



TOCICO 2013 Conference

The Honeymoon is Over – When Cost Reduction moves into the House of Throughput

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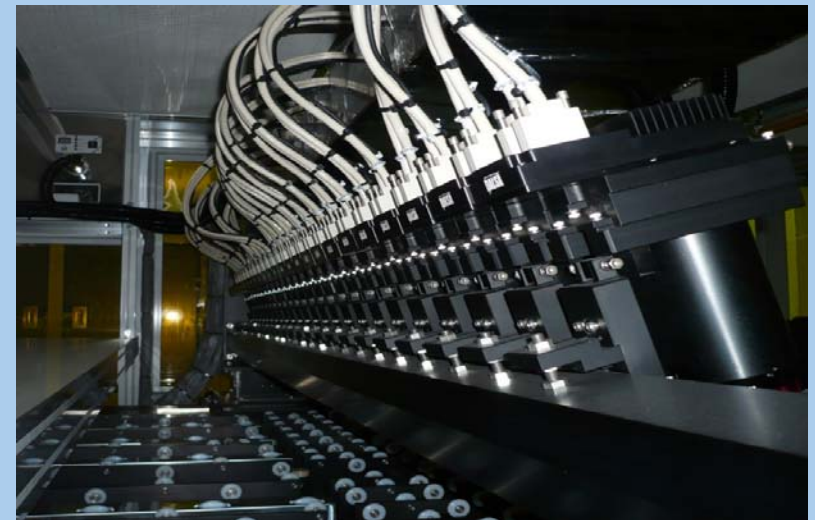
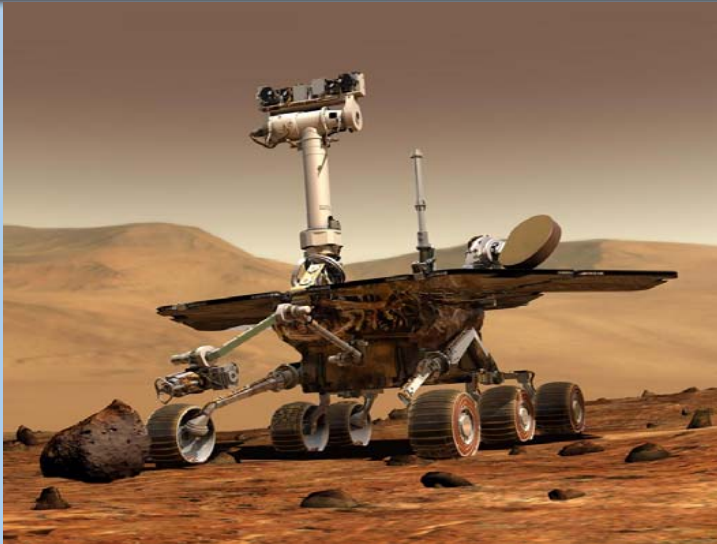
Objectives

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- **Share a practical method to quantify T,I,OE impact of different supply chain parameters**
- **Share change strategies employed to gain buy-in**
- **Demonstrate importance of shared performance objectives**
- **Share our ongoing TOC sustainability journey**

