

EVM Demystified

An Easy Guide for the Practical Use
of Earned Value Management

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FOREWORD

Earned Value Management (EVM) is a methodology which is highly acclaimed for project management. It was originally used in the U.S. Defense Department to build large systems, but has gained prominence due to its success and is now one of the main tools recognized by the Project Management Institute (PMI).

Having used EVM since 1992, we have found that there is a good deal of confusion on how to use EVM. Some of the confusion is due to the vocabulary, math formulas and interpretations of the results. Even among people who are involved in the use of EVM, we find that many are doing it routinely and do not truly understand EVM. This leads to too much dependency on the numbers, and that often leads to misinterpretation of the data.

In this book, we will look first at what EVM really is, and how most of us are already using it in our everyday lives. We will then work through a scenario to better see the use of the EVM and how to interpret the data. We will explore the guidelines on the different EV Methods, the Terms, Acronyms

and Formulas, as well as the common mistakes made in the use of EVM.

This book is intended to provide an explanation of EVM in terms that will be familiar to most people, as well as to provide a strong base for using EVM on projects of any size.

The overall approach to this book is to make it as simple and user-friendly as possible. This is done for both the concept itself and for the formulas. We have included colorful graphics to make it easier to understand. The book takes you slowly from one concept to the next in logical order, like walking up a series of small steps. It is intended to be read from front to back, so please do not skip around.

The objective is to provide you a good understanding of EVM, its formulas and usage.

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TABLE OF CONTENTS

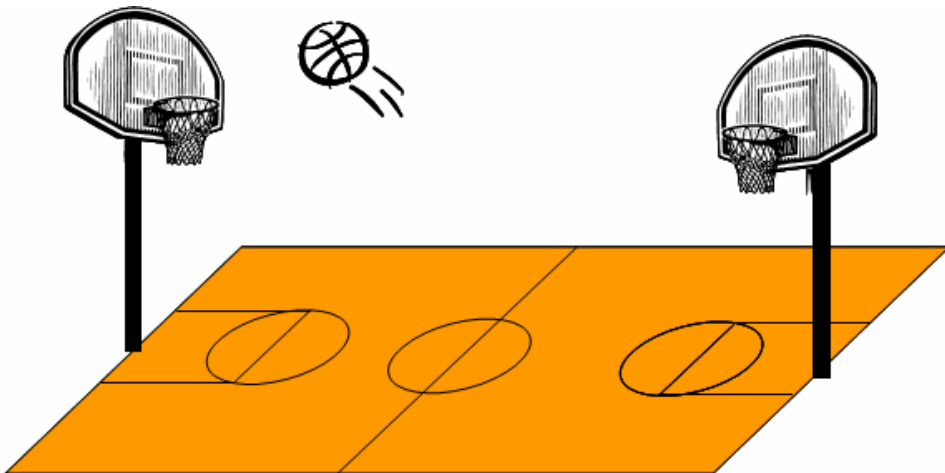
CHAPTER 1	
What is Earned Value?.....	1
CHAPTER 2	
The Basics: Planned Value (PV), Actual Cost (AC), Earned Value (EV).....	9
CHAPTER 3	
Variances: Cost Variance (CV), Schedule Variance (SV).....	15
CHAPTER 4	
Completion: Estimate-To-Complete (ETC) and Estimate-At- Completion (EAC)	23
CHAPTER 5	
Efficiencies: Cost Performance Index (CPI), Schedule Performance Index (SPI), and Schedule Cost Index (SCI)	29
CHAPTER 6	
Simple Sample Scenario: Apple Picking	41
CHAPTER 7	
Earned Value Methods Guideline	49
CHAPTER 8	
Sample Scenario: Florida Vacation	57
CHAPTER 9	
Common Mistakes	77
TABLE 1	
Terms and Acronyms	84
TABLE 2	
Formulas	85

CHAPTER 1

What is Earned Value?

Earned Value is a way of keeping and communicating the score. It is a tool for letting you know where you are on a project at a given time.

