

APICS Vancouver 2017 Supply Chain Strategy Summit

“Thinking For A Change!”



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Quick Glossary of Terms

1. World

(No, I'm not saying "weld.")

2. Work

(No, I haven't invented a new word "Werk")

Quick Few Words On Style ...

I don't have any.

Today? A Shrapnel Bomb

- Other speakers all have great Meat'n Potatoes stuff
- Culminating in Debra Smith talking about DDMRP — so far ahead of conventional Supply Chain concepts it's silly
- So I'm coming in at a tangent!
- Not “One Big Idea” as we're taught (or 3 Big Ideas Max)
- I want to provoke “THINKING FOR A CHANGE”
(Thank you, Lisa Scheinkopf, for the neat Wordplay)
- Throw a metaphorical shrapnel bomb into the room
- Fragments will fly in a lot of directions
- I hope some – even if just one – will trigger you to THINK differently

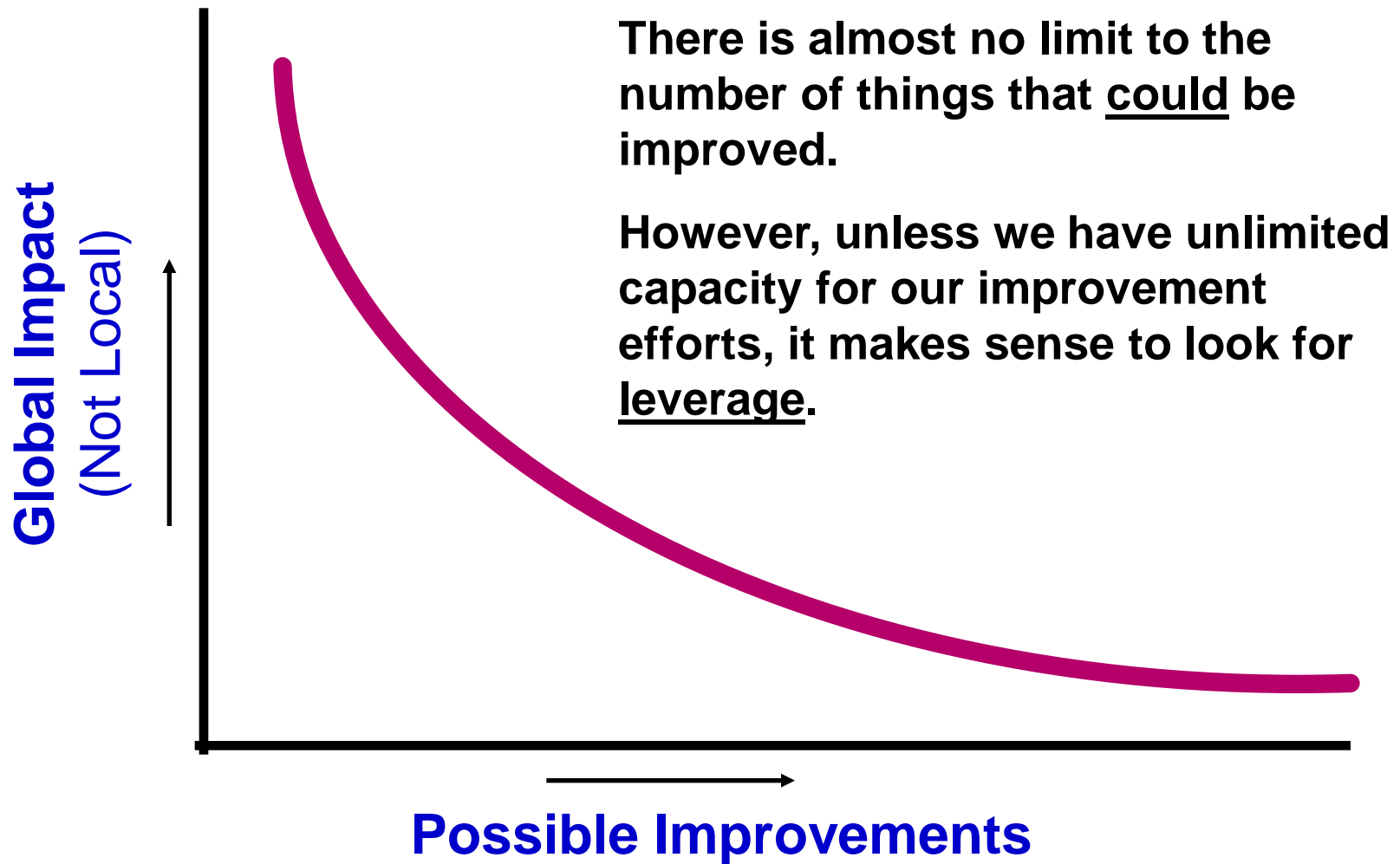
A Shift In Mindset

- Most of you are here as Supply Chain Managers or Practitioners. Distribution Managers or Practitioners. Purchasing or Procurement Managers or Practitioners or Specialists. Inventory Managers or Planners. Logistics Managers or Practitioners.
- I'm turning that around.
- **I'm aiming my talk at PEOPLE.** People who are involved in **CHANGE.** Change within whatever aspect of Supply Chain you choose. The job title, role, responsibilities are secondary.
- Maybe you INITIATE change. Maybe you Launch the initiatives others come up with. Maybe you just deal with whatever initiatives others have launched.

Because the One Thing We Know

- (Steve, just throw some old cliches in here about **Change being the ONLY Constant.**
- Some blah blah stuff like that ... you know, the same dull stuff everyone uses to make the point.
No-one reads your slides anyway but they'll get the point.
Just don't bore them. OK?)

