



**Critical
Chain**



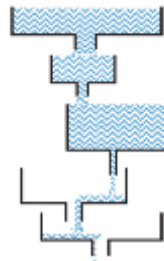
**The 5 Focusing Steps of
the Theory of Constraints**

Project management according to TOC

Combining CCPM and the 5 Focusing Steps for
astounding results

Webinar

**Marris
Consulting**



Paris, Tuesday 3rd of November 2020

Version 1.0



Agenda

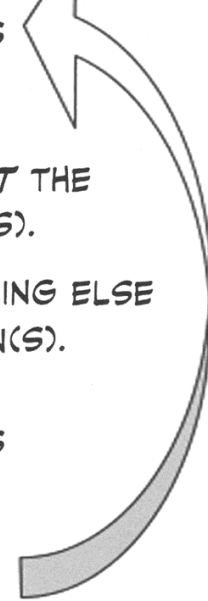
- Introduction
- CCPM and 5 Focusing Steps
© Marris Consulting
- Some examples
- Conclusion
- Appendices







THE 5 FOCUSING STEPS OF THE THEORY OF CONSTRAINTS

1. *IDENTIFY* THE SYSTEM'S CONSTRAINT(S).
 2. DECIDE HOW TO *EXPLOIT* THE SYSTEM'S CONSTRAINT(S).
 3. *SUBORDINATE* EVERYTHING ELSE TO THE ABOVE DECISION(S).
 4. *ELEVATE* THE SYSTEM'S CONSTRAINT(S).
 5. *GO BACK* TO STEP 1.
WARNING: DO NOT ALLOW INERTIA TO CAUSE A SYSTEM'S CONSTRAINT.
- 

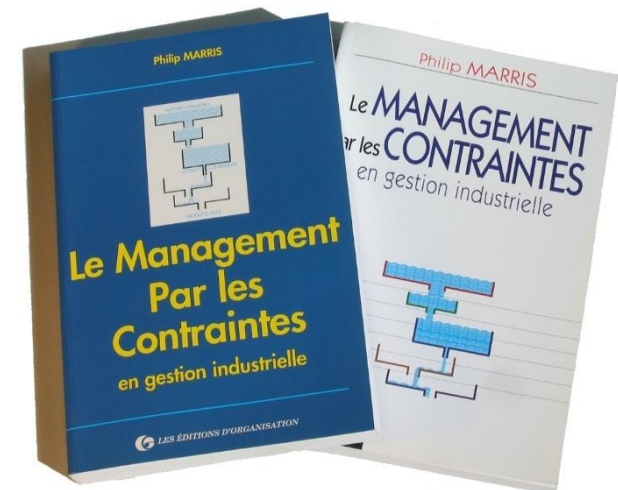
Organization of the webinar

- Presentation : 60 minutes
- Followed by a Question & Answer session: 30 minutes
- You can ask questions and make written comments throughout the webinar using the "Q. and A." feature at the bottom of the screen (mouse over).
- Presentation material can be downloaded on our website at the end of this webinar.
- There could be surveys during the webinar.
- The webinar is managed by 2 people:
 - **Philip Marris the "speaker"**
 - **And a webinar manager whose role is:**
 - To read the written questions as the webinar progresses
 - To manage the question-and-answer session (choice of questions, opening / closing the microphone, etc...)



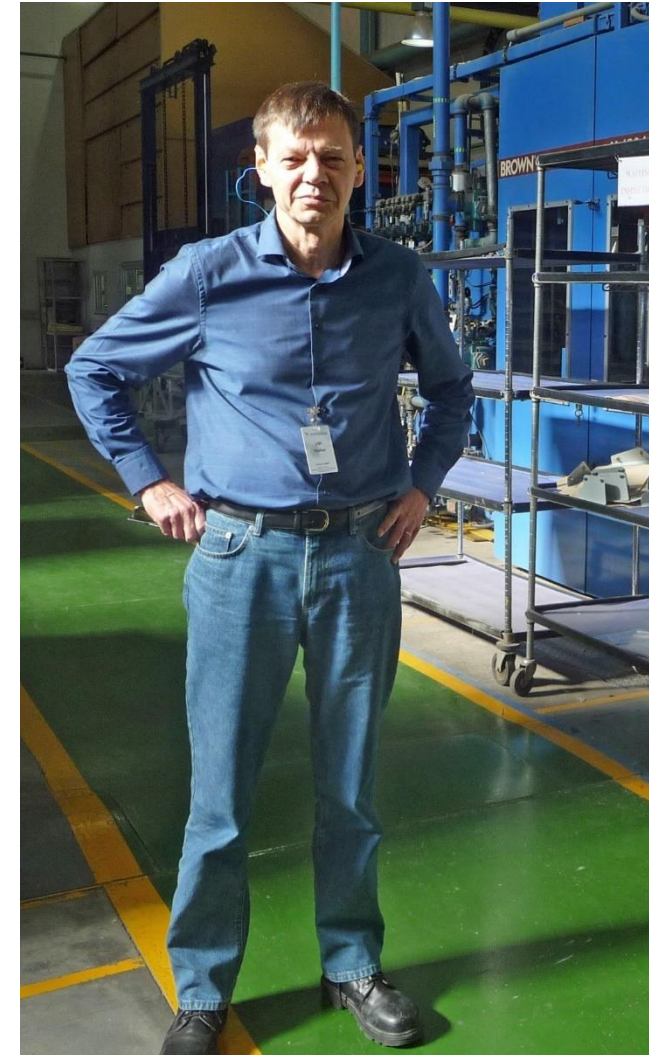
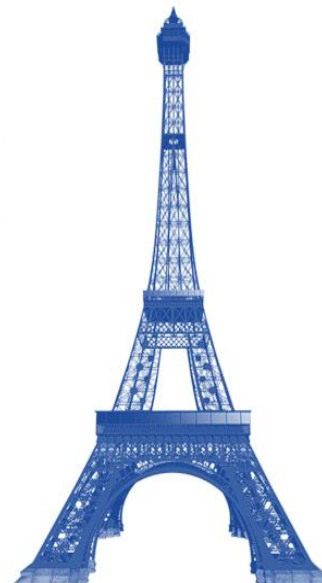
Philip Marris: CEO, Marris Consulting

