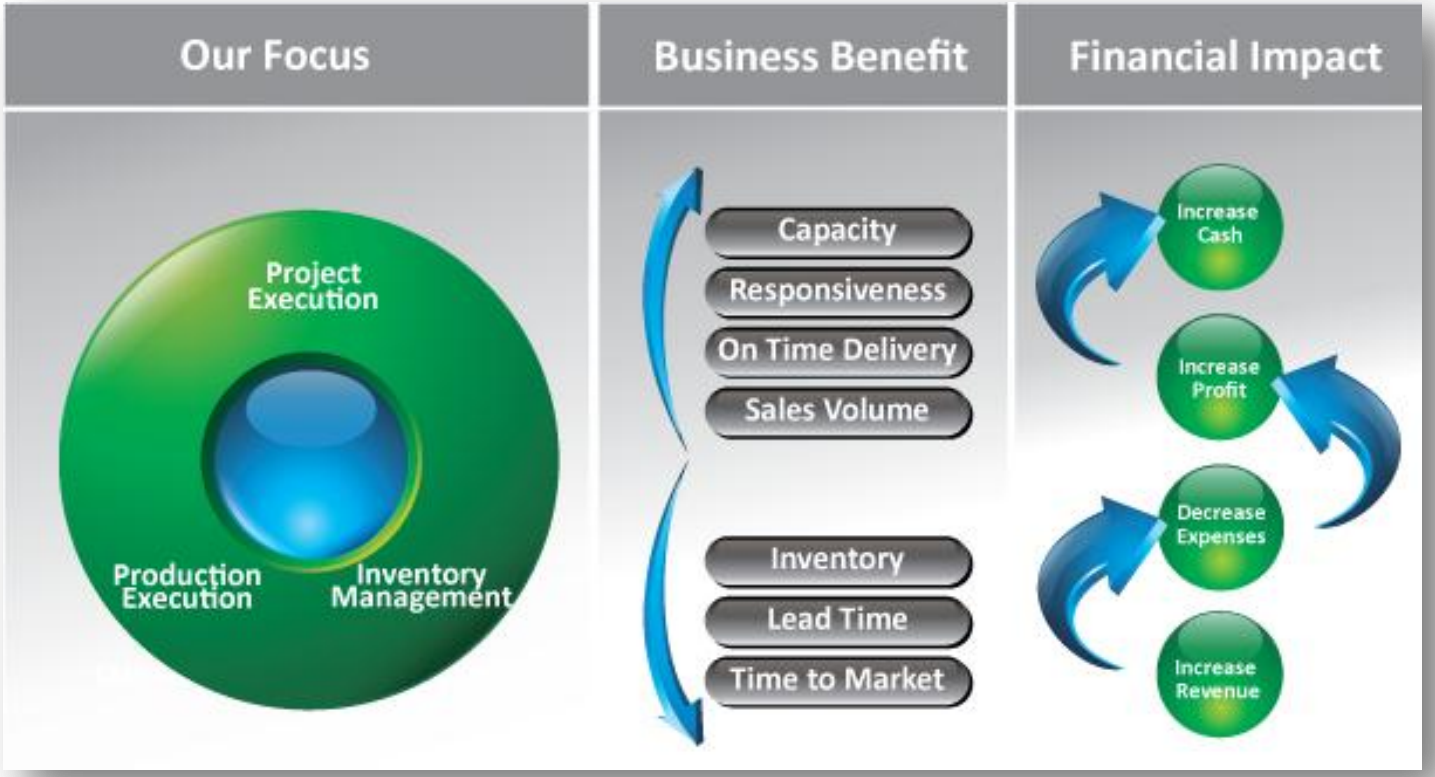
Is Traditional Project Management Hurting your Projects?

