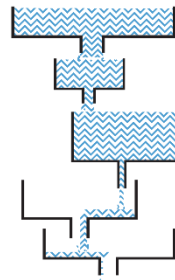




Critical Chain Project Management revisited

Efrat Goldratt-Ashlag – Goldratt's Rules of Flow

Marris
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Online, Tuesday 4th of July 2023

Version 1.0



Organization of the webinar

- Presentation : 45 minutes
- Question & Answer session: 15 minutes
- You can ask questions and make written comments throughout the webinar using the "Q. & A." feature at the bottom of the screen.
- The link to a PDF download will be proposed at the end of this webinar.
- The webinar is managed by 3 people:
 - **Philip Marris and Efrat Goldratt-Ashlag, the “speakers”.**
 - **And a webinar manager whose role is:**
 - To read the written questions as the webinar progresses.
 - To manage the technical part of the webinar (surveys, opening / closing the microphone, etc...)





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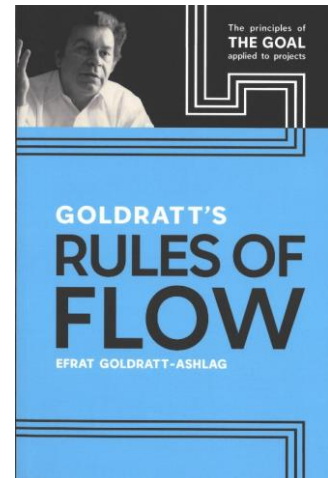
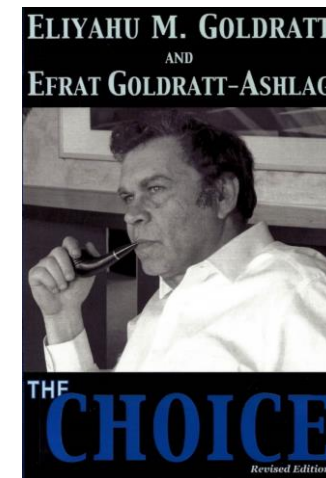
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Efrat Goldratt-Ashlag

- Daughter of Dr. Eliyahu Goldratt, the author of “The Goal” and the founder of the Theory Of Constraints.
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- Part of Dr. Goldratt’s inner circle.
- Co-author with her father of the *The Choice*.
- Author of *Goldratt’s Rules of Flow* (January 2023).
- She manages her father’s copyrights and publications.
- PhD. in Organizational Psychology.
- Specializes in developing training materials that enable personal and organizational growth.





Philip Marris: CEO, Marris Consulting

- Has been implementing Theory Of Constraints (TOC) since 1986, when he worked with Eliyahu Goldratt in Creative Output selling the OPT software.
- Implementation TOC (often combined with Lean) in >300 companies around the world.
- Implementation of Critical Chain Project Management over 50 times, in New Product Development, MRO, Capex, I.T./ERP, Software development ...
- Author of the French reference book: *Le Management Par les Contraintes*.

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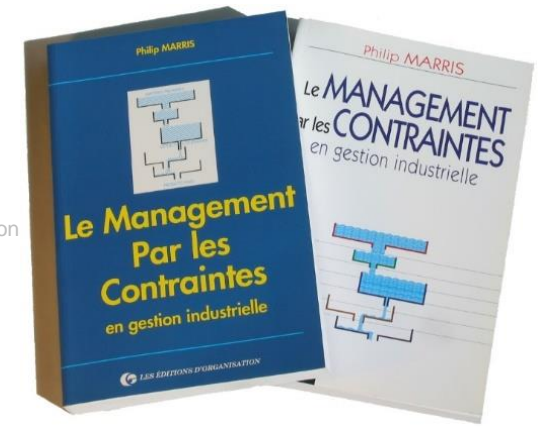




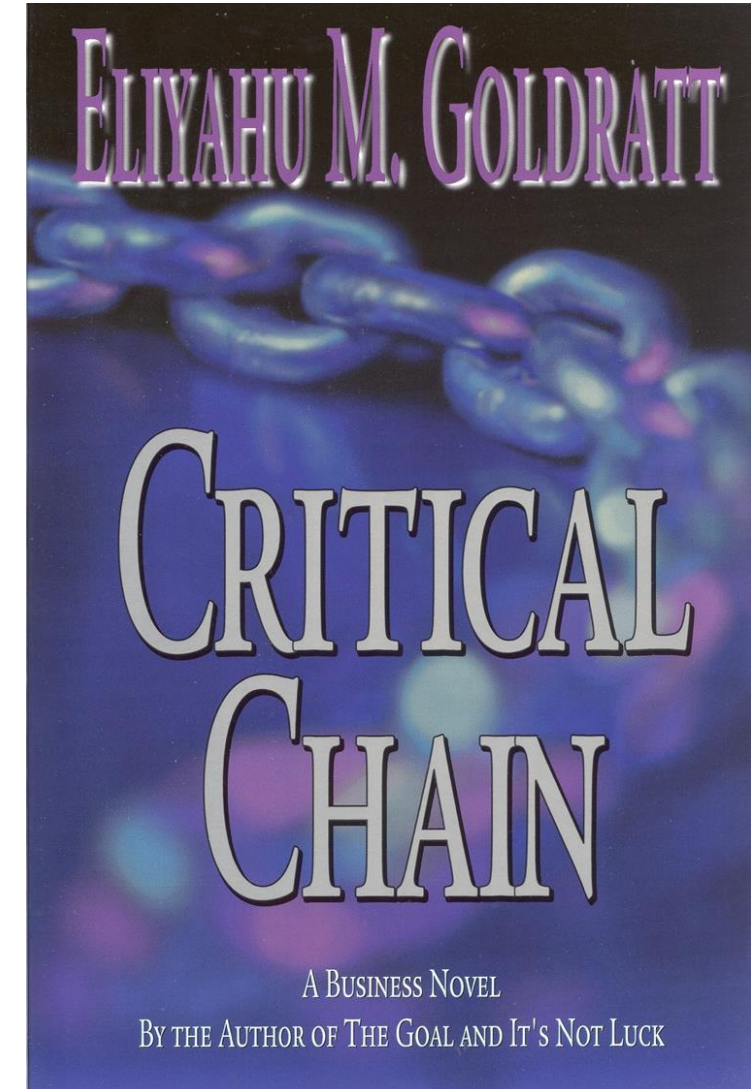
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The origin of Critical Chain

