



31st International Conference of the TOC Practitioners Alliance - TOCPA

www.tocpractice.com

KUKONASKEL

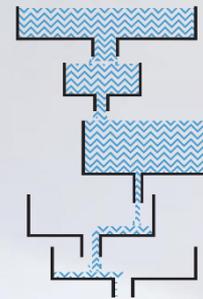
9 March, 2017 – Helsinki, Finland

How TOC thinking can and should be connected with Lean and Six Sigma thinking?

Philip Marris, Marris Consulting, France

Helsinki, 9th of March, 2017

Marris
Consulting



Philip Marris

Theory Of Constraints expert.

31 years of TOC experience. Started working with the founder Eliyahu Goldratt in 1986.

Lean expert.

33 years of experience in Lean. Assists some of the Leanest organizations in the world.

>25 years of experience helping over 150 companies in all industrial sectors.

Founder and CEO of Marris Consulting based in Paris, France. Founded in 2004.

Motto: *Factories, People & Results*



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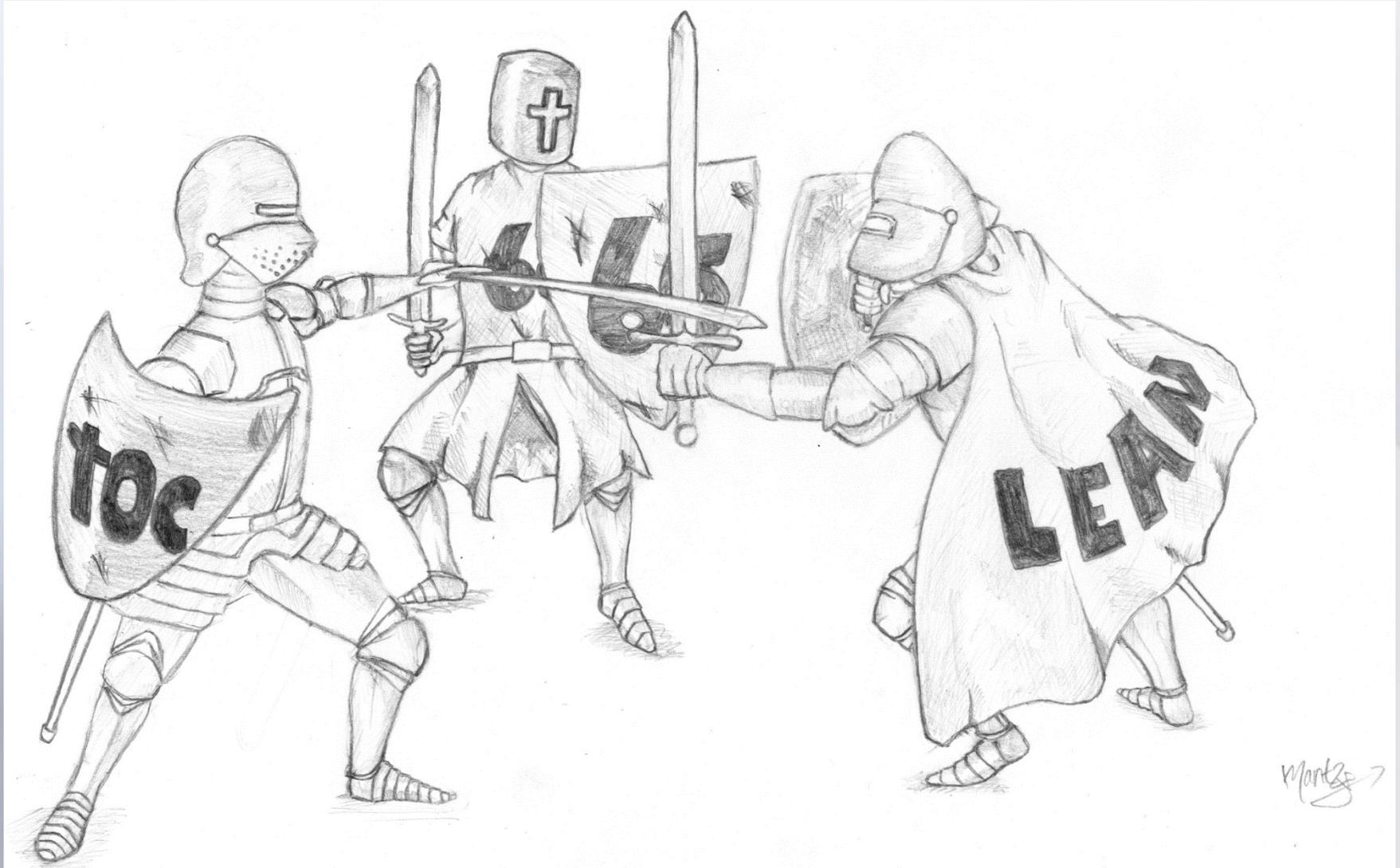


The growing pertinence of the Theory of Constraints

- The world continues to change more and more rapidly: technology, emerging competitors, macro-economics, ...
- ...and yet the speed with which an organization can increase or decrease its capacities / capabilities has not increased correspondingly.
- As a result organizations are more and more unbalanced:
 - Capacity constraints are clearly present
 - The quantity of excess capacities on the non-constraints (80% - 95% of the resources) is increasing year by year.

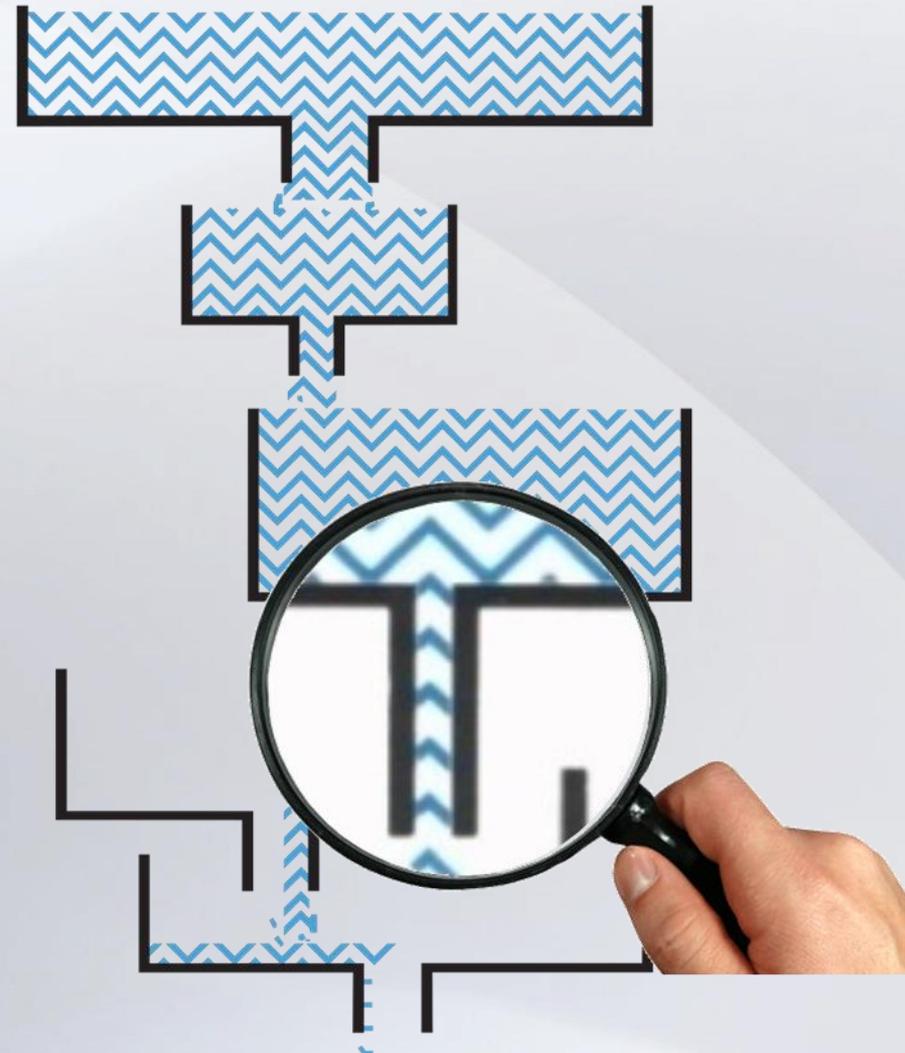


Can anyone remember what we are fighting about!?



