

“Faster Construction Projects with CPM Scheduling”

by Murray B. Woolf, PMP , McGraw-Hill publisher 2007.

A Book Review by Ron Winter, PSP

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Mr. Woolf's first book has drawn a lot of interest (now in its second year in print.) ENR Magazine published a glowing review of the book. Quite a few suggested reading lists cite this book, including the PSP Certification review list. I wondered why I had not seen a review of this work by a scheduling peer. I know Murray and have attended a presentation of this book at an earlier ACEi annual meeting. Having spent an entire year reading this book, I felt that if I didn't review it then perhaps no one was going to do so.

To be honest, I do not know what Murray Woolf's book is really about. My problem stems from the most notable aspect of this book; exceptionally bad editing. This sole fact is the reason that it took me a year to read this book. I had to keep putting the book down after a few minutes because my head hurt from the effort of making sense of the contents. Later I would pick-up where I stopped, only to discover even more twists and confusion. To confirm my impression, I recently asked a colleague of mine what he thought of this book. Without any prompting on my part, this fellow Scheduler said, "Reading the book made me dizzy and I had to keep putting it down."

As an example of this lack of linear thought, the book often digresses in mid-thought, interrupting itself. One such passage occurs on page 309 where the author states, "*There is, then, the Unknown-unknown condition, which must always be expressed in the singular for if we can distinguish more than one then each would be a known-unknown.*"

Murray Woolf is a very intelligent person and he has a lot of new concepts and information to present. In fact, he has so much information to reveal that every time he gets past introducing the new concepts and terminology, he promises to explain everything in another, yet unpublished book. Time and time again, we traveled down yet another 'rabbit hole' only to find a dead-end and a personal invite to visit again, soon.

The quality of the editing in this book is even more puzzling when one considers the amount of effort that went into it. There was a Sponsoring Editor, an Editorial Editor, a Project Manager, an Acquisitions Coordinator, a Copy Editor, a Proofreader, an Indexer, plus 13 others who are acknowledged in the book as contributors. Didn't even one of them ever ask, "What is this book about?"

The book is not about 'Faster Construction Projects.' We don't even understand the reason for the title until we reach page 363 in the Epilogue. There we read, "*Admittedly, Part 2 takes a detour from the main purpose of this book, that being to explore ways of creating better Project Schedules that in turn will lead to faster flowing projects.*" (The Part 2 "detour" is 90 pages long.) Unfortunately, this is not what the book is about because the book does not actually tell us how to create better schedules. Instead we get dozens of new theories and literally hundreds of new terms and a promise that the next couple of books will explain how everything fits together.

I thought that perhaps a better understanding of the book would come by focusing on the intended reader. On page 259, Murray Woolf says, "*Finally a word to my respected colleagues: please keep in mind the intended readership for this book. It is not being written for the 20-year veteran Practitioner but is instead aimed at those tasked with creating a Project Schedule who have not had years of experience or training.*" If this were true, then why spend 7 pages discussing the merits of ADM over PDM? Why the 11-page Forward by Jim O'Brien explaining his insights to the history of Scheduling and how he never said that we should go back to ADM? Why the creation (or new definitions) of over 200 new terms because the old ones "have more than one meaning?"

The Epilogue gives us another glimpse into the answer to the question. On page 355, Murray Woolf states, "*Early on in the development of this book, I made a bold decision: to use this book as the platform for a verbal campaign intended to stimulate debate, provoke thought, and encourage action, to be a catalyst for the types of radical changes that our Practice urgently demands, if we are to survive at all.*" With the demand for construction Schedulers at a frenzied, all-time high, I don't think we face "extinction." The rest of that quote serves to reasonably describe the author's intent for publishing this book.

After explaining how the scheduling profession is at the brink of catastrophe and extinction, this book introduces three new branches of CPM theory, "The New Scheduling Practice Paradigm," "Dilemma Control," and "Momentology." The New Scheduling Practice Paradigm includes new scheduling specializations, positions, deliverables, and roles. Momentology is separate from Momentum Theory, which is separate from Momentum Science, which leads us to Applied Momentum. This in turn introduces three major innovations, Discrete Activity Float, Relationship-Duration Definitions, and Additional Measures of Criticality. After hundreds of new terms, proofs without data, analogies, and testimonials we find that we still don't know how to apply any of the above to our scheduling practice. It turns out, all of this will be revealed in Mr. Woolf's next couple of books.