- Eli Goldratt started to look into project management in the early 90's.
- The consensus was, and still is, that the cause for delays in projects is the inherent uncertainty. In order to reduce the uncertainty as much as possible we need to plan ahead. Hence the critical path that was the known method at the time.
- When Eli Goldratt started to look into project management, he was fully aware of the need to handle the uncertainty and in order to better deal with it, he suggested planning according to Critical Chain instead of critical path and in addition he suggested the concept of buffer management.
- He believed that these 2 components are better than what the market had to offer and thus it was time for him to write his project management book – Critical Chain.





The origin of Rules of Flow

- As the scientist that he was, he kept examining his assumptions and to his surprise, uncertainty was not the only element that consumed the buffers.
- There are other mechanisms, inherent to our project environments, that are causing delay no less and often much more than the uncertainty. *These are the obstacle of projects flow.*
- When Eli Goldratt wrote the novel “Critical Chain” the main / only approach was Critical Path. And Critical Path considered that the main problem was the variability of task durations.
- This is why Eli Goldratt proposed the Critical Chain and project buffer, but he knew the book was not complete.
- Eli Goldratt had intended to advance his earlier work on Critical Chain, but unfortunately, he passed away before being able to do so.
- The task fell into Efrat’s hands who has successfully completed the endeavor in the new book, Goldratt's Rules of Flow.