Think of a sport such as basketball. With both teams running back and forth and shooting all the time, if no one keeps score, how will we know which team is winning?



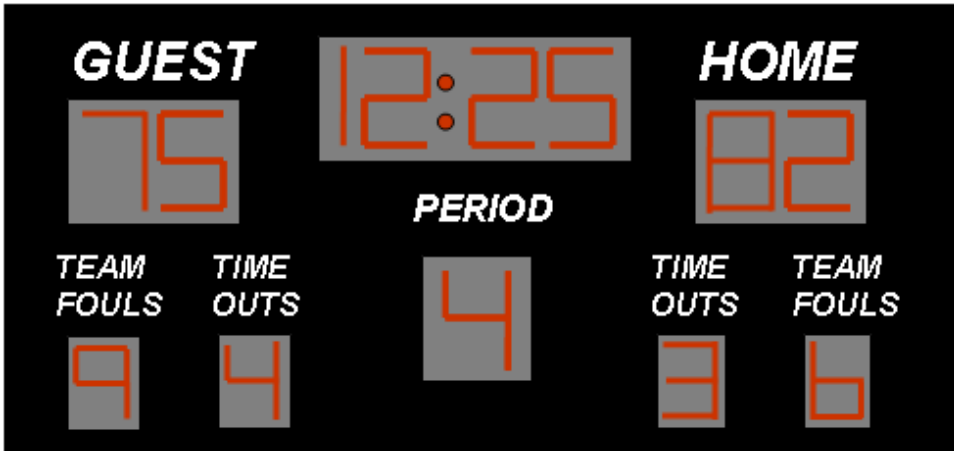
Now if you decide that each team will keep their own score, there will be no way to know which team is winning or losing until the end, when you

compare the two scores. You might have a feeling that you were winning or losing, but you would not know for sure. Keeping one's own score can also be subject to cheating.

If you decide that you will have some unbiased person keep the score for each team, you eliminate some cheating, but again there is no way to know if you are winning or losing until the end.

That is why in basketball, you have the scoreboard that keeps track of the score on a continuing basis. The scores are updated after each shot is made. That way you know who is winning and who is losing at any point in time during the game, and you know immediately who wins the game at the end.

Score keeping allows the coaches to see the effectiveness of their players and their game plans. It allows the coaches to make adjustments during the game to better their score in order to achieve their goal of winning the game.



A good coach will use his starters and the initial game plan for a while to see if it is effective against the other team. If, after a while, perhaps at the end of a quarter, the team is losing by a large enough margin, the fans would expect the coach to substitute out players that are not effective or to change the game plan, such as going to a man-to-man defense instead of a zone defense.

We can also recognize that if nothing is done to change either the players or the game plan, the team will continue to lose, and the gap between the scores will get bigger. Let's say that both teams use the same people and run the plays exactly the same way with no change. If team A is winning by 10 points at the end of the first quarter, then at the half we can expect that team A will be winning by 20 points and by 40 points at the end of the game.

However, if the coach makes substitutions, or adjusts the game plan after every point, there will be a lot of confusion on the part of the players. The players won't have time to actually get into the game and implement the game plan before it is changed again. A team needs a little time to implement the plan and see how each team member is performing during this particular game before they can determine if it is working. Substituting players and adjusting the game plan too often will be detrimental to the team and the game.

