

Event Based Scheduling

I. Introduction

- A. A key challenge to developing a good project schedule is ensuring that all required activities have been identified
- B. In many cases, the product-based WBS is used to identify the work required for a project
- C. Event-based or event-driven scheduling is an alternative technique based on planning towards major project events

II. Event-Based Scheduling

- A. Event-based scheduling is one of the basic tenets of the Department of Defense Integrated Product and Process Development (IPPD)
- B. The Integrated Master Plan (IMP) and Integrated Master Schedule (IMS) are the planning and scheduling processes that have been developed to support event-based scheduling

III. What is the IMP?

- A. The Integrated Master Plan (IMP) is an event-driven plan that describes the total work effort necessary to complete a project (not a calendar based plan)
- B. The IMP is structured to measure project maturity by identifying the accomplishments needed to successfully complete each major project milestone, event, or phase
- C. It is this “completion of events before moving on to new events” that differentiates an event-driven project from a schedule-driven project

IV. Levels of the IMP

- A. Events – Transition Points Between Major Program Phases
- B. Accomplishments – Interim or Critical Activities That Must Be Completed Prior to an Event
- C. Criteria – Measurable and Useful Indicator That Demonstrates Achievement of an Accomplishment

V. Events

- A. Events are key milestones that define project progress by marking the conclusion or initiation of intervals or phases of a major project activity

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1. Events summarize the project
- B. Events thus represent major points at which it is logical to measure project progress

VI. Events

- A. Defined by the top-level project team
- B. Distributed over project period
- C. Logically sequenced points to assess project progress
 1. DoD reviews (e.g., Milestone A)
 2. Project reviews (e.g., design, production readiness, and supportability reviews)
 3. Tests, deliveries, and other key progress demonstration or risk mitigation points

VII. Sample Events

- A. Technical and Management Review Events
 1. Post Award Conference (PAC)
 2. System Requirements Review (SRR)
 3. Preliminary Design Review (PDR)
 4. Critical Design Review (CDR)
- B. Development Events
 1. Subsystem Fabrication Complete
 2. Subsystem Integration Complete
 3. System Integration Complete
 4. Design Readiness Review (DRR)

VIII. Accomplishments

- A. Accomplishments define critical activities that must be completed prior to entering or exiting an event
 1. An event is completed when all subordinate accomplishments have been

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completed

2. Each accomplishment should substantially contribute to the success of the related event
- B. Accomplishments summarize the Statement of Work at level 2
- C. Accomplishments demonstrate understanding of the project requirements
- D. Multiple accomplishments for each event
- E. Accomplishments can be networked to form high-level project schedule
- F. Accomplishments might include
1. Deliveries of systems/subsystems
 2. Completion of integration activities
 3. Completion of reviews
- G. Examples of accomplishments
1. System Requirements *baselined*
 2. Subsystem design *baselined*
 3. Assembly *completed*
 4. Risk Management Plan *approved*

IX. Sample Accomplishments

- A. Event – Preliminary Design Review
1. Design Implementation Trade Studies Completed
 2. System Architecture Update Completed
 3. System Requirements Allocation Completed
 4. Aircraft Preliminary Design Completed
 5. PDR Conducted
- B. Event – Test Readiness Review
1. Test Assets Available
 2. Test Planning Completed
 3. Test Support in place

X. Criteria

- A. Criteria are a definitive indicator or measure which verify the completion of an accomplishment
- B. An accomplishment is complete when all subordinate criteria are complete
- C. Criteria provide evidence of completion of the associated accomplishment - checklist

XI. Examples of Criteria

- A. Definition of test requirements *completed*
- B. Requirements specification *updated*
- C. Test plans *submitted*
- D. Flight Test Report *approved*
- E. Maintenance Demonstration *completed*

XII. IMP Summary

- A. The IMP consists of three, and only three, elements:
 - 1. Events
 - 2. Accomplishments
 - 3. Criteria
- B. The IMP is similar to a Work Breakdown Structure (WBS), but is time-phased rather than product-based

XIII. IMP Process Summary

- A. The core project team defines the events
- B. Accomplishments for each event are then defined
 - 1. Each accomplishment is the work product of one team
- C. Criteria are defined by the team responsible for each accomplishment
 - 1. Process descriptions can help identify criteria

