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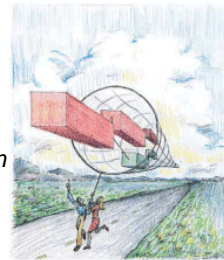
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2005 ANNUAL CONFERENCE: RAISING THE BAR FOR PROFESSIONALISM IN SCHEDULING

Schedulers from around the globe met in Scottsdale, Ariz., in May to promote scheduling best practices and guidelines. McGraw-Hill ran the short version of this article at www.enr.com on June 10, 2005, but you can read the unabridged version here.



Pursuing
Excellence in
Scheduling

Scheduling abuses and software bashing—a controversial issue in recent years—received scant attention at the 2nd annual conference of the Project Management Institute College of Scheduling (PMICOS). Instead, over 250 attendees braved the 110-degree temperatures in Scottsdale, AZ to focus on scheduling best practices and standards. While Nielsen-Wurster Group, Inc. Chairman Kris Nielsen's opening session did address ethics in scheduling, the focus of the conference quickly shifted to the practice of scheduling, scheduling methodologies and schedule analysis.

Scheduling Excellence Initiative (SEI)

The PMICOS Scheduling Excellence Initiative (SEI) was unveiled by the program managing director, Murray Woolf. Woolf, a senior executive with consulting firm Long International, outlined the Initiative's stated goal of improv-

NOTES FROM THE EDITOR

Welcome to the September 2005 edition of *Schedule Update*, the newsletter of the PMI College of Scheduling (PMICOS). Its purpose is to keep you informed of PMICOS activities, events and transactions. This is the first newsletter since September 2004, so there are a few things to catch up on.

First and foremost is Schedule Excellence Initiative (SEI). The vast undertaking, led by Murray Woolf, encompasses best practices, technology, education, training and certification. SEI's activities focus on raising the level of excellence in scheduling and laying out the groundwork for industry standards. At the 2005 PMICOS Annual Conference, Murray successfully kicked off the SEI effort with the formation of committees and directorships supported by the efforts of more than 100 volunteers. Take a few minutes to

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SCHEDULE UPDATE

SEPTEMBER, 2005

HOW TO BECOME A MEMBER

For members of PMI, the annual membership fee is \$20. If you are not a member of PMI a fee of \$149 covers a one-year membership to both PMI and the College of Scheduling. For more information, please visit: http://www.pmi.org/prod/groups/public/documents/info/gmc_collegeofscheduling.asp.

MEMBERSHIP UPDATE

**College of Scheduling
Membership**

1,275 Members

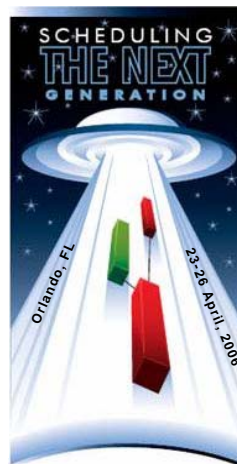
**Representing over
50 Countries**

COLLEGE OF SCHEDULING ORGANIZATIONAL STRUCTURE

Functional Title	Individual	Functional Title	Individual
Chairman	Jon Wickwire	Director of Employment Opportunities	Glen Palmer
President	Stuart Ockman	Director of Scheduling Excellence Initiative	Murray Woolf
Vice President of Finance	J. Gordon Davis	Scheduling Practice Standard Team	Mike Mosley
Director of Communications	Rick Moffat	Vice President of Global Services	Richard K. Faris
Vice President of Global Services	Richard K. Faris	Vice President of Communications	Derek Mason
Vice President of Programs	Patricia D. Galloway	Director of Global Services	Keith Pickavance
Director of Programs	Shelbi Rambout	Director of Conference Technical Track	Fredric L. Plotnick
Director of Programs	Dana H. Parrish	Director of Critical Chain Scheduling	Mark Stanton
Vice President of Publicity	Pradip Mehta	Director at Large	Russ Archibald
Director of Publicity	Gwen E. Barger	Director at Large	Gui Ponce de Leon
Director of Public Relations	Mike Walsh	Director of Standards	Earl Glenwright
Vice President of Education	Jim O'Brien	Director of University Relations	Fredric L. Plotnick
Vice President of Membership	Rebecca A. Andert	Editor of Newsletter	Paul Levin
Director of Membership	Ellen Thomsen	Topic of the Month Editor	Thomas Fertitta
Director of Volunteers	Pradip M. Mehta	Director of Information Technology	Peter Dimov
Director of Risk Management	David Hulett	Technical Director	Fred Plotnick
Director of Government Relations	Becky Andert	Webmaster	Cynthia Lo
Director of Certification	Bob Jacobs		

UPCOMING EVENTS

PMICOS Annual Conference 2006-
23-26 April
Wyndham Palace Resort & Spa
Walt Disney World
Orlando, Florida



**PMI Global
Congress 2006-**
North America
21-24 October
Seattle,
Washington

SCHEDULE UPDATE

SEPTEMBER, 2005

EDITOR'S NOTES (cont'd.)

