

WEBINAR

CRITICAL CHAIN PROJECT MANAGEMENT REVISITED
GOLDRATT'S RULES OF FLOW

HOSTED BY



Marris Consulting



The principles of The Goal applied to projects

Efrat Goldratt-Ashlag was recently inspired to reapply her father's teachings to projects.

Before his death, Eli concluded that his book about projects, *Critical Chain*, which was written 25 years ago, didn't go far enough.

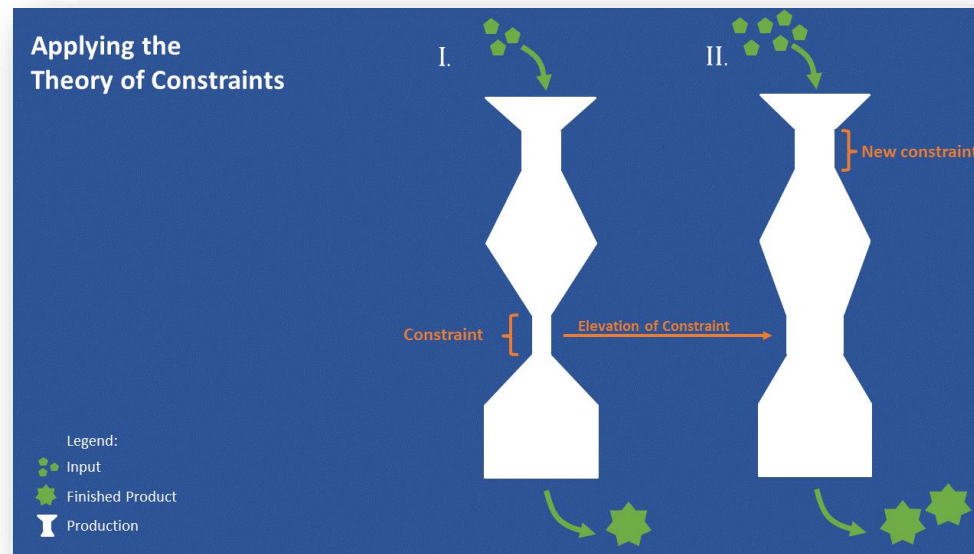
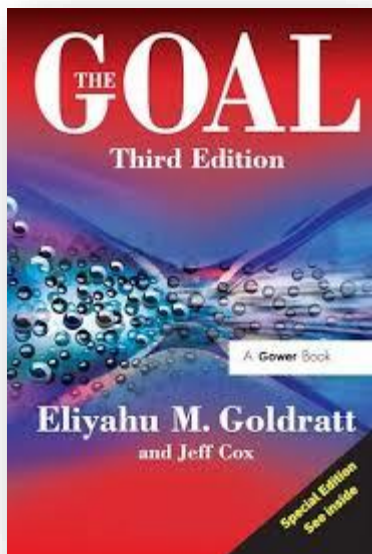
Specifically, the steps taken to reduce bad multitasking were often insufficient.



Dr. Eli Goldratt wrote his first book *The Goal*, to introduce his innovative thinking to improve Operations.

- The common belief, he claimed, is that if every machine is fully utilized the entire operation will be efficient.
- Thus, managers attempt to maximize the efficiency of each and every machine and work centre. That takes a lot of effort, but unfortunately it doesn't yield the desired results.
- Instead, managers should look at the whole operation, identify the bottlenecks and focus on their productivity.
- He called it global versus local optimum.

The Goal became a worldwide bestseller and is known as his introduction to Theory Of Constraints (TOC).



Project Management is inherently different than production.

- For one, Projects are not as repetitive as production. Every project is different and thus involve a lot more risk.
- Goldratt noticed that people working in projects make the same basic error: they manage the risk locally instead of looking at the whole picture. They tend to protect every activity, not the complete project, and the way they do it, the safety they incorporate is bound to be wasted.
- Goldratt called the new Theory of Constraint application CCPM (Critical Chain Project Management) and to introduce it in he wrote another business novel, *Critical Chain*.
 - ✓ Originally, it included Project Planning and Buffer Management.
 - ✓ The basic assumption in Buffer Management is simple: since projects are late because of unexpected delays, managers should use time buffers to protect against these delays.
 - ✓ To protect the whole project, the main buffer should always be placed at the end of the project.



