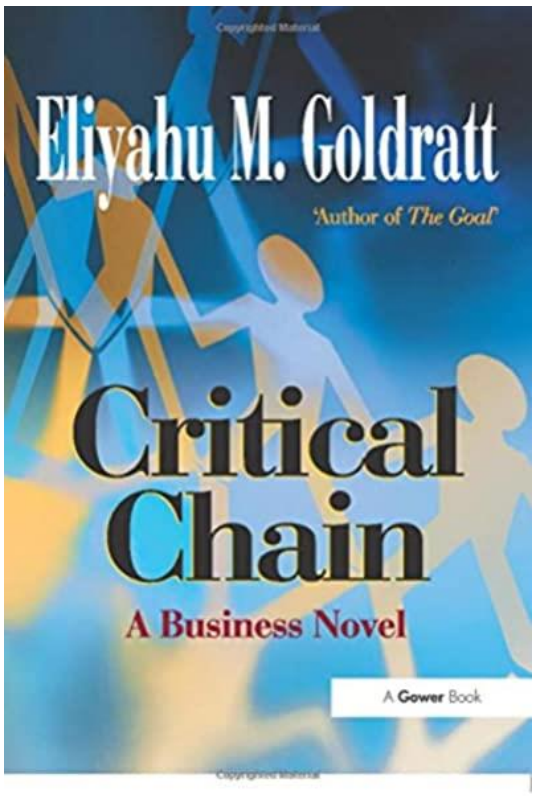
Critical Chain Project Management (CCPM):

Purpose, Applicability, and Benefits.

AAA Business Excellence Ltd

Critical Chain Project Management (CCPM) is a project management methodology used to manage projects by focusing on both task completion and resource availability, resulting in greater on-time delivery, budget adherence and team morale.

CCPM was first developed in the late 1990s by Dr Eliyahu M. Goldratt in his book Critical Chain.



Critical Chain by Eli Goldratt

Dr Goldratt is also the creator of the Theory of Constraints, upon which CCPM is based and closely related to. After the original project schedule is created, which involves creating task dependencies, this project management technique goes into effect.

The evolved critical path is reworked based on the Critical Chain Method. To do so, the methodology assumes constraints related to each task.

The theory of constraints allows a person to identify key bottlenecks or limiting factors standing in the way of the successful execution of a project. Every project has a primary restriction, and this primary constraint has the power to sabotage the entire project by severing the weakest link in the chain.

Some of these constraints include:

- Each task involves levels of uncertainty.
- Team members or task owners frequently overestimate task duration. This is often done to give the task a margin of safety so that it will be completed within the allotted time.
- Most of the time, the tasks should be finished earlier than the time estimates, which includes the safety margin.
- If the anticipated safety margin is not required, it is actually a waste of time. Even if the work is completed earlier, the successor task may not be able to begin earlier since the resources may not be accessible until the successor task's planned time. To put it another way, the time saved cannot be used to complete the job earlier. The project timetable, on the other hand, will almost certainly be affected if there are delays that go beyond the estimated timelines and, in most situations, will grow exponentially.

The goal of CCPM is to minimize the risk of delays or disruptions in a project by taking into account limited resources, as resource constraints can slow project tasks and quickly lead to cost overruns.

Where is CCPM be used?

All industries. CCPM is successfully used in several types of projects within construction, aerospace & defence projects, healthcare, software /gaming/media production projects, and beyond. 3ABEL are working with GoldrattUK who have achieved many recognised successes in recent years, most recently at Global Project Control Expo at Wembley Stadium, London.

Developing a new product / service is an excellent critical chain project management example. There are many dependencies and constraints that need to be considered. CCPM can help to ensure that the project stays on track and is completed on time.

The Challenger 3 Tank is currently the most advanced battle tank in NATO.

Constructing a building is another critical chain method example. These types of projects can benefit from the use of CCPM. By accounting for dependencies and constraints, project managers can avoid delays and ensure that the project stays on schedule.

Construction industries across the globe use CCPM due to their complexity and scale.

Companies such as Mazda, Texas Instruments, BAE Systems, Eli Lilly, National Defence Organisations such as MOD , Lucent Technologies, and IBM are implementing this project management method due to the fact that it helps project managers organize tasks and critical resources to achieve the most efficient path to project completion.

CCPM is best suited for projects with many dependencies and constraints. There are not many projects that do not have them, right!

