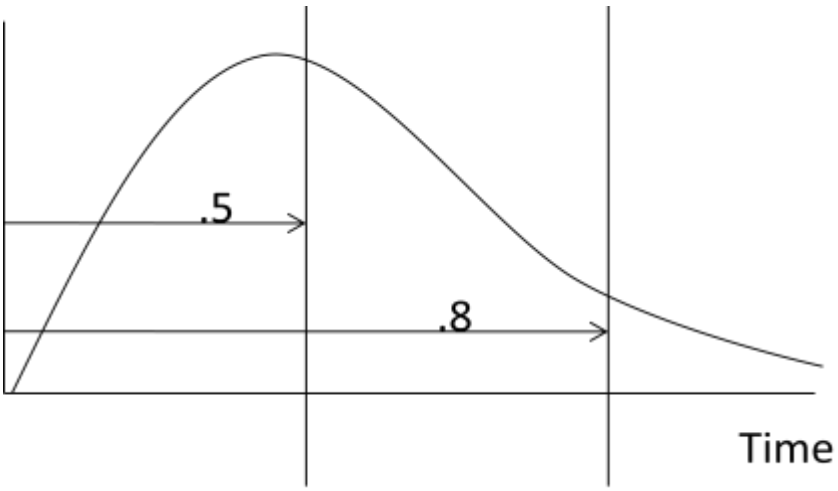
2nd edition CC terms

50% task time estimate – A task time estimate that has a 50% probability of being achieved.



Perspective: The distribution of task times is generally viewed as an asymmetrical positive or skewed to the right distribution, which means the right tail is quite long. Under a significantly skewed distribution, a task time estimate that has 80% probability of being achieved might be as much as twice as long as an estimate that has a 50% probability of being achieved.

In traditional project management, the resources/resource managers are frequently responsible for and measured based on completing their tasks within the time they have estimated. In view of this responsibility, the resources/resource managers have a strong incentive to provide very high estimated task times. As a result, task time estimates with probabilities of completion in the 80-90% range are frequently seen. This padding, while seemingly increasing the probability that individual tasks will be completed within the time estimated, has two common effects at the individual task level: either the resource falls victim to the student syndrome and delays starting work on the task until the local protection built into the estimate is gone, or the resource finishes the task early and continues to "improve" or find other things to do until the task time is consumed (Parkinson's Law). In addition, using 80-90% task time estimates causes the project duration to be inflated without providing protection for the whole project.

In contrast, with the critical chain approach, resources and resource managers are responsible for providing a "50% task time estimate" and are not held responsible for achieving the estimate. Protection is provided by the project buffer for all critical chain tasks and by feeding buffers for non-critical-chain tasks. Frequently the conversion of the given task estimate to a "50% task time estimate" is used in the implementation of critical chain project management. After resources are comfortable with the critical chain methodology they are asked to estimate their own 50% task times. Time estimates may also be established based on task touch times. No matter how the task times are determined they should be challenging but achievable. While the basis for task time estimates may differ, the overarching rule is that the project buffer is 1/3 of the project duration.

Caution: Some lead times are static or fixed. In those cases, a 50% task time estimate is unrealistic and unachievable.

See: Parkinson's Law, static lead time, student syndrome, touch time.

budget buffer – A portion of the overall project budget set aside to cover uncertainties associated with project costs.

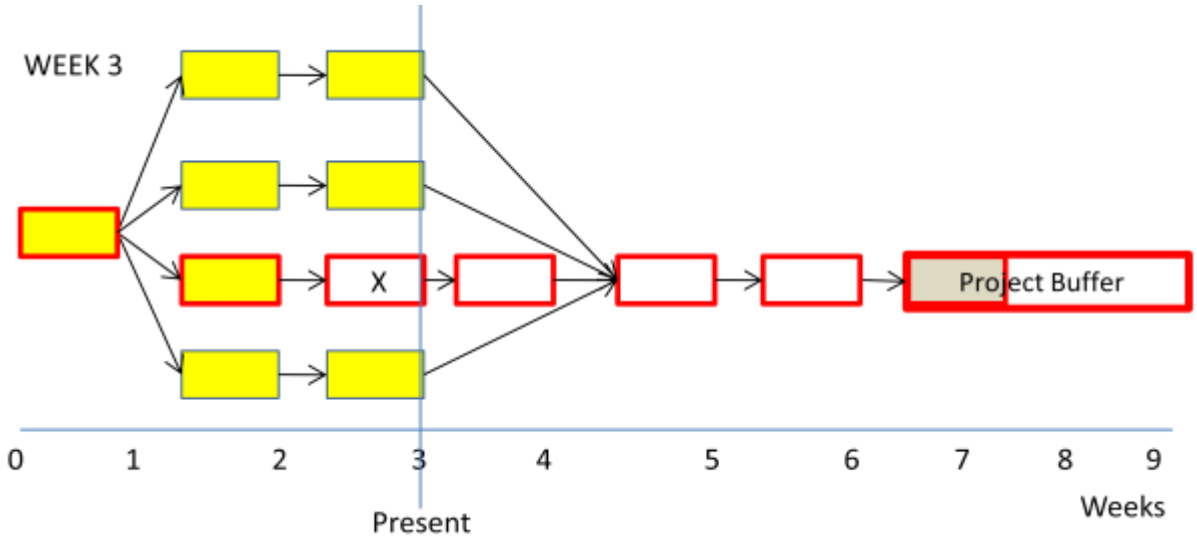
Usage: Just as safety time is removed from each activity time, safety cost should be removed from each activity cost. A budget buffer is similar to a project buffer in that the amount set aside for higher than

estimated expenses is in reserve to protect the project budget in total. Similar to the project time buffer the project budget buffer should be substantially less than the sum of the individual budget reserves for each activity.
Syn.: cost buffer.

buffer burn rate – A measure of the overall rate at which the project buffer is being consumed for the project to date. The second measure of a set of three measures in buffer management for single- and multi-project critical chain project management.