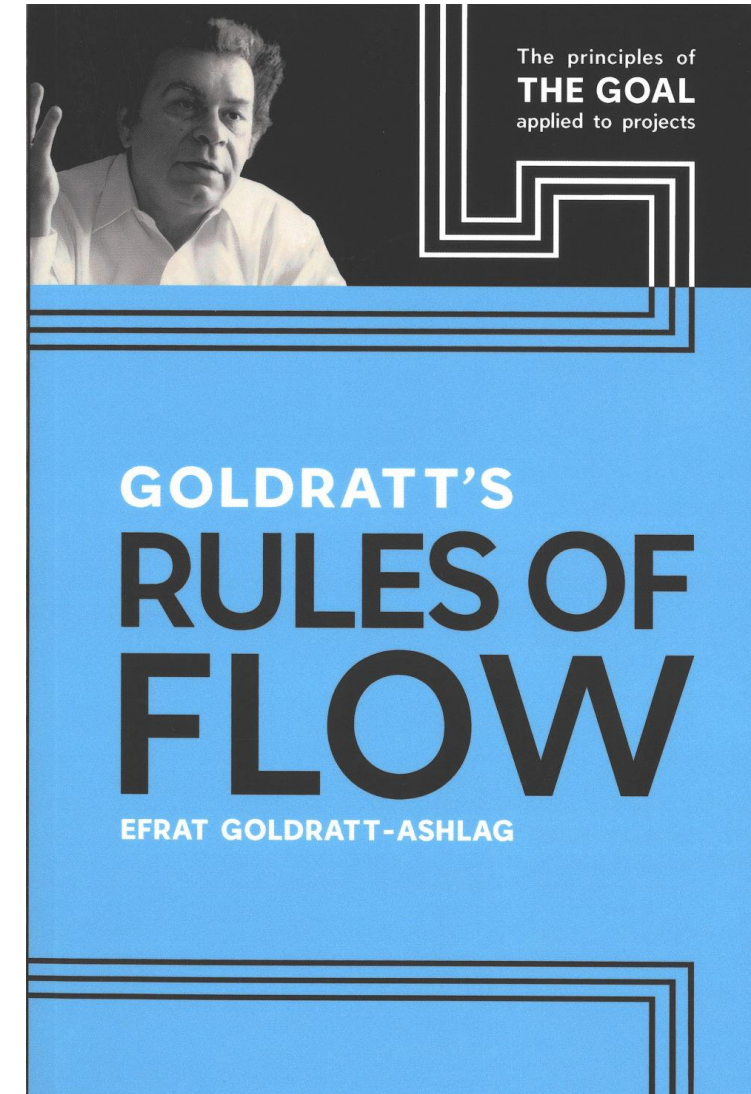




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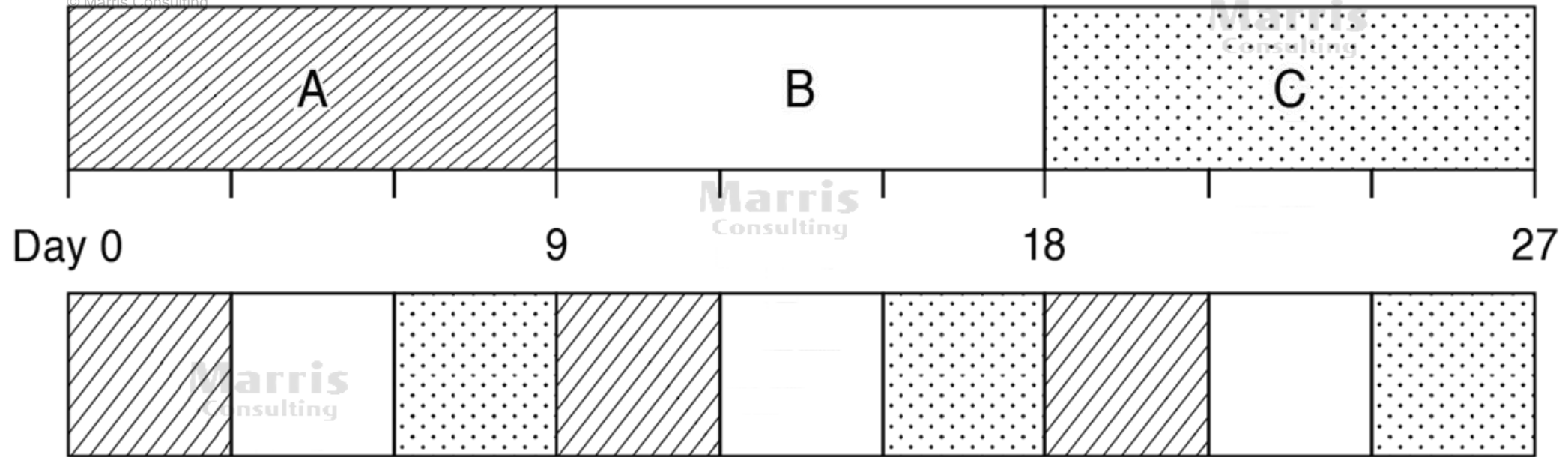
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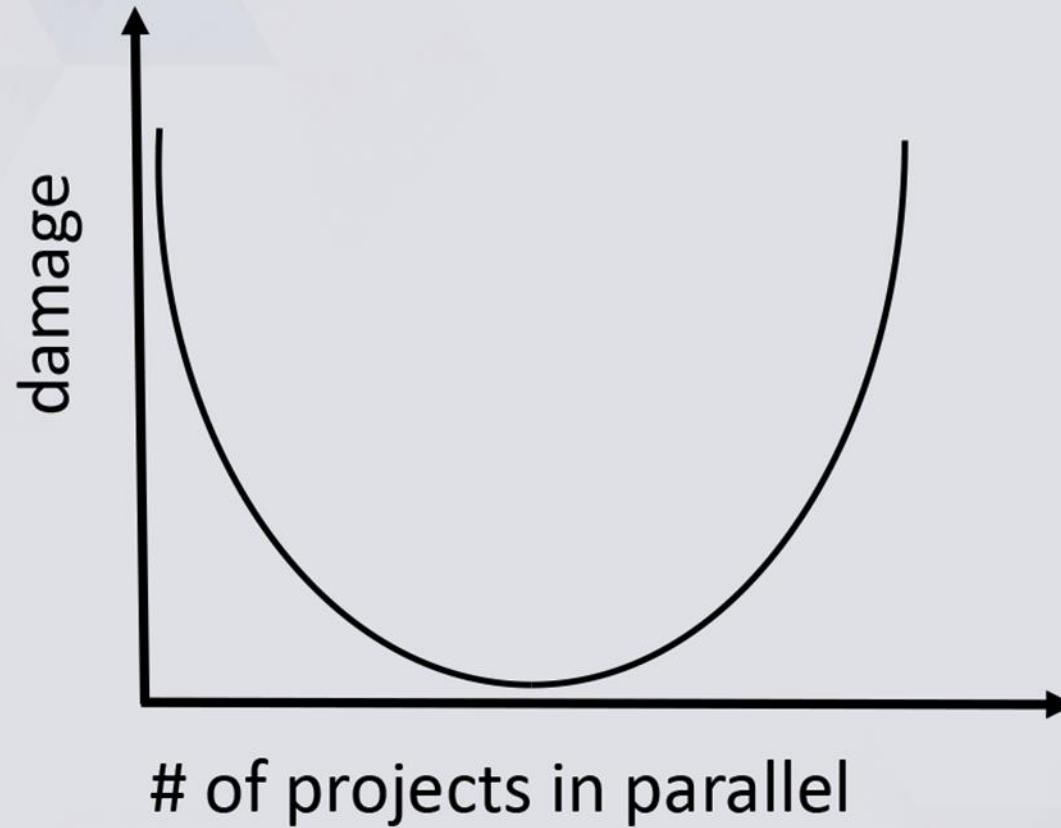
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The effect of Bad Multitasking – Switching between **projects**





What we, at Marris Consulting, have observed with our clients

- We often have the opportunity to measure and quantify the multi-tasking phenomena. We do a lot of DILOs (a Day In the Life Of).
- What is remarkable is the results are often similar: people switch tasks about 60 times per day, average task duration about 7 minutes. Whatever the environment. Just below the “I am going mad” threshold.
- Few examples among the many we have
- In an Engineering To Order company in the Oil&Gas:
 - We conducted DILO on several Design Office members, the bottleneck of the portfolio of projects
 - Results varied from 60% of efficiency to 0% depending on seniority and skills.
 - They were often solicited to work on unplanned activities, emergencies, or to do rework.
- Let us take another example in the Luxury Goods industry :
 - The bottleneck is the person in charge of the definition of the technical specifications of the product (there is a 4-month queue in a 15-month process).
 - Analysis of the activity with a DILO: 30% efficiency, i.e. only 30% of its time working on project-related tasks
 - Lot of time was wasted because of missing inputs and waiting for information