- English...and European. Bilingual & bicultural English/French. Consultant (sorry).
- Started using Lean in industry in 1984.
- Has been implementing TOC since 1986, when he worked with Eli Goldratt, founder of Theory Of Constraints/TOC).
- Implementation of TOC and Lean (+ Six Sigma, DDMRP, PMBOK, Agile, ...) in >260 companies around the world.
- Author of the French reference book on TOC in production: *Le Management Par les Contraintes*.
- Founder in 2005 of Marris Consulting.



Marris Consulting, a consulting firm specialized in operational excellence and project management

- Founded in 2005 by Philip Marris and based in Paris.
- 12 consultants and its network of partners.
- More than 40 conferences and training sessions per year on operational performance, Theory of Constraints, Lean, Critical Chain Project Management ...
- Over 300 videos of customer testimonials, educational presentations, expert interviews, etc.



Experience of more than 260 business transformations worldwide



Agenda

- Introduction
- CCPM and 5 Focusing Steps
- Some examples
- Conclusion
- Appendices

© Marris Consulting

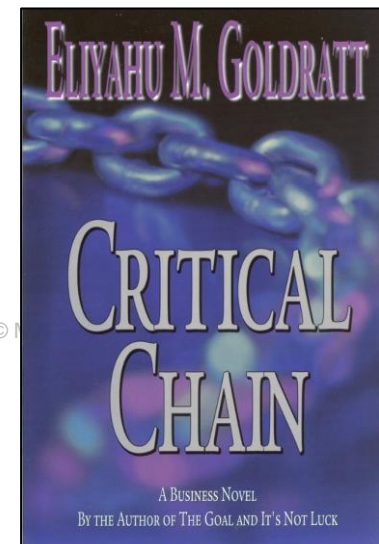
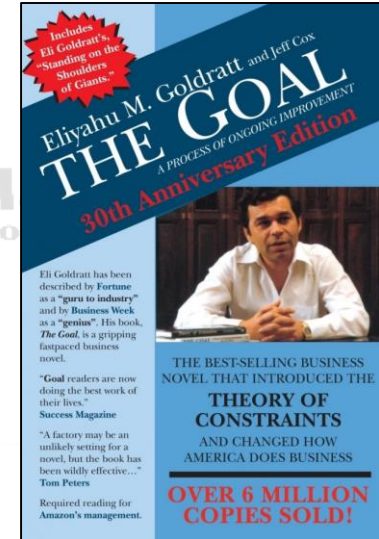
Marris
Consulting

Marris
Consulting



TOC gained its global recognition thanks to the success of the best selling “business thriller” *The Goal* by Eliyahu Goldratt

- *The Goal* (Over 7 million copies sold, 32 languages). The first book of its kind: a novel to explain a new approach to management.
- Annual budgets pretend to balance organizations, but they don't succeed. There is always a **constraint** somewhere in the system.
- **Focus** on improving the constraint that **determines the overall performance**. One hour lost on the constraint = one hour lost for the system.
- A few years later, he transposed the principles of the Theory of Constraints to the world of projects in the book *The Critical Chain*.



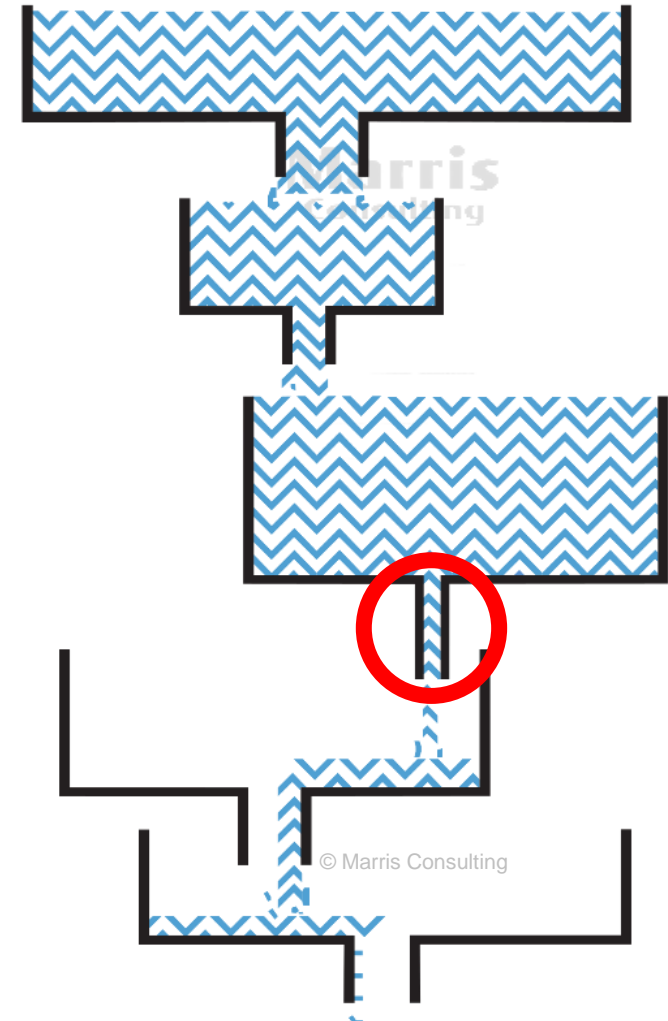
Results of the Critical Chain method:
Respect of the commitment end dates
Project duration -39%
Number of projects completed in a given time +70%

