

The Origins and History of Earned Value Management:

“A Contractor’s Perspective”¹

Dr. Paul D. Giammalvo

INTRODUCTION

This is a follow-up article to Pat Weaver’s paper of a similar name from the August issue of the PMWJ² that offers a different perspective through the eyes of a successful “hard money” contractor.

As much as I respect Pat Weaver’s work as a researcher, for the life of me, I am unable to comprehend why he (and also PMI and AACE) continue to refuse to include the published work of Halbert Powers Gillette and Richard Turner Dana from their 1909 book, "[Cost Keeping and Management Engineering: A Treatise for Engineers, Contractors, and Superintendents Engaged in the Management of Engineering Construction](#)" in his usually well-researched papers? Or in PMI or AACE Standards?

Speaking as a lifelong construction CONTRACTOR, the teachings of Gillette & Dana was the basis for how I was taught about Earned Value Management back in the early 1970s by the late Marvin Gates, P.E., Adjunct Professor at Worcester Polytechnic Institute. (WPI) and for the past 50+ years, formed the basis for how we manage our own companies using Earned Value Management as a "pay for performance" and “cash-flow management” system, both as PROPERTY DEVELOPERS (OWNERS) and GENERAL CONTRACTORS.

¹ How to cite this paper: Giammalvo, P. D. (2022). The Origins and History of Earned Value Management – “A Contractor’s Perspective”; featured paper, *PM World Journal*, Vol. XI, Issue IX, September.

² Weaver, P. (2022). The Origins and History of Earned Value Management; *PM World Journal*, Vol. XI, Issue VIII, August. Available online at <https://pmworldlibrary.net/wp-content/uploads/2022/08/pmwj120-Aug2022-Weaver-origins-and-history-of-earned-value-management.pdf>

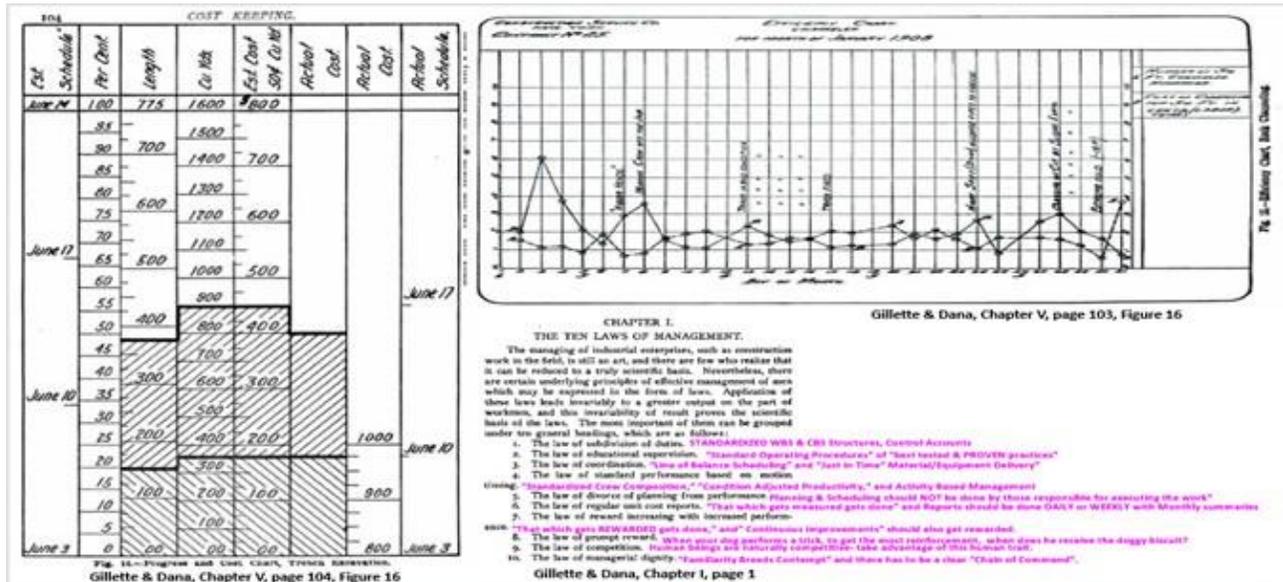


Figure 1- Key Elements from Gillette & Dana

The biggest concern is if we correlate the timing of the work of Gillette & Dana with the work of Gantt, Taylor, and Priestman, or more importantly, Halsey, Rowan, Emerson & Bedeaux, you can see clearly that Earned Value as we know it today probably originated from the 16th Century English Guilds. It evolved, matured, and became institutionalized on the factory floors of the 18th Century Industrial Revolution as a "pay for performance" or "incentive payment" system that is still in common practice today in nearly all production factories (in the form of what is known as "piecework") and in many of today's construction contractors and subcontractors who bid, bill and are paid on a "unit in place" basis, including dirt work (Civil), pipelines, paving, roofing, drywall, painting, and flooring, to name a few.

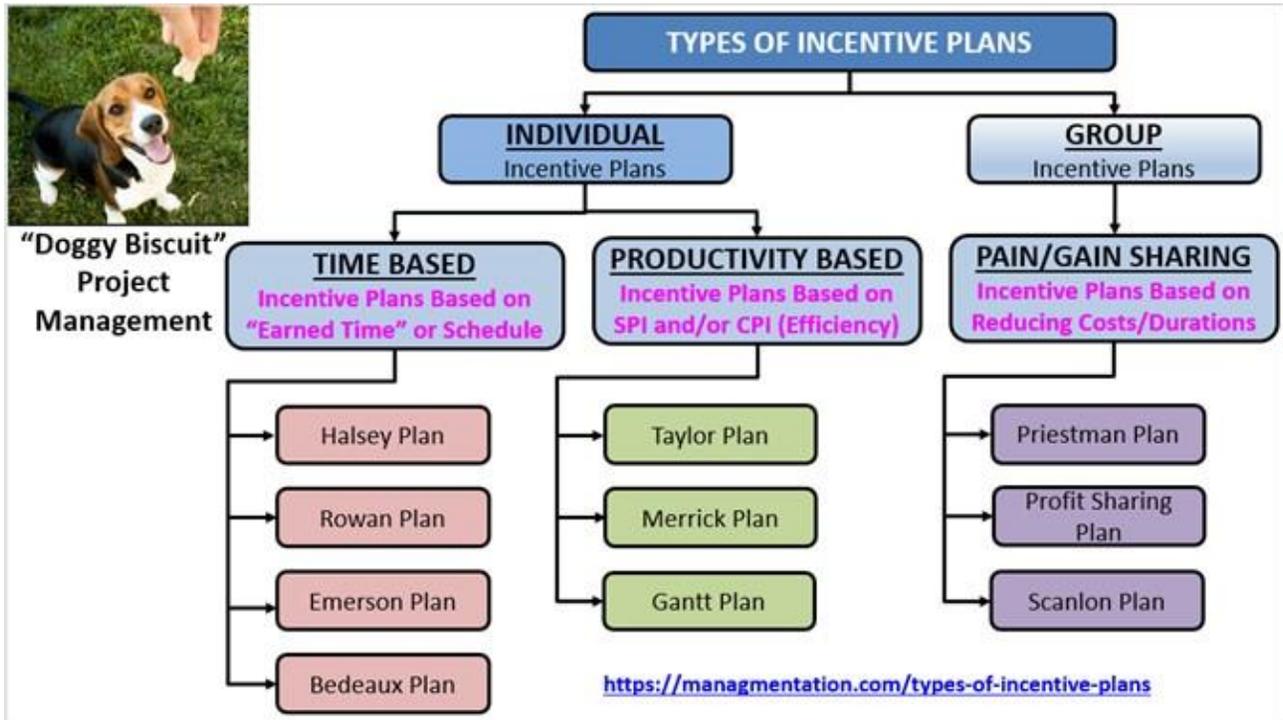


Figure 2- Common Incentive Plans from the Late 1800s-Early 1900s Still Being Used Today.

