Welcome to the first anniversary edition of The Baseline. We will continue this effort as long as there are loyal readers and informative content. If you are interested in contributing to this publication, please reach out to us with your ideas.

Inside this issue:

| From the CEVM | 1 |
| In the Spotlight: Strategic Systems Programs (SSP) | 2 |
| Agile & EVM | 3–5 |
| EVM Memos: Training & EVMSIG | 6 |
| New Acquisition Leadership | 7 |
| Farewell: Debra McGinnis | 8 |
| Calendar | 8 |
| Crossword Puzzle | 9 |

Department of the Navy (DON)
Earned Value Management (EVM)
Quarterly Newsletter

October 2018

From the CEVM

Written By: David Tervonen—CEVM

As we consider the future of Earned Value Management (EVM) it is important to remember that EVM is a valuable tool in the program manager’s toolbox. It increases transparency between industry and government on the status of a project as well as between the project executors and higher headquarters. Transparency and credibility are components of what builds trust. Trust, in turn, allows for project executors to have greater autonomy. Greater autonomy increases speed of program decisions.

**Velocity is the ultimate competitive advantage.**

Therefore, trust needs to be fostered. Industry must trust the government to use increased transparency as a way to gain joint situational awareness into project status and not to impose contractual penalties. Project executors must trust their higher headquarters to use increased transparency to increase speed of project status information and not to second guess project-level decisions. Project teams must be permitted to take risks and find creative ways to meet the challenges of the day.

**Credibility and transparency enable freedom of action.**

Proper implementation of EVM should decrease the number of meetings and data calls with higher headquarters if the data is readily available and provides the necessary insight into program status. EVM allows personnel in the acquisition chain to pull program status to get an appropriate level of understanding of progression. The data must be there ready to pull. Timely reporting of EVM data ensures the acquisition chain is getting the information needed.

**Unconventional thinking is an enabler.**

EVM is a powerful tool when properly implemented, but it tends to have a negative reputation for a variety of reasons. EVM tends to get unnecessarily complicated. At the basic level, EVM provides a structure for industry to organize, schedule, plan, budget, collect costs, analyze progress, and manage change. It also provides a simple, standardized report that allows decision makers to get a summary or in-depth look at project status. It is critical for the EVM community to challenge assumptions, eliminate extraneous processes, and remove unnecessary steps.

**Enable ideas/innovations to get visibility.**

Let us know what is or is not working well. Please send in your ideas of how to improve EVM within the DON. One additional opportunity will be through a cross-PEO/SYSCOM evaluation of EVM Practices and Structures. This initiative will kickoff in November 2018.

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**Excerpts from Hondo’s Truths and the Gouge Sheet by Assistant Secretary of the Navy (RDA) James F. Guerts**
In the Spotlight:
Strategic Systems Programs (SSP)

Written By: Andrew Wargo—SSP

Director, Strategic Systems Programs (DIRSSP) is an Echelon II Direct Reporting Program Manager. DIRSSP is responsible for the Fleet Ballistic Missile Strategic Weapons System (SWS) that has provided a credible sea-based strategic deterrent for over six decades and the life extension of this program to meet the life expectancy of the COLUMBIA class ballistic missile submarine. DIRSSP responsibilities also include effective and efficient nuclear weapons security systems in accordance with national policy, the OHIO class conventional missile delivery system that accommodates concurrent special operations forces missions, end-to-end seamless integration of alternative payloads, rapid and cost-effective expansion of submarine-based capabilities that fill validated joint warfighting gaps under the Triad, and Department of the Navy (DON) compliance with arms control treaties.

Within these missions, SSP bears responsibility for successful long-range planning and stewardship of resources, as well as performance management of the contracts awarded in support of the program. Continuously through the six decades of unprecedented success with the SWS, SSP implemented evolving cost and schedule management systems, developing Earned Value Management (EVM) and network schedule principles and practices, such as PERT, PERT/Cost, and the precedence diagramming method, in close cooperation with the Department of Defense (DoD), DON, and industry. Throughout this time, while meeting continuous challenges by developing new technology and innovative solutions in close cooperation with industrial partners, SSP refined and implemented the widely acknowledged management disciplines that contributed greatly to program success, including timely and actionable program performance management practices.

