SPEED4projects

Why mapping Reliable Scrum to Critical Chain?

Situation

Reliable Scrum is a valid way to get stable releases (projects) based on Scrum or Kanban. It's a very simple and lightweight controlling method and has been proven very effective. This works perfect in a single project world or with a dedicated team.

In bigger companies or multi project environments Critical Chain is used as control mechanism and represents an important breakthrough regarding reliability and speed. Multi project environments are characterized by conflict over resources and not so helpful interventions from superiors. Critical Chain provides global operational prioritization, minimizing conflicts in this process and providing limited resources at the right place and time. Agile methods tend to starve other projects, if highly prioritized, or are not supported sufficiently in such environments.

If we want agile teams in such environments, we have to find a way to use operational priorities without compromising on the basic values of agile processes.

Speed4Projects®

Coaching, training and consulting to implement Critical-Chain and High-Speed project management

Further information you can find on my website
www.speed4projects.net

Problem

Scrum and Kanban are both backlog-story-burn-down oriented ↔ Critical Chain is based on work packages that are finished and results that are handed over to another team.

In Scrum and Kanban the order of the stories in which they are processed can wildly vary depending on the assessment by the product owner and the team, what would contribute most to customer value at the earliest time. Priorities are set by the team.
Teams in Critical Chain typically have a multi project backlog (task list), which is created by staggering all projects of the organization into one pipeline (strategic priority defines due dates). This multi project backlog is sequenced by the operational priority which is based on the extent of danger for the due date of a project (buffer status). .

The progress reporting in Scrum and Kanban is based on finished stories ↔ In Critical Chain the reporting is based on a daily estimation of the remaining duration of work packages.

What has to be done to match Reliable Scrum to Critical Chain?

Put Reliable Scrum Parts into Critical Chain Container

In a Critical Chain multi project environment the operational priority of a work package and based on that the decision about who gets the resources is completely based on a progress to buffer

consumption method. As a result all projects must have a critical chain project plan with at least one work package and one project buffer.

If you want to use Reliable Scrum and Critical Chain together it is mandatory to have a Critical Chain container for each Reliable Scrum project. The Product Owner is responsible to maintain this container. The responsibility can also be taken by the Scrum Master – this is worth to discuss in the team what they feel more appropriate.

a) Critical Chain container with one agile part managed as Reliable Scrum.
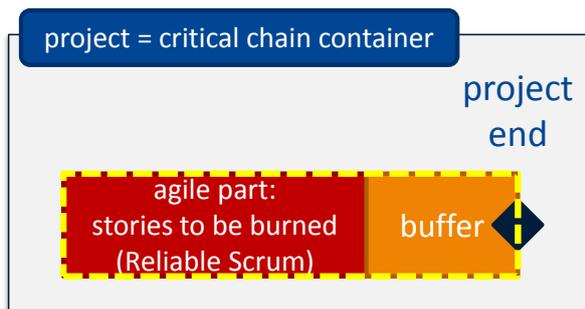
b1) Critical Chain container with an agile part on the critical chain
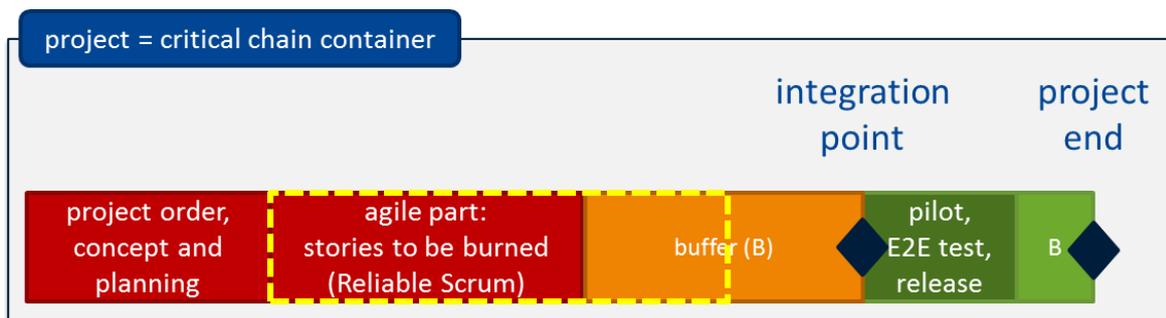
Before the agile part you see some conceptual and planning phase. The buffer has to protect both therefore it's a little longer. After the integration point there are some work packages to do e.g. pilot, end-2-end-tests and release. Therefore the project end is protected with an additional smaller buffer.