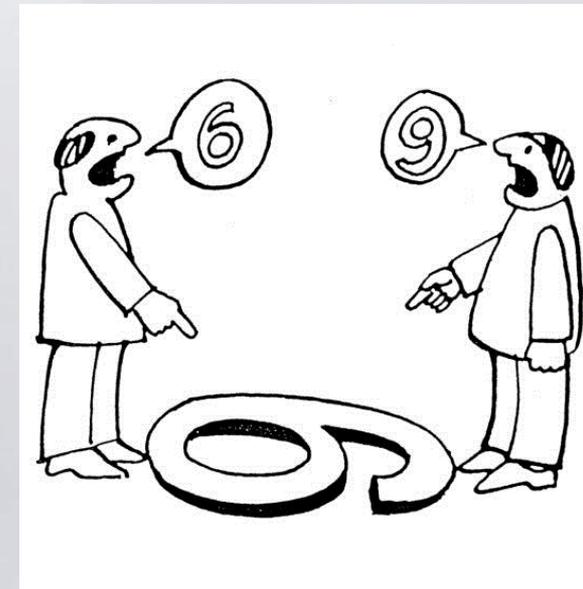
The (very simple) combined approach:

- Use TOC to identify the constraint
- Use Lean, Six Sigma, common sense or method XYZ to improve the performance



What the fight might have been caused by:

- Differences in vocabulary.
- Turf wars between experts.
- Confusion between the good and the bad implementations of the different approaches:
 - Bad Lean is down-sizing and headcount reductions using Japanese words.
 - Bad TOC is a closed mind-set rejecting other people's ideas or attempting to claim that any good idea is just disguised TOC.
 - Bad Six Sigma is a herd of people with judo belts producing very few results.



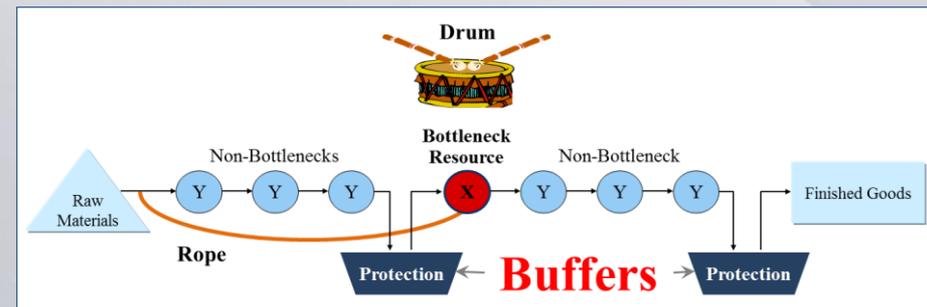
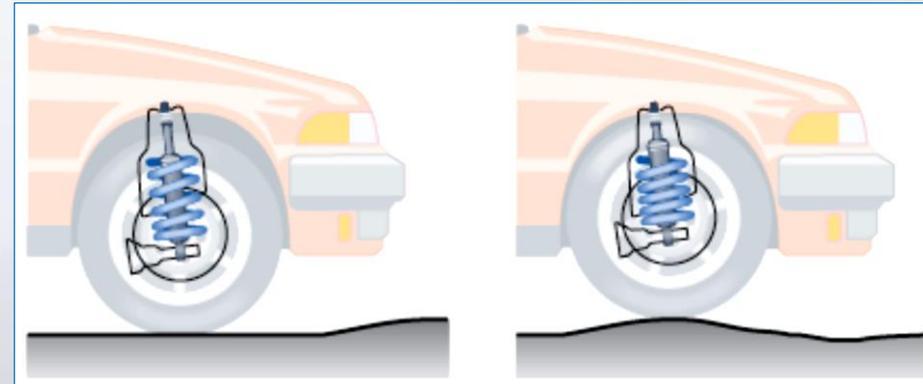
What they share:

- To be obsessed with improving the flow



The only significant difference is their attitude to **variability**

- **Lean** and Six Sigma consider that you can eliminate variability...
 - Hence a **"zero stock" logic**
- ...while **TOC** considers that you cannot totally eradicate variability and you must therefore protect the organisation against it
 - Hence a **buffer logic**



Case study #1

Making rockets

- TOC: The constraint is welding the reservoir (10 out of 350 people)
- TOC: To increase Throughput we used Critical Chain in production (Mascot)
= Throughput increase >100%
- Lean: To improve "right first time" throughout operations
- Six Sigma: to better master the critical welding operation.



Case study #3

Making hamburgers

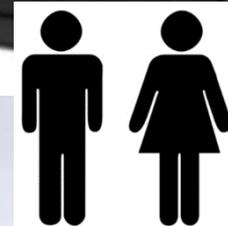
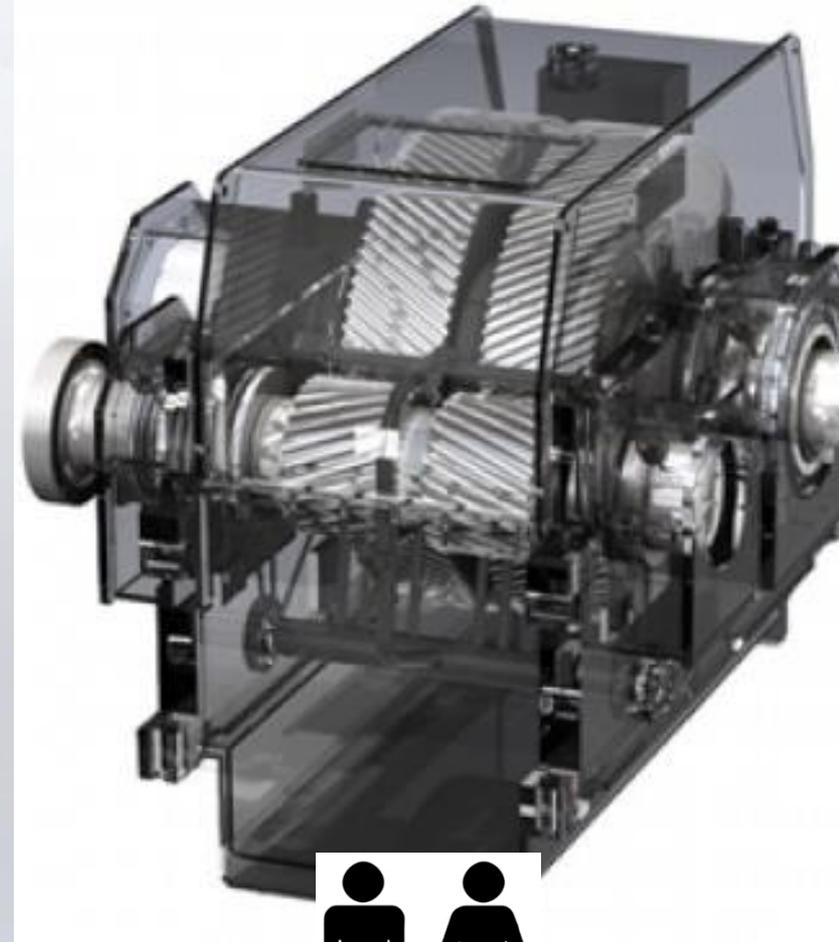
- Analysis: TOC &/or Lean?
 - Full kitting in the kitchen
 - Mistake prevention
- Initial solution: Lean
- Building the future:
TOC + Lean
 - TOC: choosing the best constraint and deciding on the excess capacity of the rest of the resources
 - Lean: designing new facilities where products flow better



Case study #2

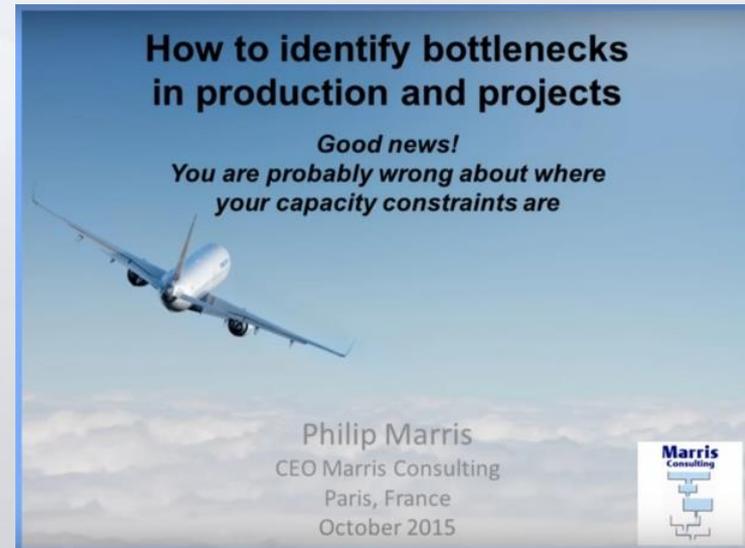
Making big gearboxes

- TOC analysis: The Design Office is the capacity constraint (13 out of 500 people)
- TOC initial solution:
Critical Chain +
+ WIP reduction
= Stop multitasking
= Throughput increase >130%
- Lean to reduce quality issues.



Warning: Don't make a mistake when identifying your constraint

- In our experience there is an 75% probability that you are wrong about where your bottleneck is.
- Beware if the bottleneck is too good to be true. "My big and beautiful bottleneck".
- Beware of your ERPs blind spots.
- Your analysis is probably out of date.
- Forget the data and look for the big queues.

