



38th TOCPA International Conference

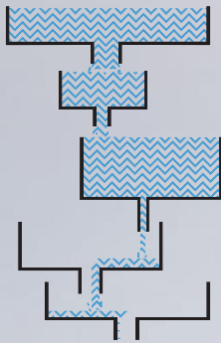
28-30 March 2018, Paris, France

The growing pertinence of the Theory of Constraints combined with Good Lean

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Marris
Consulting



Philip Marris

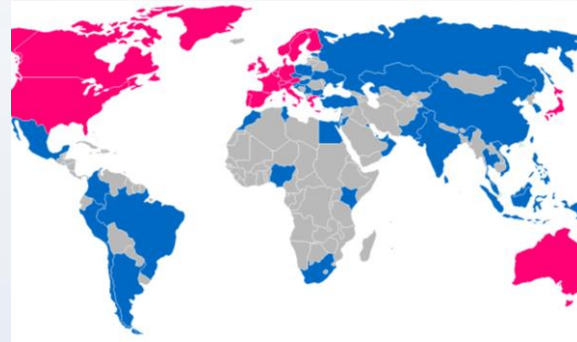
- Theory Of Constraints expert.
31 years of TOC experience. Started working with the founder Eliyahu Goldratt in 1986.
- Lean expert.
33 years of experience in Lean. Assists some of the Leanest organizations in the world.
- >25 years of experience helping over 200 companies in all industrial sectors.
- CEO of Marris Consulting
based in Paris, France.
Motto: *Factories, People & Results*



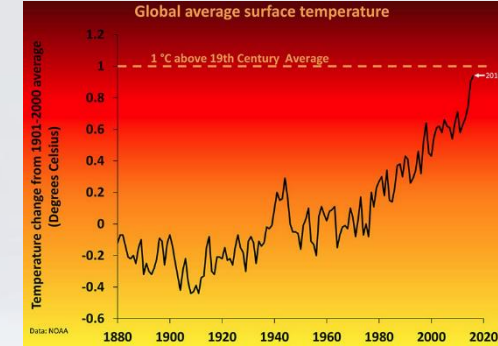
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The world is ever-increasingly volatile and unpredictable



Direct Metal
3D Printing



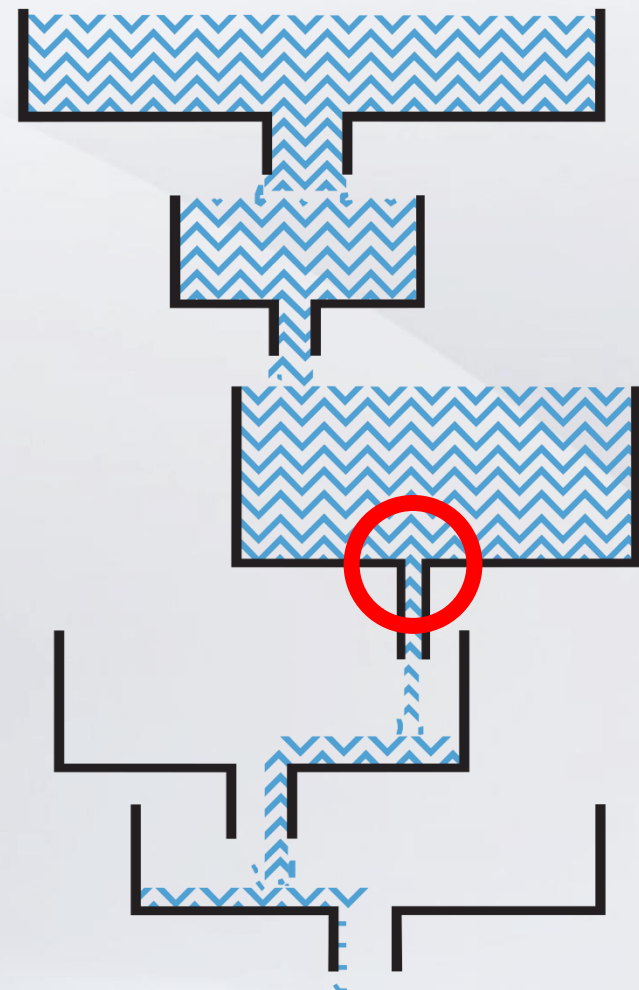
And yet the inertia of our companies basically remains unchanged