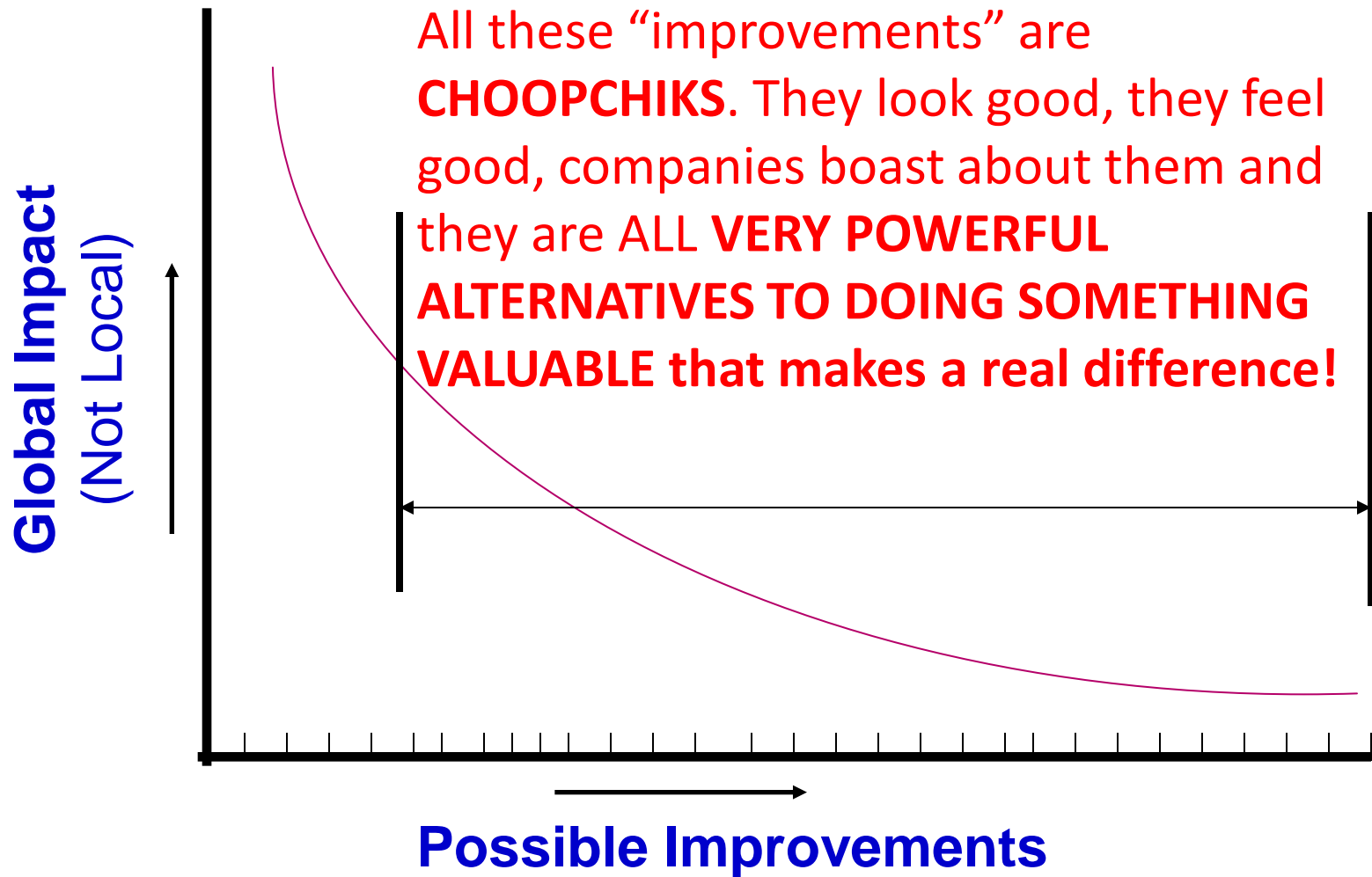
Improvement & Leverage



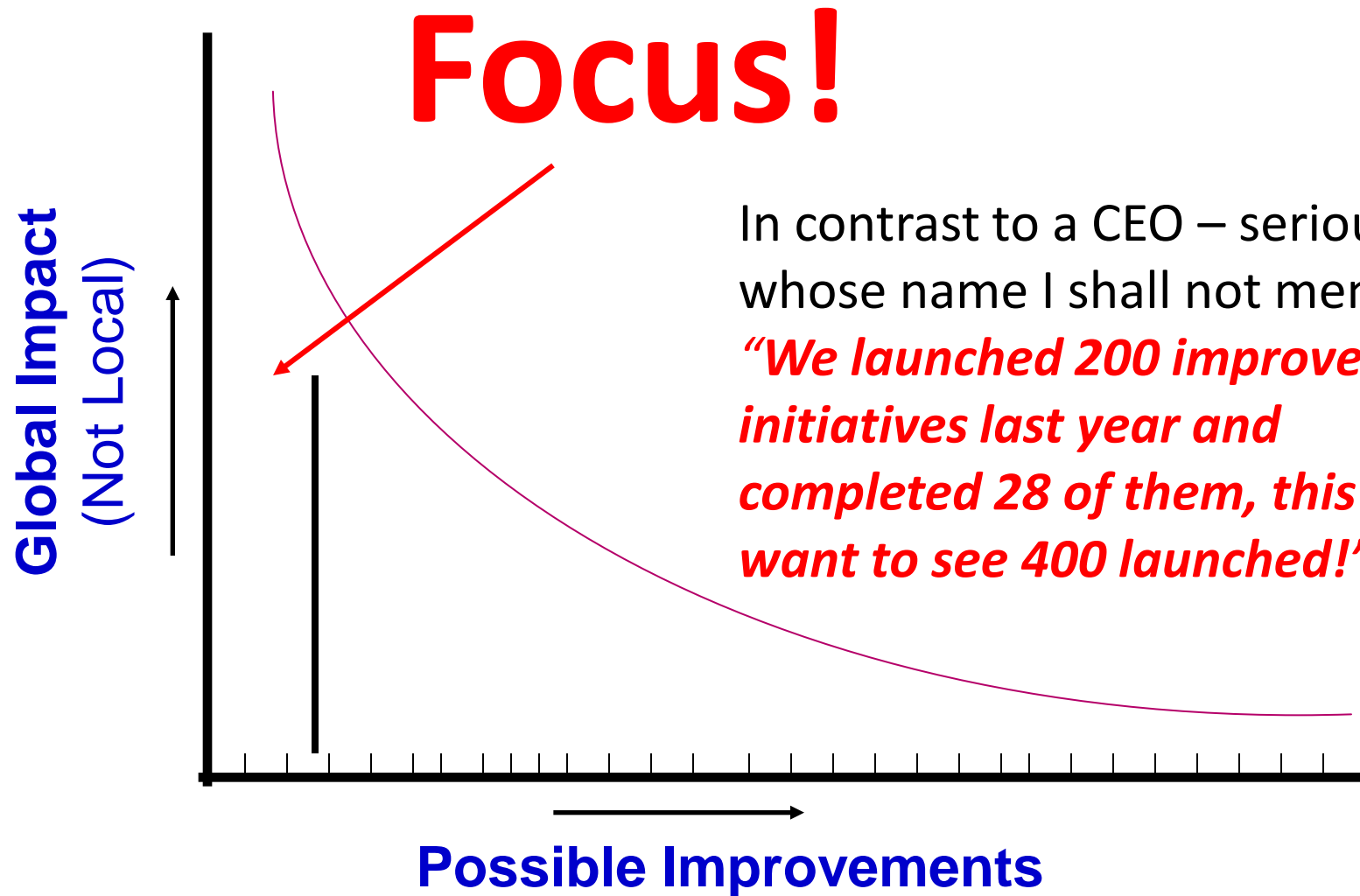
There is almost no limit to the number of things that could be improved.

However, unless we have unlimited capacity for our improvement efforts, it makes sense to look for leverage.

Improvement & Leverage



Improvement & Leverage



In contrast to a CEO – seriously – whose name I shall not mention: *“We launched 200 improvement initiatives last year and completed 28 of them, this year I want to see 400 launched!”*

The Manager's Role?

Answer the 3 Fundamental Questions of Change!

- What to change
- To-What to change
- How to change

More Importantly ...

Answer the 3 Fundamental Questions of Change!

➔ **Have a METHODICAL way to answer them!**

- What to change
- To-What to change
- How to change

What We Encounter

- Management by Checklist
- Management by Dogma
- Management by Peer group suggestions
- Management by what someone else did/said
- Management by “Everyone says ...”
- Management by “Everyone else is doing ...”
- Management by what worked elsewhere/what worked before

Absolutely ZERO Cause-Effect!

- Management by Checklist
- Management by Dogma
- Management by Peer group suggestions ★
- Management by what someone else did/said
- Management by “Everyone says ...”
- Management by “Everyone else is doing ...”
- Management by what worked elsewhere/what worked before

OK ... this one CAN be useful.

May reflect Cause-Effect

Do any of these come from a deep understanding of YOUR specific environment? YOUR company’s Goals? YOUR company’s products? Markets? Vendors? Employee issues? Equipment issues? Assumptions? Strengths? Weaknesses? Competitors? Technologies?

If not ... CORRELATION. Not Cause-Effect.

You are placing more value in OTHERS’ solutions than in your own thinking!

TOC Answers The 3 Questions Via One or Both of 2 Channels

- a) The 5 Focusing Steps of the Theory of Constraints
- b) The TOC Thinking Processes

BOTH represent ENTIRELY different models from the conventional, on “Thinking For A Change.”

Theory of Constraints (TOC)

In case you didn't realize ... tiny in comparison to others, but

- TOC has been around since 1978.
- Companies such as Intel. Boeing. Ford & GM.
- Organizations such as NASA. US Marine Corp. US Navy.
- Banks. Government Departments. Schools. Churches.
- Health care (potentially huge).
- Taught in Universities world-wide.
- Taught in BCIT since 1989.

(I delivered "Jonah" Course to 3 BCIT Ops Mangmnt instructors in 1989 and taught them TOC 101.)

- TOC activity ... USA, S. America, UK, Europe, Japan, Korea, China, India. (2017 TOC-ICO conference was in Berlin.)

What Differentiates the TOC?