There are capacity constraints in project portfolios

- We consider that there are two types of constraints in project environments:
 - The **project constraint is the Critical Chain**, that determines the project duration.
 - The **project portfolio constraint is the resource**, that limits the system to achieve more projects a year.

© Marris Consulting

In this webinar, we will consider only the capacity constraint of project portfolios.



Increase the constraint's capacities in parallel with the Critical Chain implementation

- The project portfolios capacity constraint can be immediately improved to produce 2 to 3 times more.
- This can be done even before implementing the Critical Chain. The 5 Focusing Steps and the Critical Chain are complementary but independent.



5 Focusing Steps

CCPM
Preparation

CCPM
“Go live” (Monitoring, Fever Chart, etc....)
and continuous improvement

During this webinar, we focus on the 5 Focusing Steps, several sources of information are available on Critical Chain

- A 5-minute video.
- Videos of conferences about Critical Chain.
- A series of 4 videos of 20 minutes.
- A dedicated website
<https://www.critical-chain-projects.com/>



© Marris Consulting

Today we present a simplified version of the *5 Focusing Steps* of the Theory of Constraints

1. **IDENTIFY** the (capacity) constraint of the system

looking for the longest queue

2. **EXPLOIT** the constraint

often by decreasing the multitasking and by staggering less important tasks

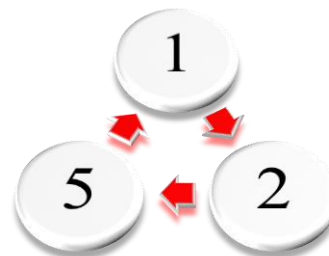
3. **SUBORDINATE** everything to the above decision

4. **ELEVATE** the constraint

5. **GO BACK TO STEP 1**

If **with the previous steps the constraint was discarded, the process has to be repeated by looking for the new constraint**

Beware ! Do not let INERTIA become the system constraint



© Marris Consulting

In the project portfolio environment, there are tremendous excess of capacity

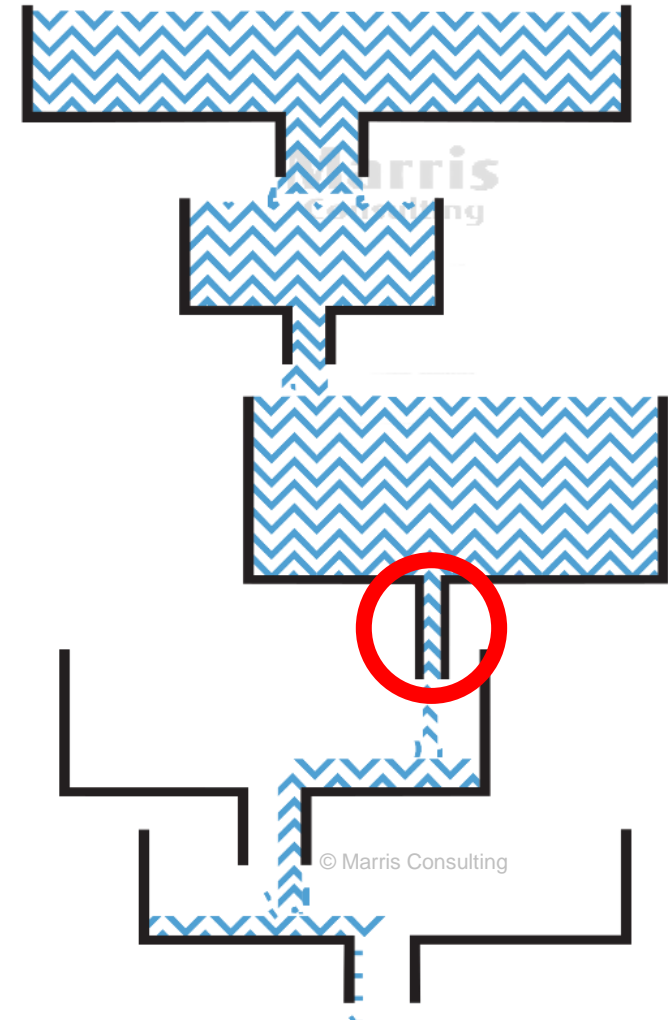
- In the production environment, data are accurate enough, through budgetary adjustment, to prevent that a resource only has 20% of load. Cycle times to manufacture a part are known, etc.
- In the project world, data about the time required to perform a task are wrong or do not even exist.
- Therefore we almost always find:
 - An unfortunate bottleneck resource which is often not identified.
 - A few resources loaded at >50%.
 - Most of the resources with a workload way under 50%.
- It is in this context that the amazing results obtained in the following examples were possible.