Even more relevant, given that many of these incentives were based on "Earned Time," they refute the claims of Walt Lipske and PMI that "earned schedule" or "earned time" originated with the USAF. "Earned Time" or "Earned Schedule" has been an integral part of EVM for as long as I have used it. (50+ years) Not sure where Wayne Abba is these days, but he and I have both maintained that what Walt/PMI claimed was not true. That Earned Time/Earned Schedule (ET/ES) was always integral to EVM. It took me years of research before I found the "smoking gun" to prove it with Gillette & Dana. (Thanks to John Hollmann, P.E.)

Even more IRONIC, unlike most contractors (and many owners) who complain about EVM as being "too bureaucratic," we INSIST on using EVM as the basis for payment in all our contracts, not as the US Government, PMI, or AACE advocate it, but as it evolved during the 18th Century as a "prompt payment" or "payment for



Figure 3- Fundamental Concept Underlying Earned Value

performance” scheme that links PERFORMANCE to PROMPT PAYMENT. We have built our successful business model around using EVM to maintain cash flow neutrality, minimizing the need to provide interim funding to our clients, which we must pass on to slow-paying clients in the form of carrying costs. This saves money for owners as we (contractors) do not have to build in “carrying costs” to pay for “interim financing.” This saves money for owners as we (contractors) do not have to build in “carrying costs” to pay for “interim financing.”

Note to our Islamic readers; this concept is consistent with Sharia Law dating back to the Old Testament: “Pay your workers before their sweat is dry.”^{3 4}

³ Taybi, Y. (2019). [Is Earned Value Management \(EVM\) consistent with Sharia Law: Will it help in fighting corruption?](#) PM World Journal, Vol. VIII, Issue VIII, September.

⁴ There is one *hadith* that teaches us about prompt payment of the worker. An utterance from the prophet Muhammad, “Promptly pay your labor/employee worker salary before his sweat is dry and tell them how much they will be paid while they are working” (*Hadist* from Baihaqi & Ibnu Majah). [Achmad Farid Malone, CCP, PMP](#)

And here are two additional papers written by my graduate students from the SKEMA School of Business tracing the roots of Earned Value Management back to the Old Testament.

Sophie Geneste- Geneste, S. (2019). [The True Origins of EVM: A historical approach to scheduling and incentive schemes](#), PM World Journal, Vol. VIII, Issue IX, October.

Bertille Hu- Hu. B. (2019). [The History of Earned Value Management through Incentive Plans](#), PM World Journal, Vol. VIII, Issue VIII, September.

WHAT ARE THE “DRIVING PRINCIPLES” UNDERLYING THE SUCCESSFUL ADOPTION OF EVM?

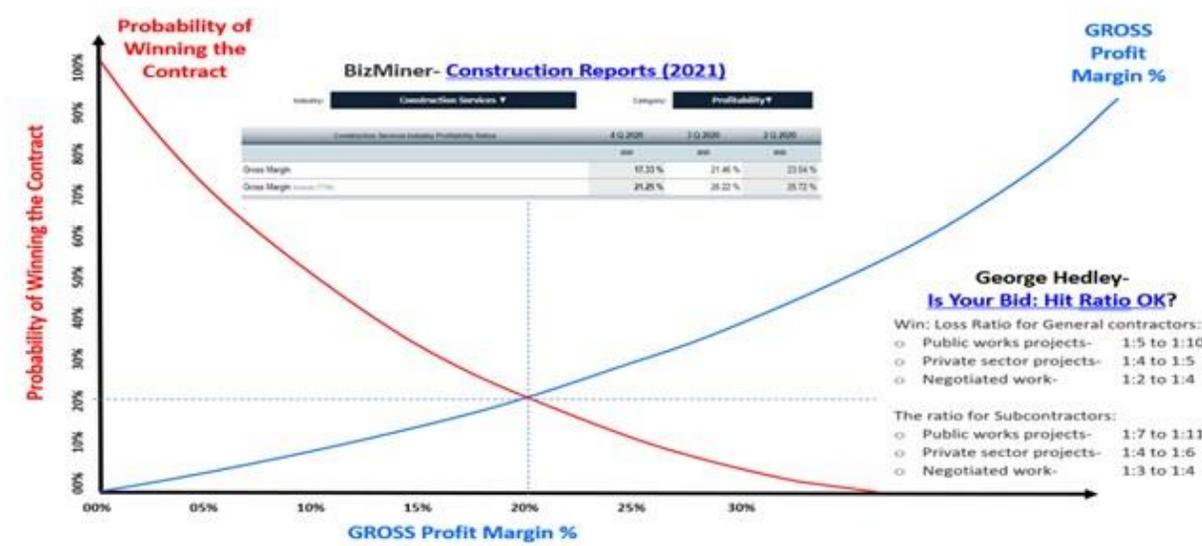


Figure 4- Construction Contractor’s Supply & Demand Curve

We all need to recognize that “contractors live and die based on their cash flows” and that historically, construction contractors are constrained by the “20:20 Rule”- that if we bid work around a 20% GROSS profit margin, we will win approximately 20% of the work we bid.

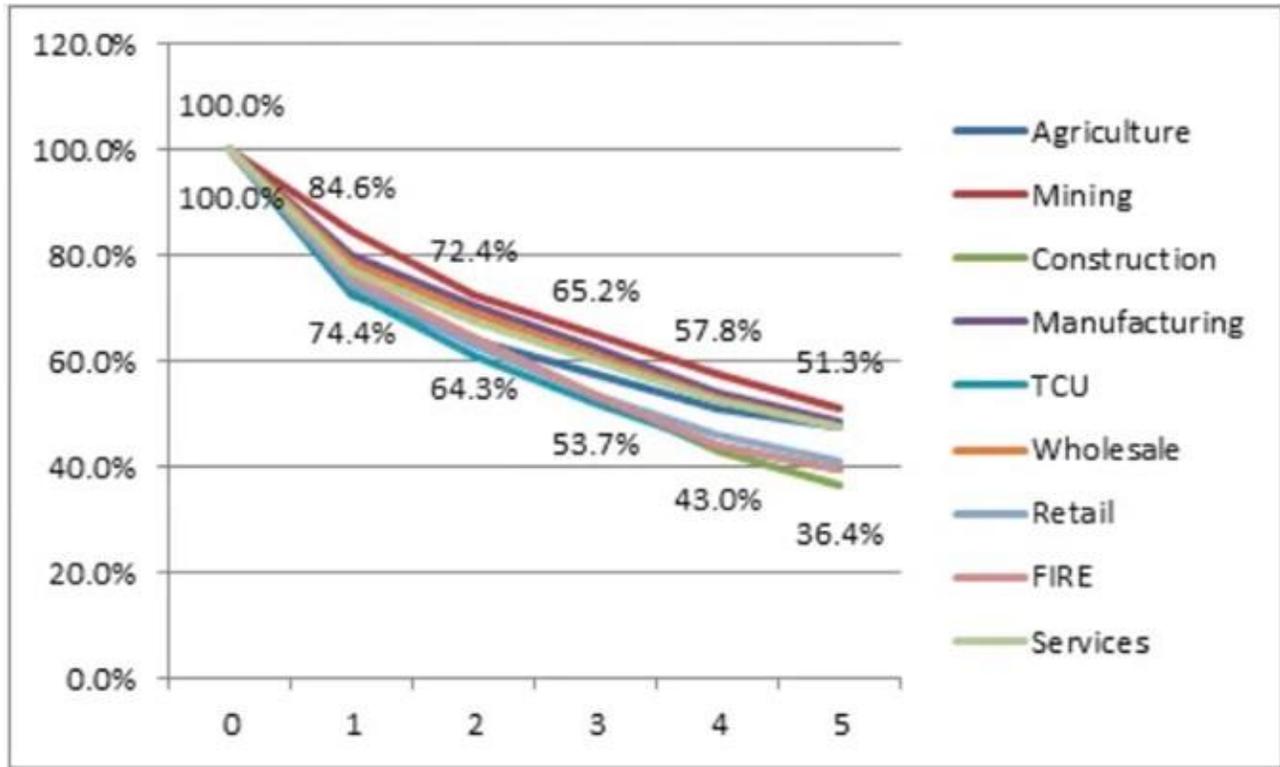


Figure 5- Construction 5-Year “Survival Rate” = 36.4%

We also know that the 5-year “survival rate” for construction contractors is a terrible 36.4%.