b2) Critical Chain container with an agile part right from the beginning and on the critical chain
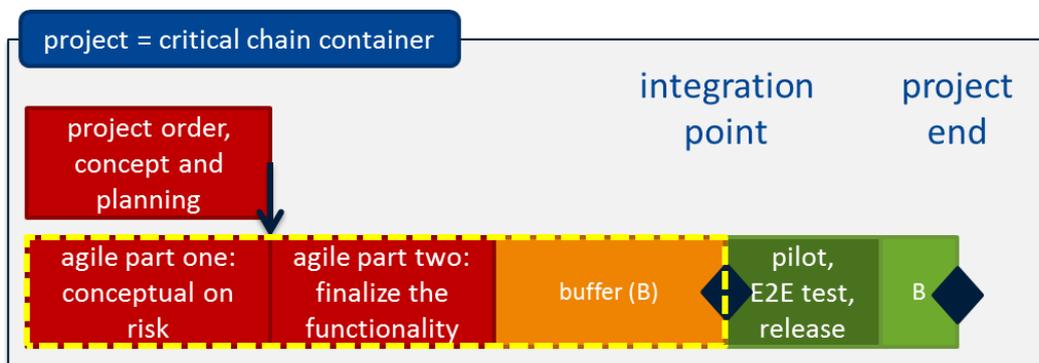
Mapping Reliable Scrum to Critical Chain

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This is a typical scenario where the agile part starts right from the beginning of the project. In parallel the project order is clarified, the conceptual work is done (integrating the knowledge of the agile part) and planning. During that time the agile part works on risk of conceptual changes.

To focus on finishing the conceptual part fast, the conceptual part is modeled unbuffered into the critical chain. Every delay in the conceptual part goes directly into the buffer and it gets obvious that the "on risk" part of the agile chain is elongated.

c) Critical Chain container with an agile part on a feeding chain

In this case the agile part is not on the critical chain it's a feeding chain (sub project) on its own. The integration point is protected by a buffer calculated based on the Reliable Scrum method.

It is obvious, that in this case the agile part starts late with some slack time. This makes sense to reduce the work in progress in the early phase. The agile team can work on something else – maybe a former release.
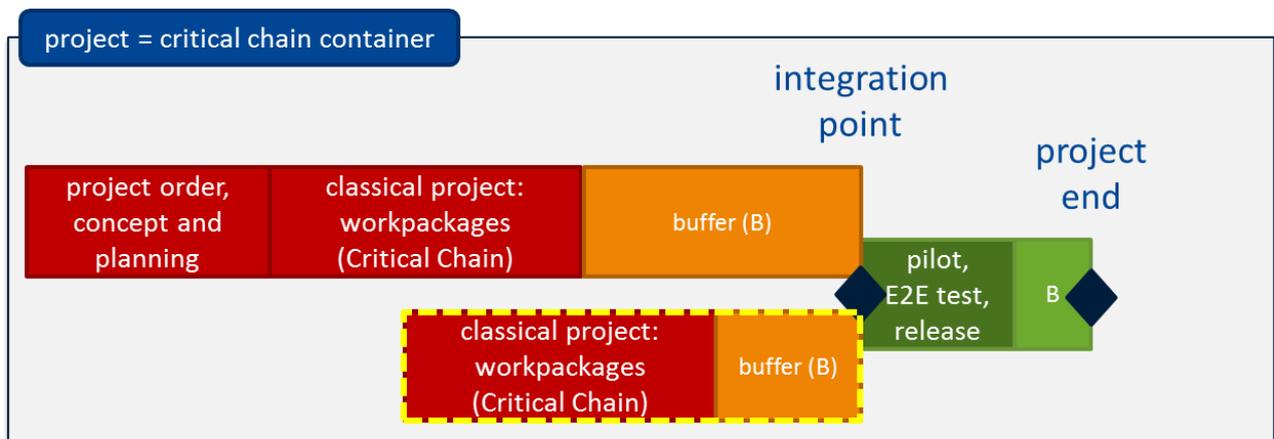
Reliable Scrum Parts are staggered like every other Project

