

Earned Value and Agile¹

Why an Agile Approach Needs to be Different

By Luis C Contreras
AzTech International LLC (goAzTech.com)

Quick Definitions

Firstly, let's define Agile broadly and understand if it is, indeed, different from EVM based on high-level definitions or objectives. For the purposes of this paper, let's assume that Agile is an umbrella term that includes Scrum, Extreme (XP) Programming, and other similar practices.

Agile

Agile project management might be called a “features-driven”, “values-driven”, and “time-driven” approach to managing software projects by cycling through rather short sprints or iterations of feature development to produce tangible value in multiple deliverables. Agile includes methods with terms that are unfamiliar to most EVM practitioners. These terms include scrums, scrum masters, XP programming, releases, stories (epics, themes, and just plain stories), story points, story owners, sprints, backlogs, burn-down charts, burn-up charts, velocity, standup meetings, and more. Agile can be used for small or large projects and even for projects less than one year long, though certainly for multi-year projects as well. Agile has proponents who promote a continuum of agile complexity that ranges from using “agile concepts” to adopting formal Agile such as SCRUM and certification for SCRUM Masters or practitioners.

Earned Value

Earned Value might be called a “plan-driven” or “baseline-driven” approach that emphasizes management by exception using variance thresholds to manage any kind of complex project, including software or hardware systems, construction, or other development and production efforts. EV uses terms known throughout the aerospace, defense, and other sectors with large, government-funded projects, usually exceeding \$20M and typically longer than one year. EV has proponents who promote a continuum of EV complexity that ranges from using “EV concepts” to what some call “EV-Lite” and then to what is called “full-blown EVMS” requiring adherence to the ANSI-748's 32 guidelines for implementing an EVMS. The US Government requires ANSI-748 compliance for government-funded projects over \$20M and in

¹The College of Performance Management (CPM) published a Compendium of articles on Earned Value and Agile based program management in *The Measureable News* in late 2014. The articles are now being republished in the *PM World Journal*, as agreed with CPM and the authors. An introduction by Ray Stratton launched the series in the April 2015 edition of the *PMWJ*. This is the first article in the series. For information about CPM, visit their website at <https://www.mycpm.org/>

some cases for smaller projects too. Other national governments also require or encourage using ANSI-748 or some variation for managing large and risky projects.

Disagreements

Some Agile proponents consider EV old-fashioned, perhaps even outdated, and not flexible enough to manage software projects. Some suggest that EV emphasizes “waterfall planning” where work is highly sequential:

concept→requirements→design→develop/code→test→deliver.

Presumably, the waterfall approach can fail when surprises come too late in the project, resulting in more rework and fewer options to innovate past the problems.

Some Agile proponents consider that a better alternative to EV is to move away from “waterfall” or “sequential” approaches toward more iterative design/develop/test cycles that produce early results and give the project team more time to dial in lessons learned from multiple development cycles.

Some EV proponents consider that Agile has beneficial concepts, but that perhaps is too flexible and not respectful of baseline management, or that it can lead to too frequent requirement or work scope changes and a baseline that is more like a moving target. Some EV practitioners view Agile negatively and even with disdain as perhaps too chaotic, unplanned, unreliable, and not faithful to the rigorous baseline controls that formal EVM entails.

The Facts

For at least a decade, EV project management directives (at least for US government-funded efforts) have promoted moving from the waterfall approach to “evolutionary acquisition” and “spiral development” (Since 2003 per http://herdingcats.typepad.com/my_weblog/2006/07/waterfall_and_a.html).

IT/Software system projects are notorious for overruns and delays—as are the large, complex, and risky projects that use full-blown EVMS. The root causes include more than the project management approach and come down to requirements (mis)management, scope creep, unfortunate government acquisition management incentives, unfortunate contractor awards or incentives for project execution, conflicting stakeholder/contractor incentives, and more.

Conclusions

Perhaps the opportunity for using the best of Agile and EV lies somewhere in the middle. EV’s baseline-driven approach combined with Agile’s iterative planning approach do work together. Perhaps they share the same objectives, including:

- Perhaps EV can be more flexible and consider other ways to organize control accounts and manage changes.

- The EV team and the Agile team can work together to help assure that EV processes can appropriately flex / adapt to the Agile processes—while assuring that the Agile processes do not violate approved processes.
- For projects with EVMS compliance requirements, the EV and Agile team can document tailored approaches to minimize compliance risks and show that the organization proactively documented processes to assure compliance.
- Defining the work as early and clearly as possible—and clearly and frequently communicating the requirements. User stories provide a way to clearly communicate purpose, objectives, and acceptance criteria—yet leave room for discovery and innovation to get to the result.
- Developing realistic estimates for budgets, forecasts, story points, and user story planning—and dialing in lessons learned from historical data, past performance, burn rates, velocity, etc.
- Using the rolling wave concept to detail plan near term work in discrete work packages and far term work in planning packages
- Having solid completion / accomplishment criteria are key to both EV's Quantifiable Backup Data (QBD) for discrete work packages and Agile's "done is done" mantra.
- Being flexible enough to allow for more frequent baseline changes, even in the current period, if that result is better and more meaningful progress and deliverables.
- Being rigorous enough with baseline changes (as consistent with the release and sprint planning processes) such that there is transparency and enough controls to trace the history of baseline scope and budget changes.
- Assure that we are not "robbing from the future" to show early/easy gains, only to add more risk, rework, and unpleasant surprises down the road.
- Both EV and Agile rely on accurate actual cost collection to assure that we can analyze variances, understand burn rates, and make better forecasts for future work.
- Meaningful, accurate, and practical actual cost collection can still be used as a gauge for the level to establish control accounts—even if that level is higher or different from how EV might structure control accounts.
- Both EV and Agile need to know and act on variances to plan.
- Both EV and Agile need to dial in past performance into forecasts for realistic Estimates-to-Complete and Estimates at Completion (ETCs/EACs).
- Both EV and Agile need to manage risks and opportunities, dialing them into the plan/forecast as needed with risk mitigation and opportunity capture plans.

About the Author



Luis C Contreras

AzTech International LLC (goAzTech.com)



Mr. Luis Contreras is President of AzTech International LLC and has over 20 years of experience implementing Earned Value Management Systems throughout the US, Canada, and Europe. He has worked with both government and industry on both sides of DCMA Compliance Reviews, and with contractors on numerous Integrated Baseline Reviews (IBRs). He helps organizations optimize all facets of EVMS—from the proposal stage to baseline development and execution. His breadth of expertise includes EVM, scheduling, ERP/MRP, and earned value in a manufacturing or production environment. Mr. Contreras has led AzTech’s design team in developing custom applications as well as commercial tools such as Run!23 and Run!AzTech for MS Project scheduling professionals, AutoVAR for advanced variance analysis, and AzTech Compliance Expert (ACE) for assessing EVMS compliance prior to Integrated Baseline Reviews (IBRs), Compliance Reviews, Reviews for Cause, and for independent assessments and self-assessments.