Earned value Management (EVM): (https://evm.nasa.gov/glossary.html )

* **Definition:** EVM is a tool for measuring and assessing **project performance** through the integration of **technical scope with schedule and cost objectives** during the execution of the project.
* **Usage:** EVM provides quantification of technical progress, enabling management to gain insight into project status and project completion costs and schedules.
* **Watch:**
  + <https://www.youtube.com/watch?v=6bhJnjsETUk> 4:39 overview
  + <https://www.youtube.com/watch?v=z7b3SYQuqJM> 10:31 calculation
  + <https://www.youtube.com/watch?v=VI0Qh_VpIEw> 19:07 explanation and example
* **Read:** 
  + https://evm.nasa.gov/tutoriala.html and <https://evm.nasa.gov/tutorialb.html>
* **EVM Related Glossary:** ( https://evm.nasa.gov/glossary.html )
  + **Actual Cost or Actual Cost of Work Performed (ACWP)**: The costs actually incurred and recorded in accomplishing the work performed within a given time period. Actual costs include the direct cost plus the related indirect cost such as overhead, general and administrative, etc. allocated to the activity. ACWP reflects the applied direct costs and may be for a specific period or cumulative to date.
  + **Earned Value or Budgeted Cost for Work Performed (BCWP)**: The sum of budgets for completed work packages and partially completed work packages, plus the appropriate portion of the budgets for level of effort and apportioned effort work packages.
  + **Planned Value or Budgeted Cost for Work Scheduled (BCWS):** The sum of the budgets for all work packages, planning packages, etc., scheduled to be accomplished (including in-process work packages), plus the amount of level of effort and apportioned effort scheduled to be accomplished within a given time period. This is the value of planned work.
  + **Budget at Completion (BAC):** Total planned budget through any level of the PBB or CBB. See also Total Allocated Budget (TAB).
  + **Cost Performance Index (CPI):** A measure of cost efficiency. It compares BCWP to the actual cost to perform that work (CPI = BCWP / ACWP). An index of 1.0 means that we are spending exactly what we planned to spend to accomplish the work performed. CPI > 1.0 means we are under running costs. CPI < 1.0 means that we are over running costs.
  + **Cost Variance (CV):** A metric for the cost performance derived from earned value data. It is the algebraic difference between earned value and actual cost (CV = BCWP – ACWP). A positive value indicates a favorable condition and a negative value indicates an unfavorable condition. It may be expressed as a value for a specific period of time or cumulative to date.
  + **Variance at Completion (VAC):** The difference between the budget at completion and the estimate at completion (VAC = BAC – EAC). It may be calculated at any level from the Control Account up to the total project/contract. It represents the amount of expected overrun (negative VAC) or underrun (positive VAC).
  + **Work Breakdown Structure (WBS):** The product-oriented hierarchical breakdown or division of hardware, software, services and other work tasks that organizes, displays, and defines the products to be developed and/or produced and relates the elements of the work to be accomplished to each other and the end products.
  + **Work Package (WP)**: A detail, short duration task or material item identified by the P-CAM for accomplishing a Control Account task. A work package has the following characteristics:
    - Represents unit of work at the level where work is performed.
    - Clearly separate from other Work Packages.
    - Assignable to a single organizational element.
    - Has scheduled start and completion dates, and interim milestones – if required- all of which represent physical accomplishment.
    - Has budget expressed in terms of dollars or hours/FTEs.
    - Its duration is limited to a relatively short span.
    - Is integrated with detailed engineering, shop, or other schedules.
    - Has an correct Earned Value Technique assigned to it.