

## On Digital Project Management: Outstanding Issues for Consideration, Review & Resolution <sup>1 2</sup>

Dr. Kenneth F. Smith, PMP

By way of introduction, I'm a *rara avis*, a project management practitioner from the **B.C.E. manual generation**: i.e. Before the Computer Era); *at least before the advent of the personal computer*. Until mid-career, I only had a portable namesake typewriter. Equipped with PERT/CPM, PERT COST & JIT/LOB knowledge, experience, some statistical skills, a colored pentel set in my breast pocket, a circle template & post-it notes in my left side pocket, and a rolled-up flip-chart under my arm for presentations & drawing networks -- I traveled the world practicing my project management trade.<sup>3</sup>

Subsequently, a boss's teenage son taught me how to substitute a 'word processor' for my typewriter. (*Already knowing how to type, the transition was relatively easy.*) Then humping a so-called 'portable' computer (*as big & heavy as a Singer sewing machine*) with two floppy disks in my other pocket, I joined the computer evolution and continued intrepid traveling with my PM 'hammer' for projects to pound. Along the way I also acquired limited skill using MS Project software for scheduling; and *Lotus 123* – later Excel – to create PM-related templates.

These days, I'm using Zoom – *virtually* -- to teach project management concepts, tools and techniques to others with PowerPoint and my Excel templates. Nevertheless, as those who know me well know; while I'm long-experienced and recognized as a project management specialist,<sup>4</sup> when it comes to computers, I'm still very much a neophyte.

**Which brings me to this juncture:** Sitting on the sidelines and witnessing ever-more exotic computer program applications – *admittedly above my pay-grade* -- being discussed and developed by younger generations, I have become increasingly dismayed that **three fundamental issues -- bypassed in the past -- are still being overlooked today; or are being benignly neglected.**

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<sup>1</sup> This article is derived from my Open Letter to participants of the National Symposium on Digital PM, which was convened in Metro Manila, 15 September 2023 by the Philippines Chapter of the Project Management Institute (PMI).

<sup>2</sup> How to cite this article: Smith, K. F. (2023). On Digital Project Management: Outstanding Issues for Consideration, Review & Resolution, commentary, *PM World Journal*, Vol. XII, Issue X, October.

<sup>3</sup> Later -- *during a post-graduate sabbatical* -- I learned to write & punch Fortran 4 instructions on IBM cards and sort program decks for compilation by others on mainframes.

<sup>4</sup> Just like the military preference for the term 'specialist' rather 'expert,' I also favor the designation 'specialist,' and reserve the term 'expert' for others. Self-designation seems somewhat pretentious, and although I may now be an "Ex" -- '*has-been*' – I am no longer a "spurt" – i.e., '*a drip under pressure!*'

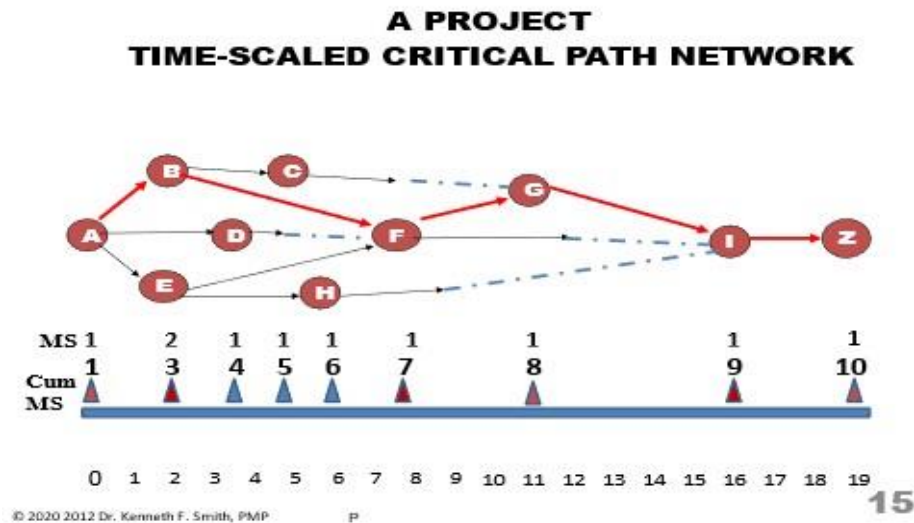
PMI defines an **Issue** as an *unresolved Problem*. My three PM Software Issues -- *to the best of my knowledge are*:

1. Need for a **computerized TIME-SCALED Critical Path Network** exists.<sup>5</sup>
2. Existing software ‘EARNED VALUE’ computations & processing may be **ERRONEOUS**.
3. Need for a **generic JIT/LOB software** exists for Scheduling & Monitoring Repetitive-type Projects.

