



POINT PAPER –
***EVMS COMPLIANCE WITH
CRITICAL PATH METHOD***

Ivan Bembers

ivan.bembers@intragmt.com

Background and Context

Over the past decade, significant attention has been devoted to improving the critical path method (CPM) concept for acceptable practices within the Earned Value Management (EVM) community. These efforts have evolved in parallel across both Government and Industry. This reflects a shared recognition for greater consistency and rigor in schedule management as part of Earned Value Management System (EVMS). This paper is written primarily within the context of the Defense Acquisition System (DAS) with an intended focus on major system acquisitions. While CPM in EVMS is the primary focus of this paper, it is one of many schedule methods which should be used with schedule risk analysis and quantitative risk assessment techniques¹. For simplicity, this paper discusses CPM at a high level and emphasizes the vital need to adequately explain a supplier's CPM approach in EVMS procedural guidance.

The formality of scheduling practices in both DoD and Industry arguably began to mature after the issuance of the first Department of Defense (DoD) Integrated Master Schedule (IMS) Data Item Description (DID) ([DI-MGMT-81650](#))² in March 2005. Before this DID, there was not a standard DoD schedule reporting requirement for the services and agencies to use on acquisition contracts. Following the IMS DID issuance, one of the most frequently cited sources for contemporary critical path definition and scheduling practices remains in the National Defense and Industrial Association (NDIA) Integrated Program Management Division (IPMD) Planning and Scheduling Excellence Guide (PASEG)³. The guidance and definitions in PASEG have evolved and improved since its initial release in 2012, and it is important to remember that the initial PASEG was written jointly by the Government and Industry and formally adopted by NDIA with continued collaborative Government participation in subsequent updates⁴.

Therefore, there has been broad consensus across the community on CPM, but specific implementation methods vary. This paper is not intended to endorse or propose a specific critical path definition and method. It is intended to remain at a higher level of detail and does not address nuanced explanations of varying CPMs and driving paths. ***This paper focuses on the need to fully describe a supplier's unique implementation approach enabling higher confidence implementation for effective program performance and EVMS compliance.***

Primary References of Critical Path Definition

Depending upon when a supplier established its EVM system description in the past and how often it is updated, the critical path definition has evolved in commonly referenced guidance documents. Below are two commonly referenced critical path definitions:

- Current DoD definition – Glossary of EVM Definitions (OUSD/DPC/API/IPM):
 - The longest sequence of tasks from Time-now to the program end date. If a task on the critical path slips, the program end date will slip. Critical Paths may start to the right of

Time-now if the driver to the path originates from any constrained task or milestone utilized as an input to the program schedule⁵.

- Current NDIA IPMD definition – PASEG Version 5, 2022:
 - The continuous sequence of tasks which determines the program end date. These tasks prevent the program end date from finishing sooner⁶.

OSD’s current glossary definition remains consistent with an earlier definition in PASEG v1.1 and includes minor edits. While there may be diverging opinions about the differences between specific definitions and methods, they have been written over the years by very qualified and talented subject matter experts across Government and Industry. For some stakeholders the differences are minor and for others they may be a cause for concern. This paper acknowledges the desire to evolve and adapt terminology and methods over time. While there are more definitions, the table below summarizes additional critical path definitions relied upon over the last 20 years in the community.

Table 1: Critical Path Definition References

Reference	Definition
OSD Glossary of EVM Definitions (2025) ⁵	The longest sequence of tasks from Time-now to the program end date. If a task on the critical path slips, the program end date will slip. Critical Paths may start to the right of Time-now if the driver to the path originates from any constrained task or milestone utilized as an input to the program schedule.
DoD IPMDAR DI-MGMT-81861B ⁷ (03/12/20)	Not defined (See IMPDAR Implementation & Tailoring Guide)
DoD IPMDAR Implementation & Tailoring Guide ⁸ (08/24/21)	Section 2.4.2.13 – Refer to the EVMSIG for definition
DoD EVMSIG (02/18/15) ⁹ & 03/14/19) ¹⁰	7.2 Part II. Definitions: A sequence of discrete work packages and planning packages (or lower level tasks/activities) in the network that has the longest total duration with the least amount of total float/slack through an end point that is calculated by the schedule software application.