XIV. Why Develop an IMP?

- A. Systematic approach to project planning, scheduling, and execution
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- B. It lays-out the entire project in single plan
 - 1. All project effort
 - 2. All project phases
- C. It provides a way to measure project progress
- D. It describes how the team will accomplish the activities to complete the project

XV. IMP versus WBS

- A. Integrated Master Plan – The IMP is an event-based plan depicting the overall structure of the program and the key processes, activities, and milestones. It defines accomplishments and criteria for each event.
- B. Work Breakdown Structure –The WBS provides a basic framework for identifying each element of a project in increasing levels of detail. In essence, it describes the way work is performed. The WBS also provides a coherent method for reporting progress toward plan goals.

XVI. What is the IMS?

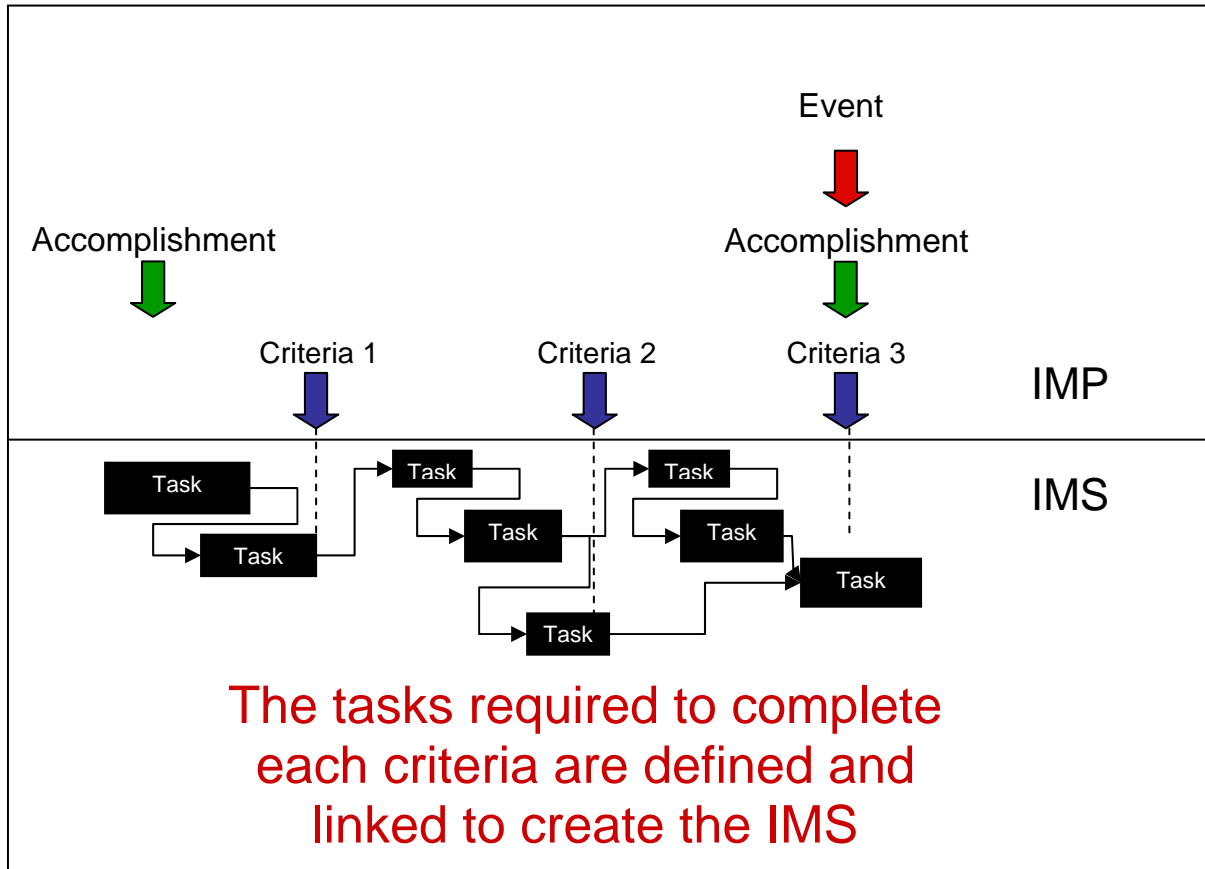
- A. The IMS is an integrated and networked schedule of tasks required to complete the work effort captured in the IMP
- B. The IMP is expanded in the IMS to incorporate all detailed tasks required to accomplish the individual IMP criteria

