

Interfacing Risk and Earned Value Management



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Introduction

BACKGROUND

Earned value management (EVM) and risk management (RM) processes share a common aim of providing decision makers with the best information available when setting objectives and considering management strategies. However, they take differing approaches. EVM establishes project performance status and extrapolates that information to gain an understanding of future trends and the allocation of resource needed to successfully meet these objectives. RM looks to the unknown future to identify risks (threat and opportunity) and recommend early action to be taken to limit the impact and probability of threat occurrence or maximise the exploitation of opportunities.

Both EVM and RM are, in their own way, informing project baseline estimates by using both objective and subjective data. Estimating uncertainty can be reduced by comparison of data outputs from both disciplines, providing a better understanding of project progress and predicted future trends.

It should be remembered that this guide is not intended to explain either EVM or RM techniques; rather it assumes a level of knowledge in at least one of these specialities and moves on to outline an approach to make more efficient use of the captured data.

OBJECTIVES

Established project management methodologies acknowledge the use and benefit of control mechanisms to improve the setting and monitoring of project objectives. EVM and RM are two such techniques that have proven their worth, independently, in support of project control. However, there are areas where the disciplines are complementary that, if exploited, could bring added benefit to both disciplines and, therefore, to project management. This Guide seeks to show how data captured separately through EVM and RM processes can be more effectively utilised, identify where common or synergistic processes exist and increase under-

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standing of how project management planning, monitoring and control can be improved through the integration of the two process.

This guide identifies the added value achievable when EVM and RM are combined in a project context (see Appendix B). It does not attempt to describe how to apply these techniques in a programme or business context, although many elements of this guide may also be appropriate at these levels.

The assumption is that the guidance here is undertaken from the start of the project lifecycle.

STRUCTURE

The sections presented aim to provide both RM and EVM practitioners with practical steps to follow, starting with how to establish the project baseline, followed by baseline change, analysis and decision making, and finally a section on the importance of culture.

Applicable working assumptions are stated at the beginning of each section.

The terminology used in this guide is compliant with recognised international standards, as listed in the glossary in Appendix C.

BENEFITS OF INTERFACING RISK MANAGEMENT AND EARNED VALUE MANAGEMENT

Potential benefits to be had from interfacing EVM and RM ‘good practice’, and hence the benefits to project management as a whole, are suggested in Appendix B, which identifies the improvement to RM from EVM good practice and to EVM from RM good practice. The ultimate benefits of applying EVM and RM practices are gained through delivering good project plans. These lead to better management of projects, which results in successful outcomes.

Interfacing Risk and Earned Value Management

EVM relies on the establishment of a baseline against which performance can be measured in terms of schedule, resource usage and cost. However, this baseline must be agreed against a 'realistic' project projection that has been derived following rigorous risk-adjusted resource, budget and schedule estimating. EVM identifies a value for management reserve to be included in the overall project budget; RM provides the processes to derive this management reserve appropriately through rigorous risk identification and analysis.

The metrics used to gauge the success of applying a project RM process, whether for threat reduction or opportunity enhancement, are usually measured against the project's ability to achieve targets or milestones. However, in either case of threat or opportunity, the realisation is driven by implementing agreed actions and ensuring that these actions are actually carried out and monitored through the baseline change processes required for a robust EVM system.

Herein lies the key to EVM and RM interfacing: the recognition that added value can be found in both disciplines through commonality of purpose in setting, measuring and achieving project targets. A baseline that takes no account of risk is extremely unlikely to be achieved; similarly, risk response actions that are not resourced and effectively monitored are unlikely to produce the desired results.

1

Establishing the project baseline

INTRODUCTION

The following provides a high-level description of how to create a project baseline. The establishment of the baseline requires the following steps:

- Establish the project context.
- Develop the statement of work (SOW), initial work breakdown structure (WBS) and initial organisational breakdown structure (OBS).
- Develop a top-down budget and schedule.
- Identify the strategic-level risks.
- Perform the initial risk analysis (schedule and cost).
- Revise the top-down budget and schedule.
- Integrate the WBS/OBS to allocate appropriate scope responsibility.
- Create control accounts and perform risk analysis.
- Develop and update the initial performance measurement baseline (PMB), i.e. revise control account plans to incorporate agreed risk response actions.
- Update and baseline the project risk register.
- Agree the PMB and management reserve (MR).
- Approve the project baseline.

In practice some of these steps may be combined or tailored to suit individual business and project processes. For example, it may be appropriate for some projects to adopt the principles of this guide without applying the full rigour.

Each step is described in detail below, and Figure 1.1 summarises the steps in a flow diagram.

WORKING ASSUMPTIONS

Definition of budget versus funds

Within an EVM system, the concept of budgets is different from the concept of funds. While a budget represents the cost performance target for a specific effort, funds represent the money available for expenditure in the accomplishment of the effort. Budgets are established for the relevant elements of the WBS and are time-phased.

Example: you budget for a house build totalling £240K taking 6 months; halfway through the project the estimated total build cost has increased to £300K, although the project scope has not changed. The extra £60k must be funded, but your budget does not change. You may revise your estimate to complete the project – funding forecast or estimate at completion (EAC) – to some appropriate value that exceeds £240K, but your budget still remains £240K. It is valid to change the budget only if you add scope to the house build, for example by including an extra bedroom or a garage.