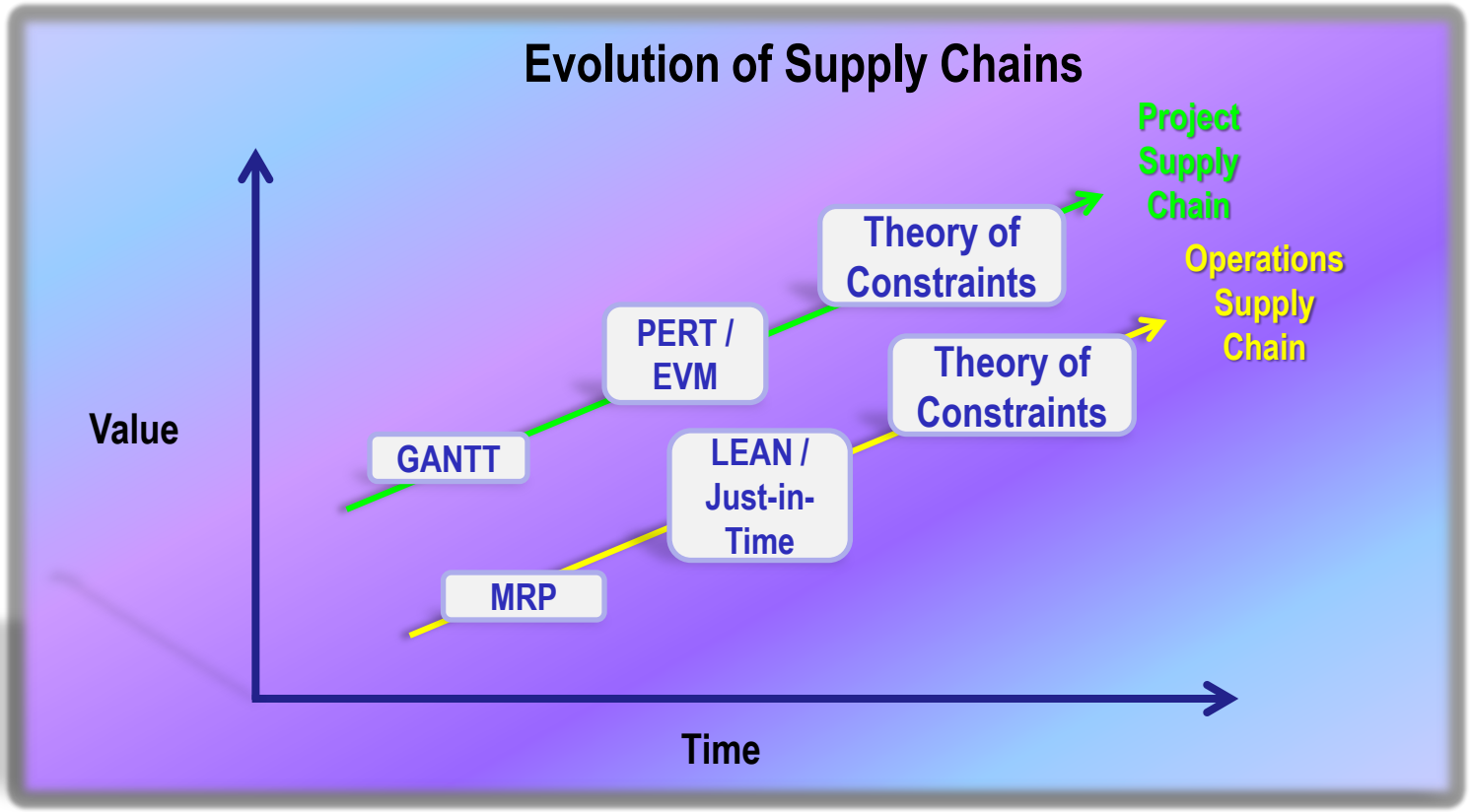
www.cmsmontera.com

Who is CMS Montera?

- CMS Montera Provides Management Solutions and Software to Accelerate Projects and Optimize Operations



Gartner Group 2011



Michael Burkett, Vice President, Chief of Research, Gartner Group, November 2011

Recent CCPM Announcements

- July 2012 – US Navy announces that it is using Critical Chain to schedule maintenance operations at the Naval Submarine Support Facility in New London, Connecticut

About Project Management

Most projects are late and over budget

Globally, companies spend almost $1.5 trillion per year on PM

Project management has not significantly changed in over 60 years

- *PERT – invented by Booz Hamilton and the US Navy to support the development of the Polaris Nuclear Submarine in the 1950s*
- *Critical Path – developed in the 1950s based on the work of DuPont to support the Manhattan Project*

Objective

- Present how the Critical Chain approach to Project Management can significantly increase the Value of any project by reducing its lead time and budget and improving its on-time delivery

Common Issues with Managing Projects

- Original due dates are not met
- Too many changes
- Resources are not available when needed
- Necessary things are not available on time
- Fights about priorities among projects
- Budget overruns
- Too much rework

What is the Major Cause for their Existence?

1st Approach

The Cause is:
UNCERTAINTY…
In Content, In Processes; in Skills; in Vendors' Performance, etc.

2nd Approach

The Cause is
THE WAY WE MANAGE THE UNCERTAINTY

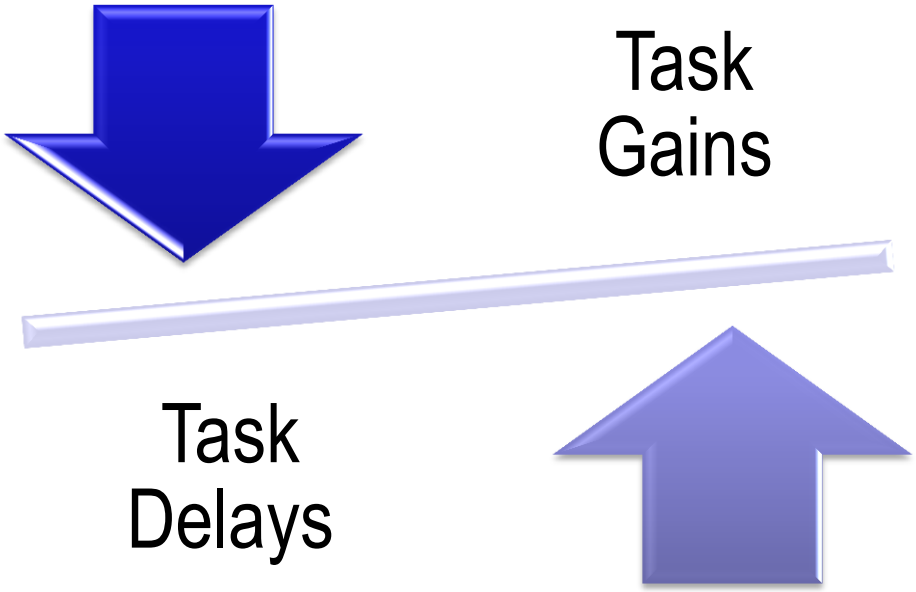
There are two Core Problems that we are failing to properly manage which causes our projects to be late, over budget and/or under scope