DoD IPMR DI-MGMT-81861 ¹¹ (06/20/2012) DI-MGMT-81861A ¹² (09/16/2015)	3.7.1.3.5.9. A sequence of discrete tasks/activities in the network that has the longest total duration through the contract or project. Discrete tasks/activities along the critical path have the least amount of float/slack. Activities that contain “0” or negative total float are not by default the critical path. The critical path calculation is based on relationships, lead/lag times, durations, constraints, and status. Excessive constraints and incomplete, incorrect, or overly constrained logic shall be avoided because they can skew the critical path.
GAO Schedule Assessment Guide, GAO-16-89G ¹³ (Dec 2015) Glossary	The longest continuous sequence of activities in a schedule. Defines the program’s earliest completion date or minimum duration.
DoD EVMIG (01/18/2019) Section 2.2.5.7.4.4 IMS Reporting Levels ¹⁴	The Program Critical Path is the sequence of discrete tasks/activities in the network that has the longest total duration through the contract. Accordingly, discrete tasks/activities along the CP have the least amount of float/slack. The standard for a networked schedule means that all discrete contractual tasks or activities are logically networked both horizontally and vertically with predecessor/successor logic, duration, and resources (when available) such that an accurate CP can be electronically calculated by the scheduling software application.
DoD EVMIG (01/18/2019) Appendix G: Glossary of Terms ¹⁵	A sequence of discrete work packages and planning packages (or lower level tasks/activities) in the network that has the longest total duration with the least amount of total float/slack through an end point that is calculated by the schedule software application. ⁴⁶
PASEG v5 ⁶ (09/12/22)	The continuous sequence of tasks which determines the program end date. These tasks prevent the program end date from finishing sooner.
PASEG V1.1 ³ (2/11/11)	The longest sequence of tasks from Timenow to the program end date. If a task on the critical path slips, the program end date will slip.
DoD IMS DI-MGMT-81650 ¹⁶ (03/30/2005)	2.4.1.15 Critical Path. A sequence of discrete tasks/activities in the network that has the longest total duration through the contract or project. Discrete tasks/activities along the critical path have the least amount of float/slack. The critical path and near-critical paths (reporting

	requirements for near-critical paths shall be specified in the CDRL) are calculated by the scheduling software application.
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Industry Standard EVMS Guidelines Relationship with CPM

Since 1998, the Industry Standard for EVMS, EIA-748¹⁷ Section 2 Guidelines have defined high-level characteristics for suppliers' management and control systems that enable effective project management implementation. Five versions have been published with a sixth pending release (Versions: Base and A-E). The initial publication was originally an American National Standard Institute (ANSI) standard, which later changed with a new publisher in 2013 for Version C. It is important to understand that the Guidelines do not mandate a specific management approach. Neither the Guidelines nor any interpretive guidance historically require an absolute or singular approach for implementing EVMS. The Guidelines are intended to be flexible for a supplier's unique approach to design and implement EVMS. Therefore, the supplier's decision to define and implement CPM in EVMS is unique to the supplier's organizational needs, culture and project management solution.

For effective management and delivery of customer value, what matters is that a supplier's CPM process in its EVMS is clearly defined, integrated, consistently implemented, and produces accurate and reliable results. It also needs to be transparently and independently verifiable.

This enables a pathway to demonstrate a *compliant* solution. This may require renewed dialogue between the buyer and supplier to understand both parties' perspectives as CPM concepts evolve in the community and as defined in a supplier's EVMS. While Government oversight organizations may apply specific evaluation methods to assess a unique CPM approach in an EVMS implementation, ambiguity (fear of the unknown) can be reduced when the supplier's method is transparent, clearly described, well-communicated and ultimately proven effective. In doing so, the supplier can proceed with confidence that its CPM approach in its EVMS implementation supports demonstrating compliance with a higher degree of assurance.

A supplier's EVM system description, with supporting procedures, should define its management practices enabling CPM as described in Guidelines D-6 (Schedule the Authorized Work) and D-7 (Identify Indicators to Measure Schedule Progress). Note: At the time of writing, the proposed Version E Guidelines E-5 and E-6¹⁸ (corresponding with Version D Guidelines D-6 and D-7) order of sequence may change before the prospective final release in the Fall of 2025. And while the content remains the same for these two Guidelines in both versions of the Standard, this paper continues to reference Version D until after a final decision is made.

If a supplier system description adequately describes a CPM for program use, then the ambiguity of EVMS compliance-risk concerns may be minimized. However, some supplier system descriptions in the past have had limited CPM descriptions, such as *'a critical path is generated'* without any further explanation. When this occurs, the conversation tends to shift focus toward how the supplier is being evaluated rather than on how the supplier uniquely describes and implements its process. In the meantime, the pending revised EVMS Standard

Version E creates a new opportunity for a supplier to amplify system description guidance for CPM within EVMS.

Clarifying CPM in Two New EVMS Standard Version E Guidelines

During initial discussions about envisioned and purposeful changes to the EVMS Standard Version E in 2019, some in Government suggested that the emphasis should be on modernizing it (without breaking anything) from its heritage over the last 50 years. While some say that the changes from the Standard's Version D to E are minimal, the changes initiated six years ago (and soon to be published) were subtle but important for modernization. For example, in the EVMS Standard Versions A-D (1998 – 2025), the above-mentioned Guidelines D-6 and D-7 remain foundational for establishing the *initial schedule baseline* in EVMS which is integrated into the Performance Measurement Baseline with a program target cost goal summed to a Contract Budget Base (Guidelines D-8 to D-15) ¹⁷.