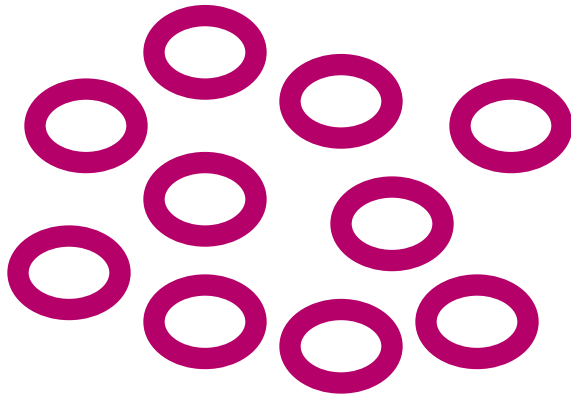
- Focus
- Leverage

*Always seeking the Inherent Simplicity inside
any complex environment.*

Reduce Weight or Improve Strength?

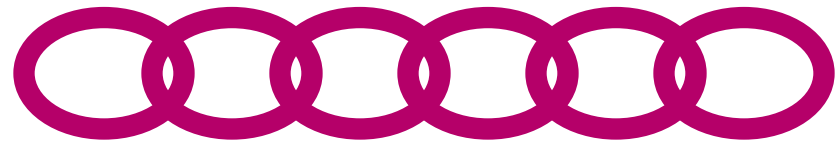
When you view an organization with the target of making each piece of it lighter, all you see are ...

Links!



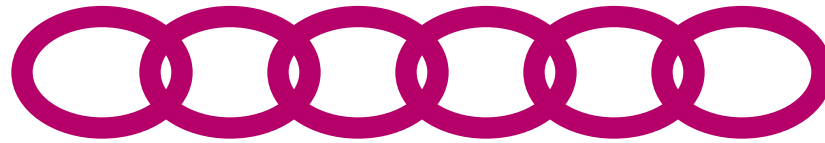
When you view an organization with the target of getting STRONGER at delivering the Goal of the system, you see ...

Chain!



Realities of a Chain

- A chain is only as strong as its **weakest** link



- A chain can only have one weakest link.
- Strengthening any link other than the weakest link does NOT strengthen the chain.

The Essence of The Theory of Constraints

“The performance of any real system, relative to the goal of the system, is limited by its constraints.”

Constraint:

“Anything that prevents a system from achieving a *higher performance* relative to its *goal*.”

5 Focusing Steps of the TOC

Knowing the boundaries of the system ... and the goal ...

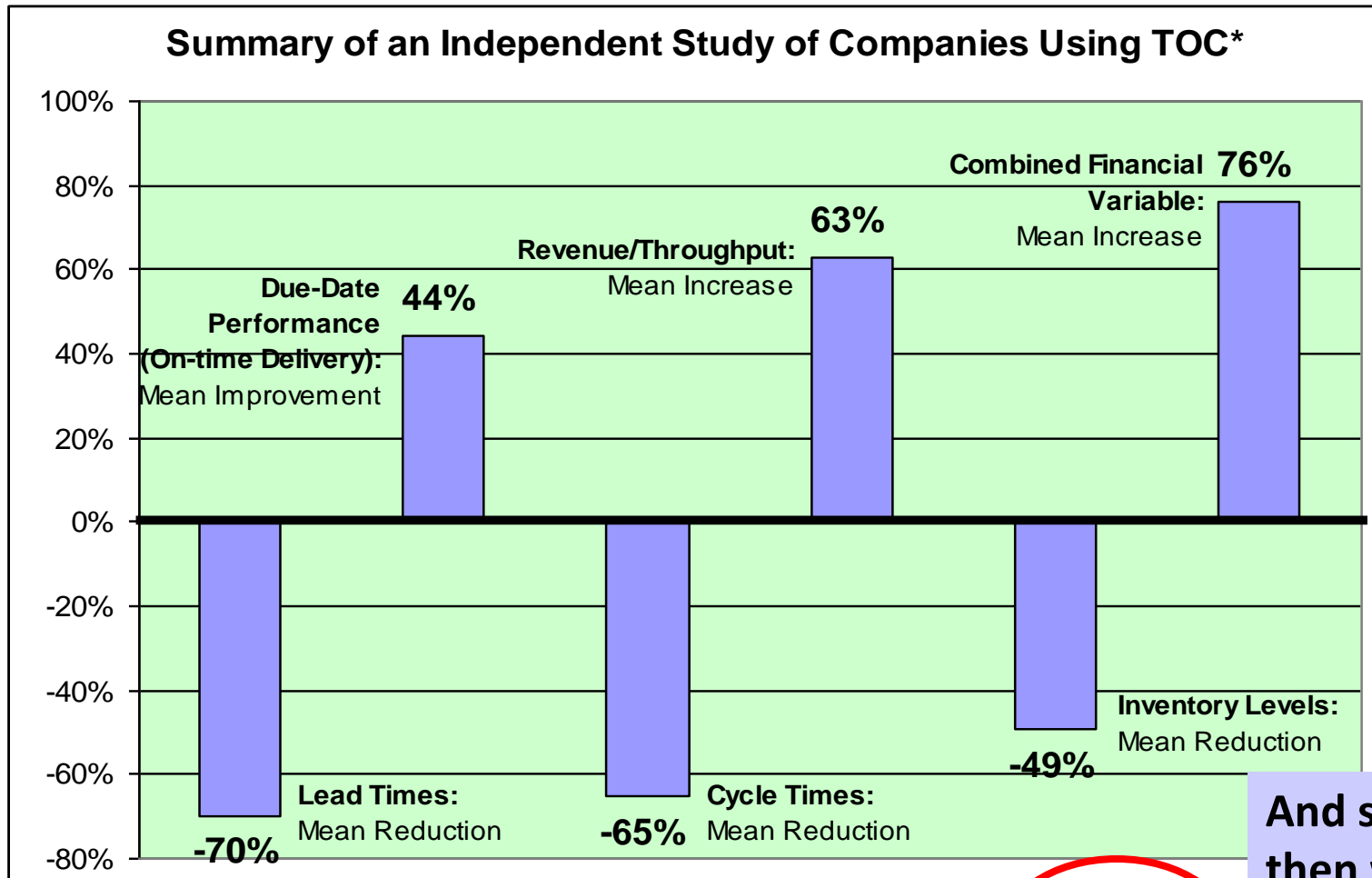
1. **Identify** the constraint(s) to achieving the goal
2. **Decide** how to **Exploit** the constraint(s) (to squeeze the maximum <Goal Units> out of them)
3. **Subordinate** every other part of the system ...
manage non-constraints specifically to better Exploit the constraints
4. If you need still more out of the system, **Elevate** the constraints
5. If a constraint is Exploited or Elevated to the point where it is no longer a system constraint ... something else will be! (Don't let **Inertia** become the constraint)

Good News & Bad News

Good:

- ❑ Almost always – Fast, Direct & often Massive performance improvement.
- ❑ Gone into organizations and in 30, 60, 90 days helped them record improvements that they've been struggling to achieve for 4 years ... even 10 years ... of different improvement strategies. (Or years of just “winging it.”)

400 Case Studies Summarized & Averaged



* *The World of the Theory of Constraints*, Mabin & Balderstone, St. Lucie Press, 2000

And since then we got better at doing this!



Good News & Bad News

Bad: TOC is often on the “wrong” side of a misguided “Either/Or” stance.

- Identification with other improvement strategies is tribal – “we are a Lean company” or “We are a Six Sigma company”
- The most amusing: “We don’t want to send a mixed message to our people”
- WHAT? After 5 years of trying, 2 ERP re-implementations, 3 disappointing attempts at Lean that never got beyond 5S and even the 5S is a bit embarrassing; and after major expense and major investment of time with no ROI, with a cynical now-project-shy workforce convinced management doesn’t know what it’s doing ... you are scared of sending a mixed message? Exactly what message would get mixed?
“THIS OTHER ONE GENERATES BIG FAST RESULTS IN DAYS WITH LESS EFFORT AND EXPENSE SO WE SHOULD AVOID IT AT ALL COSTS?”