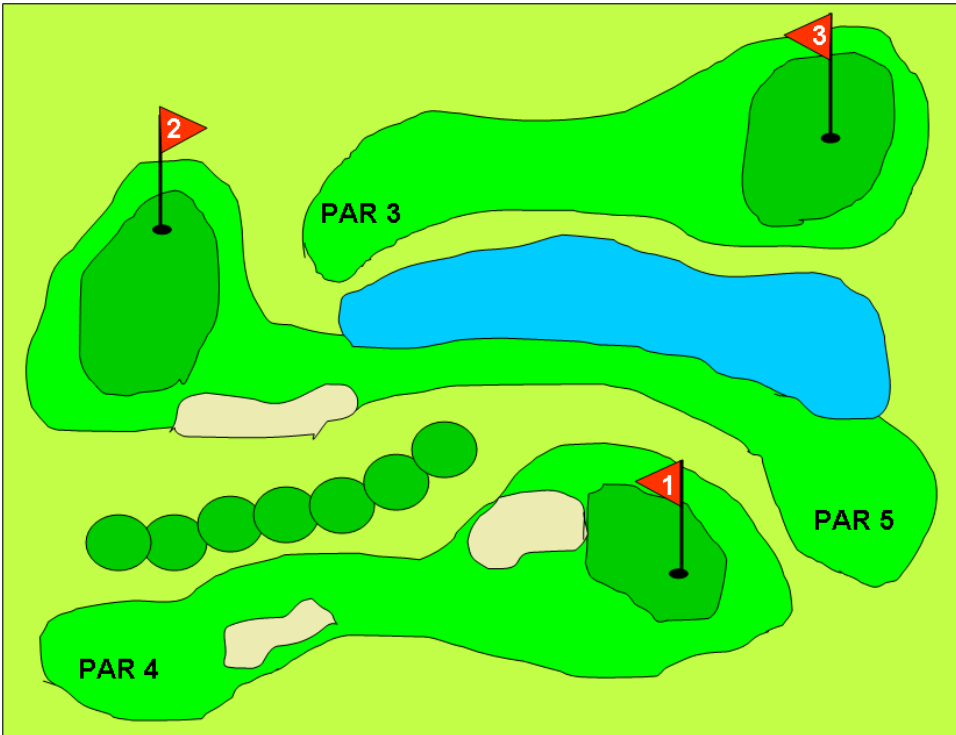
EVM is a way to keep and communicate the score for Project Managers (PM). It allows the PM to determine if the project is winning or losing. To win in a project means that the project is on-time and within budget; likewise, losing means that the project is behind schedule or over budget.

In basketball, the coach needs to lay out a game plan. He needs to know who is playing on the team, what positions they are playing and what kind of scoring he can expect for each quarter. Likewise, the PM needs to know who is working on the project, what jobs he/she will assign them, and the amount of work he can expect them to accomplish over a period of time.

During the season, the coach and owner may realize that the team lacks a particular skill or just needs a different mix of players. They will then go out and bring in the skills needed. During a project, the PM may realize that he needs more of a particular skill or some specialized skill and will hire a person with that skill to add to the project.

On the other hand, scoring in a project is more like a round of golf. You are trying to beat an established score for the course. In golf, each hole has a par value that you are aiming to beat. If you par the hole, then you are staying even with the established score. If you bogey the hole, then you are one over and have to birdie a future hole in order to catch up and stay at par.

In a project, a budget is established for each part of the work, and you can think of it as the par value for a hole of golf. The budgeted cost is simply the amount of money planned for the task. Similar to golf, you have to perform all of the tasks of the project to complete it, just like you will have to play all the holes to complete a round of golf.



For example, from the picture above, the first three holes of a golf course have the following par value:

<u>Schedule</u>	<u>Budget</u>
Hole #1	Par 4
Hole #2	Par 5
Hole #3	Par 3

That means that you are expected to reach the end of hole number 3 after 12 strokes. (12 being the sums of the par value of the three holes) If, instead, it takes you 8 strokes to finish the first hole, then even though you have completed 8 strokes, you only

get credit for accomplishing the work of one hole, which is the equivalent of 4 strokes. To be on par you would have expected to have completed the first hole in 4 strokes and almost complete the first two holes in eight strokes, with only one stroke left to putt for the 2nd hole. You know that you are over your par value, or budget, and behind in the number of holes you should have completed, which is your schedule.

Now that you understand that Earned Value is a way of keeping and communicating the score, in Chapter 6 we will work through a simple scenario and see how it is applied.