

# Compare the Earned Value Management with the Project Cycling Management

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*Abstract: Nowadays the most important issues of the world economy are: the management of supported projects. A lot of projects are financed and organized by EU or World Bank or US government. These organizations define the project management method too. My first goal is to work out some strategy methods for beginning of new project management techniques. These strategies are sustainable, vision able and transparency. The Project Cycling Management has to apply to manage every EU project. In USA has to apply EVM in the government financed projects.*

## 1 Introduction

The goal of my essay is that I introduce two up-to-date project management methods. Both of them add useful tools to project managers to manage the projects. Very important for us is the Project Cycling Management method. This method has to apply to manage every EU project. In the case of PCM the cycle starts with the identification of an idea and develops that idea into a working plan that can be implemented and evaluated. Ideas are identified in the context of an agreed strategy. We must add financing to the project plan. After the project implementations we evaluate and audit the results. We use experiences in the next cycles. This is the cycle method. This method is the main character of PCM. Control, monitoring and evaluation are parts of PCM. IN PCM the one of the main question is the defining of strategy. The goal of EU projects became competitive advantages of European Union in World Economy. The performance of this basic strategy goal defines the success of project.

The other method is Earned Value Management. This method applies in USA. We have to use EVM in government supported projects. In 19998 EVM criteria were accepted as an American National Standards Institute/Electronic Industry Association standard, called ANSI/EIA 748. Project Management Institute in Boston worked out EVM techniques. The method contains a lot of useful tools and indicators. These indicators facilitate manage projects. These indicators help us to evaluate projects and we can predict the future of a project. The advantages

of both methods can be applied to all projects, of any size or complexity. We can use them every case independent of industry or size. In my essay I propose to use EVM tools as indicators in PCM. In this way we can control and evaluate the projects on schedule. In this essay I propose to use the indicators of EVM with PCM in case of EU projects. It is importance because the EU controller can determine how successful project is.

## 2 Earned Value Project Management

In the first part of essay I introduce Earned Value Project Management (hence force EVM).The base of method is the earned value. The earned value is the value of completed work measures Dollar value (or Euro or Forint). There is no cost and no money; this is value of work in Dollar. In all life of project we monitor the earned value and compare the planned value. We compare the actual cost with the earned value too. Minimum by quarterly we calculate indicators and on based on them we can re-plan the project. History of EVM started in 1930 when development of American industry was fast and electronic and oil industries started great high-technology projects. The earned value concept originally came from the industrial engineers working in the early American factories. After the general depression they understood that we had to measure the efficiency of projects otherwise sources of investment were vested. The newer history started in 1996 on the 27<sup>th</sup> seminar of Project Management Institute. It was held on Boston. They declared that the Earned Value Management applied to every project independent of size or industry. In this year they declared that in government supported project had to apply the Budgeted Costs for Work Scheduled (BCWS) and the Budgeted Costs for Work Performed (BCWP) methods. These methods are based on Earned Value Project management method. The EVM technique can be applied in case of multi-billion dollar huge high technology projects and only some hundred thousand-dollar software projects too. EVM is a methodology used to measure and communicate the real physical progress of a project taking into account the work complete, the time taken and the cost incurred to complete that work. Earned value helps evaluate and control project risk by measuring project progress in monetary terms. Some famous firms apply EVM techniques in their projects (for example GE, GM, Microsoft, etc).

Hence force the fundamental conception of EVM is introduced:

The fundamental conception is: we evaluate the earned value in important scheduled point of project, for example in quarterly. At first we compare earned value with actual cost then we compare planned value of completed work in this point of time. We define the cost performance indicator CPI and the schedule performance indicator SPI.

Let us look at a simplified example:

We have 1 million dollar / year for a project. In the first quarterly we'll spend 300 thousands dollar by forecast. After the first quarterly we make the project status review. We show in the figure a three dimension model. Earned value is the third dimension, the first is time and the second is the cost.