(Continued from page 1)

look at the various SEI programs at the PMICOS website (www.pmicos.org) and get involved.

Speaking of the Annual Conference, this past May more than 250 people braved Scottsdale's 100-plus degree heat to participate in the various College activities. Conference highlights included the inaugural Jim O'Brien Lifetime Achievement Award presented to Jim O'Brien, a software panel session with Primavera, Microsoft and Welcom, and an increased number of education tracks.

Members have been invited to contribute articles, and Earl Glenwright has stepped up with a summary chart that shows how the nature of *Total Float* has changed over the years. A student of professor and PMICOS member Jesus de la Garza has written an intriguing paper on shared float. Your feedback on both topics is welcome.

Finally, what we hope will be a regular feature is coverage of PMICOS members in the news. If you or a PMICOS member you know has been involved with something newsworthy, such as court testimony, an article or paper, appearance as a speaker, professional certification or other accomplishments, please send an e-mail to plevin@wpl.net.

The planned publication frequency of the *Schedule Update* is quarterly. However, expect to see interim issues or a more frequent publication schedule in order to deliver timely news and notices.

Thank you.

Paul Levin, Editor

2005 CONFERENCE (cont'd)

(Continued from page 1)

ing all aspects of scheduling services and products to raise the level of professionalism in scheduling. To achieve this objective, more than 100 volunteers have been assembled into committees to produce an eight-volume publication of guidelines and best practices. (See box at end of article—page 5.) This need and support for the program resonated throughout the various sessions at the conference.

CPM Scheduling Trends

Several sessions reported on trends and studies that conclusively show that projects in which the critical path method (CPM) is used are more likely to finish on time and on budget. Virginia Tech professor and program director of the National Science Foundation, Jesus de la Garza, Ph.D., described three studies of CPM use among ENR top-400 contractors. The first, in 1974, reported less than 50% of the top 400 contractors using CPM scheduling. Most felt it not important enough. In 1994, that figure grew to approximately 90%. In the most recent study, 98% of the ENR top 400 were found to use CPM schedules. As expected, the top three uses were for pre-project planning, job control and claims analysis. A surprising result was that the largest area of growth in the use of CPM schedules was at the bidding and estimating stage.

Patricia Galloway, CEO of Neilsen-Wurster and 2003 American Society of Civil Engineers (ASCE) president, reported similar findings in a separate survey of 430 owners, contractors and construction managers. CPM scheduling has become a standard project control tool among the respondents, with the majority agreeing on the need for standards and certifications. More than 20% of re-

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2005 ANNUAL CONFERENCE RAISING THE BAR (cont'd.)

spondents required alternate or complementary methods, including arrow diagramming, 4D planning, PERT, line of balance (LOB) charts or linear balance (vertical production methods, or "march") charts. Another compelling finding was the great disparity in training, experience and credentials of the construction scheduler. Similarly, fewer than 50% of companies said they employed an overall manager for planning and scheduling, with a similar split over whether the schedulers had engineering or project management backgrounds.

Learning and Confirming

Mike Stone, from Professional Project Management Services in Houston that represents major toll road authorities in central Texas, is a return attendee who came to "learn and confirm." Recalling last year's sessions in Montreal on risk analysis and advanced float path calculations, Stone wanted to know he's not the lone ranger in some of his practices and wanted to gain new knowledge of advanced scheduling practices. Like Stone, Roger Gullo, Project Technologies Group, a consultant to contractors and owners in the Boston area and attending for the first time, found what he was looking for—validation of the processes they currently use as well as learning new "best practices."

In his International Track session, local consultant and Vision Consultants president Gordon Aronson, P.E., aptly summed up a common thread echoed by many presenters and attendees: "Basic principles are often taught wrong, learned wrong and applied wrong." Underlying such comments is the observation that the job of scheduling is being handed off to recent graduates who do well with computers, but in fact have little construction experience and are unable to identify, let alone sequence, the various tasks re-

quired for complex construction projects.

Software Vendors Agree to Cooperate

The continued conference participation of Primavera's chief technology officer and co-founder Dick Faris demonstrated direct positive results PMICOS is achieving with software vendors. This summer's upgrade of Primavera's CPM software will include Scott Herold's advanced float path methodology introduced at last year's conference in Montreal. This year, Faris, along with representatives from Microsoft and Welcom, committed to developing data interchange capabilities through the use of the XML programming format, and will conform to SEI best practices, once developed.