So not only do contractors consistently work on single-digit “bottom line” profit margins, but failure to aggressively manage our cash flows to maintain “cash-flow neutrality” means that managing cash flows is as critical if not more so than managing costs.

There are several other “TRUTHS” that SUCCESSFUL contractors have embraced that “professional societies” such as PMI, AACE, IPMA, APM/APMG, et al. have yet to acknowledge, but that Military Leaders have long understood.

Sorry to all you “Planners and Schedulers” reading this but despite whatever “bells and whistles” the latest version of the “software solution” you may be using offers, the reality is that even the US National Oceanic and Atmospheric Administration (NOAA) with the most powerful Cray Supercomputers running sophisticated Systems Dynamics software can only predict the path of a hurricane or typhoon a week into the future, so do you REALLY believe you can predict what we as contractors should be doing a year from today, using simplistic linear algorithms?



Figure 6- The “Cone of Uncertainty.”

The reality is that most contractors see your CPM Schedules as little more than a contractual requirement, dutifully hanging it on the wall and then promptly ignoring it. At best, we see it as a useful tool in documenting claims and helping us in maximizing our billings, but very few of us use it as a SERIOUS Execution tool.

We do not run our business using your schedules. What we as contractors want to see “planners/schedulers” providing for “value-added services” are:

- ✓ Updating the Baseline to reflect an “As-Built” rather than “As Planned” dates, durations, and logic for inclusion in our libraries of “frag-nets.”
- ✓ Tracking and documenting change orders and delays (documenting, supporting, and perfecting/defending against claims/counterclaims)
- ✓ About two weeks before the billing date, tell the field what activities have been STARTED but not yet finished, allowing time for the field operations to close out as many activities as possible. (“Contractors live or die by our cash flows.”)
- ✓ A couple of days before the billing date, provide a report showing what activities have been completed, which Field Management uses as the basis to ensure we bill for everything we

are entitled to and that we have confirmed concurrence with the Owners Project Manager that he/she will approve those billings. (“Contractors live or die by our cash flows.”)

- ✓ One Week Back-Three Week Look Ahead Schedules. (Rolling Wave Planning, “Sprints,” or Scrums.”
- ✓ 90-day look ahead procurement status for long Lead items and subcontractor/vendor contracts.

The “Guiding Principles” we rely on in making our resource allocation decisions in the field are based on Field Marshall Helmuth von Moltke’s 1865 observation that “no plan survives first contact with the enemy,” which General Eisenhower reiterated in 1951 with his observation that “plans are useless, but planning is essential.” These are truths that “planners & schedulers” conveniently ignore.

The philosophy of another General that those of us who have been successful as contractors have embraced that the “professional societies” seem unable or unwilling to recognize is that, as General Omar Bradley told us, “Amateurs study STRATEGY, while Professionals study LOGISTICS.”



Figure 7- The 5 Fundamental Truths of Project Management

Project Managers are TACTICAL decision-makers. Our world revolves around “making things happen.” That means our focus is on managing LOGISTICS- having the right people in the right place at the right time with the right tools, equipment, and materials to do what needs to be done.” Now, if Gillette and Dana understood this concept during the late 1800s, (see Figure 1) why do we see so many “big-picture” MBA types trying to run projects when we know for a fact that “God (or the devil, if you prefer?) lies in the details” and as Shakespeare wrote in 1591 about King Richard III’s death during the Battle of Bosworth, that all it took was the loss of a horseshoe nail to bring down a kingdom. The same story with project management. “God (or the devil, if you prefer?) lies in the details”, and those “details” change from day to day and for anyone who has ever worked on a drilling or production platform, even from shift to shift.

Therefore, as contractors, we largely ignore most CPM Schedules and, like our IT colleagues, have rediscovered what those of us in construction have long known as “Rolling Wave Planning” and have become known today by our Agilista IT colleagues as “Sprints” or “Scrums.”



Figure 8- Conceptual to Applied “Rolling Wave Planning”

This concept addresses the truths spoken by von Moltke and Eisenhower while serving to mitigate many of the variables (external risks) commonly experienced in construction, such as weather, equipment breakdowns, material delays, and the impacts of COVID on the workforce.

While contractors don’t obsess over the critical path, we also don’t ignore it. Knowing and understanding that a horizontal line drawn between two points between the Early Date (ED) and Late Date (LD) Curves tells us how much FLOAT we have, consistently successful contractors track float consumption using where the BCWP point falls at any given point in time relative to the ED and LD curve.

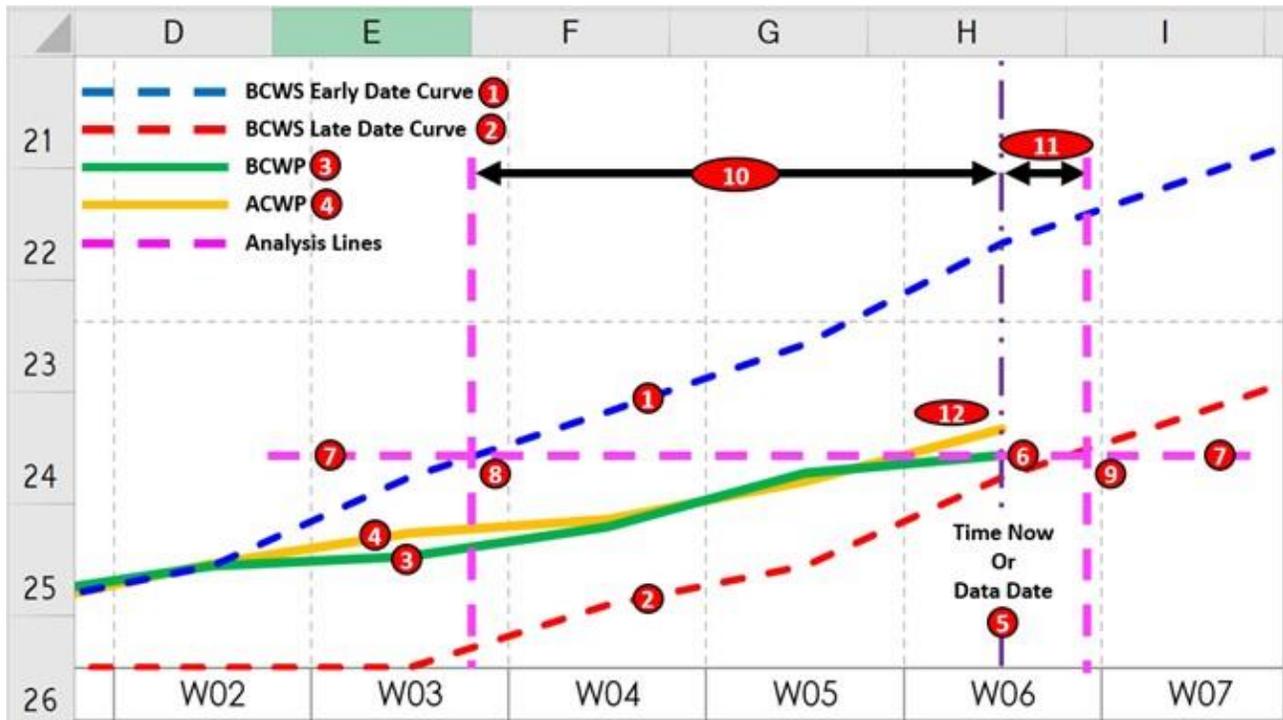


Figure 9- Using the Early and Late Date Curves to Monitor Float Consumption

As contractors, we do not rely on the critical path at the activity level. Understanding that the horizontal distance between any two points between the ED (1) and LD (2) Curves is a measure of how much FLOAT the project has at that point in time, our focus is on keeping the BCWP (3) comfortably between the two curves. This is known as “Leveled,” “Optimized,” or “Buffered” resource utilization. Serving as a “risk trigger” or “early warning sign” the closer the BCWP (3) line approaches the LD Curve (2) provides a very visual method of COMMUNICATING quickly and effectively in “real-time” to the field and office management as well as other stakeholders if the project is being well managed or if it is a disaster in the making. (Notice that we do NOT use MSP, P6, or any other dedicated scheduling software. As we believe in the K.I.S.S. Principle, we use Excel or Access databases for all our “real-time” reports, and knowing project data has a half-life of a ripe banana, by “real-time,” we mean tracking progress daily and reporting via web-based dashboards no more than 24 hours and ideally within 12 hours of the close of business the previous day.⁵

⁵ For the Freeport Case Study <https://build-project-management-competency.com/ptmc-training-standards-and-specifications-individual/> and <https://pmworldlibrary.net/wp-content/uploads/2013/01/PMWJ2-Sep2012-WIBIKSANA-EVM-Adapted-for-UndergroundMining-StudentPaper.pdf> we were able to generate a progress report 3 times per day, 365 days per year within 4 hours after the close of each shift using only 5 full time “Project Controllers” or “PMO” practitioners.