Today, SSP continues this commitment to exceptional stewardship. Ongoing efforts include active participation in DoD and DON Integrated Program Performance Management (IPPM) panels and working groups, self-identifying lessons and best practices from the application of EVM on a program of such longevity, and striving for increased effectiveness of IPPM on sustainment and long-term production contracts. SSP is also actively exploring new concepts related to efficiency and effectiveness of Integrated Baseline Reviews and other reviews, as well as the integration of EVM and Agile methodologies, with prime weapons system contractors.

SSP’s EVM/IPPM efforts are coordinated by the EVM Core, the central group comprised of a government/contractor team of diverse professionals in the EVM Community of Practice.
How do Agile and Earned Value Management (EVM) Work Together?

Written By: Harold Hickman—CEVM

The previous article—“What is Agile EVM?” in The Baseline dated July 2018—explained the origins of Agile EVM. That article provided an explanation of the Agile product development methodology and EVM as a program management approach. As a recap, Agile development is primarily used on software development effort and is based on a high degree of flexibility with maximum customer participation while developing functioning software over a fixed duration (typically three to six months) with a fixed amount of resources. EVM is a robust program management approach that provides a disciplined, structured, objective, and quantitative method to integrate technical work scope, cost, and schedule objective into a single cohesive contract baseline plan called a Performance Measurement Baseline (PMB) for tracking contract performance.

Now that we have a basic understanding of what Agile EVM means, we need to understand how this development process interacts with the management approach. There are elements of the Agile development and the EVM approach that are complementary and other aspects that are more challenging. We will highlight some of these areas and provide recommendations on how to overcome the identified challenges as we walk through the program phases.

In evaluating the planning phase of an Agile EVM program, the first priority is establishing the Work Breakdown Structure (WBS). The WBS provides a means of organizing and decomposing the technical scope of work into manageable segments and facilitates the integration of cost and schedule. The Agile EVM program can have a WBS that provides a product-oriented or outcome-based hierarchy from which to integrate cost and schedule performance. The full scope of work is defined in the contractual documents, such as the Statement of Objectives, Statement of Work, or Performance Work Scope, which is captured and traceable between the Product Backlog (Agile) and WBS Dictionary (EVM). The Product Backlog shows the scope at Epic level, which will be broken down to the Feature level and potential Stories during Release Planning. The Release Planning is cycled based on release cadence and should be lined up to the EVM Rolling Wave (RW).

The scope of work in the Product Backlog is time-phased by increments or releases, producing the Product Roadmap. The Product Roadmap can be preceded or used for developing the Integrated Master Plan, Integrated Master Schedule (IMS), and PMB. **Recommendation:** The IMS should be developed based on functionality and only be broken down to the work package (Feature) level. This promotes the program flexibility needed for Agile development while still allowing the program to have adequate change control standards that meet the intent of the EVM guidelines. The Agile tool serves as a detailed schedule, much like an Enterprise Resource Planning or Manufacturing Resource Planning, and it provides support to the progress claimed in the IMS.

Agile EVM provides for full risk mitigation by leveraging the benefits of Agile development process for short term risks and EVM approach for the overall program risk. The Agile development process mitigates near term risks on the program by using a short software Cadence Release cycle, integrating the customer into the planning and software acceptance process, and results in functioning software. The EVM approach requires the inclusion of a Risk Management (RM) process. The RM process ensures a structured and formal approach is in place to address the overall program risk, starting with a RM plan. The RM plan ensures risk and opportunities are identified, quantified, captured in a register, and reviewed on a monthly basis, at a minimum, until retired or the final software product is delivered.

The Agile SW development method helps ensure functioning SW is delivered on-time according to a planned release. However, the capability delivered is often different than the customer's original desires due to moving scope to and from the backlog. How does the customer track desired and/or high priority software functionality (scope) for inclusion into the final software deliverable? Agile EVM can use the RM process to ensure that desired or high priority software functionality is tracked and considered each month until the final software deliverable is completed. The IMS can also be used to provide additional visibility into these desired and/or high priority software functionality by showing it under the Summary Level Planning Packages.

