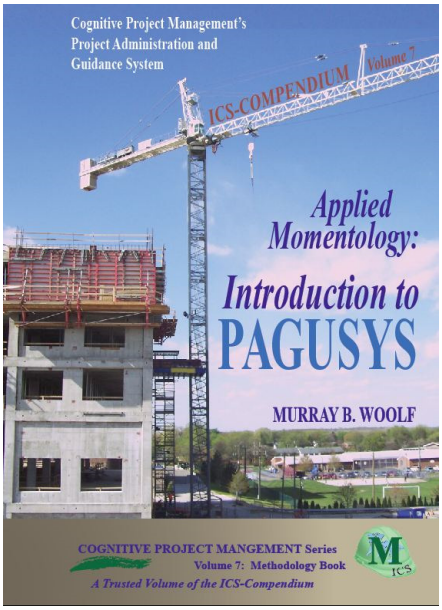
Momentology



Momentology[1] focuses on measuring the momentum of work on the project. Each section of a project has its momentum as does the overall project. The loss of momentum equates to a delayed completion.

Momentum Management is the process of applying Momentology to a project focusing on the proactive management of future performance based on actual 'real time' information.

Some of the key aspects of Momentum Management include:

- Performance Intensity – measurable progress based on 'duration days' (see below)
- Proportional float allocation per activity – 'discrete activity float'
- Assessing the Schedule Achievement Potential
- Tightening the understanding of task and path criticality (new definitions)
- Structured process for determining relationship durations
- Measures: Performance Coordination, ie, the alignment with schedule sequence and durations
- The ability to predict schedule slippage before it happens

Momentology is based on 'Execution Schedule' (High Density Schedule[2]), by observing the work and taking the appropriate measurements this methodology allows real time decisions and actions.

Performance Intensity (PI)

This ratio is the core of Momentology! PI and Momentum theory are focused on guiding the work, as it is happening, and about making more informed decisions. PI allows work teams to know how fast or slow they are moving through the work WHILE they are performing it, it provides real time feedback – just like the speedometer to the driver.

Using PI as a 'Miles-per-Hour' unit of measure, the Project Team has real time information that allows them to 'self-direct' and 'self-pace' their work. With PI, it is possible to calculate when each of several different activity paths will converge on the same point in the schedule. With this knowledge, decisions can be taken to slow down along certain paths in order to be able to redirect resources so that they can speed up the work on other paths, optimising the overall outcome.

The basic calculation for a period is the total number of duration-days divided by the available work-days.

- Work-days are the number of scheduled working days in the period based on the primary project calendar for the section of work.
- Duration-days are the number of days scheduled for work on all of the activities within the period. A 10 day activity would have 10 'duration-days' in total, but only those in the period being considered would be counted.

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1 For more on Momentology, see: ***Faster Construction Projects with CPM Scheduling*** (Murray B.Woolf)

2 ***Schedule Density*** see: https://www.mosaicprojects.com.au/WhitePapers/WP1016_Schedule_Density.pdf

For short periods, this can be used without adjustment. The average performance intensity for a whole project though will be significantly less than the peak performance required.

Actual Performance Intensity is calculated by dividing the 'duration-days' accomplished by the 'work-days' consumed. This value can be contrasted with the catch-up performance intensity.
Catch-up Performance Intensity is calculated by dividing the remaining 'duration-days' by the remaining work-days. The difference between API and CPI indicates the minimum necessary change in performance needed to complete the section of work on time.

Simply accomplish work is insufficient, it is also necessary to focus on the work that has the highest priority. Priority is based on a number of factors including the *discrete activity float*.

Relationship Durations

Up to 40% of a typical critical path travels through relationship durations (Start-Start / Finish-Finish). Calculations to determine priority and performance intensity takes the effect of link durations into account. Some 90% of delays in this area are caused by Administrative failures (rather then production issues) and are the focus of specific measurement.

Summary

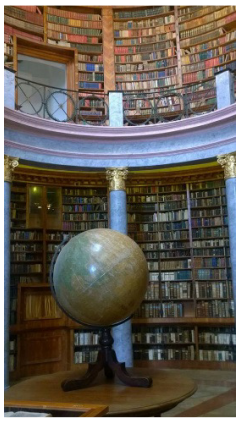
Momentology uses a complex set of formula to balance three interlinked variables:

- **Performance diagnostics** that monitor management performance, execution performance and resource performance.
- **Schedule achievement potential** that computes the probability of achieving schedules time-based objectives based on the cumulative values of Schedule Vulnerability and Schedule Resiliency.
- **Schedule credibility** that computes the overall believability of the schedule by considering Schedule Relevancy and Volatility.

Its primary purpose is to measure productivity and identify losses of productivity quickly for contemporaneous action. Identifying where productivity is dropping allows timely and direct action to remedy the situation before significant schedule slippage occurs.

As with Schedule Density, Momentum Theory has not been developed as a predictive tool; although Performance Intensity has been shown to be a much more stable and "accurate" predictor of the ultimate project time outcome than either CPM or Earned Value, this is of secondary importance. Whilst the predictions of how the project will turn out closely match how it actually does turn out, a significant part of that alignment is due to the influence that Momentum Management has on the prosecution of the work.

To quote Murray Woolf, the inventor of the methodology *"Whether that Baseline Schedule is ultimately honoured or achieved, comes down to the grit and determination of the Project Team, more than anything else. It is their willingness to honour the Plan that makes the biggest difference. Concepts like Momentum are there to help them"*.



For more information on scheduling and planning,
visit Mosaic's scheduling home page at:
https://mosaicprojects.com.au/PMKI-SCH.php