- With more and more implementations around the world, CCPM proved itself as an excellent technique for managing projects.
- After intensive study, Eli Goldratt found out that the time in projects was wasted not only by unexpected delays, but mainly by **inherent obstacles that slow down the flow of projects**. It was no longer about tweaking buffer management: it was about a new body of knowledge.
- The years went by and Goldratt kept developing the Theory Of Constraints and writing more books, while investigating the Concept Of Flow (focussing on accelerating flow to improve performance in operations). He was still busy uncovering the rules of flow and ensuring that applying them would in fact shorten lead times to an extent that he no longer needed to recommend using buffers for it. He needed little more time to explore, though he passed away in 2011, without finishing.
- After he passed away his work was proceeded by the TOC experts at the Goldratt Consulting and their affiliates.
- His daughter Dr. Efrat Goldratt-Ashlag , an Organizational Psychologist, stepped to fill in the blanks (together with her husband) and finalized this book *Rules Of Flow*. She also was the owner of all copyrights from her father's work. Her background in the application of Project Management was theoretical.

Page 9, 18: reference to **devil's triangle** is often used in the book:

1. meeting the due dates;
2. staying on budget;
3. delivering full scope.

Page 17: No matter what field you come from, **the problems in Project Management are basically the same.**

Page 89: **Dosage** relates about the quantity of work. It relates to project environments in which we attempt to take care of too many projects at the same time, and as a result, we end up paying too little attention to each project. If the dosage is too small, our work is inefficient, the projects clog the flow, and we get poor results.

Page 93: **Dosage** is basically **another form of Controlling WIP**. When we **increase the dosage** to the right level, it usually means we reduce the number of projects we work on in parallel, so we are actually reducing the bad multitasking.

Page 93: We used to think that maximising the efficiency of each resource, technician, or work station would yield the best global results. But we know that **local efficiency does not translate into global efficiency**. Our primary objective is to maximise the flow! (principle of *The Goal*).

Page 119: **good synchronisation** / according plan & planning \Rightarrow **poor synchronization** can create rework

Rules of Flow

- Avoid bad multitasking, control your WIP
- If you don't want to get stuck, verify full-kit before you get going
- Triage to ensure you are working on the right priorities
- Ensure synchronization between your tasks/people/resources
- If you keep going back to the same projects and you don't get the desired results, look into the option to increase the dosage
- Avoid unnecessary rework by finding what causes it
- Standardization is recommended when improvising is costly
- Abolish local optimum, global optimum is what matters

Triage: het beoordelen van de urgentie van de hulpvraag (komt uit de Medische wereld)

Page 22: **Triage** (the term is borrowed from the medical field).

- In situations with a large number of patients or casualties, the limited medical staff is compelled to prioritize; to sort the wounded or ill and treat them according to the severity of their condition.
- Triage is not only about prioritizing but also about deciding what is the right course of the treatment. If someone has a heart attack, they clearly need to be treated by a cardiologist and not by an orthodontist. And when someone who doesn't need an MRI is sent to get one, it is clearly a waste of resources. It may also delay the proper treatment harm the patient.
- Triage is done in the best interest of patients and in attempt not to waste resources but rather utilize them in the most efficient manner.

1	Resuscitation
2	Emergent
3	Urgent
4	Less Urgent
5	Non Urgent

Triage	
Levels and Attention Times	
1	Revival-Immediate attention
2	Emergency <= 10 Minutes
3	Urgency <= 30 Minutes
4	Less Urgency <= 120 Minutes
5	Non Urgent <=180 Minutes