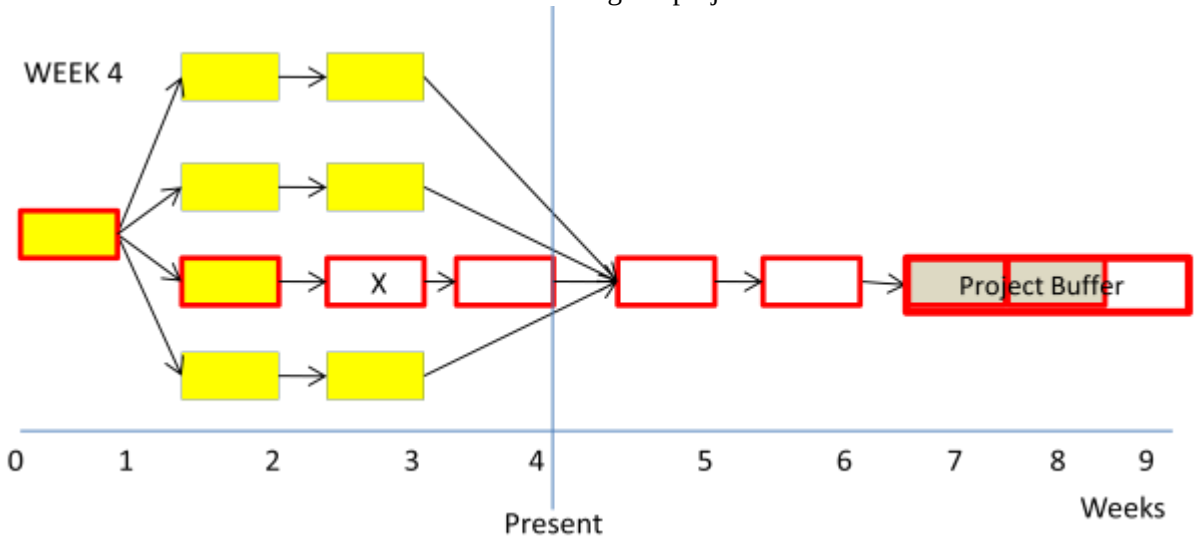
$$\text{buffer burn rate} = \frac{\text{percentage of project buffer consumed}}{\text{percentage of critical chain completed}}$$

Usage: The buffer burn rate is used to answer the questions: Is overall progress on the project satisfactory? What is my current project status? A buffer burn rate of 1.0 or less is good. The first measure of project status is percent of the critical chain completed; the third measure is the project buffer consumption rate.
Example: The three measures of project progress are illustrated in the networks below, which show a project with a six week long critical chain (tasks outlined in heavy lines). Each task in the project takes one week. The first measure of project progress is percent of the critical chain completed. In this case, two weeks (tasks shaded light) or 33% (2 weeks/6 weeks) have been completed. Is this good or bad? The second and third measures must be analyzed to determine this answer. Suppose all tasks have progressed as estimated except task X and the resource is stuck on that task. The second measure of project progress is buffer burn rate, which is (33%/ 33%), or 1.0. One third of the critical chain has been completed while one third of the project buffer has been consumed. There is no problem at this point in the project as the rate of buffer consumption is equal to the rate of critical chain consumption.



The network below shows the status of the same project at the end of week 4 and the resource is still stuck on task X. At this point 67% of the project buffer has been consumed while the same 33% of work on the critical chain has been completed. The buffer burn rate is now (67%/33%) or 2.0. This is one indication that the project is in trouble. The third measure of project progress, the project buffer consumption rate, shows that the project is consuming project buffer at the rate of one week for every week of work. The ideal consumption rate is for every three time periods, two periods should be critical chain task work completed and one period of project buffer consumption. Since no critical

chain work was completed while another week of project buffer was consumed, the project is in serious trouble and immediate action should be taken to bring the project back on schedule.



See**:** buffer burn rate, critical chain completed, project buffer consumption rate, project management measures.

capacity buffer – In multi-project critical chain project management, a time buffer placed in the project plan immediately in front of the first use of the drum resource to protect the start of the project against variation (Murphy) from drum tasks in upstream projects.

Usage: A capacity buffer enables project acceleration if the drum resource is available early. Capacity buffers are only used in multi-project environments.

See: buffer, critical chain project management, drum.

CC_G – Abbreviation for critical chain for goods.

cost buffer

Syn.: budget buffer.

critical chain – The longest sequence of dependent events through a project network considering both task and resource dependencies in completing the project. The critical chain is the constraint of a project.

Usage: The project duration is the total of the critical chain task times plus the project buffer.

Illustration: The project below has eight tasks and one unit of each of five resources (B, C, M, O, and Y). Tasks M16 and M10 require resource M at the same time, an example of resource contention. One option is to start task M10 earlier to eliminate the contention. Once this is done, the critical chain becomes M11-Y4-O6-M10-M16-C20. This sequence of tasks plus the project buffer (PB) of 33 days determines the critical chain duration of 100 days.