My concerns with these long-standing lacunae are summarized below and on the following pages: and further expounded in **two** referenced PMWJ articles.

### 1. Need for a TIME-SCALED Critical Path Network Graphic

The rationale for a time-scaled ‘activity-on-arrow’ network with milestones is that it depicts a project schedule baseline which combines the best features of Gantt/bar charts and precedence networks in a single diagram.<sup>6</sup> Instead of having to flip back and forth between Gantt/bar Charts and Precedence Networks – *which is the only mode available with present scheduling software graphics* – a time-scaled network combination highlights slack (float), which facilitates visual comprehension and analysis.



It should also have the flexibility to show the *Latest Time* for every monitored activity to meet the overall project deadline – i.e., when every activity is critical.

<sup>5</sup> UPDATE: I have since been informed that ‘Microplanner’ -- a ‘to-do’ app with Office 365 -- has a time-scaled network but have not yet checked it out.

<sup>6</sup> NOTE: Many years ago, an ‘app’ “Project Partner” was available that did provide time-scaled networks when linked with MS Project; but it fell by the wayside when MS Project upgraded to later versions.

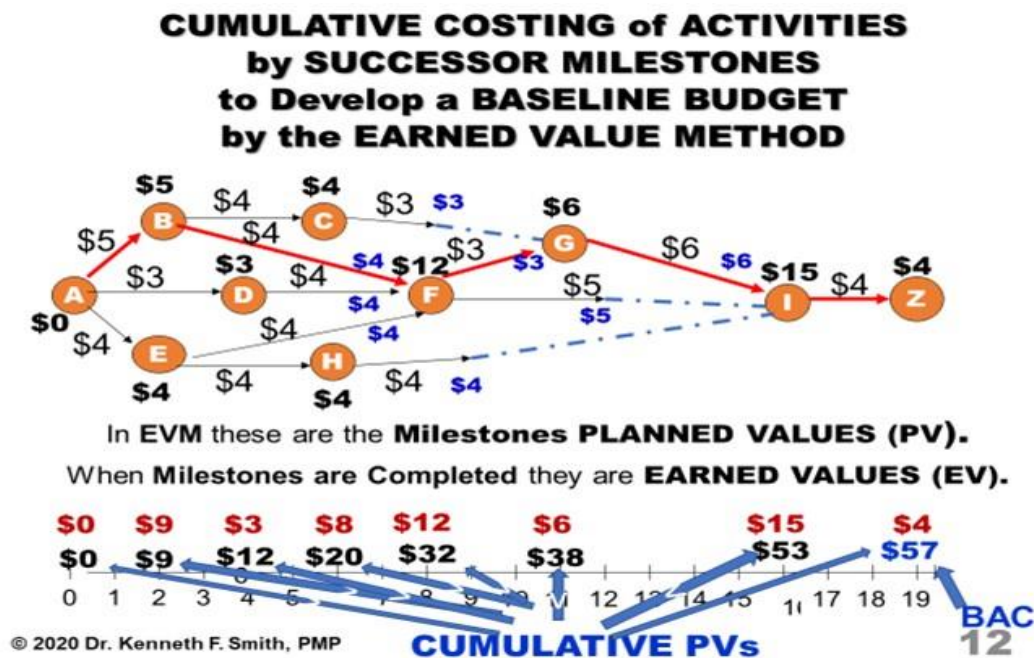
As such, time-scaling a network is a relatively simple computer software opportunity waiting to be developed – either as a stand-alone product, or an ‘app’ to tack on to an existing software, such as MS Project.