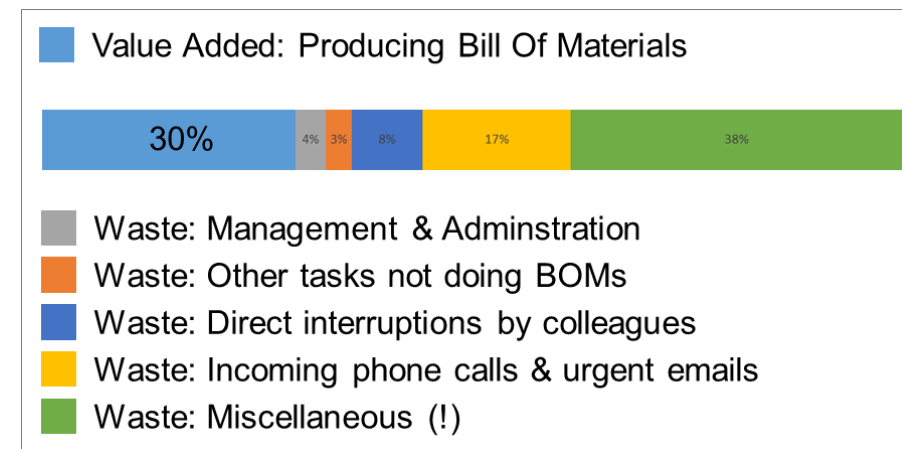
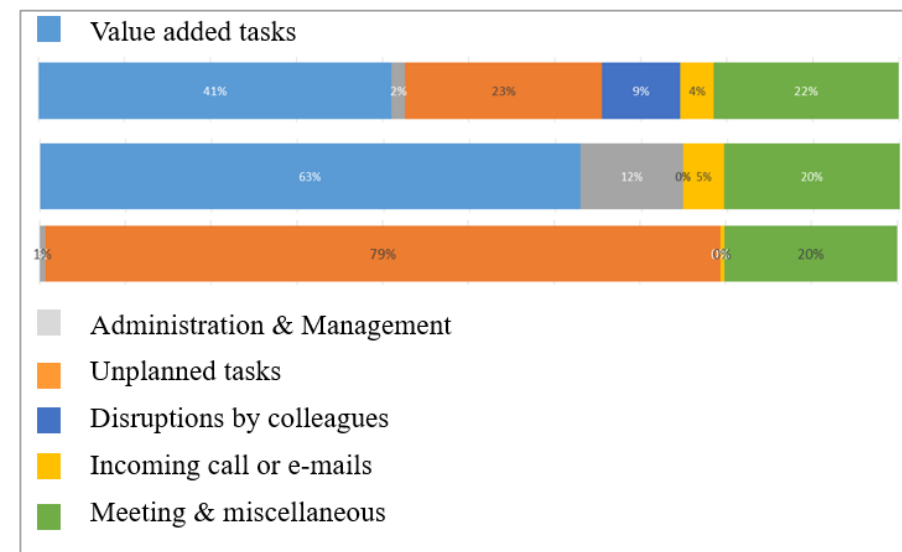




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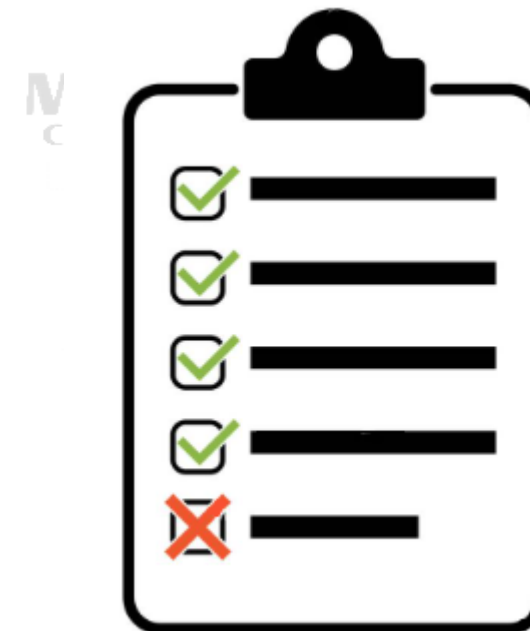
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Multitasking is the N°1 enemy to productivity & quality

- Multitasking is what causes most of the delays projects encounters.
- There can be multiple reason to multitasking:
 - Too much on going projects
 - Resources allocated to project and non-project related tasks, for instance support to serial production
 - Frequent changes in priorities
 - Etc.
- And sometimes we are forced to multitask because we cannot complete a task, we don't have all the necessary information, tools or material to complete a task.
- There is an easy way to reduce this phenomenon by implementing another rule of flow: the full-kitting



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An example of full kitting in the US Air Force



William "Bill" Ray • 1st

Transitioning Air Force Leader | Commander, 5...
4mo • Edited •

I previously posted about Dr. Efrat Goldratt-Ashlag's "Goldratt's Rules of Flow." While reading it, we implemented a new meeting in the 56th Maintenance Group to address an out-of-control backlog of grounded aircraft caused by an acute shortage of F-35 parts.

We reduced our rebuild WIP and began to focus on kitting upcoming rebuild aircraft. We asked all supporting headquarters to focus on unforecasted/pop-up requirements on our few aircraft in WIP and kitting just one upcoming aircraft.

It is ASTOUNDING how quickly those simple adjustments unclogged our log jam! We signaled fewer requirements to supporting agencies and they were able to focus their energies to deliver on our requirements.

The 56th Maintenance Group is now on a MISSION to lead the world in efficient F-35 sortie production. Since February 15th the group has cleared 11 hangar queen aircraft grounded for a combined total of 2,246 days for an assortment of issues. Friday our longest down aircraft cleared after 960 days (2.6 years!) on the ground as well as another aircraft down for 514 days. Both aircraft cleared for normal flying operations.





Other examples of full kitting

- As Efrat just showed with the USAF example it is very important in aircraft maintenance as we know from our work with Air France, the French Air Force, Embraer, and several others.
- Nearly all of our clients that have some form of assembly or kitting activity has a problem of not rigorously doing “Full Kit”.
- Sometimes what needs to be assembled is information not parts.
- One example (30 seconds & jokingly):
 - A manufacturer of train seats that has factories full of seats with only one of the two armrests. With full kitting: Result +75% in Throughput and -75% in lead times.
- We could have presented dozens of cases of both material and immaterial kitting.
- Let us look at this example that we just finished last week...