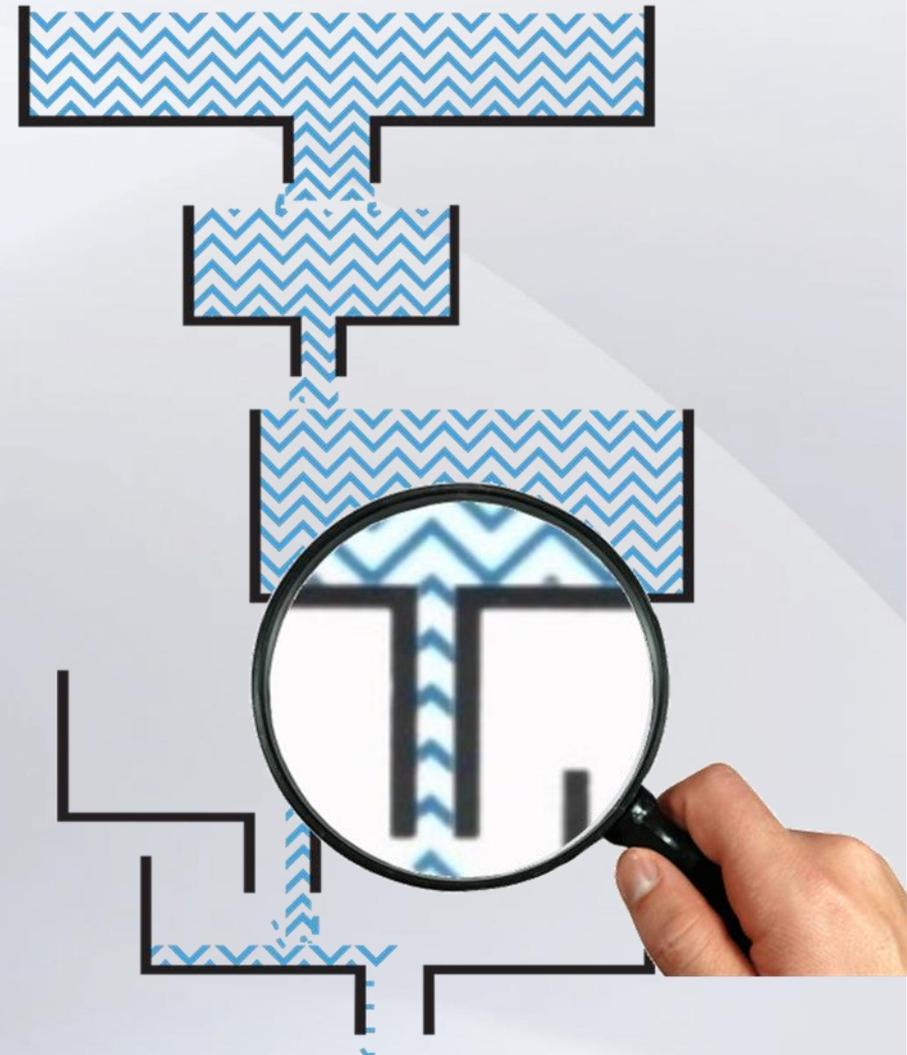


(En) How to identify bottlenecks in
production and projects
25 minute video

Marris Consulting YouTube Channel
<https://youtu.be/uIXqO86OfpU>

Warning: Focussing is not easy!

- Using "TLS" you will identify what you should concentrate on. That will be the easy part.
- The difficult part of being focused is learning not to do what you should not do.



Please forget the label "TLS"!

- TLS = TOC + Lean + Six Sigma
- Yet another acronym / label!
- I don't recommend it even though I am one of its creators!

- Just keep an open, curious mind-set and build your own solution.

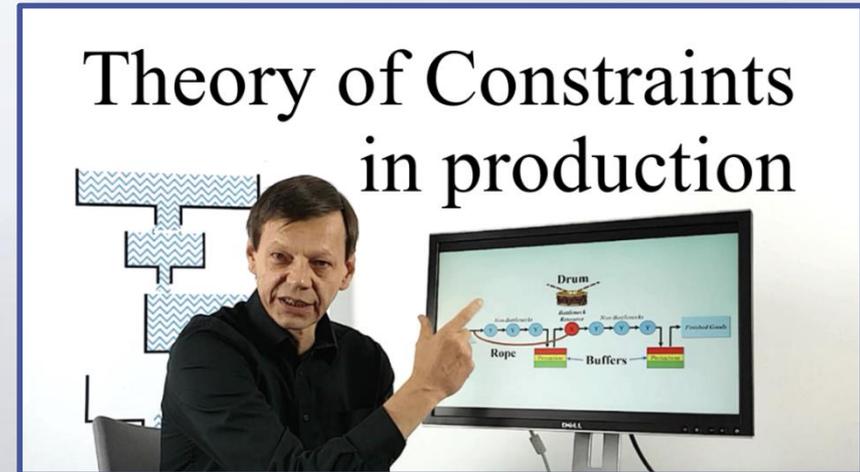
Thank you for your time.

Any questions?

P.S. Do have a look at the appendices to this presentation.

Appendices

A video website: Marris Consulting's YouTube Channel
<https://www.youtube.com/user/marrisconsulting/videos>



(En) Theory of Constraints in production - 5 min. summary



A brief 5 minute summary of how one applies the Theory of Constraints in a production environment. It covers: the axiom of the unbalanced plant, the existence of bottleneck, the Drum – Buffer – Rope flow control mechanism and the improvement strategy (the 5 focusing steps).

To facilitate viewing and video selection use the playlists:

- English videos
- Critical Chain videos
- Etc.

Useful web link: an information website dedicated to TLS
To get the latest news and use the best web sources when surfing

www.scoop.it/t/tls-toc-lean-six-sigma :

Topic « TLS – TOC, Lean Six Sigma »

The combination of Lean, Six Sigma and Theory Of Constraints. How to build your own system by choosing what works for you.

TLS - TOC, Lean & Six Sigma
The combination of Lean, Six Sigma and Theory Of Constraints. How to build your own system by choosing what works for you.
This is YOUR COMMUNITY: PLEASE SUBMIT your links using the SUGGEST BUTTON below.
Curated by Philip Marris

Manage 658 Views Filter Share Suggestions

Scopied by Philip Marris

Focus and Leverage blog by Bob Sproull (recommended)
From focusandleverage.blogspot.fr - August 13, 1:49 PM
My blog is focused primarily on the Theory of Constraints and how to use it to maximize the profitability of any company. I also discuss why integrating TOC with Lean and Six Sigma is the most dynamic improvement methodology available today.

Scopied by Philip Marris

Standing on the Shoulder of Giants video by Eli Goldratt
Standing on the Shoulder of Giants by Eliyahu M. Goldratt
From www.youtube.com - Today, 11:28 AM
7 minutes - Standing on the Shoulder of Giants by Eliyahu M. Goldratt - YouTube

Scopied by Philip Marris

Dr. Deming Performing the Red Bead Experiment - 2 min. video
Dr. Deming Performing the Red Bead Experiment

Scopied by Philip Marris

Toyota, a growth model: employee growth over 75 years

A permanent news website dedicated to Theory of Constraints

Theory Of Constraints
Management approach developed by Eliyahu Goldratt: identification and leverage of system constraint(s) + Thinking Processes. This is YOUR COMMUNITY: PLEASE SUBMIT your links by logging in and using the SUGGEST BUTTON below.
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Scooped by Philip Marris

One of the best TOC websites in the world by Kelvyn Youngman

From www.tbmfq.co.nz - August 1, 8:30 PM
Kelvyn Youngman has done the organizational world an invaluable – no, indispensable – service with this web site. This is the first comprehensive, truly system-level look at the Theory of Constraints – and probably the only one anywhere. H. William Detmer, recognized Expert in TOC, author of 4 bestselling TOC books.

Scooped by Philip Marris

Theory of Constraints UK | LinkedIn group

From www.linkedin.com - October 5, 3:19 PM
The purpose of this group is for UK industry leaders to exchange ideas, tips and experiences of applying Goldratt's Theory of Constraints.

Scooped by Philip Marris

Goldratt's Dice Game for iPad \$2.59

Rescooped by Philip Marris from TLS - TOC, Lean & Six Sigma

Standing on the Shoulder of Giants video by Eli Goldratt

Standing on the Shoulder of Giants by Eliyahu M. Goldratt

From www.youtube.com - October 5, 8:01 PM
7 minutes - Standing on the Shoulder of Giants by Eliyahu M. Goldratt - YouTube

Rescooped by Philip Marris from TLS - TOC, Lean & Six Sigma

What's Wrong with Supply Chain Metrics? By Debra and Chad Smith - 7 page article

<http://www.scoop.it/t/theory-of-constraints-by-philip-marris>

A permanent news website dedicated to CCPM

Critical Chain Project Management
"CCPM" Project management approach that is part of the Theory Of Constraints (TOC) developed initially by Eliyahu Goldratt.
This is YOUR COMMUNITY: PLEASE SUBMIT your links by logging in and using the SUGGEST BUTTON below.
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Rescoped by Philip Marris from Théorie des Contraintes (ToC) & CCPM

Critical Chain Project Management new LinkedIn discussion group

From www.linkedin.com - September 21, 9:56 AM
Group created September 20th 2013.

