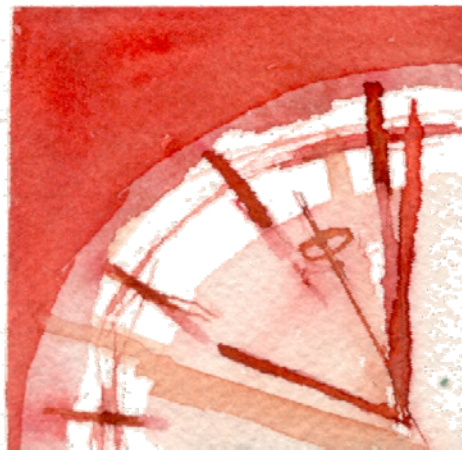


PROJECT CONTROL

SELF-EVALUATION



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SELF-EVALUATION

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1. INTRODUCTION

Using this document, the student of the Project Control subject will be able to check whether he or she has gained the expected competences. In order to do so, we propose a test where the core knowledge of the subject is evaluated. In addition, a use case is introduced to apply the EVMS together with a rubric to self-evaluate.

2. TEST

1. The *cost baseline* is:
 - a) The difference between the planned budget and the already committed payments.
 - b) The cumulative budget distributed in time.
 - c) The incomes and payment of the project.
 - d) The budget estimated by the contractor.

2. The procedure for measuring the progress of a task knows as *the valued milestones*:
 - a) Several milestones are established within a task and each one has a percentage of the total cost of the activity associated.
 - b) The beginning and the end of an activity have a percentage of the total cost of the task associated.
 - c) The total cost of the task is divided by the number repeated units (milestones) that are expected to produce.
 - d) The cost of the task is distributed uniformly along its duration.

3. Indicate which of the following statements is *false*:
 - a) The CPI is more important than the SPI in the end of the project.
 - b) When the project ends, the $SPI=1$ always.
 - c) The CPI is always higher than the SPI.
 - d) A $SPI < 1$ indicates a non favourable situation.

4. When the TCPI is equal to the CPI, this means that (indicate the *true* answer):
 - a) The performance of the work has to be maintained in order to finish the project within the target deadline.
 - b) The cost performance of the project has to be maintained in order to finish the project within the target cost.
 - c) The cost performance of the project has to be maintained in order to finish the project within the target cost, estimated using schedule and cost performance.
 - d) The cost performance of the project has to be maintained in order to finish the project within the target cost, estimated using the schedule performance.

5. The $SPI(t)$:
 - a) Will always be equal to 1 in the end of the project.
 - b) The trend of the $SPI(t)$ is not reliable along all the project. It is only reliable in its end.
 - c) In the end of the project, $SPI(t)$ and SPI, which relates the earned value and the planned value, have the same value.
 - d) Indicates the performance of the work in terms of time, that is, it relates the current control date and the earned schedule.

3. USE CASE

This use case models a real situation that took place in the late 80s in the DoD of the USA. The analysis of this use case is accomplished using the EVMS, so it will provide the means to self-evaluate whether the Project Control competences are acquired or not. Moreover, since it is a real use case, one could check if it is able to successfully perform controlling a project.

In 1984 the USA army and the DoD decided to replace the A-6 bomber and have a new radar-invisible A-12 bomber. In January 1988 McDonnell Douglas and General Dynamics won the contract for its development. The contract specifications where:

- Beginning: July 1988
- End: September 1991
- Type of contract: Target Cost
 - o Target Cost: 3.981 M\$
 - o Benefit for the companies = $398 \text{ M\$} + (3.981 - \text{FC})/2$; where FC stands for Final Cost
 - o Cost ceiling: 4.777 M\$
- Scope:
 - o 8 flying prototypes
 - o 5 non flying prototypes
- Each month, the companies need to send a report with the following data: EV, PV, AC, CV, SV, LRE