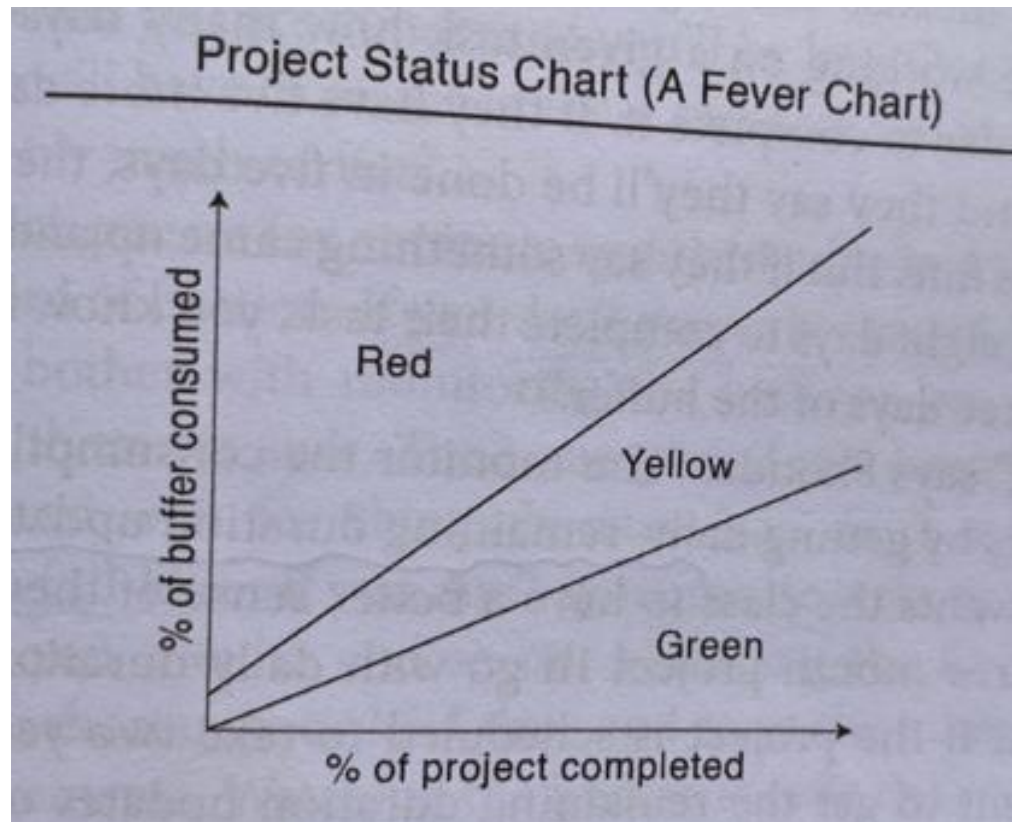
Page 30: Triage in practice:

- Low value projects should not be placed lower on the list but should be completely cancelled.
- Triage need to be done by the right people; people with a deep understanding of the situation and projects and also with the power to handle the political issues.
- Page 33: removing the nice-to-haves

Buffer Management - The One Third Rule of Thumb

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

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



On-deck are next in line,
Project Manager need to
start preparing its **full kit**

The Engineering WIP Board

P.Manager	On Deck	WIP	On Hold	Completed
1) Noah	■ ■	■	■ ■	
2) Abbie	■ ■	■ ■	■	
3) ...	■ ■	■	■ ■	
4) ...	■ ■	■ ■ ■		
5) ...	■	■ ■	■	
6) ...	■	■ ■	■	
7) Linda	■	■		

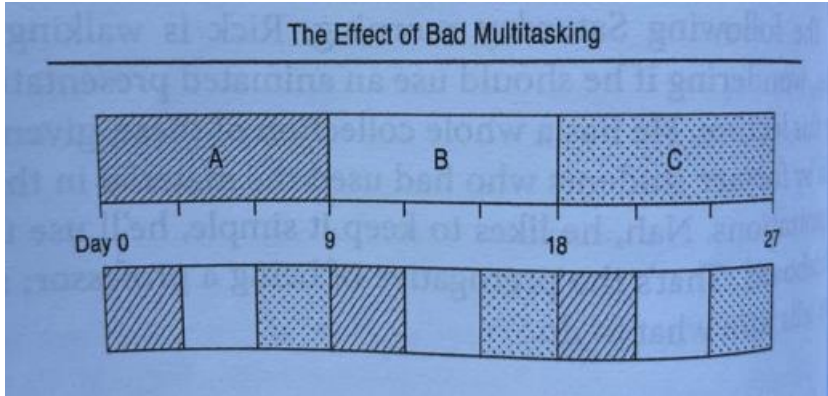
Page 43: **Controlling Work In Progress (WIP):** limit the number of projects that you are dealing with in parallel.

