



**TOCPA**

Theory of Constraints  
Practitioners Alliance



# **Eli Goldratt's Legacy in the World**

**46<sup>th</sup> TOCPA International Online Conference**

**18-19 March 2021**

**Andrew Kay**

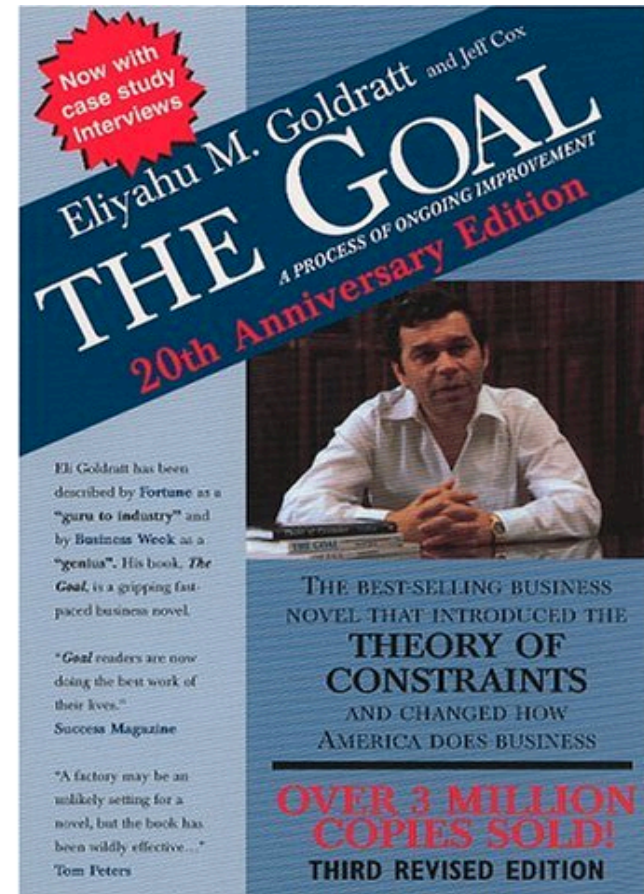
Australia, TOC<sup>3</sup>, [www.toc3.com.au](http://www.toc3.com.au)

# Agenda

- Some Insights
- Some Personal Lessons
- Products and tools
- Shout out to TOC for Education
- Results
- TOC and Football
- TOC and Traffic Management
- TOC and Future Applications

# This is my story...

- Was working as a private sector consultant in TQM, Business Process Reengineering, Balanced Scorecard and Performance Contracting. It was a grind!
- Needed something that would get much better results faster, with much less effort.
- Was introduced to The Goal late 2000.
- My TOC Journey began
- And since have never looked back!!!



# Practical insights that helped me transition to my own business TOC<sup>3</sup>

1. **Don't be attached** to money be *committed* to your clients success – you will make more money.
2. **Trust your TP tools and processes** they will guide and support achieving desired outcomes
3. **Don't be attached** to your new friends. You can still invoice when you visit and do work.



# Deep Insights

## Implementers Inertia

- So we have implemented DBR/S-DBR and all seems fine.
- Except why is the constraint operation quiet?
- Created a process to generate minimum 10% more throughput through the constraint within 24 hours (New York 2011 presentation).
- It's not done till you cycle through at least a second time.

# Results

CLIENT	Constraint	Utilisation Before %	Utilisation After %	Improvement	\$T Recovery Increase at B/Even				20% Margin Above OE
					Day	Week	Month	Year	
Food Processing*	Ovens	62.40%	79.70%	28%	\$1,219	\$6,094	\$24,376	\$316,875	\$380,250
Structural Steel	Fabrication	63.20%	75.90%	20%	\$3,614	\$21,682	\$86,728	\$939,545	\$1,056,989
Industrial Wires and Cables	Extruders	82.40%	90.30%	8%	\$1,948	\$9,740	\$38,960	\$506,458	\$607,750
Steel Reinforcing 2011* In progress	Double end Benders	34.40%	57.30%	67%	\$14,948	\$74,740	\$298,958	\$3,886,458	\$4,663,750
Kitchens	CNC Robot	80.00%	90.00%	10%	\$1,168	\$5,844	\$23,376	\$280,512	\$364,650
Furniture	CNC Router	60.20%	72.20%	20%	\$975	\$4,875	\$19,500	\$101,400	\$121,680
Knitwear Fashion	Linking (Sewing)	77.10%	92.70%	20%	\$613	\$3,063	\$12,252	\$159,250	\$191,100
Commercial Refrigeration	Folding - Presses	38.00%	60.00%	63%	\$5,000	\$25,000	\$100,000	\$1,200,000	\$1,440,000