**Sigh. Head in hands.
It’s not “Either/Or!”**

Focus & Leverage

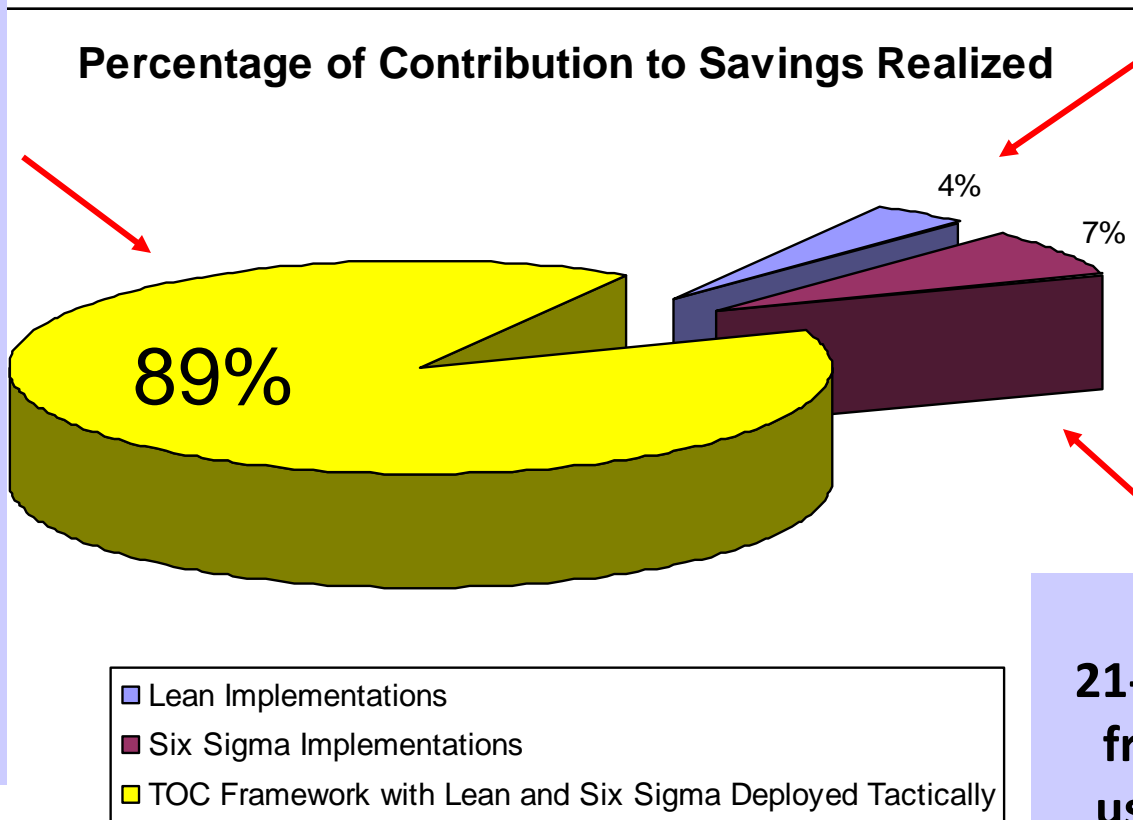
These 5 Simple Steps – often just the 1st TWO – TRANSFORM performance ... sometimes in DAYS. 90% of the time in WEEKS! Rarely needs MONTHS.

- The 5 Steps add Focus & Leverage to ANY improvement program
- **Typically 20% to 40% MORE <Goal Units> from the same resources – but this is only 1 dimension of improvements**
- Amplifies & accelerates results of Lean efforts
- Amplifies & accelerates results of Six Sigma efforts
- Re-defines “Alignment”
- Re-defines “Teamwork”
- Re-defines “Continuous Improvement”

2 Year Results of A 21-Plant Experiment?

89% of benefits were from 6 plants using TOC as leading technology
with Lean and Six Sigma **inside the TOC framework**

89% of Total 21-plant Benefits from 6 plants using TOC to provide Focus and Direction ... THEN deploying Lean and Six Sigma within the TOC framework!



4% of Total 21-plant Benefits from 4 plants using Lean

7% of Total 21-plant Benefits from 11 plants using Six Sigma

Good News & Bad News

- **Good: Highlights where improvement efforts will yield no significant improvements in outcome**
 - **Bad:** Companies now have a “Lens” that can show them that many of their improvement efforts in progress or planned will NEVER yield a ROI! *Do you REALLY want to know this?*
- **Good: Surfaces POLICY CONSTRAINTS that block “Exploit” activities**
 - **Bad:** Some of these Policy Constraints are old sacred cows. But some are freshly introduced by enthusiastic champions! *Do you REALLY want to expose these Policy Constraints to daylight?*
- **Good: Surfaces POLICY CONSTRAINTS that block “Subordinate” activities**
 - **Bad:** Some of these Policy Constraints are old sacred cows. But some are freshly introduced by enthusiastic champions! *Do you REALLY want to expose these Policy Constraints to daylight?*

What ARE Policy Constraints?

- Rules, training, policies, procedures, MEASUREMENTS and ultimately BEHAVIOURS that may once have been helpful, may once have been essential, even — ***but the assumptions under which they WERE valid have changed.***
- Sometimes formal. Often informal.
- Sometimes written. Often unwritten.
- Sometimes in place for decades. Sometimes just put into place (with the best of intentions.)
- Sometimes they challenge BELIEF SYSTEMS.

Two Minutes Of “What If” ...

- What if Cost Accounting data was NEVER INTENDED to be used for Operational decision making? What if it leads to 180-degree wrong decisions? What if the concept of a “Product’s Margins” is misleading? What if a product can have lousy margins and be a profit-star, another can have FANTASTIC margins and be a profit-leak?
- What if an intention of “Task times are finished on time” GUARANTEES “the project as a whole will be late?” What if setting “realistic” task times guarantees a project will be late? What if starting projects as soon as possible guarantees they will be late?
- What if the best place to hold inventory in a distribution environment is AWAY from the point of consumption?
- What if “Safety Stock” reduces lead time by 75%, boosts on-time to 98% AND reduces overall Inventory with no negative side effects whatsoever – is it still “waste?”

Two Minutes Of “What If” ...

- What if holding deliberate surplus capacity that isn't used 75% of the time helps us put \$1 MM on the bottom line for an additional Operating Expense of \$250K ? Is that waste?
- What if “unbalancing” a line enables us to ship 30% more than we've ever shipped before, routinely, without heroism? Was it still a bad thing to do? Would you still move towards “balanced” because “Everyone says ...” (and Everyone can't be wrong ...) ?
- What if a solution that works like crazy in 100 other environments and that everyone tells you is THE way to go is actually NEVER going to work in your environment, in fact CAN never work in your environment ... do you want to know? Would you even be prepared to listen to the negative nellyies telling you so?

Applications vs “Thinking Processes”

- When you apply the 5 steps to certain environments, you get “A TOC Application”
 - **TOC Applications are always customized** to Cause-and-Effect match an environment’s realities and (valid) assumptions — but based on a common “template”
- Separately, Goldratt & his people constructed 5 “Thinking Processes” to deal EXPLICITLY with Policy Constraints

Policy constraints are invisible! They look like ...

“What we’ve always done.” “How we’ve always worked.”

“How everyone does this.” “What the books say we should be doing.” “Everyone knows ...” “What they say we should ...”

TOC Application: Manufacturing

- Reduce internal cycle times 50% - 90%
- Boost on-time performance to 98% plus
- Reduce Inventories 30% to 76%
- Eliminate all overtime that isn't strategic
- Eliminate most expediting — priorities are clear and stable
- Produce and ship 20% — 40% more from the same resources
- Identify what really makes money, what doesn't
- Support sales & marketing efforts to win the “ideal” business

Q: Does this have any implications for “Supply Chain Management?”

Just That ONE Application ...

- As part of a Supply Chain strategy – Massive. (E.G. via DDMRP)
- **But even stand-alone ...**

Annual Sales: \$5 MM

Produce & Ship $\Delta 15\%$ from 5 Steps so ... Sell & Ship \$750 K more

Change in Operating Expense: \$0 ... same people, equipment

Additional Materials Purchased @ 40% of Δ Sales: \$300K

Incremental Net Profit: \$750K - \$300K = + \$450K

Impact on value of the company?