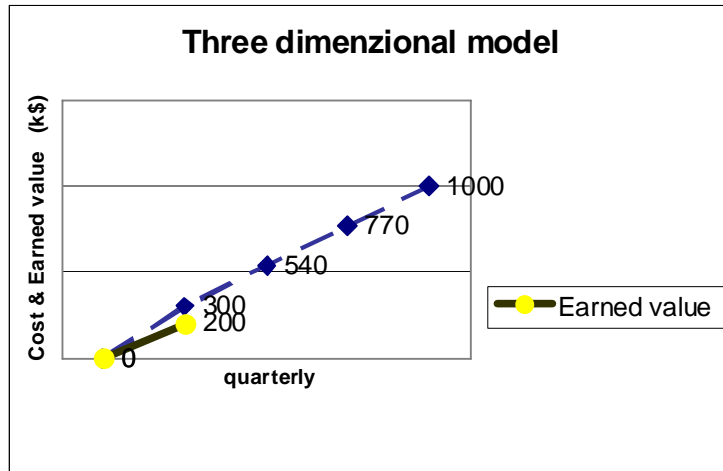
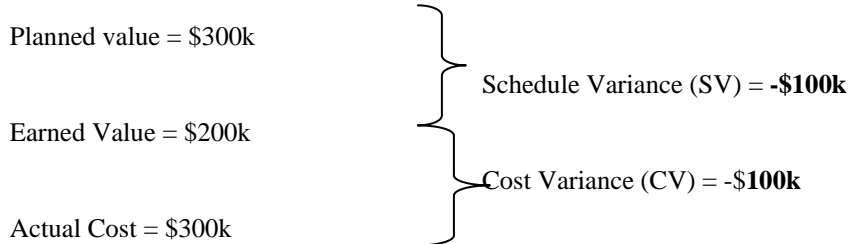


Figure 1  
 Three dimensional models

In the end of the first quarterly the completed work in dollar 200 thousands dollar. This is the earned value. The actual costs are 300 thousands dollar. The value earned for the work performed compared with the actual cost incurred for the work performed (taken directly from the contractor's accounting systems), provides an objective measure of cost efficiency. On the other hand comparing earned value with the planned value measures the dollar value of work accomplished versus the dollar value of work planned. Any difference is called a schedule variance.



Performance Indices: Schedule Performance Index and Cost Performance Index give indications of the health of the project. Is the project on time, in budget or what? Schedule Performance Index is a ratio of Earned Value and planned value of completed works. A SPI < 1 is not good. SPI= Earned Value / Planned value in our case is SPI=0, 67.

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Cost Performance Index is ratio of Earned Value and the actual costs of completed works. A  $CPI < 1$  is not good.  $CPI = \text{Earned Value} / \text{Actual Cost}$  in our case is  $CPI = 0,67$ .

Now I introduce the Earned Value concept in nutshell

Earned Value Management (EVM) is a program management technique that integrates technical performance requirements, resource planning, with schedules, while taking risk into consideration. The Control Account Plan (CAP) is containing these important characteristics of project. CAP is built by three main points:

- Technical performances

At first we determine the technical arrangement of project. It is containing the Work Breakdown (WBS) Structure and the Organizing Breakdown Structure (OBS) and determines the main responsibilities. Then

- Budget

Now we have to determine the budget of project

- Schedule

In the end the third one is the schedule of project.

The CPI and SPI are measured periodically. In this way we define new indicators too. These are  $CPI(p)$  and  $SPI(p)$ .

When we plan a project we have to answer six questions: What?, Why?, When?, How?, Where?, Who?

But in case of EVM the Project Management Institute defined the project planning process as ten-step iterative effort:

- Define the project scope, and identify specific tasks with use of a WBS.
- Assign responsibility for performance of each of these specific tasks.
- Identify the interfaces between tasks.
- Identify the key projects milestones.
- Prepare the master schedule.
- Prepare the top budget.
- Prepare detail task schedules.
- Prepare detail task budgets.
- Integrate the task schedules and budgets with the project master schedule and top budget.
- Set up the project files.

Earned Value requires a special scheduling system. The next steps are required:

- Schedule the authorized work in a manner that describes the sequence of work and identifies the significant task interdependencies required to meet the requirements of the program.
- Identify physical products, milestones, technical performance goals, or other indicators that will be used to measure progress.
- Identify at least monthly, the significant differences between both planned and actual schedule performance, and we need answers to these question:

What work is scheduled to have been completed?

- What was the cost estimate for the work scheduled?
- What work has been accomplished?
- What was the cost estimate of completed work?
- What have our costs been?
- What are the variances?

In case of Earned Value Management requires the synchronization of the planned value with the earned value in order to isolate any planned Schedule Variance (SV). A negative earned value SV simply indicates to the project that it is failing behind its scheduled work. The EVM requires monitoring of project performances based on the Master Schedule Plan vertically and we need to establish the main responsibilities horizontally too.

In the end we can make the EVM Performance Report based on key data elements CPI and SPI.