A. Project network before elimination of resource contention and addition of project buffer:

B. Project network after elimination of resource contention and addition of project buffer:

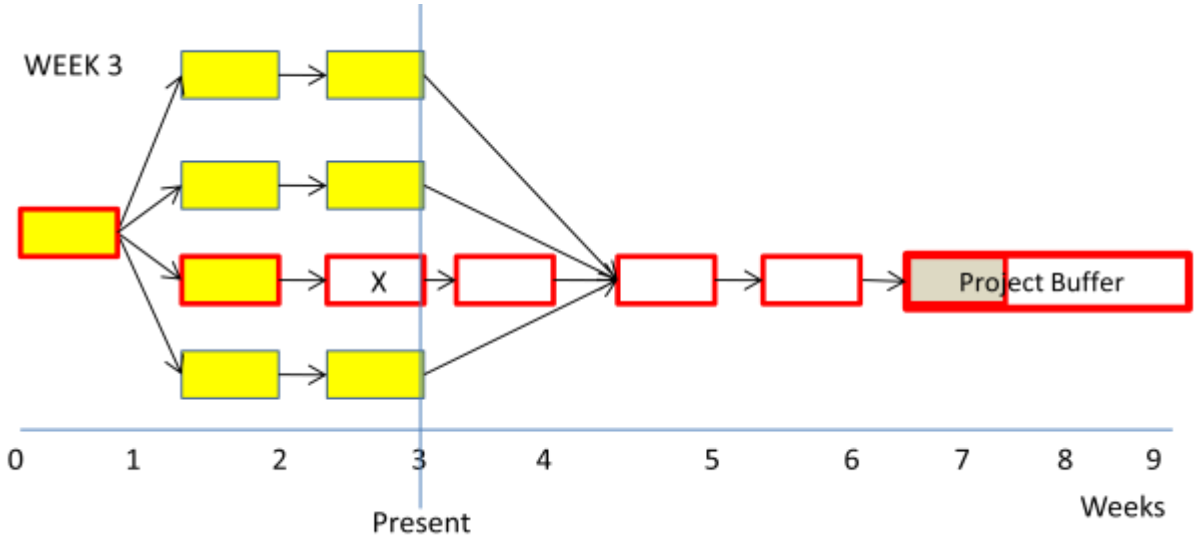
Caution: Internal organization functions (e.g., resource managers, project managers, software developers) use the term critical chain to describe the unbuffered or unprotected chain of dependent tasks/resources. In contrast to this usage, sales, marketing and other functions that deal directly with clients use the term critical chain to describe the total project duration, which includes not only the total task time on the critical chain but the project buffer also. This total project duration provides the basis (adjusted for starting date) for promising project completion dates to clients. Goldratt, in his summary in Session 3: Project Management and Engineering of the Goldratt Satellite Program, uses the terms critical chain and protected critical chain to describe the internal and external uses of the term, respectively.
See: critical chain project management, protected critical chain.

protected critical chain –The tasks on the critical chain plus the project buffer.
Usage: The protected critical chain is used as the basis for computing project completion dates.
See: critical chain.

critical chain completed (%) – A measure of project progress. The first measure of a set of three measures in buffer management for single- and multi-project critical chain project management.

$$\text{Critical chain completed (\%)} = 100\% \times \frac{\text{number of days of CC work completed}}{\text{total number of days on critical chain}}$$

Usage: The purpose of calculating the percentage of the critical chain completed is to focus attention on problems that jeopardize progress on the critical chain tasks and thus impact due date performance.
Example: In the project network below the critical chain is six weeks long (tasks outlined in heavy lines) and two weeks (tasks shaded lightly) have been completed. The critical chain completed is 33% (100% X 2 weeks/6 weeks). Project progress is 33%. To determine whether this is good or bad the second and third measures, buffer burn rate and project buffer consumption rate, must be calculated.



Syn.: project progress.
See: buffer burn rate, project buffer consumption rate, project management measures.

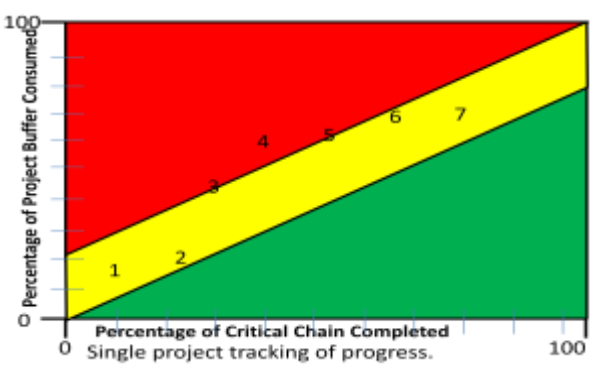
fever chart – A graph showing the status of a project or multiple projects. The graph has percentage of project buffer consumed on the vertical axis and percentage of critical chain completed on the horizontal axis. The colors red, yellow, and green represent project status.

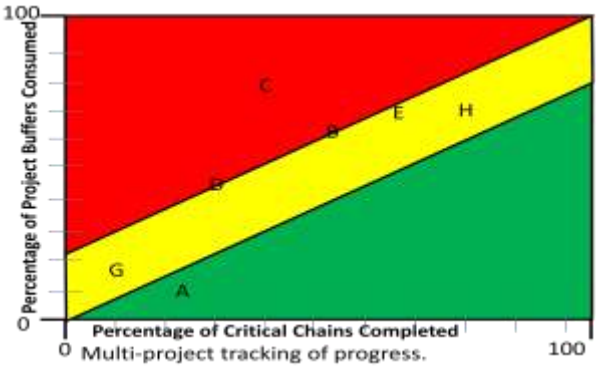
Usage: One approach to drawing the regions is as follows: if the buffer burn rate is something less than 1.0, the project status is green. If the buffer burn rate is approximately 1.0, the project status is yellow. If the buffer burn rate is something greater than 1, the project status is red. The project manager is responsible for determining the boundaries of the yellow zone.