How confident? TOC guys putting money where their mouth is ... working with small US manufacturers ... nominal monthly fee + 20% of 1 year's Profit Growth!

Instead of “Manufacturing” ...

Instead of Manufacturing ... think “Workflow”

(Search: Utah Government Viable Vision Kristen Cox)

(Other State Government departments also using TOC ... Texas, Hawaii)

- 94% More applications processed, within 2 months of implementation
- 44% more tax returns processed with fewer people
- More samples through Crime Labs
- More samples through infection control labs (faster processing for children’s health care)
- Various Application Processing from 194 days to 28 days
- Contracting Time in Workforce-oriented dept. reduced 45%
- Departmental Costs (genuine Operating Expense) reduced \$5MM
- Phone call wait times more than halved
- Backlogs halved in function after function ...

Instead of “Manufacturing” ...

Instead of Manufacturing ... think “Workflow”

(Search: Theory of Constraints in Healthcare)

Note – this is old data, there have been HUGE advances since.

- Typical: Emergency wait times under 4 hours ... compliance moved from <70% to >95% in 90 days
- Typical: Length of stay in wards reduced by 30% to 40% in as little as 6 weeks, freeing up beds ...
- Which permits faster processing through Emergency
- ... And more Surgeries in the OR
- ... Which reduces backlogs and wait times

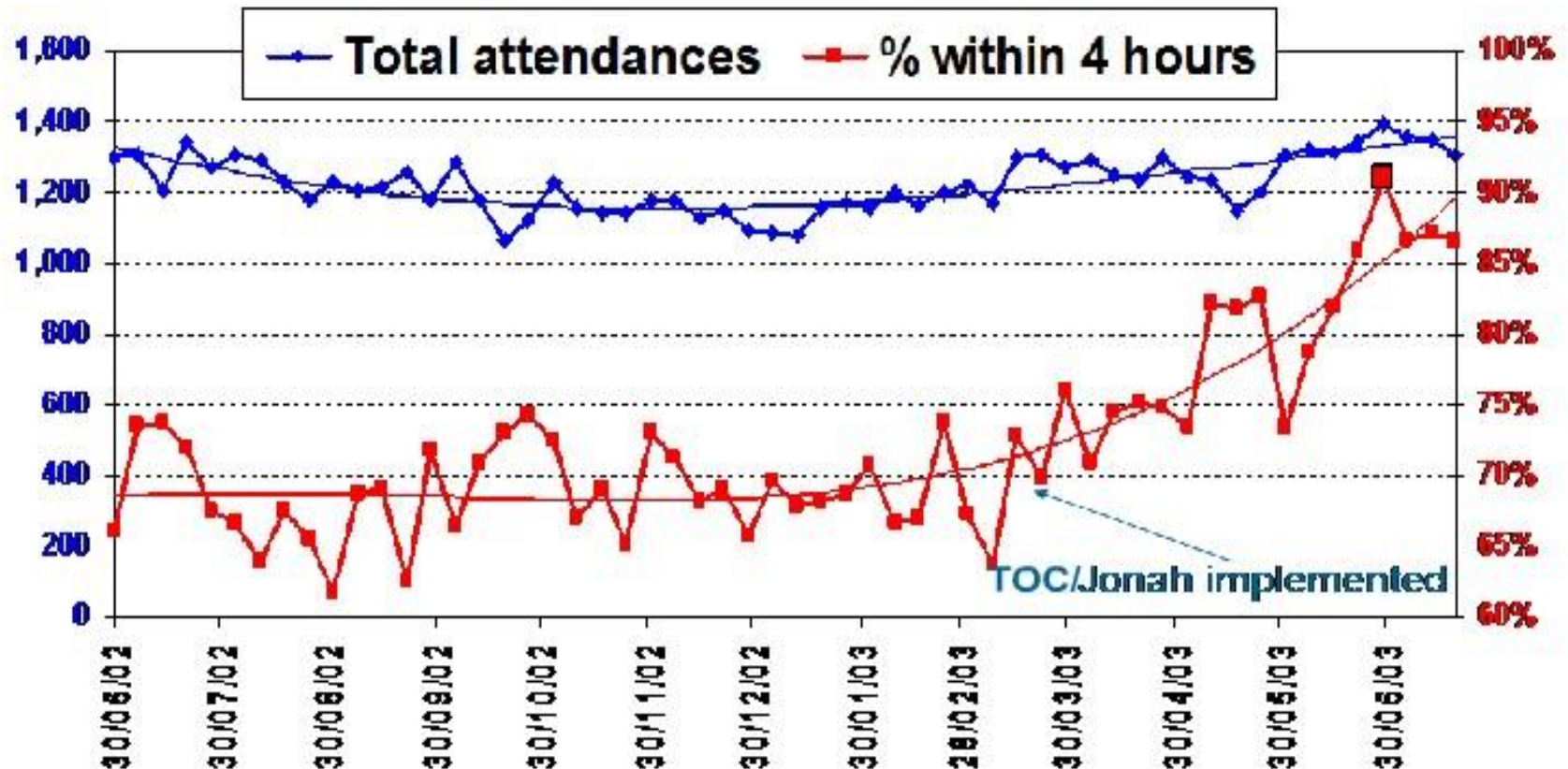
Example comment:

“A downward trend of up to 50% reduction in length of stay within twelve weeks of implementation, allowing the trust to treat more patients within current capacity while not asking staff to work even harder. “

Oxford Emergency Health care System

(Charts from Goldratt Group & www.harmonytoc.com)

