

A Case for Not Using Earned Value Project Management by Jim Baber

Abstract

Students of project management are familiar with the concept of a Gantt or bar chart and how it is displayed in modern scheduling software. While researching books for incorporation into an existing Earned Value Management class, I started noticing that much of the literature was consistently wrong in citing the first use of Gantt charts.

While this is not a significant issue impacting today's projects, I did embark on further exploration of Henry Gantt and what I discovered about Mr. Gantt and his knowledge of plant efficiencies, resistance to change and tracking work, clearly showed he was well ahead of his time.

In some respects *he is still ahead of his time*. Businesses today are largely still unable or unwilling to do what Mr. Gantt did over 100 years ago and if they were able to perform his work tracking detail on their projects, it would have a profound effect on their bottom line and revolutionize their project management practices.



Henry L. Gantt
1861-1919

The misunderstanding of Henry Gantt in project management books and the poor textual content of the Earned Value Management literature will be the subjects of possible future articles. A case can be made that the volume of poorly written Earned Value management books are a contributing factor to the lack of knowledge and enthusiasm when considering an Earned Value project management system.

This article focuses upon why an Earned Value system should not be so readily suggested, and includes observations from the writings of Henry Gantt, who essentially employed an Earned Value Management-type of system.

Context

As an instructor of Project Management at a California University specializing in Earned Value Management, I often hear the same type of reasons why Earned Value Management cannot be used at any given company. The reasons are varied and nothing new to those who have asked the same questions. Some of the reasons for not using Earned Value include:

- Earned Value is just too complicated;
- What we have been doing works well enough;
- Leadership does not believe Earned Value is a worthwhile endeavour;
- Our project managers have no visibility into actual costs, and our work is unique and not easily defined.

Additionally, much of the literature written by advocates of Earned Value often lauds the benefits of an Earned Value system without regard to the basic project management maturity of the business. Suggesting that a business employ an Earned Value system without considering the maturity of the project management system is poor advice. After countless conversations with students about their companies' project management practices and processes, it has become evident that suggesting the use of Earned Value project management practices is often not a wise recommendation.

A significant majority of businesses which actively manage projects do not employ enough project management basic disciplines that would enable them to take advantage of the benefits of Earned Value project management; or they lack the will and impetus to change. Even if leadership is willing to change, requiring a project management office to employ Earned Value project management when the basics of project management are missing will result in failure.

An Earned Value project management system is, at a minimum, an intermediate to advanced project management concept. Earned Value project management will only achieve the desired results if implemented within a fairly mature project management system. Project management systems lacking these fundamental characteristics are not candidates for an Earned Value project management system. Attempting to implement an Earned Value project management system within an enterprise that is lacking project management fundamentals will result in failure and serve to demoralize and frustrate the team.

The following can be considered as the essential project management processes which must be established well ahead of a decision to employ an Earned Value project management system:

- ✓ Reliable estimating process supported with an enterprise wide database
- ✓ Common project Work Breakdown Structure (WBS)
- ✓ Actively managed procurements and subcontracts
- ✓ A robust scheduling system
- ✓ A systematic work authorization process
- ✓ Control account/work planning
- ✓ A direct cost collecting and reporting system
- ✓ Indirect costs handling process and policy
- ✓ An Estimate-at-Completion process (EAC)
- ✓ A risk management system
- ✓ An enterprise wide project change management system

This list should be viewed as a good starting point and not as though it was cast in concrete. Each company will be slightly different, but this list represents those areas I have observed as significantly lacking in private industry project management systems; and if not corrected and strengthened then implementation of an Earned Value management system will fail.

There is a significant amount of existing literature defining and explaining these project management processes which will aid any enterprise seeking to raise the maturity level of their project management system. However, '*caveat emptor*,' or let the buyer beware.

As previously mentioned there is a significant amount of poorly written and content deficient project management books, especially those related to Earned Value Management. The existence of this ill-advised project management literature can also be cited as a contributing factor to poor industry understanding and implementation of project management in general, and Earned Value project management specifically.

The cornerstone of Earned Value management is the measurement and tracking of project work. I consistently hear from project managers that they cannot define their project work to the detail necessary for earned value project management. The failure of project managers to adequately define their work can occur for a myriad of reasons; however, two common problems are a poor use of the work break down structure and poor understanding of the work authorization processes.

Often there is no well-defined project work authorization process where project managers formally sanction performers to plan and execute project scope, schedule and budget within an adequately defined work break-down structure. Another artifact of this problem is that project managers often feel overwhelmed at the thought that they need to in-detail, plan all project scope. What project managers fail to realize is that they have a team of performers who should be tasked with the detailed planning of project work.

