

	<p>Project Governance and Controls Symposium 2015 6-7 May 2015 at UNSW Canberra at the Australian Defence Force Academy</p>	<p>Platinum Sponsor</p>  <p>UNSW AUSTRALIA Canberra</p>
-----------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------

Establish the Project Baseline Integrated Baseline Review

Kym Henderson

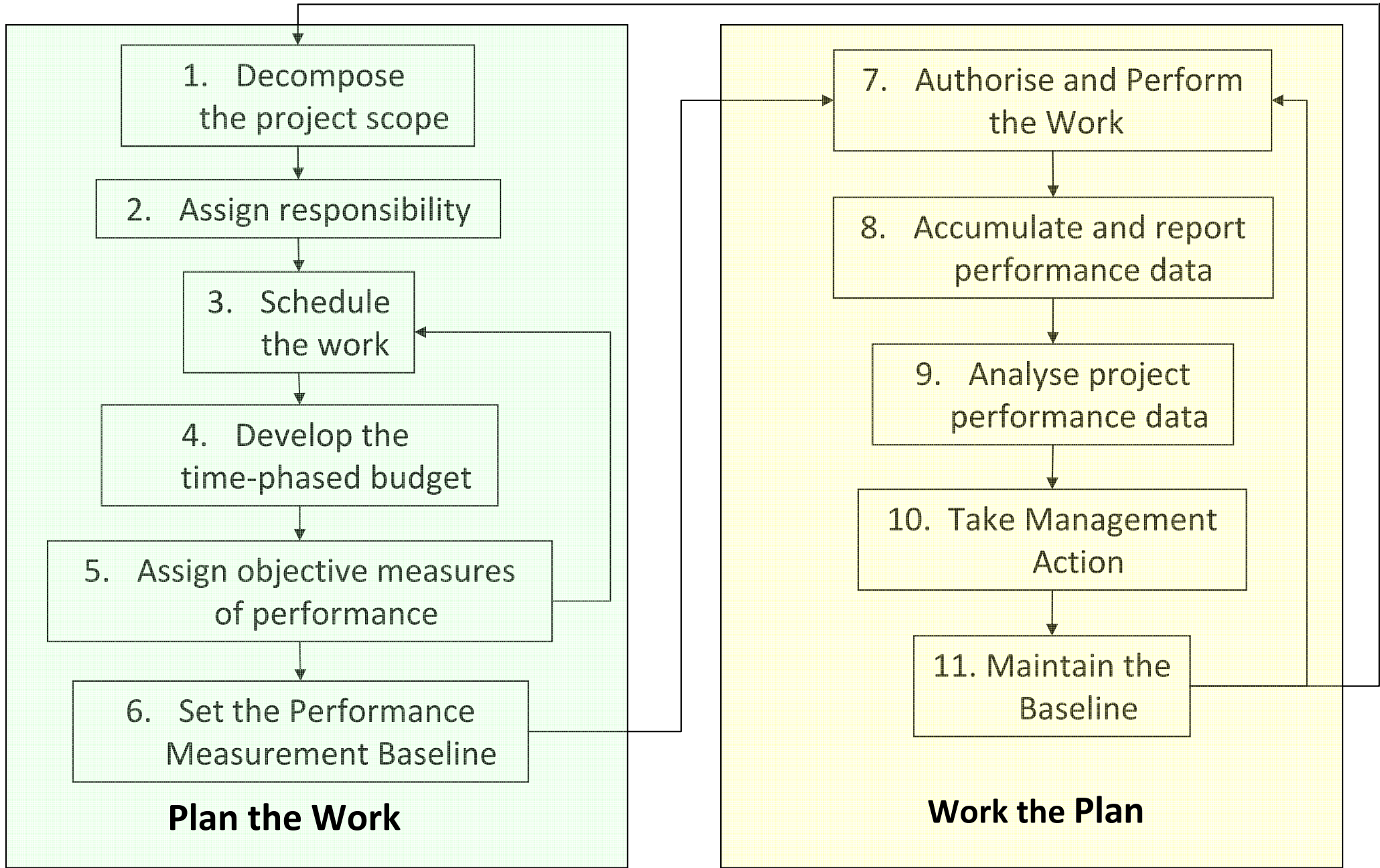
Earned Value Management

A necessary diversion 😊

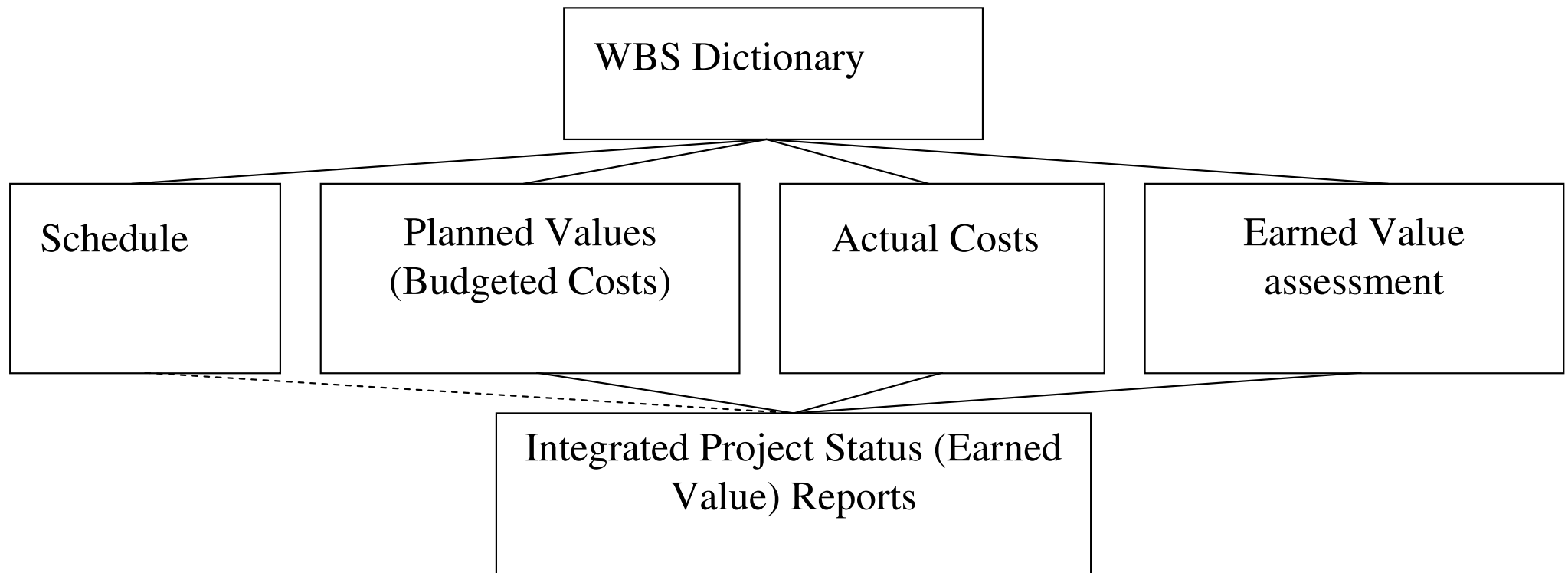
- EVM has different meanings
 - Often not well understood (even within the EVM community)
- Earned Value Project Management (EVPM) is the project management methodology which in DMO (and US Government) projects is used to integrate the cost, schedule and technical performance parameters of the project
- **EVPM is so integral to DMO processes it is often not recognised as being part of the EVM method**
- Many of the IBR data traces are
 - Focused on assuring that this integration has properly occurred
 - Included other later developments, i.e. Risk Management.
- The other (oftentimes least popular) aspect of EVM is
 - Performance measurement
 - Variance analysis and predictive measures of outcomes
 - Historically only applied to cost

EV Project Management Method

Adapted from AS4817-2006 p17 and DMO Project Controls Handbook, Chapter 3



Establishing an Integrated Project Control System



- ◆ The concept is to align project activities defined in the WBS into **both** the schedule and financial accounting and/or time recording systems
 - **This should be within the Project Manager's control**

1. Establish Project Scope

- Technical scope defined in the Systems Engineering Deliverables
- From project management perspective, project scope is defined in the WBS and WBS Dictionary

Why is the WBS so Important ?

(Irrespective of Earned Value Considerations)

- **Work Breakdown Structure**

A *deliverable*-oriented grouping of project elements that organizes and defines the *total work scope* of the project. Each descending level represents an increasingly detailed definition of the project work.

