



Point of view on Critical Chain Project Management: Why is this approach so powerful?

The Critical Chain approach appeared in the late 1990s. Today it is used by thousands of companies around the world: Boeing, Procter & Gamble, Lilly, NASA, Medtronic, US Air Force, Siemens, Safran, Mazda...

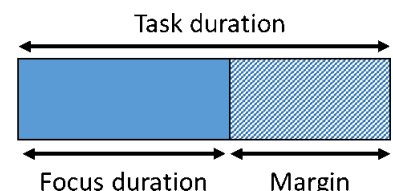
The results obtained by traditional methods of project management, such as the Critical Path method, are disappointing. Too often, there are significant delays and budget overruns. [Philip Marris](#), founder and CEO of [Marris Consulting](#), explains the logic behind this innovative and alternative method: How does Critical Chain Project Management (CCPM) work?

CCPM is part of [the Theory of Constraints \(TOC\)](#) developed by Eliyahu M. Goldratt (with whom Philip Marris worked) in the bestselling book *The Goal* that has sold more than 7 million copies in 32 languages. In twenty years, the [Critical Chain method](#) has proved itself in the world of projects: a reduction of project durations of 40% on average, an increase of more than 50% of the number of projects carried out with the same resources and greatly improved due date performance. In addition, Critical Chain creates a much better working environment: less stress, more trust and transparency between the different actors, less chaos and bad multitasking, and better visibility on current and future activity. As a result, during an implementation there is little resistance to change because all actors will benefit from CCPM, from operational resources to executive committees.

Project planning according to the Critical Chain method

Critical Chain is applicable to an isolated project but also to project portfolios. The approach is based on 3 major principles: to break the unhealthy policy of commitments on the dates of completion of each task, to plan the projects by considering the true capacity of the resources and to focus the management on what is critical - what determines the performance of the project - the "Critical Chain".

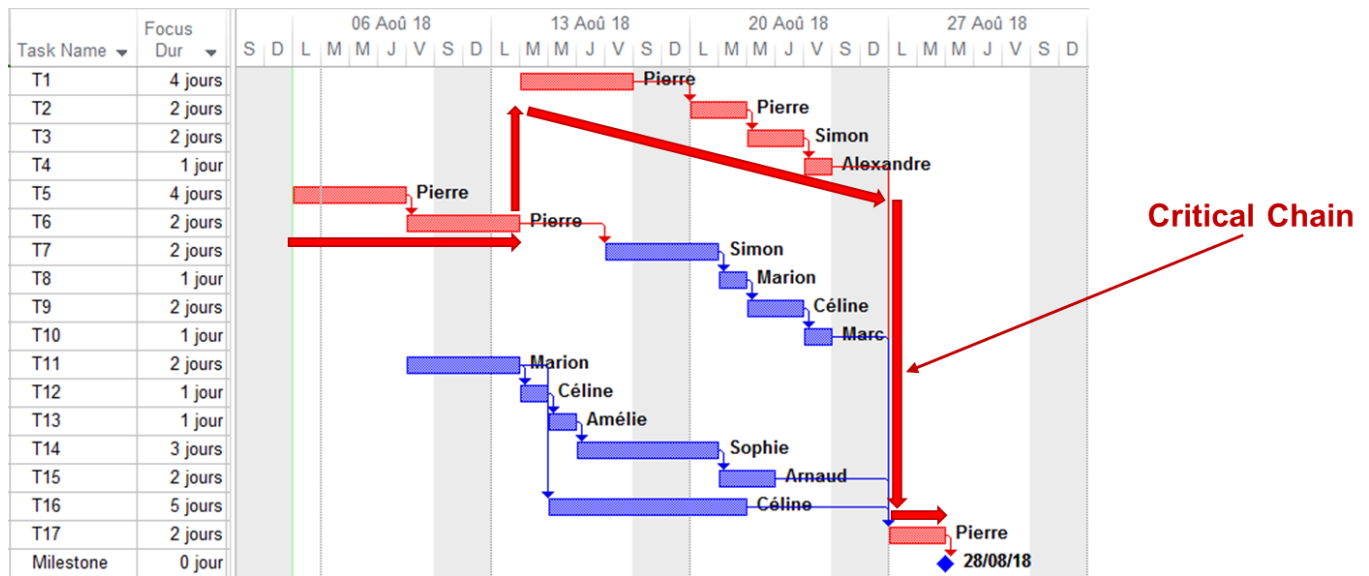
The first step is to identify the tasks needed to complete the project and determine their duration. Traditionally, for a project to finish on time, it is emphasized that each task must comply with the dates defined in the initial planning. As a result, to compensate the uncertainties and honour commitments, each actor increases the duration of each of his tasks by adding a safety margin. However, despite this, the projects are late because these local margins are wasted by different behaviours: the student syndrome, Parkinson's Law, multitasking and the calendar syndrome. Where conventional project management methods use durations increased by a margin of safety, the Critical Chain uses "focused durations" corresponding to the actual average work time on the task under perfect working conditions; the "focused time" to perform the task, without interruptions, without risks or complications and with a probability of 50% to exceed this duration. In doing so, it is generally observed that the expected durations of the tasks are reduced by about half on average.