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Marris Consulting Case Study: the world leader in the design and manufacturing of fiber / textile recycling machines

- Initially the assembly of the machines was launched without ensuring the Full Kit of parts. This resulted in:
 - Very long assembly lead times,
 - Workshop floor space was a constraint: there were too many partially assembled machines all over the department.
- The Full Kit rule was rigorously applied:
assembly is only launched when all the parts are available.
- Results:
 - Lead time reduction. Example: 9,5 weeks down to 2 weeks = an 80% reduction,
 - Improvement in labor productivity of over 30% in some cases
 - A very significant increase in production volumes. The shopfloor space is no longer the constraint.

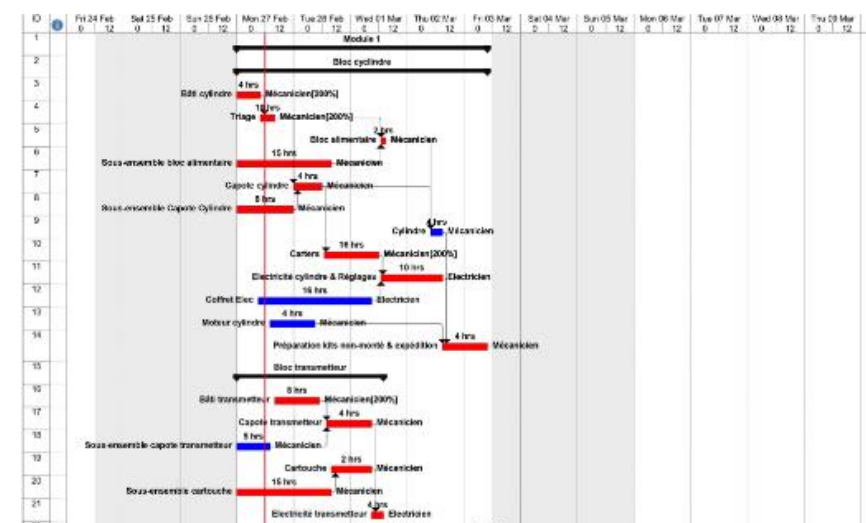
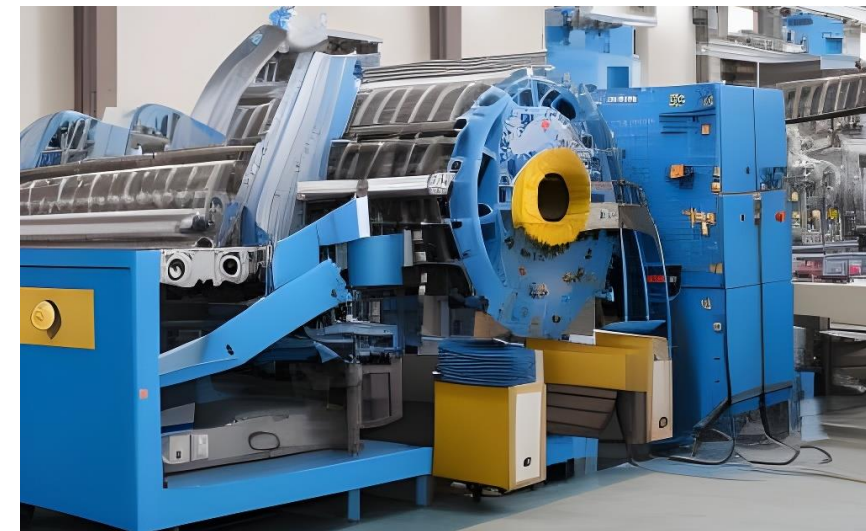




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There are other obstacles to flow that need to be taken care of

- As the world of projects is too diverse, there is no set of universal rules of flow.
- There is no need to go one by one as some rules might be more or less relevant for a given environment, and the hierarchy of the rules might change from an environment to another.
- We encourage whoever is interested to read Goldratt's Rules of Flow and work step by step to decide in what order to apply which rules.
- What we usually observe is that once reducing multitasking is done and full kit are in place, we usually start to notice which of the other obstacles exist in our environment, thus we know which rules should be applied.
- Places to look for additional obstacles:
 1. For complexed environment, through buffer management, one can look into repeated issues that consume the buffers.
 2. For simpler environment, WIP boards to monitor tasks progress can be used. Examine what causes tasks to be in a “On hold” column.
 3. One might also look into what causes repeated rework.
- Adopting the Rules of Flow takes a lot of discipline, but the benefits are huge. Improve significantly the organizational results and regain the sanity in our everyday life.

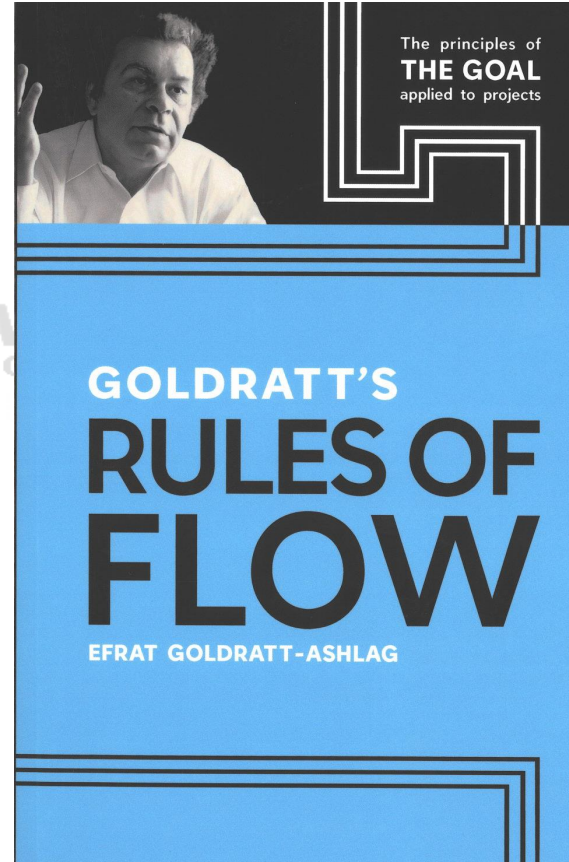


We encourage you to read the new book (or listen to the audio book): Goldratt's Rules Of Flow by Efrat Goldratt-Ashlag

■ Goldratt's Rules of Flow pitch:

Marc Wilson is not giving up. He is determined to turn around the struggling family company and keep it, despite his father's decision to sell. The problem is that they are late on more and more projects and their customers won't tolerate it anymore. Marc is looking everywhere for a solution, when in one of his MBA classes he comes across a unique approach that views operations in terms of flow.

