WHITEPAPER: MANAGING PROJECTS WHEN SPEED IS MISSION CRITICAL

3 Biggest Problems

IN PROJECT MANAGEMENT...AND HOW TO SOLVE THEM

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Advancing Process Improvement.

› The Three Biggest Problems in Project Management

...and how to solve them

In *Necessary But Not Sufficient*, Dr. Eli Goldratt provided some guidelines to help us evaluate and leverage the introduction of a new technology. He reasoned that a new technology can bring new benefits if and only if it enables people to overcome one or more limitations of existing technologies. The greater the limitation is with respect to the unmet need, then the greater the potential of the new technology to improve the performance of the system. However, just because a new technology exists that addresses a key limitation, it does not mean that access to the technology's benefits is automatic. Something is still missing.

To understand what is missing, one must consider that whenever we hit our heads hard enough against a limitation in our world, we will eventually evolve a set of operating rules that allows us to cope with this limitation until we find a breakthrough that finally frees us of it. By their very nature, these rules protect us from tripping over the limitation in day-to-day business.

The 3 Biggest Management Problems and Their Solutions

	Problem	Old Rule	New Rule	Advantage
1	Task variability prevents reliable project commitments.	Plan each task as a highly reliable commitment.	Buffer	Highly reliable project commitment.
2	Dedicated staffing results in low resource utilization and high labor costs.	Start all projects as early as possible.	Stagger	Maximize project completion rate and resource utilization.
3	Priorities are inconsistent and conflicts occur regularly.	Allow each function to set its own priorities.	Focus	Agreed priorities provide clarity for management's attention.

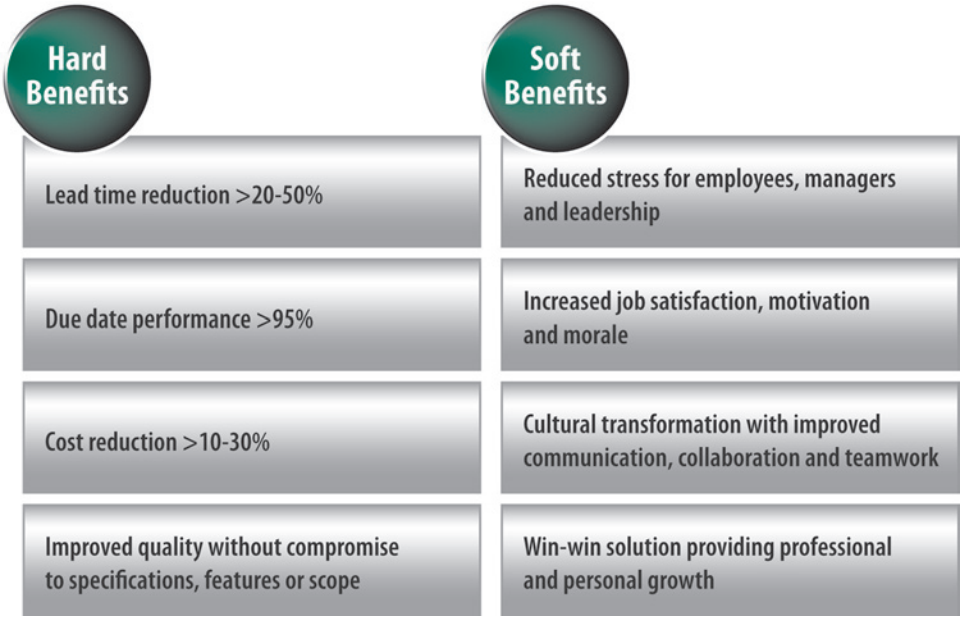
Tripping over the same thing every day can be painful and frustrating. When the rules are effectively enforced, they shield us from that pain to the extent that we no longer acknowledge that the limitation exists. In its place is the nice comfortable experience we get from working within the policies, practices, habits or ground rules that have taken the place of the more frustrating parts of reality we have so carefully covered up.

The limitations are the original problems. The limitations were originally so important because they constrained our ability to get more of whatever it is that we wanted. Then, we dealt with the limitation by creating rules. The rules are our solution. The rules served the purpose of making it comfortable for us to accept and live with the limitations. By so doing, the need to obey or conform to the self-imposed rules takes on greater significance to us than the fact that we are still in need of an effective solution to the original problem.