Single-projects

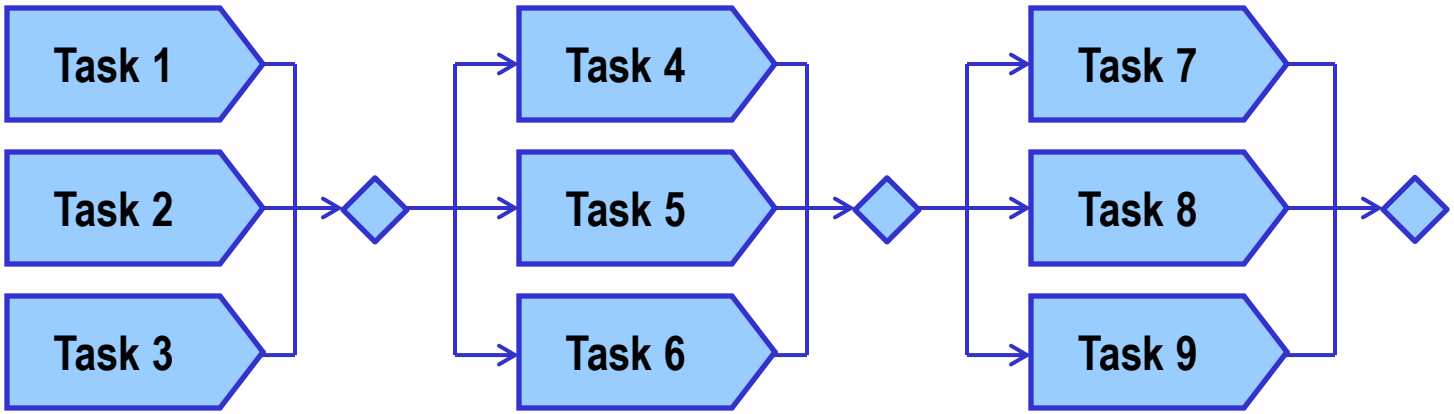
Multi-projects

Single Projects

In Order to Achieve the Project Plan – Task Gains must Offset Task Delays

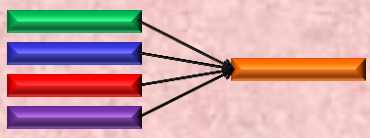
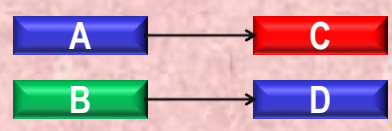


Task Durations based on Estimate



- The duration of each task is determined by rolling a die (1 to 6)
- What will be the average task value?
- What will be the expected lead time of the project?
- In reality, what will the lead time be?

What Prevents us from Achieving / Taking Advantage of Task Gains?

Parkinson's Law		Work expands to fill the time available
Student's Syndrome		Work gets delayed until the 'last' minute
Integration Points		Finishing one task on time is not enough, unless all tasks are complete
Resources with Multi-Task		Finishing one task on time is not enough, unless the resources are ready

With respect to Single Projects…

Any approach to Project Management needs to help us better manage these two problems…

- Task Delays often accumulate
- Task Gains are usually wasted

Multi Project Environment

The Multi-Tasking Game

A Short Exercise

Project 1:

M U L T I T A S K I N G

Project 2:

1 2 3 4 5 6 7 8 9 10 11 12

Record the time…

A Short Exercise

Project 1:

M U L T I T A S K I N G

Project 2:

1 2 3 4 5 6 7 8 9 10 11 12

Record the time…

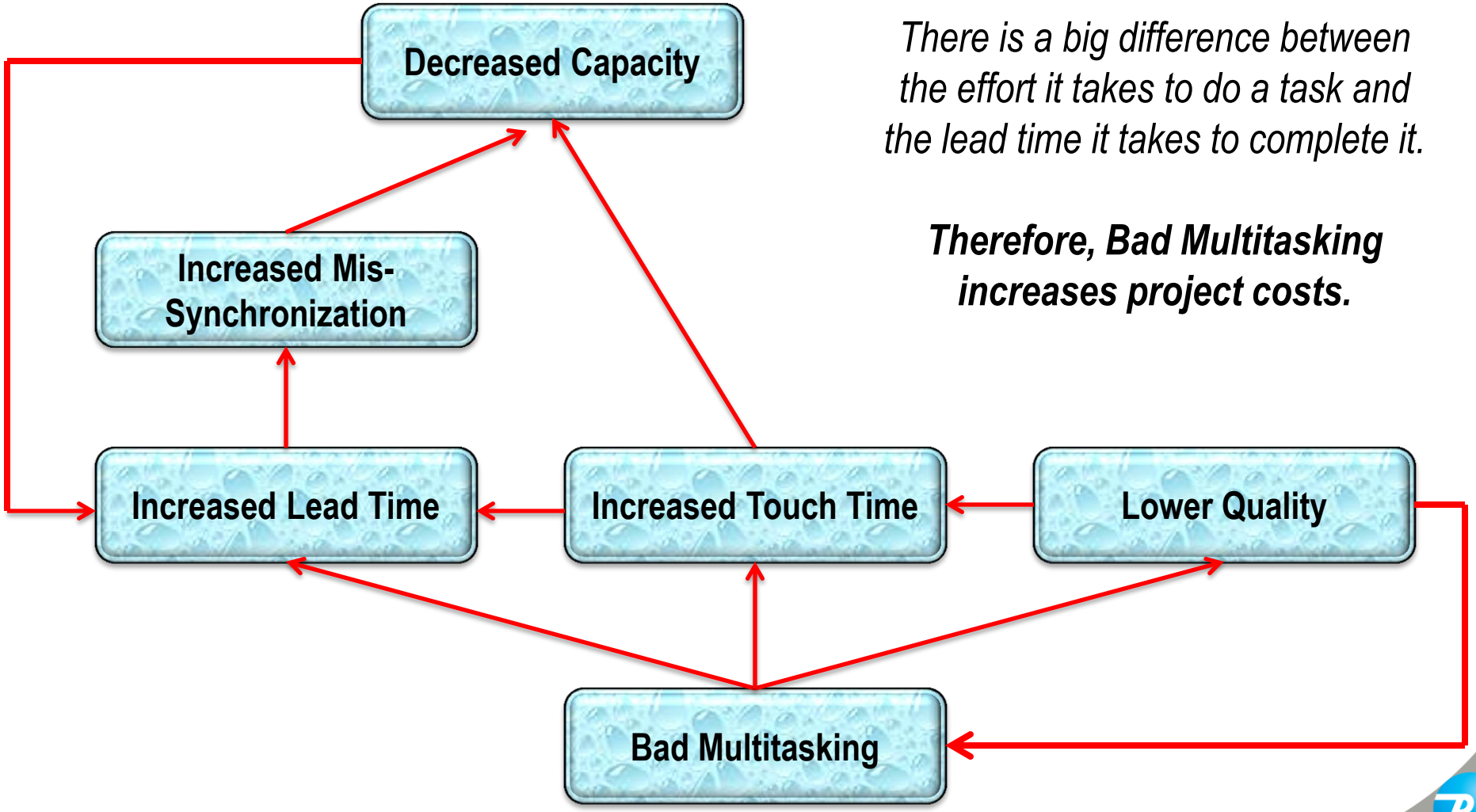
Stopwatch

Typical Results

- Single-tasking – about X seconds
- Multi-tasking – about 1.5X seconds

- Multi-tasking increases lead time
- Multi-tasking reduces quality
- Single-tasking delivers first project in less than half the time, and both projects faster

Bad Multi-Tasking



There is a big difference between the effort it takes to do a task and the lead time it takes to complete it.

Therefore, Bad Multitasking increases project costs.

With respect to Multi Projects…

Any approach to Project Management needs to help us better eliminate…

Bad Multi-Tasking

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Therefore, the solution must ensure that…

Task Gains Offset Task Delays

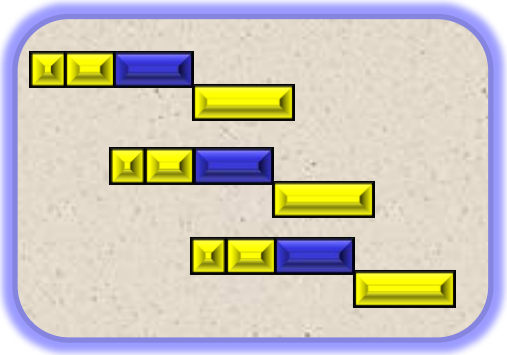
Bad Multi-Tasking is eliminated

CMS RoadRunner.

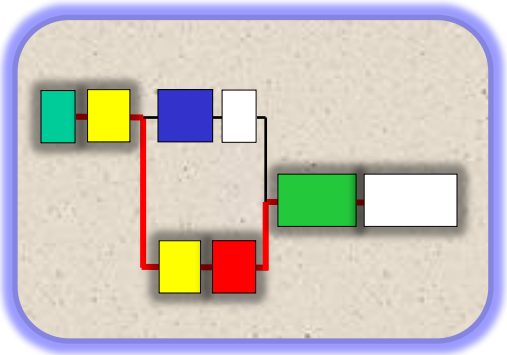
Three Simple Rules of Critical Chain

- **Stagger** the release of projects into execution in order to limit the number of active projects in the pipeline
- **Buffer** project plans in order to better protect against unknowns
- **Prioritize** task execution based on project completion vs. buffer consumption

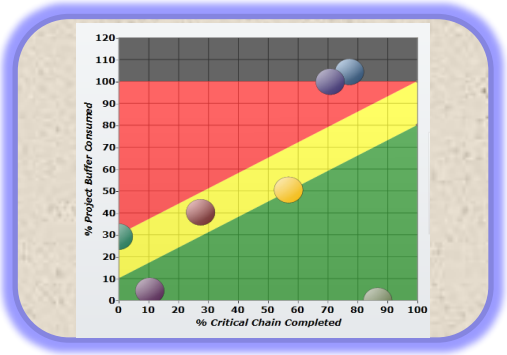
Stagger



Buffer



Prioritize



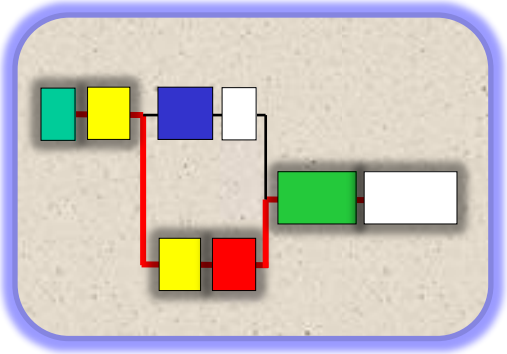
Stagger

In order to reduce the Bad Multi-Tasking, we should limit the number of projects in execution based on a staggering point

- You can carry out only as many projects as you can get through this point
- Releasing more projects will only spread your resources thin
- By concentrating resources on fewer projects, projects are completed faster, capacity opens up and the organization can do more projects
- Release a new project ONLY when another project is completed through the staggering point