- It still takes about the same amount of time:
 - To choose and install a new machine
 - To recruit and train a new person



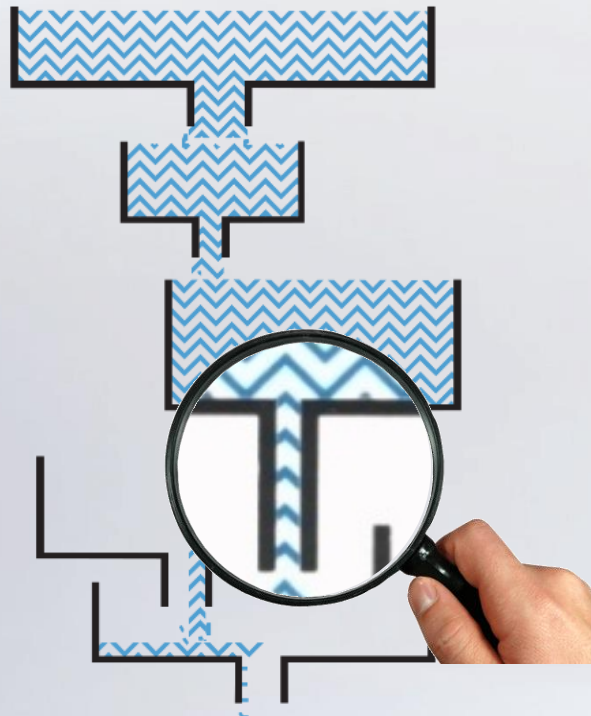
And so it is no longer possible to put the right amount of capacity everywhere

- It is no longer possible to put the right amount of capacity in the right place at the right time
- And so we have resources
 - that don't have enough capacity: bottlenecks or constraints
 - That have "too much" capacity: non-bottlenecks

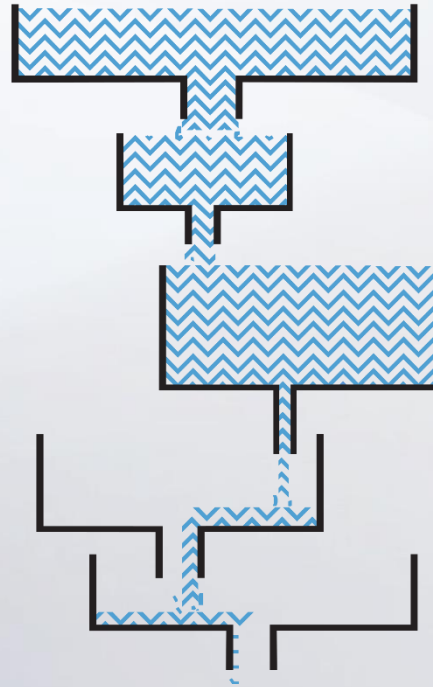


We must use Theory of Constraints reasoning

- So our decision making systems and our management systems must take this reality into account...this is what the Theory of Constraints does.