The goal of this group is to discuss all aspects of CCPM:

- Planning and execution
- Resources: books, websites, presentations...
- Events: conferences, seminars, training sessions...
- Case studies and examples
- Variants according to context: Pharma, Construction...
- New ideas and evolutions
- Managerial (alignment, visual tools, ...)
- Cultural aspects of CCPM (attitude to commitments and uncertainties...)
- Combination with Agile, Scrum, Kanban...
- Links with standard project management best practices: PMI, Prince...
- Links with Lean (Engineering, Projects...)
- Comments on CCPM software
- Simplified CCPM for simple projects, maybe without software
- General project management issues (such as Work Breakdown structure architectural best practices) especially when CCPM has an impact
- Etc.

Via [Guillaume Maison](#)

Philip Marris insight:
I am the administrator of both this webpage you are reading and the LinkedIn group. My goal is that these 2 entities reinforce each other. News and minor/quick/simple comments here and in depth discussions in the LinkedIn discussion group.

Scooped by Philip Marris

Mazda credits Critical Chain Project Management for company turnaround

Made by TOC

From www.br.com - October 6, 3:01 PM
Mr. Mitsuo Hitomi, Executive Officer from the Mazda Motor Corporation Power Train Development Division presented [...] how Critical Chain Project Management enabled Mazda to quickly develop their innovative SkyActiv capability. [He] described the crisis faced by Mazda [...] surviving four straight years of significant financial losses. Mr. Hitomi described the last chance for Mazda to survive by developing technology that would achieve low fuel consumption from an internal combustion engine that would rival a hybrid engine, no compromise in the driving pleasure, and affordable for all customers. The product development cycle had to be cut in half for Mazda to survive. Starting with Critical Chain Project management education in 2007, the momentum grew within the company for holistic project management until the development project duration was cut by half. [...]

Rami Goldratt, CEO of Goldratt Consulting, said, "Mazda gives the world another great example of the power of TOC to generate results previously thought not possible - financially, operationally, and at least as importantly, in the growth and harmony of the people themselves." Mazda has won 73 awards for its SKYACTIV technology as of 20 January 2013 including Japan

<http://www.scoop.it/t/critical-chain-project-management>

<http://www.scoop.it/t/critical-chain-project-management>

A LinkedIn Discussion group dedicated to TLS – TOC Lean Six Sigma

On www.linkedin.com:
Group: TLS – TOC Lean Six Sigma
The oldest and most established LinkedIn group on the topic of TLS. Almost all of the world's experts of TLS are members of this group.

TLS - TOC Lean & Six Sigma 1,936 members

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What is the Unrefusable Offer for TLS (or any of its constituents?) Manager's Choice
Henry Fitzhugh Camp
Managing Member at TOC Equity Partners
I'll define an Unrefusable or "Mafia" Offer as one that causes a person to whom it is offered to want to say YES every time. A person...
Like (4) · Unfollow · June 25, 2012

Start a discussion or share something with the group...

"TOC+Lean" and CCPM - 2 European Seminars in English in Paris Sept. 2013
Philip MARRIS
Founder, Owner and CEO at MARRIS Consulting
5th and 6th of September 2013. 2 one day seminars by Philip Marris and Christoph Lenhart
Day 1 - "Turbocharge your Lean Program with the Theory Of Constraints"
Day 2 - "Turbocharge your Projects with the Theory Of Constraints"
For details of ...
[Training and Seminars](http://marris-consulting.com) marris-consulting.com
Like (5) · Comment (14) · Follow · 1 month ago
Paul Merino, The Time Hunter @SEUILS, Ad Vermeulen and 3 others like this
See all 14 comments

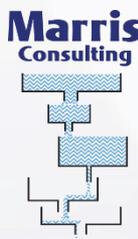
Top Influencers in this Group
Philip MARRIS
Founder, Owner and CEO at MARRIS Consulting
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University of Salford UK
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MBA designed for Working-Professionals.Limited seats available for Sep 2013

Latest Activity
Joanna Malas has joined the group. 1 hour ago
Paul Merino, The Time Hunter @SEUILS likes this comment by Philip MARRIS New Scoop.it! topic: "TLS - TOC Lean Six Sigma": I have been adding more posts. The latest is the "Standing on the shoulder of giants" 7 minute video by Eli



A LinkedIn Discussion group dedicated to Critical Chain Project Management

Critical Chain Project Management

540 members

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Philip MARRIS
CEO Marris Consulting - Expert in Lean and Theory Of Constraints
OWNER

Critical Chain Project Management news and information website

I curate a website called "Critical Chain Project Management" (using Scoop it). It aims to allow users to keep up to date with CCPM news from just one website.

<http://www.scoop.it/t/critical-chain-project-management>

It has been awarded the Gold label for the quality of its content. I started it in 2013.

Critical Chain Project Management
"CCPM" Project management approach that is part of the Theory Of Constraints (TOC) developed initially by Eliyahu Goldratt.

Unlike Comment | You +13 3

ABOUT THIS GROUP

Critical Chain Project Management or CCPM is an approach to managing projects and project portfolios developed initially by Eliyahu Goldratt. It is a part of the Theory Of Constraints (TOC).

The goal of this group is to discuss all aspects of CCPM: [... Show more](#)

MEMBERS 540 members

Invite others

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<https://www.linkedin.com/groups/5183858>

Beware there are several with similar names. This one is named: *Critical Chain Project Management*

Ravindranath Pandian
Author, Consultant, Teacher - Software Metrics, Risk Management, Six ...

*** 1w

The Fallacy of Accuracy

Often we find people mistake precision in numerical expressions for accuracy of information. A numerical expression with five decimal places is ridiculous if it happens to be wrong in the first decimal place. Sometimes we can only get approximate val... [Show more](#)

MEASUREMENT SCALES
Abstract: A common concern in software metrics is data quality. One of the problems is related to having wrong expectations with respect

Like Comment

Reply to this conversation...

Jonathan Sapir
Founder and CEO at SilverTree Systems

*** 2w

Why is CCPM not more mainstream?

Here are some things I came up with:

- CCPM literature is not easily accessible to average project managers
- CCPM has manufacturing roots
- CCPM induces discomfort
- CCPM threatens traditional project management
- CCPM is counterintuitive

People don't want to chen... [Show more](#)

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Jonathan Sapir Definitely much easier with an organization that does not already have a cemented culture. Would be nice to have a simpler marketing approach though. "Critical Chain" and "Theory of Constraints" somehow doesn't have the same appeal as Agile, Lean, Sprints ...

Like *** 1w

Reply to this conversation...

Jonathan Sapir
Founder and CEO at SilverTree Systems

*** 2w

Relay race and Resource scheduling

Using the relay race approach, it is not possible to know when resources will actually be needed. It seems to me that this makes it somewhat difficult to forecast resource needs over time and therefore hinders the ability to take into account resource... [Show more](#)

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Welcome to the TOC in Project Management Portal

Success Stories » Project Management Portal



We're excited to provide free access to 6 of the 87 (and growing) Theory of Constraints (TOC) project management presentations ranging from a workshop presenting the basics of critical chain project management (CCPM) to its use in information technology and software development projects, to and implementations in the Lithuanian government Department of Economy, in a pharmaceutical research and development corporation and in a massive maintenance, repair and overhaul center for a large airline. These selections illustrate the universal use of CCPM across industries and across geographically separated and

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ABLE TOC's role in the success of... (text about TOC implementation in a company)

Anderson, D. J. (2004). TOC software engineering solution with... (text about software engineering)

The presentation seeks to explain the TOC solution of critical chain project management (CCPM) for use in modern software engineering... (text about software engineering)

Rastvorova, M. (2012). Implementing CCPM in the... (text about CCPM implementation)

The Quality Fund of the Department of Economic... (text about Quality Fund)

Kucinskias, R., et al. (2012). Implementation of CCPM in the... (text about CCPM implementation)

In this paper, I take you through the journey of CCPM implementation in our company... (text about CCPM implementation)

James, G. (2006). Delta Air Lines: Meeting challenges in engine maintenance... (text about Delta Air Lines)

Victoria University Wellington New Zealand – TOC Database
<http://www.victoria.ac.nz/som/research/theory-of-constraints>

TOCPA
Theory of Constraints Practitioners Alliance
SHARING EXPERIENCE

TE WHARE WĀNANGA O TE ĀPOKO O TE IKA A MĀUI
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You are here: [Home](#) > [Research](#) > [Theory of Constraints](#)

Theory of Constraints: A Research Database

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Theory of Constraints: A Research Database

Welcome to the Theory of Constraints (TOC) online resource, which aims to support collaboration between researchers and practitioners in the field.