PMBOK® Guide 2000 Edition

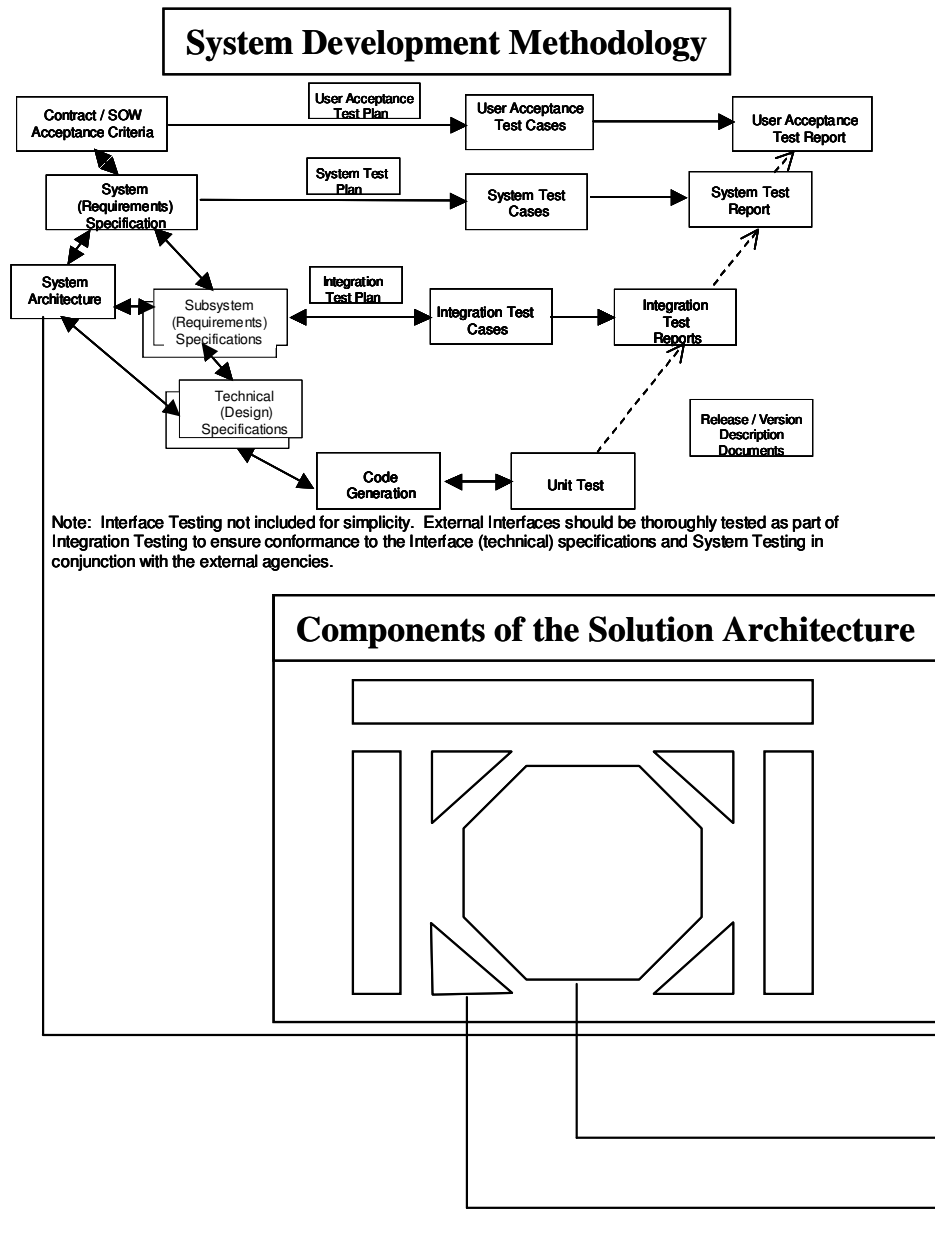
This is a difficult task for any project and particularly so for software projects. Yet if you do not define what constitutes 100 percent of the assumed work how can you measure the project's performance in a definitive way ?

You must make some intelligent assumptions about a new project to quantify the work with sufficient confidence that the defined effort can be planned, estimated and scheduled with some degree of certainty.