(continued on Page 4)
Agile & EVM cont.

Agile EVM provides different opportunities for insight into determining the program progress. The Agile development process provides real-time insight into the progress being made on the software development program because the work status is updated on a daily basis, if not more frequently. The scope of work is established for a software release by determining the functionality to include and decomposing it down to the lowest level (from Features to Stories to Story Points down to the task level), which is loaded into the Agile tool. The progress of completing scope for a sprint, release, or product can be viewed by looking at Burn-Up and Burn-Down charts.

The IMS reflects the PMB, and the detailed schedule (Agile tool) is used to support the progress claimed. Typically, the IMS status is updated, imported into the EV tool, and then integrated with the cost data from the accounting system to produce the EV data: Budgeted Cost for Work Scheduled (BCWS), Budgeted Cost for Work Performed (BCWP), and Actual Cost of Work Performed (ACWP). These three elements provide us with a variety of different EVM metrics to measure the overall program progress and health, such as Cost Variance (CV), Schedule Variance (SV), Cost Performance Index (CPI), Schedule Performance Index (SPI), To-Complete Performance Index (TCPI), Estimate to Complete (ETC), and Estimate at Complete (EAC). These metrics provide a common understanding across the acquisition community and help to isolate issues that require management action.

There have been questions or concerns with how Agile development work would accrue BCWP. BCWP is accrued based on the established BCWS, Earned Value Technique (EVT) used, and the “Definition of Done.” The BCWS value is based on planned cost to develop the software functionality. Typically, the EVT used is Percent Complete or Weighted Milestones with Percent Complete. Historically, the “Definition of Done” has been the demonstration and acceptance of software functionality for a Sprint (Stories) by the customer. There are other possible “Definitions of Done” as identified in the NDIA IPMD “An Industry Practice Guide for Agile on Earned Value Management Programs,” such as scope of test to be conducted and passed, code reviews, coding standards, and code has been re-factored when necessary. Recommendation: The Weighted Milestones with Percent Complete EVT should be used for the planned Feature(s) at the work package level and the weighted Stories are based on the initial Story Points. See Figure 1.

Once the weighted Stories are established, the BCWS value is established and does not change. The BCWP value claimed is based on the established BCWS when the “Definition of Done” has been met. The Story Complete is evaluated using a 0-100 approach, which relates to the Story functionality being demonstrated and accepted at the end of a Sprint. When a Story or Stories have been completed in an accounting period, the sum of the weighted values is the Feature percent complete. The Agile tool/data should be used as Quantifiable Back-up Data (QBD) to support the BCWP that has been claimed.

When a Sprint spans two reporting periods, there will be a negative CV and SV because ACWP and BCWS will be accrued without BCWP. The following reporting period, the Sprint current period data will post a positive CV and SV but the EV data will normalize at the cumulative level. Caution: The BCWP value should not be calculated based on Story Points due to the volatility of change in the number of Story Points.

Change control management on an Agile EVM program means balancing the flexibility needed for Agile development while still allowing the program to be compliant to EVM change control requirement. If there are changes to the PMB, EVM requires that the changes be formally documented and approved. If the PMB is set at too low a level, it hinders the ability of Agile development to be flexible in making changes. If the PMB is set at the Feature (work package) level, as recommended, it provides the flexibility to make changes at the task, Story Point, and Story levels to achieving the Feature level functionality. The baseline integrity is still maintained by ensuring all changes at the Feature level are documented and approved prior to being implemented. This balance allows the Agile development to function as intended while still being compliant to the EVM change control requirement.

(continued on Page 5)
It is important to understand not only what information the Agile and EVM metrics provide but how the data should complement and support the program status assessment. Three Agile metrics were discussed in the previous Baseline article. "An Industry Practice Guide for Agile on Earned Value Management Programs" provides formulas for calculating CV, SV, CPI, SPI, ETC, and EAC using Agile metrics and traditional EV calculations. These calculated values using the Agile metrics and the EV data should be compared to ensure the data is aligned.