The concept of flow is straightforward. It's easy to visualize the stream of projects going through the system and understand that if something clogs the flow, the projects pile up; the lead time gets longer, and as a result the reliability of due dates suffers. What is not so easy is to uncover the specific obstacles that obstruct the flow and figure out how to remove them.



The audio book is available on:

- Audible:
<https://lnkd.in/dntwzU3R>
- Apple:
<https://lnkd.in/dBqW-DB3>
- AudioBooks:
<https://lnkd.in/dhRwPrcU>
- Kobo:
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- Storytell:
<https://lnkd.in/d-h-39WJ>



We launch our new online
Critical Chain Project Management training course today...recommended!

A graphic for an online course. It features a whiteboard with the Marris Consulting logo (a blue 'T' shape) in the top left corner. The text on the whiteboard reads: 'ONLINE COURSE' in large blue letters, followed by the Critical Chain logo (a colorful triangle with a diagonal line) and the text 'Critical Chain' in green. Below that, it says 'WILL YOU DARE TO FINISH ALL YOUR PROJECTS ON TIME?' in blue. In the bottom left corner of the graphic, there is a portrait of a man in a blue shirt.

Critical Chain

Training for anyone who wants to finish their projects on time, faster, on scope and on budget. Learn how to schedule and manage projects and portfolio of projects the Critical Chain way and benefit from our experience and lessons learnt from hundreds of projects.

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More information here:
<https://e-learning.marris-consulting.com/>

Course • 35 Lessons • 365-day access



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Thank you for your time



Feel free to ask to connect on LinkedIn
[linkedin.com/in/philipmarris](https://www.linkedin.com/in/philipmarris)



Q & A Session

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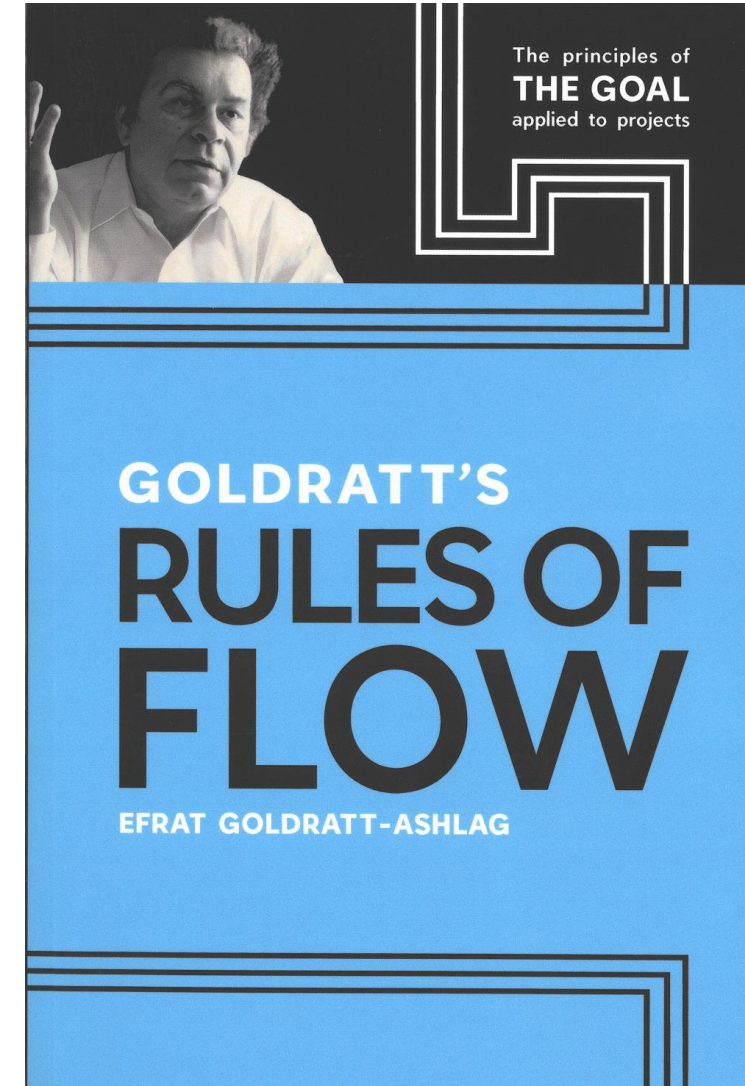
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Goldratt's Rules Of Flow

Buy the book...and then read it!

- Marc Wilson is not giving up. He is determined to turn around the struggling family company and keep it, despite his father's decision to sell. The problem is that they are late on more and more projects and their customers won't tolerate it anymore. Marc is looking everywhere for a solution, when in one of his MBA classes he comes across a unique approach that views operations in terms of flow.
- The concept of flow is straightforward. It's easy to visualize the stream of projects going through the system and understand that if something clogs the flow, the projects pile up; the lead time gets longer, and as a result the reliability of due dates suffers. What is not so easy is to uncover the specific obstacles that obstruct the flow and figure out how to remove them.



