

36th International Conference of the TOC Practitioners Alliance - TOCPA

www.tocpractice.com

Friday 17th November, 2017 – Guangzhou, China

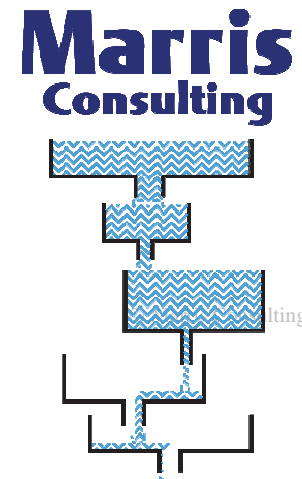


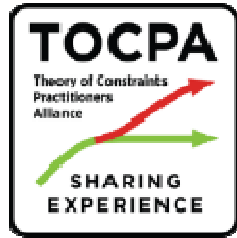
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How to identify bottlenecks in production and projects?

Philip Marris, Marris Consulting, France

Guangzhou, China, 17th of November, 2017





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.

CEO of Marris Consulting based in Paris, France.

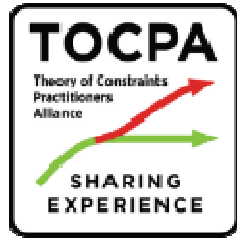
Motto: *Factories, People & Results*



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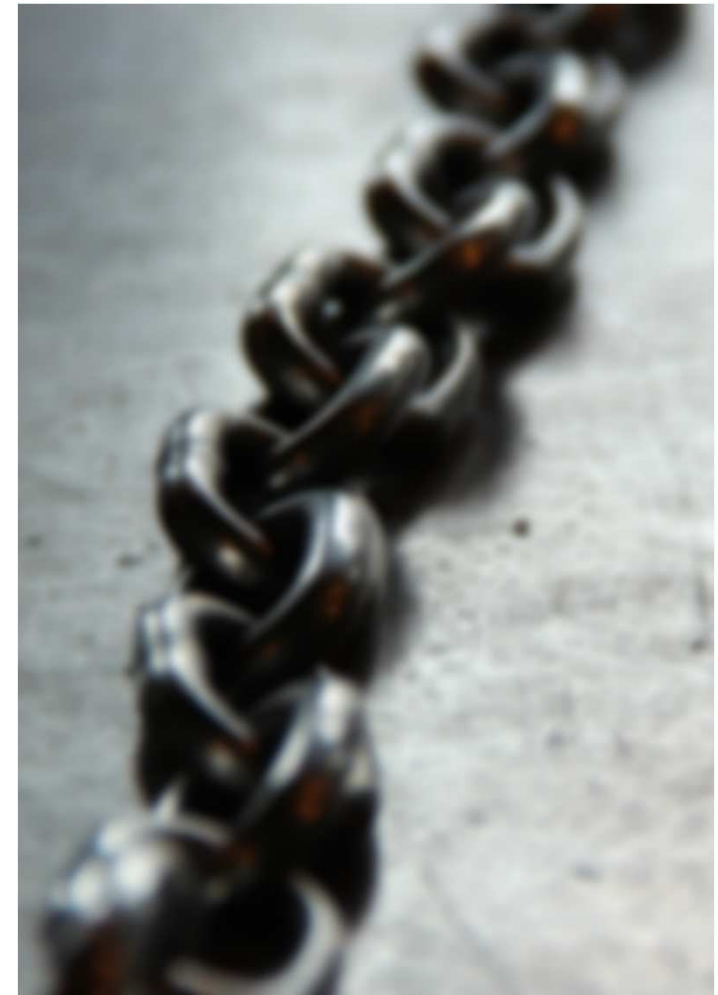
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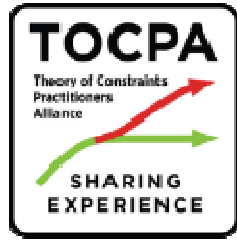


Presentation outline

- Introduction
- A few examples
- Lessons learned
- Conclusion
- Appendices

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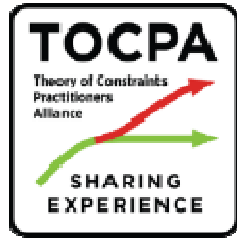
Introduction

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Good news!

You are probably wrong about where
your capacity constraints are

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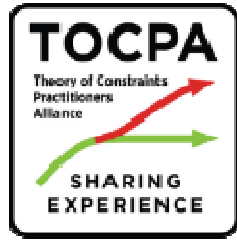
A few examples of mistakes in identifying bottlenecks