SO, IF WE DON’T USE THE CRITICAL PATH, WHAT KPIS DO WE MANAGE BY?

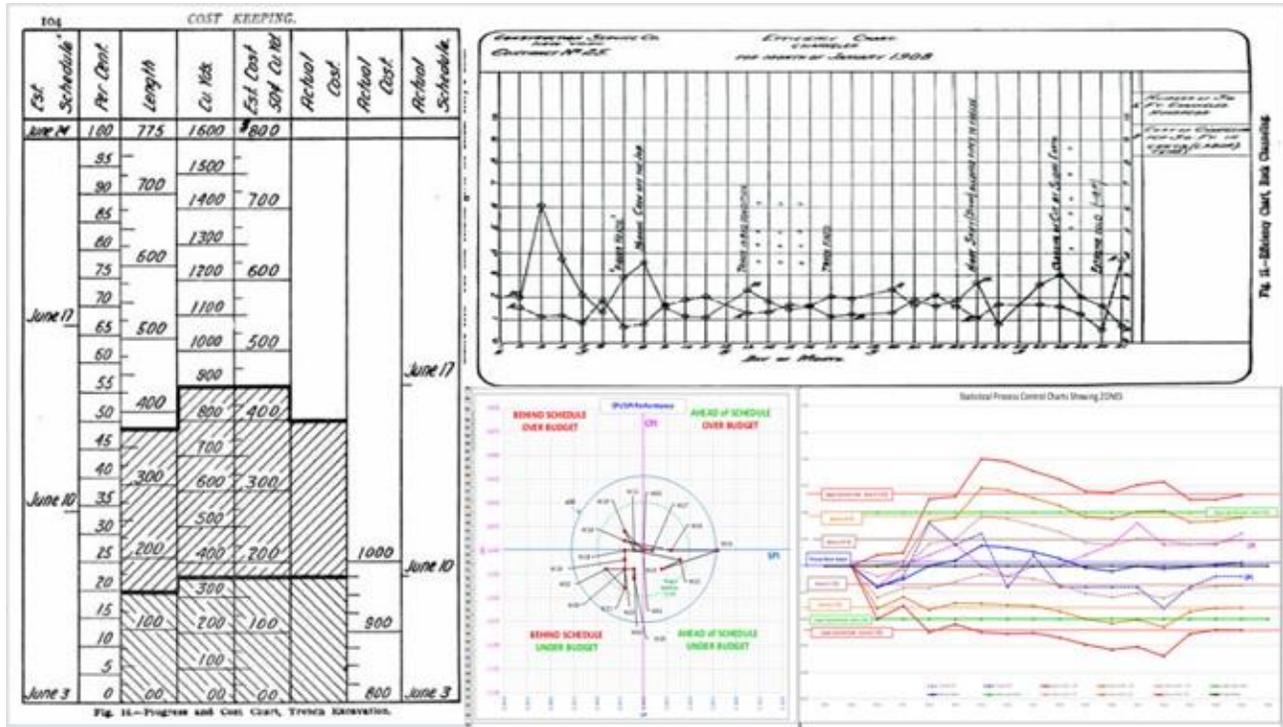


Figure 10- Adapting Gillette & Dana’s Graphs Using Excel or Access

Consistent with the teachings of Fayol, Taylor, Gantt, Frank & Lillian Gilbreath et al. and summarized or captured by Gillette and Dana as “best tested and PROVEN practices” (as opposed to PMI’s “practices used on MOST projects, MOST of the time” meaning merely AVERAGE) we have taken what Gillette & Dana published and consistent with our K.I.S.S. philosophy, have modified what they advocated, bringing it into the 21st Century by using the power of Excel or Access databases to automate as much of the reporting as possible, to make it as GRAPHICAL as possible (keeping that many of our clients are field people who do not speak English or speak English as a second language) and more importantly to make the progress information available to the key decision-makers at all levels in as close to “real-time” as possible.⁶

⁶ We have found that any reports containing data older than a week are largely useless for making management decisions relating to PHYSICAL PROGRESS or deployment of resources. Monthly reports provide little more than a historical record that is too far behind actual work in the field to be of much use other than using rolling wave planning to ensure resource, equipment, and material availability. For more on this, reference General Omar Bradley’s quote that “AMATEURS study STRATEGIES while PROFESSIONALS study LOGISTICS”. This is also consistent with Gillette and Dana’s “10 Laws of Management” (See Figure 1)



Figure 11- Efficiency Measured by SPI and CPI combined with [3 Sigma Statistical Process Control Charts](#)

As we know from the work of Shewhart and Deming⁷, every process has natural variability, and despite PMI’s attempts to disavow “processes” in favor of “principles” in their PMBOK Guide 7th Edition, at least in Construction, we remain very much “process-based.” Deming also advocated that we focus on improving the workflow process and not on the outcomes.

If you look at Figure 11, on the left-hand side of the graphic, we have our “Bullseye Chart,” which gives us an END VIEW of our CPI and SPI data, while on the right side, we can see a SIDE VIEW of the same data, by rotating the END VIEW to the right, giving us a Right-Side view (SPI and CPI over time). Identical data is looked at from two perspectives.

⁷ Deming’s Red Bead-White Bead Experiment <https://www.youtube.com/watch?v=JeWTD-0BRS4>