Illustration 1: The graph on the left below reflects the status of a single project. The points (1, 2, 3 ….) represent status reporting dates (weekly, for example) over time.

Illustration 2: The graph on the right below reflects the status of multiple projects. The points (A, B, C ….) represent the status of different projects at a given point in time.

Caution: Buffer status (red, yellow, or green) as reflected in a fever chart may differ from buffer status reflected by the percentage of the project buffer consumed.





See: buffer burn rate, project management measures.

critical chain for goods (CC_G)

Syn.: critical chain.

critical chain project management (CCPM) – The TOC solution for planning, scheduling, and managing performance in a project environment.

Usage: CCPM is applied in two very different environments: single-project and multi-project. In multi-project environments resources are shared across several different projects concurrently.

In a single-project environment the critical chain project management solution includes the following: 1. removal of existing behaviors that are harmful to the goal of the project, such as the student syndrome and Parkinson's Law (work expanding to fill the available time); 2. a plan, or project network, that includes all task and resource dependencies as well as time estimates with safety removed; and (3) a schedule showing the critical chain and the buffers.

In a multi-project environment the critical chain project management solution has the elements of the single-project environment and in addition has a mechanism for staggering the release of projects. This release mechanism can be either physical, i.e., a "drum" resource, or a policy stating that, for example, no more than six projects can be in flow at any time. As each project's tasks are completed by the drum resource another comparable project is released to execution. As synchronization within and across projects based on management of the release mechanism improves, the rate of project completion increases significantly. Other names for the drum resource are virtual drum, strategic resource, and integration point.

In both project environments there is an additional element of project control and visibility – buffer management. Critical chain project management requires frequent updates of estimated time required to complete in-progress tasks. This information is used to update the status of the various buffers, which in turn provides the information needed to know when and where corrective action is necessary.

See: buffer, buffer management, critical chain, drum feeding buffer, drum resource, drum schedule, feeding buffer, integration point, project buffer, virtual drum.

replenishment for services (R_S) – In some multi-project critical chain environments (such as professional, scientific and technical services), a resource management method (based on the TOC replenishment solution) used to manage different skill groups for the benefit of all projects without specifying how individual project plans use resources.

R_S – Abbreviation for replenishment for services.

critical chain for services (CC_S) – The TOC application for project management in services, particularly professional, scientific and technical services in multi-project environments.

Usage: Some services clients are time sensitive and are not willing to wait until resources would become available as scheduled using traditional critical chain project management. Critical chain for services differs from critical chain in that it incorporates a resource bench, an approach that seeks to ensure resource availability by maintaining a group of skilled professionals for rapid assignment to any project. The resource buffer has sufficient capacity to meet high demand for resources from multiple projects, even when that demand is unpredictable. Whenever the resource level drops below a specified size, replenishment for services automatically replenishes the skill.

See: critical chain.

CC_S – Abbreviation for critical chain for services.

critical chain network – A project network showing the combined task and resource dependencies based on 50% task time estimates and feeding and project buffers.

Syn.: dependency diagram.

dependency diagram

Syn.: critical chain network.

dependent multi-project environment – An environment in which projects require resources that are also required by one or more other projects, necessitating the sharing of resources across projects.
See: independent multi-project environment.

deployment chart – A document used in TOC critical chain implementations that depicts the current technical, managerial, and management information system procedures that are used for managing the flow of customer orders or products, information, and decisions.
Usage: The deployment chart provides a clear understanding of where injections from the future reality tree and prerequisite tree (or strategy and tactics tree) fit in the processes, which processes and procedures have to be changed or replaced, and how the new and old processes interact for an effective planning and control system.

drum – 1. In operations, the schedule of the constraint – the "drumbeat" of the organization. 2. In multi-project critical chain project management, the resource whose capacity or capabilities determine the staggering of projects.
Usage: Project management organizations typically have more projects active than they can handle without multitasking. A schedule for the drum can be used to stagger projects, thereby reducing both the need for and the opportunity for multitasking, and increasing overall project flow.
Syn.: bottleneck, drum resource, pacing resource, strategic resource, synchronizer.
See: staggering, virtual drum.

drum feeding buffer – In multi-project critical chain project management, a buffer used to schedule the release of work that feeds drum tasks to prevent starving the drum for work.
Syn.: strategic resource buffer, pacing resource buffer.
See: constraint buffer, drum.

drum resource – The resource that serves as the drum for the organization.
Usage: In operations, two situations can exist. The drum resource can be a constraint or capacity constrained resource. In using drum-buffer-rope the scheduling and execution of the drum resource are based on the drum (constraint schedule). In simplified drum-buffer-rope, scheduling and execution are based on the market being the drum with secondary attention directed to any capacity constrained resource. In both situations, the drum resource is managed by buffer management.
See: constraint buffer, drum, drum-buffer-rope.

freeze (defrost) mechanism – In a critical chain implementation or when multitasking is prevalent, the stopping of work on tasks for projects that represent the lowest priority of in-process projects.
Usage: Some recommend that projects representing 25% (more or less may be required) of the load on resources be temporarily frozen to reduce bad multitasking. Freezing can take place at the project, path, department or task levels, dependent on the severity of multitasking. At each level of freezing, multitasking is reduced significantly allowing the rate of project completion to increase significantly. As current projects are completed, frozen projects are defrosted based on priority and to maintain flow. Once all frozen projects are defrosted, new projects are released based on completion of in-process projects. Freezing projects allows freed-up resources to focus on existing projects, reduces multitasking, and allows time for full kitting of all projects.