1.1 ESTABLISHING THE PROJECT CONTEXT

This is the first stage in establishing the project baseline. It is important to ensure there is a thorough documented understanding of the project. As a minimum it should be possible to answer the following questions:

- What are the project objectives?
- What are the project requirements?
- What is the project scope?
- What are the project budget and schedule targets?
- What assumptions have been made?
- What are the possible trade-offs?
- What is your risk appetite?

2

Integrated baseline change management

INTRODUCTION

In this section we consider the impact of change on the project baseline components (PMB, specific and non-specific risk provision, and schedule reserve).

A diagrammatic representation of the integrated baseline change management process, encompassing risk review and implement transfer, is presented in Figure 2.1. This is part of the periodic project review process, but can also be triggered by unplanned events during the project.

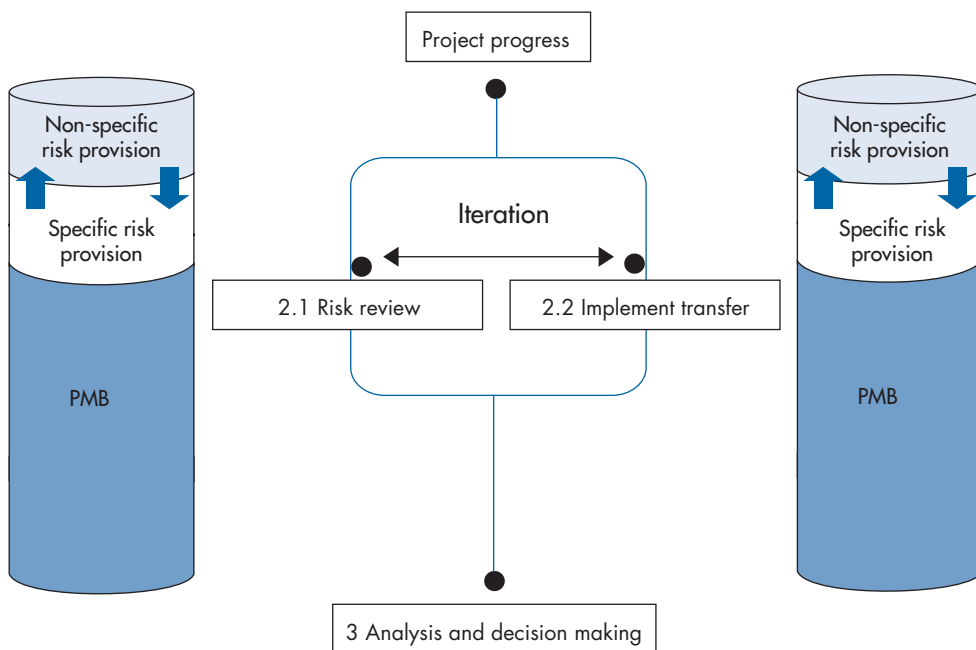


Figure 2.1 Integrated baseline change management process

WORKING ASSUMPTIONS

EVM guidance covers many types of baseline change; the ones most relevant to the interface between RM and EVM are likely to be the result of:

- rolling wave planning – this involves the control account manager planning work in more detail, re-evaluating existing or identifying new risks, and incorporating appropriate risk response actions;
- approval of risk response actions – this involves a change in scope to the control account that may impact on baseline resource and schedule. New work packages can be created and management reserve assigned or released.

Where there is insufficient project baseline budget or schedule to cover approved change, or more threats/fewer opportunities materialise than originally forecast, the project may go into over target baseline (OTB) and/or over target schedule (OTS) position. This scenario is covered in EV guidance and is not discussed here.

Scope changes originated by the customer are not considered; these would normally result in an amendment to the contract and project baseline.

Tip: in the scenario where the remaining work needs to be completely revised, the PMB, MR and schedule reserve all need to be revisited in accordance with standard process for establishing the baseline, as described in Section 1.

2.1 RISK REVIEW

Risk review at risk owner, control account or project level is carried out periodically as part of the overall project review process. It is used to identify new (emergent) risks, and to manage or close existing risks. Transfer from or into non-specific risk provision does not affect the project baseline (Figure 2.2). The result is an adjustment to the specific risk provision.

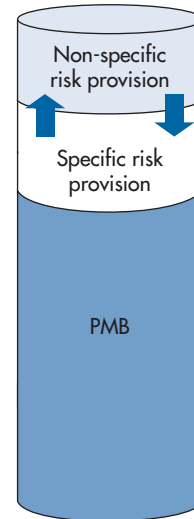


Figure 2.2 Possible flow of budget between non-specific and specific risk provision resulting from a risk review

2.1.1 New or revised risks ↓

Drawdown from non-specific to specific risk provision arises when new risks (threats or opportunities) are identified or existing ones are revised as you gain more knowledge about the project.

The result is an increase in specific (and a corresponding reduction in non-specific) risk provision.

2.1.2 Closed or revised risks ↑

Specific risk provision may be reduced when risks are closed or existing ones are revised. This arises when mitigation or exploitation actions are completed successfully, or when a key milestone is achieved and a number of risks expire.

The result is a decrease in specific (and a corresponding increase in non-specific) risk provision. Subsequently non-specific risk provision may be reviewed by management and a portion released to margin.

Tip: it is simplistic to think of the transfer occurring in 2.1.1 and 2.1.2 above on the basis of a change to a single risk. In practice, specific risk provision is always calculated as the budget required to cover the entire set of risks in the current project risk register, according to current risk

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