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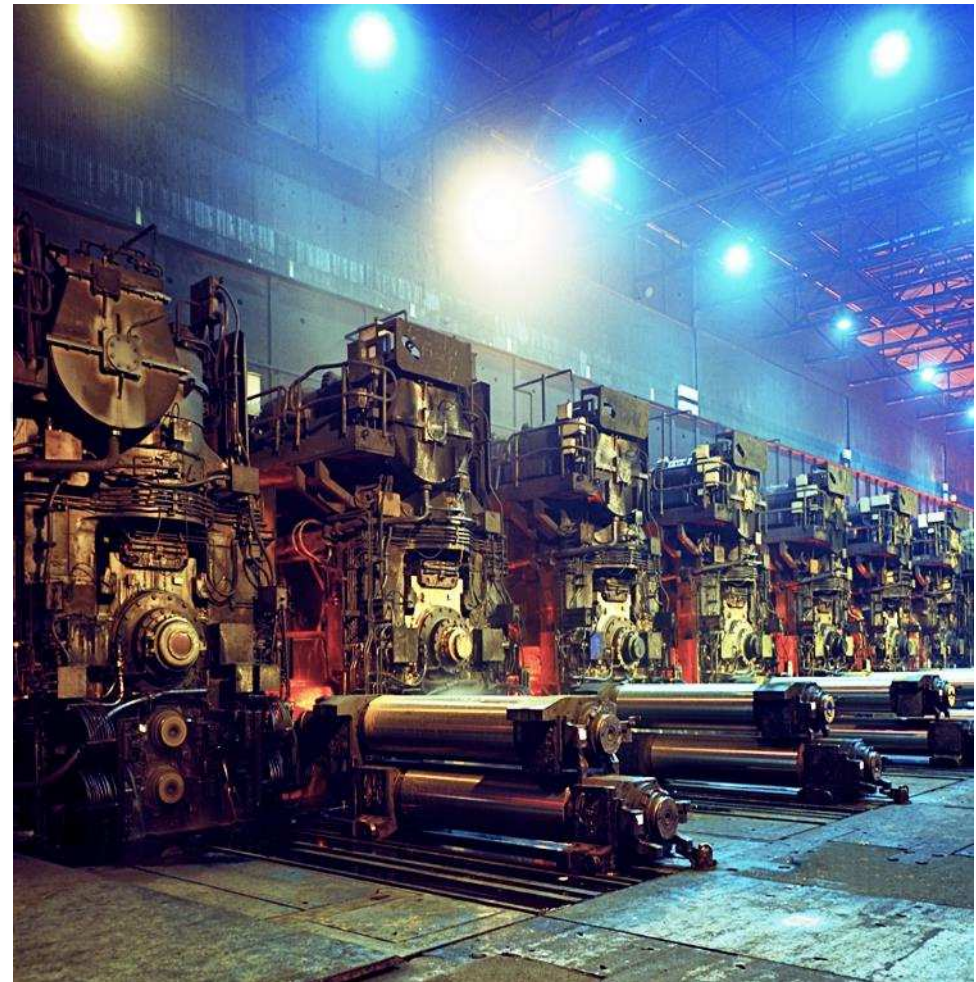
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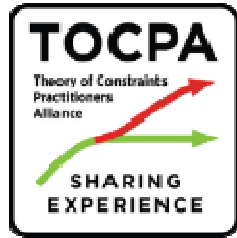
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My impressive rolling mill

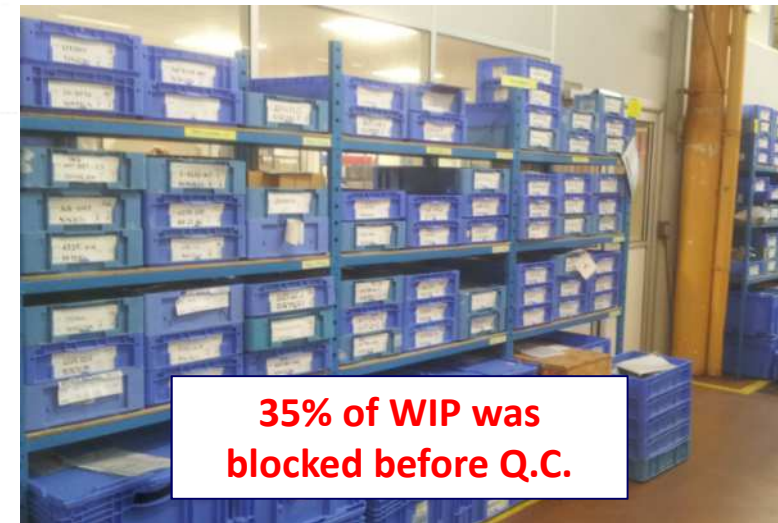
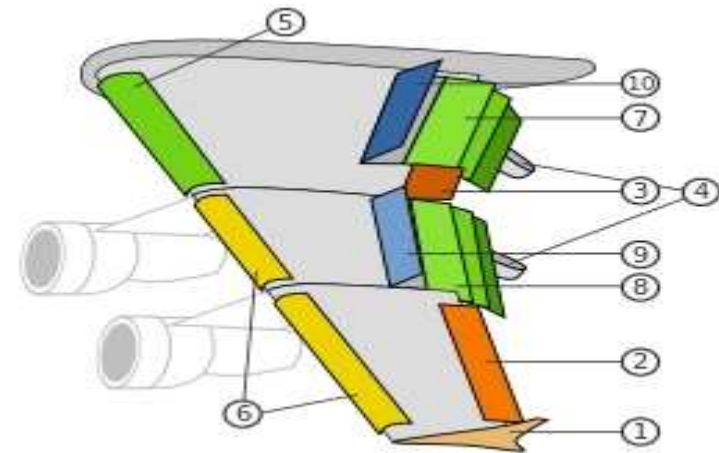
- A steel manufacturer world leader.
- A 2,900 person factory with a steel mill, a rolling mill, heat treatment and finishing operations.
- They thought it was their big impressive rare sophisticated rolling mill.
- In fact it was their 6 (boring) heat treatment furnaces.