In multi project environments Critical Chain provides the top level steering of the work in progress and the determination of due-dates. This is done by staggering the projects according to a virtual or real constrained resource (called drum). Here the efforts or time a projects needs in the drum is taken and pipelined – you look for the next free slot. Based on the beginning and end of the slot you can easily determine the project start and end date.
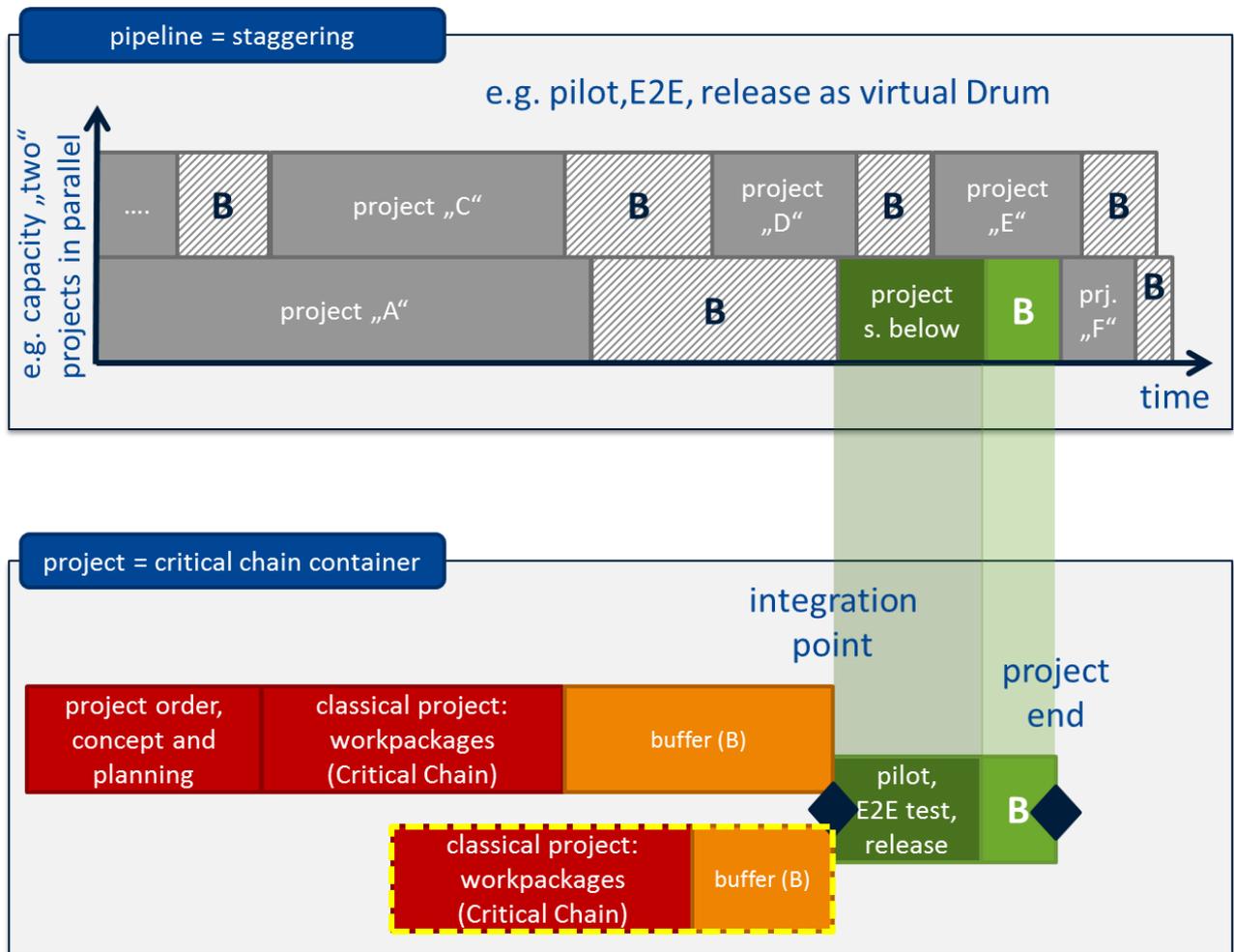
a) Project with an agile part staggered at the virtual drum

On top you see the multi project view. It's the timeline of the projects in the virtual drum e.g. "pilot, E2E, release Phase". Out of this staggering the project end date and the integration point is determined. The rest of the project is planned around the integration point.

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pipeline = staggering

e.g. pilot, E2E, release as virtual Drum

e.g. capacity „two" projects in parallel

.... | **B** | project „C" | **B** | project „D" | **B** | project „E" | **B**

project „A" | **B** | project s. below | **B** | prj. „F" | **B**

time

project = critical chain container

integration point

project end

| project order, concept and planning | classical project: workpackages (Critical Chain) | buffer (B) |