full kit manager – A manager responsible for ensuring that all projects have everything needed for project completion prior to project release.

full kitting – 1. In drum-buffer-rope and simplified drum-buffer-rope, the process of staging or ensuring availability of all inputs (raw materials, tooling, specs, etc.) for an upcoming manufacturing order prior to release of the order to the shop floor. 2. In critical chain project management, the process of clarifying

requirements, getting approvals, staging materials, etc. for a project before the project is released for execution.

independent multi-project environment – An environment in which critical resources are not shared across projects. Projects are managed as multiple single-projects.
See: dependent multi-project environment.

iteration variability – Variability with respect to how many times a loop in a project has to be performed.
Example: In a product development environment, a product or component may have to go through a test, revise, retest loop a variable number of times before the desired result is achieved.

integration point – In critical chain project management, the task where paths in a project converge.
Usage: A feeding buffer is inserted at integration points on the critical chain to protect it from disruptions on the non-critical-chain paths. An integration point may be selected as the virtual drum and then can be used for scheduling projects and as the release mechanism for new projects: new projects are released for execution when a project exits the integration point. Managing the integration point is critical to achieving high due date performance and increased flow of projects.
See: critical chain, critical chain project management, drum, feeding buffer, staggering.

integration risk
Syn.: merge bias.

merge bias – The potential for delay that results when multiple chains of work are integrated, due to the need for all chains to be completed before the integration work can start.
Syn.: integration risk.
See: integration point.

Parkinson's Law – C. Northcote Parkinson, a British naval historian and author, identified this almost universal law: work expands so as to fill the time available for its completion.
Usage: Parkinson's Law is widely considered to apply to project tasks. Critical chain project management attempts to reduce its impact by using significantly reduced task time estimates and getting frequent estimates of time remaining until completion.
See: student syndrome.

percent project completed – An alternative measure of project progress. The percentage by which the longest chain in a project has decreased:

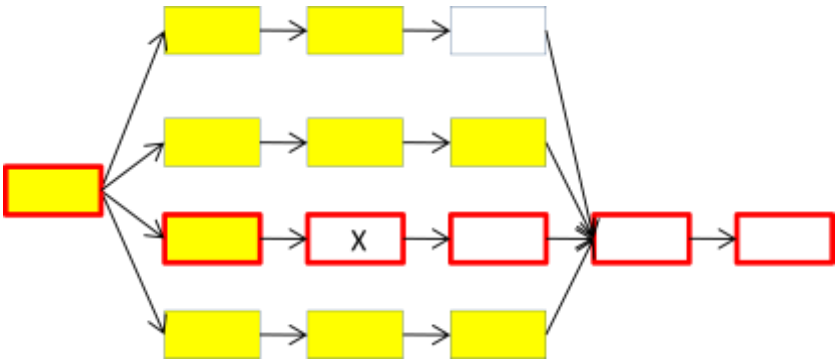
Percent project completed = 100% x (1 – (longest chain remaining/total # of days on critical chain))

Usage: The percent project completed is more useful than critical chain completed (%) in cases where feeding chain progress lags behind the critical chain.
Example: Suppose the initial critical chain duration is 40 days and the longest remaining chain in the project is 28 days long; the percent project completed is 30%.
See: critical chain completed (%), project status.

project completion (%) – A traditional project management measure of project progress:

$$\text{Project completion (\%)} = 100\% \times \frac{\text{the amount of work completed on a project}}{\text{the estimated total amount of work for the project}}$$

Usage: In the project network below, the project has 15 tasks of one week each. The shaded tasks have already been completed. The unshaded tasks have not been completed. The bold outline indicates the tasks on the critical chain and the X indicates a resource that is stuck on a particularly difficult task. The project completion percentage is calculated as (10 tasks completed)/(15 tasks in the project) = 67%. In critical chain project management, however, the critical chain completed (%) would be calculated instead of the project completion percentage. Because only two of the six tasks on the critical chain are complete, the project is considered only 33% complete and there appears to be a significant probability that the project is going to be late.



Caution: The use of the project completion percentage as a measure of project progress encourages resources that encounter problems or delays to move to other tasks on which progress can be made rather than solve the problem. This results in multitasking, extended project lead times and increased probability that the project will be late.

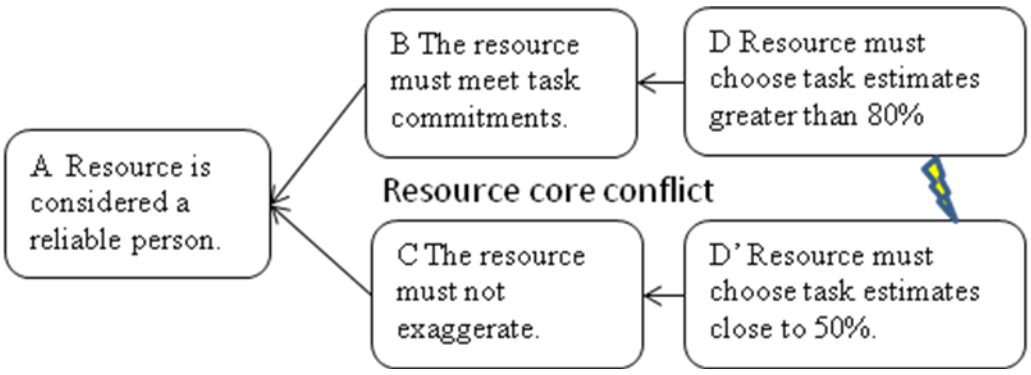
pipeline management – In multi-project critical chain project management, the management of the execution of an already decided project portfolio, including setting starting times for the projects based on staggering projects according to the drum or virtual drum (integration point, heavily loaded resource, strategic resource or policy) and managing the release of projects based on conditions at the drum or virtual drum.