Watch Efrat Goldratt-Ashlag's recent presentation during TOCICO's Critical Chain 2023 conference



© Marris Consulting

On the TOCICO YouTube Channel
Goldratt's Rules of Flow - My Story Behind the Book by Efrat Goldratt-Ashlag
<https://youtu.be/PKXXBYe5kVI>



The Choice

- TOC has been successfully applied in almost every area of human endeavor, from industry to healthcare to education. And while Eli Goldratt is indeed a scientist, an educator and a business leader, he is first and foremost a philosopher; some say a genius.
- He is a thinker who provokes others to do the same. Often characterized as unconventional, and always stimulating a slayer of sacred cows Dr. Goldratt exhorts his readers to examine and reassess their lives and business practices by cultivating a different perspective and a clear new vision.
- In his latest book, The Choice, Goldratt once again presents his thought-provoking approach, this time through a conversation with his daughter Efrat, as he explains to her his fundamental system of beliefs.
- This revised edition includes a section called Efrat's Notes, these notes and logical maps are helpful tools that assist in visualizing and implementing the thoughts and ideas expressed throughout this book.

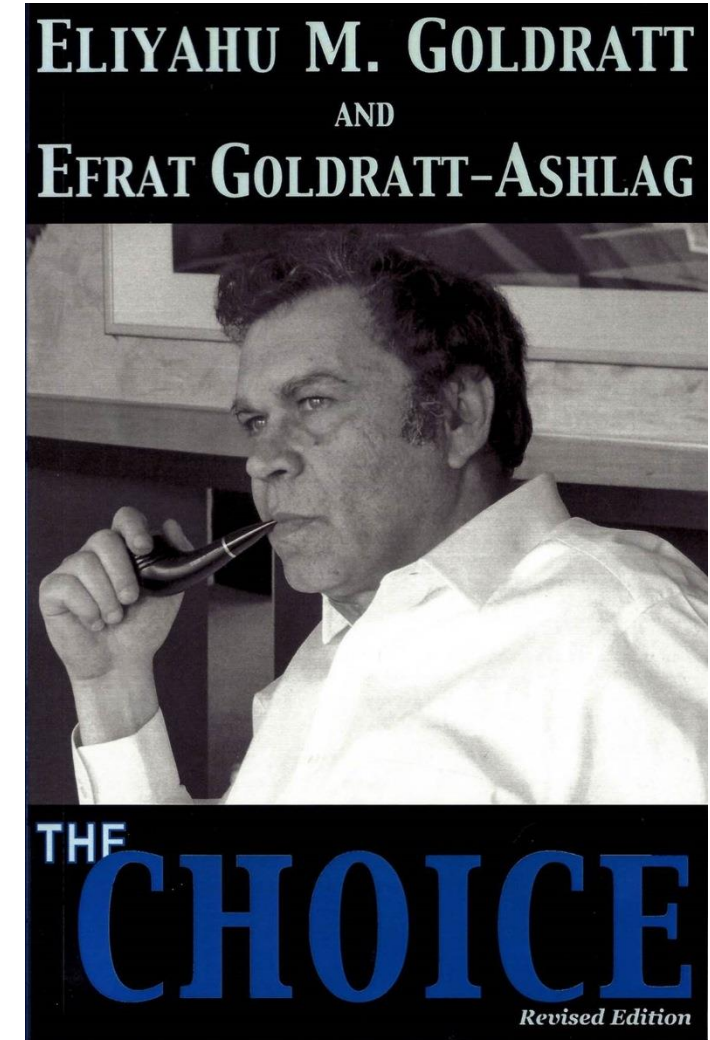




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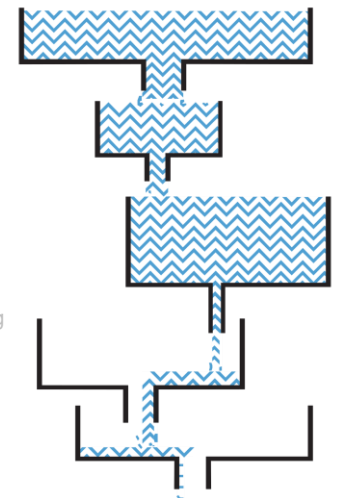
- To go further
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Presentation of Marris Consulting

- Marris Consulting, founded in 2005, is a consulting company specializing in improving the operational performance of companies in the industrial world.
- The approach of Marris Consulting is based on the combination of Theory of Constraints (TOC) - and its various applications including Project Management by the Critical Chain - and Lean and other Six Sigma type methodologies when it helps our customers' issues.
- The founder, Philip Marris, is a renowned specialist in Theory of Constraints, Lean and industrial performance.
- We work on all industrial components, including:
 - manufacturing (machine performance, production management, TPM, etc.),
 - supply chain (physical flows, forecasts, planning, inventory management, etc.),
 - product/process research, development and industrialization,
 - sales (sales efficiency, optimization of resources).
- Marris Consulting is based in Paris, but operates throughout France, Europe and around the world
 - In France : Lille, Marseille, Bordeaux, Strasbourg, Paris, Eu, St. Florentin, La Ciotat, Crépy-en-Valois, and so on...
 - Abroad: Switzerland, England, Spain, Czech Republic, South Africa, USA, Romania, Vietnam, and so on...

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Presentation of Marris Consulting

- Some key figures:
 - A team of 15 consultants and a network of partners.
 - >40% of our business outside France.
 - More than 40 conferences and training sessions a year on operational performance, Theory of Constraints (TOC), Lean, Critical Chain Project Management (CCPM)...
- Marris Consulting has a reputation for its ability to be pertinent in all kinds of industry. We have worked in over 300 companies helping in designing, making, selling and distributing:
 - cars, hamburgers, airplanes, perfume, trains, rockets, industrial equipment, pharmaceuticals, home delivery services, computer chips, chips (food), maintenance / repair / overhaul (MRO) of planes and trains, luxury handbags, corrugated cardboard production, the defense industry, Swiss watches, steel manufacturing, plastics, bank notes, satellites, gold mines
- We are committed, viscerally, to producing results. Results that are well beyond our clients' expectations. And results that last.
- Better still we incessantly seek to strengthen the process of on-going improvement; we want to see our ex-clients getting better and better many years after we intervened.