Teledyne DALSA - EveryWhereYouLook

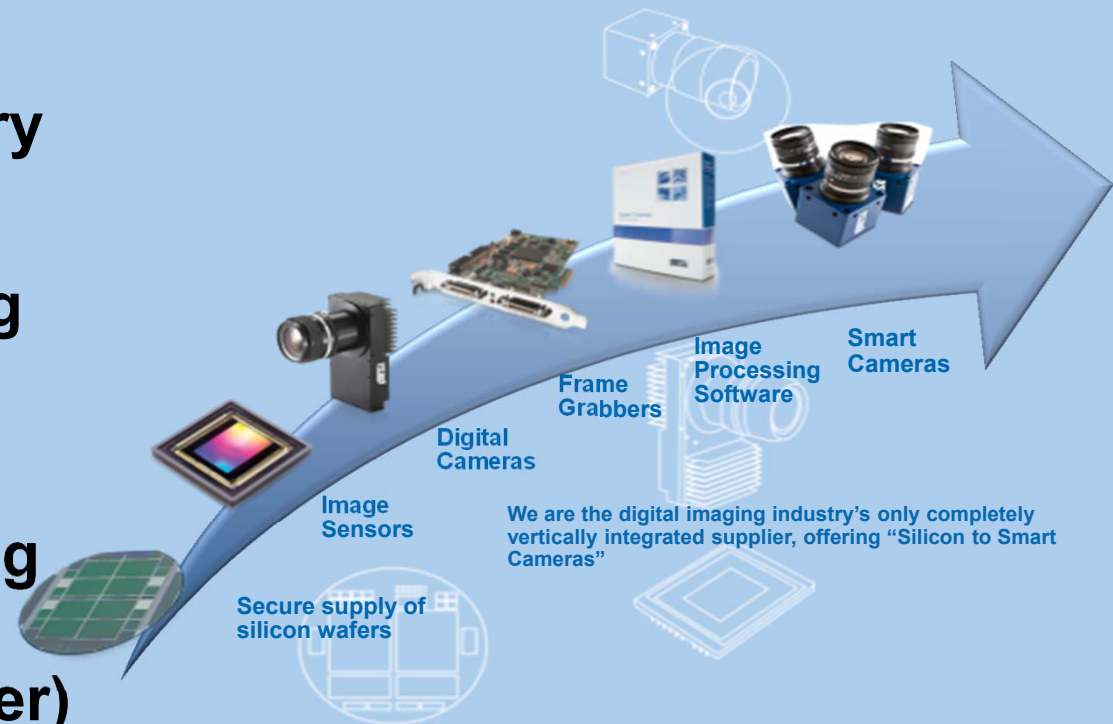
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Teledyne DALSA

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- Leverage image sensor design (CCD+CMOS) and our own CCD wafer foundry
- Depth of technology and breadth of product offering
- Provide a total package of vision components (sensors, cameras, imaging processing and software to tie it all together)
- Unique proficiency in developing custom products



About Teledyne DALSA

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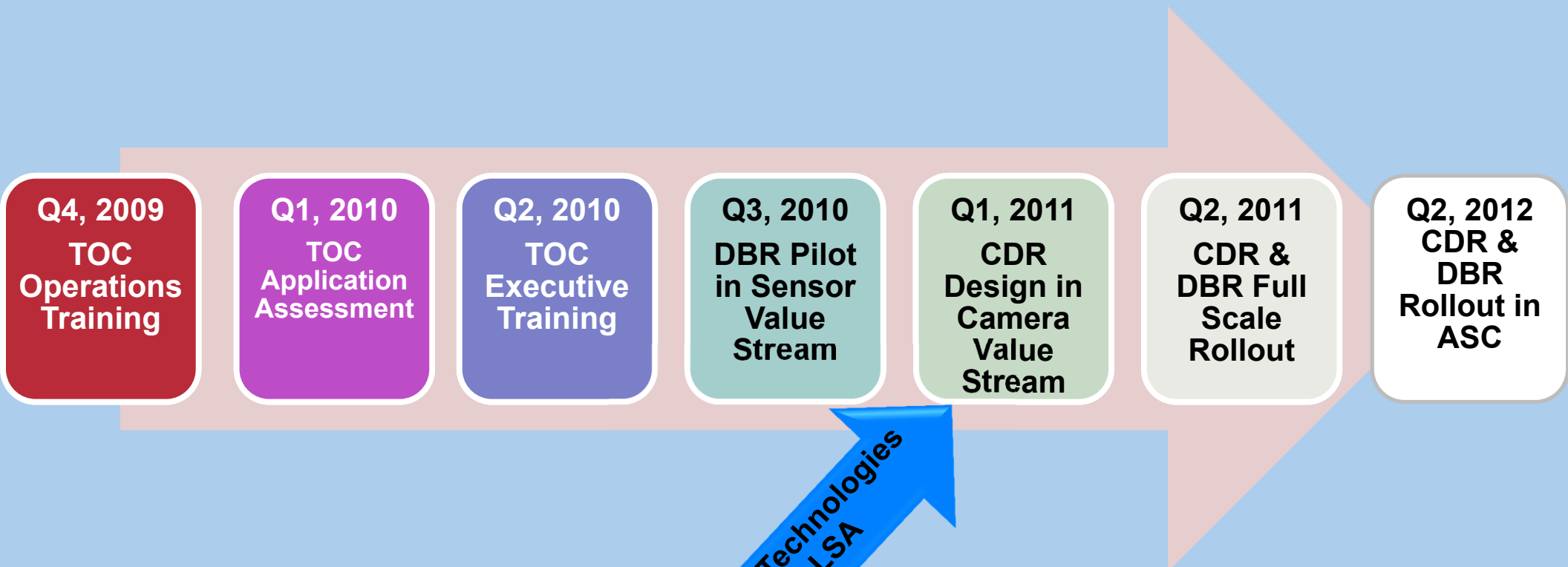
DWO Manufacturing - 185 employees, generated \$140m sales revenue.