## 2. ERRONEOUS ‘Earned Value’ Computations & Processes in Existing Software

At the outset of project management software development, algorithms for the Earned Value indicator were computed erroneously! Activity ‘Planned Values’ were computed in software applications based on traditional accounting monitoring practices that track incremental activity ‘running costs.’ For example, a 2 week activity with a planned cost of \$600 is calculated by a ‘cost/duration’ formula -- for a \$300 per week ‘running cost.’ Then, for each incremental time period, the **Planned Cost of Completed Activities PLUS Percentages of On-Going but INCOMPLETE activities** were included and presented as the Earned Value. Unfortunately, while eminently logical, and conforming with traditional accounting practices, this process is totally incorrect for Earned Value Analysis!

This erroneous practice of attributing additional “Level of Effort” costs to incomplete work as **Earned Value** results in misleading reports, and possibly even incomplete “White Elephant” projects. The very essence of the **Earned Value Method** is measuring the **Budgeted Cost of Work Performed** compared to the **Budgeted Cost of Work Scheduled** and the **Actual Cost of Work Performed** – **BUT not including partial credit for on-going, but incomplete, work!**

Completed activity work is correctly represented in **EARNED VALUE** by the *successor Milestones of the immediate predecessor activities*. Milestones should be the point for assigning the Planned Value (i.e. the Budgeted Cost of Work Scheduled), *NOT tracked and reported piecemeal, incrementally, over the duration of the activity.*



Moreover, because the software algorithm divided the total activity cost by its duration to determine an activity’s running cost, **since milestones are points-in-time of zero duration**, if milestones are utilized with current software, instead of reflecting the true Earned Values of cumulative completed work, **dividing by ‘0’ results in a “0” or “error!”**

**I HAVE NOT USED THE COST ASPECTS OF PM SOFTWARE FOR MANY YEARS**, so don’t know whether these defects were ever corrected. In order to assure the current PM software is in conformity with Earned Value Methodology, *the cost computation algorithms need to be revalidated, and reprogrammed if necessary, and the process modified to allocate activity costs to their successor Milestones, as illustrated above.*<sup>7</sup>

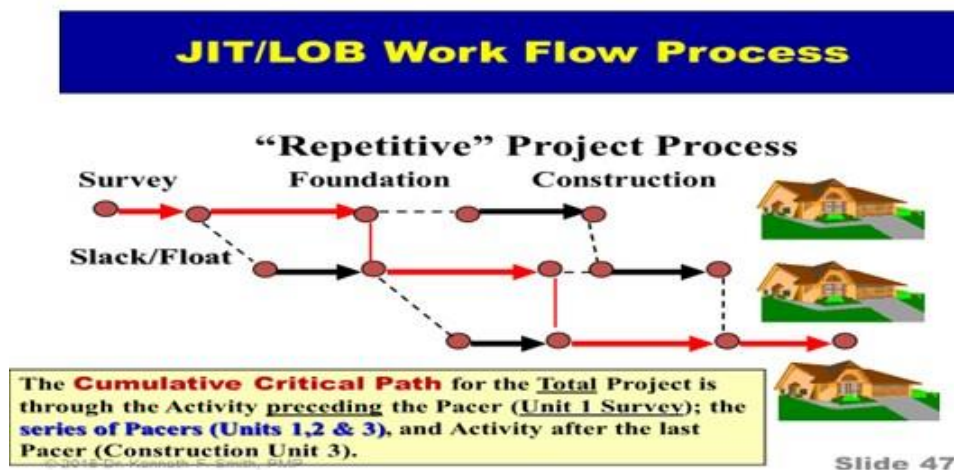
NOTE: **Any attempt to correct these fundamental flaws will undoubtedly encounter substantial opposition by both users and vendors throughout the IT sector**, as -- rather than a simple ‘fix’ – correcting them will necessitate extensive software reprogramming, while rendering **obsolete** the extant time-honored software.

Furthermore, *‘back to basics’ re-education* of Earned Value Methodology fundamentals by users – *both organizational and individual* – **will also be necessitated** to modify existing applications and practices. The transition will thus be disruptive.