Step 1 : Identify (#1/2)

You shall look for the longest queue

- We believe that there is almost always capacity constraints (bottlenecks) in multi-project environments.
- Experts do not all agree on this part.
- But according to Marris Consulting's experience, **THERE ARE ALWAYS SIGNIFICANT BOTTLENECKS.**
- The method used to find a bottleneck in a project is similar to the one used to find a bottleneck in production:
You have to look for the longest queue, the highest level of work in process.



Step 1 : Identify (#2/2)

We often find deplorable bottlenecks

- In project environments, data on task duration and workload are hard to estimate. Often workload calculations are of no interest.
- Do not trust the responsible passionate statements.
- We often notice in project environments that the constraint is:
 - Unfortunate (explanation to follow),
 - One or two people with critical and unique skills,
 - In the development of new products, the new skill, often understaffed: electronic, software, ...
 - The quality management,
 - In the testing stages.



Step 2 : Exploit

- The key word to quickly increase the flow of the constraint: **focus**.
 - Of the management on the performance of this specific resource
 - Of the constraint itself, on a limited number of subjects
- **Reduce multitasking by limiting work in progress:**
 - Reduce the number of projects in progress, for example by implementing the “2 for 1” rule
(See our dedicated video on this subject: <https://www.youtube.com/watch?v=DvBRWiuWh9g>)
 - Stagger projects according to the capacity constraint availability
- Recover wasted capacities on the bottleneck resources
 - Reduce or eliminate the disruptions undergone by the constraint, thanks to tools such as DILO "Day In the Life Of"

© Marris Consulting

It is easy to very quickly increase throughput and productivity by 2 or 3

Step 5 : Repeat

Start again the process until finding the right bottleneck

- If with the previous steps, the constraint has been eliminated, the process must be repeated while searching for the new constraint.
- Our experience: the first 2 or 3 bottlenecks initially identified in these iterations are "bad" bottlenecks. These are regrettable situations.
- But at some point, it will be the "good" or the less bad bottleneck.
- Reminder from Marris Consulting's point of view:

The "best" constraint is the resource that would take the most money and/or time to turn into a non-constraint



Agenda

- Introduction
- CCPM and 5 Focusing Steps
- Some examples
- Conclusion
- Appendices

© Marris Consulting

**Marris
Consulting**

**Marris
Consulting**



Philip Marris

Example of a world leader in luxury (#1/2)

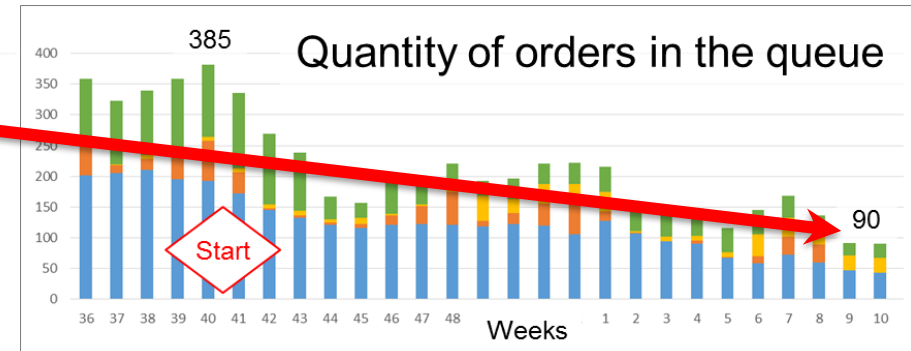
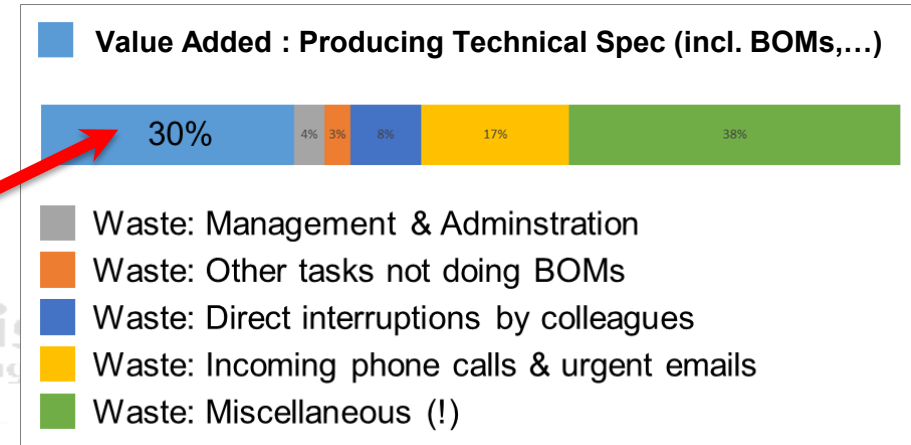
■ First iteration:

(step 1 then 2 then 5)

© Marris Consulting

Bottleneck = Definition of the technical specifications (there is a 4-month queue in a 15-month process).

- Analysis of the activity with a DILO (Day In the Life Of): 30% efficiency
- Exploit: increase the flow
 - + 100% improvement in one week
 - + 70% improvement in one month
- Lead time reduction of 77% over 5 months.



Example of a world leader in luxury (#2/2)

■ Second iteration:

- Bottleneck = Purchasing (ordering of components for new products).
- Exploit = + 60% in 2 weeks.