A failure to distinguish between the limitation and the rules can result in the unfortunate situation where future innovation aimed at advancing the state of the art produces more and more elegant ways to enforce the old rules while completely neglecting the underlying problem. The rules themselves become a limitor of improved performance. The distinction between the original limitation and the rules disappears over time and the enforcement of the rules becomes more constraining to performance than the initial limitation ever was.

› Project Management Potential

A search of the published literature will show that organizations from a wide variety of industry sectors, both private and public, have experienced these benefits by implementing these new rules. In addition to these hard numbers, these organizations also typically report substantial soft benefits as well.



› Origin of the Old Rules

How we have created our own limitations

For a sobering example of how quickly and completely the rules can take on a life of their own, refer to the following 1967 study of rhesus monkeys. In step one of the experiment, five monkeys were locked in a cage and a banana was hung from the ceiling with a ladder right beneath it. When the cage was unlocked and a monkey tried to climb the ladder to get the banana, all monkeys were punished – not just the monkey who tried to climb the ladder. The first step of the experiment was repeated until the monkeys were conditioned not to try to climb the ladder.

In the second step of the experiment, one monkey was removed and a new monkey was substituted in its place. When the cage was unlocked and the new, replacement monkey went for the banana, the other four monkeys either intimidated or prevented the monkey from climbing the ladder in order to avoid punishment for all. Each monkey was successively replaced until the third step of the experiment.

In addition to installing the technology itself, one has to identify and replace all the old rules – the temporary coping mechanisms, formal and informal.

In the third step of the experiment, all of the original monkeys who had directly experienced the punishment had been removed and replaced by monkeys who had learned from their peers not to try to pursue the banana. The next time a monkey tried to climb the ladder and was prevented by its cohorts, it looked at them confused, as if to ask, "Why are you trying to prevent me from getting the banana?" The other monkeys then looked at each other and were perplexed, but those were the rules they had learned and they were not about to change them.

Now let us consider the situation where a breakthrough has been achieved that substantially resolves the limitation in question. The problem we are then faced with is how to take advantage of the new breakthrough given that what limits us today is not the original problem but its surrogate: the old rules.

In *Necessary But Not Sufficient*, early adoption of enterprise resource planning (ERP) was cited as a classic example of new technology implemented on top of old rules to achieve disastrous results. Implementation of the new technology was shown to be necessary but insufficient to deliver the business benefits promised.

For the benefits of new technology to be fully realized, one has to identify and replace all the old rules – the temporary coping mechanisms, formal and informal, with new modes of operation that are consistent with the new technology. These new rules must be designed specifically to leverage the fact that the old limitations are no longer relevant.

› How does this apply to project management?

The new rules create enormous potential for your business

Critical Chain project management is a relatively new technology that is intended to overcome specific limitations encountered in the field of project management. For organizations whose main business is to deliver projects, these limitations are central to their ability to achieve their intended purpose.

The relevance and potential power of the Critical Chain technology can be better understood in the context of these stated limitations. In its essence, Critical Chain overcomes the three major limitations by introducing a set of rules that allow an organization to more fully leverage the potential of its people and its core capabilities, while avoiding the unnatural limitations imposed by outdated and ineffective practices. These rules are implemented through a set of tools, techniques, and behaviors that together are referred to as Critical Chain Project Management.

RULE #1: BUFFER

OLD RULE: **PLAN EACH TASK AS A HIGHLY RELIABLE COMMITMENT**

We must plan each task as a highly reliable task-level commitment in order to ensure that the derived project-level commitment will be equally reliable.

LIMITATION: **TASK VARIABILITY HINDERS A HIGHLY RELIABLE PROJECT COMMITMENT**

We don't have an effective way to address the variation of actual task completion time.

NEW RULE: **STRATEGICALLY BUFFER THE PROJECT AGAINST VARIATION**

- Whether it is called buffer, padding, safety, protection, cushion, contingency or risk – every prudent person adds it to their plans.
- Aggregate safety into strategically placed buffers to achieve a highly reliable project commitment.
- It is then unnecessary and counterproductive to treat each task estimate as a commitment.
- The aggregation of risk enables an overall reduction in project delivery time.