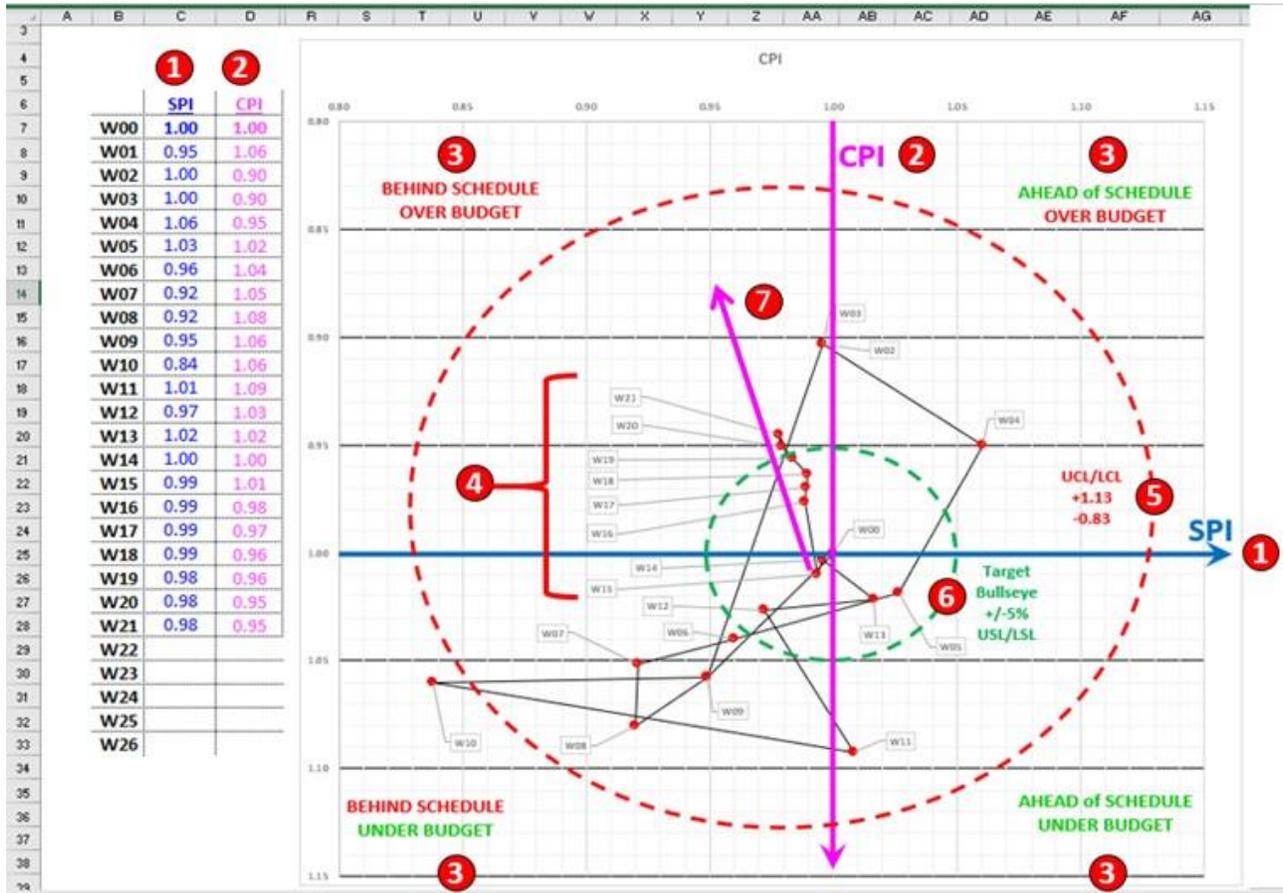


Figure 12- Efficiency Measured by SPI and CPI

Your first question is probably why we are using SPI and CPI, which are both EFFICIENCY FACTORS, rather than Cost (CV) or Schedule Variance (SV), which are based on monetary differences. And the answer is that when you use money, there are too many variables (field management, weather, heat & humidity, exchange rates, inflation, and different crew compositions, to name but a few variables.) Using EFFICIENCY factors, we are comparing how EFFICIENTLY the assigned resources any given crew are working when benchmarked against their plan. This way, we can compare which combinations, compositions, and configurations of crews produce the most cost-effective “solutions” to the workflow processes. (See Deming) By building a database on efficiencies rather than money, we can eliminate many variables and analyze which crew sizes and compositions work out “best” or “better” for different types of projects located in different parts of the world.

As we can see from Figure 12, the CPI (1) and SPI (2) are calculated every week, and it communicates very quickly five important pieces of information that management at all levels needs and wants to see.

(3). It tells us if our project or program is:

- 3.1. Ahead of Schedule and Under Budget
- 3.2. Ahead of Schedule and Over Budget
- 3.3. Behind Schedule and Under Budget
- 3.4. Behind Schedule and Over Budget

(4). It tells us whether our work-flow process is producing consistent or erratic results, and

(5). It tells us whether our work-flow process is falling within +/- three sigma (SPC) or not, and

(6). It tells us whether our work-flow process is within the targeted specifications (for contractors, working on single-digit “bottom-line profit margins, the acceptable range is +/-5% or SPI & CPI values between 0.95 and 1.05), and

(7). It tells us if any patterns are developing (i.e., 5 weekly readings in a row heading in a Northwesterly direction- Late and Over Budget)

Now is this information your key decision makers need to know in as close to real-time as possible? How long do you think it will take to teach them how to read and understand this gauge, eliminating the need for more time-wasting “progress meetings”?

BUT WAIT, THERE IS MORE...

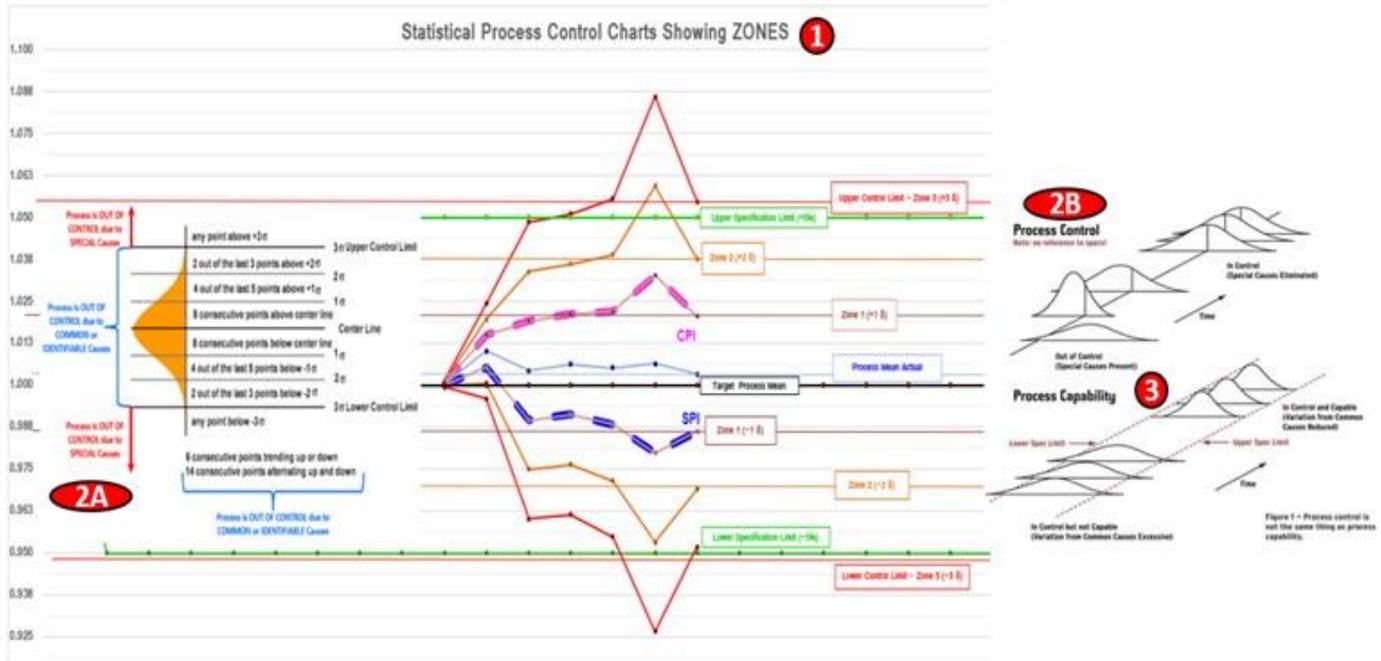


Figure 13- Applying 3 Sigma Statistical Process Control Chart Technology for Continuous Process Improvement

As you can see from Figure 13, by applying 3 Sigma process control charts, we can see first if our workflow processes are IN or OUT of control, and if they are OUT of control, is it due to EXTERNAL or SPECIAL causes, or is something going wrong INTERNALLY with our workflow processes?

At the same time, we can learn if the workflow processes we are implementing are CAPABLE of meeting our SPECIFICATIONS. By combining the two analyses, we have the data necessary to conduct a “root cause” analysis to find out what has gone wrong and make changes or modifications in the crew composition or the addition of new tools or equipment to bring the workflow processes back in CONTROL and SPECIFICATIONS. This “Continuous Process Improvement” analysis is difficult to identify, much less quantify, using only CPM Scheduling software.