pilot, E2E test, release | **B**

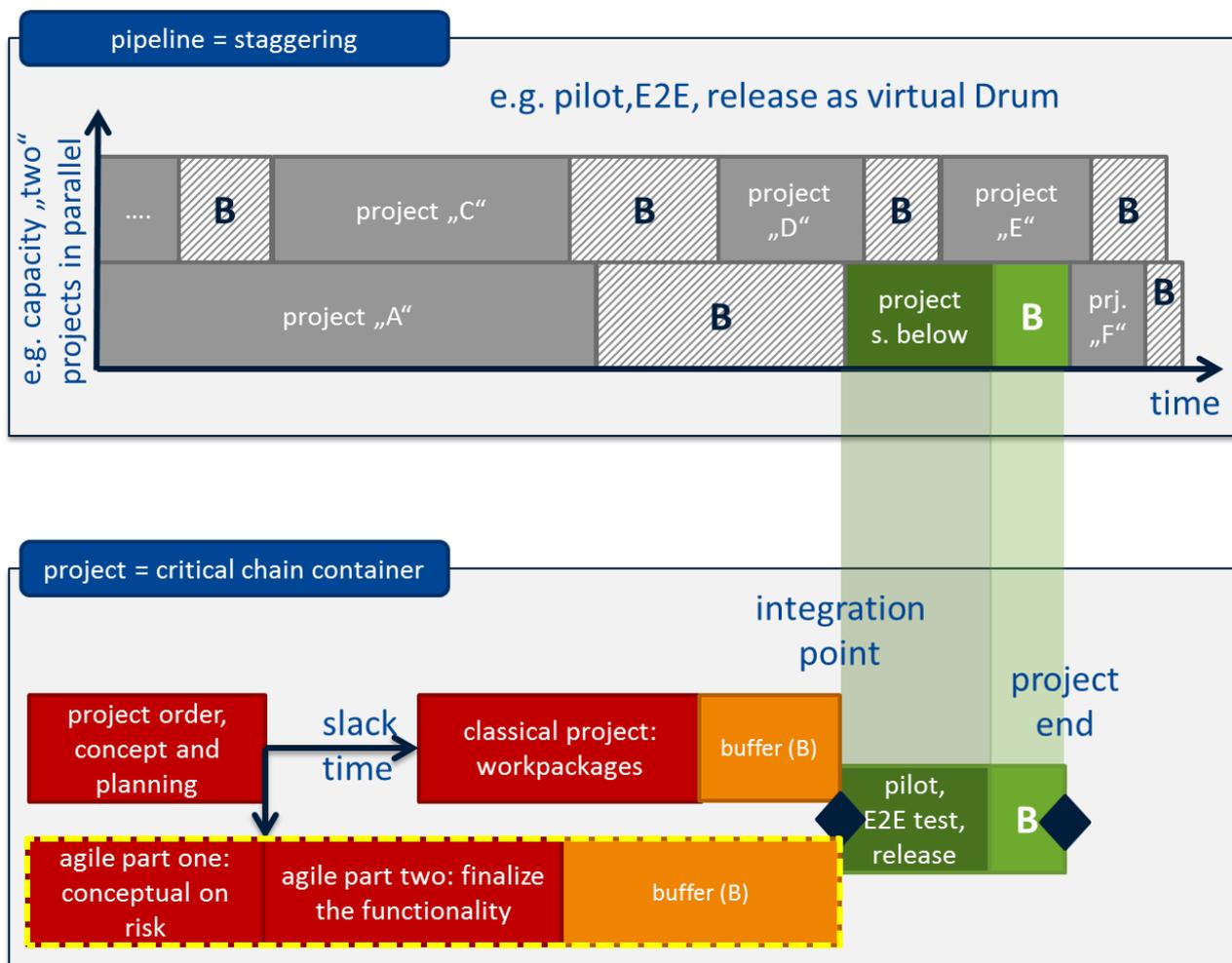| classical project: workpackages (Critical Chain) | buffer (B) |

b) In a mature scheduling system the agile part has the right amount of scope/work with the right amount of resources/velocity so that the timing coming from the staggering fits to the timing out of the Reliable Scrum planning of the agile part.

⚠ Normally Reliable Scrum parts should have their dedicated resources or team and should not be in the constrained resource. Therefore to determine the due-date of a release can be driven by the drum resource outside or the velocity and backlog inside the team. Doing the planning of the release (backlog, velocity & due-date) you have to keep both in mind.

pipeline = staggering

e.g. pilot, E2E, release as virtual Drum

e.g. capacity „two" projects in parallel

| .... | B | project „C" | B | project „D" | B | project „E" | B |

| project „A" | B | project s. below | B | prj. „F" | B |

time

project = critical chain container

integration point

project end

| project order, concept and planning | slack time | classical project: workpackages | buffer (B) |

pilot, E2E test, release   B

| agile part one: conceptual on risk | agile part two: finalize the functionality | buffer (B) |

The slack time is now on the "classical" project part.

Reliable Scrum Part has one Delivery to the outside

Let's start with the easiest case. If the Reliable Scrum part has just one delivery and no further dependencies – it looks like one work package and one buffer. If it's on the critical chain the buffer is the project buffer – if not it's a delivery buffer. This buffer is calculated according to the Reliable Scrum guideline.