But this overlooks the major feature of this book; atrocious editing. Editing so 'bad to the bone,' that they should use this as a textbook for a college course in editing. Editing so horrid that it makes the reader wonder if some unremembered

accident has left the reader with the ability to understand individual words, just not their meaning when combined into sentences.

On page 308, Murray Woolf quotes himself. The book keeps using obscure and jargon-laden terms that it admits will be defined later, checklists tell us to consider brand-new issues that are not explained in this book (but will be in later books.) Chapters keep referring to information that will be presented in later chapters. In Chapter 11, page 209 we read, "*we learn that activity-tenure surprises might be offset by adding a DCF (Duration Confidence Factor, see Chapter 16) to the Scope-Limited Definition estimate.* [underlines added] It is almost like the science fiction book, Hyperion where the nemesis moves backward in time as we move forward in time so it knows more in the past that it later does in the future.

The book complains about people misusing common scheduling terms and then admits that the book is doing this same thing as on page 343 where it says, "*The Seven M's of Momentum Management. (Please indulge me as I substitute a few common terms for less used ones, in order to derive the seven M's).*"

Faster Schedules delivers inconsistent advice. First the book advises readers to not cost-load execution schedules. Then on page 346, the book indicates that you should cost load schedules to 'force' the contractor to perform.

There are dozens of cases of unsupported statistics. The entire "Science of Momentology" is based upon an extensive study of a mass of schedules that were unfortunately lost by Mr. Woolf during a move. In Chapter 15, Murray Woolf asserts without proof that, "*80 percent of a project's delays occur during the first 20 percent of the project life cycle.*" Since a large number of projects don't even get an approved Baseline Schedule until 20% of the project is complete, this would imply that we really shouldn't even bother to schedule at all.

Although this book took years to write, certain sections have an unfinished feel to them. For instance in the Glossary, 227 definitions are presented (most of them newly coined by the author) and every one of them is proceeded with the word, "**Clarification**" in bold print; all 227 times. The reason for this odd addition is made clear in the introduction to the Glossary where the author states, "*Please note that Meaning Clarifications are not the same as definitions, per se, as I have not taken the time to wordsmith each Clarification with focused attention on the many possible nuances of meaning in each combination or choice of words.* I just do not understand how much 'wordsmithing' one must do to define the word, "P3" for instance.

Mr. Woolf has a different attitude toward construction scheduling than I have. I disagree with the statement on page 254, "*Contractors diligently look for opportunities to parlay design deficiencies and owner last-minute wishes onto 'extras'.*" The average contractor is not out to maximize their schedule claim

potential; they like building things - not fighting. On page 253, the book states, *“Execution Schedulers and Project Managers who are concerned with the legal and contractual implications of Schedule Extraction Reports often (perhaps routinely) find it necessary to alter Project Schedule content (durations, logic, settings, and more) in order to ‘protect’ their business interests.”* I also feel that most Owners of projects are not trying to take advantage of contractors.

Raw illogic also pops-up now and then. On page 257, Murray Woolf includes this introduction to Chapter 13, Concerning Schedule Development; *“Further in this chapter, under the heading ‘Logic Development Session,’ I identify a step called ‘Defining Subnets.’ It is at that point in my description of a typical logic development session that you would expect to read about Work Breakdown Structure (WBS.) Since it is noticeable by its feeble treatment there, perhaps a few words here are appropriate.”* The book then goes on to talk about the WBS. Like our backward-traveling Hyperion nemesis, we know what failings we will have in the future, so it is left to us to correct that problem now in the present, which is quickly becoming the past.

In the end, this review is not just about editorial blunders. The content does serve its stated purpose of stimulating debate and provoking thought. There is another whole book buried inside this book yearning to be free. I am glad that I read every word in this tortured tome, even if it took me a year to do so.