Historically, since the formality of scheduling in EVMS has matured over the last 20 years beyond the original heritage 50 years ago, the EVMS functions of *schedule status* and *forecast* have been subject to varied expert opinion over the years for how they are applicably mapped to specific EVMS Guidelines. As a result, the context for CPM and how it fits structurally in a management system and cross-referenced with the EVMS Guidelines has been vague.

Arguably, this has contributed to inconsistencies in supplier EVM system descriptions for CPM in EVMS. Going forward, there is an opportunity to improve this understanding related to this topic with the introduction of two new Guidelines in EVMS Standard Version E.

These are E-14 (Assess Progress) and E-20 (Update Control Account ETC and Calculate Variance at Complete) ¹⁸, which help to better define CPM's role in a supplier's scheduling subsystem of EVMS following baseline establishment. While there is more content in these two new Guidelines beyond scheduling (out of scope to this paper to explain), these added Guidelines should clarify explicitly where in EVMS a Control Account Manager's (CAM) *schedule status and forecast* are tied to CPM. Related to scheduling, Guideline E-14 addresses the CAM's assessment of *schedule status* based upon the physical accomplishment of work. And similarly, Guideline E-20 focuses on updating the CAM-level *schedule forecast* dates based upon the CAM's estimate of remaining work and duration for the forecast finish. This includes recalculating early and late dates through a forward and backward pass which is typically performed by the scheduling tool as part of the status process. Together these two Guidelines ensure that *schedule status and forecast* updates are systematically aligned with CPM in EVMS. This Version E update is clearly an opportunity for a breakthrough in modernizing how scheduling with CPM will be a better fit as framed in the EVMS Guidelines and as described in this paper. It is important that the next NDIA IPMD EVMS Intent Guide and DoD EVMS Interpretation Guide revisions adequately reflect how a supplier CAM's *schedule status and*

forecast are addressed for CPM in EVMS as it pertains to explaining the intent of the revised Version E Guidelines.

The following summarizes pacing issues for formalizing and integrating CPM into EVMS in future supplier system description updates.

Ongoing CPM Implementation Challenges in Modern EVMS

The primary CPM factors concerning stakeholders today continue to be driven by:

- Effective use of constraints (e.g., No Earlier Than, No Later Than, etc.) and potential impact on longest path and total float analysis.
- Existence of multiple “working day” calendars and impact on float calculations and date discrepancies.
- Communicating a clear strategy and description for relying upon alternative CPM methods (as applicable) with or in lieu of longest path and total float analysis.
- Integrating major subcontractor schedules into the prime contractor Integrated Master Schedule

Other contributing factors include:

- Scalability of infrastructure and tools
- Increased complexity of multi-tier suppliers
- Span of multiple work sites
- Ability to manage critical path transparently based upon COTS schedule engines and analysis tools with proprietary algorithms
- Increased use of fixed price prime contracts and major subcontracts with adequate schedule requirements, discipline and quality
- Consensus on CPM schedule health diagnostics and impacts
- Reliability of external milestone interfaces

Next Steps for Supplier EVM System Description & Supplemental Procedure Updates

- Define supplier unique critical path method. Clearly define what constitutes the critical path in the context of the supplier’s unique approach and scheduling practices.
- Describe schedule status, forecast and critical path calculation method(s). Describe how the critical path is calculated in support of the defined process for consistent and repeatable practices and expected output (see configuration of schedule COTS engine settings below).

- Define scheduling tool settings. Document relevant configuration settings used in the scheduling COTS engine(s) that affect CPM.
- Verify CPM results. Explain how the supplier's critical path output is verified internally for accuracy and reliability (e.g., process and health checks).
- Integrate CPM in EVMS. Explain holistically how CPM is integrated in supplier EVMS, including schedule status updates, physical performance measurement, forecast finish dates, risk / opportunity handling plan updates, EAC review / updates and variance analysis, monthly business rhythm meetings, CDRL submissions.
- Map the process changes in a new EVM system description compliance map (Version E).

Intra Management Solutions – Driving EVMS Compliance and Project Success with Proper CPM

Effective Critical Path Method implementation isn't just about meeting standards—it's about enabling smarter decision-making, stronger execution, and delivering results on time and on budget. IMS helps you achieve all three:

- **Compliance with Confidence** – EVMS and CPM practices aligned with the latest standards, ready for any customer or government review.
- **Stronger Project Control** – Accurate, reliable schedules that give leadership the visibility to make informed decisions early.
- **Optimized Execution** – Integrated CPM processes that improve schedule discipline, risk management, and on-time delivery.
- **Tailored to Your Needs** – Customized approaches that fit your organization's tools, culture, and operational environment.
- **Custom Tool Development** – Purpose-built applications and automations to streamline CPM analysis, improve reporting, and reduce administrative burden.
- **Sustained Value** – Repeatable processes that enhance performance across current and future programs.

Contact us at info@intramgmt.com to transform CPM in EVMS compliance into a competitive advantage for your projects—and equip your team with the right tools to deliver.

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