The progress is reported after each sprint. If you are use Kanban or even better Ultimate Scrum the progress is reported every time a story is finished.
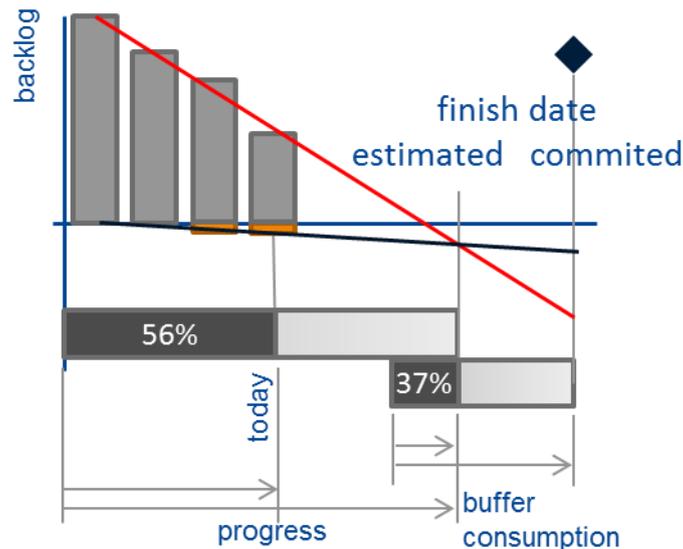
⚠ In case of a problem that consumes a huge amount (>20%) of the buffer this should be indicated by reporting this huge elongation of the remaining duration immediately.

The Reliable Scrum Part has more than one Delivery to the outside

Scrum or Kanban are more production oriented control mechanisms. In a production the work orders can be resorted at every moment to make sure that the due dates are held. In case you have more than one delivery to the outside (rest of the project) you get step by step further away from agile / production to more and more project management.

So if you have dependencies they have to be negotiated and managed. For each dependency you'll get one more work package in the Critical Chain representation of the project.

⚠ Avoid dependencies wherever possible. It's worth to spend some additional resources to decouple the agile parts as good as possible.
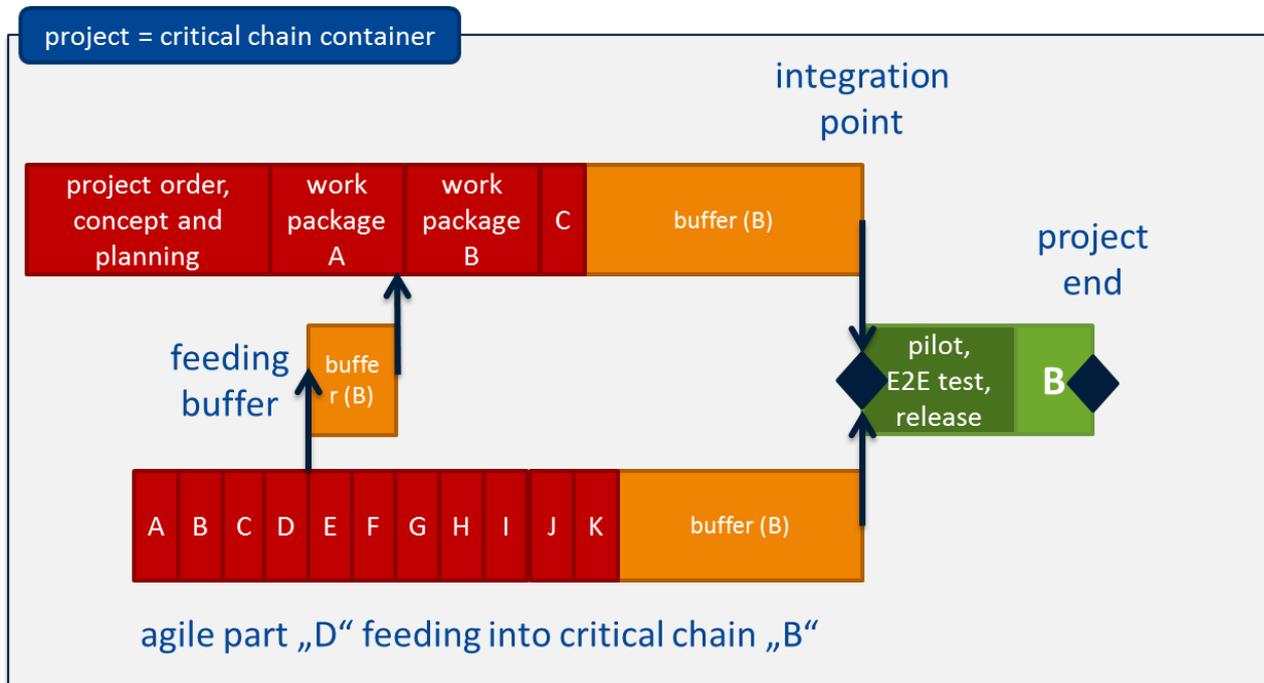
To manage the dependencies the story with the delivery is tagged in a way so it's easy to calculate an estimated time of finishing the story. Normally the backlog is sorted by priority. You can easily calculate the number of story points before and including the story with the delivery. Based on the current estimated velocity until the end of the release it's easy to calculate the unbuffered estimated time of finishing this story.