Buffer

project plans in order to better protect against unknowns



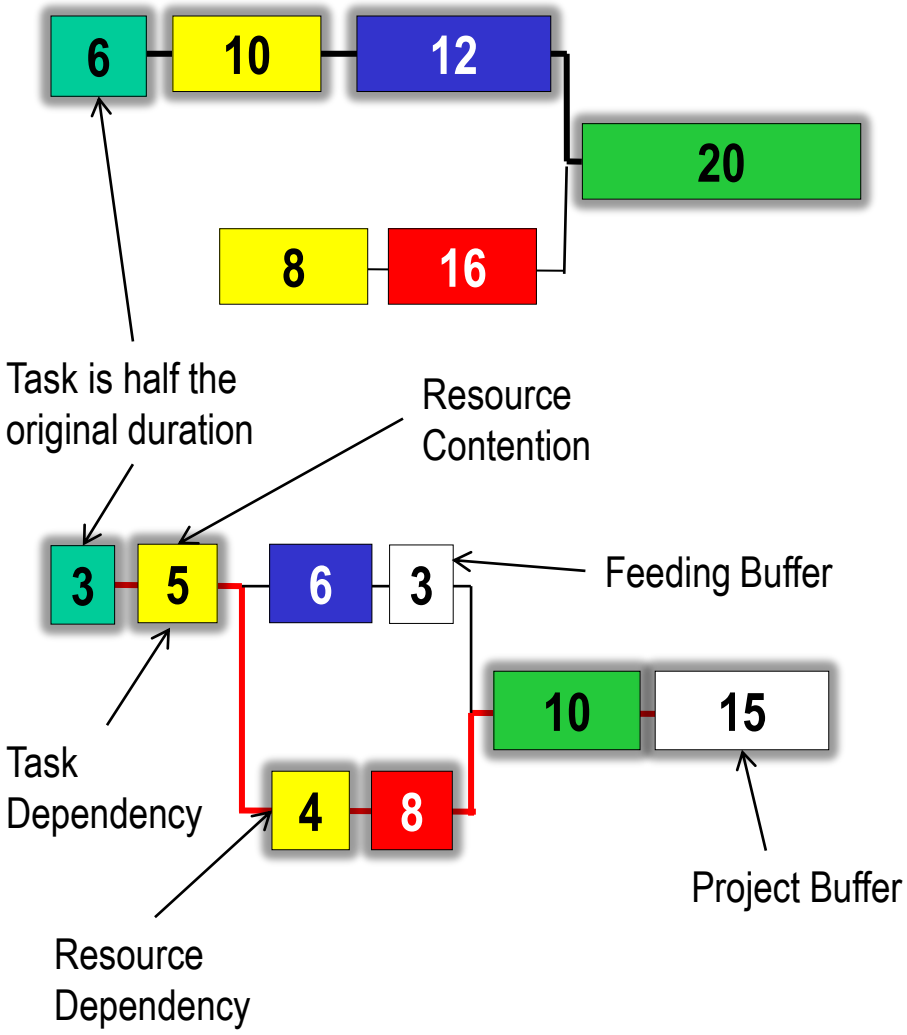
Buffer

We should protect the completion date of the entire project, not the completion date of each task

Therefore, shift the safety embedded in each task to the end of the project so that it will protect the entire project

Replace those task safeties with buffers at the end of the project or right before integration points

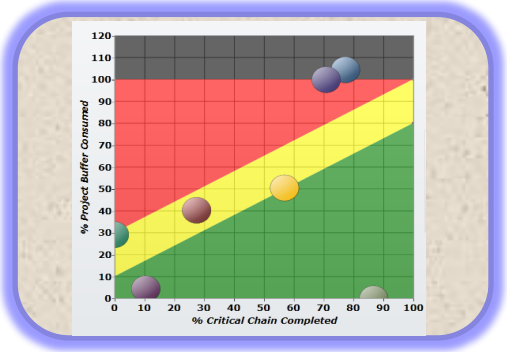
Cutting Task Durations



1. Remove safety from task estimates
   - *Communicate that task durations will not be used as measurements*
2. Resolve resource contentions
3. Identify Critical Chain (red line)
   - *Longest chain of task and resource dependencies*
4. Protect with Buffers
   - *Aggregate the safety taken from the tasks and cut in half*
   - *Project Buffer protects the CC at the end of the project = 15 : 30*
   - *Feeding Buffers protect the integration points into the CC = 3 : 6*
   - *Buffers are often 1/2 of the chain they protect*

Prioritize

task execution based on **Project Completion** vs. **Buffer Consumption**



What does Project Completion mean?

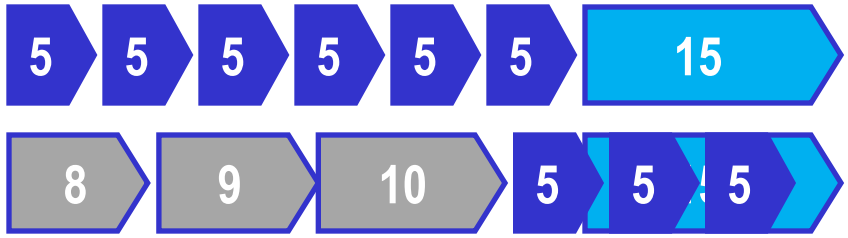
It does not matter how much work was already put into the project – it matters when the project will be completed

The Critical Chain determines the lead time of the project

The progress of the project should be determined according to the percentage of the critical chain that is remaining