© Marris Consulting

Marris Consulting

■ Third iteration :

- The xxx machine in the production workshop for prototypes and pre-series with a classic "core conflict":
making money now vs making money in the future
- Currently being processed

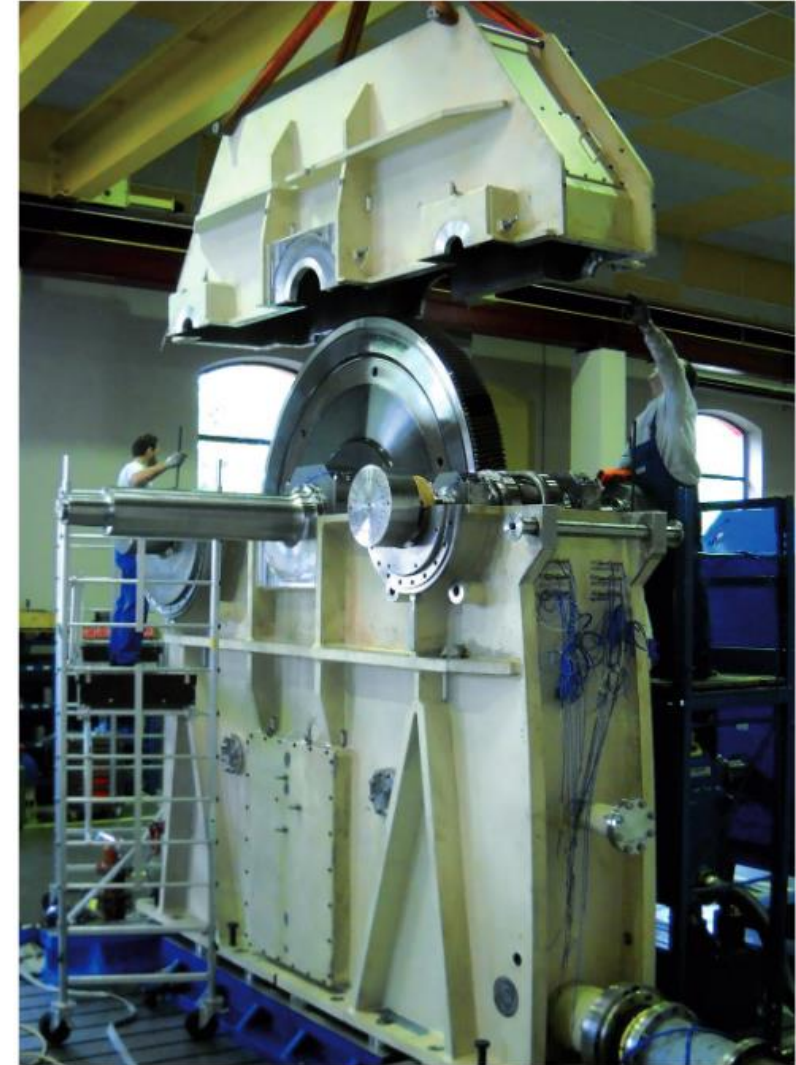
Marris Consulting

$100\% + 70\% + 60\% = +230\%$ increase => **x 3.3**

Note: Increase in throughput and in productivity for
all > 100 people concerned...
... in less than 2 months...

Example of an ETO & MTO in the Oil & Gas industry (#1/3)

- Company of 500 people, part of a large group (> 300,000 people).
- Engineering to order (ETO) and manufacturing to order (MTO) company.
- It designs and manufactures large special gearboxes. Example: between a gas turbine and a generator in a power station.
- The bottleneck was in the Design Office (15 people) of the engineering department.
- He was overwhelmed: 90 projects in progress, 50 weeks to go on to complete plans, documentation, certificates, etc.
- At the start: 1.8 files completed per week.



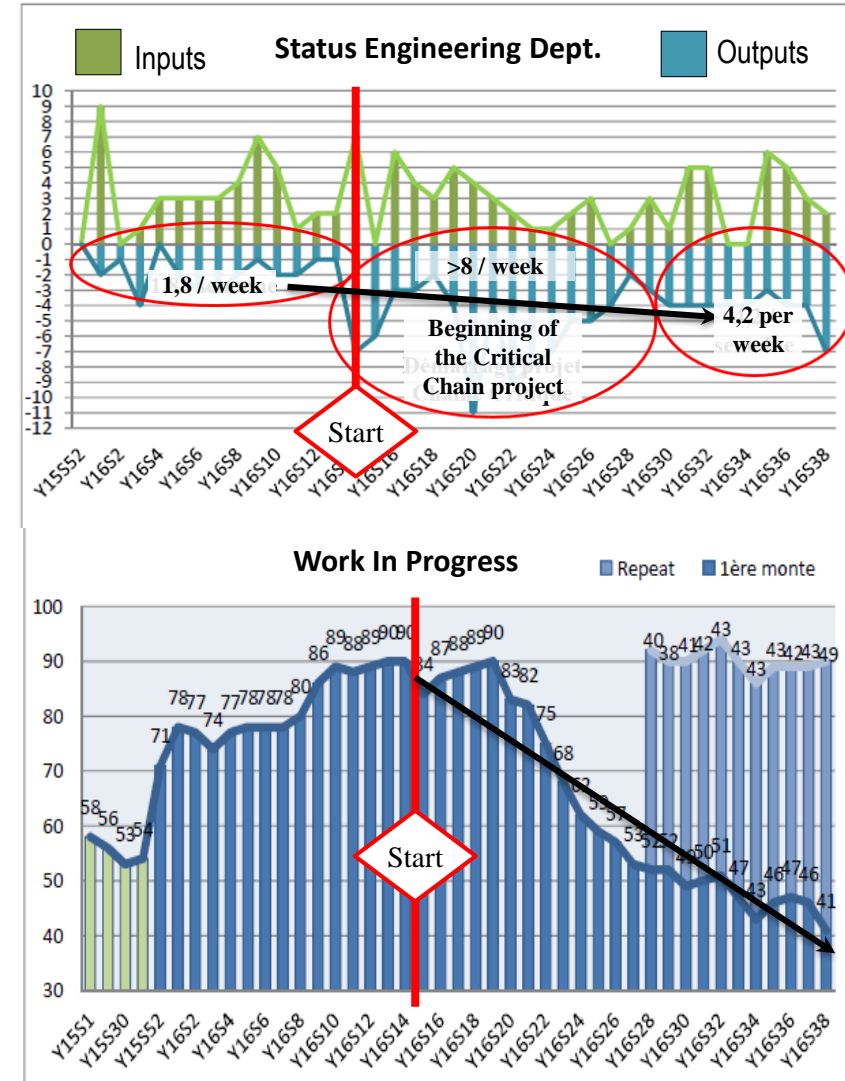
Example of an ETO & MTO in the Oil & Gas industry (#2/3)

