# Gantt Chart: An Important Tool of Management

**K K Ramachandran, K K Karthick**

***Abstract:*** ***The current paper aims to study on the important technique of time saving and money saving of the management. F.W. Taylor, Henry Fayol are the important contributors in the industrial development and growth. Their work in defining concept and principles of management is notable. Furthermore, Gantt's study is continued and he expressed scientific method of activity which can save time and money of an organization. F. W. Taylor worked on the planning and gave result that how planning helps to increase the work and quality of an organization. Henry Fayol defined fourteen Principles of the Management and Gantt declared activity chart. This chart is yet used in several industries as an ideal chart of activity plan. Therefore, current work focused on the Gantt chart and its importance in industries.***

***Key Words: Management, plan, activity, Gantt Chart etc.***

## I. INTRODUCTION

Invention and growth in industrial sector is an important part of human develop. Though current age is called as the age of science and technology, the base and foundation of it is at the end of 16th century and rise of seventeen century. Though, this concept is used in an organization or industrial sector today, it is the part of day-to-day life also. Planning and work according to planning is followed by everyone. Planning means defining the strategy on work that we are going to do. In an organization, setting the goals, play a vital role while to plan to achieve that goals are the part of management. 'Minimum input, maximum out' with the proper utilization of, man, machine, material, money and market is the major part of an organization and this can be done properly by planning only.

### *The Major Contributor of Scientific Management:*

Management is defined as an art as well science by various scholars. It is science because in an organization, work goes on with scientific method. It is called as Art because it is an art to deal with 5Ms of management i.e. man, machine, material, money.'The art of getting things done through people, is the concept of management by Mary Parker Follett. The Scientific method of Management is defined by F.W. Taylor. No management work can be done without his concept of planning.

### *F. W. Taylor*

F. W. Taylor is called as the 'Father of Scientific Management.' He was the mechanical engineer of working in an organization. He wanted that work should be done properly in an organization. He found the wastage of manpower, material, time and other resources in the percentage of more than 75%. So he developed Scientific Management Theory' by his own work style and experience. He created different groups and assigned the task to them one day before with planning, how and what task they had to complete. This had shown the result as an outcome of increasing productivity and efficiency of work. Then he define that at least one day before planning should be there to work in an organization to get good result. His main aim to apply this technique was to improve economy, efficiency and Labour productivity. Thus, F.W. Taylor's this experiment was the first attempt to apply the science in the management to increase the productivity. Therefore, he is called as the Father of Management.

### *Henry Fayol*

Henri Fayol defined the aim of management as:

a. To forecast and to plan,
b. To organise,
c. To command,
d. To co-ordinate and to control

He wrote a book on Management "General and industrial administration" in and he defined fourteen Principles of Management. Therefore, he is called as the "Father of Principle of Management. He stated five major functions of management as:

Fig. 01 Functions of Management

As shown in the figure no. 01, Henry Fayol defined five functions of Management as: Planning, organizing, staffing, directing and controlling to achieve the desired target of an organization. With this, he declared 14 principles of Management.

### *Henry L. Gantt*

In an industrial and organization sectors, when there is the matter of the defining the term of Management, the name comes Henry L. Gantt with F.D. Taylor and Henry Fayol. Henry L. Gantt experiments on the activity chart and declared the bar chart with the illustration of Project Activity. He worked on it between the periods of 1910 to 1915. This chart is later named as "Gantt Chart." Later on there are further developments and studies are continues to define the activity chart. Though, there are modern activity chart as CPM, PERT, there is the relative connectivity with Gantt's activity chart with it.According to His chart the activities are first divided into their required task that has to complete. They are divided into weeks and days, those activities which can run simultaneously should start at the same time, and another activity should start after the activity on the day which will be the last day of said activity. He called

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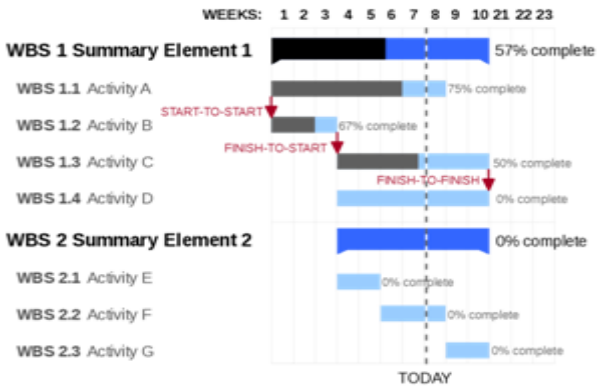


**Chart no. 01-The Chart of Gantt (Source Internet)**

Chart number 1.1 is the Chart structure of Gantt which he defend for activities. Let's see it with an example of manufacturing the Chair.