Usage: Pipeline management differs from the business management process and the portfolio management process. Pipeline management does not involve the selection of which projects to execute.
See: drum, staggering, virtual drum.

pipeline planning – In multi-project critical chain project management, the process of determining the drum or virtual drum (a heavily loaded resource, a strategic resource, an integration point or a policy on releasing projects) and, in the event the drum or portfolio changes, the process of resetting project priorities and revising due-date commitments as appropriate.

prevailing rule of project management – In traditional project management, the belief that the way to ensure that a project will finish on time is to make every task finish on time.

Usage: This rule of project management causes a common core conflict for the resource. The evaporating cloud is:



Example: Every resource manager and resource in a project is pressured to complete tasks within the time estimate he or she provided. However, a project by its very nature has high uncertainty, which means that the right tail of the task time distribution is very long. A task time estimate that has an 80% probability of being achieved (an 80% task time estimate) may be twice as long as an estimate with a 50% probability of being achieved (a 50% task time estimate). Once accepted, the task time estimate becomes a commitment to the resource and at the same time creates a conflict for the resource: Should the resource provide a high estimate to ensure that the task time commitment is met or should the resource provide an estimate close to 50% to avoid being seen as providing exaggerated task times? The resource usually gives a high estimate to provide local protection for hitting the commitment. Once a high estimate of task time is accepted by management, one of two things happens: either the resource falls victim to the student syndrome and delays starting work on the task until the local protection built into the estimate is gone, or the resource finishes the task early and continues to "improve" or find other things to do until the task time is consumed (Parkinson's Law). The TOC solution to this core conflict is to:

1. Have resources provide 50% task time estimates and not hold them responsible for achieving the estimates, and
2. Place protection strategically, in the form of feeding and project buffers, in the project.

See: 50% task time estimate, feeding buffer, Parkinson's Law, project buffer, student syndrome.

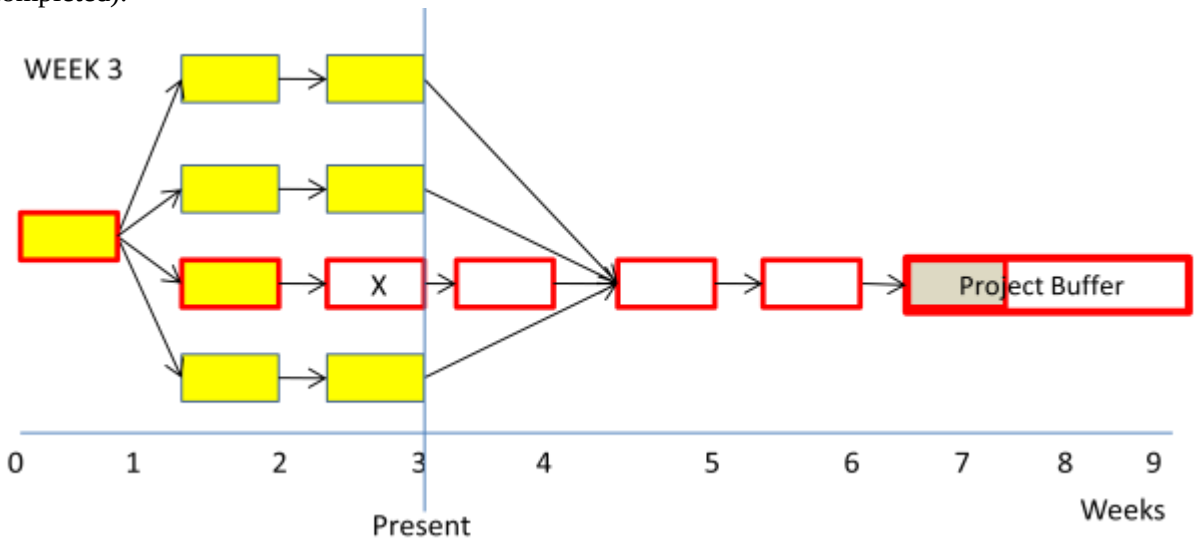
project buffer consumption rate (PBCR) – A measure of project progress for the most recent reporting period. The third measure of a set of three measures in buffer management for single- and multi-project critical chain project management.

$$\text{Project buffer consumption rate} = \frac{\text{Increase in \% of buffer consumed this reporting period}}{\text{Increase in \% of critical chain completed this reporting period}}$$

Usage: The first two measures of critical chain project management, critical chain completion (%) and buffer burn rate, are overall measures of the project to date. PBCR, the third measure, provides information about project progress in the most recent reporting period. The PBCR tells the project manager whether progress on the critical chain in the most recent reporting period was adequate in relation to the amount of project buffer consumed. PBCR tells the manager whether critical chain tasks during the period are in trouble and whether any corrective actions taken at the beginning of the period (based on the prior period's PBCR) were effective.