Local optimums are harmful



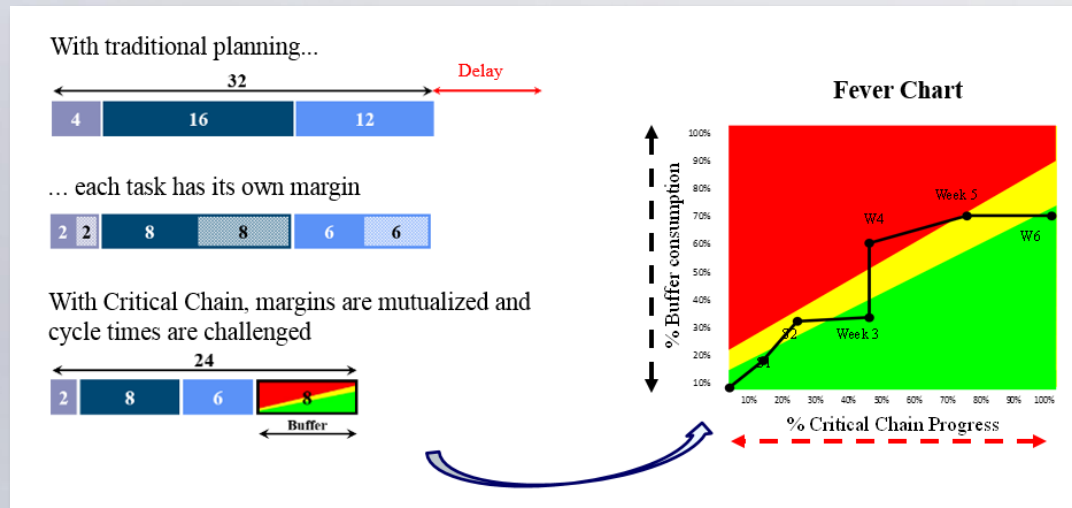
*The sum of local optimums
is not equal to the global optimum*

Annual budgets and the accompanying departmental targets are dangerous

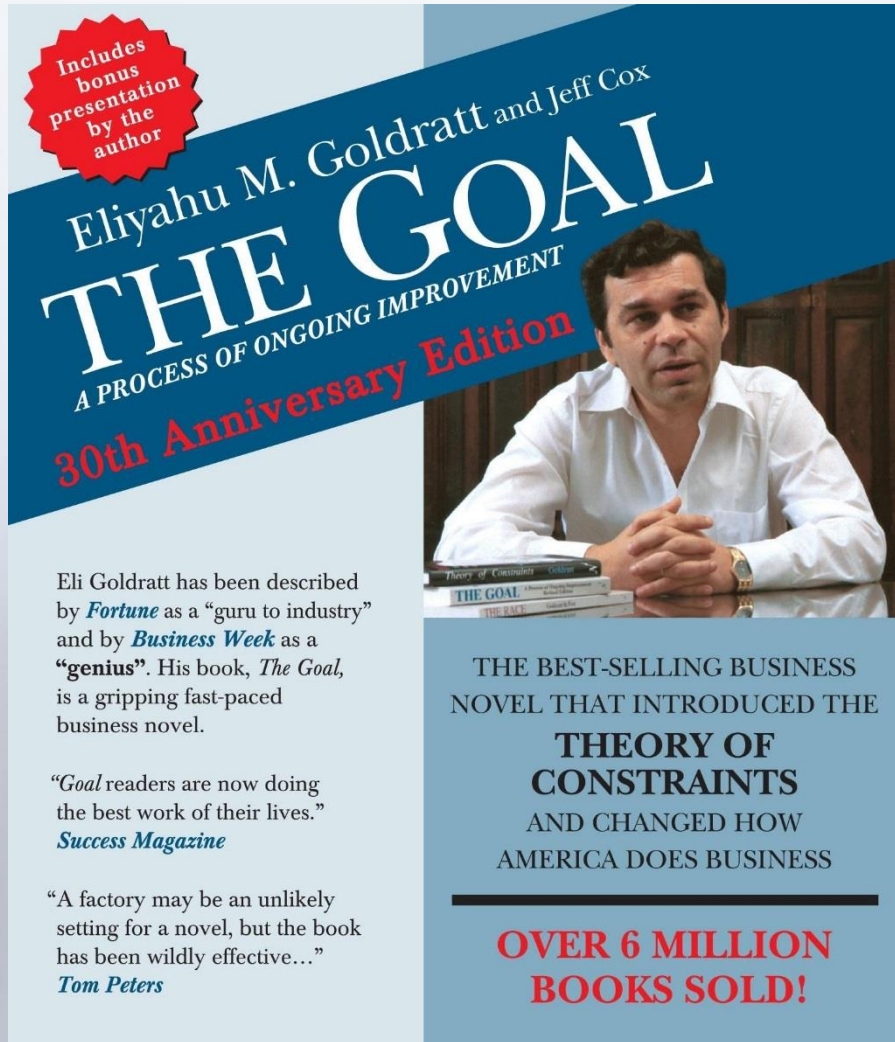


To use Critical Chain or not to use Critical Chain, it's your choice...