Page 43: Too many projects? Temporary freeze some that already started.
Page 44: Freeze enough to get flow of projects going.

Page 49: **Good multitasking:** tasks that benefits the overall flow of (all) going projects.

Page 44: **Bad multitasking** is not only between projects, but also between smaller day-to day tasks.
Page 45: **Controlling the WIP** is also figuring out how to significantly reduce the day-to-day, hour-by-hour multitasking!
How? Simple! Start a task, you complete it before you move on.

Page 73: **Full-kit** means that before we start a task or project, we first verify we have everything we need to complete it (page 75: including approvals and resources).
Page 75: **Full-kit** is essential to support controlling the WIP.

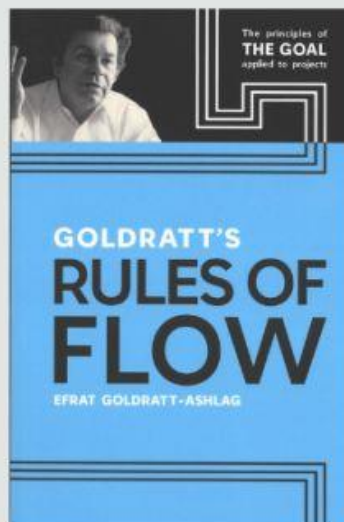
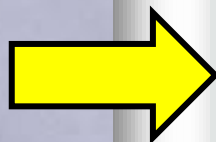


Complete the Following 3 Projects:

- 1) MULTITASKING
- 2) 1 2 3 4 5 6 7 8 9 10 11 12
- 3) ? [% ? [% ? [% ? [%

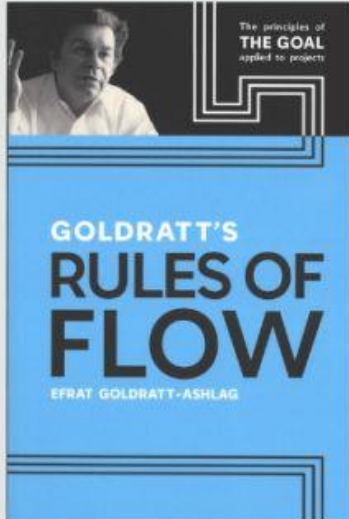
Rules of Flow

- Avoid bad multitasking, control your WIP
- If you don't want to get stuck, verify full-kit before you get going
- Triage to ensure you are working on the right priorities
- Ensure synchronization between your tasks/people/resources
- If you keep going back to the same projects and you don't get the desired results, look into the option to increase the dosage
- Avoid unnecessary rework by finding what causes it
- Standardization is recommended when improvising is costly
- Abolish local optimum, global optimum is what matters



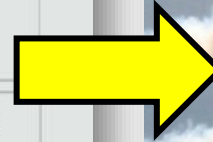
THE RULES OF FLOW

01. AVOID MULTITASKING, CONTROL YOUR WIP
02. IF YOU DON'T WANT TO GET STUCK, VERIFY FULL-KIT BEFORE YOU GET GOING
03. TRIAGE TO ENSURE YOU ARE WORKING ON THE RIGHT PRIORITIES
04. ENSURE SYNCHRONIZATION BETWEEN YOUR TASK/PEOPLE / RESOURCE
05. IF YOU KEEP GOING BACK TO THE SAME PROJECTS AND YOU DON'T GET THE DESIRED RESULTS, LOOK INTO THE OPTION TO INCREASE THE DOSAGE
06. AVOID UNNECESSARY REWORK BY FINDING WHAT CAUSES IT
07. STANDARDIZATION IS RECOMMENDED WHEN IMPROVISING IS COSTLY
08. ABOLISH LOCAL OPTIMUM, GLOBAL OPTIMUM IS WHAT MATTERS