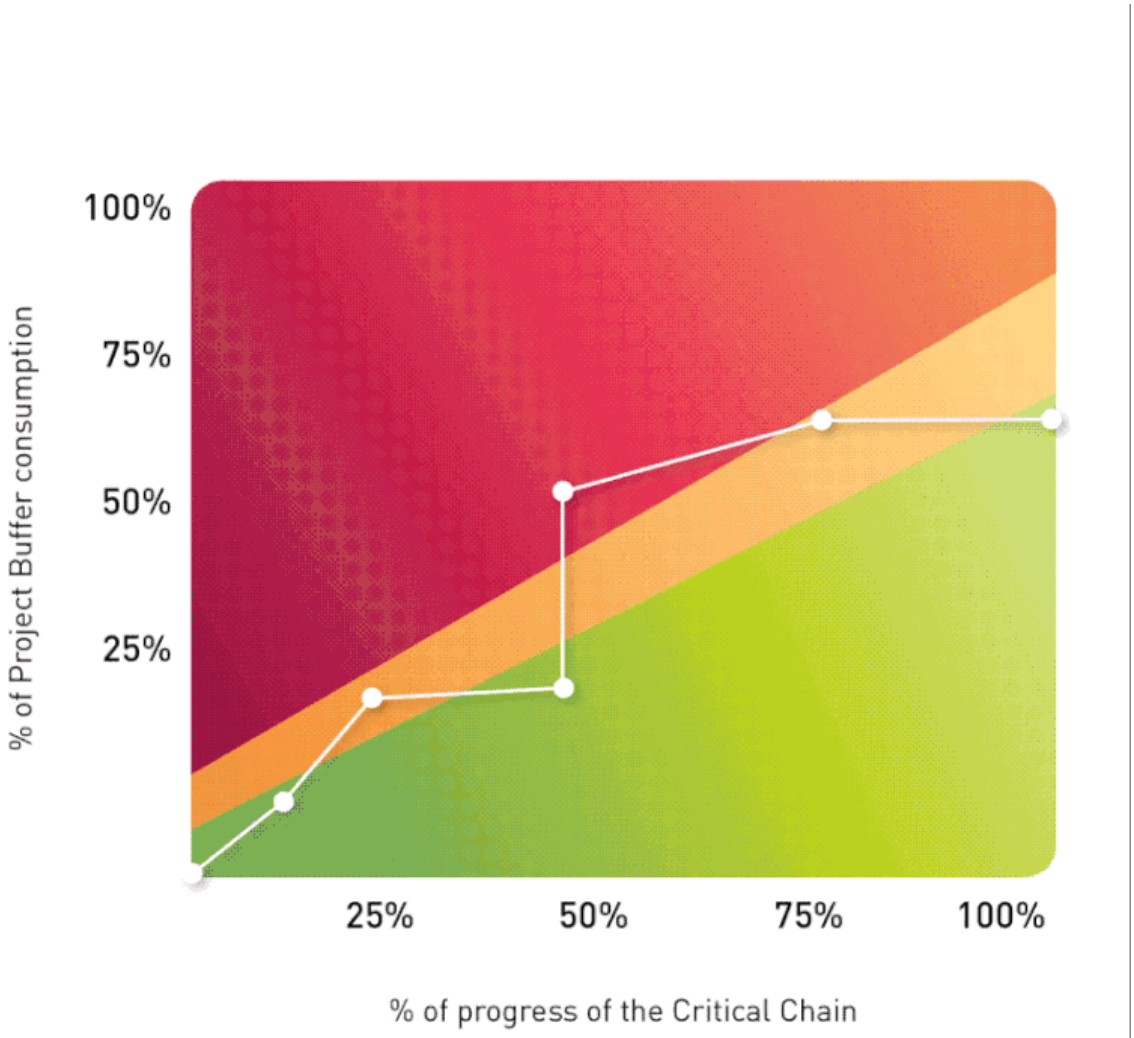
In addition, CCPM works well when there is uncertainty surrounding the project timeline. Again, not many without them too!!

Critical chain scheduling considers all tasks and resource considerations to calculate a project's duration. By using buffers *(not safety)*, it accounts for uncertainties and changes in the project schedule.

How do Project Managers benefit from CCPM?

There are several benefits that project managers can experience by using critical chain management.

First, the critical chain method focuses on *finishing the project on time*. Project managers can ensure that the project is completed within the allotted timeframe by managing the tasks on the critical chain and accounting for dependencies. The admin typically associated with managing a project (or even a multi-project environment) can be exhaustive. CCPM can significantly reduce this.



The Fever Chart provides a simple visual of your project(s) status at any point in time.

Second, CCPM incorporates 'buffers' into the project schedule. These buffers account for uncertainties and changes in the project, which can *help to avoid costly delays*. These *CCPM buffers are different to typical 'safety' times* and are dealt with in a way which creates more certainty in an otherwise uncertain world.

Third, CCPM project management *encourages collaboration among team members*. By working together to identify the tasks on the critical chain (not path), project team members can develop a better understanding of the project as a whole and how their individual tasks fit into the larger picture. It allows project team members to focus on their tasks, with minimal interruptions, with positive results in a relatively short space of time. This collaboration can help to improve the overall quality of the project and improve team morale.

How is it different from other project management philosophies such as Critical Path, Agile and PERT?

CCPM provides simplicity in execution and visualisation once established via its unique way of buffer management and fever chart reporting.

More importantly it focuses on resource dependencies which are often ignored elsewhere, hence the critical *chain* as opposed to critical path.

It also considers human behavioural concepts which can drive projects to run late e.g. multi-tasking, Student Syndrome and Parkinson's Law.

CCPM can be applied to already live projects and is suitable for single and multi-project environments.

In Summary

Critical Chain Project Management is a method of managing projects that emphasizes the need to complete tasks on the critical chain in order to avoid delays.

This method differs from traditional project management in several ways, including identifying the critical chain and using buffers to protect against disruptions. The critical chain is the sequence of tasks that must be conducted to complete projects on time. It says no to scattered multitasking, and yes to knocking down tasks in order with discipline.

CCPM should be used when a project is complex and has several dependencies. This method is also well suited for projects that are time-sensitive and require careful coordination.

When implemented correctly, CCPM can improve the efficiency of your project and help you avoid disruptions.

One of the safest ways (but not essential) to ensure that CCPM goes according to plan is by implementing project management software with a competent CCPM facilitator that will help you create a project plan, track dependencies, and monitor the project's progress.

If you want to learn more then check out the 3ABEL website and drop me a line. We can set up a no-obligation call to discuss your needs further and even share some free materials with you on anything of the above, to get you started.

Thanks for reading!!

Alan Lothian – Director 3ABEL