- Initially, the working conditions at the design office (BE) were very bad (normal !?):
 - Up to 10 projects to be managed simultaneously by people,
 - Repeated disturbances,
 - Daily changes of priorities,
 - Management by "decibel".
- A DILO (Day In the Life Of) analysis revealed a **massive multitasking**. Change of tasks >60 times per day, i.e. an average of 7 minutes per task.
- This reduced productivity by 70-90%.
- This generated a lot of "stupid" quality issues (e.g. lots of BOM errors).

BEWARE: multitasking kills

Example of an ETO & MTO in the Oil & Gas industry (#3/3)

- New rules put in place, with a key principle: "Stop Starting, Start Finishing! ".
- Other rules:
 - Technicians should no longer be disturbed by other services,
 - The requests for modifications are filtered by two coordinators,
 - A project is not started until all data is available ("Full Kitting").
- The projects are prioritized in agreement with the sales department (only one priority list!) and staggered according to the bottleneck availability
- Throughput and productivity increased by 130% ...
- ... And > 400% during the period of drastic reduction in work in progress
- Lead times at the BE have gone from 50 to 8 weeks



Agenda

- Introduction
- CCPM and 5 Focusing Steps
- Some examples
- Conclusion

© Marris Consulting

**Marris
Consulting**

- Appendices

**Marris
Consulting**



You can use the "5 Focusing Steps" starting tomorrow (with or without Critical Chain)

- To apply the approach we just described there is no prerequisite.
- You can start tomorrow even if you can't / don't want to implement Critical Chain Project Management.

5 Focusing Steps

CCPM
Preparation

CCPM
“Go live” (monitoring, Fever Chart, etc....)
and continuous improvement

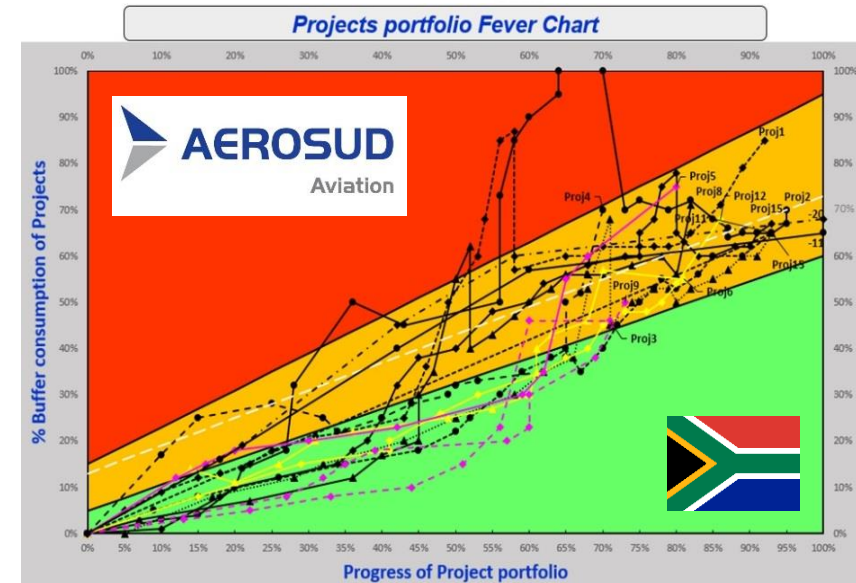
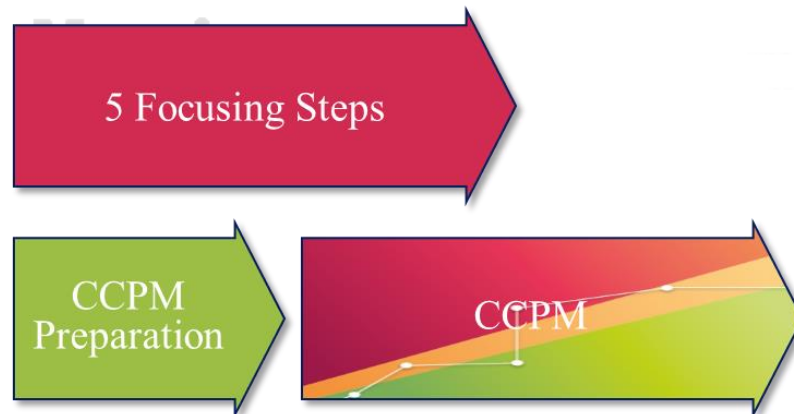
CCPM : recommended but not mandatory

The combination of the 5 Focusing Steps and the Critical Chain

- The combination of the 5 Focusing Steps and Critical Chain Project Management allows companies to:

- Increase throughput and productivity on projects by 2 or 3
- Reduce project duration from 50% to 80%
- Complete almost all projects on time.