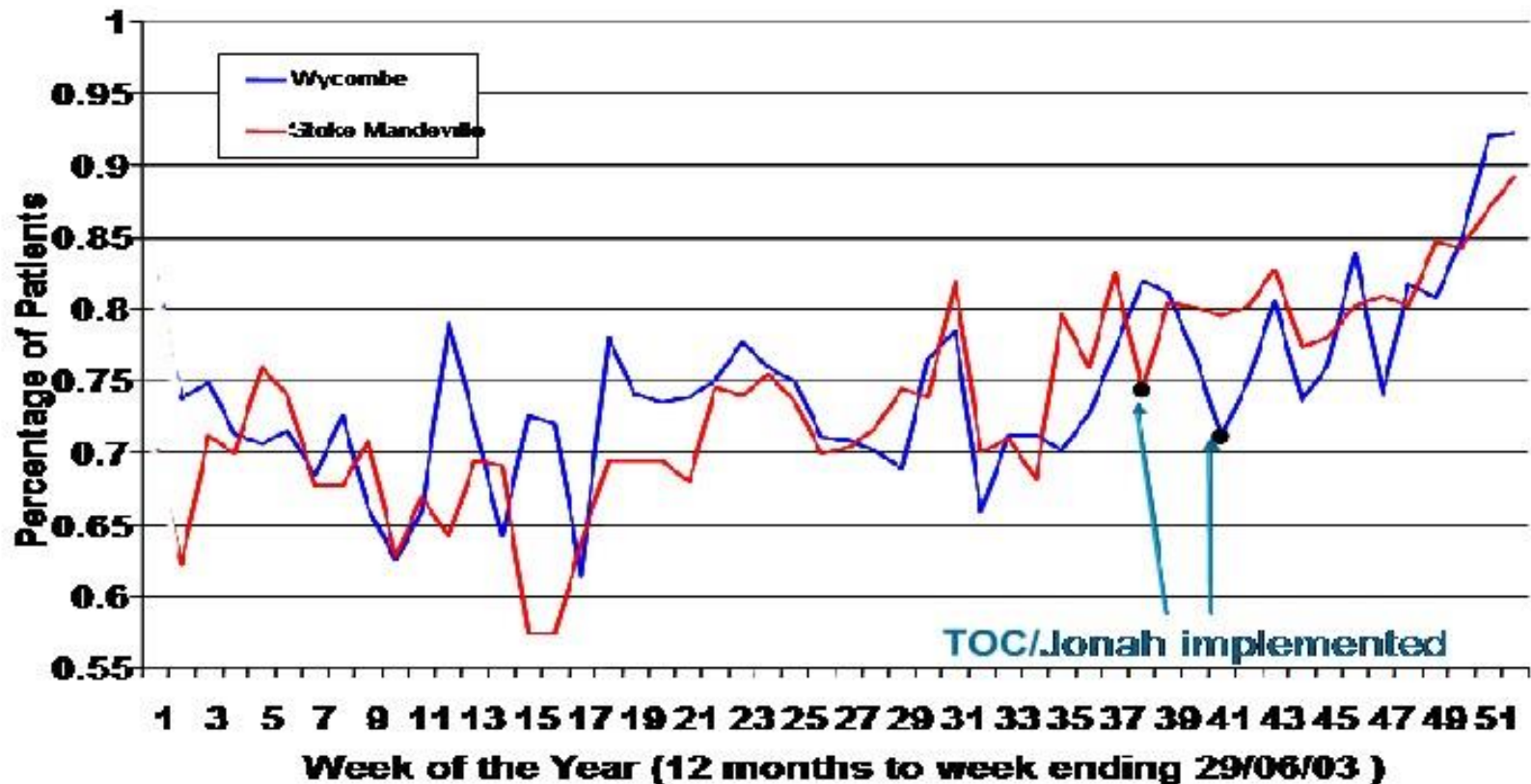
A & E ATTENDANCES
as per weekly SitRep



Stoke Mandeville & Wycombe Hospitals

(Charts from Goldratt Group & www.harmonytoc.com)

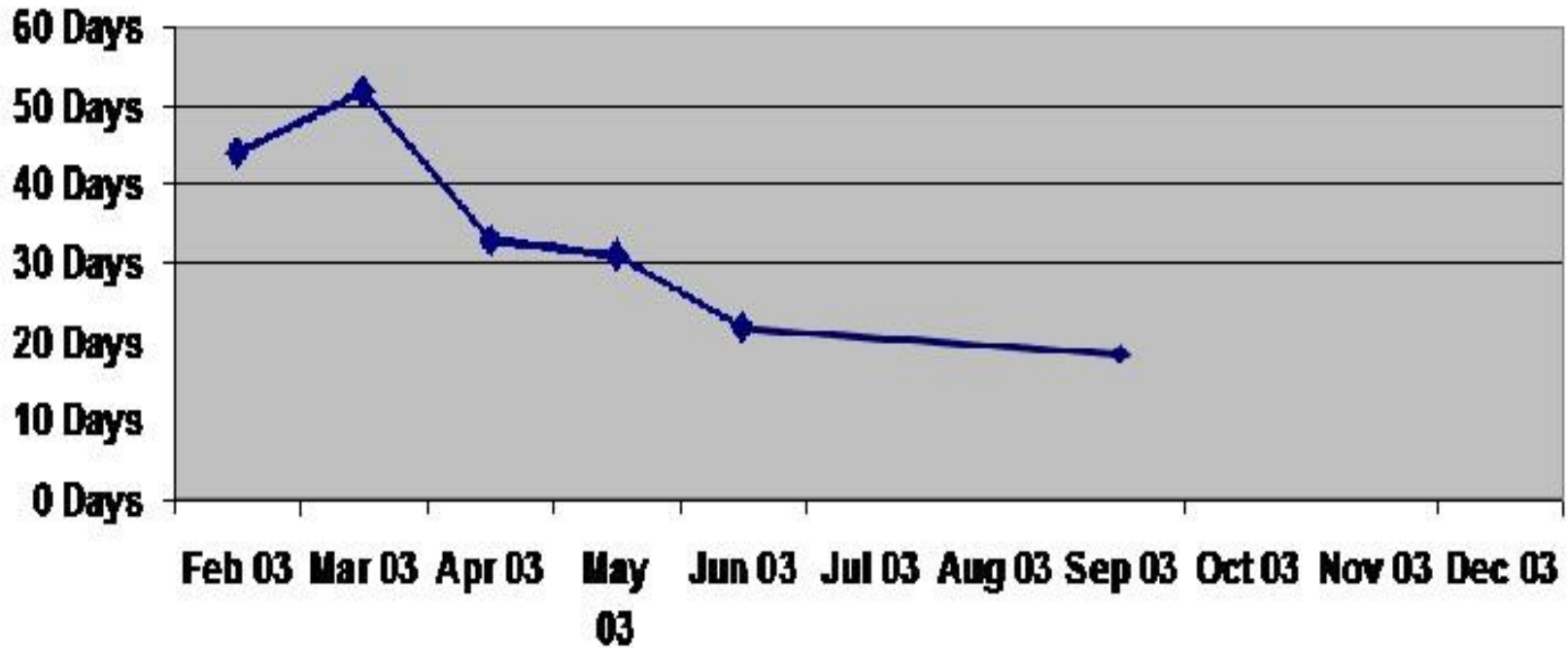
A&E Patients Waiting <4Hours as a Percentage of Attendances



Didcot Community Hospital

(Charts from Goldratt Group & www.harmonytoc.com)

Didcot Community Hospital - Average Length Stay All Patients



Application: Distribution & Supply Chain

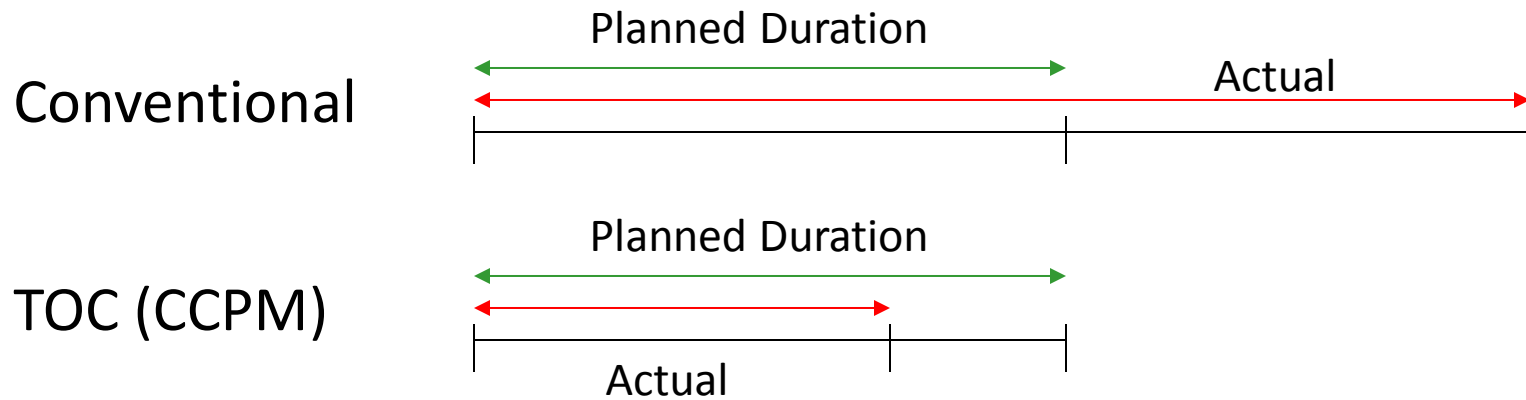
- Initial TOC “Replenishment” solution was very powerful
- **DDMRP – Demand Driven MRP – Taking it MUCH further – Wider & Deeper – Upstream & Downstream – Breaking New Ground**

(AND: Don’t have to be TOC Kool-Aid Drinkers. Agnostic! Gets around the “Either/or”)
- Service level/fill rates 97% plus
- Lead times reduced to 80% or more (depends, obviously)
- Inventory levels reduced 20% to 45%
- Reduced “Total Supply Chain” costs

Q: Does this have any implications for “Supply Chain Management?”

Application: Project Management

- Reduces Project durations by 25% or more (versus traditional approaches to project management often deliver in 2X or 3X the planned duration) – and can shrink even the original planned time



- On-time performance for completion often 90% plus
- Not at the expense of over-budget!
- In “Pure Project” environments ... can be 2X even 3X the number of projects completed by the same resources in the same time-frame
- Project schedules absorb high “Murphy” factors (variability) with virtually no reschedules

Application: Sales

- Simple “Identify,” “Exploit” and “Subordinate” activities will often increase sales 50% or more
- Using the TOC Buy-In protocol (a “Thinking Process” technique) can boost closing rates 30% or more
- “TOC on Steroids” approach COMPLETELY re-engineers the Sales function. Challenges EVERYTHING!
 - Outcomes VERY situation specific but can include 10X more leads, 2X to 4X more sales from the same sales force expenditure

Q: Does this have any implications for “Supply Chain Management?”