	PV	EV	AC	CV	SV	LRE
July 1988	70	70	70	0	0	3981
August 1988	160	141	152	-11	-19	3981
September 1988	251	202	218	-16	-49	3981
October 1988	340	275	296	-21	-65	3981
November 1988	426	346	380	-34	-80	3981
December 1988	511	412	470	-58	-99	3981
January 1989	584	480	557	-77	-104	3981
February 1989	710	557	643	-86	-153	3981
March 1989	826	623	715	-92	-203	3981
April 1989	913	688	789	-101	-225	3981
May 1989	1012	761	866	-105	-251	4096
June 1989	1076	815	928	-113	-261	4096
July 1989	1152	890	1022	-132	-262	4096
August 1989	1244	955	1108	-153	-289	4096
September 1989	1321	1021	1192	-180	-309	4096

October 1989	1423	1099	1303	-204	-324	4096
November 1989	1552	1168	1421	-253	-384	4096
December 1989	1654	1233	1505	-272	-421	4150
January 1990	1770	1298	1603	-305	-472	4150
February 1990	1858	1359	1710	-351	-499	4260
March 1990	1940	1427	1825	-398	-513	4260
April 1990	2080	1491	1950	-459	-589	4400

In 1990 the Army cancels the contract and judicially claims to the contractors the money already paid. The Army alleges that the project is not controlled and that nobody can tell when it will finish and the final cost. In fact, the Secretary of Defense, Dick Cheney gave the following declarations in 1991:

"The A-12 I did terminate. It was not an easy decision to make because it's an important requirement that we're trying to fulfill. But no one could tell me how much the program was going to cost, even just through the full scale development phase, or when it would be available. And data that had been presented at one point a few months ago turned out to be invalid and inaccurate."

Given the information of the project, a complete report answering to the following questions is requested:

- In April 1990, which is the status of the project?
- Are the estimations of the contractors (LRE) believable?
- Is the Army protected against cost overrun with the cost ceiling?
- Could have been the situation predicted?
- Action should have taken before? When?

4. SELF-EVALUATION

Once both exercises are introduced, the information required for a self-evaluation is presented. First, the results of the exercises are detailed and afterwards the required rubric to analyze the competence acquisition is provided.

4.1. Solutions to the test and correspondent rubric

1. b / 2. a / 3. c / 4. b / 5. d

Assuming that each correct answer gives 1 point, the next rubric can be used for self-evaluation:

Obtained score	Evaluation	Considerations
0-1	The minimum knowledge has not been acquired. Competences are not guaranteed.	If answers to question 1 and/or 2 are not correct, minimum knowledge has not been acquired and competences are not guaranteed. Failure in question 5 is not critical (it corresponds to an enhancement of the EVMS).
2-3	Minimum knowledge has been acquired but more training is needed. Competences are partially guaranteed.	
4-5	Enough knowledge has been acquired. Competences are guaranteed.	

Table 1: Self-evaluation rubric for checking minimum competences

4.2. Solutions to the use case and correspondent rubric:

As a solution of the use case, the results of the application of the EVMS formulas are provided. It is worth pointing out that we do not include the complete report because this material will be used in class and we want to avoid student from copying it. Thus, the minimum values and quick answers are provided for the self-evaluation.

CPI	SPI	EAC (CPI)	EAC (CPIxSPI)	TCPI (BAC)	TCPI (LRE)
0.7646	0.7168	5.206,53	6.492,99	1.2259	1.0163

- In April 1990, which is the status of the project? *The project is delayed and has cost overrun*
- Are the estimations of the contractors (LRE) believable? *No, because CPI << TCPI (LRE)*

Since the rest of the questions have not a single answer, we avoid to include them as a solution here.

Considered aspects	Evaluation
<p>Results are not correct.</p> <p>Parameters and their results are not correctly interpreted.</p> <p>No graphical representation of the EVMS parameters in time is provided.</p> <p>Justification of the answers is vague.</p>	<p>Minimum knowledge has not been acquired.</p> <p>Competences are not guaranteed.</p>
<p>Results are correct.</p> <p>Parameters and their results are correctly interpreted.</p> <p>No graphical representation of the EVMS parameters in time is provided.</p> <p>Justification of the answers is acceptable.</p>	<p>Minimum knowledge has been acquired.</p> <p>Competences are partially guaranteed.</p>
<p>Results are correct.</p> <p>Parameters and their results are correctly interpreted.</p> <p>Graphical representation of the EVMS parameters in time is provided.</p> <p>Answers are correctly justified using computed values.</p>	<p>Minimum knowledge has been acquired.</p> <p>Competences are completely guaranteed.</p>