In Closing - Past and Future

The College issued its first annual award for lifetime achievement to Jim O'Brien, the author of one of McGraw-Hill's most popular books, *CPM in Construction Management*, first published in 1965 and about to enter its sixth edition. The award caps O'Brien's 50 years of service to the construction industry.

Recognizing the need to elicit the cooperation and support of other construction trade associations, PMICOS hosted an exam for the Association for the Advancement of Cost Engineering International (AACEI) Professional Certification program. Several AACEI members have been tapped to help with SEI committees, and SEI is wisely using outside resources, such as building upon AACEI's work in developing a glossary of standard schedule terms. As other organizations join in, it's not hard to envision the achievement of PMICOS's goal to elevate the profession of scheduling. Patricia Galloway was more direct, declaring, "SEI will revolutionize the scheduling industry as we know it today."

SEI Enhancement Series: An eight-volume publication dedicated to enhancing the quality of professional project scheduling, by focusing on:

- Guidelines and best practices for pre-project, project and post-project scheduling.
- Improvements in scheduling software and scheduling education/training.
- Study of future or emerging scheduling methodologies and technologies.
- Guidelines for owner maximization of project scheduling efforts.

Volume 1: Principles of Scheduling

A substantive treatment of the underlying principles and concepts upon which project scheduling best practices and guidelines are based. Included are a full treatment of arcane terminology and a first- ever definition of multiple professional roles of scheduling.

Volume 2: Applied Scheduling: Pre-Project

A wide-ranging set of best practices and guidelines for the application of scheduling principles, concepts, methodologies and technologies during all relevant aspects of pre-project planning.

Volume 3: Applied Scheduling: Project

A comprehensive set of best practices and guidelines pertaining to all aspects of project schedule design, development, maintenance and usage.

Volume 4: Applied Scheduling: Claims

A full set of best practices and guidelines for all major aspects of schedule analysis related to time-based contract claims.

Volume 5: Attributes of Successful Scheduling Software

Based on recommendations reached by Software Enrichment in the course of its discussions with scheduling software users and developers, an exposition describing the desired attributes of the ideal scheduling software.

Volume 6: Scheduling Guidelines for Project Owners

A compendium of extracts from the other volumes in the SEI Series, aimed at the high-level executive (“Owner”), who commissions project scheduling services and products. Included are concise narratives and helpful Owner “checklists.”

Volume 7: Guidelines for Scheduling Education & Training

Based on recommendations reached by Education & Knowledge Center as a result of its monitoring of the deliberations of other SEI subcommittees, a set of recommendations concerning how to train future scheduling professionals. The target audience for this work product will be project management training consultants as well as colleges and universities that teach scheduling subjects.

Volume 8: The Future of Scheduling

A compilation, recapitulation and forecast of the recommendations reached by Research & Innovation as a result of extensive study by the subcommittee on the current state of the project scheduling profession.

SCHEDULE UPDATE

SEPTEMBER, 2005

TOTAL FLOAT: PRE- AND POST-COMPUTER SOFTWARE ENHANCEMENTS

TOTAL FLOAT: PRE- AND POST-COMPUTER SOFTWARE ENHANCEMENTS

Today in contemporary construction schedule management, there is a misunderstanding as to the utility of 'path float'.

The following outline summarizes the elements of schedule software that affect the calculation of Total Float with the intent of gaining a better understanding of meaning of activity float and float paths as reported by today's sophisticated scheduling software applications.

Let's review the factors that influence the calculation of 'Float' both historically and currently.

PRE Current Era = Pure Vanilla Computer Solutions

(Also known as 'Mathematical Analysis')

- Only Finish-Start logic – Arrow Diagramming Method (Activity-on-Arrow)
- No Calendar, times only or Single Calendar
- No End Date or only a single date
- No Resources
- Single Time units (i.e. days)

RESULTS: Critical Path = activity sequence path with least 'Total' Float (-, 0, +)

POST ENHANCEMENTS OF COMPUTER SOLUTIONS

- Multiple Calendars
- RESOURCE Allocation Scheduling (using float)
 - ◊ Forward 1975 ->
 - ◊ Reverse 2002 ->
- Multiple interim "milestone" dates

- Precedence Diagramming Complex logic
- Activity-on-Node (AON)
 - ◊ Start-to-Start
 - ◊ Finish-to-Finish
- Lead and Lag durations on dependency arrows
- Optional time units: days, weeks, months
- Split performance of activities (interruptible)
- Varying resource levels within a Schedule Activity
- Multiple resources per Schedule Activity

RESULTS: Critical sequence of activities is not visible because of time interruptions by different calendars, resource delays or restraints, lead or lag values, and interim constraint dates. Hence, the values of "Total Float" do not now represent work periods that work can be delayed to cure schedule problems on other disjointed paths even for activities that show the same TF value.