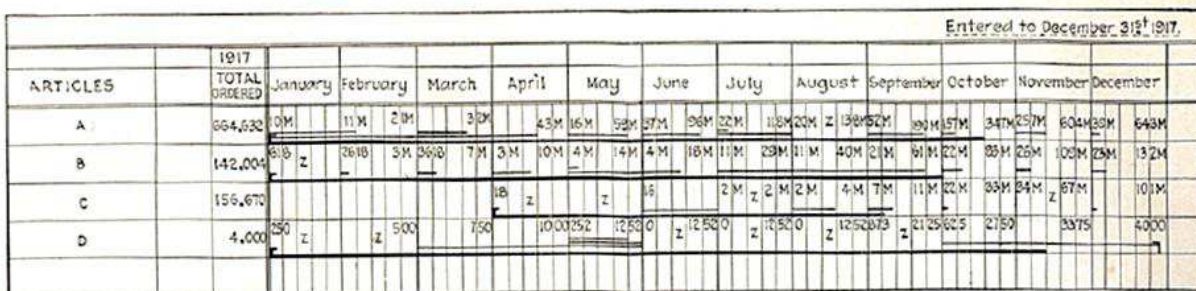


Fig. 6 Progress Chart

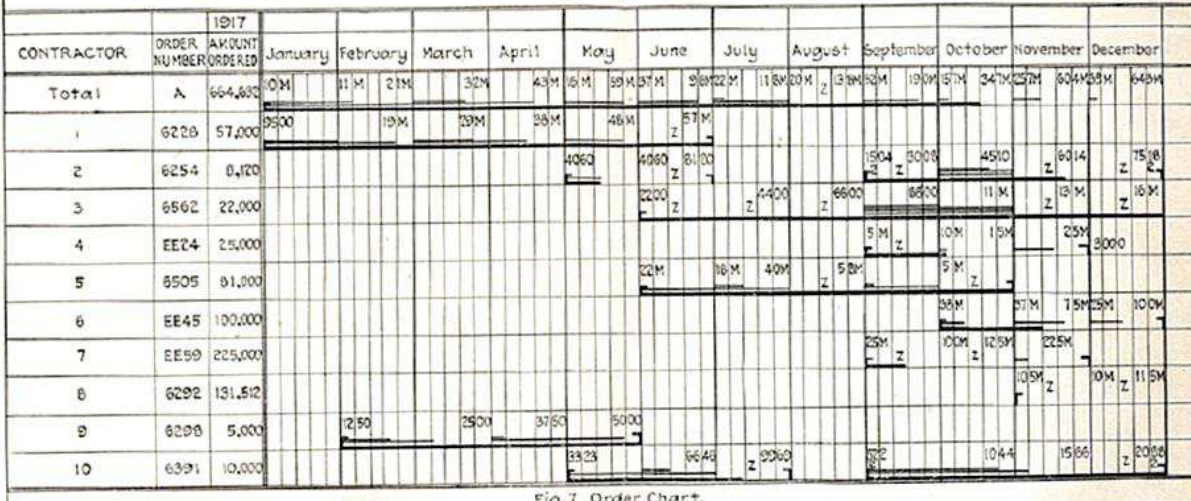


Fig. 7. Order Chart.

FIG. 6.—At the left of the chart is a list of articles to be procured. The amounts for which orders have been placed are shown in the column headed "Amount ordered." The dates between which deliveries are to be made are shown by angles. The amount to be delivered each month is shown by a figure at the left side of the space assigned to that month. The figure at the right of each time space shows the total amount to be delivered up to that date.

If the amount due in any month is all received, a light line is drawn clear across the space representing that month. If only half the amount due is received, this line goes only half way across. In general, the length of the light line or the number of lines indicates the amount delivered during that month.

The heavy line shows cumulatively the amount delivered up to the date of the last entry. It will be noted that, if this line is drawn to the scale of the periods through which it passes, the distance from the end of the line to the current date will represent the amount of time deliveries are behind or ahead of the schedule. It is thus seen that the short cumulative lines are the ones which require attention, as they represent items that are farthest behind schedule. Z represents no deliveries.

FIG. 7.—The top line on this chart is a summary of the individual orders and is represented on chart 6 by line A.

Project managers also need to realize the folly of statements such as “we cannot define our work.” It should go without saying, that a project whose work cannot be defined is a project that should not be executed.

In his book “Organizing for Work” Henry Gantt explains and graphically shows the system he developed to measure and track material ordered and received (figure 6 above). Figure 8 below tracks the expected output per worker and shows where and why daily variances occur. These early Gantt charts from 1917 and 1919 show the basics of a system where expected daily worker output is matched against actual progress while simultaneously tracking the supply chain feeding the process. A third chart (not shown) also tracks the machines used in the process and tracks the daily efficiency of each machine. Henry Gantt was truly ahead of his time and presents a system that serves as an example for today’s businesses.

