

## On “The Origins and History of Earned Value Management”<sup>1</sup>

Wayne Abba

*Ref: On “The Origins and History of Earned Value Management” by Patrick Weaver in PM World Journal Vol. XI, Issue VIII – August 2022.*<sup>2</sup>

I read Patrick Weaver’s superbly researched article with much interest. As the US Department of Defense’s senior program analyst for contract performance management from 1972-99, I lived (dare I say made?) much of that history. Not alone of course! I had the good fortune and honor to work with professionals from all the US military departments, major civil agencies, and their contractors. My work also opened doors to other countries as Australia, Japan, Canada, Sweden, United Kingdom, and New Zealand collaborated with us to varying degrees.

So what can I add to Patrick’s history? He describes *what* happened; I can contribute *why* and *by whom*. The influential pioneers he names or references – Jim Morin, Ernie Fitzgerald, Whitey Driessnack, Quentin Fleming, et al – are gone. But I knew them all, and treasure their contributions. Other important names are missing from Patrick’s narrative: Bob Kempes, who was the Pentagon overseer during EVM’s formative period, and Gary Christle, who succeeded him and was my immediate superior during my entire tenure in the Office of the Secretary of Defense. Without their leadership, we would not be having this conversation today.

Indeed, that is a main theme of my commentary – the extent to which major policy decisions by organizations, even countries, are influenced by personality and perseverance. The people I named were not shrinking violets. The power of their personalities overcame bureaucratic obstacles and made things happen.

I do have a quibble with Patrick’s article. Let’s deal with it first. I find his description of Earned Schedule (ES) as “an extension of earned value management” disappointing. I first cut my teeth on EVM as an Army procurement intern in the early 1970s and understood from the beginning its power as an early warning indicator and its limitations.

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The oft-repeated shortcoming of EVM – that it provides false schedule variance information – is simply wrong.

The so-called shortcoming is not a bug, it’s a feature. EVM depends on a performance measurement baseline, derived from the schedule. What schedule? Well, if one wishes to have the earliest possible warning indicator, the baseline should be set using early finish dates. Conversely, if one wishes to avoid reporting variances to management or a customer, the baseline can be set using late finish. Between these extremes lie myriads of debates about how to manage and report project status. My preference is for early warning, providing time to change course.

In the US Department of Defense, enlightened contractors and their customers understood this and designed their management and reporting systems accordingly. Unfavorable schedule variances could be categorized in a range between late (with float), and late (really late!). Patrick says that 20 years after its creation, ES is now seen as a standard component of EVM. I disagree. It was always there, as a subset of EVM and schedule analysis.

My attempts to inform the ES advocates were to no avail. They used “traditional EVM” as a stalking horse and built around it a pseudo-science. It’s appealing because it offers an easy way to quantify schedule information. But it’s also dangerous, because it’s tempting to construct schedules to avoid variances, thus losing the early warning that EVM was in fact designed to provide. An early, large unfavorable schedule variance is the most effective way of discovering (and quantifying) the work that is not being accomplished. Management is the art and science of understanding where and why – and doing something about it. At some point the schedule variance becomes irrelevant, not a metric to be “corrected” for no meaningful reason. EVM is first and foremost, a cost performance measurement technique. The schedule variance is a mathematical “freebie” that managers should use to advantage early in performance.

Patrick cites several examples of countries adopting EVM. Here’s why and how that happened.

**Australia.** One day in the Pentagon I met a gentleman named David Read of the Australian Department of Defence. He was on a global search for best management practices, charged by a parliamentary committee seeking solutions for cost blowouts, such as on construction of Parliament House in Canberra and the ship ironically named HMAS Success. From that beginning grew extraordinary country-to-country cooperation including alignment of our EVM processes and a personnel exchange program. (Sadly, I never had the opportunity to serve in that role but did make several trips to Australia including visits to contractors.)

**Canada.** Rick Trites was my counterpart in the Department of National Defence. I drafted and negotiated with Australia and Canada a trilateral memorandum of understanding, pledging members to mutual recognition of one another’s acceptance of contractor EVM systems among other things. This followed my visits to Australia and Canada and reciprocal participation in various events and project reviews in our respective countries. The trilateral agreement was signed by US and Australian defense acquisition leaders in the shadow of an Australian-built Collins Class submarine in Adelaide.