- All cases after DBR/BM had been installed, not all cases had the system reached stability

# Some personal lessons from others thru Eli

- Listen, Listen, Listen. Always!
- Do not be a preacher, be Socratic.
- Ask questions and when they ask you a question answer by saying – “**well what do you think**”?
- And if they insist you give an answer then say “**it depends**” 😊
- From Dr. Shoshi Reiter – if you doubt a claim say “**really**” and wait.
- Always check your **logic** to see what effect you want to create is valid.
- Keep the **effect** in mind when in communication with others. It is surprising how well this keeps you on the right path.



# Some more lessons/Insights

1. Engage, embrace everyone in the change process
2. The initial prototype solution is the fastest way to educate everyone.
3. Initial prototype solution is just that – it is there to further customise as required and is not a fixed solution. Iron out the wrinkles till everyone is comfortable and sees the win for themselves.
4. Get to know as many as you can. Know their story and their likes and dislikes.
5. Successful implementations require some knowledge and practice with behavioural management. Recommend Dr. Aubrey Daniels “Getting the Best out of People”.



# TOC Products

## Simulation Tools

**GSIM**

Various Dice Games

**PSIM**

**Toni Rizzo's Bead Game**

3 column Multi exercise.

Multi-tasking Confetti Factory

MICSS – Eli Schragenheim

## Decision & Planning Tools

**Strategy & Tactics Trees**

Harmony Decision Maker

## CCPM Software

**EXEPRON**

**PRO CHAIN**

**BEING 3**

## Thinking Tools

Jonah Program x2

**Management Skills Workshop**

Six N&S Questions on Technology

## Application Solutions

Operations: DBR/SDBR   Sales: Buy-in Process & Mafia Offer

Project Management: CCPM

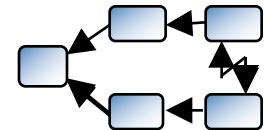
Finance and Measurement: TA

Logistics Replenishment

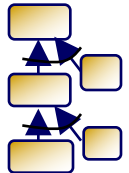
# TOC for Education

- A gift from Eli
- A powerhouse of dedicated practitioners in 25 countries mainly from the education sector.
- Application of three primary TP tools to help students learn, help teachers teach, help parents and carers support the development of their children.
- Applied for behaviour and curriculum.
- Development of new Thinking tools e.g. the Problem Solving Maps by Dr Danilo Sirias

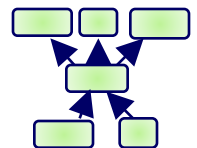
CLOUD



BRANCH



AMBITIOUS  
TARGET TREE

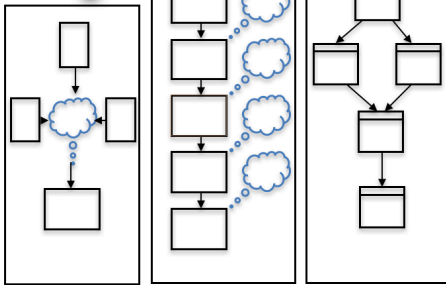


Kathy Suerken



# TOC for Education

## Problem Solving Maps



### Introduction to the Problem Solving Maps WEBINAR SERIES AUSTRALIA

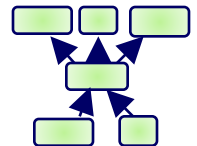
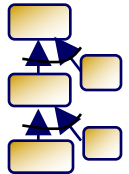
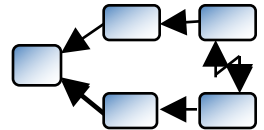
1. Wed. Nov 21, 2018 NSW and VIC 4.00pm
2. Thu. Nov 22, 2018 SA 4.30pm and  
Thu. Nov 22, 2018 QLD 3.30 pm
3. Sun, Nov 24, 2018 WA 9.00am, 12 midday NSW/VIC

Development  
of new  
Thinking tools  
e.g. the  
Problem  
Solving Maps  
by Dr. Danilo  
Sirias