THE RULES OF FLOW

- 01. AVOID MULTITASKING, CONTROL YOUR WIP
- 02. IF YOU DON'T WANT TO GET STUCK, VERIFY FULL-KIT BEFORE YOU GET GOING
- 03. TRIAGE TO ENSURE YOU ARE WORKING ON THE RIGHT PRIORITIES
- 04. ENSURE SYNCHRONIZATION BETWEEN YOUR TASK/PEOPLE / RESOURCE
- 05. IF YOU KEEP GOING BACK TO THE SAME PROJECTS AND YOU DON'T GET THE DESIRED RESULTS, LOOK INTO THE OPTION TO INCREASE THE DOSAGE
- 06. AVOID UNNECESSARY REWORK BY FINDING WHAT CAUSES IT
- 07. STANDARDIZATION IS RECOMMENDED WHEN IMPROVISING IS COSTLY
- 08. ABOLISH LOCAL OPTIMUM, GLOBAL OPTIMUM IS WHAT MATTERS



BAE'S 10 RULES OF FLOW
Critical Chain Project Management

- 1 Reduce the Work in Progress
- 2 Complete Full Kits
- 3 Release to Capacity
- 4 Reduce Multi-Tasking
- 5 Show Servant Leadership
- 6 Ensure Clear Definitions of Done
- 7 Plan for Uncertainty
- 8 Focus on the Constraint / Integration Point
- 9 Focus on Remaining Duration (The Past is the Past)
- 10 Measure to Drive the Right Behaviours

10 items instead of 8
Clearly distracted from
Goldratt's Rules of flow

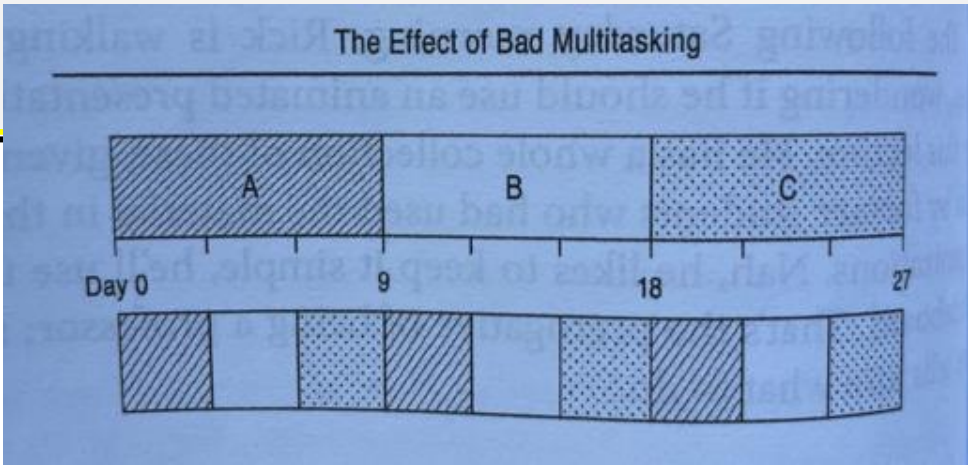
Buffer Management – The One Third Rule of Thumb

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

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



The opposite assumption than mentioned in “How big things get done” that all estimations includes buffer-time.



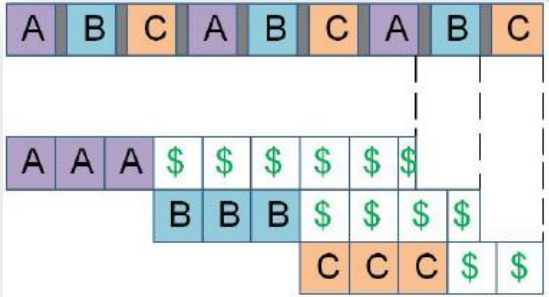
Test 1:
Do & finish Project A, then do & finish Project B, then do & finish Project C.

Test 2:
Do one letter from Project A, then one number of Project B, then one character of Project C, then next letter from A, next number of B, next character of C, etc. until alle projects are completed.

Complete the Following 3 Projects:

- MULTITASKING
- 1 2 3 4 5 6 7 8 9 10 11 12
- ? [% ? [% ? [% ? [%

- **Project A:** Type letter by letter the word MULTITASKING.
- **Project B:** type number by number from 1 until 12
- **Project C:** type characters ? [% and do 4 times after each other.



Results with small group of people:
Test 1 will take about 67 ... 113 seconds and Test 2 about 137 ... 256 seconds.