The Burn-Up Status Agile metric is used to calculate the CV, SV, CPI, and SPI using the following formulas with EV calculations in parentheses:

\[
CV = \text{Burn Up Status} - \text{Actual Cost} (BCWP - ACWP)
\]

\[
SV = \text{Burn Up Status} - \text{Release Plan} (BCWP - BCWS)
\]

\[
CPI = \frac{\text{Burn Up Status}}{\text{Actual Cost}} (BCWP / ACWP)
\]

\[
SPI = \frac{\text{Burn Up Status}}{\text{Release Plan}} (BCWP / BCWS)
\]

The Velocity Agile metric can be used to calculate the ETC and EAC using the following formulas:

\[
\text{ETC} = \text{Velocity} \times \text{Remaining Backlog}
\]

\[
\text{EAC} = \text{Actual Cost} + (\text{Velocity} \times \text{Remaining Backlog})
\]

This can be compared to the EV data calculating the ETC and EAC using the following formulas:

\[
\text{ETC} = \frac{\text{Remaining Work} (BAC - BCWP_{cum})}{\text{Performance Factor} (like CPI_{cum})}
\]

\[
\text{EAC} = \text{Cumulative Actual Cost} (ACWP_{cum}) + \text{ETC}
\]

The Agile development method and the EVM program management approach can be complementary of each other. Agile EVM allows the benefits of both Agile and EVM to be blended together while developing software products. The recommendations offered in this article should help mitigate potential pitfalls and aid in the successful implementation of Agile EVM on software programs.

If you have any questions or would like certain topics covered in future articles, please contact Hal Hickman at Harold.Hickman@navy.mil.

References:


New EVM Memos: Training and EVMSIG

Implementation Memo of Business Certification Course (05 Sep 2018)

In a memo dated 5 September 2018, titled “Implementation Memo of Business Certification Course,” the FY19 Business Certification requirements have been restructured and updated for both the Business Cost Estimation (BUS-CE) and Business Financial Management (BUS-FM) communities. The overall training requirement has been decreased by 14 training hours for BUS-CE and 8 training hours for BUS-FM.

The purpose of these adjustments is to decrease total training hours on the Acquisition workforce, deliver the right training at the appropriate point of need, and incorporate DoD FM certification requirements. The overall reduction includes an increase in online training at Level 1.

The change is a direct result of the sub working group consisting of representatives from every Service and OSD Cost Assessment and ProgramEvaluation (OSD CAPE) and the Defense Acquisition University (DAU). This sub working group identified training gaps that will be addressed with the new certification standards. This change will be become effective January 1, 2019 and will apply to all Level I, Level II, and Level III BUS-CE and BUS-FM professionals seeking certification on or after this date.


A memo dated 30 August 2018, titled "Notification of Issuance and Department of Defense Earned Value Management System Interpretation Guide and Cancellation of Shipbuilding Earned Value Management Amplifying Guidance," provided notice for the release of an updated version of the DoD EVMSIG. This provides the DoD interpretation of the 32 Guidelines contained in the Electronic Industries Alliance Standard-748 (EIA-748). The DoD EVMSIG is also used as the basis for DoD assessments of Earned Value Management System (EVMS) compliance with the 32 Guidelines in accordance with DFARS Subpart 234.2 and 234.201.

The purpose of the DoD EVMSIG is to provide a single, authoritative DoD interpretation of the 32 Guideline contained in the EIA-748. This clarification reduces inconsistencies in EVMS compliance interpretations across the DoD and minimize EVM implementation and maintenance costs. A standard Government interpretation facilitates tailored solutions that meet unique management needs within varying operating environments.

This memorandum also serves as notice for the cancellation of the Shipbuilding Earned Value Management Amplifying Guidance. The existence of the DoD interpretation of all 32 Guidelines contained in the EIA-748 has rendered the Shipbuilding Earned Value Management Amplifying Guidance as duplicative and obsolete. This Guidance documented an agreement between the Department of the Navy (DON) and the Defense Contract Management Agency (DCMA) on a common methodology to assess compliance in five of the 32 Guidelines contained in the EIA-748.
New Acquisition Leadership

Principal Military Deputy
Assistant Secretary of the Navy for Research, Development and Acquisition

Vice Admiral Mike Moran is a native of Walden, New York. He is a 1984 graduate of the U.S. Naval Academy where he earned a Bachelor of Science in Engineering. He was designated a Naval Fight Officer in 1986. He holds a Master of Science in Human Resources Management from Troy State University and is a graduate of the Air Command and Staff College.