Application: Marketing

- IF you implement TOC Applications and record performance levels beyond your competitors

AND

- **If you recognize the Sacred Cows in your COMPETITOR'S organizations (easy)**
- You can create a “Market Offer” that is almost irresistible to a customer ***OR to their downstream customer***
- Correctly structured, your customers buy more volume from you; willingly pay you MORE than they pay your competitors; and your competitors elect not to compete —for months, even years

Q: Does this have any implications for “Supply Chain Management?”

2 Minutes: TOC “Thinking Processes”

Dr. Goldratt and a team spent hundreds of hours developing a suite of “Thinking Processes” designed to help managers ...

- Identify “What is Really going on here”
 - In a complex environment of cause-effect policies, procedures, behaviours etc
- Identify a deep-rooted Core Problem that is causing MANY symptoms
 - Always associated in some way with a Policy Constraint!
- Find a way out of the Core Problem
 - Something that is win/win and does NOT include a compromise
- Construct a detailed Solution
 - Including high degrees of assurance that the symptoms would be addressed
 - Including anticipating and preempting “negative side effects”
- Plan around the Obstacles to implementing the Solution
 - Literally uses the Obstacles as stepping stones

“Focus” and “Leverage” via the TP

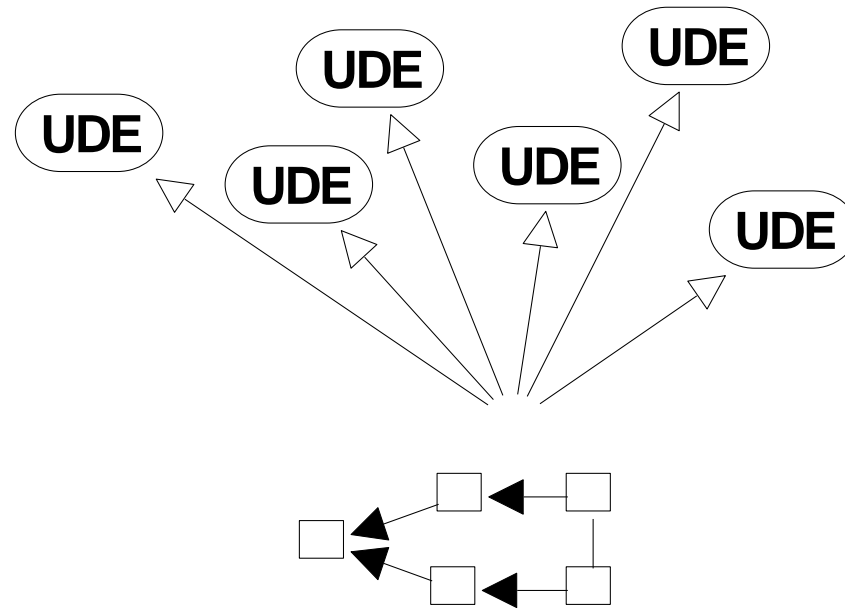
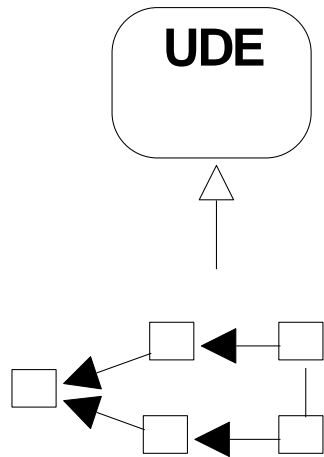
The essence:

- Underneath any “Headache” (Symptom, UDE “UnDesirable Effect”) there is a conflict that has not been resolved.

We represent that Conflict in a diagram, with logic attached, called a “Cloud.”

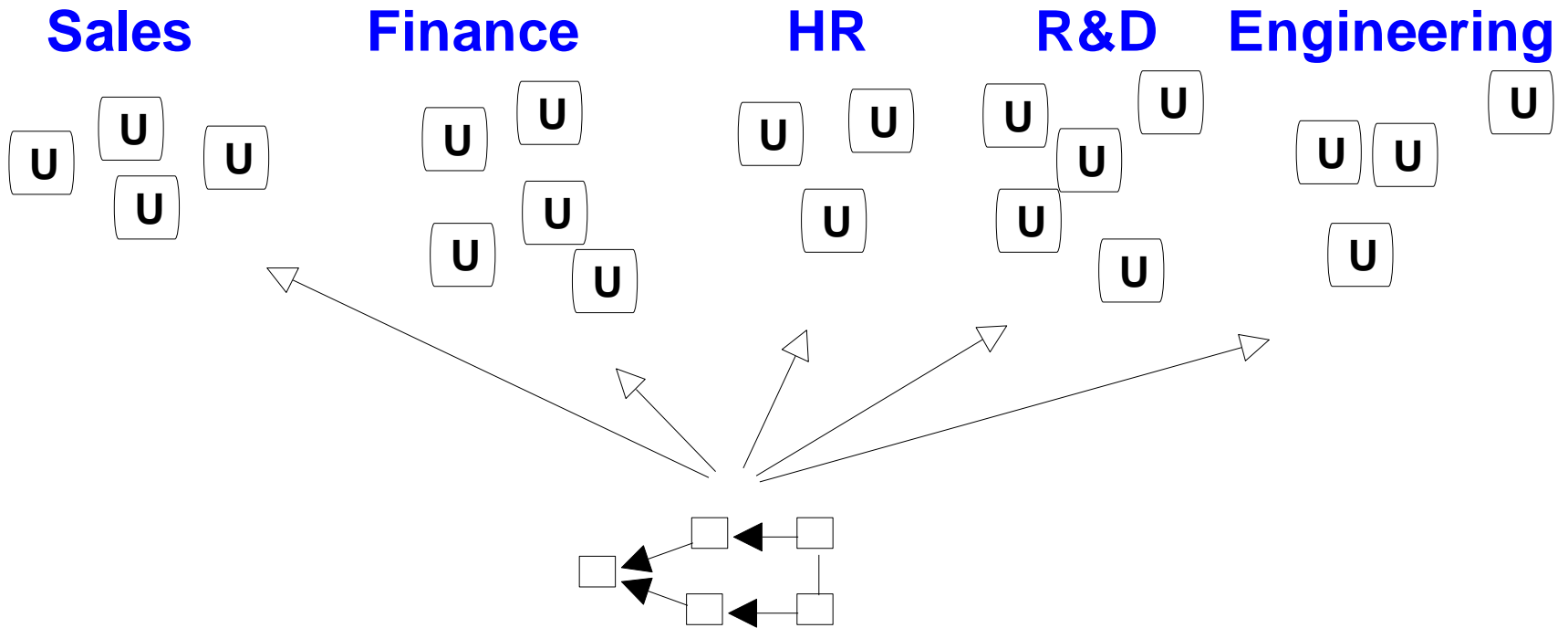
- Until that conflict is resolved, the symptom will withstand ALL efforts at dealing with it!
- Under any cluster of UDES ... in a department, for example, ... there is a deeper, more “generic” conflict
- Under any group of clusters ... across multiple departments for example ... there is a deeper, more “generic” conflict

UDE = "UnDesirable Effect" (aka Symptom)



**Beneath EVERY
UDE there is
a Cloud.
(A Conflict)**

**Beneath EVERY
Cluster of UDEs in a Department,
there is a "Generic" Cloud
(A Conflict)**



**Beneath EVERY
spread of UDEs across all Departments
in an organization,
there is a "Generic" or "Core" Cloud
(A Conflict)**

Think Of The Implications

- This is not the time or place to show an example.
(Google Search > Images > Evaporating Clouds or TOC Clouds or Theory of Constraints Clouds to see 1000's of examples.)
- But just imagine the implications!
- If we can find a resolution to the Conflict ... **that SINGLE breakthrough can be the beginning of a *comprehensive* solution that pulls together ALL the elements needed to “fix” ALL or MOST OF the symptoms and avoid the negative side effects. This is Huge Leverage!**

**Good News: There is a METHODOICAL,
TEACHABLE, LEARNABLE way to do this!**

Bad News: Almost no-one knows it. Or teaches it.