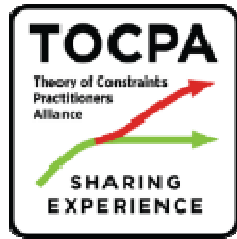


What is not in SAP doesn't exist

- A 400 person factory making Flight Control Systems for airplanes.
- They thought that their 5 most expensive machines were the constraint.
- In fact it was their Quality Control.
- But their ERP/MRP system could not see this.
- This is a sad case because the huge pile of WIP before the constraint was hiding in plain sight.



**35% of WIP was
blocked before Q.C.**

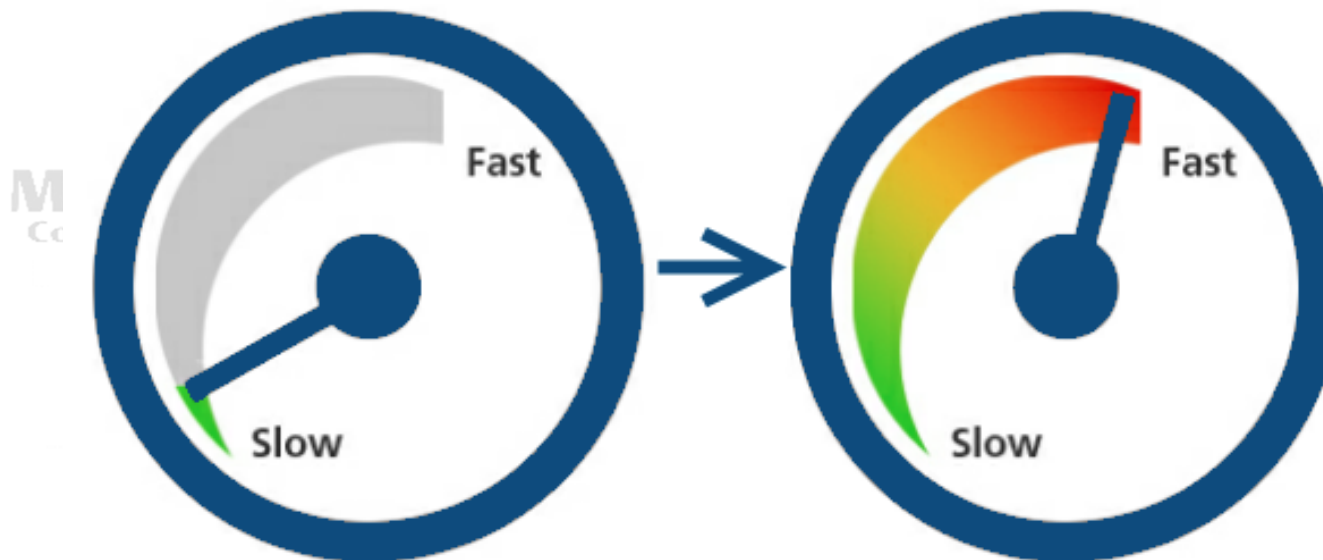


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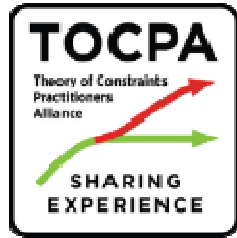
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Lessons learned

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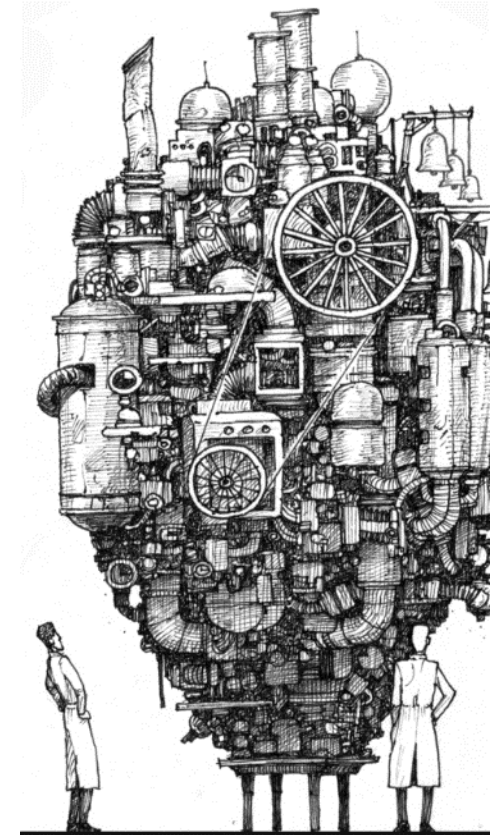
My big and beautiful bottleneck

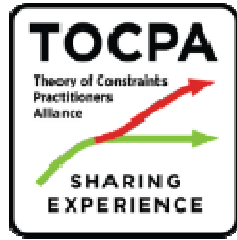
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*The only difference
between an adult and a child
is the price of his toys*

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- We find that management often falls into the trap of wishful thinking.
- They confuse where the constraint should be and where it really is.