About the Theory of Constraints database

A database of TOC articles, books and conference papers was started back in 1996, with our first bibliography published in 2000.

We have recently searched the literature and updated our records and have now assembled over 4000 articles, books, and conference papers, on all areas of TOC. The database here contains journal articles and conference papers, to complement the [listing of TOC books compiled by Prof Jim Cox](#), which is available on the TOCICO website.

This evolving database will be published via regularly updated spreadsheets that build on the great work done to date, and available as a downloadable resource for researchers and practitioners alike.

Database Categories	File size	File type
Critical Chain Project Management (CCPM) (updated April 2016)	6 MB	Excel spreadsheet
Thinking Processes (updated April 2016)	5,967 KB	Excel

Reference Type	Year	Title	Author	Publication	Abstract	URL
A+ Journal	2016	Zhang, Janguang; Song, Xiwet; Diaz, Estrella	European Journal of Operational Research	Project buffer sizing of a critical chain based on comprehensive resource tightness	A buffer sizing method based on comprehensive resource tightness is proposed in order to better reflect the relationships between activities and improve the accuracy of project buffer determination. Physical resource	http://www.sciencedirect.com
Book Section	2016	Critical Chain Project Management (CCPM)	Elk, George	Project Management in Product Development	This chapter presents critical chain project management (CCPM). The chapter starts with an overview of the method and then relates it to the Theory of Constraints, the foundation of the technique. A step-by-step	http://dx.doi.org/10.1016/b
A+ Journal	2015	Quantitative Analysis of Rate-Driven and Due Date-Driven Construction: Production Efficiency, Supervision, and Controllability in Residential Projects	Arashpour, Mehdi; Wakefield, Ron; Bismas, Nick; Abbasi, Sina	Journal of Construction Engineering and Management	Concerns about production efficiency, quality, and affordability in the residential construction indicate there may be benefits in adopting alternative production control strategies to those traditionally used. Reducing adverse	http://ascelibrary.org/doi
A Journal	2015	Optimisation of critical chain sequencing based on activities' information flow interactions	Zhang, Janguang; Song, Xiwet; Chen, Hongyue; Shi, Rui	International Journal of Production Research	One critique for the classic critical chain sequencing methods is that only resource constraints and logical relationships between activities are considered, while interactions of information flows are ignored. However,	http://www.tandfonline.co
Other Journals	2015	Productivity of product design and engineering processes	Hackelklyn, Johannes; Deckers, Rob; Kreutzfeld, Jochen	International Journal of Operation and Production Management	Purpose – Maintaining and improving productivity of product design and engineering processes has been a paramount challenge for design-driven companies, which are characterised a high degree of development of	http://dx.doi.org/10.1108/j
C Journal	2015	Inclusion of strategic management theories to project management	Parker, David W.; Parsons, Nicholas; Ishayiro, Fati	International Journal of Business Projects in Business	Purpose – The purpose of this paper is to explore the benefits of integrating the theory of constraints (TOC), resources-based theory (RBT), resource advantage theory (RAT), with a structured project-based methodology, e.g.,	http://www.emeraldinsigh
Other Journals	2015	A Model for Continuous Improvement at a South African Minerals Beneficiation Plant	Ras, E.; Vasser, Jk	South African Journal Of Industrial Engineering	South Africa has a variety of mineral resources, and several minerals beneficiation plants are currently in operation. These plants must be operated effectively to ensure that the end-users of its products remain internationally	http://www.scielo.org.za/s
A Journal	2015	Dynamic monitoring and control of software project effort based on an effort buffer	Zhang, Janguang; Shi, Rui; Diaz, Estrella	Journal of the Operational Research Society	The improvement to the monitoring and control efficiency of software project effort is a challenge for project management research. We propose to overcome the challenge through the use of a model for the buffer	http://www.palgrave-paui
A Journal	2015	Project management for uncertainty with multiple objectives: optimisation of time, cost and reliability	Jeang, Angus	International Journal of Production Research	This research adopts an approach that uses computer simulation and statistical analysis of uncertain activity time, activity cost, the date and project budget to address quality and the learning process with regard to	http://dx.doi.org/10.1080/i
B Journal	2015	Improving performance in project-based management: synthesizing strategic theories	Kareusa, Cullen; David, W. Parker	International Journal of Productivity and Performance Management		http://dx.doi.org/10.1108/i
Other Journals	2014	A decomposition heuristics based on multi-bottleneck machines for large-scale job shop scheduling problems	Zhai, Yanyi; Liu, Changlin; Chu, Wei; Guo, Ruiting; Liu, Wakers, Andrea	Journal of Industrial Engineering and Management	A decomposition heuristics based on multi-bottleneck machines for large-scale job shop scheduling problems (JSP) is proposed. In the algorithm, a number of sub-problems are constructed by iteratively decomposing the large-	http://www.jem.org/index
Other Journals	2014	COMFRC Addresses Legacy Hornet Readiness	Walters, Andrea	Naval Aviation News	According to PMA-265, 114 aircraft have completed inspections and are designated for service life extensions beyond 8,000 flight hours, with an additional 102 aircraft undergoing high-flight-hour inspections at Fleet	http://web.besidesdo.com
Other Journals	2014	Software Project Management: Theory of Constraints, Risk Management, and Performance Evaluation	Asseman, Antoine; Akrafi, Nada Ashgar; Salim, Marwan; Resk,	The Journal of Modern Project Management	Constraints and risks are two critical factors that affect software project performance. More attention needs to be paid to constraints and risks in order to improve performance. In this paper, investigation will take place to	http://www.journalmoder
Book Section	2014	Critical Chain Project Management		A Handbook for Construction Planning and Scheduling	Critical Chain Project Management™ (CCPM) is frequently presented as a revolutionary new project management concept, an important breakthrough in the history of project management. CCPM focuses on the uncertainty in	http://dx.doi.org/10.1002/s
Other Journals	2014	Critical Chain Method in Traditional Project and Portfolio Management Situations	Amanatullah, Vital S.; Webb, James B.	International Journal of Information Technology Project Management (IJITPM)	Critical Path (CP) method has been under scrutiny in recent years as the next evolution of project schedule development, the Critical Chain (CC) project management is gaining attention. Advocates of the Critical Chain	http://www.igi-global.com
Other Journals	2014	Theory of Constraints and Its Application in a Specific Company	Lilhart, Jakub; Skokolsky, Janom; Brnenski,	Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis	This article analyses the possibilities of the practical utilization of Critical Chain Project Management methodology. One study analysed key processes related to the implementation and utilization of such a tool in a concrete	http://acta.mendelu.cz/62/
Conference Proceedings	2014	Multi-objective optimization model for multi-project scheduling on critical chain	Wang, Wei-xian; Wang, Xu; Ge, Xiao-kang; Deng, Lei	Advances in Engineering Software	In this paper, a multi-project scheduling in critical chain problem is addressed. This problem considers the influence of uncertainty factors and different objectives to achieve completion rate on time of the whole projects. This	http://www.sciencedirect.com
C Journal	2014	Mitigating behavioral outcomes in a multiproject environment: a modified CCPM model	Agarwal, Atul Larson, David	Academy of Information and Management Sciences Journal	Organizations continue to struggle in managing projects that lead to successful conclusions. While tools such as PERT and CPM have helped the project management process, they have not produced the level of success as	http://search.proquest.com
C Journal	2014	Mitigating Behavioral Outcomes in A Multi-Project Environment: A Modified CCPM Model	Agarwal, Atul Larson, David	Academy of Information and Management Sciences Journal	Organizations continue to struggle in managing projects that lead to successful conclusions. While tools such as PERT and CPM have helped the project management process, they have not produced the level of success as	http://search.proquest.com
C Journal	2014	Critical chain and theory of constraints applied to yachting shipbuilding: a case study	Bevilacqua, Maurizio; Ciuripa, Filippo Emanuele; Marzotto,	International Journal of Project Organisation and Management	Product development projects, like many other types of projects, often can exceed their planned schedule by 50% to 100%. Often this is attributed to uncertainty or the unforeseen. To compensate for this age-old dilemma	http://www.inderscienceo
Conference	2014	The ITLS (TM) model Integration of Theory of Constraints, Lean Manufacturing and Six Sigma: A	Nayami, Carlos I. M.; Cobo, Marek G.	Proceedings of the 2014 International and Six Sigma	Recently the three most applied approaches into the Operations Continuous Improvement are Theory of Constraints (TOC), Lean Manufacturing and Six	http://search.proquest.com

Miscellaneous sources

- Constraints Management book by Philip Marris – Executive summary (contact Marris Consulting)
- TOCICO conference – ToC + Lean + Six Sigma or TLS – What is it? (see www.marris-consulting.com)

Theory of Constraints
TOCICO
International
Certification Organization
TOCICO 2013 Conference

**TOC + Lean + Six Sigma
or TLS**

**What is it?
Is it a threat or an opportunity for TOC?**

Presented by: Philip MARRIS
Date: Thursday 6th of June 2013 in Frankfurt, Germany.