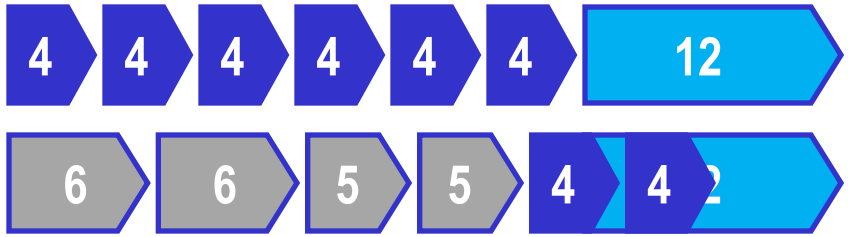
Flow Index – the Ratio of Critical Chain Complete to Project Buffer Consumed

Project A



Critical Chain Complete = (30-15) / 30 = 50%
Project Buffer Consumed = (27-15) / 15 = 80%
Flow Index = .5 / .8 = 0.625

Project B



Critical Chain Complete = (24-8) / 24 = 67%
Project Buffer Consumed = (22-16) / 12 = 50%
Flow Index = .67 / .5 = 1.34

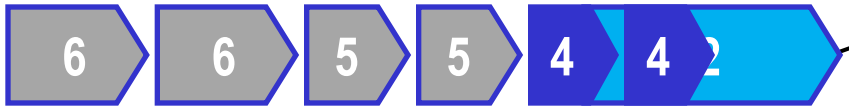
- Flow Index
  - Expected ratio = 1
  - Below 1 = consuming buffer faster than completing the CC
  - Above 1 = Consuming buffer slower than completing CC
- Which project is the priority?
  - Project A – its Flow Index is below 1 and lower than Project B

Buffer-based Priorities – Fever Chart

Project A

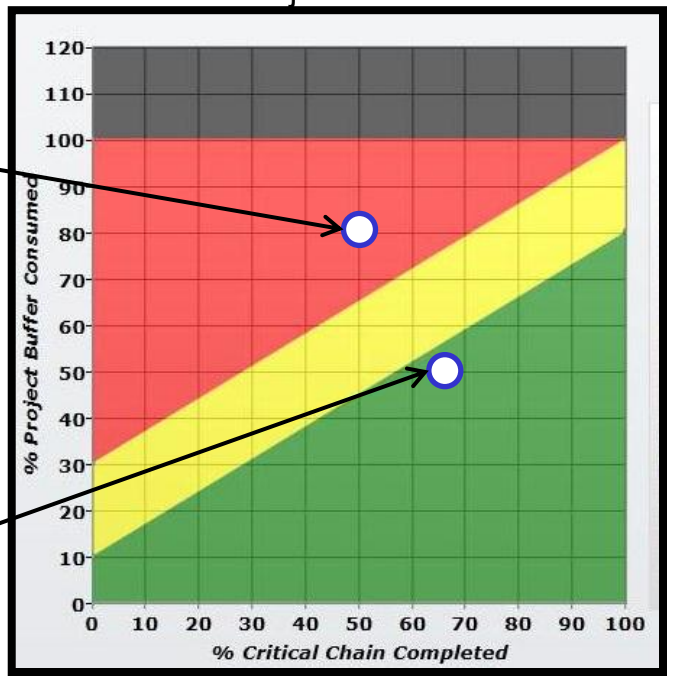
Critical Chain Complete = 50%
Project Buffer Consumed = 80%
Flow Index = .5 / .8 = .625

Project B



Critical Chain Complete = 67%
Project Buffer Consumed = 50%
Flow Index = .67 / .5 = 1.34

Multi-Project Fever Chart



Prioritize – Task Execution

Project Flow Index

71% Critical Chain complete

98% Project Buffer Consumed

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View: Tasks Resources Resource Loading

Projects | Fever Chart

	Project	Task	Task Name		Project Flow Index	Task Manager	Aggressive Start Date	Status	Predecessors Not Complete	RDU	Last Update	Note	Chain	% Chain Completed	% Project Buffer Consumed	% Feeding Buffer Consumed	CCD	Buffer Gain	Feeding Chain Index	Resource Group	PM
...	Project 28	43C	Task 32		0.58	Manager M		A	0	5	1/5/2012	...	FB11	33	104	75	-	46	0.45	EO	PM C
...	Project 4	35	Task 328		0.97	Manager B	1/10/2012	AS	0	2.5		...	FB26	-67	75	100	-	9	-0.67	EO	PM E
...	Project 22	28	Task 394		0.72	Manager D		A	0	1	1/10/2012		CC	71	98	-	-	-	-	MSU	PM A
...	Project 17	19	Task 399		0.95	Manager Bl	1/23/2012	A	0	3	1/1/2012	...	FB8	70	4	0	-	0	70.00	MSU	PM V
...	Project 21	20	Task 401		0.67	Manager Tl		A	0	20	1/8/2012	...	FB7	67	63	0	-	1	66.67		PM T
...	Project 28	42	Task 402		0.52	Manager Sl		A	0	4	1/5/2012	...	FB6	64	114	12	-	0	5.16	EO	PM C
...	Project 3	23B	Task 42		0.31	Manager G		A	0	0.5		...	FB21	90	321	95	-	88	0.95		PM E
...	Project 19	15	Task 451		0.99	Manager D		A	0	5	1/2/2012	...	CC	47	48	-	-	-	-		PM S
...	Project 4	19D	Task 494		1.02	Manager JI		A	0	2	1/10/2012		CC	65	64	-	-	-	-		PM E
...	Project 29	5	Task 504		-	Manager Pl	1/10/2012	AS	0	2.5	1/10/2012	...	FB1	0	0	1	-	5	0.00		PM C
...	Project 12	1.20	Task 517		0.71	Manager Rl	1/10/2012	AS	0	15		...	FB2	41	81	100	-	25	-	MSU	PM E
...	Project 21	26	Task 566		0.59	Manager Sl	1/12/2012	A	0	44	1/5/2012	...	FB8	-175	71	100	-	1	-		PM T
...	Project 24	1.7	Task 582		-	Manager M		A	0	3		...	FB7	62	0	0	-	0	61.90	EO	PM C
...	Project 4	55A	Task 589		1.21	Manager B		A	0	1	1/8/2012		FB10	20	54	0	-	9	20.00	PM	PM E
...	Project 12	1.13	Task 594		1.20	Manager Rl		A	0	3	1/4/2012		CC	58	48	-	-	-	-	EO	PM E
...	Project 22	21	Task 605		5.00	Manager M		A	0	15	1/4/2012	...	FB7	50	14	0	-	0	50.00	EO	PM A