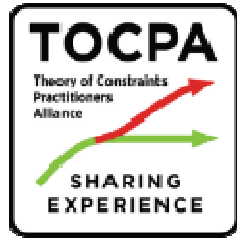
Your analysis
is probably out of date

- To help find the real bottlenecks ask yourself what has changed over the past 5 years:
 - New quality requirements
 - New cost cutting initiatives
 - New technology or machines
 - New management with new rules
 - Etc.

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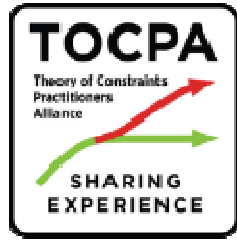


Capacity constraints in projects

(continued)

- Companies are trying to develop today's product portfolio with yesterday's resource pool.
- Typically in New Product Development the new competencies are understaffed.
- Examples: electronics, regulatory, software development, quality management ...





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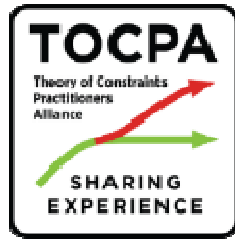
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Conclusion

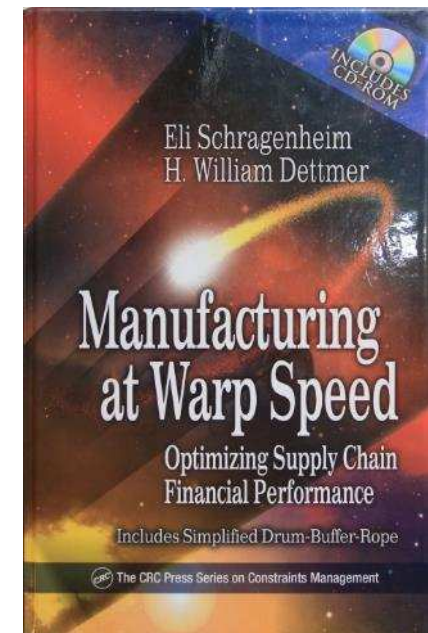
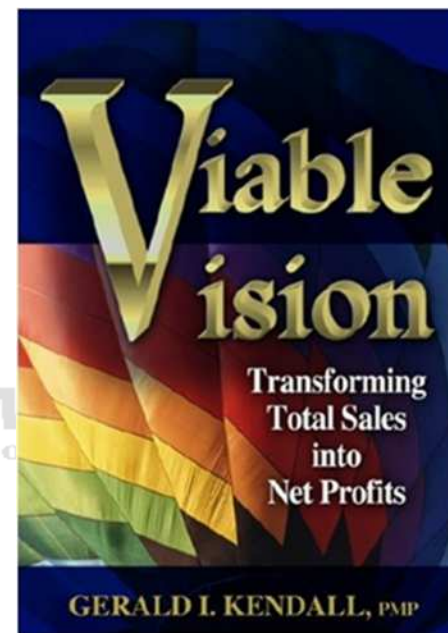
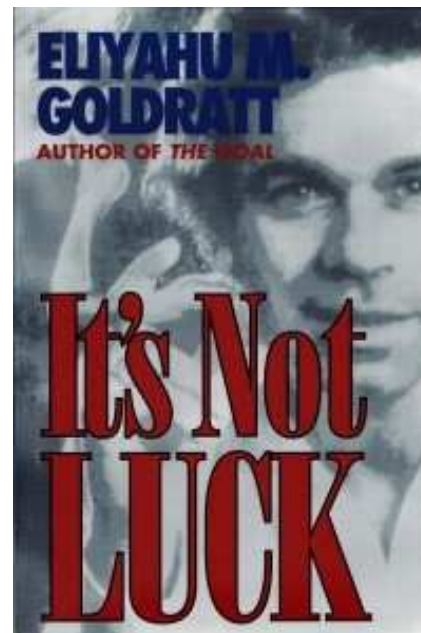
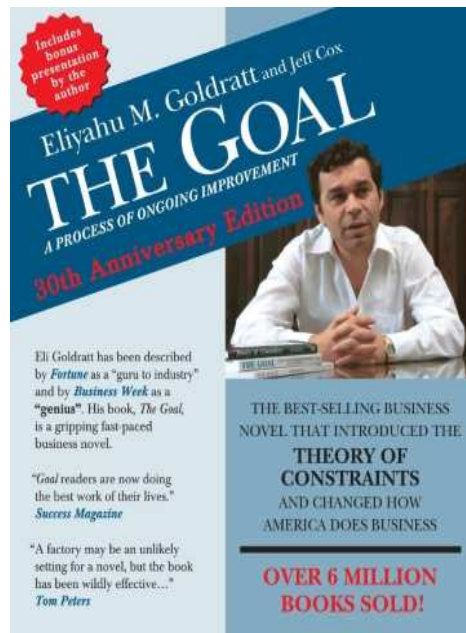
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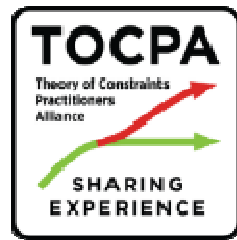