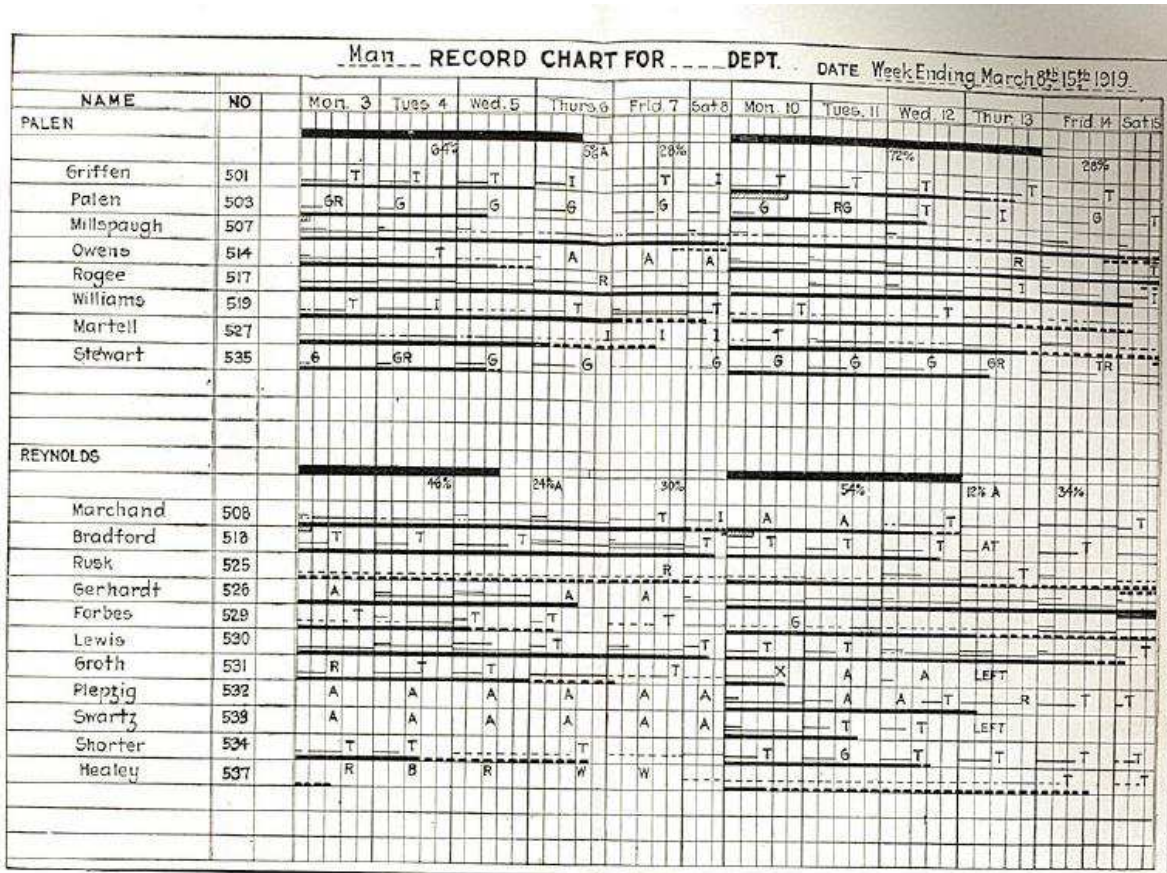


FIG. 8.—KEY FOR MAN RECORD CHART:

The daily space represents the amount of work a man should have done in a day, and also the time taken to do the work.
 Estimated time for work done.
 Time on job for which we have no estimates.
 Solid line = cumulative estimated time for work done. Broken line = total time used on work not estimated.
 The portion of the daily space through which no line is drawn shows how much the man has fallen behind what he was expected to do. The reasons for his falling behind are indicated by the following symbols:
 A Absent I Lack of instruction V Holiday
 D Defective work M Lack of or defective material X Reason not clear
 G Green operator T Tool troubles, or lack of tools

It must be noted that Henry Gantt did not manage projects; he managed manufacturing plants and processes. I have highlighted this point in the past and students typically respond by stating that it was easy to define the type of work characteristic of the early 20th century manufacturing plant. They are right and I respond that if you cannot define your work to an equal or similar detail level, then you lack a comprehensive understanding of your project work scope.

In this respect, the plants Henry Gantt advised and the knowledge he collected to manage their work remains ahead of many modern businesses. Any business which fails to ensure they have the basics of project management, such as being able to detail plan project work will not have the capabilities to employ an Earned Value project management system.

Henry Gantt also encountered human obstacles when attempting to establish his plant efficiency system. In 1905 at a cotton mill he encountered a plant superintendent and foreman who objected to his suggested changes because they thought their “old world” practices did not need improvement. (Gantt: Work 175). Human nature does not change and this sentiment regarding Earned Value project management exists today when leaders claim that their project management practices are fine and do not need improvement.

In summary, business will not be able to reap the benefits of an Earned Value management system until they successfully implement basic project management processes and possess the willingness to change. Far too many businesses lack the basic project management disciplines which make the deployment of an Earned Value project management system difficult, or maybe even impossible; additionally, many businesses lack the leadership motivation to change. For these reasons many businesses should not attempt an earned value project management system until fundamental project management processes are entrenched, and senior leadership fully understands and supports the move to Earned Value project management.

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About the Author:

Jim Baber is currently an earned value management specialist with the Defense Contract Management Agency (DCMA). He has over 20 years of experience in the aerospace and defense industry. He is also an adjunct instructor of business at Cerritos College in Norwalk California and an instructor at the University of California Irvine teaching project management courses in the extension division. He holds an M.A. from Antioch University and an M.A. from the California State University Dominguez Hills.



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