CLOUD

BRANCH

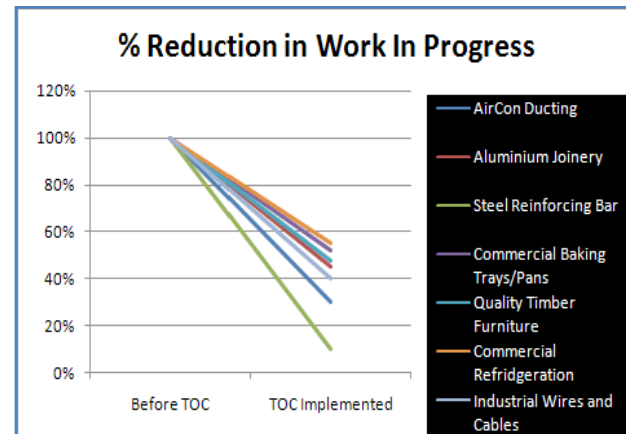
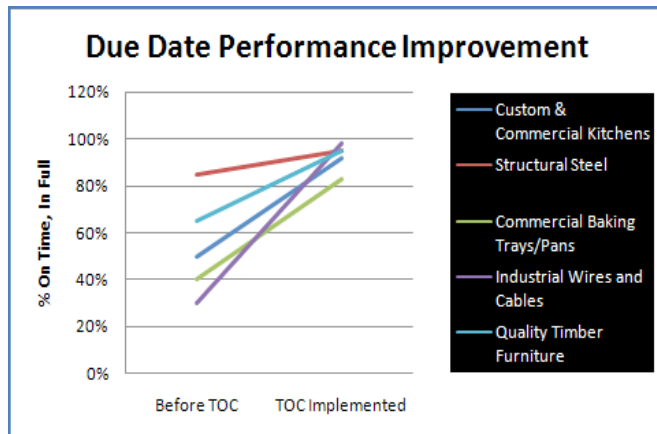
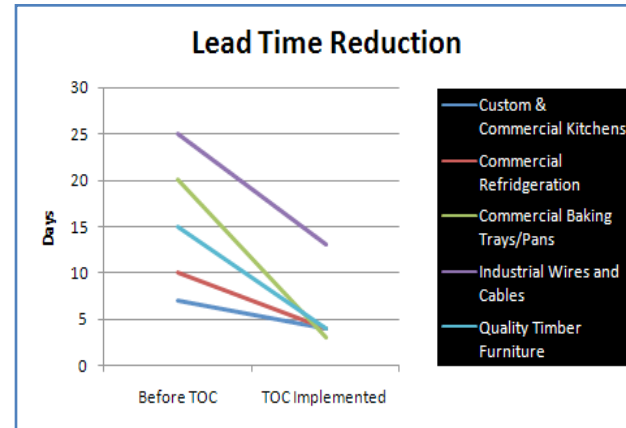
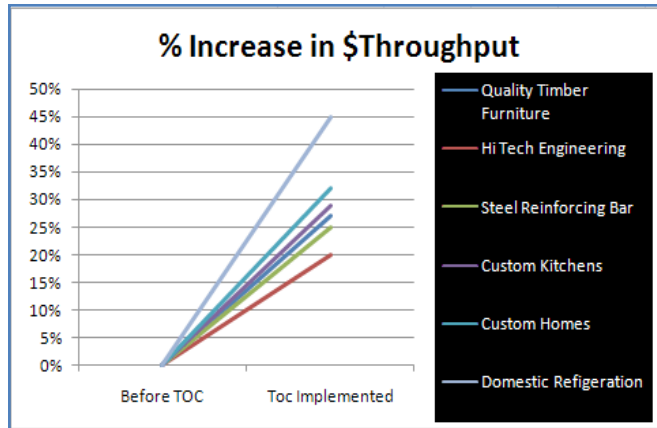
AMBITIOUS  
TARGET TREE



Kathy Suerken



# Some Results



# Electrolux

*(Refrigeration Division, Orange NSW) 2008/9*

**Product: Domestic Refrigerators and Freezers**

## Main Issues

Unable to give the market what it wants when it wants it  
Too much cash tied up in the system