Organised into 4 self contained business units (“Value Streams”) KPI driven. Formal monthly reviews against GOPs.

- ***Frame Grabbers, approx. 45,000 units. ASP \$500 to \$2,000. 50 products.***
- ***Standard Product Cameras, approx. 40,000 units. ASP \$500 to \$15,000. 350 Products.***
- ***Standard Product Sensors , approx. 75,000 units. ASP \$100 to \$2,000. 150 Products.***
- ***ASCFO and semi custom, approx. 1,000 units. ASP \$2,000 to \$300,000. 50 products***

Teledyne DALSA TOC Journey

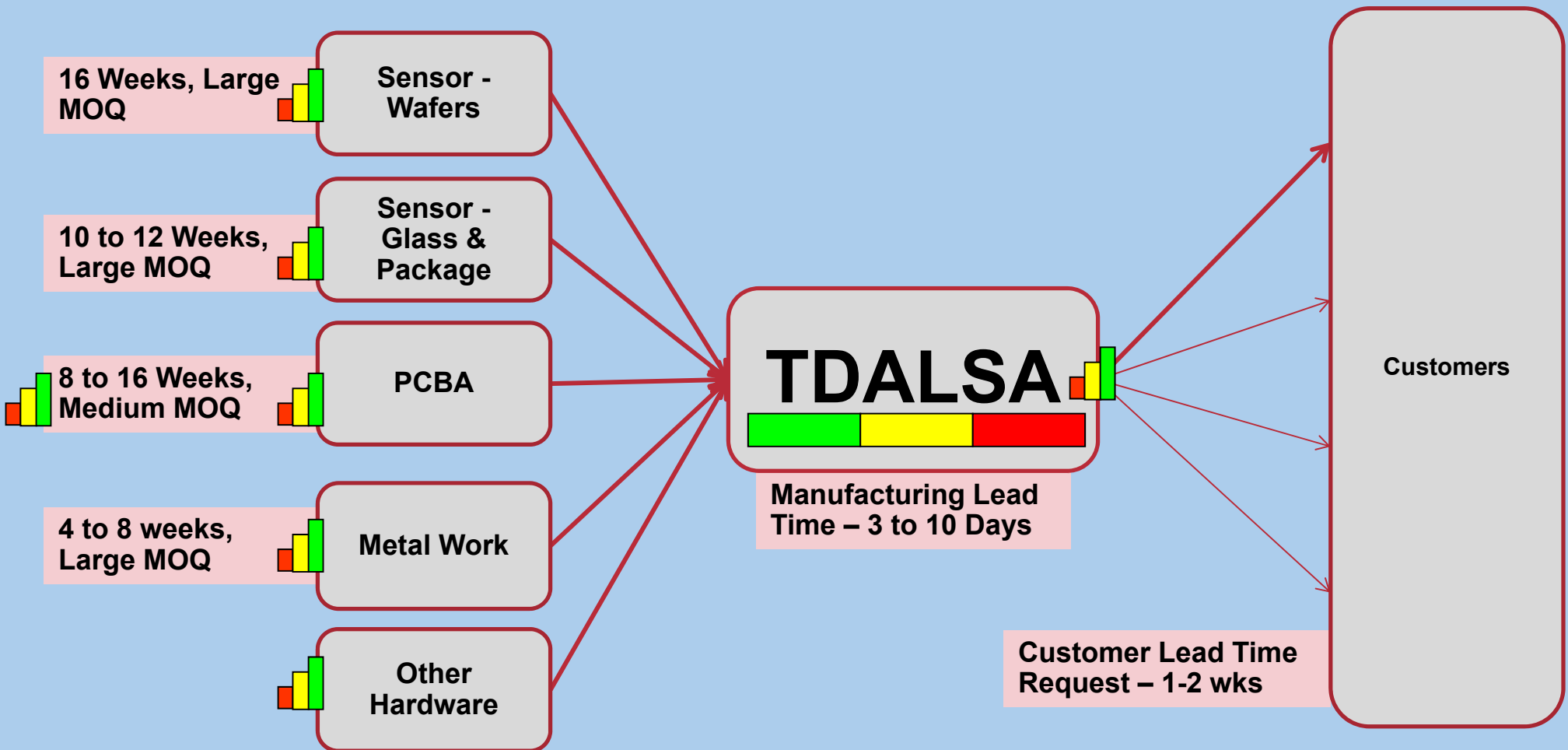
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Teledyne Technologies
acquires DALSA