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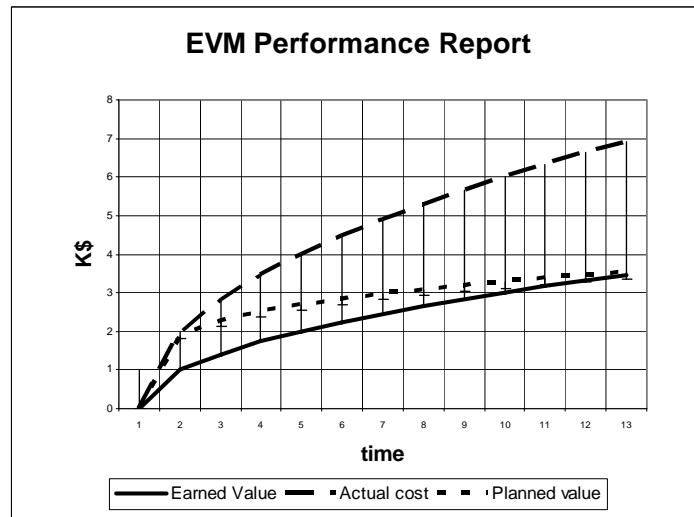


Figure 2  
EVM Performance Report

### 3 Project Cycle Management

In the second part of essay I introduce the Project Cycle Management (hence force PCM). The PCM is identified in the context of an agreed strategy.

The European Committee requires applying the 3P+1T concept to EU supported projects.

Politics -> Program -> Project -> Tender

PCM was introduced by the European Commission in the early 1990's to improve the quality of project design and management and thereby to improve aid effectiveness. PCM developed out of an analysis of the effectiveness of development aid undertaken by the OECD Development Assistance Committee during the late 1980's. PCM based on the cycle theory It is contain the next processes: Problem identification -> Work out strategy, planning -> Work out program -> Executing, Monitoring -> Evaluation, Correction.

The details of what occurs during each phase differ between institution, reflecting differences in procedures. However, within all instructions the cycle shares three common themes:

- the cycle defines the key decisions, information requirements and responsibility at each phase.

- The phases in the cycle are progressive – each phase needs to be completed for the next to be tackled with success.
- The cycle draws on evaluation to build experience to build experience from existing projects into the design of future program and projects.

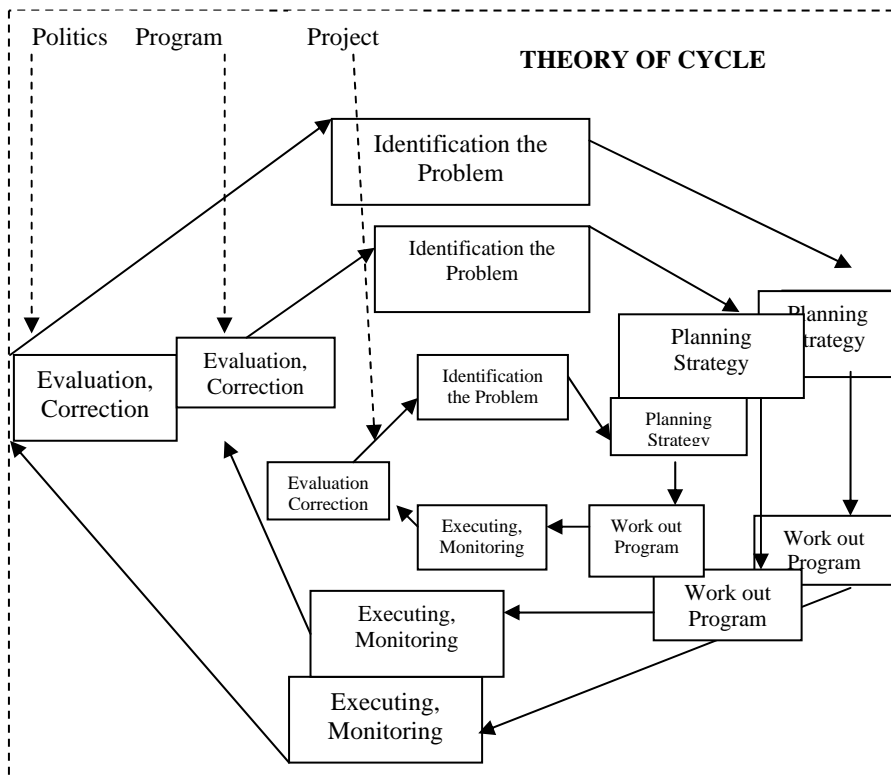


Figure 3  
Theory of Cycle

In PCM is first the strategically analysis. Three steps are need:

- SWOT analysis

This method is about 50 years old. We need fill the next table:

<b>Strength:</b> Demand of habitants; there are some copper networks, we built only fibers.	<b>Weakness:</b> Project isn't worth according to conventional calculation of rate of return.
<b>Opportunities:</b> Habitants are subscribers of Magyar Telekom	<b>Threats:</b> The competitors carry away the ULL

Figure 4  
SWOT analysis

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- Problem tree defining. The problem analysis involves the identification of major problems faced by beneficiaries and the development of a problem tree to establish causes and effects. The steps are:

Identification of the problems

Identification of the main problem and Cause - Effect identification

Drawing of problem tree

Analyze cause – effects

Let us look at a simplified example:

In a small village there is no room for cultural events. Habitants would like to go theatre and to make tourism prosper. There is a nice old palace, but now is only a ruin.