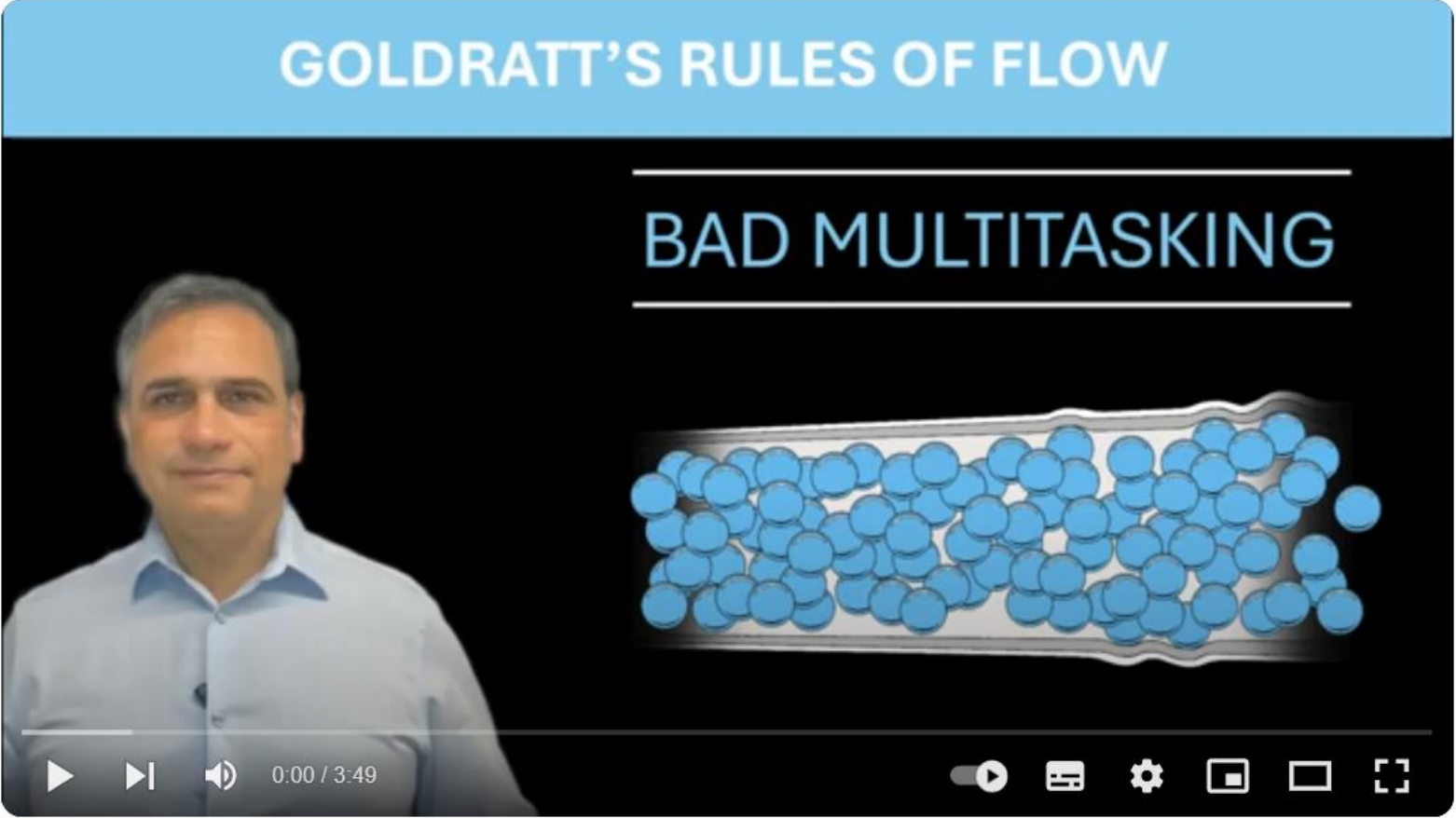
Conclusion:

- Test 2 will take almost 2 times as long as Test 1 (with same results).
- All projects are on-going in parallel in more Lead-Time and requires more effort (more inefficiency)!

YouTube NL bad multitasking rules of flow

GOLDRATT'S RULES OF FLOW

BAD MULTITASKING



Goldratt's Rules of Flow Series - Bad Multitasking

Picture includes link to explaining YouTube movie (about 3 ½ minutes)