XVII. Tasks

- A. Tasks are time phased, detailed activities required to support the IMP criteria and accomplishments
 - 1. Have a duration
 - 2. Have relationships with other tasks within the network
 - 3. May have start/finish constraints
 - 4. Start with verbs/action words
- B. Each IMS task is:
 - 1. Associated with one criteria
 - 2. Associated with one WBS element
 - 3. Resource-loaded

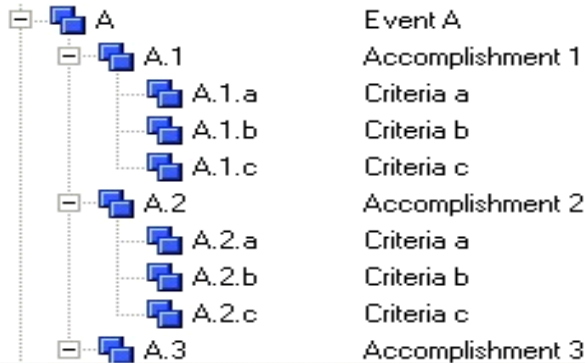
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XVIII. IMP/IMS Integration



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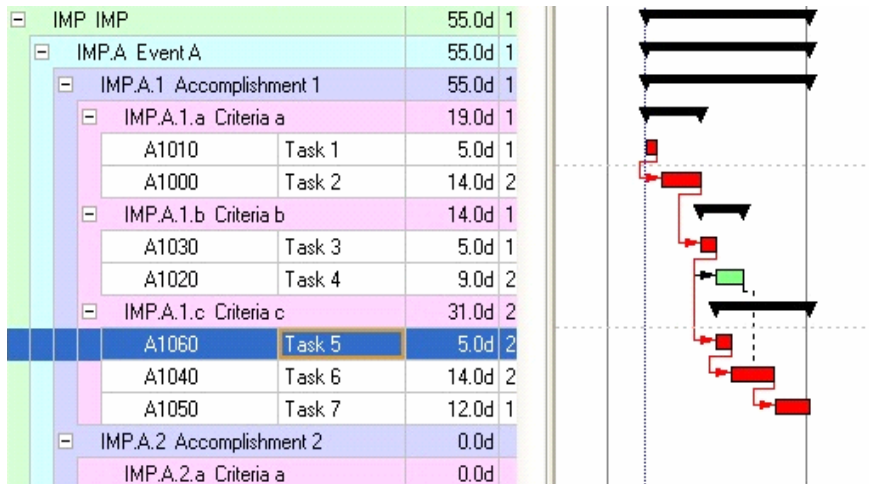
XIX. IMP/IMS Summary