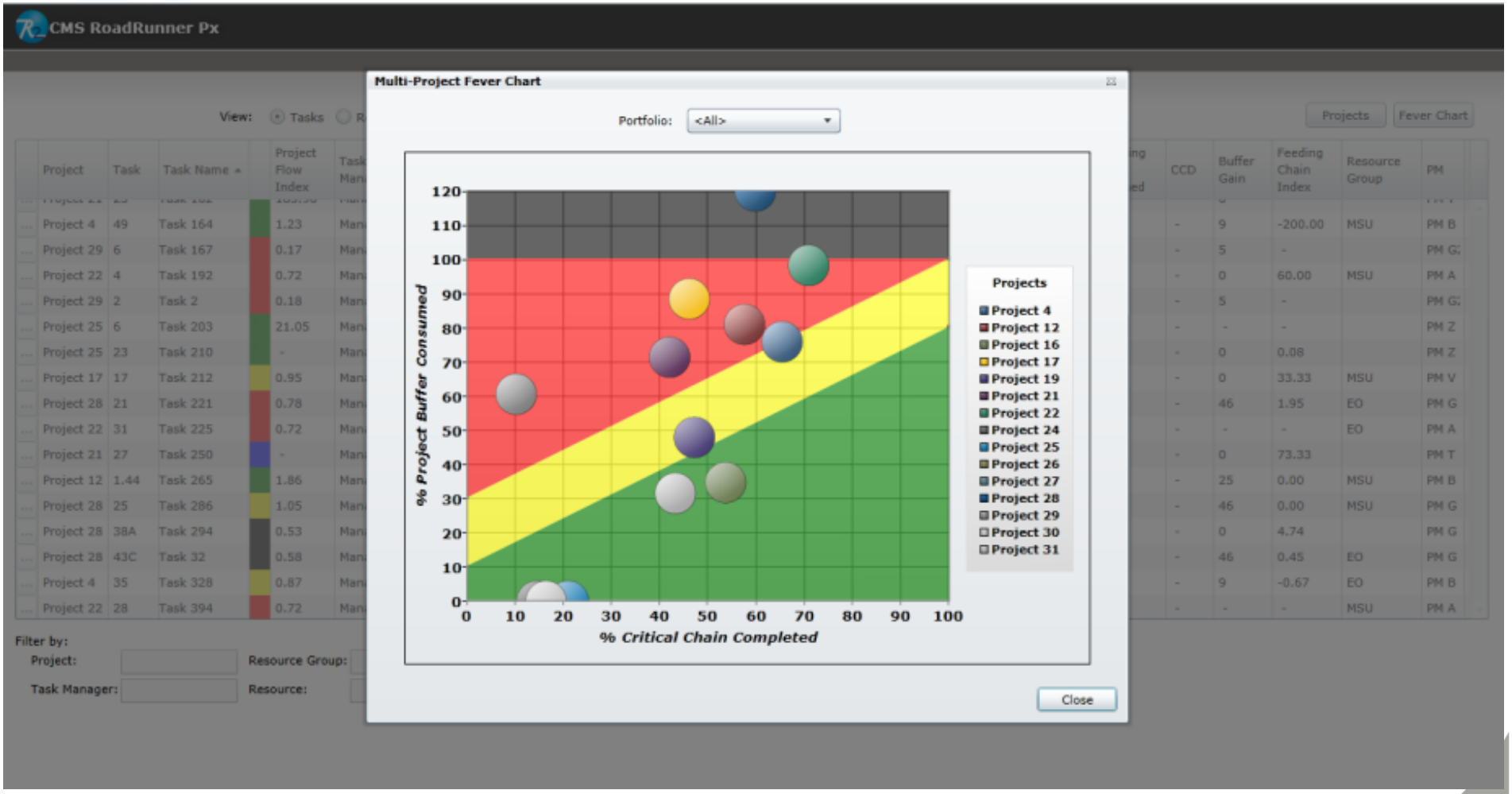
Filter by:

Project: | Resource Group: | Show tasks: All Active Not Started Completed

Task Manager: | Resource: | Show tasks starting in (days): 1 | Get Tasks

CMS RoadRunner

Prioritize – Projects



- Drive priorities based on Flow Index = % Critical Chain complete / % Project Buffer consumed
- Used to monitor and compare projects