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Philip Marris
Constraints Management
*The Theory of Constraints (ToC)
applied to industrial operations*

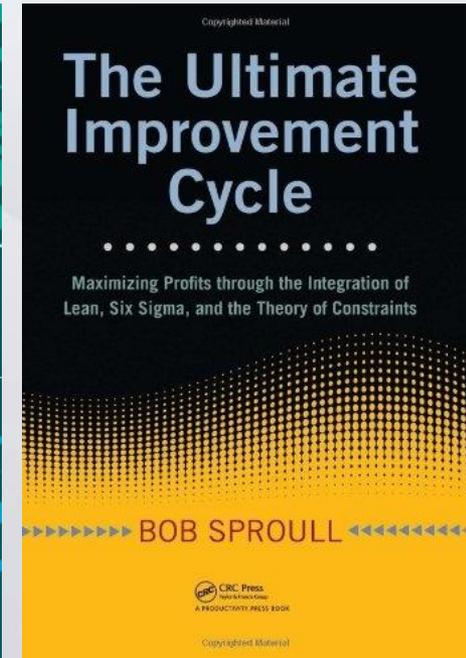
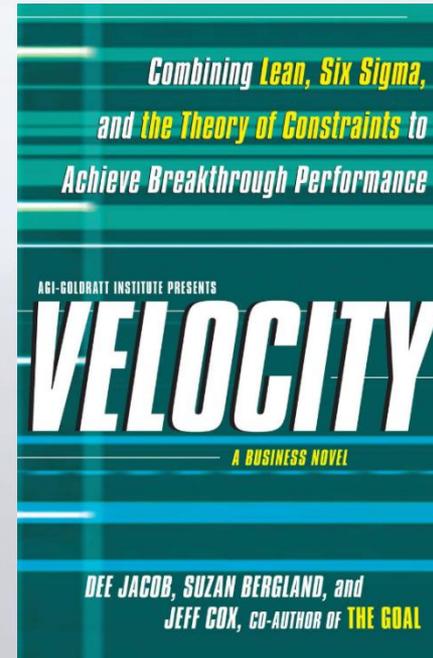
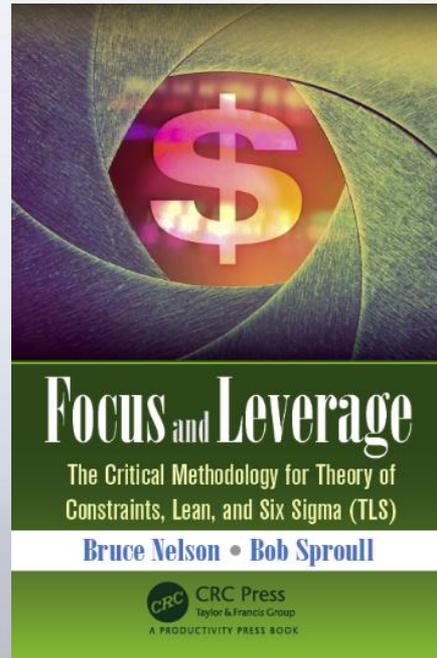
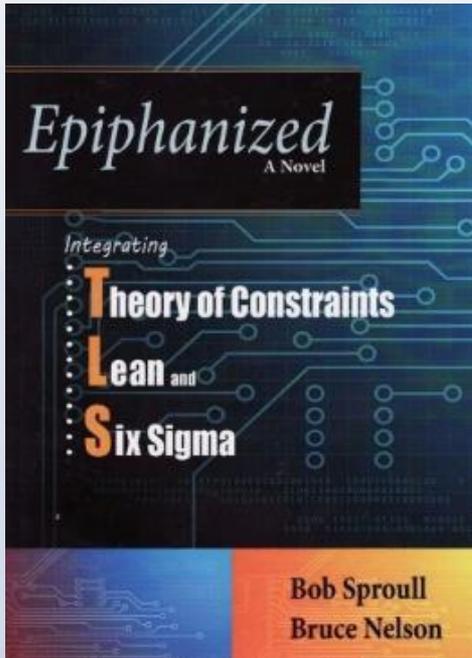
*Executive Summary of the 1994 book
with a rough update in 2016*

**Marris
Consulting**

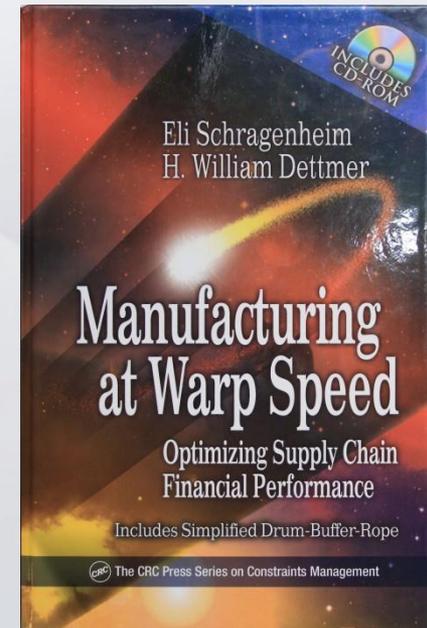
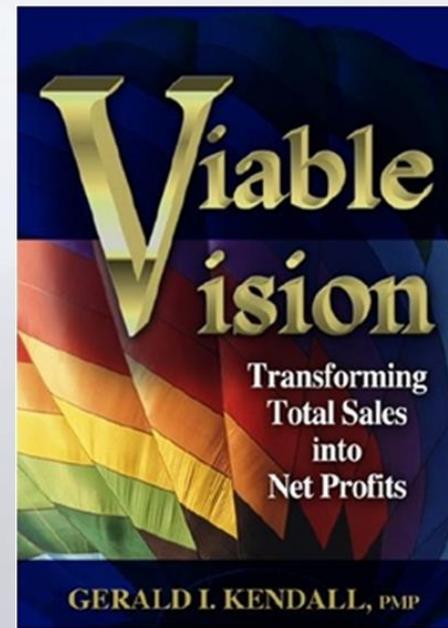
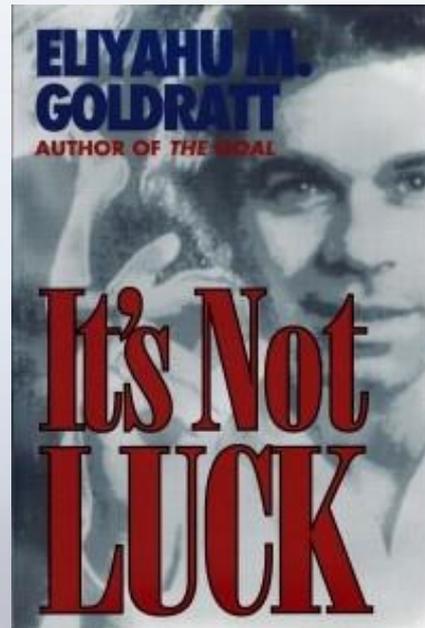
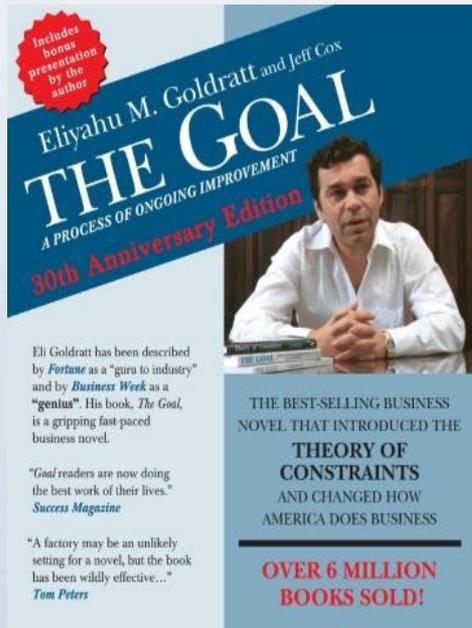
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© Marris Consulting. Translation = a rough update by the author of the Introduction to the book
Le Management Par les Contraintes en gestion industrielle (Editions S'Organisation, Paris, France, 1994, ISBN 2-7081-1666-5).
Paris, 15th of July 2016 MPC Intro Ed 1 UK V1.45 20160719