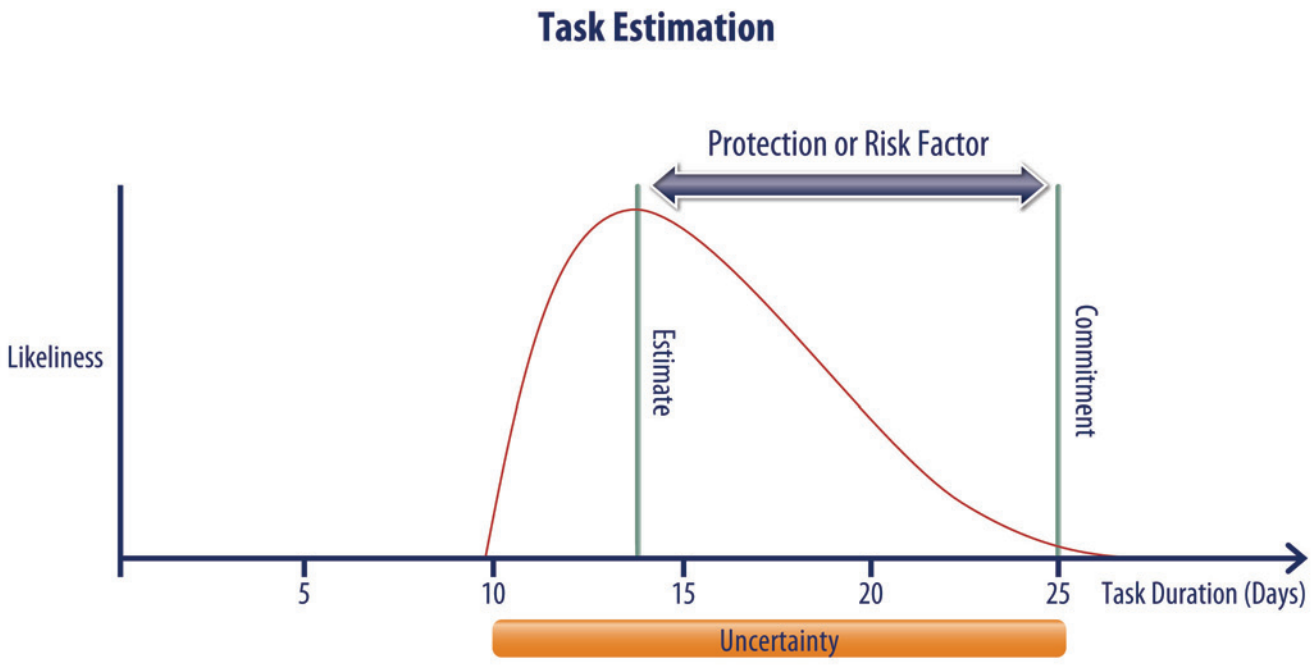


Figure 1: In traditional project management, risk is absorbed at the task level rather than the project level, which significantly extends the schedule. Critical Chain monitors risk at the project level to achieve exceptionally high due date performance.

RULE #2: STAGGER

OLD RULE: **START ALL PROJECTS AS EARLY AS POSSIBLE**

Promote multi-tasking to guarantee high resource utilization and insist that all projects are started as early as possible to protect against delays.

LIMITATION: **DEDICATED STAFFING RESULTS IN LOW RESOURCE UTILIZATION AND HIGH LABOR COSTS**

In a multiple project, shared resources environment, the practice of providing each project with adequate levels of dedicated staffing results in too low resource utilization and high staffing costs, which is counter to traditional management norms. Efforts to achieve high resource utilization causes project delays and a need to start all projects as early as possible.

NEW RULE: **STAGGER ALL PROJECTS FOR OPTIMUM SPEED**

- Establish a rate of project introduction that maximizes both the project completion rate as well as resource utilization. A Critical Chain schedule for the example in Figure 2 would finish all 3 projects by week 13.
- To take full advantage of this rule, other related coping mechanisms (such as existing policies and practices) must also be modified to be consistent with the new rule.