Last “Thinking For A Change” Teaser!

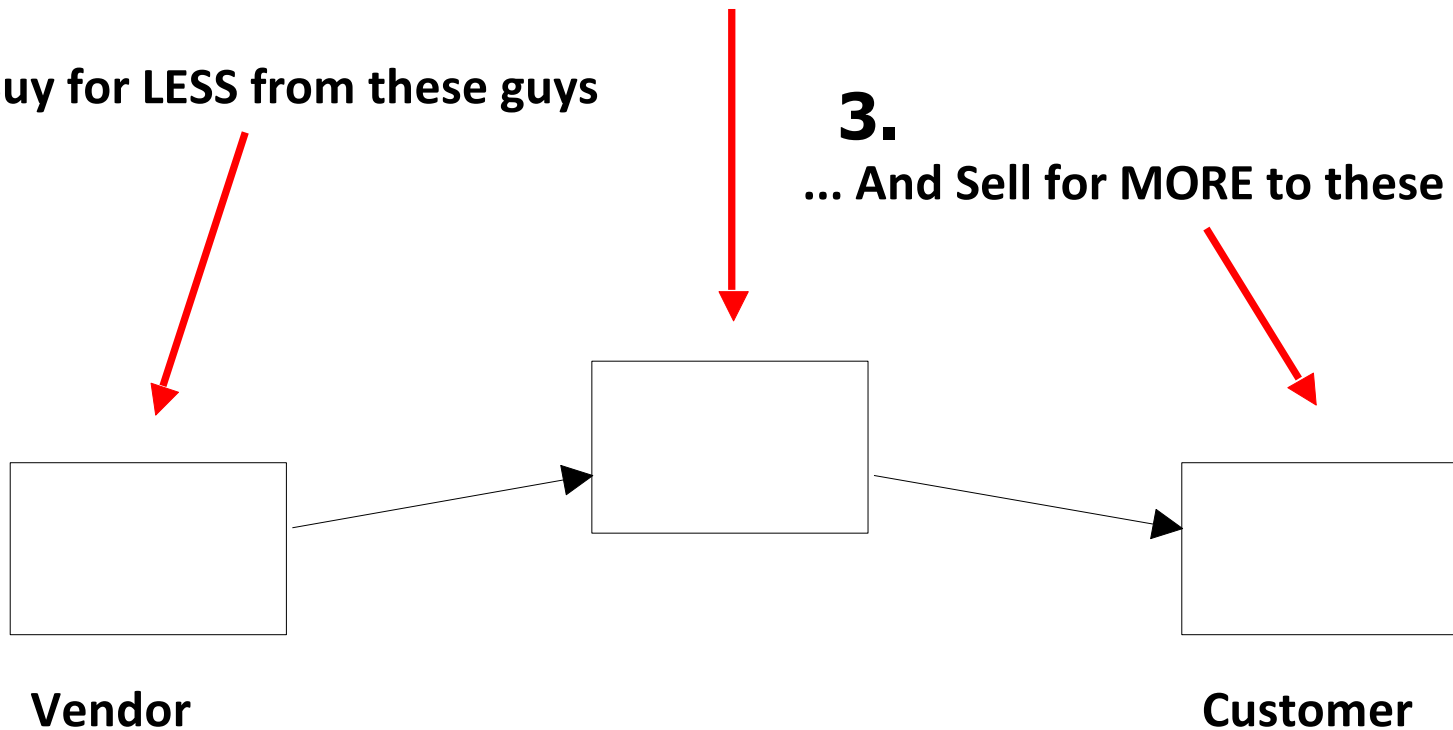
- Supply Chain management today focuses on inventory, velocity ... but still largely from a perspective of each Link in the Chain.
- **What if we can use the 5 Steps ... and Challenge some deeply-embedded Policy Constraints ... to re-imagine the Supply Chain?**

The Conventional Yin & Yang

1.
To make more Profit HERE ...

2.
... Buy for LESS from these guys

3.
... And Sell for MORE to these guys

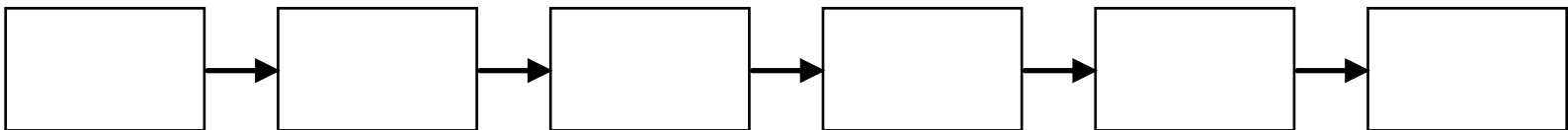


So ... What Happens When ...

EVERY Link in the Chain Wants to Sell for More
and Buy for Less?

The only way to increase profits is at the
expense of another Link!

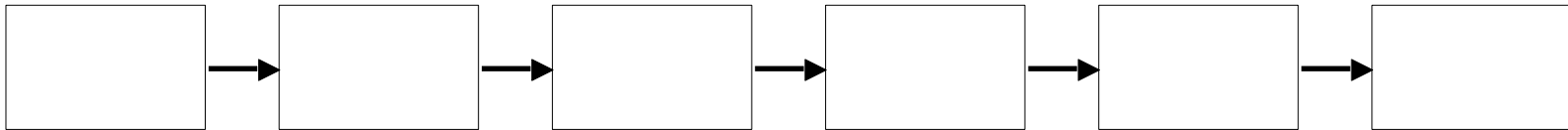
This is “Local Optimization” Gone Mad!



Imagine For The Moment ...

Raw Material
price paid by
the 1st Link

Selling Price
to the End User



**The \$Throughput is considered as being generated BY the entire Chain
FOR the Entire Chain!**

(Sell Price to End User) - (Raw Material cost at 1st Link)

The ENTIRE Supply Chain says ...

- None of us make a sale until the end user buys!
- No-one gets paid until the end user buys!
- There is an equitable way of sharing the Total Chain's Throughput among the Links – no Link makes money at the direct expense of another!
- We ALL make more money by inducing the End User to buy more!
- So what can we do – as a CHAIN – to make the End User WANT to buy more?**

This Was Implemented 20 Years Ago!

- **A Department Store Chain ... Clothes Manufacturer ... Fabric Manufacturer ... Yarn Manufacturer.**
- **The Store saw Gross Margin grow 135%, Product Margins grow 25%, Turns increased from 2.5 to 4.5 ... and the store needed 50% less space.**
- **A significant sales growth was passed along the entire chain!**
- **Every link in the chain “hot potato’d” the product internally and between Links.**
- **The Entire growth strategy was to ONLY make AT EVERY LINK what was in demand – the specific product and quantity from a signal at the consumption point – and being sold at the End User level. An early form of “Demand Driven!”**
- **Anything “Hot” was ALWAYS available on the shelves.**
- **Anything not selling was quickly switched off and removed.**
- **There was virtually nothing in the entire chain that wasn’t in immediate demand at the End User level.**

Where Do You Go From Here?

If you want to know more ... the single biggest source of public information on all aspects of the Theory of Constraints Applications and Thinking Processes is via membership of an organization called “TOC-ICO.”

<http://tocico.org>

One source of “official” TOC information is the organization bearing the TOC originator’s name: Goldratt Marketing.

<https://www.toc-goldratt.com/en>

They have books, videos, a variety of courses on offer.

There are many books (most in Amazon, some available only via Goldratt Marketing) and public videos (YouTube) and of course commercial videos (Goldratt Marketing).

There ARE consultants and educators. You can find them through the usual searches. However, there are few in comparison to the world of Lean and Six Sigma and ERP.

I am happy to serve as a curator and conduit to others’ services should you want to discuss TOC-related topics. (I do this a lot!)