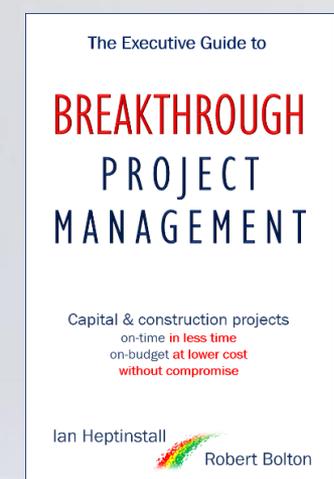
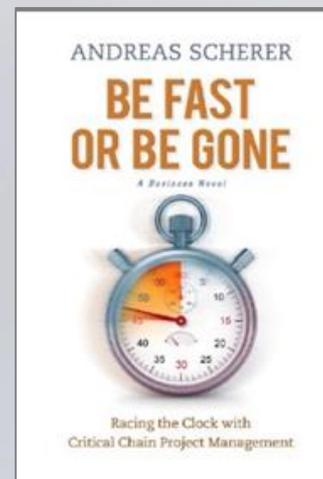
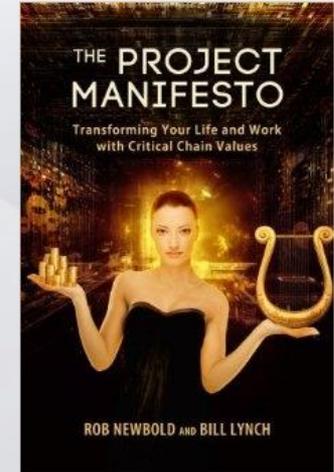
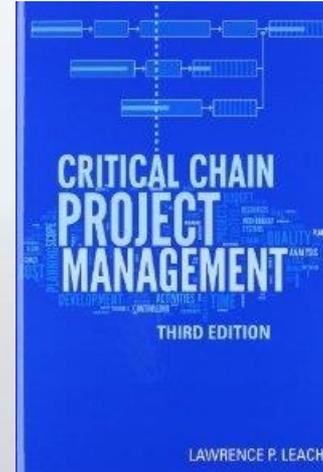
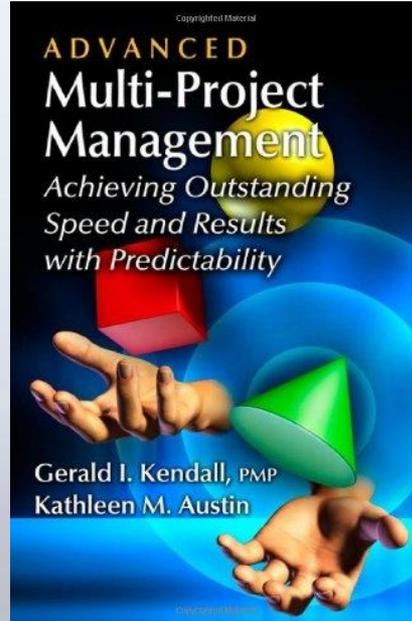
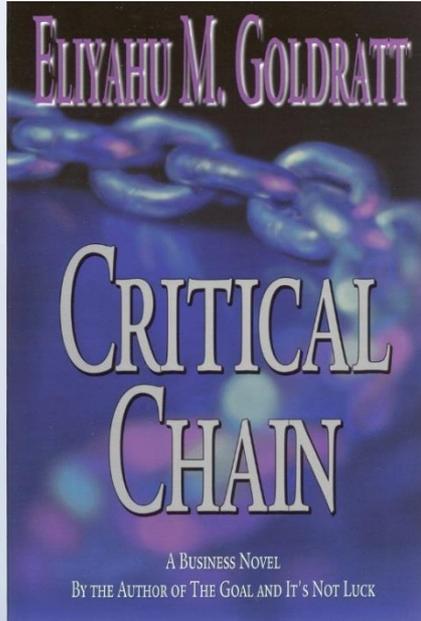
TLS books



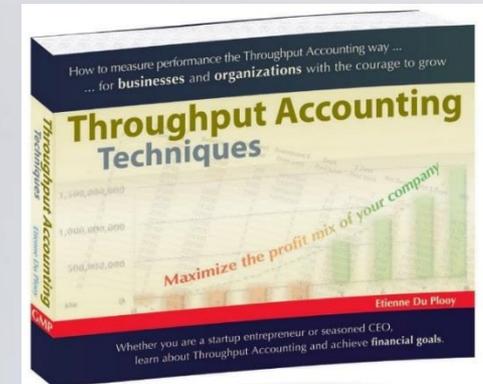
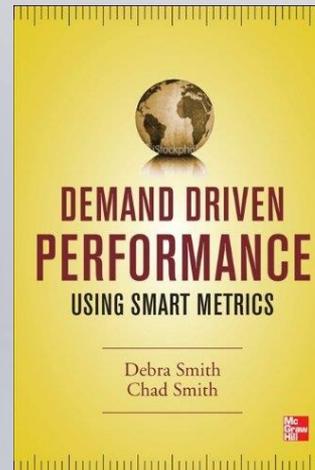
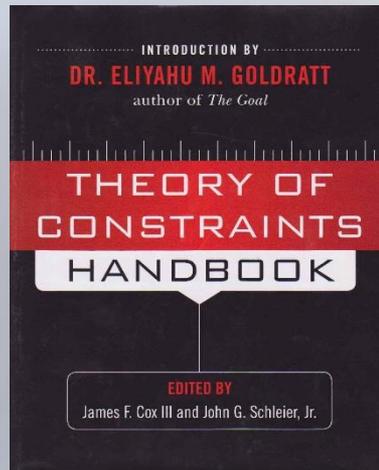
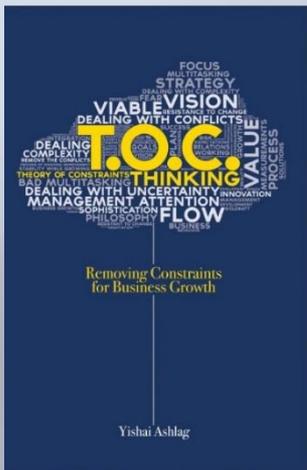
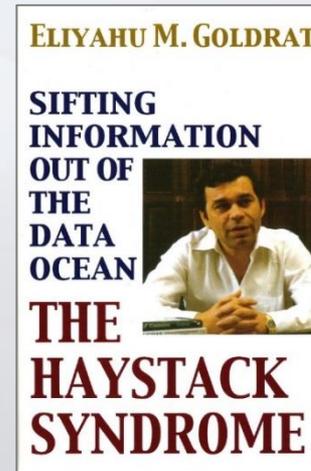
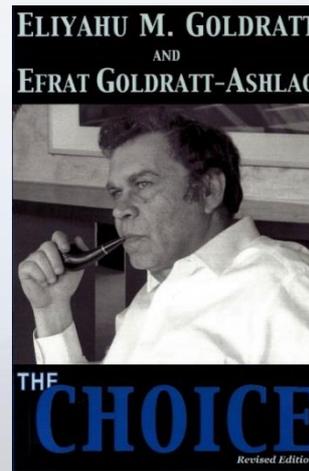
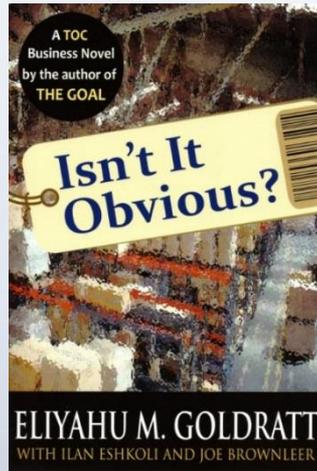
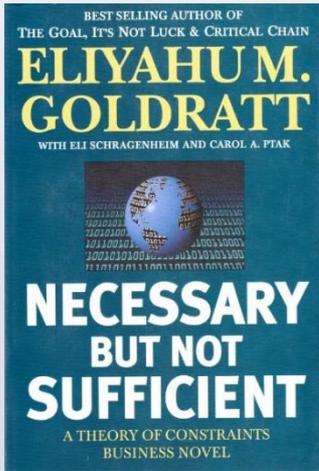
Theory of Constraints books



