken and resources employed to complete the project. There are software applications that can manage all this complexity (e.g., [Mavenlink](https://project-management.com/pmcom/goto/goto.aspx?ad=947917), [Wrike](https://project-management.com/pmcom/goto/goto.aspx?ad=948469), [Smartsheet](https://project-management.com/pmcom/goto/goto.aspx?ad=948233), [AceProject](https://project-management.com/pmcom/goto/goto.aspx?ad=945142)). However, when the project gets to this level, it must be managed by a small number of people (perhaps one) who manages all of the details. Sometimes this does not work so well in a business that is not used to this type of management. Big businesses will frequently employ one or more project managers who are very skilled in this. For a range of reasons, this may not work so well in a smaller enterprise.

  **The size of the bar does not indicate the amount of work.** Each bar on the chart indicates the time period over which a particular set of tasks will be completed. However, by looking at the bar for a particular set of tasks, you cannot tell what level of resources are required to achieve those tasks. So, a short bar might take 500 man hours while a longer bar may only take 20 man hours. The longer bar may indicate to the uninformed that it is a bigger task, when in fact it is not.

  **They need to be constantly updated.** As you get into a project, things will change. If you’re going to use a Gantt chart you must have the ability to change the chart easily and frequently. If you don’t do this, it will be ignored. Again, you will probably need software to do this unless you’re keeping your project management at a high level.

  **Difficult to see on one sheet of paper.** The software products that produce these charts need to be viewed on a computer screen, usually in segments, to be able to see the whole project. It then becomes difficult to show the details of the plan to an audience. Further, you can print out the chart, but this will normally entail quite a large “cut and paste” exercise. If you are going to do this frequently, it can be very time-consuming

# What Are the Pros & Cons of PERT Charts?

Small businesses implement PERT for projects involving many activities.

Due to the critical nature of some project objectives, a small business implements controls to make sure projects are successfully completed. One such control mechanism is the Program Evaluation and Review Technique, a program network analysis method used to plan and control large projects, including performance improvement efforts. A project manager arranges the activities of a new project -- one without historic precedent -- in a diagram, or program network, estimating the time and resources needed to complete each project activity. PERT charts have advantages, but managers need to be aware of disadvantages in weighing their use.

## Advantage: Activity Analyses

A project manager views information about the likely completion of a project on time and on budget by viewing PERT activities and events independently and in combination. For example, software implementation requires the completion of critical activities such as hardware installation, programming, system testing and end-user training. Using a PERT chart, a project manager can evaluate the time and resources needed for any one of these activities, such as program installation. The project manager can also evaluate the sum requirements of all activities simultaneously, from hardware installation to end-user training.

## Advantage: Department Coordination

PERT analysis improves planning and decision-making by integrating and presenting data from multiple departments. Gathering qualitative and quantitative data from multiple sources also helps coordinate project activities and improves communication among departments. PERT identifies responsible departments and each person's project role. The visibility of areas of responsibility encourages management commitment to the project. In addition, PERT reveals activity inter-dependencies and contributes to the development of a master plan that provides a current view of business operations.

## Advantage: What-if Analysis

PERT requires that project activities be sequenced in a network under a set of rules specifying critical and sub-critical paths. The critical path is the longest sequence of activities and events -- milestones -- in the project, and determines the number of days required to completion. A what-if analysis identifies possibilities and uncertainties related to project activities. Different permutations and combinations of activities are tried, and the most useful possibility selected, minimizing project surprises and waste. The what-if analysis also highlights the activities with the greatest project risk that require careful monitoring during the project.

## Disadvantage: Subjective Analysis

The PERT method requires the identification of the activities of a new project and the arrangement of the activities in time sequence. As a result, the data collection and analysis process is subjective in nature, which can result in a PERT chart that does not accurately estimate time or cost. The data may also be unreliable in that they reflect the bias of the project participants who provide input to the analysis. Businesses base effective decisions on relevant information that is often historical in nature; PERT project time and resource estimates, as well as the likelihood of timely completion, may be unreliable.

## Disadvantage: Time Focus

The PERT method is a time network analysis that determines labor, material and capital equipment requirements for individual project activities. Cost estimates are developed for each activity in the network. PERT is primarily a time-focused method, however. The charts specify the time required to complete each project activity and the activities that must be completed to meet the project completion date.