The WBS Provides the Structure for

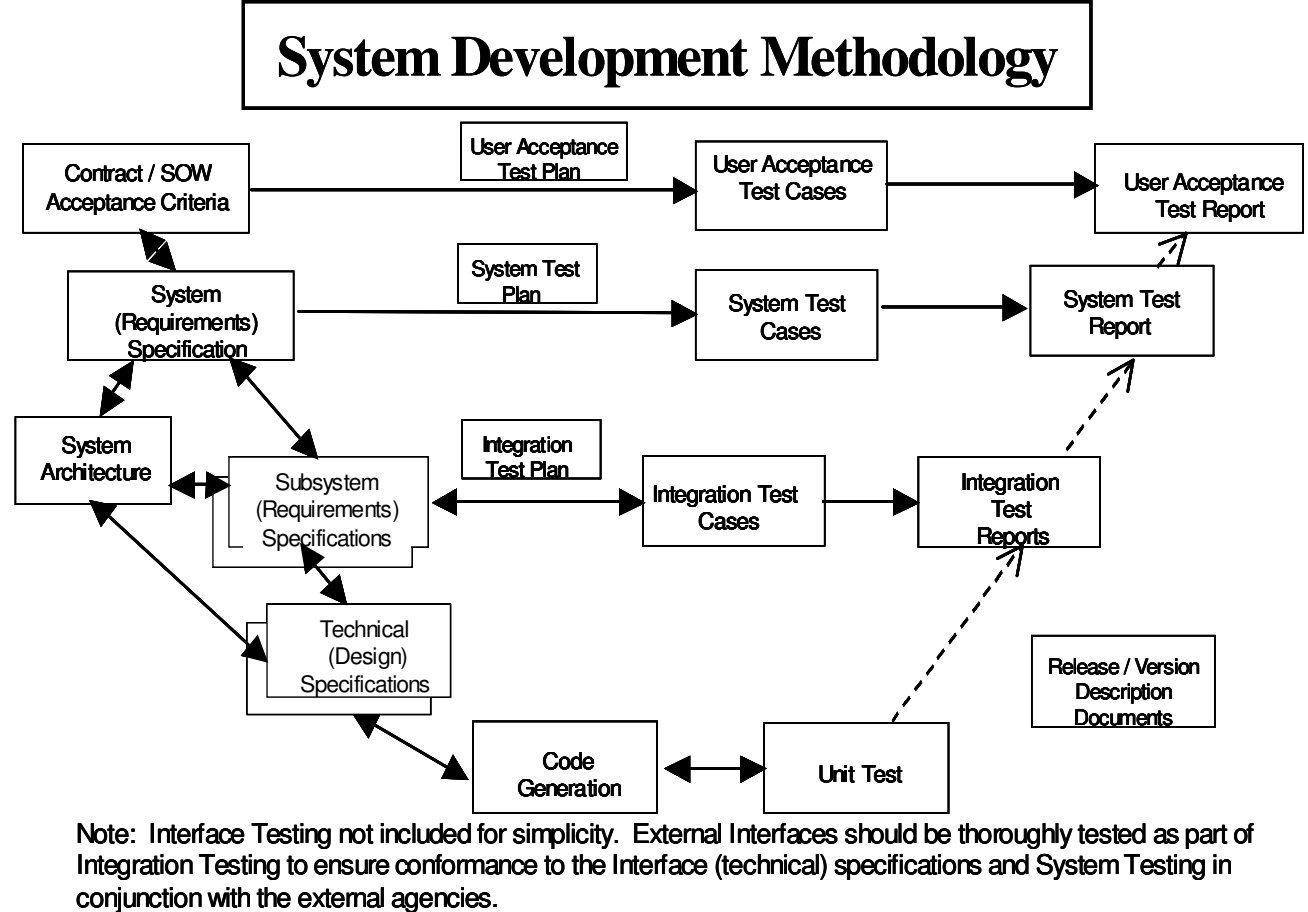
- Capturing and defining 100% of the project scope
- Decomposing the project scope into defined, manageable pieces of work
 - “Control Accounts” and “Work Packages”
- Budgeting and scheduling the project
- Collecting actual costs for comparison to planned (budgeted) costs
- Comparing cost and schedule performance
- Comparing Estimates at Completion
- Reporting project cost and schedule progress to management