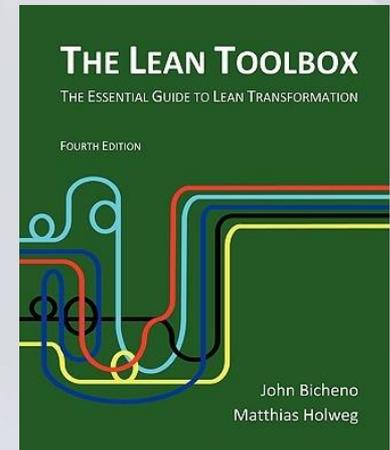
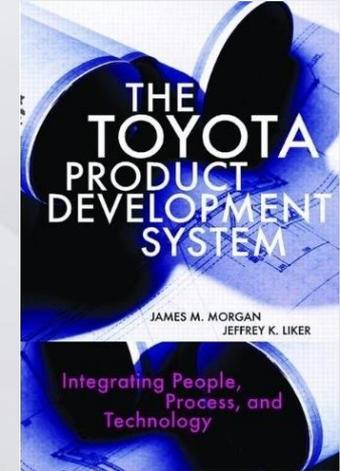
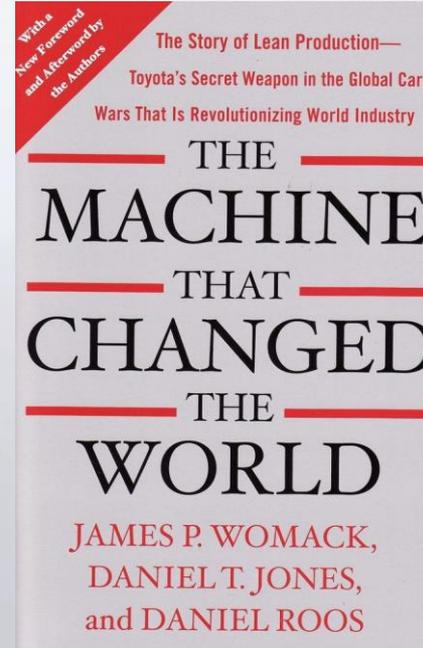
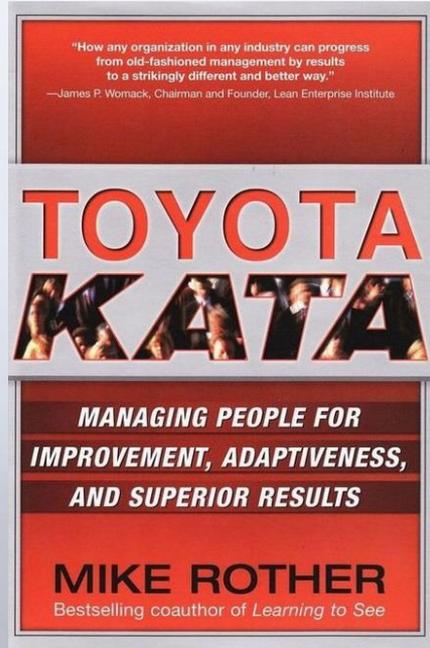
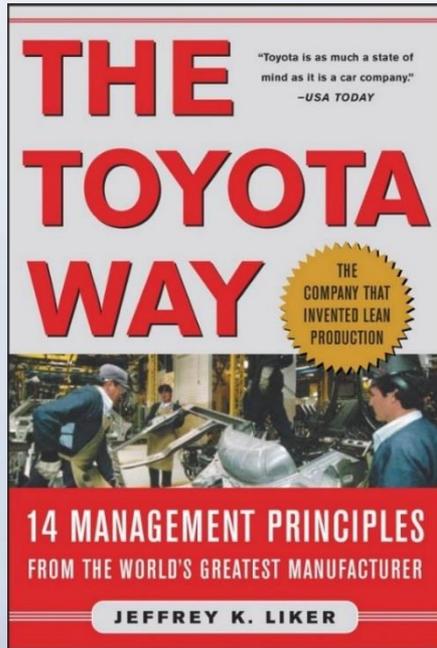
Critical Chain books



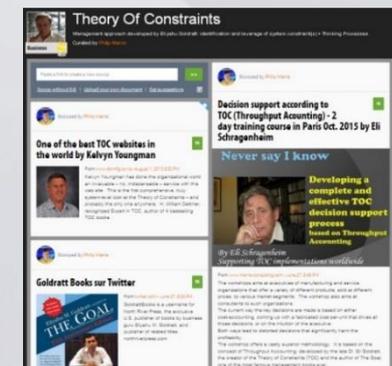
Other ToC books



Lean books



- 5 Permanent news websites (www.Scoopit.com)
 - Theory Of Constraints (English & French)
 - Critical Chain in (English & French)
 - TLS: TOC + Lean + Six Sigma
- >120 Free Videos (YouTube Channel)
- Discussion Groups (LinkedIn)
 - Critical Chain
 - TLS: TOC, Lean and Six Sigma
- 2 dedicated websites in French
 - TOC in Production
 - TOC in Projects
- Others:
 - Twitter, Facebook, Viadeo, Etc.



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





Philip Marris, Founder and CEO of Marris Consulting
Business transformation, Theory Of Constraints and Lean expert

30 years of experience, 56 years old, Manufacturing & Supply Chain expert
Bilingual & bicultural English/French

COMPETENCIES

- **Transformation programs in industry**
- **Industrial Excellence Expert (manufacturing and product development).** Recognized expert in Lean, Six Sigma and Theory Of Constraints. Often combines these ("TLS").
- **Author** of an industrial management bestseller in France: *Le Management Par les Contraintes en gestion industrielle*, Editions d'Organisation [1994, 1996, 2000, 2nd Edition currently underway).

FORMER POSITIONS

- Cap Gemini Ernst & Young / Bossard Consultant: In charge of Manufacturing Operations for France & Europe (>200 consultants)
- Cap Sogeti Industrie
- Creative Output: collaborated with E. Goldratt author of *The Goal*
- Vallourec: Shop floor foreman, Methods Engineer
- Professor at HEC Management School (Supply Chain & Manufacturing).

SECTORS / CLIENTS

- Over 150 engagements in industry.
- Aeronautical
- Pharmaceuticals
- Automobile industry: car makers and suppliers
- Process industry: steel, glass, cardboard, extruded plastic
- World leader in ball bearings
- MRO rail and aeronautical
- Packaging: cardboard, steel, plastic
- Electrical power systems: world wide leader
- Furniture manufacturer, Marine engine manufacturer, Armoured vehicles manufacturer, Electronics: printed circuit boards, ...

MISSIONS / RESULTS

- **Production, Operations & Supply Chain (sample):**
 - Worldwide automotive OEM tier 1 supplier: increase in Throughput of 17% in 15 minutes. Savings >\$400M per year. saved relationship with largest customer.
 - Large MRO (Maintenance, Renewal & Overhaul) Division of a major European railway operator (France, 25 000 p.): in one of the main factories (940 p.) reduction of the production lead-times for the renovation of high speed trains from 126 days to 38 days . Further lead-time reductions are underway over 2 years after the end of our assignment.
 - Labour productivity: furniture manufacturer +35% in 6 weeks, M.R.O: 80% in 2 months, manufacturing equipment (assembly) +70%, ...
 - Automotive Supplier (France, 350p.): Increase in the O.E.E. of the bottleneck resource by more than 30%, change from 5x8 shifts to 2x8 while providing the same output.
 - Complete reengineering of the Supply Chain of a steel manufacturer: Long term strategic planning, Sales & Operations Planning, Scheduling. Implementation of TOC/MPC. Increase in 40 points of the due date performance
 - Manufacturer of large machines for cardboard packaging: reduction in the delivery lead-time by over 50% and a reduction in the number of hours of labour per machine of over 30%.
 - Aircraft MRO: reduced durations by over 50% and increased productivity by over 80% in 2 months.
- **R&D & Industrialisation / Engineering / New Product Development (sample):**
 - Aeronautical product industrialisation portfolio: reduced durations and projects finish on time
 - Complete transformation of an Engineering department of 150 people. Reduction in project durations of over 40%. Improvement in productivity of over 25%. Projects completed on time went from less than 30% to over 85%.
 - Several aeronautical product development and industrialisation projects involving up to 500 people per project in up to 6 different simultaneous facilities with budgets up to 20M€ each.
 - New product development and product relooking: reduction of over 45% of average project duration, increase in number of projects completed each year of over 50%.
 - New product portfolio analysis and development strategy
 - Quotation process reengineering: handling speed multiplied by 4.



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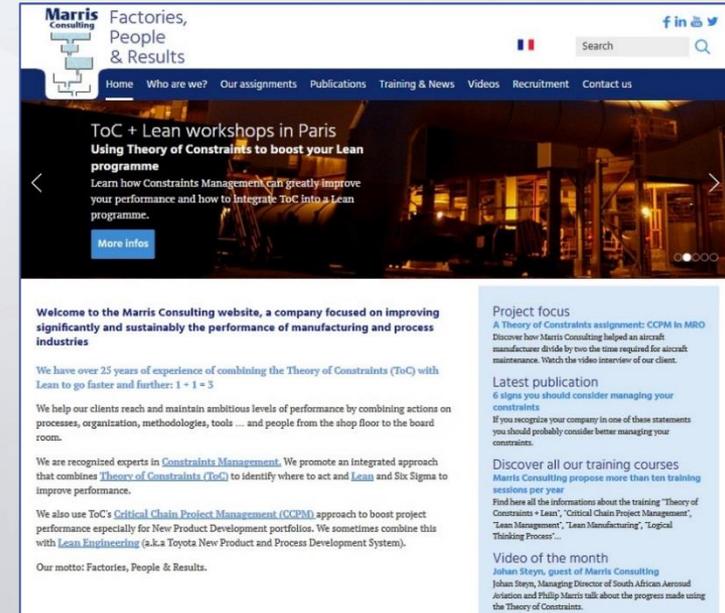
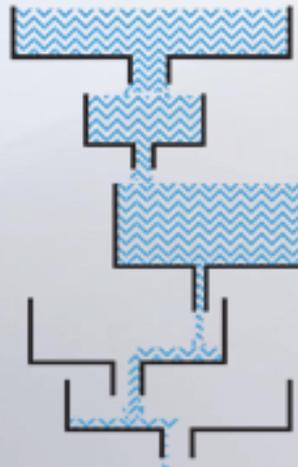
Marris Consulting

Factories, People & Results

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