- Finish on time, within budget and with full specifications
- Finish projects twice as fast and do twice as many projects
- And there is no alternative solution!



So the Theory of Constraints is more and more pertinent



Includes bonus presentation by the author

Eliyahu M. Goldratt and Jeff Cox

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What about Lean?



To understand Lean we need to differentiate between Good and Bad Lean

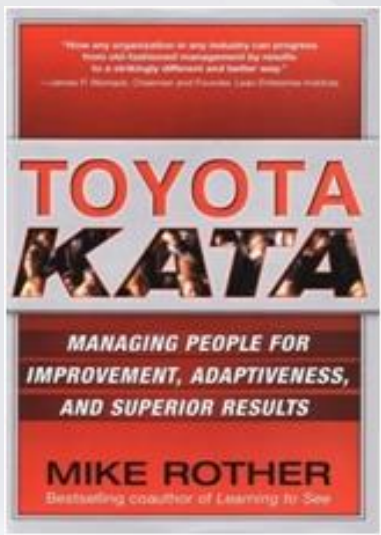
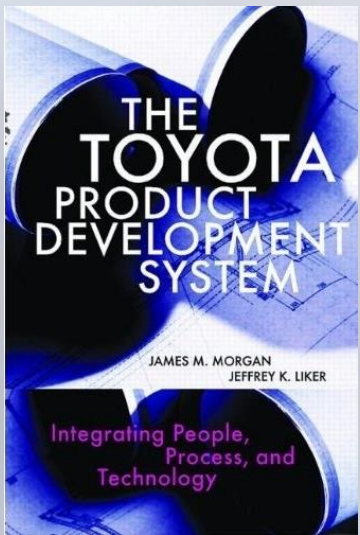
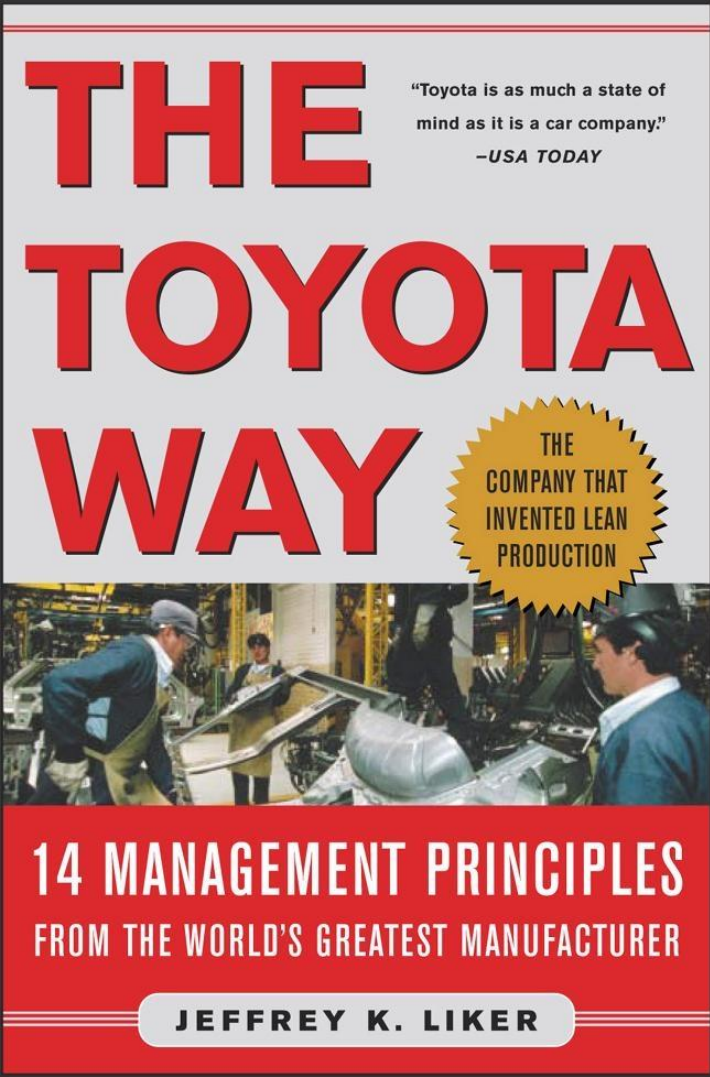