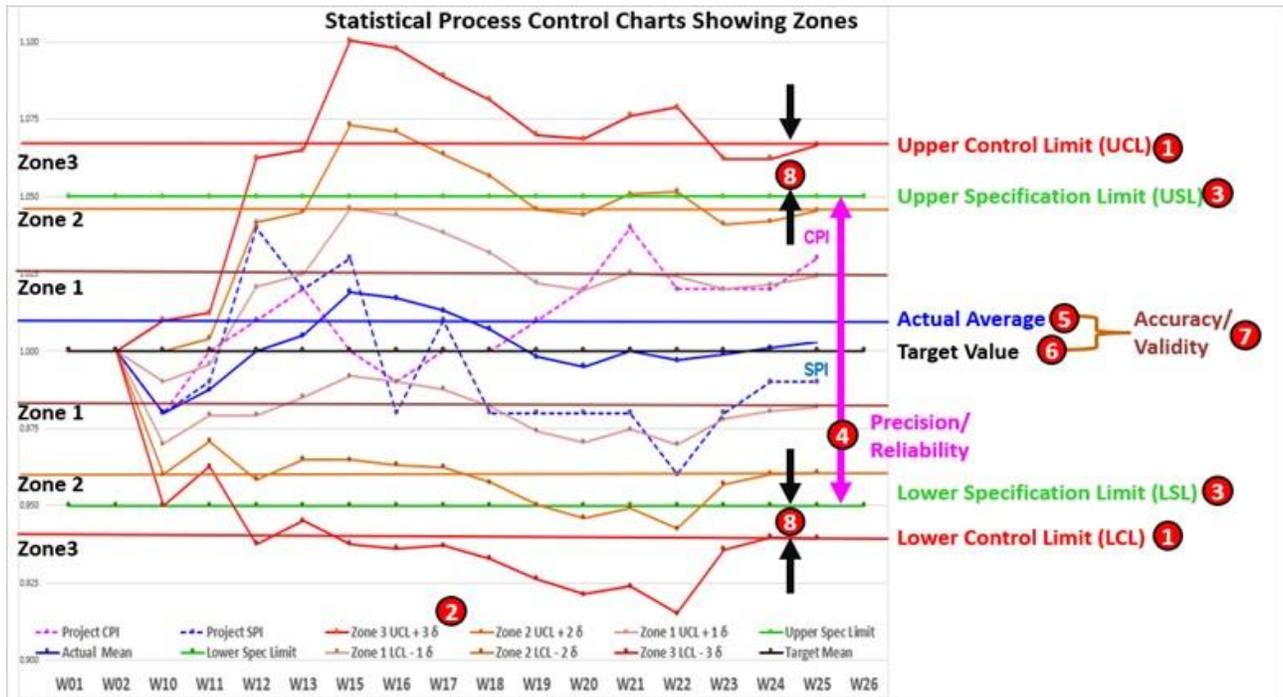


Figure 14- A Detailed Look at what 3 Sigma Statistical Process Control Chart Technology Can Tell Us.

For a more detailed explanation of Figures #11 through #15, visit [Unit 11- Managing Progress](#).

SO HOW DO WE USE THIS AS A QUALITY CHECK ON OUR DATA?

As contractors, in a highly competitive, high risk, low reward environment, where we are using today’s cost and productivity data to bid on tomorrow’s projects, we have to be continually trying to analyze and refine our cost and productivity databases, understanding that small changes in crew composition or replacing a person with a new tool or machine can make the difference between being the low bidder, winning the contract or spending all the time required to bid a project only to lose the bid, or worse yet, winning the bid only to lose money on the project.

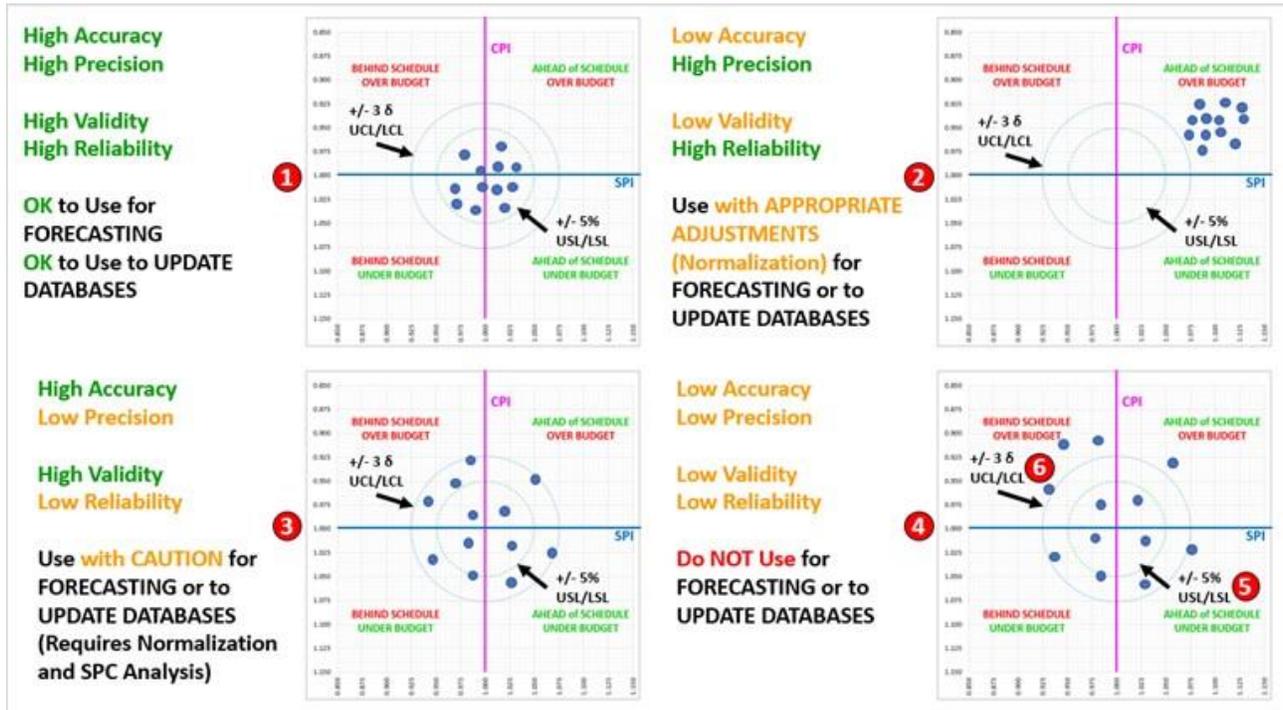


Figure 15- How do we use the Data to Update Our Databases and Forecasts?

In addition to our use, our clients expect us to use the actual cost and productivity data to make FORECASTS and knowing that “GIGO” (“Garbage In = Garbage Out”) applies to Contractors (assuming they want to remain profitable and in business) we must aggressively analyze our cost and productivity which is why we apply these 4 “tests” to assess the quality of our data when Benchmarked against the (5) Upper and Lower SPECIFICATIONS Limits (USL/LSL) and the (6) Upper and Lower CONTROL Limits (UCL/LCL):

Accuracy is how close our actual time and cost performance came to our baseline or “as bid” cost and duration estimates.

Precision measures how “tight” the SPI and CPI readings are to one another. The more closely they are grouped, the more **Reliable** and **Valid** they are in forecasting the future or for including in the databases.

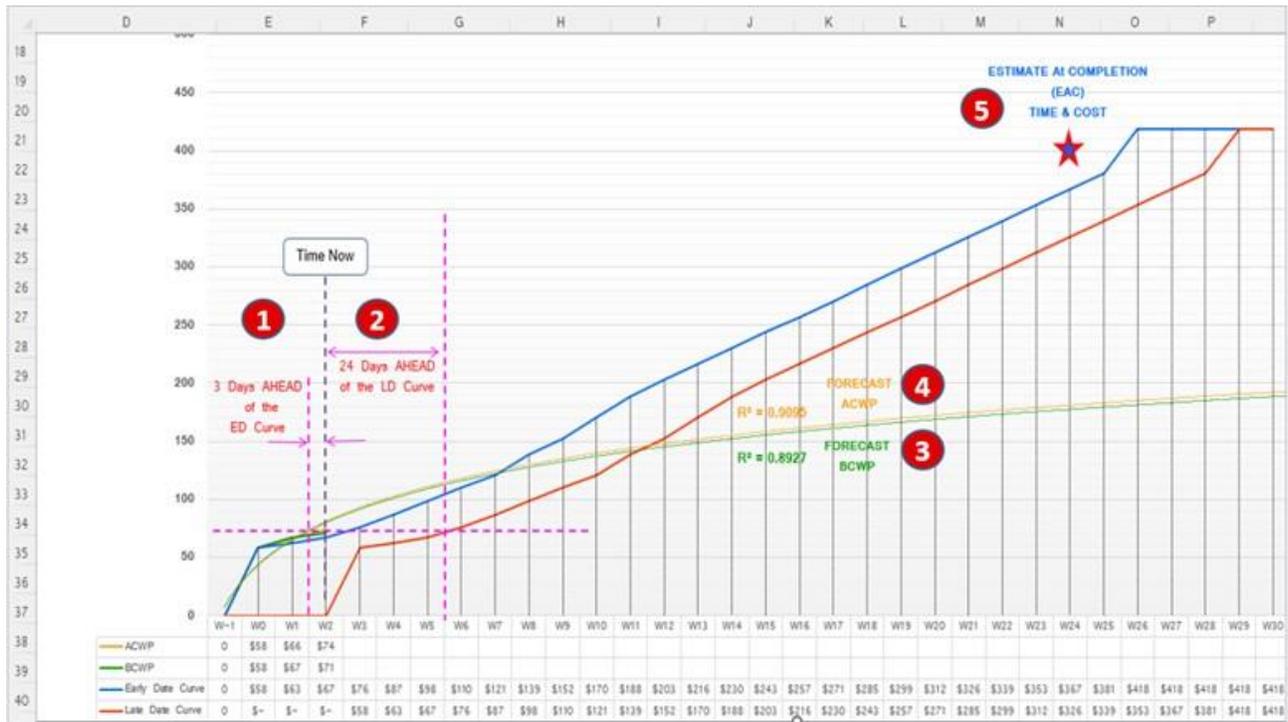


Figure 16- Why do we Prefer Excel to MSP or P6 et al.?⁸

Consistent with our commitment to the “K.I.S.S. Principle” while keeping both project and home office overheads as low as possible, we’ve found that using Excel or Access on our projects solves more problems than it creates.