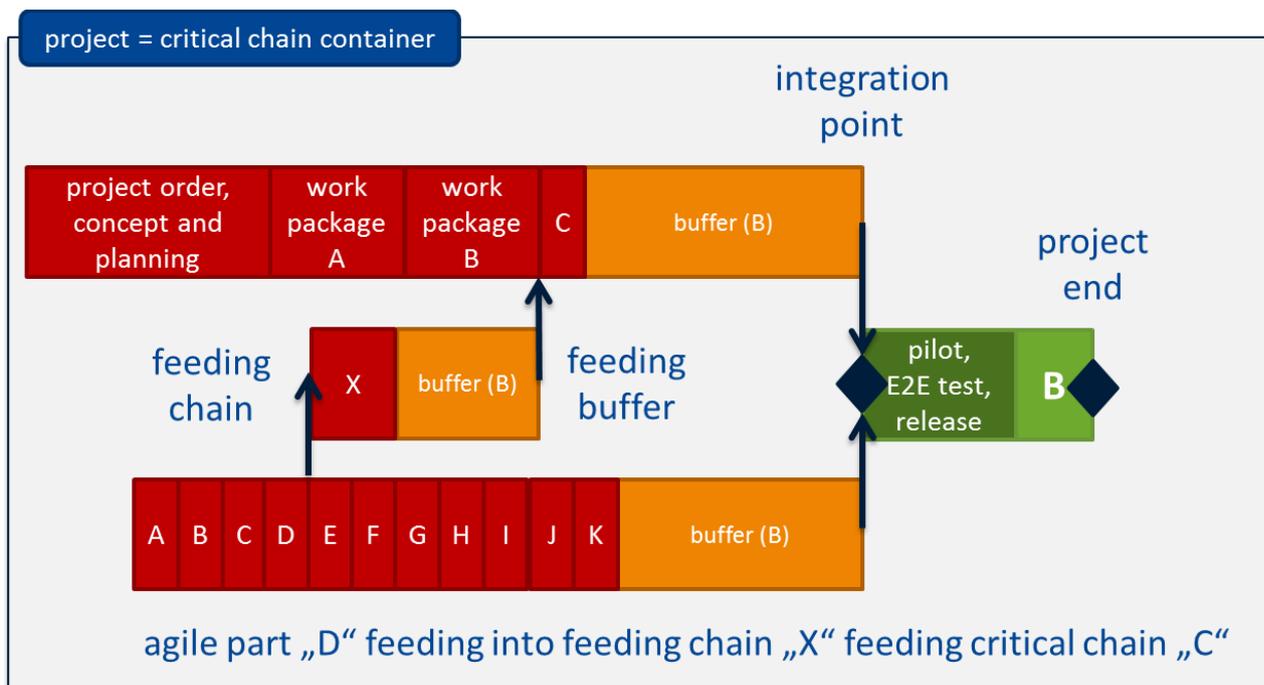The buffer calculation is done according to the Critical Chain rules.

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a) If it's delivering directly to the critical chain of the project it gets an appropriate feeding buffer.

project = critical chain container

integration point

| project order, concept and planning | work package A | work package B | C | buffer (B) |

project end

feeding buffer — buffer (B)

pilot, E2E test, release — B

agile part „D" feeding into critical chain „B"

| A | B | C | D | E | F | G | H | I | J | K | buffer (B) |

The backlog has to be sorted in a way, that there is a feeding buffer in an appropriate size (50% of the estimated time of finishing of the story that has to be delivered.

b) If it's delivering in a feeding chain – the buffer of this feeding chain as to reflect the additional duration of the work package (estimated time of finishing the story and all before).