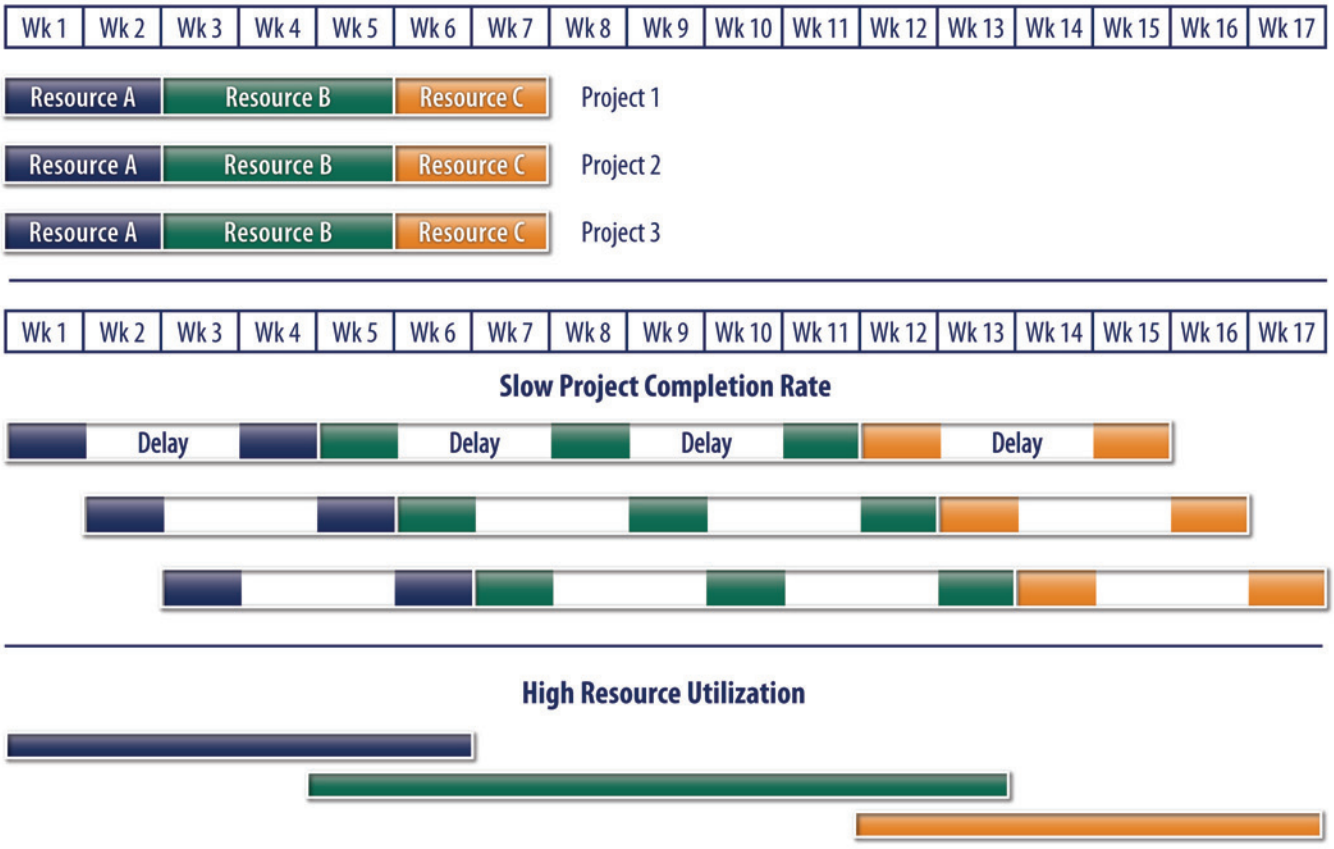


Figure 2: The multi-tasking environment results in high resource utilization and slow project completions. A Critical Chain schedule would finish projects 1, 2 and 3 at weeks 7, 10 and 13 respectively.

RULE #3: FOCUS

OLD RULE: **PRIORITIES ARE SET INDEPENDENTLY AT THE LOCAL LEVEL**

In all but the most trivial project environments, there typically is no easy way to establish clear, consistent priorities and minimize organizational conflicts.

LIMITATION: **EACH FUNCTION SETS ITS OWN PRIORITIES, ACCEPTING CONFLICTS AS UNAVOIDABLE**

Leave it up to each department, leader, customer or resource to make up its own priorities. Accept conflicts as unavoidable. Reward and promote people on the basis of their ability to endure and thrive on conflicts.

NEW RULE: **BUFFER STATUS FORMS THE BASIS FOR MANAGEMENT FOCUS DURING EXECUTION**

- A buffer-based prioritization system applied across all projects serves as that consistent reference framework that provides clarity and forms a solid foundation for rational decision making on a day-to-day basis.
- With such a system in place, the workforce can use their judgment in making decisions, as long as they always take into consideration the relative impact on the buffers.
- This frees up management's time to manage only the important few things that are momentarily causing significant buffer impact, rather than the much larger quantity of items for which no management involvement is needed.