Implemented CDR and DBR

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Results – Then and Now

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Key Performance Measures	Then (Jan 2011)	Mar 2012	Dec 2012
Customer Lead Time			
Median	12 Days	6 Days	7 Days
% Orders Shipped in 2 days	10%	19%	19%
% Orders Shipped < 1 week	22%	38%	36%
% Orders Shipped in < 3 weeks	40%	76%	76%
On-Time Delivery to Customers	85%	97%	98.3%
RM Part Availability	65%	97%+	98.8%
FG Availability	62%	97%+	95.2%
FG Inventory Turns (replenished)	n/a	10X	11X

Why Change?

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- **Managers are happy that their objectives (one of which is inventory levels) are being met through the adoption of TOC and Consumption-Driven Replenishment**
 - Processes are simpler, less expediting, fewer resources required
- **TD Finance was happy with inventory reductions**
- **Most suppliers have been trained to provide frequent deliveries**
- **Now, the Honeymoon ends.....**



What to Change?

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- **Supply relationship changes were being made without a complete picture of the inventory & working capital impact**
- **BOM Cost Reduction was the focus – and it meant either larger order minimums, or changing suppliers**
 - New suppliers usually had larger order minimums
 - Offshore supply resulted in some cases in longer lead times, in some cases shorter lead times
- **Larger Order Minimums – direct increase in the amount of stock held**
- **Longer Lead Time – direct increase in the amount of stock on the way**