- Our recommendation:



Soon! A free online TOCICO conference in November dedicated to Critical Chain!

- TOCICO are hosting a web conference on 23rd and 24th of November 2020
- **Free** for the first 1 000 registrations (so do it now!)
- © Marris Consulting To register: <https://inevent.com/cc2020>
- Philip Marris will be participating
- Some of Marris Consulting's clients are also presenting. Example: Complete factory layout change in 6.5 days.



Marris
Consulting



You can boost your improvement process now

- New webinars are regularly programmed.
- Due to the Covid-19 context, we have transformed all of our services into online services.
- “Remote” Diagnostics and assignments
- Currently >90% of our business is outside of France (Germany, China, Scotland, USA, Spain, Africa, England ...)
- Our next CCPM online inter-company training sessions in English (8 hours over 4 days):
 - 1st to 4th December 2020: Critical Chain – initial training
 - 8th to 11th December 2020: Critical Chain – advanced training
- You can register to our free webinars and our training sessions on our website: <https://www.marris-consulting.com/>



Thank you for your time

© Marris Consulting

Questions ?

**Marris
Consulting**

**Marris
Consulting**

Do not hesitate to connect with me on LinkedIn

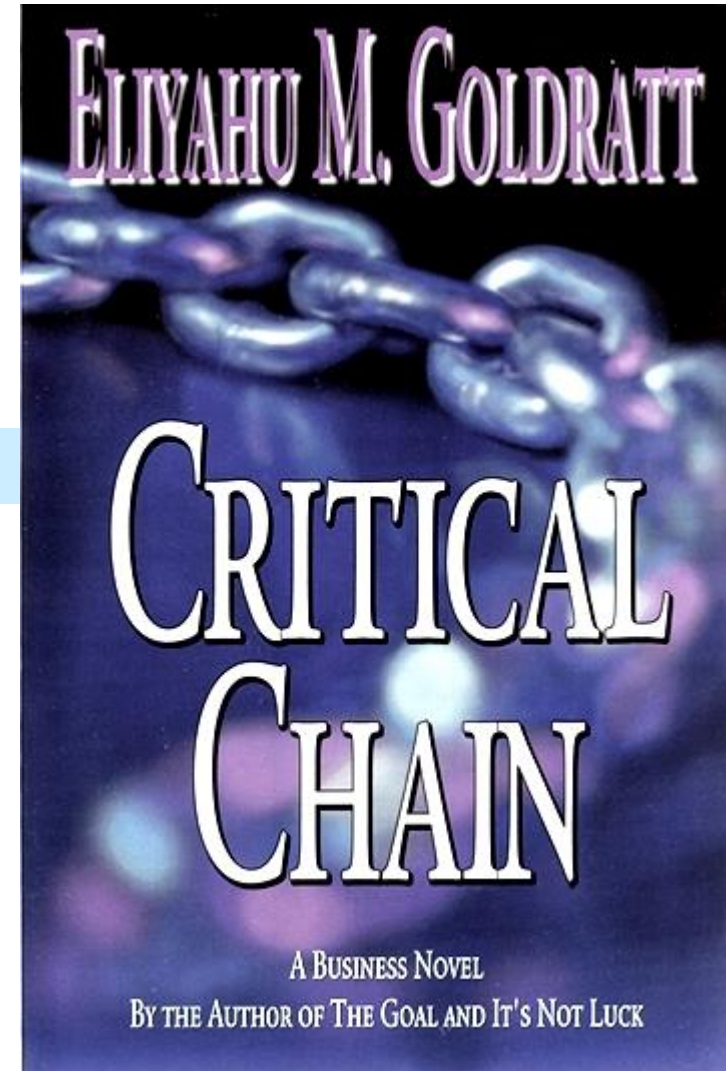
[linkedin.com/in/philipmarris](https://www.linkedin.com/in/philipmarris)

Linked in.



Agenda

- Introduction
 - CCPM and 5 Focusing Steps
© Marris Consulting
 - Some examples
 - Conclusion
-
- Appendices



A website dedicated to Critical Chain
www.critical-chain-projects.com



Home

The Method ▾

Our point of view

To go further ▾

Videos

Training

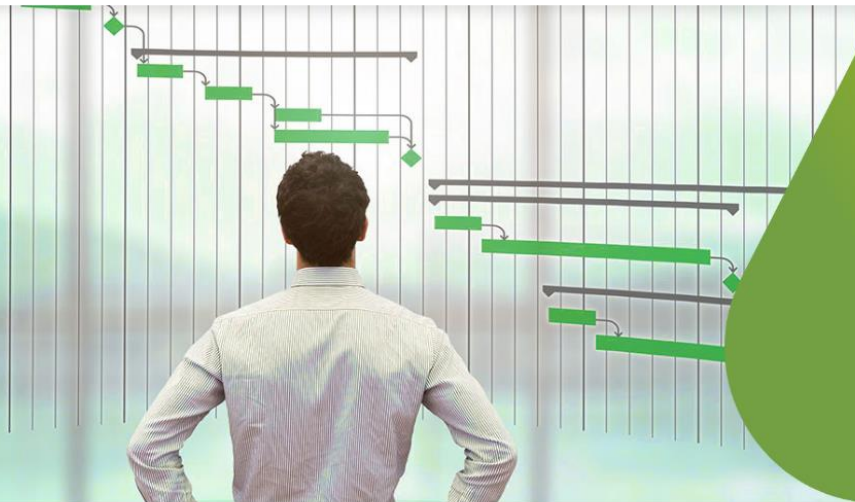
Diagnosis

Contact Us



FR | EN

GO / NO GO
Project Planning
WBS
Resources
Schedule
Costs
Planning finished
Project Execution
Subtask 1
Initiating
Executing
Deliverable
Subtask 2
Initiating
Executing
Deliverable
Project closing
General deliverable