Good Lean



Bad Lean

Good Lean is "The Toyota Way"



Key ingredients of Good Lean: Flow



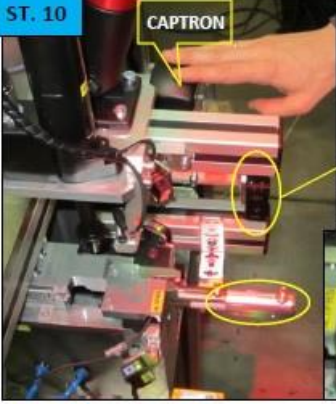
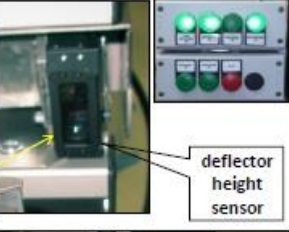




Key ingredients of Good Lean: Quality

PPM

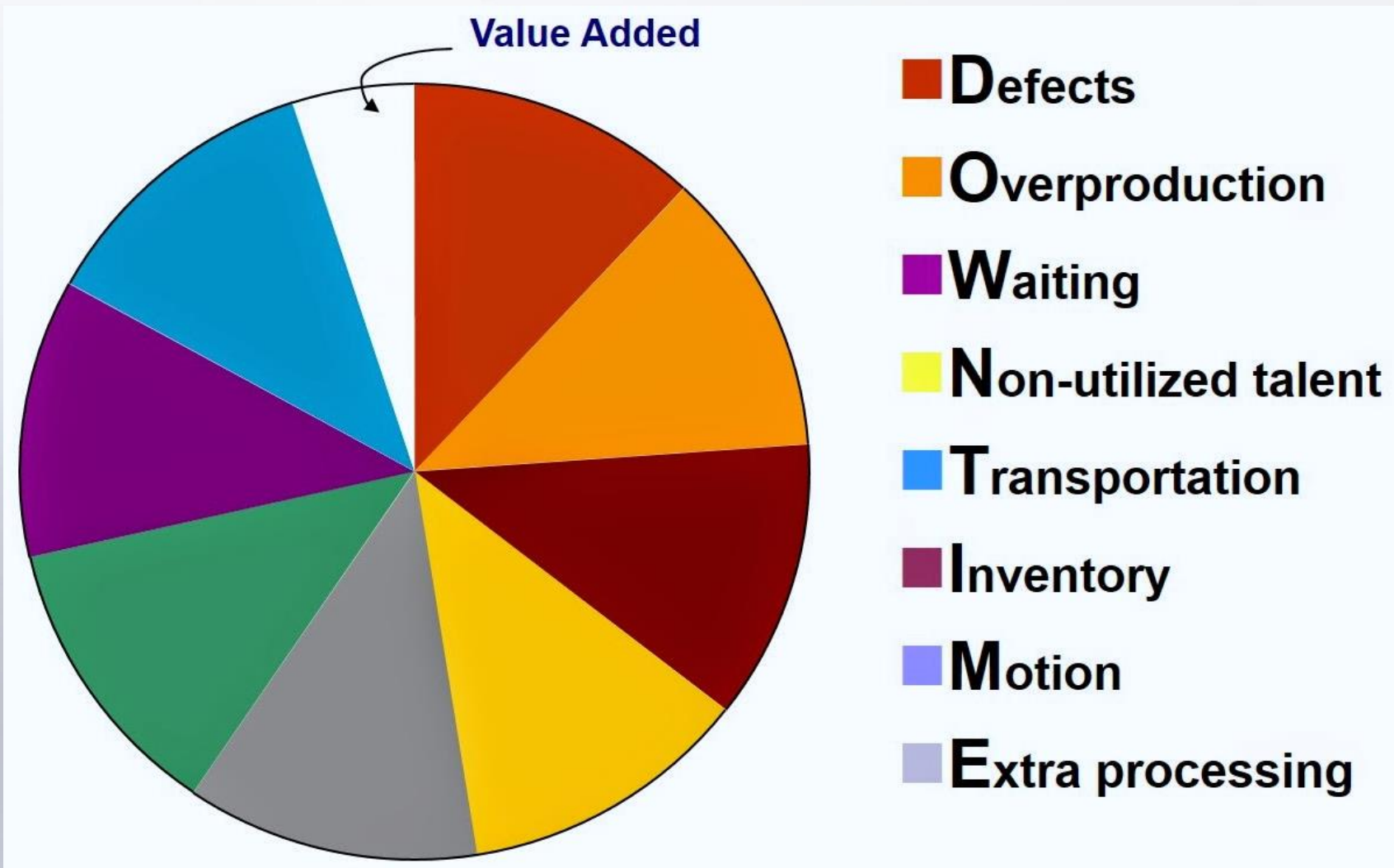
Parts Per Million

Key ingredients of Good Lean: Standards

"Don't seek performance with extraordinary people using faulty processes, use exceptional processes and normal people"

APPA		WORK INSTRUCTION		Revision: 008		D		
Product: OPEL S4530 626850802 / 626850803		Line: SG04/SG05		Station: 10/20		see: PLM		
Issued by:		Approved by:		Data:		PLM No.: E1558702		
Electronically approved		DESCRIPTION OF OPERATION / VERIFICATION		Specific characteristics (SC) or (CC)*		EFFECT OF ERROR*		