project = critical chain container

integration point

| project order, concept and planning | work package A | work package B | C | buffer (B) |

project end

feeding chain — X — buffer (B)

feeding buffer

pilot, E2E test, release — B

agile part „D" feeding into feeding chain „X" feeding critical chain „C"

| A | B | C | D | E | F | G | H | I | J | K | buffer (B) |

Mapping Reliable Scrum to Critical Chain
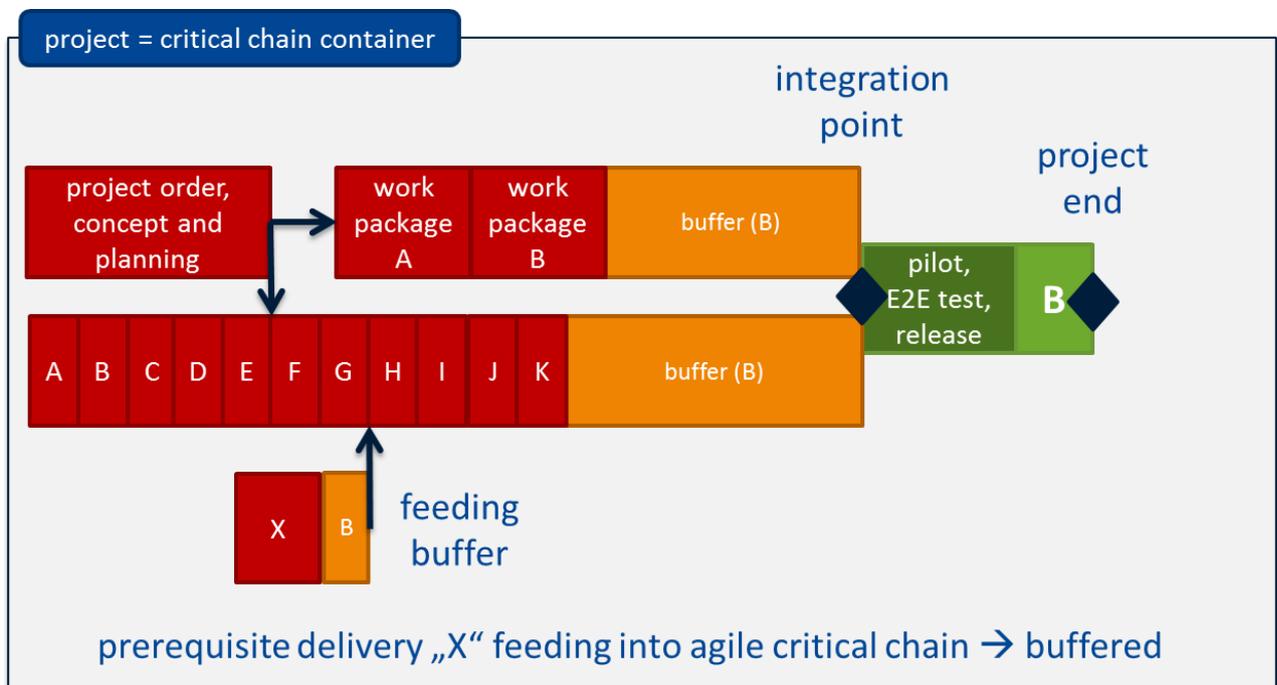Add On the Reliable Scrum Guideline 2012
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The Reliable Scrum Part needs Delivery from outside the team

This is normally easy. The Scrum Part of a project should normally not be constrained and the stories can be resorted easily (otherwise it would be a project and you should use critical chain as steering method).

If a story needs a specific delivery from outside the team has to negotiate this delivery with the delivering team and this should be reflected in the critical chain container. So the task manager of this delivering task has to provide estimations of the remaining time. The product owner of the reliable scrum part has to keep an eye on these estimations and probably resort the backlog according to the deviations.
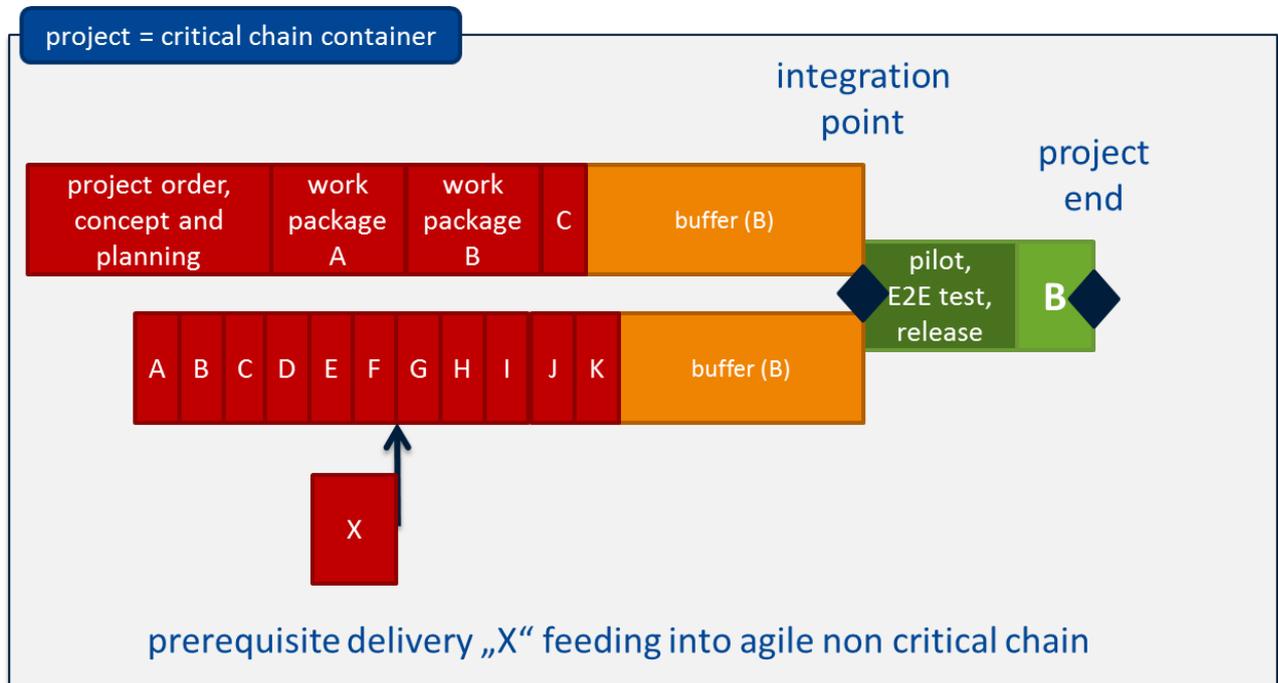
a) If the agile part is the art of the critical chain then the prerequisite delivery is buffered