Other Factors Influencing the WBS



The Project Management and System Development Methodology define the tasks and (intermediate) deliverables required to produce the product. The Solution and/or Technical Architecture provides the basis for further decomposing the activities associated with the development of the product especially during the build and test phases.

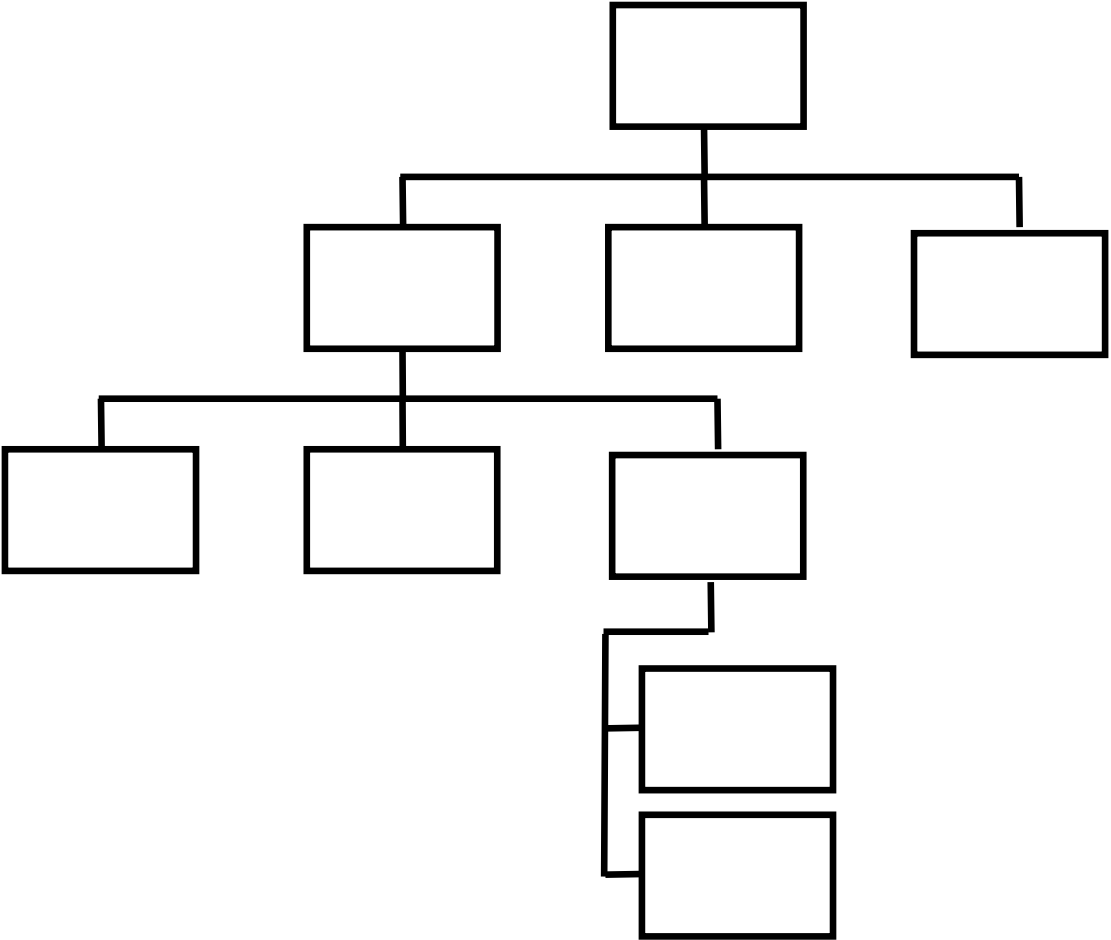
IT Projects and EVM



- ◆ IT projects (**should**) contain **many** to **most** deliverables amenable to objective measures of progress
 - Find them in the development methodology being followed!
- ◆ Critical IT project risk often “**Integration Risk**”
 - This occurs later in the lifecycle
 - Mitigate with Technical Performance Measures and Mgt

The WBS Structure (in Earned Value Terms)

WBS / WBS Dictionary



1. Project Level

1.1 Control Account Level

1.1.1 Work Package Level

1.1.1.1 Tasks Level

The WBS Structure

- The highest level is the Project Summary level
 - Very large projects can have many “Summary Level Accounts”
- Next level is the “Control Account” Plans (CAP)
 - Other terms are “Cost Account” or “sub project”
 - The CAP is a **management control point** for cost, schedule and technical performance
 - The CAP contains a
 - Scope of work
 - Schedule
 - Budget
 - Deliverable(s)
 - Management accountability
- Examples of Control Accounts might include
 - Build subsystem xxx
 - System Testing

The WBS Structure

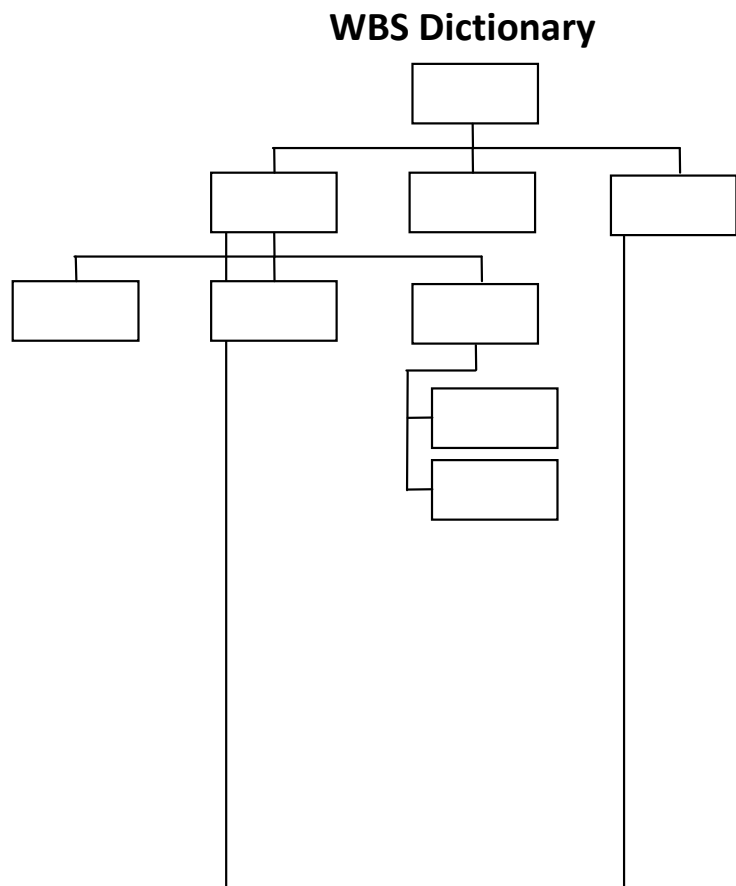
- The Work Package
 - Is the lowest level of detailed planning
 - Consists of a definable unit of work with measurable start and end point (ie. a deliverable)
- Examples of Work Packages might include
 - System Test Plan
 - Detailed Design Specification for ...
- Work Packages are made up tasks
 - Draft System Test Plan
 - Review System Test Plan
 - Update System Test Plan
 - Deliver System Test Plan

WBS Level of Detail

The “rule of thumb” is to develop the WBS only to the level of detail needed to plan, implement and control the project