STEP OF OPERATION / VERIFICATION*		DESCRIPTION OF OPERATION / VERIFICATION		EFFECT OF ERROR*		REACTION PLAN*		
ST. 10    <p>deflector height sensor</p>		OPERATION: Embed the deflector onto the last screw of the inflator - as in the figure (the sensor on the right will check the position / height of the deflector), then press the CAPTRON button.		VERIFICATION: The deflector is embedded on the inflator, the second indicator is lit on the control panel.		CC  		Manually 

Key ingredients of Good Lean: Waste hunting



Key ingredients of Good Lean: Respect for people

“Helping people create more value on their own represents one of the highest forms of respect.”

– John Shook



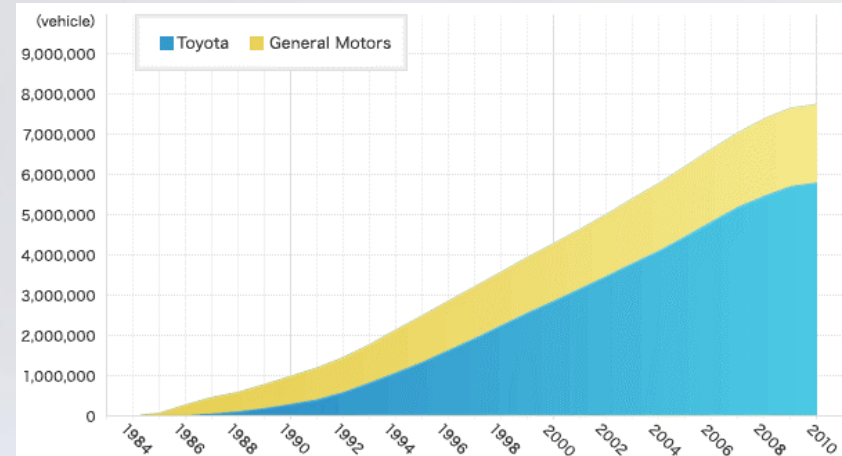
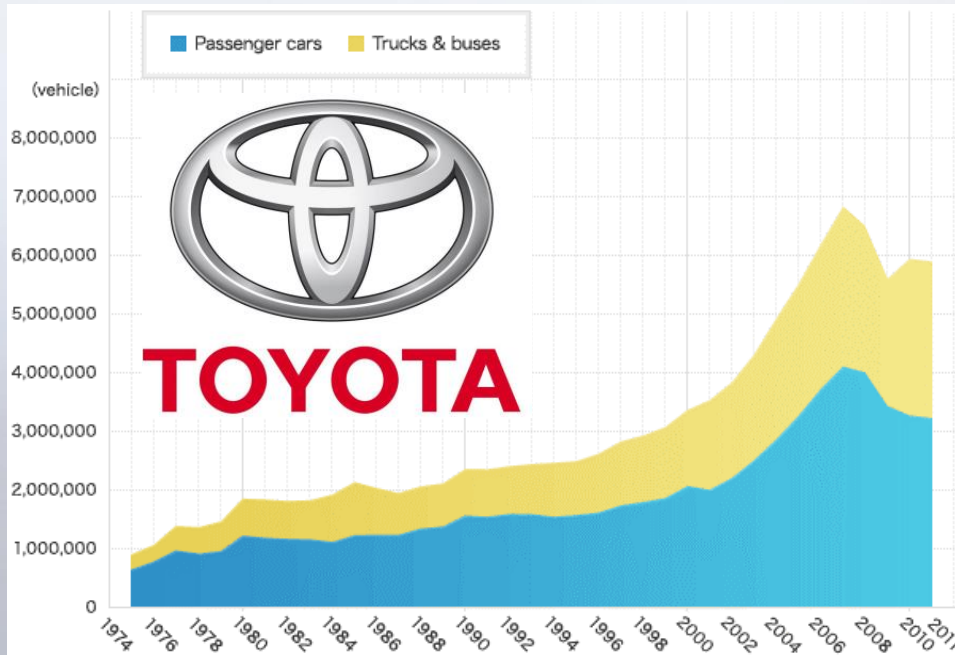
Key ingredients of Good Lean: Going to the Gemba