We are not only able to show how far behind the ED curve (1) but are also able to graphically demonstrate how far AHEAD of the LD Curve we are (2), which is far and away the more important KPI, as we are striving for a “BALANCED” or “LEVELED” or “BUFFERED” allocation of our human, equipment and material resources and the closer the BCWP gets to the LD Curve serves as an “early warning indicator” that our project (or program) is heading for trouble, hopefully with enough time to implement corrective or remedial actions.

- ✓ Using Excel’s “Trendline” feature, we can select the “best fit” curve to FORECAST our BCWP (3) and ACWP (4). Using the “IEAC” formulas, we can generate an “Estimate at Completion” in terms of both Time (**EAC_{time}**) (5) and Cost (**EAC_{cost}**) (5)
- ✓ We do not have to invest in relatively expensive software and in training people with little or no real field experience to learn how to run that software.

⁸ Actual Weekly Report from current Competency Development Class Pertamina Oil Team “Excellence 2022”

- ✓ Lastly, unlike MSP, P6 et al., if management has a question about the formulas, as almost all field people can run Excel, they can click on the cell in question and show the formula, unlike most commercial software packages which require specialized training, and you cannot see what the program is doing “behind the screen.”

Below is a Systems Dynamics Model showing the impacts of rework on a project. Compare the impact that those pesky FEEDBACK LOOPS have on just about all aspects of “costs” and “productivity” and compare that against the overly simplistic “Forward-Pass/Backwards Pass schedules” produced by MSP, P6, or even Spider, that IGNORE those pesky feedback loops and you can begin to appreciate why those of in the field have little or no use for most CPM Schedules? Add to this the fact that precious few schedulers today have any “dirty boots” field experience, whose only claim to fame is they know how to manipulate the software,

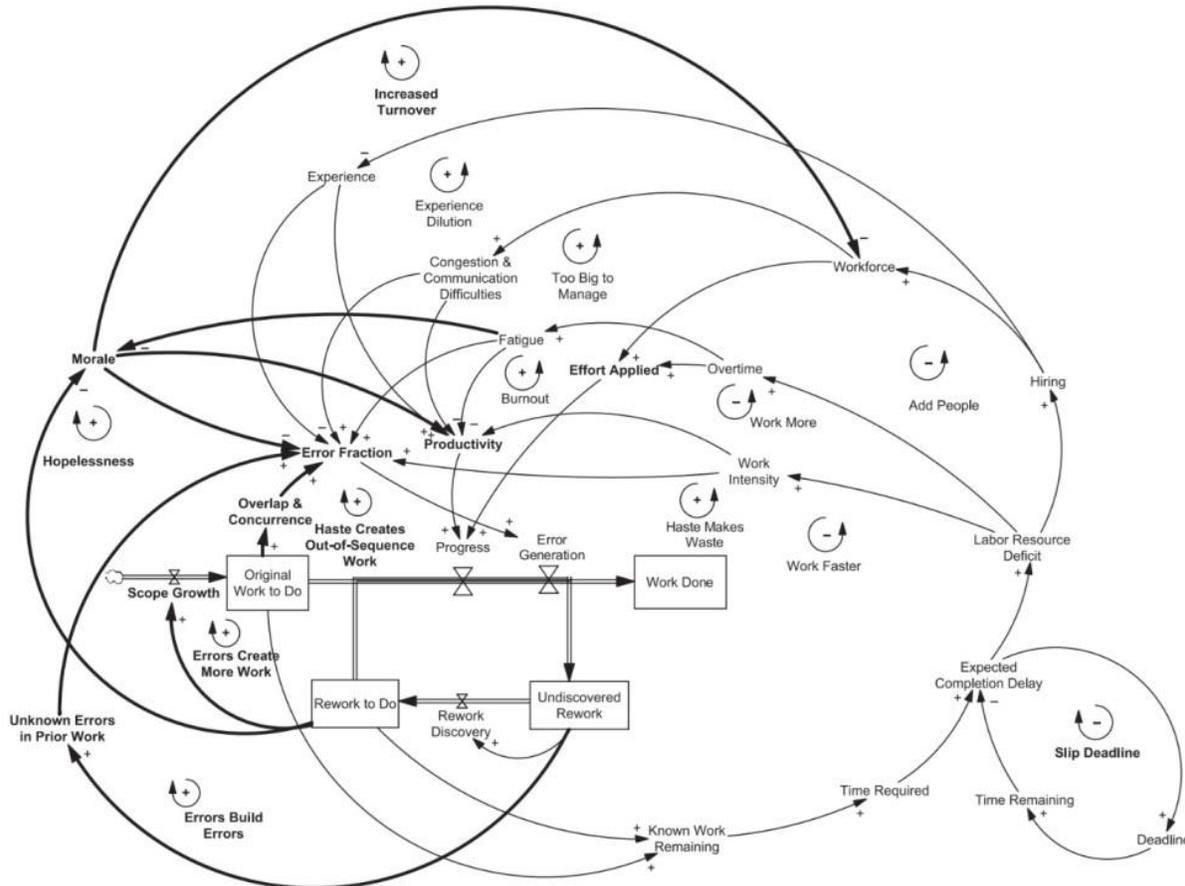


Figure 17- Systems Dynamics Model Illustrating the Cumulative Impacts⁹

and you can begin to appreciate the lack of trust and respect from the people in the field responsible to physically EXECUTE the work?

With Artificial Intelligence (AI) and the development of Neural Network software, how much longer will it take before the “Forward Pass-Backwards Pass” scheduling programs are recognized as fatally flawed tools? Need proof? Check out the research done by AIPM/IPMA/KPMG in 2020¹⁰ that shows that:

- ✓ 52 percent of projects are delivered with stakeholder satisfaction
- ✓ 51 percent of projects are likely to meet the original goal and business intent/objectives
- ✓ 48 percent of respondents feel their organization manages projects and programs effectively or very effectively
- ✓ **42 percent of projects are likely to be delivered on time**
- ✓ **40 percent of projects are likely to be delivered on budget.**

Given that Australia is a well-educated country with many highly qualified professional practitioners responsible for “initiating, planning, executing, controlling, and closing” sophisticated and expensive complex projects, that not only has its own “homegrown” professional society (Australian Institute of Project Management- AIPM) which is now a member of the International Project Management Association (IPMA) but is also heavily influenced by PMI and AACE “groupthink,” we need to ask ourselves what IS WRONG WITH THIS PICTURE? With over 50 years of AACE, IPMA, and PMI having been in existence, SURELY by now, we should be seeing measurable improvements.

And one of the answers is to STOP implementing Earned Value Management as the US DoD has designed it as an AUDITING tool which is about as useless as “locking the barn door after all the animals have escaped,” and start to implement EVM as it evolved and matured on the factory floors of the 18th Century Industrial Revolution as a “Pay for Performance” or “Incentive Payment System”?