That is the problem tree:

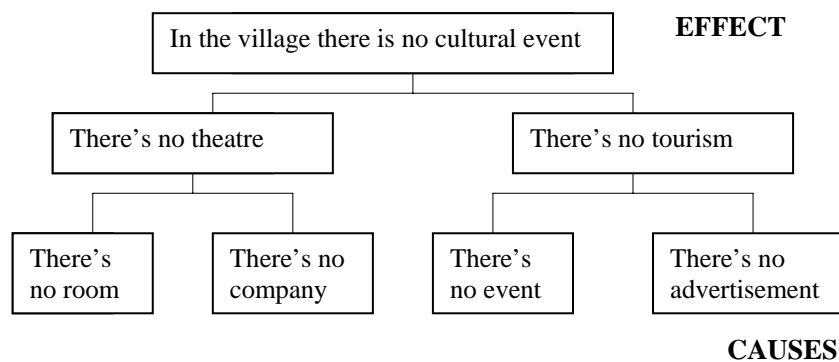


Figure 5  
Problem tree

- Objectives tree. A problem tree presents negative aspects of an existing situation; an analysis of objectives presents the positive aspects of desired future situation. This involves the reformulation of problems into objectives; the “objective tree” conceptualizes the mirror image of the problem tree. The cause and effect relationships are “means and end” relationships.

Forecast

How to solve the problem

Cause – effects change to means –ends

Tools – results



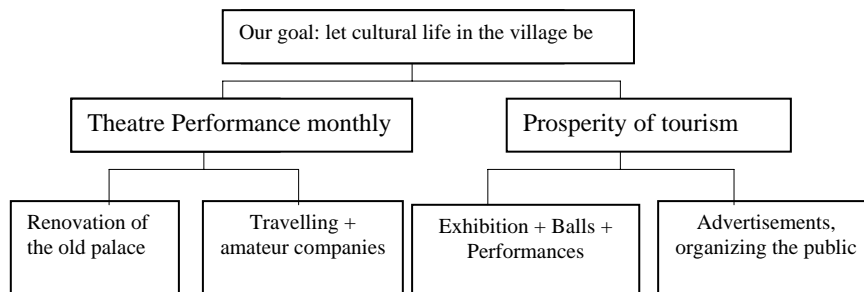


Figure 6  
Objectives tree

In this way we set the overall objective, the project purpose and the results and last but not least the activities too.

- Now we determine beneficiaries and stakeholders. During the formulation phase, project ideas can then be fully developed in the knowledge that they are based on real beneficiary needs and are sufficiently ‘owned’ by the main stakeholders.
- In the planning phase the log frame and its output is Log frame Matrix LFA. The log frame itself consist of a table, or matrix, which has four columns and (in its most basic form) four rows. The vertical logic identifies what the project intends to do, clarifies the causal relationships and specifies the important assumptions and uncertainties beyond the project manager’s control. The horizontal logic relates to the measurement of the effects of, and resources used by, the project through the specification of key indicators if measurement, and the means by which the measurement will be verified.

Let us look at our simplified example

	Intervention Logic	Verifiable Indicators	Sources of Verification	Assumption and Risks
Overall Objective	Let cultural life be in the village	Number of tourists, theatre tickets	Tourist Office, surveys	
Project Purpose	If we renovate the palace would be room	Number of Performance, Exhibitions, Ball	Office Protection of historic buildings, Register of local government	Start many cultural projects
Results	Renovated palace, theatre, exhibition room	A lot of Performance, Exhibitions, Ball	Tourist surveys, Approval index of performances	Playbill, agreements of artists
Activities	Technological plan, building	Tools, Knowledge, Experiences	Costs, Schedule, CPI and SPI	Good corporation
				Precondition: entrepreneurs

Figure 7  
Log Frame Matrix

The Log Frame Matrix contains the controllability and efficient-ability of project. The verifiable indicators are very important. I propose to use the EVM indicators CPI, SPI too in PCM. These indicators would be important roll of control, monitor, evaluate of project and the data collection, too. We would intervene in project based on CPI and SPI if it is necessary. We could care of assumption of project if we apply the EVM technique.

### **Conclusion**

My conclusion is to apply the indicators and techniques of EVM with in the PCM method to managing of EU projects too. In this way to increase the efficiency and reliability of EU projects.

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