- Going and seeing for yourself
(going to the Gemba)



Key ingredients of Good Lean: A growth project

- Annual growth > Increase in labour productivity to avoid headcount reductions



P.S. My apologies
I know I should provide fresher data.

Good Lean summary

- Flow
- Quality
- Standards
- Waste hunting
- Respect for people
- Going and seeing for yourself (Gemba)
- A growth project

Bad Lean is what the majority of companies do

- A process of continuous down-sizing using japanese words



Symptoms of Bad Lean

- A lot of posters in messy workshops
- Lots of failed 5S initiatives
- One or two failed SMEDs
- OEE very low
- No work instructions
- >2% scrap
- >2% machine breakdowns
- Poka what!?

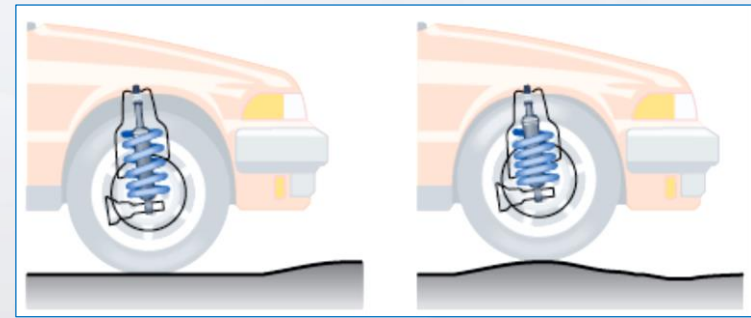


The combination of ToC and Good Lean
is what you should use

Focussed Lean

There is only one important TOC/Lean difference: buffers versus "zero stocks"

- Lean considers that you can eliminate variability
 - Hence a "zero stock" logic
 - And a "One Piece Flow" goal
- TOC considers that you cannot totally eradicate variability
 - Hence a buffer logic



WARNING

Don't fall asleep on your buffers



■ And they are both right!

You will also need to strengthen the TOC/Lean cocktail with some extra spices

- Innovation
- Lean Startup ideas & Agile
- Controlled risk taking in production processes and your new product designs
- ...



***You should make it your own proprietary "way".
Not a copy of anybody elses.
That is what Toyota does.***

- So our recommended cocktail is:
 - Theory Of Constraints
 - + Good Lean
 - + A few additional spices



Thank you for your time

Questions?