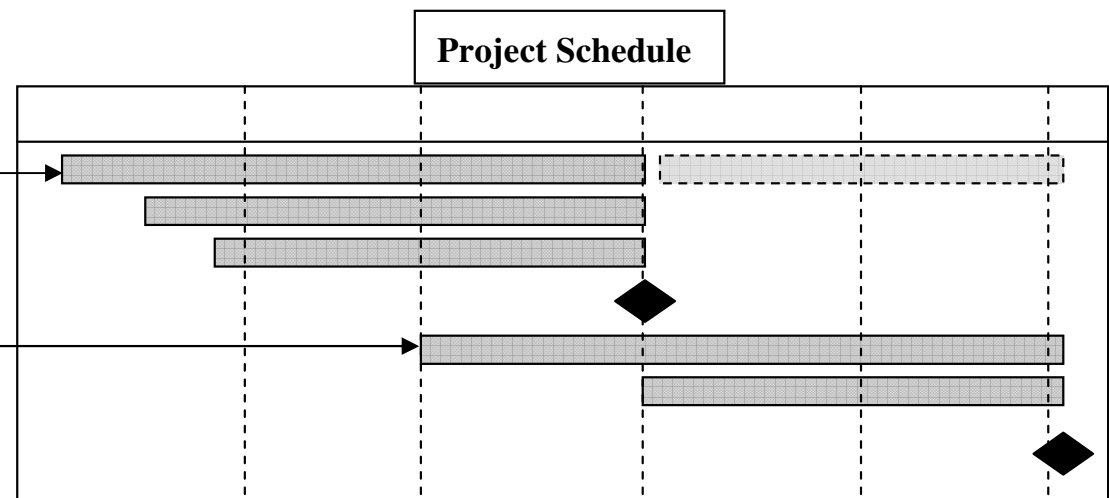
- Too little WBS granularity leads to loss of control
 - “cannot see the trees in the woods”
- Too much WBS granularity also leads to loss of control
 - “cannot see the woods for the trees”

Establish the Performance Measurement Baseline



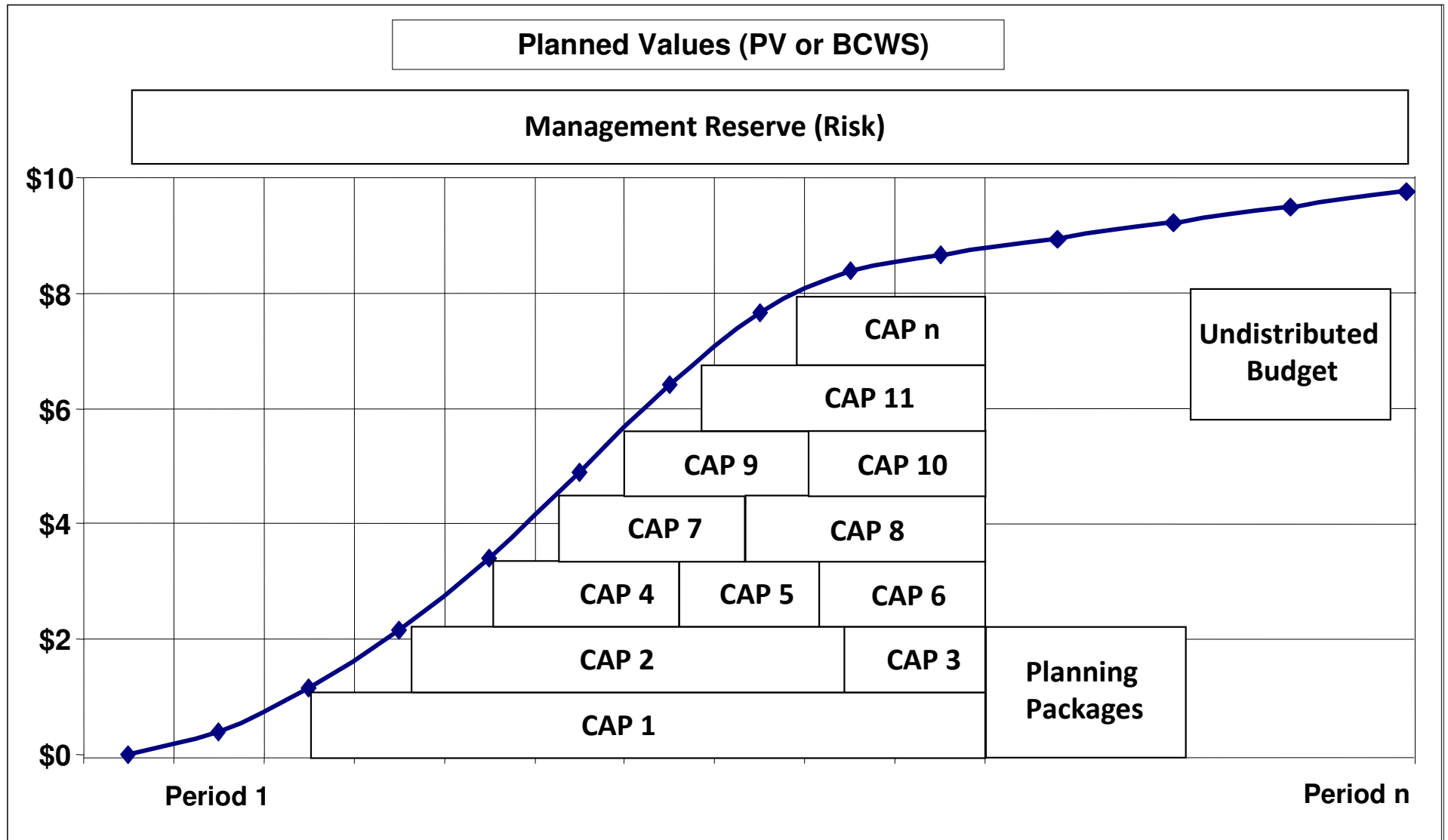
- 1) After defining the WBS, estimating the CAPs and Work Packages,
- 2) Schedule the CAPs into timelines for performance
- 3) The scheduled work becomes the project's "Planned Values" or "BCWS"