In summation, there is a lot to like and learn from in **Faster Construction Projects with CPM Scheduling**. There is also a lot to disagree with. There is even more that simply confuses. New practitioners to the scheduling field should be barred from reading this book just as we do not allow minors to drink alcohol. Their experience levels are not rooted firmly enough to resist the destructive effects of this wild ride.

In construction, the critical path method is a project management technique that identifies critical path activities in stages. The CPM approach to project scheduling includes splitting a project into multiple job tasks, displaying them in a flow chart, and calculating the duration for each task and the overall project duration based on the individual tasks. Related Posts. CPM Critical Path Method. The critical path method (CPM) is a popular scheduling technique in the construction industry due to its simplicity and effectiveness. It generates a graphical view of a project and calculates how much time and resources are required to complete each activity. It also determines critical activities requiring attention so that the project can be completed on time. The right construction project scheduling method (or the wrong one) can make all the difference between meeting deadlines and budgets. Perhaps the most widely used construction scheduling method in large construction projects, the Critical Path Method (CPM) holds that "your ability to complete any activity hinges on a few critical resources or constraints," according to Workamajig. In one of the best metaphors of all time, they illustrate this concept using a sandwich, explaining that "you might have all the butter, ham, and cheese you need, but if you don't have bread, you can't make a sandwich. The bread, in this case, would be the constraint your sandwich-making project depends on." Semantic Scholar extracted view of "Faster Construction Projects with CPM Scheduling" by Ron Winter. @article{Winter2009FasterCP, title={Faster Construction Projects with CPM Scheduling}, author={Ron Winter}, journal={Cost engineering}, year={2009}, volume={51}, pages={30-31} }. Ron Winter. Published 2009.

Critical Path Method (CPM) is a project schedule modeling technique. Mr. Morgan R. Walker and James E. Kelly developed this technique in the late 1950s. Fast-tracking and crashing are two examples. If your project is behind schedule, you can use these tools to get it back on time. Visit: Fast Tracking and Crashing. Procedure for Finding the Critical Path in a Network Diagram. You can use the following steps to find a critical path in a network diagram. In the last exam, My Instructor gave question about construction designing and gave construction calendar. In the question, there are three floor, and second floor depended first, third floor depended second floor. Also limited resource. The critical path method (CPM), or critical path analysis (CPA), is an algorithm for scheduling a set of project activities. It is commonly used in conjunction with the program evaluation and review technique (PERT). A critical path is determined by identifying the longest stretch of dependent activities and measuring the time required to complete them from start to finish. design and construction issues. CPM is a project scheduling using time and cost functions. The time estimate used in CPM is only one that represents the normal time [9]. There are several notations used. The point is to calculate the. fastest event, the fastest commencement and the completion of activities (TE, ES, and EF). (1). (2). which: ES : The fastest start of activity. TE : The fastest event. the critical path can be seen in the figure below with the completion of the project within 131 days. Figure 4. The critical path of the project (CPM Method). 4.2. PERT Method. The data used in PERT method is the primary data from interview and discussion with project team. Save time and money on construction projects by using the critical path method (CPM). Get expert advice and download free templates. This function allows the website to load faster by pre-loading certain procedures. Persistent. HTML. Finding the Critical Path in Construction Projects. Let's return to the practical application of CPM to your construction projects. For relatively simple projects with a few dozen tasks, you can determine the critical path with pencil and paper, and this exercise can help you better understand the concepts. In the real world, construction planners use software to do the calculations. Critical path method (CPM) scheduling is a process for building a construction project schedule and analyzing it to determine the most critical tasks that most affect the scheduled completion date. These critical tasks cannot be delayed without changing the overall schedule. CPM is the standard scheduling process used to illustrate delays in construction litigation, so it's important for every contractor to understand it. Fast-tracking involves performing critical path tasks simultaneously to shorten their durations. This can be done with tasks that aren't direct predecessors or successors, otherwise, this strategy wouldn't work. Fast-tracking is often done when work is phased to allow critical path tasks to be performed in different areas simultaneously.