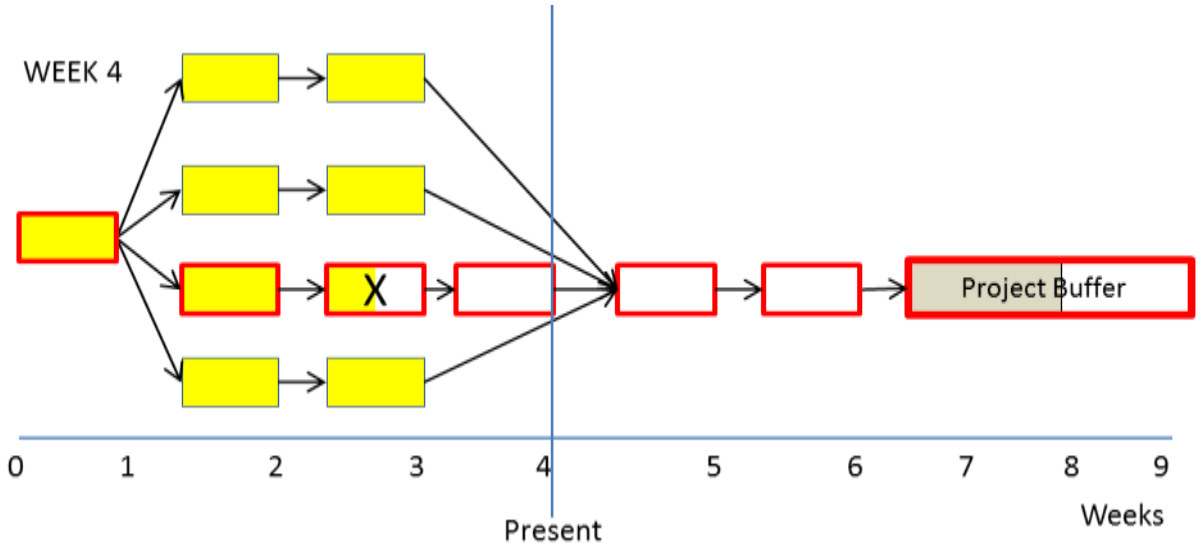
Example: In the project network below, the project has 15 tasks of one week each. The shaded tasks have already been completed. The unshaded tasks have not been completed. The bold outline indicates the tasks on the critical chain and the X indicates a resource that is stuck on a particularly difficult task. At the end of week 3, the first two measures for this project are critical chain complete, which is 33% (two weeks of the six weeks critical chain has been completed); and the buffer burn rate, which is 1

(one-third of the project buffer has been consumed and one-third of the critical chain has been completed).



At the end of week 4, the next reporting period, the critical chain resource is still having problems on task X and only made two days of progress on the five-day critical chain task. Although two days of progress has been made on the critical chain, five days have elapsed on the calendar, so the project has penetrated the project buffer an additional three days. The PBCR for week 4 is 3.0 calculated as follows: three days represents a 20% increase in the buffer (3 days/15 days total project buffer) and the two days of progress on the critical chain represents 6.67% of the critical chain (2 days/30 days). The PBCR is then 20/6.67 = 3.0.

PBCR shows that in the most recent reporting period the project consumed project buffer faster than the critical chain was being completed. Values of the PBCR greater than 1.0, as in this example, are an indication that the project manager needs to devote attention or resources to the critical chain activity that is causing the elevated PBCR. If the project buffer is being consumed at the same rate as the critical chain is being completed, the PBCR will be 1.0. Values of the PBCR of less than 1.0 indicate that the critical chain is being completed faster than the project buffer is being consumed, and a value of zero for the PBCR for a period indicates that the critical chain tasks were completed in the time originally estimated. Negative values occur in periods in which project buffer is recovered. (Note however, that negative values of the PBCR can also occur in periods in which the remaining duration of the critical chain increases due to changes in task time estimates.)



See: buffer burn rate, critical chain completed (%), project management measures.

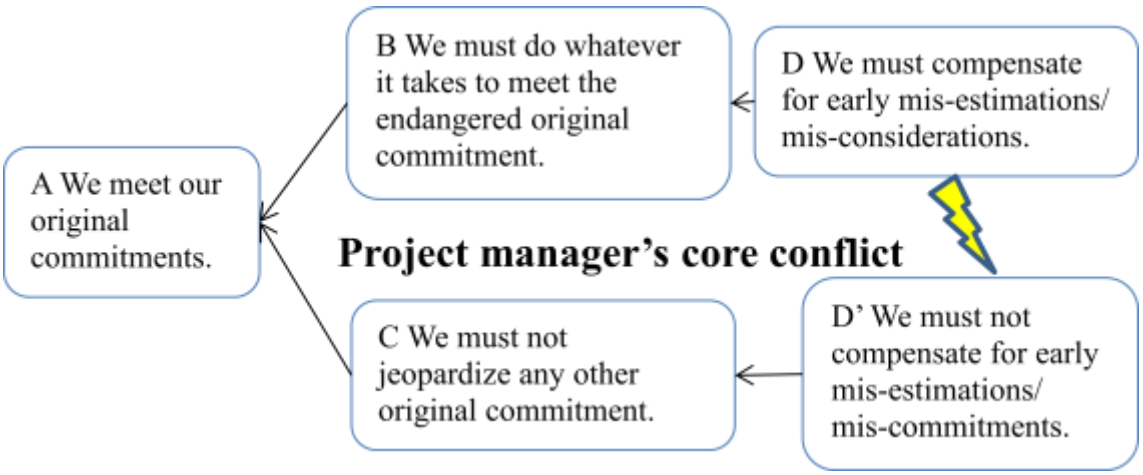
project management measures – In buffer management for single- and multi-project critical chain project management, three measures used to judge the execution of projects individually and with respect to other projects. The measures are:

1. Critical chain completed (%) – The percentage of the critical chain that is already completed. It is used to measure project progress.
2. Buffer burn rate – The percentage of the project buffer consumed relative to the percentage of the critical chain completed for the project to date. It is used to measure project status.
3. Project buffer consumption rate – The rate of consumption of the project buffer relative to the rate of completion of the critical chain for a single reporting period. It indicates whether a problem is developing and whether corrective action was effective in bringing the project back on schedule.