**Sweden.** Then more neutral than today, Sweden participated informally in our international outreach through an exchange of letters between defense officials. We became aware of Sweden’s interest when a US defense contractor informed me. When I followed up with the Swedish embassy, the defense attache emphasized their interest was not in C/SCSC, but in earned value – a recognition of the tension between bureaucratic oversight and management utility. Sweden’s pioneer was Sven Antvik, who as a Swedish Air Force officer used a simple form of EVM to analyze performance on the Saab JAS-39 Gripen aircraft development program.

During the Clinton presidential administration in the 1990s, Vice President Gore led a “reinventing government” initiative. In response, the Department of Defense created an Acquisition Reform organization and put all specifications, standards and regulations on the chopping block. Gary Christle and I met this challenge head-on. We converted Military Standard 881 (Work Breakdown Structures) to a guide, preserving its essential content while reducing its administrative burden. We invited the National Defense Industrial Association, along with other industry groups, to create an EVM standard that could replace our regulation. The result was EIA 748, which we promptly accepted and which remains the US standard today.

Patrick reviews the PMBOK® Guide updates through the years. For the 4<sup>th</sup> edition in 2008, I served as second to Quentin Fleming for updates to the cost and procurement chapters. In his words, we introduced EVM to the world, using more generic terms while remaining true to the basics. It was Quentin who (re)introduced the two-letter abbreviations: PV, AC, EV etc. He insisted that four-letter abbreviations were too complicated, but glossed over the other issues – that two-letters could be confused with Present Value, Alternating Current, Expected Value ... Patrick correctly notes there is little interest in reconciling the two approaches. I see no reason to do so, just understand your environment.

As president of the College of Performance Management (CPM), my highest priority was to produce for our then-Project Management Institute (PMI) parent the Earned Value Practice Standard (CPM was for a time part of PMI; it again is independent). This occurred, as Patrick shows, in 2005. PM World Journal editor and PMI Fellow David Pells served an important role as we established the relationship between CPM and PMI.

The UK standard for project management, BS 6079, introduced EVM as an integral project management tool. It was consistent with US processes because one of its authors, a Rolls-Royce manager, worked with me to make it so. After retiring from the Department of Defense in 1999, I joined the National Defense Industrial Association as a corporate member and worked to bring about the reciprocity agreement with UK.

Patrick describes the “CPI stability myth” without understanding how it was used. The heuristic, developed through years of analysis in my office, absolutely is valid. When I presented it to project manager and other audiences, I emphasized that it reflected history – not what could be achieved if the project team were to act on early performance trends. That better outcomes were possible has since been demonstrated many times – with the F/A-18E/F Super Hornet program, the SSN-21 Seawolf submarine program, and the Australian Lead-In Fighter Hawk program to name a few.

Finally, a comment on the ISO standards. After I introduced my friend and colleague Miles Shepherd to the people who were responsible for EIA-748, Miles conducted a straw poll about EVM with the ISO team he was leading. In due course, that led to development of ISO standards 21508 and 21511. Again, our objective was to strive for commonality among nations and to encourage efficient use of public resources.

In closing, I note that Patrick uses some of my material without attribution, for example:

- “Contractors who used a six-month rolling wave planning horizon successfully passed the review process,
- Government review teams came to expect six-month planning, and
- Consultants then recommended six-month planning horizons to their contractor clients, who could then pass the review process.”

This is not a complaint. As a public servant, my material was in the public domain and I am absolutely delighted to see it used accordingly. Thank you, Patrick, and may my commentary inform your future publications.

## About the Author



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**Wayne Abba** is an independent consultant in program and project management. For 17 years before retiring in 1999, he was the senior program analyst for contract performance management in the Office of the Under Secretary of Defense (Acquisition & Technology). He was a volunteer expert advisor to the US Government Accountability Office team that published the “Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs,” and “Schedule Assessment Guide: Best Practices for Project Schedules.” He is (twice) Past President, College of Performance Management.

Wayne is a member of the Program Management Improvement Team advising the National Nuclear Security Administration’s Office of Safety, Infrastructure and Operations. He also serves on the board of the Graduate School Japan, a nonprofit organization that provides training and consulting services to Japan government ministries, including planning for management of the Fukushima nuclear plant decommissioning. His voluntary work with the National Science Foundation includes membership on several project review panels ranging from conceptual through final design reviews, and reviewing the National Radio Astronomy Observatory’s cost estimate for the recent decadal survey.

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