Activities for manufacturing the Chair:

**Image no. 1.2**

Image number 1.2 is the image of a normal chair. It has a back, seat, handle, legs and a gap slide attach between side legs. So we can divide the activities as:

Activity A: Design the Chair

Activity B: Order and Receive the Raw Material for the Chair manufacturing

Activity C: Prepare the back of the chair.

Activity D: Prepare the Seat of the chai

Activity E: Prepare the legs of the chair.

Activity F: Prepare the handle of the chair.

Activity G: Prepare the side slide of the legs of the chair.

Activity H: Assemble all the part prepared in activities C, D, E, F and G

Following is the table of activities of the Chair Manufacturing:

| | Activity Title | Day of Activity | Starting sequence/ number of activity |
|---|---|---|---|
| 01 | Design the Chair | 02 | Day one and two |
| 02 | Order and Receive the Raw Material for the Chair manufacturing | 03 | Day three, four and five |
| 03 | Prepare the back of the chair. | 04 | Day six, seven, eight and nine |
| 04 | Prepare the Seat of the chair. | 04 | Day six, seven, eight and nine |
| 05 | Prepare the legs of the chair | 04 | Day six, seven, eight and nine |
| 06 | Prepare the Handle of the legs of the chair. | 04 | Day six, seven, eight and nine |
| 07 | Prepare the side slide of the legs of the chair. | 02 | Day six and seven. |
| 08 | Assemble all the part prepared in activities C, D, E, F and G | 03 | Day ten, eleven and twelve |

**Table no. 01 Activity for Manufacturing a Chair (unit 100)**

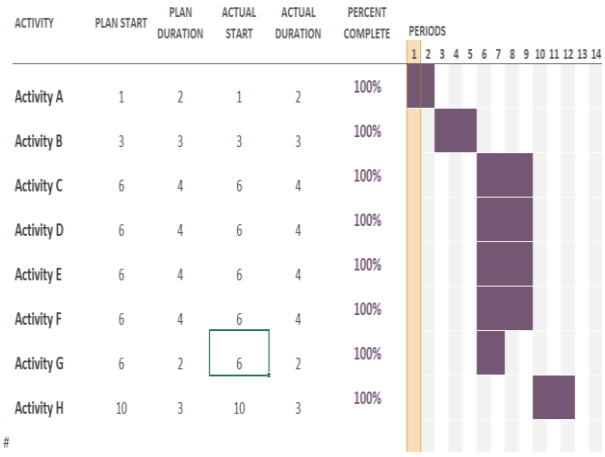


**Image 1.3 the activity chart of chair manufacturing**

The table 1.1 and image 1.3 is an example of Gantt chart used for the defining activities according to Gantt. Before the scientific method invention, there was much more wastage of time, money and man power in industries.

***Difference between activity charts as:***

***Pre Activity Chart time Duration:***

The days required to manufacture the chair were 26 days.

***Post Activity Chart time Duration:***

The required after Gantt chart were 12 days.There were 26 days to manufacture 100 days without plan and without activity chart. Use of activity chart saved more than double days. Here 14 days are saved as it works with proper planning. Gantt chart helps to divide the activities to save the time and other resources including manpower. According to him the design requires 2 days, you can take two days, after that three days to order and purchase the raw material, take that time also. It has completed five days.

Activity A and Activity B takes time of two days. Creation or preparation of activity C, D, E, F and G can go or start at the same time. Here activity G is taking time of

2 days which he called as short path of activity; whereas activity C, D, E and F need the time of 4 days can run parallel. If these five activities are not started parallel, it will take time of 4*4= 16 and 2 days for activity G. it means total time of 18 days to complete these five activities. Sixteen plus five means 23 days and 03 days for assembly. Total 26 days were invested previously means before the research of F.W. Taylor, Henry Fayol and Gantt chart. Scientific management decreased this time from 26 to 12 and saved 14 days. Therefore, with advance tools as CPM and PERT as well using this Gantt's chart, the activities are well-planned and saved all the resources of an organization.

## II. CONCLUSION

Thus, Gantt's chart is the major tool of industrial or organizational management which is invented by Gantt and entitled by his name only. It is helpful to save manpower i.e. human resource management, it is useful to reduce the cost of product, it is important tool of material management (saves wastages of material), and it is useful to save the time of manufacturing process and so on. But it needs proper planning and implementation of defined activities and planning. Therefore, it can be called as main and important tool of management. New invention, new research is the part of modern age and even need of scientific era, but they all have to follow the relativity of Gantt chart when they plan and act for their organization and growth of the organization.

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