⁹ Warhoe, Stephen <https://www.long-intl.com/experts/stephen-p-warhoe/>

¹⁰ AIPM, IPMA, KPMG Management Survey 2020 <https://home.kpmg/au/en/home/insights/2020/08/australian-project-delivery-performance-survey-2020.html>

CONCLUSIONS AND RECOMMENDATIONS...

Curiously enough, back around 2006, Brian Hobbs and Claude Besner published research showing that “Earned Value” was used “from limited to very limited use” and that “S-Curves and Statistical Process Control Charts” experienced “less than very limited use.”¹¹ This was also followed in 2006 in published research by Chance Reichel,¹² who told us, “Unfortunately, it seems as if this phrase or title, “Earned Value Management,” is met and greeted with dread instead of the thought of usefulness.” Other published research indicates that very few project managers used EVM, at least not as the US DoD advocated it in the [Earned Value Management Systems Intent Guide \(EIA-748-D Intent Guide\)](#).

More recently, Millennial Ms. Shohreh Ghorbani reiterated these same observations in several of her 2021 postings on Linked In. It was also mentioned on at least one occasion by Patrick Weaver in his postings in 2021-22 and was also discussed on several occasions between Dr. Ken Smith, Colonel USAF (Ret), Andrew J. Grandage, Ph.D., Assistant Professor, Political Science, at the Public Affairs Department Western Carolina University and the author of this article during 2022. So in ~16 years, we have seen no change in a willingness to adopt what we know to be “best tested and PROVEN” practices that have been around for at least 120 years and probably closer to 600?

How is it that so many CONTRACTORS and Private Sector OWNERS are unwilling to adopt EVM as the US DoD advocates it (and both PMI and AACE have and continue to support), while for 50+ years, we (and many other savvy and successful contractors and subcontractors who cost, price, bid, and bill using the Unit in Place method) have built a successful business around Earned Value as a core competency, not as the US DoD, PMI or AACE advocate it but as it was being taught 50+ years ago based on what Gillette and Dana advocated? We INSIST that payment be based on EVM as shown in Figure 3 and incorporate this wording into all our contracts, and as a Muslim Woman-owned company, we, in turn, pay our contractors, subcontractors, and vendors based on EVM to remain consistent with Shariah Laws.

I believe it was Einstein who is credited with saying, “Doing the same thing over and over again, but expecting different results, is the definition of insanity.”

¹¹ [Claude Besner, B. Hobbs \(2006\)](#)

[The Perceived Value and Potential Contribution of Project Management Practices to Project Success](#)

¹² Reichel, C. W. (2006). Earned value management systems (EVMS): "you too can do earned value management" Paper presented at PMI® Global Congress 2006—North America, Seattle, WA. Newtown Square, PA: Project Management Institute.

So how much longer will we tolerate “42% of our projects being delivered on time” and “40% of our projects being delivered within budget” before we initiate meaningful change, based on what has been tested and PROVEN to work?

And how many of you CONTRACTORS and VENDORS experiencing slow payment for the work you’ve completed? Are you happy with slow payments?

How many OWNERS would like to see your CONTRACTORS and VENDORS being INCENTIVISED to complete your projects FASTER, CHEAPER, and BETTER?

Assuming the answers to all questions are YES, stop implementing EVM as the US DoD, PMI, and AACE advocate and start to follow the advice of Gillette & Dana using “Doggy Biscuit Project Management.”

Please don’t take our word for what has worked for us for 50+ years. What have you lost by trying a SYSTEM that has been used for ~600 years, tested, and PROVEN to work?

How much longer can we or should we tolerate the excuse that “we never did that before?”

Are we, as Einstein suggests, “INSANE?”

EARNED VALUE as it ORIGINATED is NOT COMPLICATED...

Fair Market Competition

Select "Best Value" For Money

Test For Quality

Measure Quantity Taken/Received

Pay **PROMPTLY** Only For what You Got

TYPES OF INCENTIVE PLANS

- INDIVIDUAL Incentive Plans
 - TIME BASED Incentive Plans Based on "Earned Time" or Schedule
 - Hubery Plan
 - Rowan Plan
 - Emerson Plan
 - Bedraux Plan
 - PRODUCTIVITY BASED Incentive Plans Based on SPI and/or CPI (Efficiency)
 - Taylor Plan
 - Merrick Plan
 - Ganitt Plan
- GROUP Incentive Plans
 - PAIN/GAIN SHARING Incentive Plans Based on Reducing Costs/Durations
 - Priestman Plan
 - Profit Sharing Plan
 - Scanlon Plan

<https://management.com/types-of-incentive-plans>

"An important function of almost every system is to ensure its own perpetuation."
– Donella H. Meadows

"Every system is perfectly designed to get the results it gets."
– Donald Berwick

"The System is the Solution"
– Amory Lovins

Figure 18- The System is the Solution

Other papers on APPLIED Earned Value Management by this Author:

- [On the Subject of Earned Value Management - Letter to the Editor - Giammalvo - February 2020](#)
- [Earned Value – A Leading Indicator of Clean Governance? - Second Edition - Giammalvo - January 2019](#)
- [Activity Based Costing \(ABC\) – The Other Side of the Earned Value Coin? - Second Edition - Giammalvo - February 2019](#)
- [On the History of Earned Value Management - Letter to the Editor - Giammalvo - November 2019](#)
- [Do Private Sector Small to Medium Sized, Entrepreneurial General Contractors Comply with ANSI 748? If yes, how; if not, why not? - Featured Papers - Giammalvo - April 2013](#)

- [Practical Look at how Private Sector Entrepreneurial Companies use Earned Value - Featured Papers - Giammalvo - July 2013](#)
 - [Freeport McMoran Indonesia- Earned Value Applied to Operations](#)
-

About the Author



Dr. Paul D. Giammalvo, CDT, CCE, MScPM, MRICS

Jakarta, Indonesia



Dr. Paul D. Giammalvo, CDT, CCE (#1240), MScPM, MRICS, is a Senior Technical Advisor (Project Management) to PT Mitratata Citragraha. (PTMC), Jakarta, Indonesia. www.build-project-management-competency.com. He is noted for developing and delivering graduate-level, blended learning curricula designed for the mid-career path, English as Second Language (ESL) professionals to develop competency in the local practitioner and build capacity for the local organizations. For 25+ years, he has been developing and delivering Project Management training and consulting throughout South and Eastern Asia Pacific, the Middle East, West Africa, and Europe.

He is also active in the Global Project Management Community by playing a “thought leadership” role for the Association for the Advancement of Cost Engineering International (AACEI) http://www.aacei.org/since_1991; He has also been active in two IPMA member organizations: The Green Project Management Association (GPM) <http://www.greenprojectmanagement.org/> where he served on the Certification Board of Directors for two years and the American Society for the Advancement of Project Management <http://www.asapm.org/> for which he served for four years on the BoD as Director of Marketing. He also sat on the Board of Directors of the Global Alliance for Project Performance Standards (GAPPS), www.globalpmstandards.org, Sydney, Australia, and is active as a regional leader. Previously, he was a compensated consultant to the International Guild of Project Controls. <http://www.planningplanet.com/guild> as the primary

author of their “Compendium and Reference” and the chief architect of their competency-based credentialing program. <http://www.planningplanet.com/guild/certification>

He has spent 35 of the last 50 years working on large, highly technical international projects, including such prestigious projects as the Alyeska Pipeline and the Distant Early Warning Site (DEW Line), upgrades in Alaska and the Negev Airbase Constructors, Ovda, Israel and the Minas Oil Field in Rumbai, Sumatra. His current client list includes Fortune 500 major telecommunications, oil, gas, mining companies, the UN Projects Office, many other multi-national companies, NGO organizations, and Indonesian Government Agencies.

In addition to 45+ years of hands-on field experience, Dr. Giammalvo holds an undergraduate degree in Construction Management, his Master of Science in Project Management through the George Washington University, and was awarded his Ph.D. in Project and Program Management through the Institute Supérieur De Gestion Industrielle (ISGI) and Ecole Supérieure De Commerce De Lille (ESC-Lille) under the supervision of Professor Christophe Bredillet. “Dr. PDG” can be contacted at pauldgphd@gmail.com.

To view other original works by Paul Giammalvo, visit his author showcase in the PM World Library at <http://pmworldlibrary.net/authors/dr-paul-d-giammalvo/>.