The CPM method is a commonly used construction scheduling method that helps managers predict the project schedule based on its tasks. To do this, you need to: List all of the assignments required to complete your project in a Work Breakdown Structure. Fast-tracking is essentially multitasking. It requires you to find your project's critical path, and work on those activities while simultaneously working on your float tasks. The danger of this approach is that teams are often rushing through work, which lends itself to greater human error. Keywords: Construction planning, Critical Path Method, Project Evaluation and Review Technique, Linear programming, crashing.

1. INTRODUCTION. Completing a project on time and within budget is not an easy task. The critical path method (CPM) is a very efficient scheduling procedure for larger projects. The starting and finishing times of each activity if no delays occur anywhere in the project are called the earliest start time and the earliest finish time of the activity. Suppose ES_i is the earliest time activity i can start, and EF_i is the earliest time activity i can finish. In construction, the critical path method is a project management technique that identifies critical path activities in stages. The CPM approach to project scheduling includes splitting a project into multiple job tasks, displaying them in a flow chart, and calculating the duration for each task and the overall project duration based on the individual tasks. Related Posts: CPM Critical Path Method. The critical path method (CPM) is a popular scheduling technique in the construction industry due to its simplicity and effectiveness. It generates a graphical view of a project and calculates how much time and resources are required to complete each activity. It also determines critical activities requiring attention so that the project can be completed on time. CPM in Construction Management. James J. O'Brien, P.E., PMP Fredric L. Plotnick, Esq., P.E. Sixth Edition. Preliminary Schedule Preconstruction Analysis Contractor Preconstruction Analysis Milestones The John Doe Schedule Resources Fast Track Responsibility. 245. 245 246 246 253 254 262 263 265 265 274 276.

After 20 years of construction scheduling experience I looked around for a wider perspective and picked this book. This is, as the author agrees, two books in one - a scheduling practice book and the laying out of a vision to save the scheduling "profession." He did both "books" admirably except that the second book is incomplete. After designing a whole new way to use and analyze schedules (the awkwardly worded "Momentum science") in a way that got me excited, he reveals that he plans to do two more volumes to finish out this first book. Although not for the novice scheduler, I can wholeheartedly recommend this book to anyone interested in CPM. Read more. 6 people found this helpful. The critical path method (CPM), or critical path analysis (CPA), is an algorithm for scheduling a set of project activities. It is commonly used in conjunction with the program evaluation and review technique (PERT). A critical path is determined by identifying the longest stretch of dependent activities and measuring the time required to complete them from start to finish. The right construction project scheduling method (or the wrong one) can make all the difference between meeting deadlines and budgets. Perhaps the most widely used construction scheduling method in large construction projects, the Critical Path Method (CPM) holds that "your ability to complete any activity hinges on a few critical resources or constraints," according to Workamajig. In one of the best metaphors of all time, they illustrate this concept using a sandwich, explaining that "you might have all the butter, ham, and cheese you need, but if you don't have bread, you can't make a sandwich. The bread, in this case, would be the constraint your sandwich-making project depends on." CPM is Critical Path Method and PERT is Program Evaluation and Review Technique. CPM technique is used in construction projects based on the knowledge and experience of the past projects for predicting accurately the time required for various activities during the execution of the project. Time required for each activity is known and defined for the project. Hierarchy of the construction project events are well defined and time of completion of the same is also defined. The total time required for the given project can be estimated based on this technique. CPM is an activity oriented system as the times required for construction activities are estimated more accurately. In construction, the critical path method is a project management technique that identifies critical path activities in stages. The CPM approach to project scheduling includes splitting a project into multiple job tasks, displaying them in a flow chart, and calculating the duration for each task and the overall project duration based on the individual tasks. Related Posts. CPM "Critical Path Method. The critical path method (CPM) is a popular scheduling technique in the construction industry due to its simplicity and effectiveness. It generates a graphical view of a project and calculates how much time and resources are required to complete each activity. It also determines critical activities requiring attention so that the project can be completed on time.

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