A properly structured "integrated project schedule" is critical because it represents the project scope, planned values and forms the basis of Earned Value measurement



The Performance Measurement Baseline (PMB)

Another Representation



The Performance Measurement Baseline

- The Performance Measurement Baseline consists of:
 - All defined Control Account Plans
 - If a very large or long term project:
 - Planning Packages
 - “Control Accounts” for in scope work which have not been defined and planned in detail
 - Undistributed Budget
 - Budget which is allocated for “in scope” work which has not yet been defined into Planning Packages

Management Reserve or Risk

- Management Reserve or Risk
 - Management Reserve is a budget reserve for “**in scope but unforeseen**” work
 - A similar concept to “risk and/or contingency”
- In traditional Earned Value implementations
 - It is not owned by the Project Manager
 - But allocated as required by senior management; and
 - Excluded from the PMB

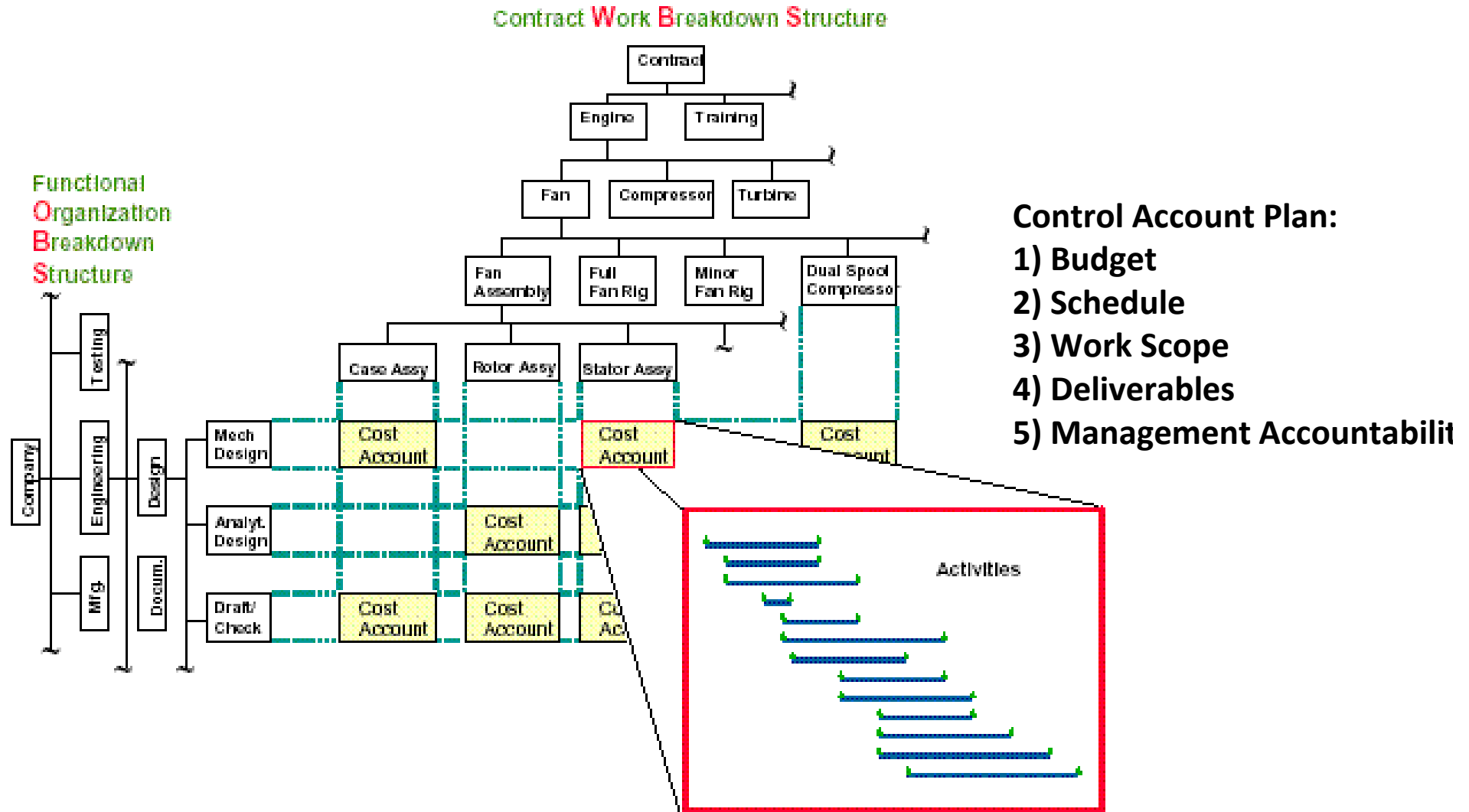
Management Reserve or Risk

- The overriding principle should be that **unbudgeted** work should not be included in the Performance Measurement Baseline as this will distort Earned Value measures:
 - “Work without budget overstates the cost variance.
Budget without work understates the cost variance.
In either case, effective control via variance analysis is impaired.”
- Recommend that “unallocated” or “un-realised” risk allocations be managed via the Risk Log and Risk Management Process
 - “Realized Risks” can be transferred to the PMB depending on project size and the size and complexity of realized risks
 - Establish a project policy for “transfer of risks to the PMB”
 - **Also recommend that the Risk budget be consolidated into a WBS “Control Account” for risk management and risk “work packages” be added for tracking “realised risks” performance**

Organising the Project

- Having defined the project scope, WBS and established the PMB, the next step is to establish the project organisation to deliver the project
 - The simplest technique is to align the project organisation directly to the WBS at the Control Account Plan level
- On small projects, the project manager could be responsible for all CAPs
 - In this case, the project manager assumes responsibility for project delivery at project summary and detailed levels
- On large projects or in complex organisational situations, it may be necessary to develop an Organisational Breakdown Structure (OBS) and map this to the WBS
- Note: In some literature (and AS4817-2006), organising the project is included as a step prior to establishing the PMB
 - Establishing the PMB is an iterative process

An Example OBS – WBS Matrix



The intersection of the WBS and OBS become the Control Account Plans (in traditional Earned Value implementations)

Establish PMB takeaways

- An iterative process to develop the PMB
 - Establishing scope definition is fundamental
 - The WBS is fundamental
 - The Project schedule is fundamental
 - The project organisation is fundamental
 - Including assigning of responsibilities and accountabilities
- Establishing the above and realistic, achievable budgets and resourcing and MR and delivery schedule is preferable
 - These items will need to be established for the iteration of the project which actually delivers!