What has happened is that the calculation of a schedule is now based on intermediate constraint dates [i.e. Milestone Dates], several work calendars, non-work periods [leads & lags], and the 'floating' of activity work when resources are leveled/scheduled both forward and backwards. 'Float' is fractured into many pieces, consequently, there is not a single continuous, uninterrupted path of activities that is the 'Critical Path.' Many segments may have identical 'float' values but are not on the same 'path.'

So, what should we do?

Since we know that the 'Total Float' values now have no practical usefulness, they should be ignored, and if possible deleted from the listing of activity schedule [planned] dates as they are misleading.

SCHEDULE UPDATE

SEPTEMBER, 2005

TOTAL FLOAT: POST COMPUTER (Cont.)

The planned schedule is now like a complex electronic circuit wiring or a 'house-of-cards.' Move just one card and the house collapses or change one electrical connection and the circuits will probably malfunction or function differently.

So it is when we change a planned activity's performance period in the complex foundation of the Planned Schedule. If a change is necessary, then the entire schedule development process must be repeated. There is no other solution. In a network-based work plan and schedule all of the activities are interrelated in some manner and changing one has a domino effect on the succeeding work.

The real solution is: Managing the work performance so that the planned schedule is achieved.

This means controlling the progress of each activity, making resource and/or work period adjustments [i.e. overtime, extra days that were expected to be non-work days, or double shifts].

The original durations and resource values were estimates so we can expect variations. Successful projects manage those variations and do not pass them on to the following work activities.

By: Earl Glenwright

PMICOS TRIVIA

MEMBERSHIP UPDATE

PMICOS was chartered in September 2002 with 32 members.

In September 2003, there were 500 members representing 30 countries.

In September 2004, there were 850 members representing 45 countries.

As of September 2005, there are 1,275 members representing more than 50 countries.

MISCELLANEOUS

As of Sept. 3, 2005, a Google search yields approximately 175 unique hits for "College of Scheduling." Hits include mentions in publications, trade association websites and resumes of various individuals at corporate websites, seminar announcements and other industry communications.

TOTAL FLOAT PRE-ALLOCATION AND MANAGEMENT ON CONSTRUCTIONS

TOTAL FLOAT PRE-ALLOCATION AND MANAGEMENT ON CONSTRUCTION PROJECTS

The full title of Apirath Prateapusanond's December 2003 doctoral thesis is *A Comprehensive Practice of Total Float Pre-Allocation and Management for the Application of a CPM-Based Construction Contract*. As an alternate approach to dealing with the issue of float ownership, Prateapusanond introduces the concept of pre-allocating a set amount of total float on the same non-critical path of activities to the two contractual parties—owner and contractor. Her thesis researches common contract clauses, details the workings of the pre-allocation method, explores contract language changes and schedule management issues needed to make it work, and provides six examples of factual situations to illustrate the assigning of responsibility for delays.

This brief summary does not do justice to the concepts, research, requirements and studies covered in the thesis; and it is beyond this reviewer's level of expertise to render an opinion. PMICOS members are invited to check out the paper for themselves and send us your notes for further discussion in these pages.

To locate the thesis, use a search engine to locate the author's name or paste the following link into your web browser:

<http://scholar.lib.vt.edu/theses/available/etd-01062004-103309/unrestricted/ApirathDissertation120503Rev2.pdf>

PMICOS MEMBERS IN THE NEWS

EXPERT TESTIMONY INSTRUMENTAL IN PROVING CONTRACTOR'S CASE

In perhaps one of the longer and more detailed opinions of recent months, Court of Federal Claims' Judge Lynn Bush cited PMICOS member Sam Tipton more than 60 times in finding a number of major issues in favor of contractor George Sollitt Construction Co. (*George Sollitt Construction Co, v. U.S., Feb. 23, 2005*).

EXPERT TESTIMONY LEADS TO SETTLEMENT

PMICOS President Stu Ockman was allowed to testify on behalf of NASA, over the objection of the contractor, in a recent case before the Federal Court of Claims in the District of Columbia. His testimony led to a negotiated settlement before conclusion of the trial.

PROJECT CONTROLS INNOVATION AND HARD WORK PAYS OFF

The Transportation Research Board of the U.S. Department of Transportation recently published a report on the use of web-based collaboration software in construction. *The Successful Adoption of Web-Based Collaborative Software* reports on the results of three cases studies, including the program implemented at the Port Authority of New York and New Jersey implemented by PMICOS's member and vice president of publicity Pradip Mehta, manager of Project Controls for the Authority.

Please send your *Members in the News* tidbits to plevin@wpl.net. Thank you.