In April 2012, Moran reported to the Pentagon to serve as Military Assistant to the Undersecretary of Defense for Acquisition, Technology, and Logistics. In August 2013, he assumed command of the Naval Air Warfare Center Weapons Division, Naval Air Weapons Station China Lake, California and Assistant Commander for Test and Evaluation, Naval Air Systems Command (NAVAIR). In December 2015, he assumed his most recent position as Program Executive Officer for Tactical Aircraft Programs (PEO(T)).

Deputy Assistant Secretary of the Navy - C4I, IO and Space

Ms. Rathbun currently serves as the Deputy Assistant Secretary of the Navy for Command, Control, Communications, Computers, Intelligence, Information, Operations and Space (DASN C4I/IO/Space) on the staff of the Assistant Secretary of the Navy for Research, Development and Acquisition. As DASN C4I/IO/Space, she is the principal Department of the Navy advisor for the acquisition of C4I systems, enterprise information technology (IT), business systems, and space systems. DASN C4I/IO/Space provides acquisition program guidance and oversight to Program Executive Officers for C4I & Space and Enterprise Information Systems and their associated Program Managers.

Prior to selection as DASN, Ms. Rathbun served as the Deputy Director for Defense Business Systems in the Office of the Deputy Assistant Secretary of Defense for C3, Cyber, and Business Systems (DASD C3CB) within the Office of the Under Secretary of Defense for Acquisition and Sustainment. She was responsible for shaping the acquisitions of the Department’s major Defense Business Systems and Enterprise IT Infrastructure Services investments, a portfolio valued at over $1.5B, impacting the readiness of every soldier, sailor, airman and marine; their dependents; and military retirees. In addition, she led multiple process improvement efforts focused on modernizing and optimizing the acquisition of business and IT services, software acquisition methods and tools, cloud based technologies, and the management and governance of...
Farewell: Debra McGinnis

After 21 years of dedicated service at SPAWARSYSCOM, Debra McGinnis will retire on December 31, 2018.

Debra graduated with a degree in Business Management/Accounting from the University of Pittsburgh. After working for years in the accounting field, she joined the Navy civilian workforce, as a cost analyst intern, when her husband relocated to San Diego as part of the SPAWARSYSCOM Base Realignment and Closure (BRAC) of 1995.

During her earlier years at SPAWAR, Debra served as the lead EVM analyst for an ACAT ID Space program, providing EVM analysis, oversight of vendor reporting and implementation, vendor system surveillance, vendor “Review for Cause” support to DCMA, IBR facilitation, and training.

In 2008, Debra became the SPAWAR Headquarters EVM Branch Head, where she focused on EVM policy, working with the Navy Center for EVM (CEVM) and Industry, EVM implementation on intra-government work, and training. She has been a strong advocate for EVM policy related to non-ACAT I programs and passionate about implementing integrated project management processes at Echelon III facilities.

In December, 2013, Debra received the Department of the Navy Meritorious Civilian Service Award in recognition of her service.

In retirement, Debra plans to move to her lake side home in Tennessee and will spend her winters in Florida. She and her husband love to travel and hope to spend a year in Europe.

Calendar

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ASN(RDA) & EVM Events

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<td>2018 USD(A&amp;S) Awards Ceremony</td>
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Federal Holidays

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Crossword Puzzle

Hondo’s Truths

Down
1. One of two keys to enabling freedom of action
2. Does not ensure a better product
3. One of two keys to enabling freedom of action
6. Does not equal undisciplined

Across
4. Is an enabler
5. Can be done quickly
6. Does not have to increase cost/risk
7. Must be managed not avoided

Previous Edition's Crossword Answers:

This publication was created by the Naval Center for Earned Value Management (CEVM) with contributions from the Systems Commands. Please contact us at 703-695-0510 for any questions on the content of this publication. For more information on EVM within the Department of the Navy: http://www.secnav.navy.mil/rda/OneSource/Pages/CEVM/CEVM.aspx.