A. IMP

1. Event-based plan
2. Events
 - a) Accomplishments

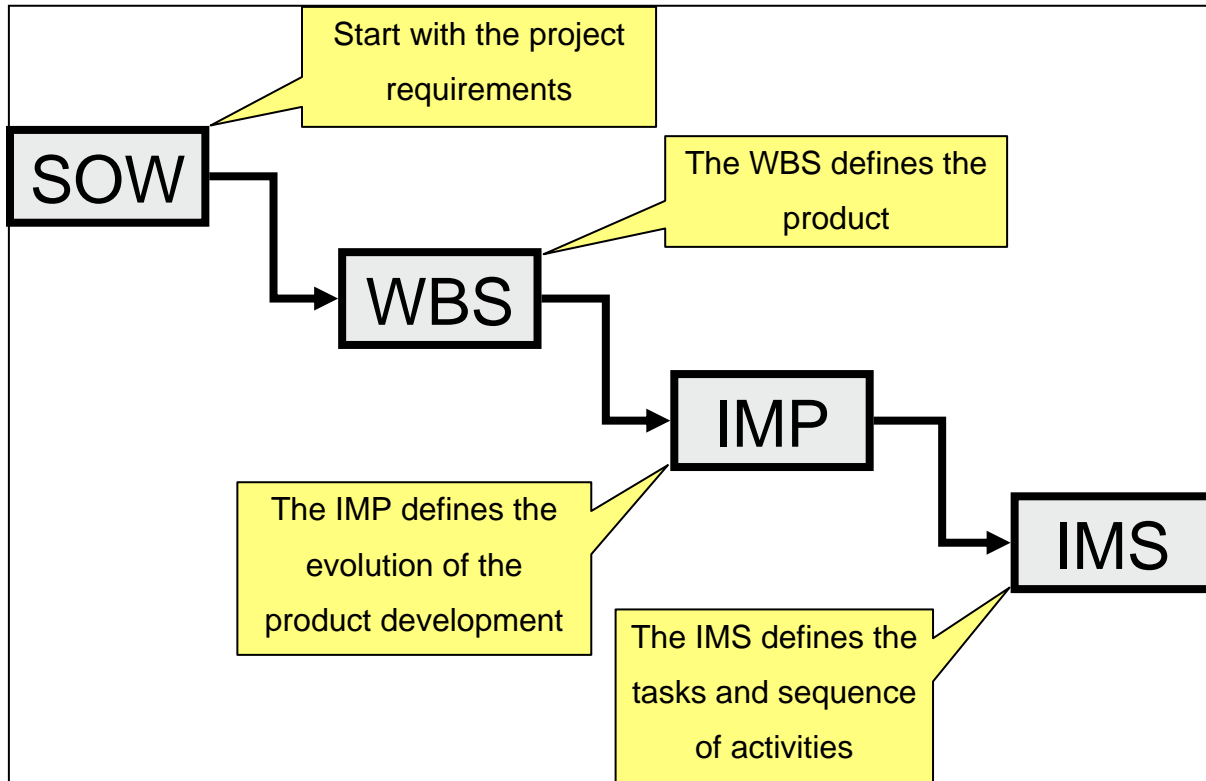
(1) Criteria



B. IMS

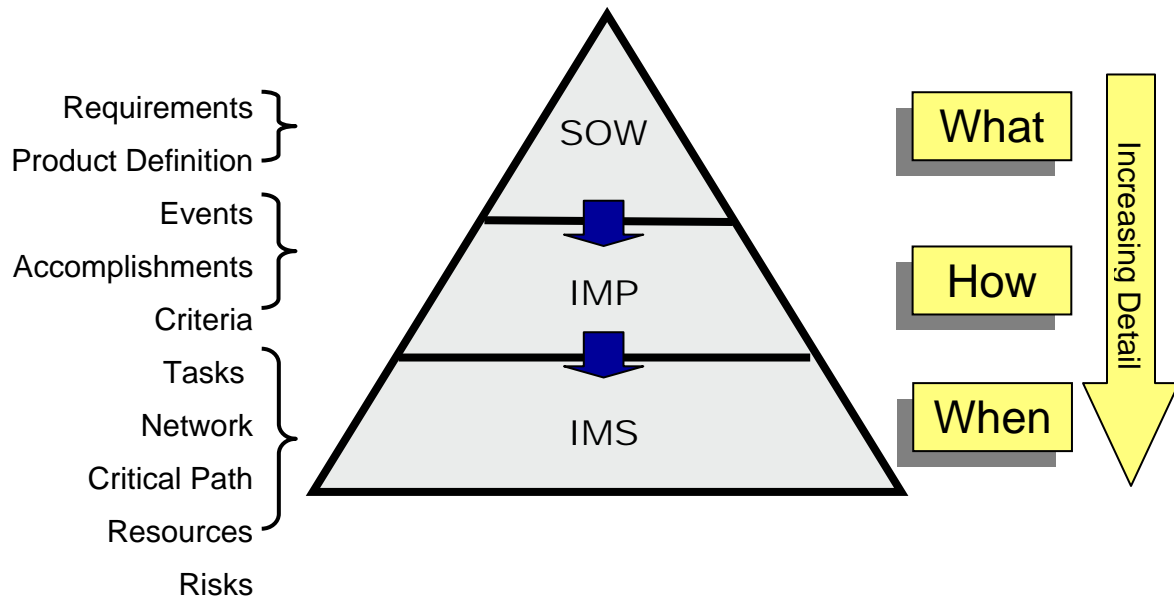
1. Task and calendar based schedule
2. Level of detail necessary for day-to-day execution

