## **Critical Chain Program Management (CCPM)**

### **Problem** How to shorten a

#### Difficulty

Work with an SME

#### **Critical Chain Definition**

The longest chain of dependent tasks with resources de-conflicted and individual safeties removed and added back in as a project buffer

If resources are unlimited then *critical chain* and *critical path* are similar.

- Critical Chain Program Management (CCPM) is a management methodology which provides information on the right tasks at the right time to ensure on-time delivery.
- CCPM is based on the *Theory of Constraints*. In any schedule, at any time, there is **one activity** that is **gating** the progress. The goal is to **identify** that activity and **improve** it.



A "fever chart" tracks progress and indicates when corrective action is needed.



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# **CCPM – Example – The CCPM Project Buffer**

#### Consider a job that requires 3 people to perform sequential tasks.

- 1. Each person
  - A. Knows the aggressive (shortest) duration it will take them to perform their task.
  - B. Will naturally include a buffer since they don't want to fail (and, perhaps, a task is more challenging than anticipated, or there may be interruptions or sickness). These individual buffers increase the overall time for the job.
- 2. In CCPM, the aggressive durations are placed end-to-end and the *individual buffers* are statistically aggregated into a overall *project buffer*. This reduces the overall time since some, but not all, of the tasks will take longer than the minimal time.
- 3. Management challenges include:
  - 1. Ensuring realistic aggressive durations; failing to meet these time estimates can be both expected and desired.
  - 2. Rescheduling is required when some tasks take more than the minimal duration.



### **CCPM – Notes**

### Slide 1

### Slide 2

- 1. In any project there is a single gating activity that controls the project duration. If the gating activity is delayed a day (or a week), then the entire project takes a day (or a week) longer.
- 2. The TOC process, which is also used for CCPM, has the steps:
  - Identify
  - Pamper
  - Synchronize
  - Improve
  - Repeat
- 3. Benefits of CCPM include:
  - Significant reductions in project duration
  - Better resource utilization
  - Better management information
- 4. CCPM is more useful for larger projects.
- 5. There is a commercial tool for CCPM (ProChain) from <u>https://www.prochain.com/</u>
- 6. CCPM was defined in the book *Critical Chain* by Eliyahu M. Goldratt

- 1. The example shows the use of a *project buffer* for the critical path.
- 2. While every project always has one critical path, there will be other paths that should be addressed, to best utilize resources.
- 3. In CCPM, the critical paths, and the other paths, each have a *feeding buffer*.