Usage: The three measures provide a clear picture of a project or a number of projects and indicate where management attention and resources should be directed. The measures help to quickly identify whether a problem exists and where it is on the critical chain.

See: buffer burn rate, critical chain completed (%), project buffer consumption rate.

project manager's core conflict – In most traditional multi-project management environments, the project manager is faced with a core conflict of D: We must compensate for early misestimations in the current project versus D': We must not compensate for early misestimations on the current project. The requirement the project manager is trying to satisfy by compensating for early misestimations is B: Do whatever it takes to meet the original commitment. On the other hand, the requirement driving D' is C: Not jeopardize any other original commitment. The evaporating cloud is given below:



remaining duration – In critical chain project management, a measure reported regularly by resources and resource managers indicating the estimated time remaining until the completion of a task.

Usage: The remaining task duration is used to measure task progress and determining project status ;and progress. While the remaining duration is collected and reviewed on each task, it becomes significant only when buffer penetration (feeder and, more importantly, project buffer) is significant.

resource contention – 1. In production, a situation in which two or more work orders require the same resource at the same time. 2. In project management, a situation in which two or more tasks, either in the same project or across projects, have to be performed by the same resource and there is an overlap in the timing of the tasks.

Usage: 1. In production, resource contention can be identified during the planning phase in drum-buffer-rope and during the execution phase of the production solutions, either drum-buffer-rope or simplified drum-buffer-rope. 2. In project management, resource contention can be highlighted during the planning phase when determining the critical chain as well as after inserting feeding buffers, which potentially creates contention among feeding tasks and between feeding tasks and critical chain tasks. Contention can occur within one project, across projects or when a project task conflicts with day-to-day tasks. In the project execution phase resource contention can occur when several tasks are waiting to be performed by the same resource at the same time.
Perspective 1: If a given work center utilization is 80% then approximately 80% of the time when a work order enters that work center the resource will be busy on another part.

resource skill matrix – A document listing the resources available, their skills and skill levels, and their suitability for various tasks and projects.
Usage: A resource skill matrix is useful in determining capacity available for project task assignments.

resource-to-resource variability – In a project environment, variability in the time required to perform a task between resources with different skills.

staggering – In multi-project critical chain project management, the process of releasing projects based on the availability and capability or capacity of the drum or virtual drum.
Usage: Once the drum resource has completed the last task on one project, another comparable project is released to execution. Staggering limits the number of projects being worked on at one time.

task – An activity or series of activities, performed by one or more resources, represented as a single entity in a critical chain network.
Usage: When networks have thousands of activities, the project manager is operating within the noise of the task distributions. Some managers work with the large network while others use a rule of thumb to reduce its size. A rule of thumb that many project managers use is that no network should exceed 300 tasks; when a network exceeds this limit, a number of activities or a sub-network may be called a task in the larger network. Many times a task is defined by a deliverable which then becomes the starting point for the next task.
See: zooming.

task safety – The difference between a task time estimate and the mean task time (the 50% task time estimate).
Usage: Many times a task estimate is twice or more the mean task time; this is the origin of the suggestion to cut estimated task times in half before using them in the critical chain schedule until resources and resource managers start giving challenging but achievable durations (i.e., approximately 50% task time estimates).
Caution: Some tasks have a static or fixed time and cannot be reduced significantly.
See: 50% task time estimate, touch time.

touch time – The time actually spent working on a task, which in traditional project organizations is typically much less than the elapsed duration of the task.
Usage: In implementing critical chain project management touch times or 50% task time estimates are typically used as a basis for determining task durations in critical chain networks. Once resources become comfortable with the critical chain approach touch times frequently become the basis for estimating task duration. In all situations buffer management should be used to reduce the variability of task times.

traditional project management – A philosophy of managing a project organization that focuses on local optimization (i.e., maximizing resource utilization) to achieve maximum short-term organizational profits. Multi-tasking within and across projects is rampant and extends both task times and project times, leading to the release of new projects into the system in hopes of starting projects early enough that they will be completed on time. Resources and resource managers add safety to their task time estimates to ensure on-time task completion as they are responsible for achieving their task time estimates.
See: critical chain project management.

virtual drum – In multi-project critical chain project management, a means of staggering projects that does not involve leveling the load on a resource.
Usage: The virtual drum could be a policy such as limiting the number of projects in execution at one time or limiting the number of projects being worked at a particular integration point, or a rule such as "release a new project each week." An integration point or integration function can be also be used as a virtual drum. Capacity generally is not the issue causing delays at integration; the major problem at integration points is generally multitasking across activities. Once staggering is implemented and a number of projects have been completed, multitasking is significantly decreased and the number of projects flowing through the process increases. At this point capacity of the integration function may become an issue if further growth in throughput is desired.
See: critical chain project management, drum, staggering.

zooming – The process of defining a series of tasks or subproject as a single task in a larger network.
Usage: Zooming reduces the details presented in a project and allows for better control. The task or subproject can then be managed as a project and its completion marks the end of that task in the larger network.
See: task.