Critical Chain

an innovative method of
project management

THE METHOD →

Dare to finish all your projects on time

This approach, stemming from Theory of Constraints (TOC),
allows to answer 2 recurring questions:

Over 300 videos on the Marris Consulting YouTube Channel

© Marris Consulting



YouTube *Factories, People & Results*

www.Marris-Consulting.com

marrisconsulting
2,01 k abonnés

S'ABONNER

ACCUEIL VIDÉOS PLAYLISTS COMMUNAUTÉ CHAÎNES À PROPOS

Vidéos mises en ligne TOUT REGARDER TRIER PAR

Video Title	Duration	Views	Age
Theory of Constraints in production - 5 min. summary	5:06	55 k vues	il y a 3 ans
Theory Of Constraints Crash course by Philip Marris	13:30	13 k vues	il y a 2 ans
How to identify bottlenecks in production and projects	25:30	10 k vues	il y a 4 ans
La Théorie des Contraintes en Production	5:32	10 k vues	il y a 7 ans
Critical Chain Project Management - 5 min....	6:01	9,9 k vues	il y a 3 ans
# 1 of 7 Logical Thinking Process Introduction	4:37		
TLS: Good TOC + Good Lean	11:59		
Règle "2 pour 1" pour	4:43		
Management de Projets Chaîne Critique	4:51		
Tutoriel - Planification et	7:00		

Useful web links

To get the latest news about Theory Of Constraints

- 5 permanent news website dedicated to Theory of Constraints (www.Scoopit.com)

- Theory Of Constraints (French & English)
- Critical Chain (French & English)
- TLS: TOC + Lean + Six Sigma (English)

- >300 Videos (Marris Consulting YouTube Channel)

- Discussion groups (LinkedIn)

- Critical Chain Project Management
- Theory Of Constraints
- TLS: TOC, Lean and Six Sigma
- Logical Thinking Process

- Others:
 - Twitter, Facebook, etc...

Scoop.it!

You Tube

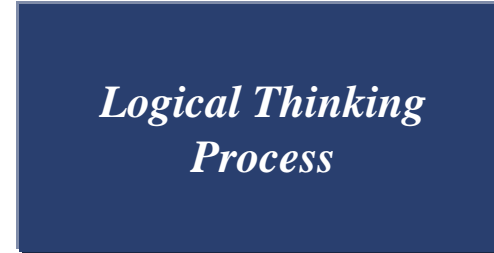
Linked in

twitter

facebook



Marris Consulting organizes more than 30 inter and intra-company training session per year



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.
- Marris Consulting has a reputation for its ability to be pertinent in all kinds of industry. We have worked in over 250 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.
- Marris Consulting is based in Paris, but operates throughout France, Europe and around the world



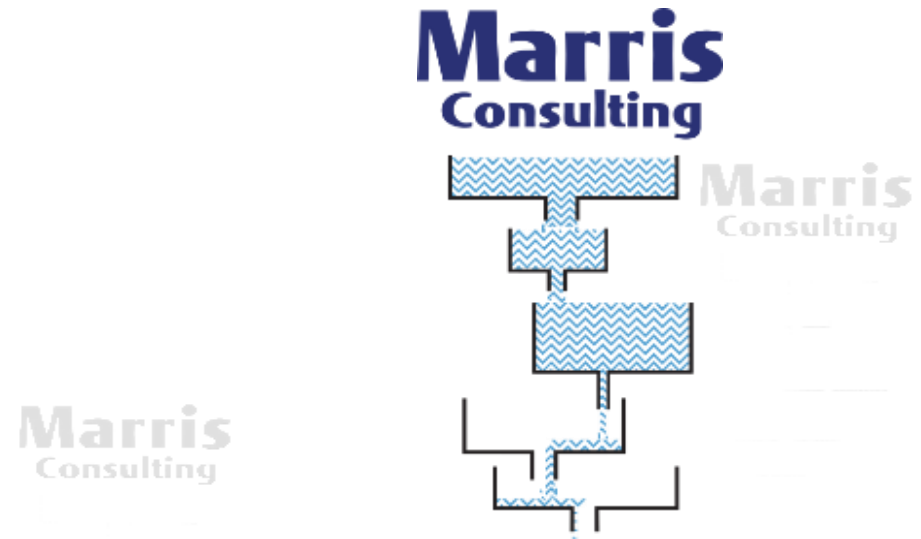
How we do it

- 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 many different fields: "Lean" (manufacturing/engineering/management/..., the Theory Of Constraints, Six Sigma, Industry 4.0, 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.



Philip Marris presents the
38th TOCPA Conference program

Marris Consulting



Factories, People & Results

Tour Maine Montparnasse

27th floor

33, avenue du Maine

Paris 75755 Cedex 15

France

Tel. +33 (0) 1 71 19 90 40

www.marris-consulting.com

© Marris Consulting