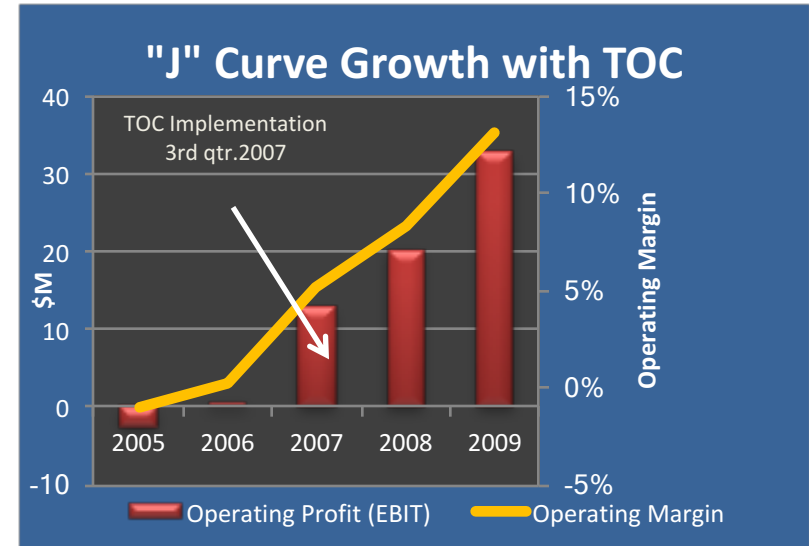
## Solution – On site implementation program

Installed “Make to Availability” Production Scheduling and Replenishment Solution

Installed Critical Chain Project Management in Engineering for Product Cost Reduction, Facilities Management and New Product Development

Implemented Throughput Accounting and new Measurements Series of TOC Education Workshops and the Management Skills Program

Installed DBR Production Scheduling and Buffer Management



Main Plant	Before	After 12 months	Percentage Change or Comment
Finished Goods Inventory	40 days stock Aug 07	12 days stock Jun 09. Replenishing daily to meet daily market demand	48% reduction in FG inventory
Back Orders	Average 20 Days	Average 2 – 4 days	>50% improvement to customer service
Production Flexibility	Make to 3 month forecast	Make to actual sales 2 days turnaround. Highly flexible.	Increased production output by 30% - 35% 1,100 units max to 1,540 units
Cost Reduction	Budgeted \$2.5m in direct materials	Achieved \$4.1m	Achieved additional \$1.6m in savings
Chest Freezers	Before	After 3 weeks	
Output	Between 140 – 170 Units/day - majority small capacity units	Between 220 – 250 Units /day Better mix with larger capacity units + higher margin	Greater than 30% increase in capacity
Profitability	Poor	Dramatic improvement	Profitability increased >50%

# Electrolux Continued

## Other Results

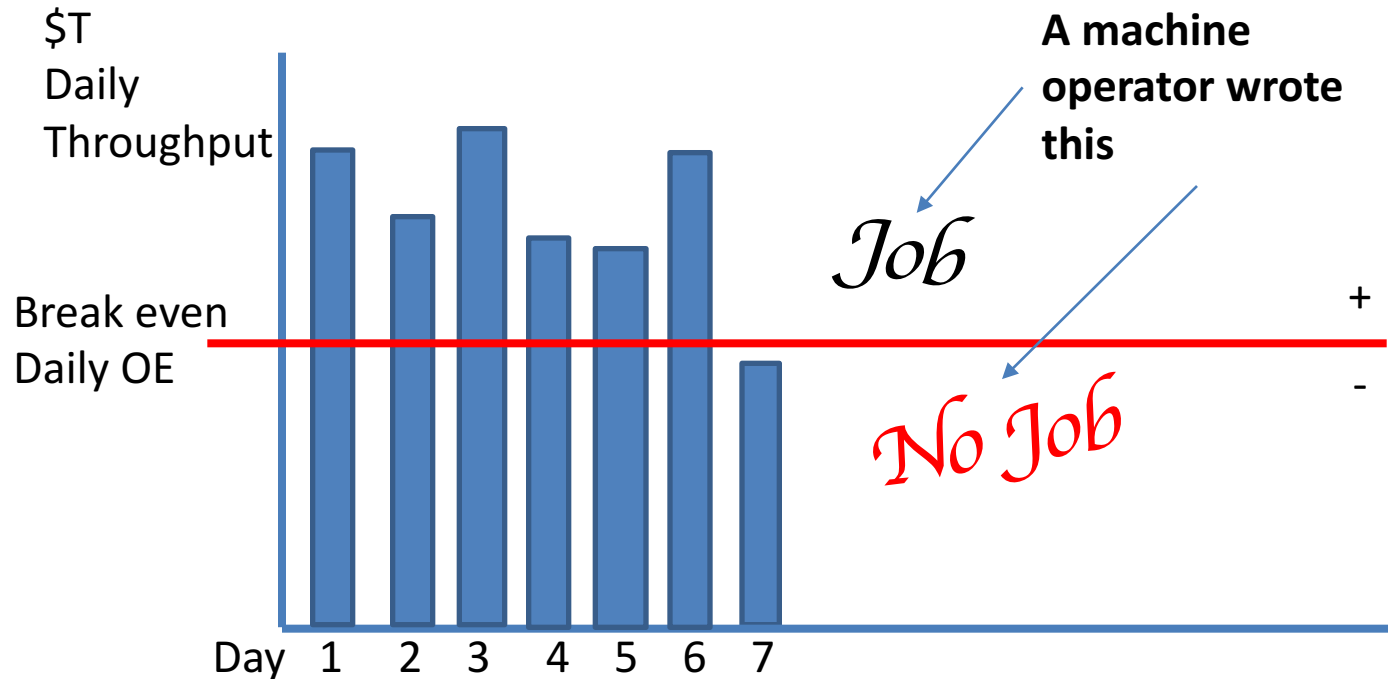
- Operating margin increased from 2.1% to 13.1%
- Profit increased by \$19.88m,
- Inventory reduced by \$20m
- Sales volume went up by 6.5%, with no capital investment in capacity.
- 50% increase in exports 2008 with zero investment and \$AU 1.00 at \$US 92 cents
- Won back \$14m in sales for Sep 09
- Brought production for a product back into Australia from low cost country
- Generated \$3m in cash from a \$30k investment
- All new model projects on time, on budget and on quality (30% less time required than previously) **CCPM Solution**
- Quality continues to improve with 85% new SKU's, Exported product to China, Bank of hardy perennial problems being resolved very quickly using TOC thinking tools, Stable workforce and increasing in number as the company grows, Skills now inbound, General Manager gets a lot of thinking time to work on the business.