b) If the agile part is not the on the critical chain the prerequisite delivery is generally not buffered

Variation a) is a little more stable. If the team that has to deliver "X" is not a critical constraint team then it makes sense to buffer the feeding of delivery "X" regardless whether it feeds to the critical chain or not.

⚠ It is important to make dependencies transparend. They have to be negotiated between the delivering team an the scrum/kanban team. The delivering team is responsible to provide estimated time of finishing.

In case that the delivery is delayed and the delay cannot be compensated by reordering the backlog. Some Buffer is consumed and the sprint team may be idle or switch to other work.

Über die Speed4Projects.Net

Unternehmensgeschichte

Die Speed4Projects wurde im Jahr 2006 von Wolfram Müller gegründet und bietet seither Beratung zur Einführung von Critical-Chain-Projektmanagement und High-Speed-Projektmanagement an.

Wolfram Müllers langjährige Tätigkeit im Bereich Entwicklung und Projektmanagement in unterschiedlichsten Unternehmen hatte ihn mit einer Vielzahl unterschiedlicher Ansätze des Projektmanagements in Berührung gebracht. Viele dieser Ansätze hat er scheitern sehen und erst die Methoden rund um Critical Chain und High-Speed-Projektmanagement brachten sichtbare Erfolge. In Zusammenarbeit mit der Firma VISTEM konnte Wolfram Müller diesen Ansatz in vielen Unternehmen einführen. Im Bereich Erfolgsgeschichten finden Sie Stimmen der Kunden, die dies bestätigen.

Philosophie

Mit pragmatischen Ansätzen schnelle sichtbare Erfolge erzielen, das ist der Grundgedanke von Speed4Projects. Nicht von ungefähr kommt es, dass die Wahl des passenden Instruments auf die Methode Critical-Chain und High-Speed-Projektmanagement fiel. Viele Projektmanagement-Methoden setzen voraus, dass eine Firma ihre gesamten Prozesse umstellt und sich zusätzlich noch teure Software anschafft. Speed4Projects ermöglicht es Ihnen mit Ihrer bestehenden Projektmanagement-Infrastruktur weiter zu arbeiten und durch gezielte punktuelle Optimierung Ihre Projektsteuerung deutlich zu verbessern.

Geschäftsführung

Wolfram Müller, Jahrgang 1969, beschäftigte sich als Dipl.-Ing. Mechatronik und Dipl.-Ing. Maschinenbau zunächst mit Themen der Entwicklung, Fertigung und Prozessoptimierung. Die Werkzeuge des klassischen Projektmanagements lernte er im Rahmen seiner Tätigkeit als Projektmanager in der Medizintechnik kennen. Seit 1987 und parallel zum Studium entdeckte er als Freelancer in zahlreichen Software-Entwicklungsprojekten den Spaß an schnellen Projekten. Bis heute konnte er beide Seiten erst als Entwickler und später als Manager des Project Office der 1&1 Internet AG (mit ihren Marken Schlund+Partner, GMX sowie web.de) ausleben. Seit 2006 steht seine Erfahrung im Critical-Chain und High-Speed-Projektmanagement in Vorträgen, Veröffentlichungen und vor allem in Form von Beratung zur Einführung jedermann, zu Verfügung.

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