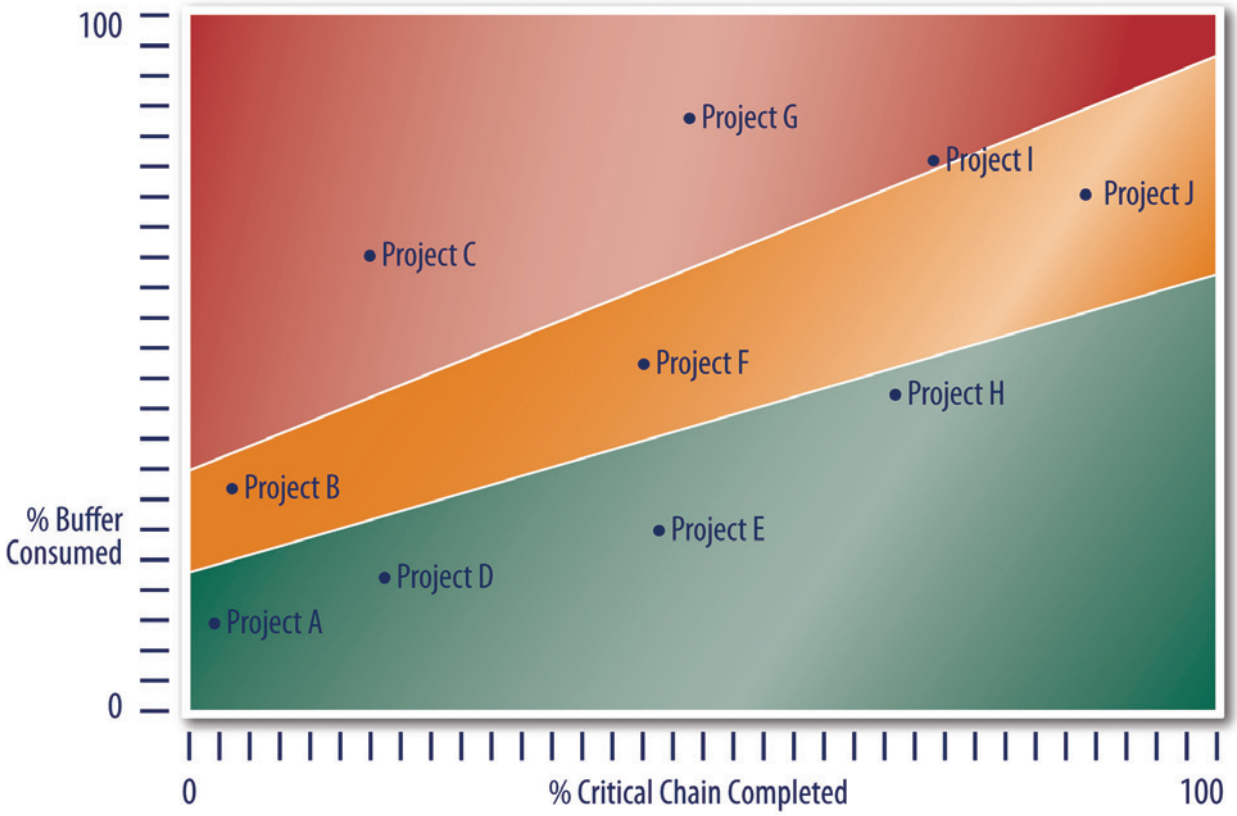


Figure 3: Buffer status drives decisions for the portfolio.

› Conclusion

The new rules are changing the competitive landscape

An executive struggling with poor project delivery performance has a wide variety of project management solutions to choose from. Before making a choice, the astute business leader must determine whether the solution being considered is promising to do a better job of enforcing the old rules or eliminating major performance limitations. The latter option frees up project teams to achieve breakthrough levels of project delivery speed. By changing the rules used to manage projects, leaders can fundamentally change the game for their project teams and create significant competitive advantages for their businesses. This technology is now past the early adoption phase and more executives are discovering the power of this new approach every day. The question is... how long will it be before this approach becomes the new norm for competing in your industry?

› About the Author

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Mr. Robinson is a Senior Business Consultant and Program Manager for Critical Chain Project Management for NOVACES. He has 12 years' experience in Performance Improvement, Critical Chain Project Management, Lean, Industrial Engineering, and Theory of Constraints, both in the United States as well as internationally. Mr. Robinson's teachings triggered a project management revolution in Japan, known as Win-Win-Win Public Works, which yielded significant benefits in both project lead time and money that Critical Chain brings to everyone involved – the construction industry, the taxpayer, and the government.

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