Traditional PM vs CCPM Approach

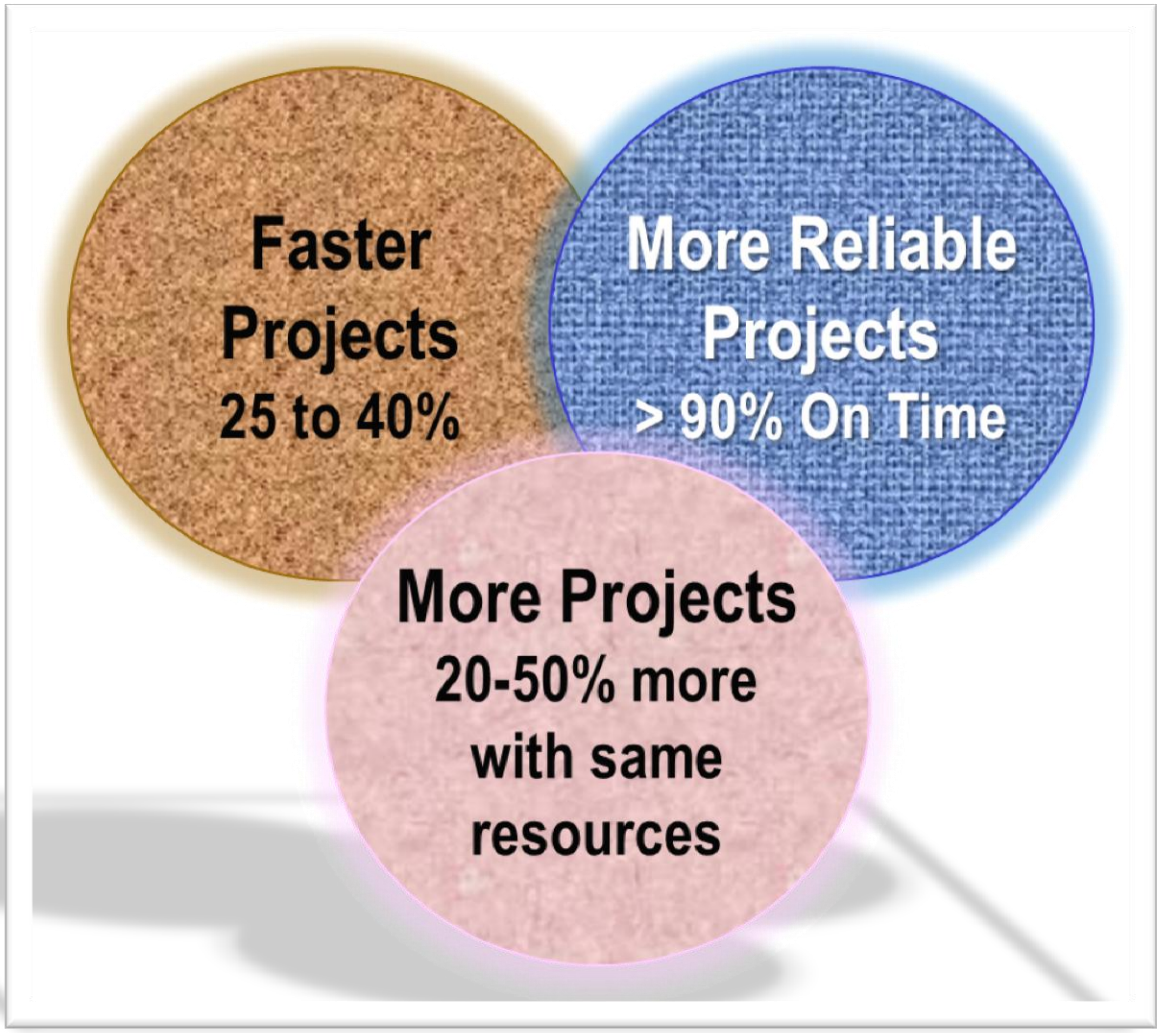
Traditional PM

- Project Plan is like a static Map
- Project is planned like a train schedule – gains lost
- Priorities based on Project Manager's judgement
  - Subjective
  - Relative to the single project
- Task updates focus on work completed – cost focus
- Focus on Resource Efficiency

CCPM

- Project Plan is like a dynamic GPS – real-time priorities
- Project is planned like a relay race – gains utilized
- Priorities based on Project Flow Index
  - Objective
  - Relative to the portfolio of projects
- Task updates focus on work remaining – flow focus
- Focus on Task and Time Efficiency

CCPM Gets Results - Summary



Presenter Bios

Jack Warchalowski

P.Eng, MBA, CMC

- Jack is an Executive with CMS Montera Inc. (CMS). CMS provides TOC based management solutions and software to increase operational performance and sales.
- Prior to CMS, Jack was the Head of Operations for high tech manufacturer, E&Y management consultant, and a project engineer with Babcock & Wilcox.
- Jack holds an MBA degree from the Wilfrid Laurier University and a BASc. in Mechanical Engineering from the University of Waterloo in Waterloo, Ontario. He is also certified by the TOCICO in all fields of TOC.
- In addition, Jack is a Professional Engineer registered in Ontario and a Certified Management Consultant.

Duncan Patrick

MBA, CMC

- Duncan Patrick is an Executive with CMS Montera Inc. where he is working with clients to assist them design and implement solutions focused on accelerating project execution, optimizing production execution and synchronizing inventory replenishment.
- Prior to CMS Montera, Duncan was a member of the senior leadership team of an industrial distributor, consulting manager at Ernst & Young, and Landman with Husky Oil.
- Duncan holds an MBA degree from the Richard Ivey School of Business, Western University and a Bachelor of Commerce degree (with distinction) from The University of Calgary. Duncan is certified by the Theory of Constraints International Certification Organization in all aspects of TOC. Duncan is also a Certified Management Consultant.