- The PMB is the base for assessing project status, of progress and variance analysis during execution
 - Whether EVM is being applied or not!

IBR Overview

What is an IBR?

- The IBR is a **risk-based** process enabling **technical** and **schedule review**, focusing on the **assignment, definition, scheduling** and resourcing of work
 - Establishes early visibility into the acceptability of the Contractor's contract planning.
- The IBR also reviews the methods and metrics used to measure contract performance or progress.
- The focus is upon reviewing the technical merits and resourcing of the plan and to assess the risk associated with the baseline.

What is an IBR?

- The process involves
 - A review of pertinent documentation,
 - On-site review of the Contractor's proposed plan,
 - Review of some of the management systems directly related to the establishment of the PMB
 - (PMB= Performance Measurement Baseline)
 - Interviews/discussions with relevant managers.
- An IBR is usually scheduled for ED + 3 to 6 months.

IBR Objectives

4. The objectives of the IBR are to:

a) Ensure that the complete contract scope of work is covered in the Contract Work Breakdown Structure (CWBS);

b) Assess whether the technical scope can be accomplished within baseline cost and schedule constraints and that resources have been appropriately distributed to the contract tasks;

c) Assess that there is a logical sequence of effort that supports the contract schedule;

d) Identify areas of risk in resource allocations and in the technical performance of the contract and understand the cost and schedule implications of that risk;

IBR Objectives continued ...

- e) Assess the validity and accuracy of the Contractor's baseline by examination of at least one Earned Value Performance Report (EVPR);
- f) Review proposed Earned Value Techniques (EVTs) to be used to measure and report progress to ensure that the measures are appropriate and will provide meaningful indicators of work completed; and
- g) Develop Project Office (PMB), resulting in a better appreciation of the Contractor's performance management process and the techniques used to measure performance. This common understanding of the baseline plan should enable improved partnering throughout the contract and reduce misunderstandings.

IBR Output

- IBR Report
 - Follows Quality Audit Report format
 - Corrective Action Reports (CARs) documents non conformances found during IBR requiring resolution
 - Major CARs must be rectified prior to IBR exit
 - Minor CARs require Corrective Action Plans and agreed dates for resolution

IBR Summary

- An extensive process
- Involves significant effort on contractor and Commonwealth
 - To prepare for and conduct
 - Should be planned and executed as a project
- DMO ASDEFCON IBR Checklist (v 2.4)
 - 5 Entry Criteria
 - 106 Review Checklist Criteria
 - 9 Exit Criteria

IBR Takeaways

- Risk based process
- Focused on
 - Technical and schedule review
 - Resourcing of work
 - Provides visibility of contractor's planning processes
- Involves
 - (Extensive) document reviews and data traces
 - Mostly done off site
 - Onsite (Control Account Manager [CAM] Interviews

What is the IBR Outcome?

- The IBR process includes various activities, which ultimately result in the **formal approval of the [Performance Measurement] baseline**