XX. IMP/IMS Process Summary



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XXI. SOW, WBS, IMP, & IMS



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XXII. IMP vs. IMS Relationships

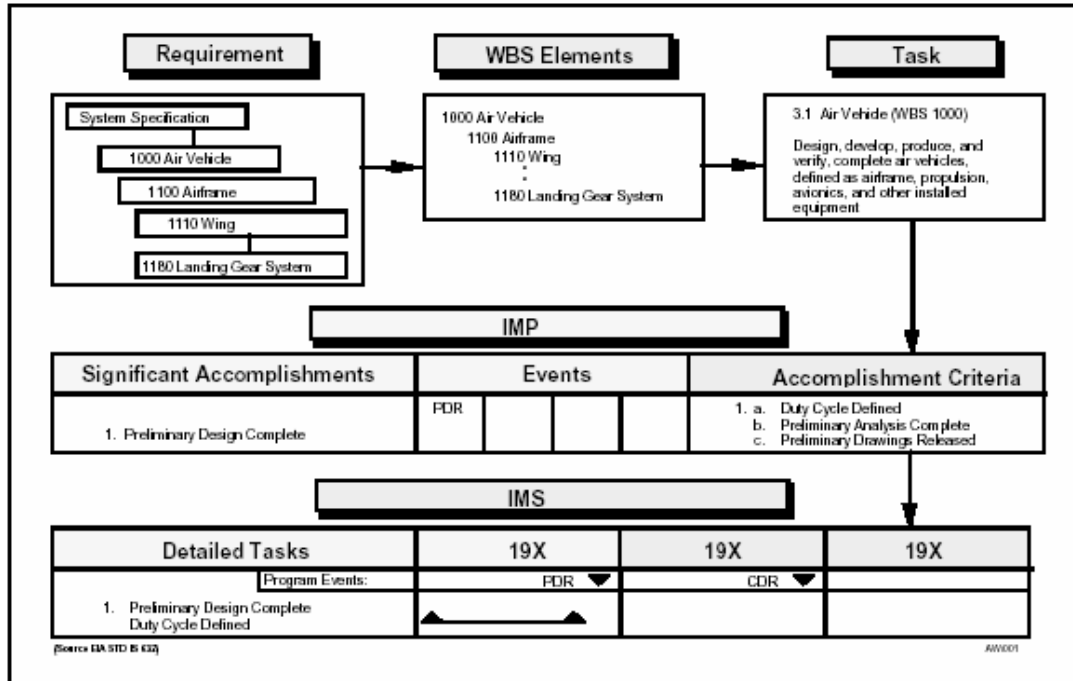


Figure 6-1. IMP vs. IMS Relationships

Defense Acquisition University, (Jun 2003) U.S. DoD Extension to PMBoK®Guide. (p. 48) Fort Belvoir, VA

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XXIII. Advantages of Event-Based Scheduling

- A. The program clearly progresses from one event to the next
- B. The discipline in this process ensures consistency of detail from team to team
- C. Tasks relationships supporting the program events are clearly defined
 - 1. Using the event, accomplishment, criteria and task hierarchy the entire program from go ahead to delivery is planned and scheduled.

XXIV. IMP & IMS Lessons Learned

- A. Do not start work on the IMP until the WBS, SOW, and organization structure are established
- B. Train everyone on IMP/IMS and basic scheduling concepts
- C. Document all assumptions
- D. Brainstorming is an effective technique for defining events and accomplishments
- E. Events should be spaced throughout the calendar year to establish points in time where meaningful performance measurement takes place
- F. The IMP and IMS development is an iterative process
- G. Do not go overboard with the level of detail in the IMS

XXV. Summary

- A. Event-based planning and scheduling can be applied on any project
 - B. The Integrated Master Plan describes the time-phased evolution of a project
 - 1. Events are key project milestones
 - 2. Accomplishments identify requirements for an event
 - 3. Criteria are the discrete measurable criteria for completing an accomplishment
 - C. The Integrated Master Schedule contains all of the tasks necessary to complete the project
 - 1. Organized by event, accomplishment, and criteria
 - 2. Networked
 - 3. Resource-loaded
 - D. Event-based planning provides a solid basis for project progress measurement
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