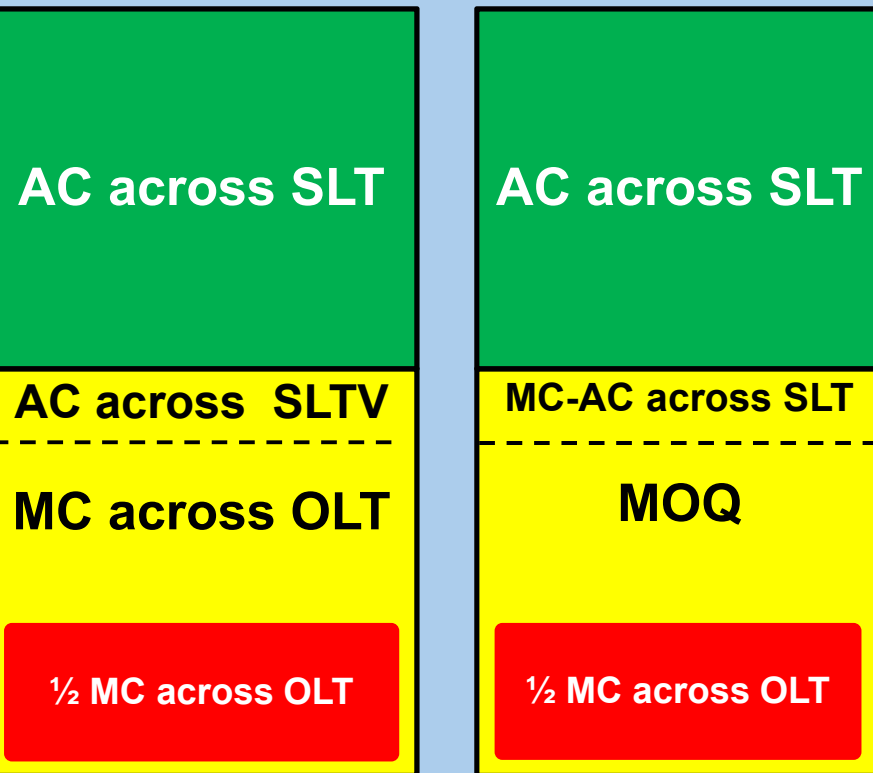
Message #5

Size Stock Buffers to better handle Long Lead Times and Large MOQs

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Demand Driven

MOQ Driven



• Definitions

– Supply Constraints

- OLT Order Lead Time
- SLT Supply Lead Time
- SLTV Supply Lead Time Variability
- MOQ Minimum Order Quantity

– Demand

- AC Average Consumption
- MC Maximum Consumption

- The size of the zones change according to the demand variability and lead time structure
 - The bigger the OLT or MOQ, the bigger the yellow zone
 - The longer the SLT, the bigger the green zone

What to Change?

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- **Additional Hard-to-Quantify Risks**
 - **OBS material**
 - Typically we have difficulty predicting end of life and are usually left with material that needs to be discarded
 - **ECO changes**
 - Long implementation dates
 - Material that needs to be scrapped
 - **Physical space for material**
 - **New product introductions**
 - Slow to rise products can leave significant material in house

What to Change to?

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- **A Global, TIOE-based framework for evaluating BOM Cost Reduction Opportunities**
- **Δ Throughput – variable cost reduction**
 - Annualize the per-unit cost reduction
 - Risk that future volumes may be lower than hoped
 - Risk that obsolescence will reduce Throughput
- **Δ Operating Expenses – usually not relevant**
- **Δ Investment – the net \$ change in inventory & pipeline**
 - Resize buffer allowing for new MOQ, lead time, unit cost
- **Decide whether the throughput increase is enough to justify an investment increase (if there is one)**



What to Change to?

- **A few examples that were interesting.....**

Method to Reduce Cost	Δ Throughput	Δ Inventory	ΔT/Δi	Comment
Supplier Move	+ \$6,400	+ \$25,500	.25	Extra lead time with new supplier
MOQ X 2	+ \$5,300	+ \$9,100	.58	Price reduction not offset by extra inventory
MOQ X 2	+ \$13,600	- \$26,600	2	Higher running item, MOQ only increased stock by 300 units
Supplier Move	+ \$36,400	+ \$420	86	Doubling lead time more than paid for by cost reduction

- **Not all cost reduction (throughput increase) opportunities were bad for the business – volume seemed to be an important factor**

How to Cause the Change?

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- **Meet & agree on common goals**
 - Must be good for the business ($\Delta T / \Delta OE > 1$; $\Delta T / \Delta i > 1$)
 - Must not be bad for individual or cross-functional objectives (GOPs)
- **Help to build the framework**
 - Share responsibility for solving the problem
- **Work through business cases together**
 - Builds a common understanding of the whole situation
 - Fine tune the framework
 - Created materiality rules (minimum volume and cost of material thresholds) to avoid wasting time on low impact items
- **Include product design & engineering**
 - Supply Choices may be hard to reverse in the future
 - Product Life Cycle timing is complicated



How to Create POOGI?

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- **Regular Monthly Meetings**
- **Advance notice of cost reduction opportunities**
 - Review proposals before implementation
- **SSAM would complete an analysis**
- **Contents of the analysis**
 - Throughput charts
 - Working capital calculations
 - Cost factors of the BOM
- **Restructure GOPs to support this process**

Lessons Learned

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- **Figure out how to present your case in a way that surfaces the Win-Win for both parties**
- **Make sure POOGI is in place**
 - Business performance can always be improved
 - TOC Culture develops through POOGI
- **Still searching for the missing ingredient that makes people gravitate to TOC as the Main Way**
 - Performance improvements on their own aren't enough
- **We have to teach those around us about TOC**
 - Finance, Engineering, Supply Chain still don't always think holistically



Thank you....

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