Local safety margins are removed and shared in a global protection, at the end of the project, called the "project buffer". Pooling allows one to have a project buffer that is smaller than the sum of the margins of the tasks. This protection protects the entire project from problems that may occur on any task during the execution of the project. For this reason, [the Critical Chain trainings of Marris Consulting have the provocative title: "Dare to finish all your projects on time!"](#)

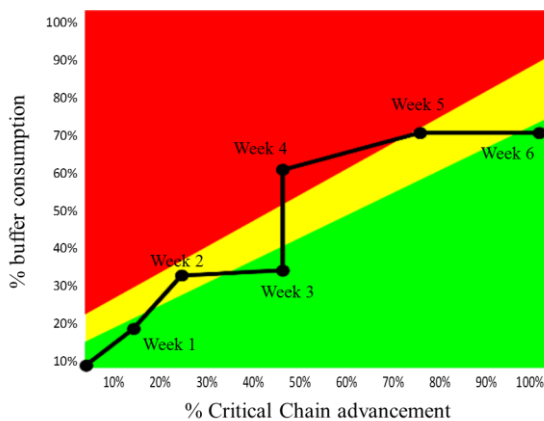
The next step is the levelling of resources, which allows you to adjust task dates based on resource availability. When the levelling is not done, the same resource may be assigned to multiple activities at the same time. This is very common in multi-project environments managed in a traditional way. Then we identify the longest sequence of tasks to determine the duration of the project, but unlike a classic Critical Path that takes into account only the logical dependencies (the predecessor-successor link between the tasks), the Critical Chain takes into account the resource dependency, and this - the "Critical Chain" - is the constraint of the project: the sequence of tasks taking into account the logical sequence AND the resource availability.



It is this sequence of tasks that really determines the duration of the project. As the focused durations used in the planning don't take into account the probable problems during execution, a project buffer is inserted at the end of the project. The project due date is therefore the end date of the project buffer. Finally, to prevent non-critical activities from delaying the project, the Critical Chain is protected from the potential drift of non-critical activities by "feeding buffers".

Project execution according to the Critical Chain method

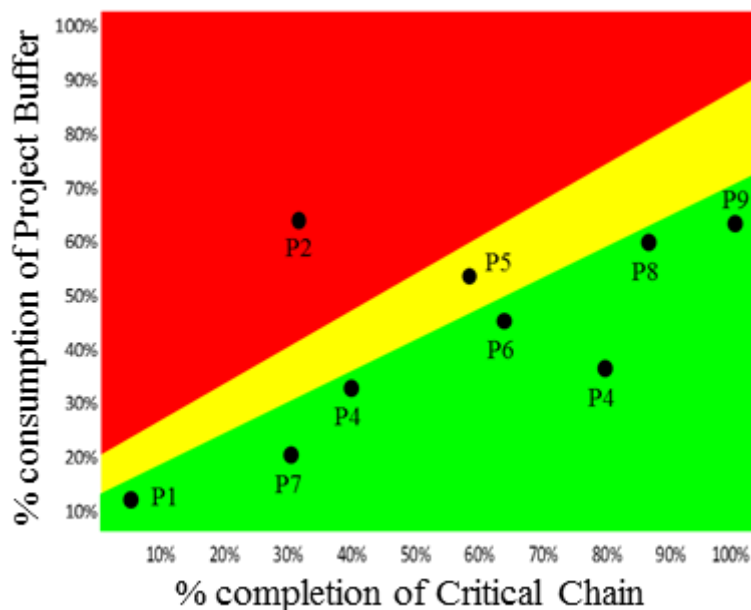
The Critical Chain approach contains several innovations to drive the execution of the project. First of all, the tasks of the Critical Chain must follow each other as quickly as possible. To do this, Marris Consulting recommends using the principle of relay stick, thanks to a mascot - a remarkable object like a big teddy bear - that follows the Critical Chain from office to office.



Second, project management is done through a simple visual indicator, called the "Fever Chart". The Fever Chart is a factual indicator allowing anticipation rather than working in firefighting mode. It is built by measuring the progress of the project (percentage of achievement of the Critical Chain) and the consumption of the project buffer.

In this example the project ends in advance. To finish as much as possible projects on time in an uncertain world we must aim to finish them early - when we take a plane, we plan to waste time waiting at the gate.

The Critical Chain approach is also used massively to manage project portfolios (the development of new products for example). This is facilitated first by the fact that each project is well planned and that the execution rules are sound. Secondly, the Fever Chart Portfolio makes it possible to manage the priorities of the actors between the projects in an objective and dynamic way at any time.





This system can easily integrate projects of different sizes because the two axes are calculated in percentages. Rather than going from meeting to meeting to decide which project is more important, the one which is very important and late, or the one which is less important but very late, we can objectively and transparently identify which of several tasks is objectively a priority.

Finally, in the case of project portfolios, CCPM avoids clogging up the organization by launching more projects than the capacity of the resource that is the capacity constraint of the system. It thereby avoids creating queues of work and encouraging bad multitasking. The launches of new projects are decided accordingly. This is called "sequencing" or "pipelining".

Conclusion

Philip Marris insists on not using the Critical Chain alone. Critical Chain is a way of managing projects but it does not deal with the quality of the project itself. We must combine the approach with the so-called "Agile" approaches in particular in software development environments or with Lean Engineering or Design for Six Sigma in the development of new products. Not to mention the basics of project management (PMI, ITIL ...) such as risk management, the use of which becomes easier because of the healthier working environment. The fires are extinguished, the firefighters can become builders again.

"I do not know any management approach that is as appealing as the Critical Chain," says Philip Marris, "it's easy to understand because it's only common sense and everyone wins. The projects go much faster, we do a lot more with the same resources and we can finish them almost all on time and all this in a healthy and serene work environment based on transparency and trust. "