# Freezer Division Solution Set

- A/I plant
- Two synchronised lines with average 15% and 27% downtime. Hurt sub-assembly process. F1 maintenance Crew
- Installed space buffer before and after the constraint to absorb variability at the constraint and post constraint – high pressure foam (Cabinets)
- Introduced 1 day buffer board running at 2 hour intervals.
- Scheduled 7 larger capacity units per 2 hour block (previously max 2 per hour).
- We had to deal with the grumpiest production manager, disheveled appearance, everyone in fear of him, constantly barking at them.
- After 3 weeks he wore a fresh clean business shirt, was whistling and waved with a big smile as he saw me and my partner approaching.
- Throughput up 30% and bottom line up by 50%. He had a reason to be happy and everyone on the shop floor also.

# Chest Freezer Dept.





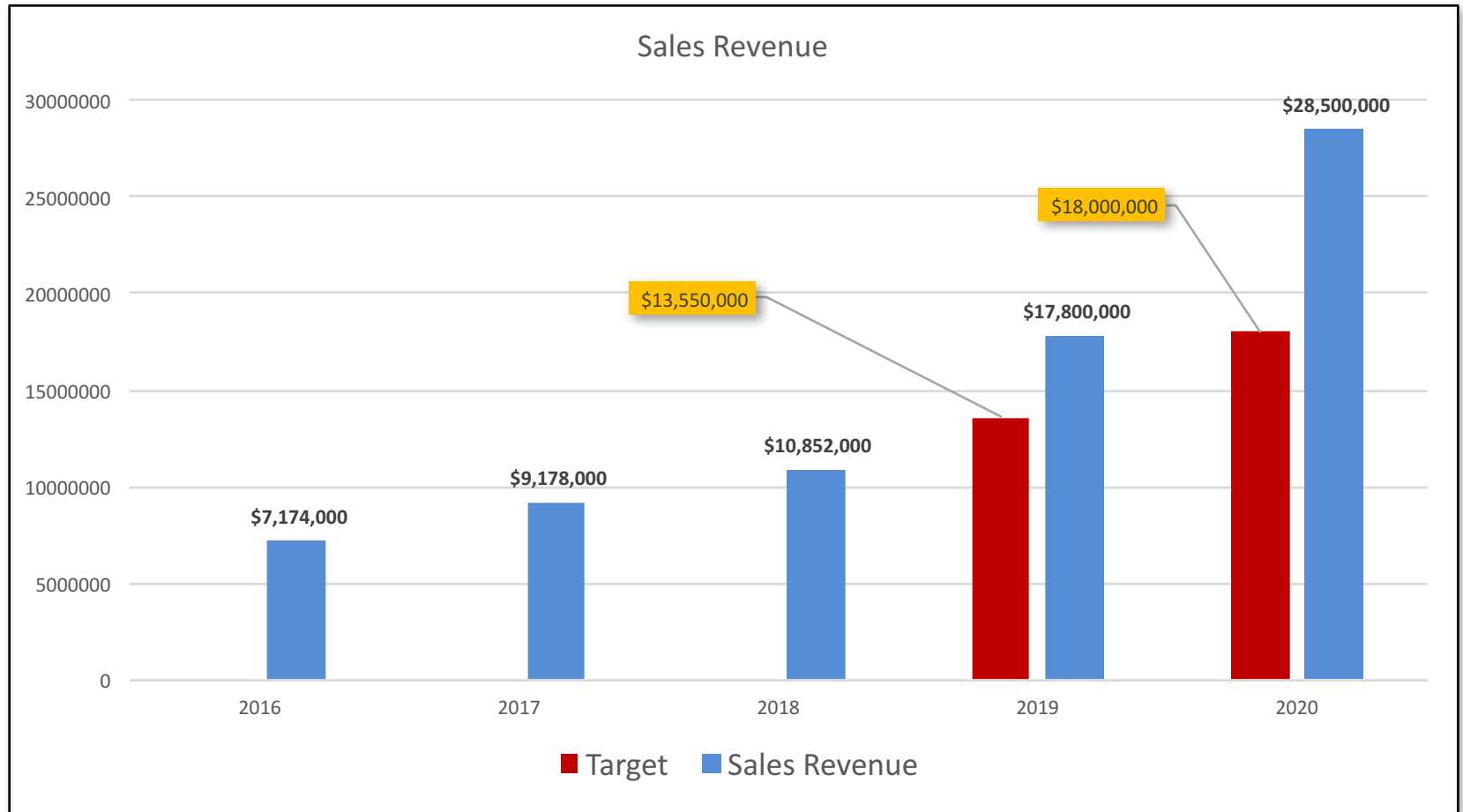
# Results: S/DBR and Buffer Management

## **BIG SHED COMPANY Australia**

- WIP reduced by more than 70%
- Lead times cut from 5 – 6 days per job to 1 – 2 days per job
- Due Date Reliability close to 100%
  - Single not multiple jobs in flow (eliminate multi-tasking and headaches)
  - Smart Parallel cut and feed, cut and feed to increase flow.
  - Smart Jig practices (flip/weld) reduce idle time
- **Note – it was not only about cutting WIP – it was also about how we handled WIP.**
- Once we changed how we handled WIP there was not enough WIP till sales really picked up momentum.



# Big Shed Company Results



# Big Shed Company Results

- Sales Revenue 52.7% higher than target
- On track for \$29m....!!!!