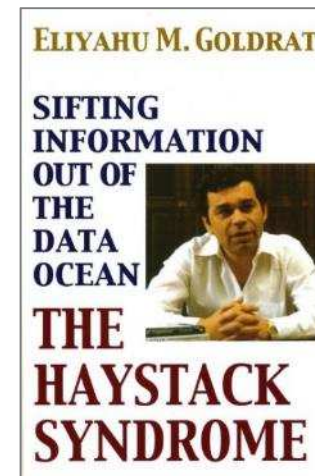
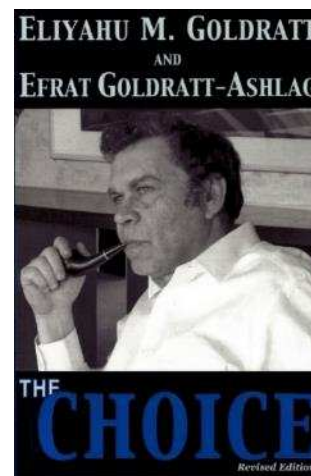
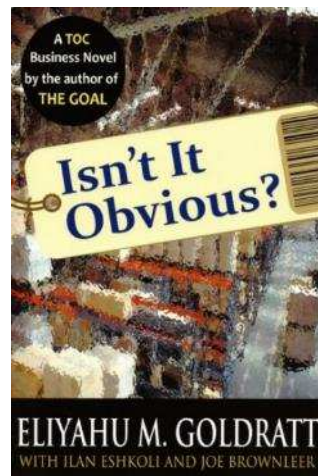
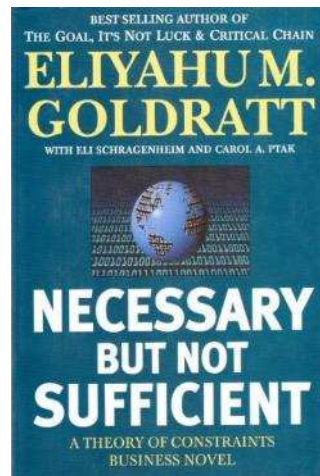
Theory of Constraints books



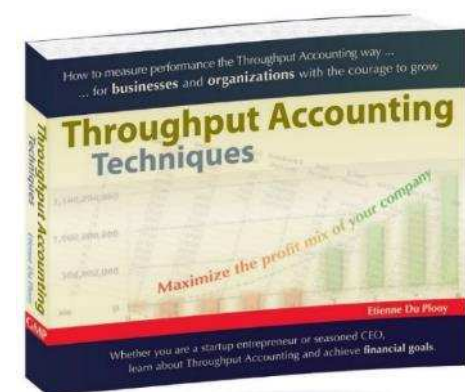
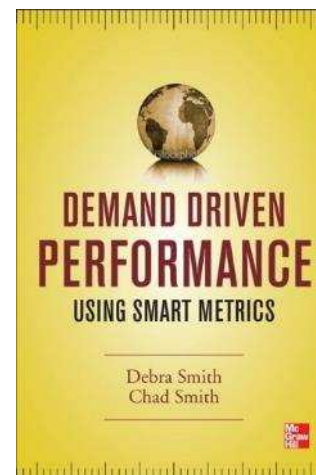
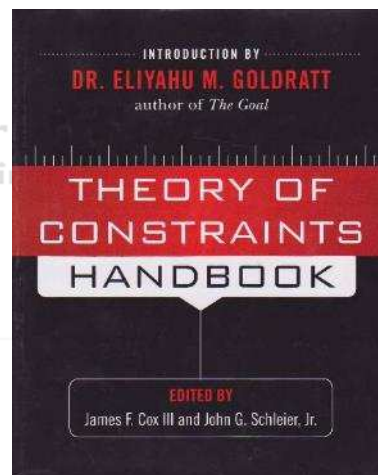
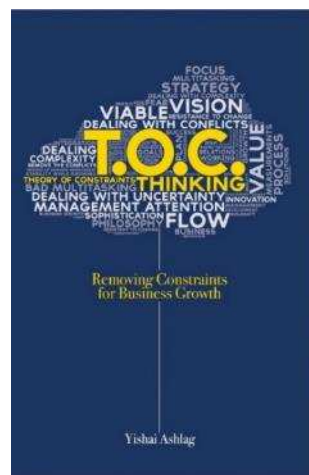
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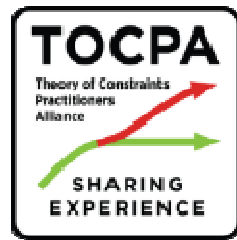