## Disadvantage: Resource Intensive

A PERT analysis requires a detailed study of project activities and comments from many people from different organizations. In addition, PERT is a complicated method that’s performed over an extended time. The labor-intensive nature of the PERT method makes PERT charts expensive to support.

# Difference Between Gantt Charts & Pert Charts

Organization is a key component of project management. When creating a project schedule, managers will find both Program Evaluation and Review Technique (PERT) and Gantt charts to be essential tools for successfully completing the project at hand. Both types of charts provide tools for managers to analyze projects through visualization, helping divide tasks into manageable parts.

## Visualization

One of the key differences between a PERT chart and a Gantt chart is the way the information is presented. Gantt charts present information in the format of a bar chart. This presentation helps show the percentage of work completed for each task. PERT, on the other hand, displays information as a network model. This means that a PERT chart presents an initial node from which tasks branch out. This helps project managers visualize the sequence of tasks, as you cannot start on the next activity until the one preceding it is completed.

## Work Breakdown Structure

One of the key responsibilities of a project manager is to break down the workload into tasks to guarantee that the project will be finished by the deadline. Both PERT and Gantt charts will display the tasks to be completed, but the charts emphasize different pieces. In Gantt charts, the focus is on the percentage completion of each task, without demonstrating the link that two tasks may have to each other. While PERT typically does not show the percentage completed, because it employs a network model, it is easy to see which tasks depend on each other.

## Simplification

Gantt charts are ideal for straightforward projects with few interlinking tasks. Gantt charts present project tasks and time allocation as the only two pieces of data. While this is a limitation where there are interconnecting tasks that depend on each other, for more basic projects it is easier to interpret the data in a Gantt chart. PERT charts, while also including project tasks and time allocation, display dependency. Gantt charts are easier to change as a task moves along and it comes closer to completion.

## Accuracy

Gantt charts are simpler to read, but PERT charts extend an element of detail to the project scheduling through both the network model's ability to display dependency and PERT's unique ability to anticipate actual time that a task will take to completion. Tasks in PERT charts will have three representative time structures: optimistic, most likely, and pessimistic. By averaging these times, a manager can predict how long a task will actually take to complete more realistically than the single time that Gantt charts provide.

PERT is a research and development tool where activity timings could not be estimated with enough certainty. Therefore, three time estimates-optimistic time. Pessimistic time and normal time are made. Optimistic time is the best time that could be expected if everything went exceptionally well. Pessimistic time is the worst time if every­thing went wrong. Normal time is estimated for normal circumstances.

### Methodology of PERT:

The PERT involves following steps:

1. The project is broken down into different activities systematically.

2. Activities are arranged in logical sequence.

3. The network diagram is drawn.

4. Events and activities are numbered in the network diagram.

5. Using optimistic, pessimistic and normal time, the expected time is calculated.

6. Standard deviation and variance for each activity is calculated.

7. Earliest starting time (EST) and latest finishing time (LFT) are calculated.

8. Expected time, EST and LFT are marked on the net­work diagram.

9. Slack is calculated.

10. Critical paths are identified and marked on the network diagram.

11. Length of critical path or the total project duration is found out.

### Advantages of PERT:

1. PERT forces the management to plan carefully and study how the various parts fit into the whole project.

2. PERT enables the business managers to predict time and cost of the project in advance.

3. PERT is a forward-looking control device for manage­ment. PERT calls attention on the timely completion of the project and avoids delay.

4. PERT enables the determination of the probabilities concerning the time by which activity and project would be completed.

5. PERT suggests areas for increasing efficiency and reducing cost.

6. It provides up-to-date information of the project pro­gramme so that the necessary steps may be taken to minimize the delays and interruptions.

7. PERT assists in coordinating the different parts of the total projects.

### Limitations of PERT:

1. In PERT, it is assumed that all the activities involved in the project are known in advance. In projects like research and development (R and D), it is not possible to list out all the activities in advance.

2. The assumption that a project can be sub-divided into a set of predictable and independent, activities may not hold true always.

3. PERT emphasizes only on time and not the costs.

4. PERT is based on time estimates and there may be error in estimating time.

5. For active control of a project, PERT requires frequent updating and revising of calculations. It is an expansive and time consuming exercise, which requires highly trained personnel

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