- Quote conversion rate of ready to go customers above 20% better than 2019.
- Workshop producing 13.6% higher than target



# Pricing Decision Support Tool

- TOC offers little guidance on pricing. For good reason.
- Still I had to find a breakthrough in getting sales to move away from product cost pricing.
- Radical twist to the Haystack Syndrome and Throughput Measurement in determining pricing for a job (not a product) where jobs take half a day up to 4 days.
- See TOCICO Presentation on Australian Shed Company 2018 and 2020.

# Application of TOC to win regional over 35 Soccer Competition

- Average age 45
- Squad ranged from 1<sup>st</sup> grade to 5<sup>th</sup> grade State league.
- 16 teams in competition
- Played 4 seasons.
  - Year 1 reached semi-finals.
  - Year 2 reached finals.
  - Year 3 Champions.
  - Year 4 collapsed - not enough players to compete effectively
    - getting too old.



# Local Area Traffic Management Solution to reduce Through Traffic



# TOC and the FUTURE

- Future Application of TOC to **World Money Supply**.
  - Central, Investment/Commercial and Retail Banking Systems, Black Swan Events.
- Application of **TOC Rapid Production of Vaccines** and other medicines – not to slip back to old models
- Application of **Blockchain** to remove core problem of international **supply chain logistics**. Transparency, visibility and connectivity.
- Application of TOC to remove constraints in adoption of Crypto Currency as the new standard for money



# Eli gave us many gifts

Eli had a pretty good slingshot  
unCommon Sense!

And a pretty good aim  
Focus