Other ToC books

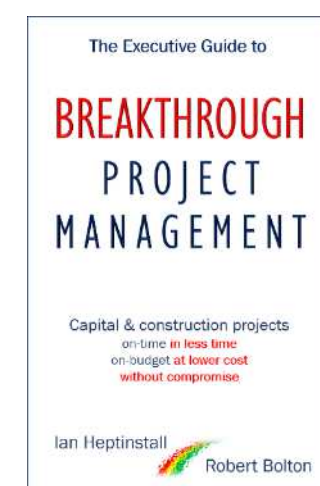
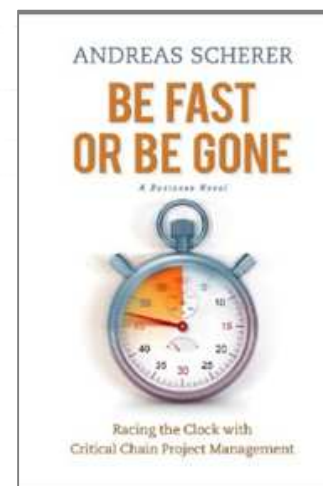
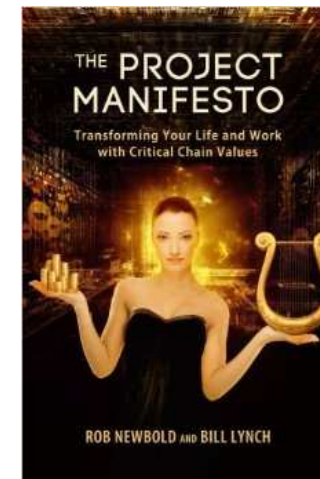
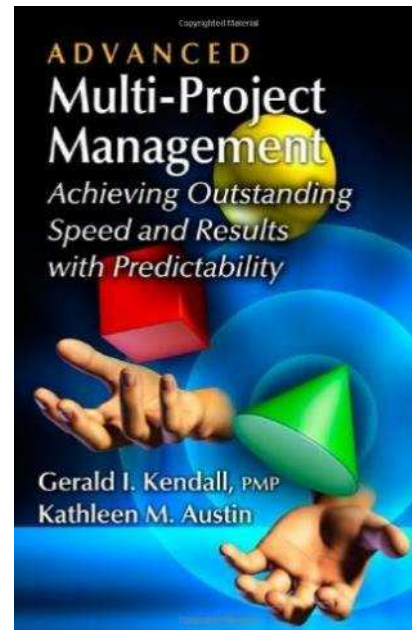
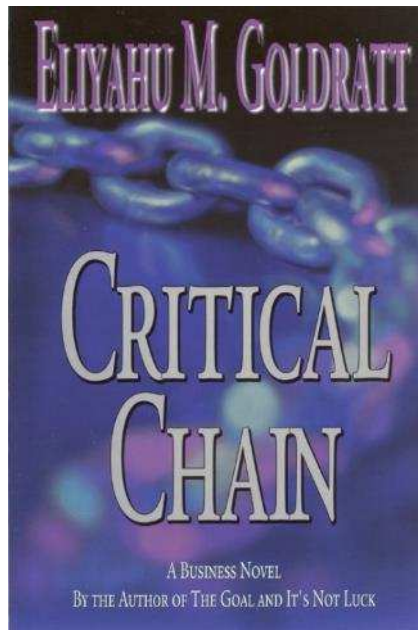