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How we operate

- We understand that the hardest part of what we do is to change "people". Apart from the pertinent ideas that we must have we must directly and indirectly change individual and collective behavior.
- We work simultaneously at all levels of the company from the front line to the board room.
- We are recognized experts in Operations improvement approaches: Lean (manufacturing/engineering/management), Theory of Constraints, Six Sigma, Industry 4.0, Agile, DDMRP.
- One of our key strengths is that we analyze each of our new client's business & culture and then we mix up the right cocktail of solutions. We never impose a so-called industry best practice.
- We like simple solutions. *Simple is beautiful.*



We are honoured to have been able to help...



Marris Consulting organizes more than 40 inter and intra-company training session per year



Marris Consulting's online trainings

Marris Consulting's Online Training Courses

Welcome to our e-learning platform!

Here you can learn more about our online training offers:

Theory Of Constraints, Lean Management, Critical Chain Project Management.

Marris Consulting is a consulting and training company focused on significantly and sustainably improving the performance of manufacturing and process industries.

[Learn more about Marris Consulting](#)



LTP Online training

<https://logicalthinkingprocess.podia.com/>

TOC, CCPM & Lean Online trainings:

<https://e-learning.marris-consulting.com/>

Good Lean Bad Lean

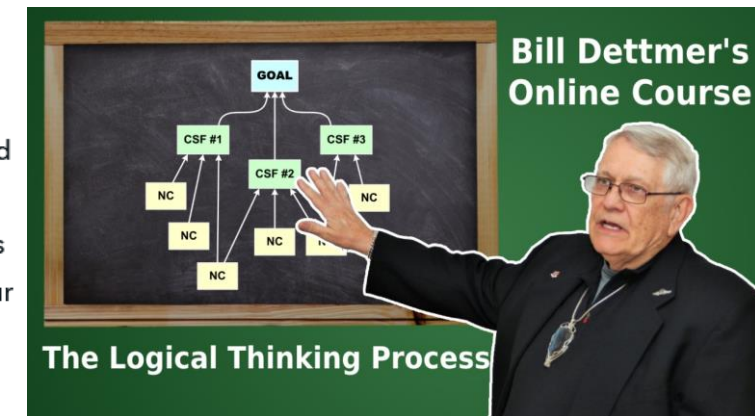
Training about understanding what is true Lean, the "Toyota Way", and how to implement it and reach their level of performance, thanks to the expertise of the ex-Vice President of Manufacturing of Toyota Motor Manufacturing France.

Theory Of Constraints

Training to understand the key principles of this approach and get some practical advice to implement it. The Theory Of Constraints was developed by Eliyahu Goldratt and popularised thanks to the global best-seller The Goal, the first business novel.

Critical Chain

Training for anyone who wants to finish their projects on time, faster, on scope and on budget. Learn how to schedule and manage projects and portfolio of projects the Critical Chain way and benefit from our experience and lessons learnt from hundreds of projects.



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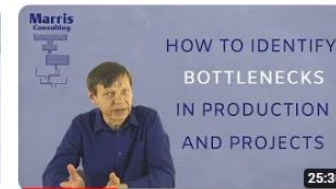
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Theory of Constraints in Production
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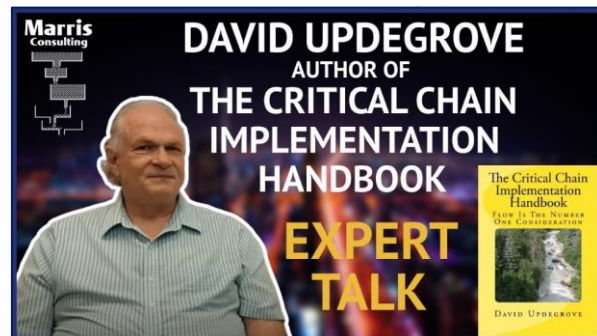
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To get more information: our website critical-chain-projects.com

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FR | EN

A banner image for the Critical Chain website. On the left, a man in a light blue shirt stands with his back to the camera, looking at a large screen. The screen displays a project management diagram with green bars and arrows. On the right, a large green speech bubble contains the text 'Critical Chain' in white, followed by 'an innovative method for project management'. Below this, a white button with the text 'THE METHOD →' is visible. On the far left, a vertical list of project phases is shown: 'Create Project Charter', 'GO / NO GO', 'Project Planning' (with sub-items 'WBS', 'Resources', 'Schedule', 'Costs', 'Planning finished'), 'Project Execution' (with sub-items 'Subtask 1' (Initiating, Executing, Deliverable) and 'Subtask 2' (Initiating, Executing, Deliverable)), and 'Project closing' (General deliverable).

Dare to finish all your projects on time!

This approach based on the Theory of Constraints (TOC)

To get more information: our website marris-consulting.com



Factories,
People
& Results



Theory of Constraints, Critical Chain Project Management, Lean : industry consulting & training - Marris Consulting

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Would you like our expert advice on how to go faster and further?

We can help you to quickly identify the best levers to improve performance

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Theory of Constraints (ToC) and Critical Chain Project Management (CCPM) experts

Marris Consulting, Experts in the Theory of Constraints consulting & training

Welcome to the Marris Consulting website, an industry consulting and training company focused on significantly and sustainably improving the performance of manufacturing and process industries.

Our 2-day performance diagnosis offer

You want to **identify the constraint** that limits your performance, but you need some help to do so? **Marris Consulting** offers a 2-day **performance diagnosis** led by Philip



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