NEVERTHELESS – *Like the ‘Flat Earth’ Theory* -- **CORRECTION IS OVERDUE!**

3. **GENERIC SOFTWARE for Repetitive-type Project Scheduling & Monitoring**

**Just-in-time/Line of Balance (JIT/LOB)** for scheduling repetitive-type projects – *essentially a cumulative critical path* -- preceded introduction of Critical Path by more than a decade and is used extensively in the US Defense Department and applied elsewhere.



<sup>7</sup> I have elaborated on both the foregoing issues in two articles of the **Project Management World Journal** 1) Smith, K. F. (2023). Take the Guess out of Guess-timating: Use Milestones to Monitor Project Performance, advisory article, *PM World Journal*, Vol. XII, Issue VII, July; and 2) Smith, K. F. (2022). MONITORING & ANALYZING PROJECT COSTS: PMBOK+PLUS Tools & Templates to Facilitate Financial Analysis, *PM World Journal*, Vol. XI, Issue VI, June.

**Despite these facts, although I have seen -- and heard of -- unique single-purpose software designed for specific in-house applications I am unaware of any generic software for JIT/LOB application.**

Consequently, for the past 60 years all my on-the-job applications were manual ‘*paper & pencil*’ drafting with computations; or complex, inadequate ‘*work-arounds*’ using MS Project ‘*leveling*.’ I eventually bridged the gap, developing a high-level summary KPI approach utilizing an excel template -- described and depicted in another PMWJ article: Smith, K. F. (2020). Just-in-Time Line of Balance, *PM World Journal*, Vol. IX, Issue X, October. – but a full-fledged software is still highly desirable.

**This is another computer software opportunity waiting to be developed!**

**It is my hope, therefore, that someone -- or an organization -- somewhere will address one, or more, of these issues long-awaiting a sponsor.**

**Finally**, as one participant noted after my PMF Workshop last month

*“Almost everything is digital now and there are already a lot of software and more advanced tools in the market which can cater to different project management needs.*

*Unfortunately, the tools & techniques presented during the duration of the workshop are still in excel format<sup>8</sup> and given our number of projects, it's not something we can adapt to in our company.”*

**In conclusion**, if anyone is interested in ‘*biting the bullet*’ and tackling any -- or all -- of my foregoing concerns, I am available for further discussion &/or consultation if need be; and can be contacted at: [kenfsmith@aol.com](mailto:kenfsmith@aol.com).

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<sup>8</sup> NOTE: I have 150 such stand-alone templates for Project Planning, Monitoring, Analysis & Evaluation, that – *with a little technical assistance* -- could probably be upgraded for today’s digital generations.

## About the Author



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Initially a US Civil Service Management Intern, then a management analyst & systems specialist with the US Defense Department, Ken subsequently had a career as a senior foreign service officer -- management & evaluation specialist, project manager, and in-house facilitator/trainer -- with the US Agency for International Development (USAID). Ken assisted host country governments in many countries to plan, monitor and evaluate projects in various technical sectors; working ‘hands-on’ with their officers as well as other USAID personnel, contractors and NGOs. Intermittently, he was also a team leader &/or team member to conduct project, program & and country-level portfolio analyses and evaluations.

Concurrently, Ken had an active dual career as Air Force ready-reservist in Asia (Japan, Korea, Vietnam, Indonesia, Philippines) as well as the Washington D.C. area; was Chairman of a Congressional Services Academy Advisory Board (SAAB); and had additional duties as an Air Force Academy Liaison Officer. He retired as a ‘bird’ colonel.

After retirement from USAID, Ken was a project management consultant for ADB, the World Bank, UNDP and USAID.

He earned his DPA (Doctor of Public Administration) from the George Mason University (GMU) in Virginia, his MS from Massachusetts Institute of Technology (MIT Systems Analysis Fellow, Center for Advanced Engineering Study), and BA & MA degrees in Government & International Relations from the University of Connecticut (UCONN). A long-time member of the Project Management Institute (PMI) and IPMA-USA, Ken is a Certified Project Management Professional (PMP®) and a member of the PMI®-Honolulu and Philippines Chapters.

Ken’s book -- **Project Management PRAXIS** (available from Amazon) -- includes many innovative project management tools & techniques; and describes a “**Toolkit**” of related templates available directly from him at [kensmith@aol.com](mailto:kensmith@aol.com) on proof of purchase of PRAXIS.

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