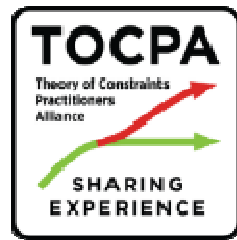
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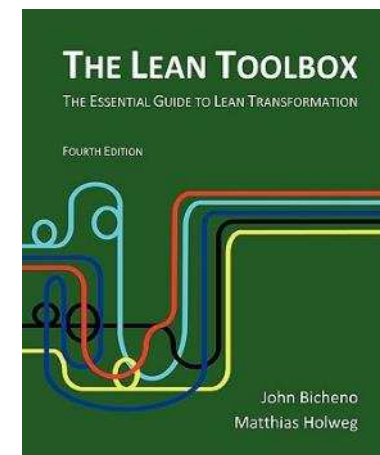
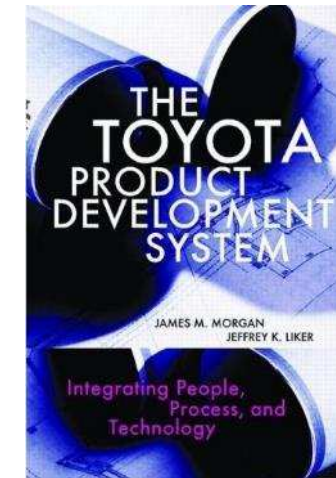
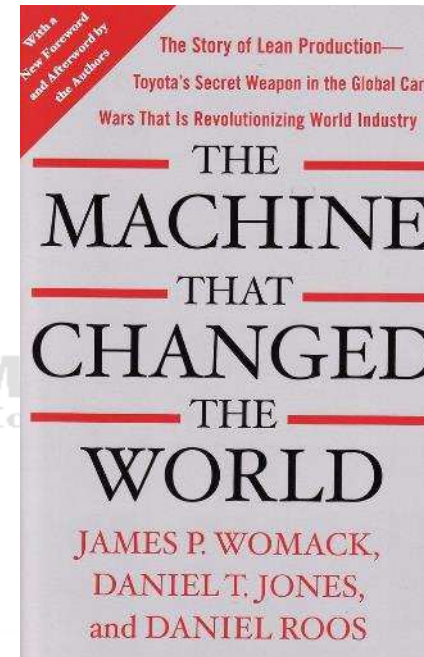
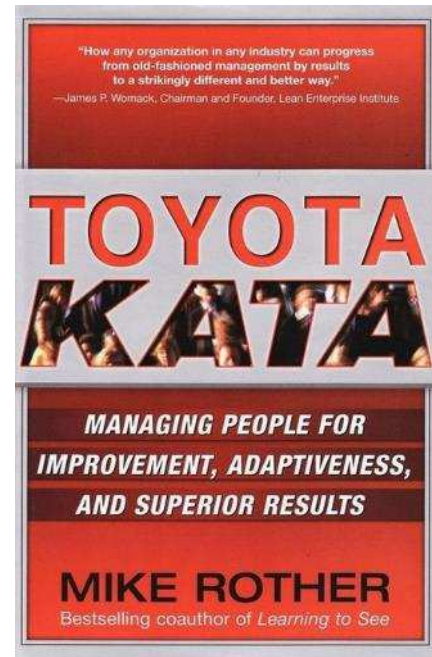
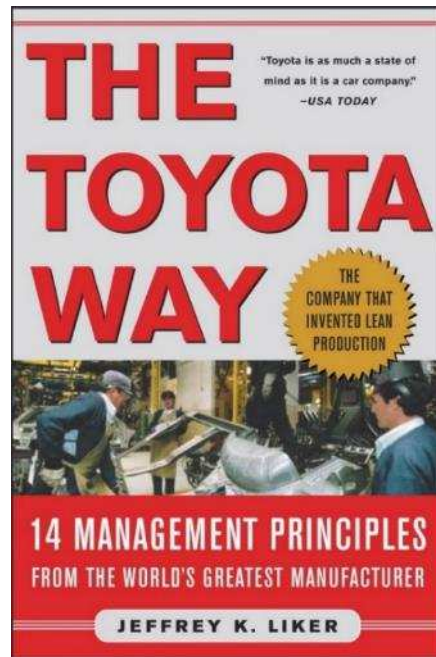


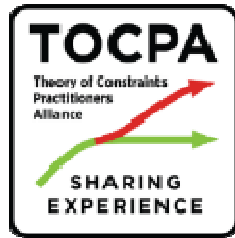
Critical Chain books



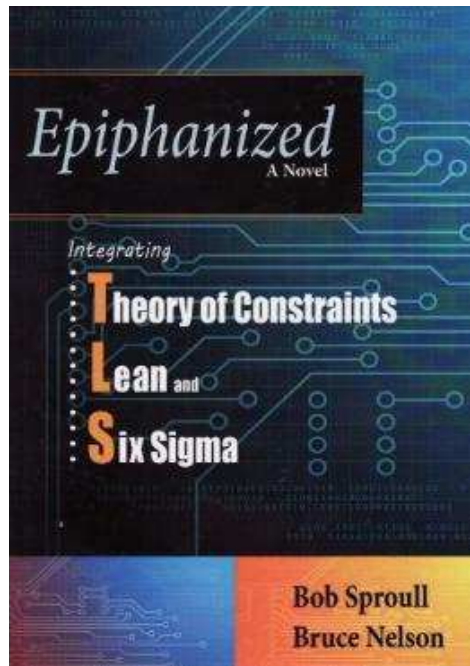


Lean books

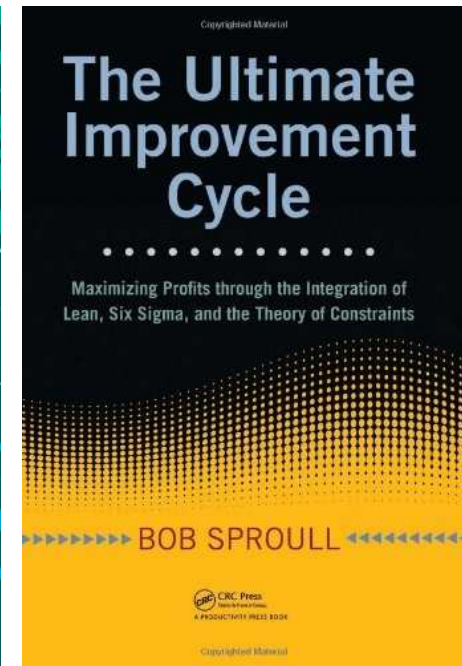
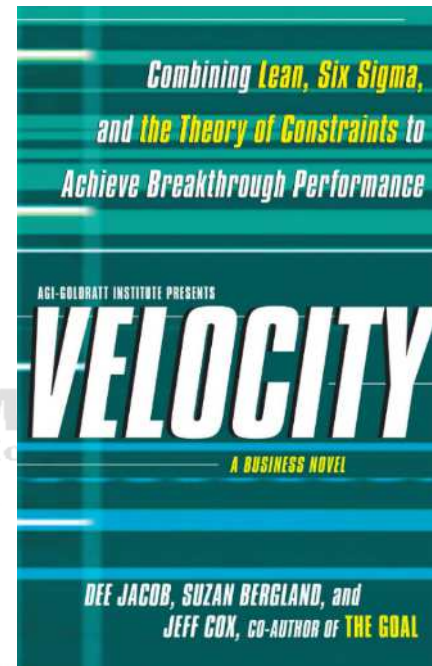
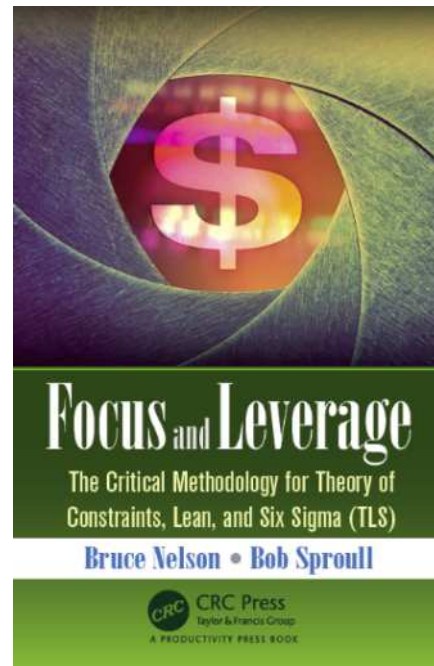


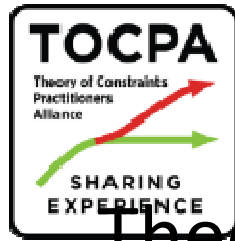


TLS books



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Theory of Constraints marketing & awareness

activities

- 5 Permanent news websites (www.scoopit.com)

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- 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

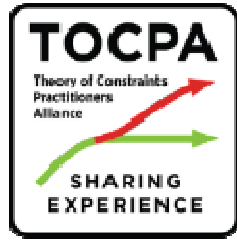
- 2 dedicated websites in French

- TOC in Production
- TOC in Projects

- Others:

- Twitter, Facebook, Viadeo, Etc.





Philip Marris, Founder and CEO of Marris Consulting

Business transformation, Theory Of Constraints and Lean expert



32 years of experience, 57 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

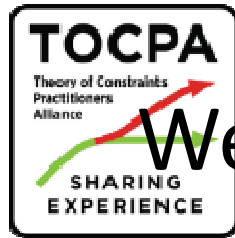
- Cap Gemini Ernst & Young / Bossard Consultant: In charge of Manufacturing Operations for France & Europe (>200 consultants)
- Cap Sogeti Industrie
- Creative Output: collaborated with E. Goldratt author of *The Goal*
- Vallourec: Shop floor foreman, Methods Engineer
- Professor at HEC Management School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

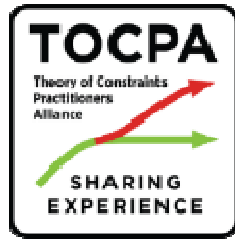
MISSIONS / RESULTS

- **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.



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





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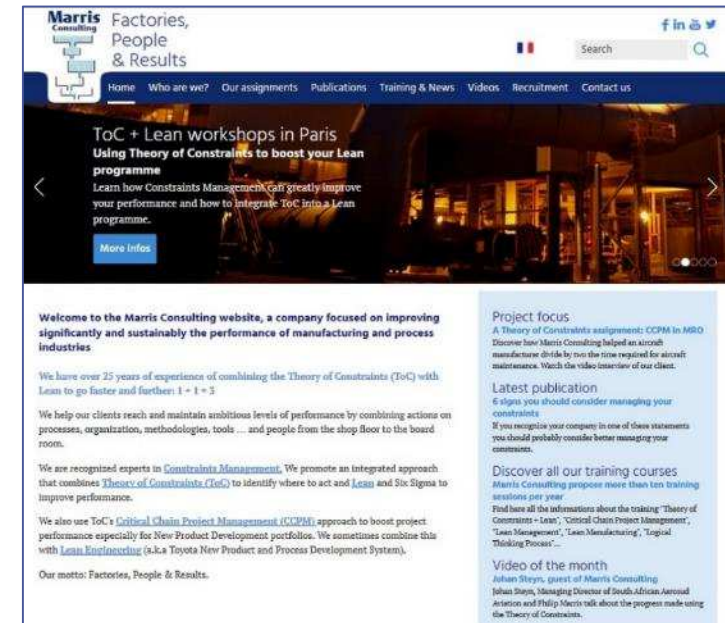
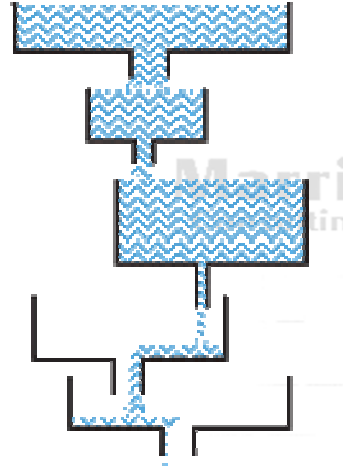
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