

SESSION



TOOLBOX



Practical workshop with tools to improve the reliability of your plant.

The Toolbox Session is a workshop where you will learn practical and useful knowledge that will serve you in your work at the plant. The speaker explains the objective of the tool to be learned and facilitates the learning process through examples and exercises.

Additionally, tools, templates, spreadsheets, and tips are provided so you can acquire the skills that will improve your performance on a day-to-day basis.



TOOLBOX
SESIÓN

Break out of the Budget Jail

Torbjörn Idhammar

President, IDCON INC



Industries Worked In

- Wood, Building Products
- Steel and Metals
- Pharmaceutical
- Power Plants
- Mining
- Food
- Chemical
- Oil and Gas
- Pulp and Paper
- Manufacturing



Ongoing Contracts

- Glatfelter
- Alkegen
- Simmons Food
- Nippon
- Roseburg Forest Pr.
- WestFraser
- Louisiana Pacific
- Novo Nordisk
- Ingredion
- Domtar
- Billerud
- Softys/ CMPC Tissue
- Nitta Gelatin
- Cascades
- Fatima
- Newcrest

Recent Clients:



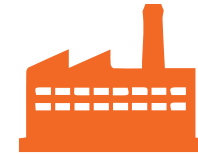
IDCON INC – International Presence



Areas of Expertise

Reliability & Maintenance for the Process Industry

- Advice
- Leadership Organization
- Reliability Assessments
- Planning & Scheduling
- Shutdown/ Turnaround
- Preventive Maintenance
- Operator Essential Care
- Root Cause Problem Elimination
- Spare Parts Management
- Technical Database

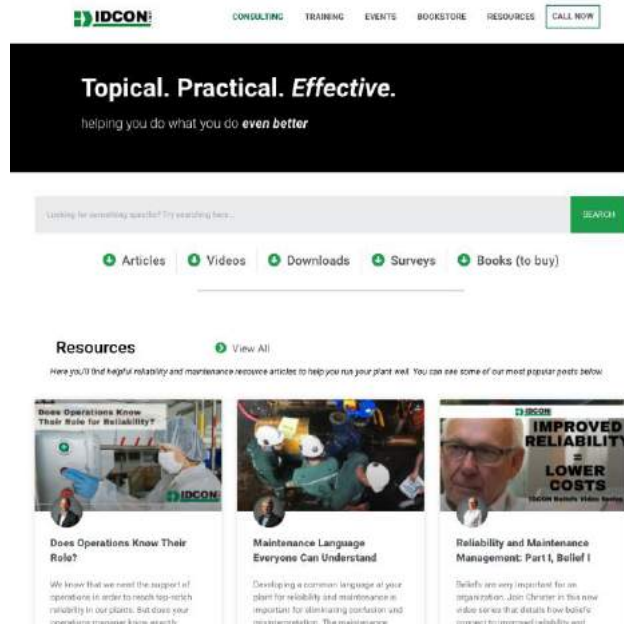


In Plants, Mills & Mines

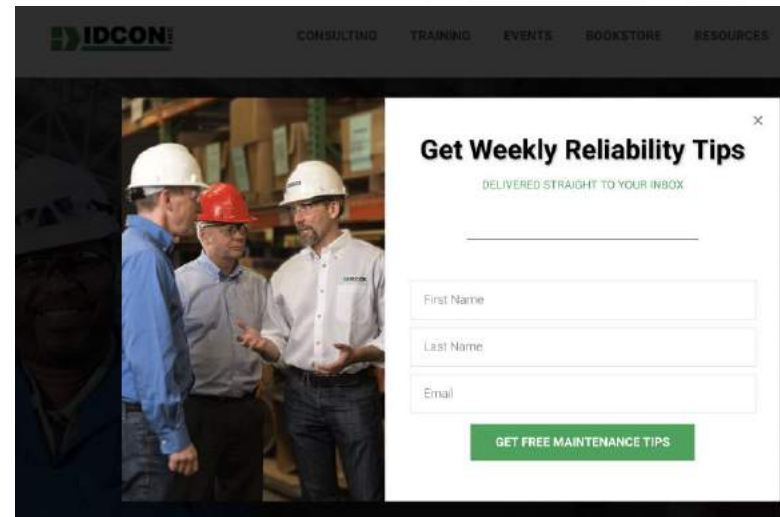


Public Training/Seminars

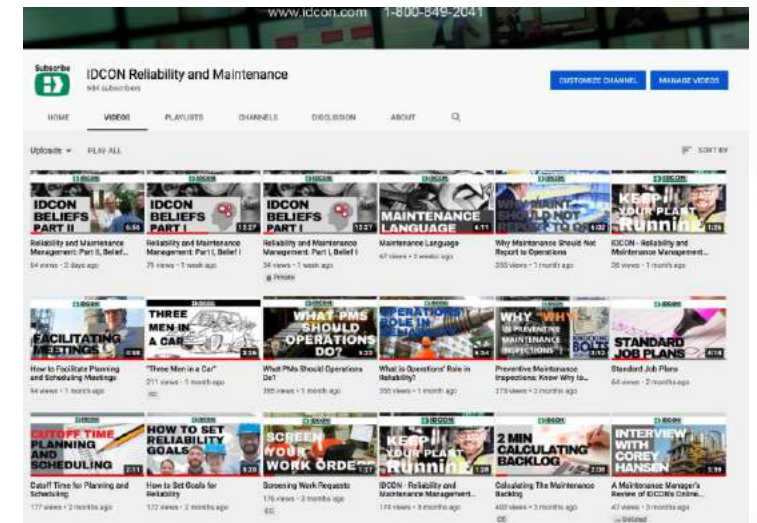
Additional Free Resources



Article Library 200+



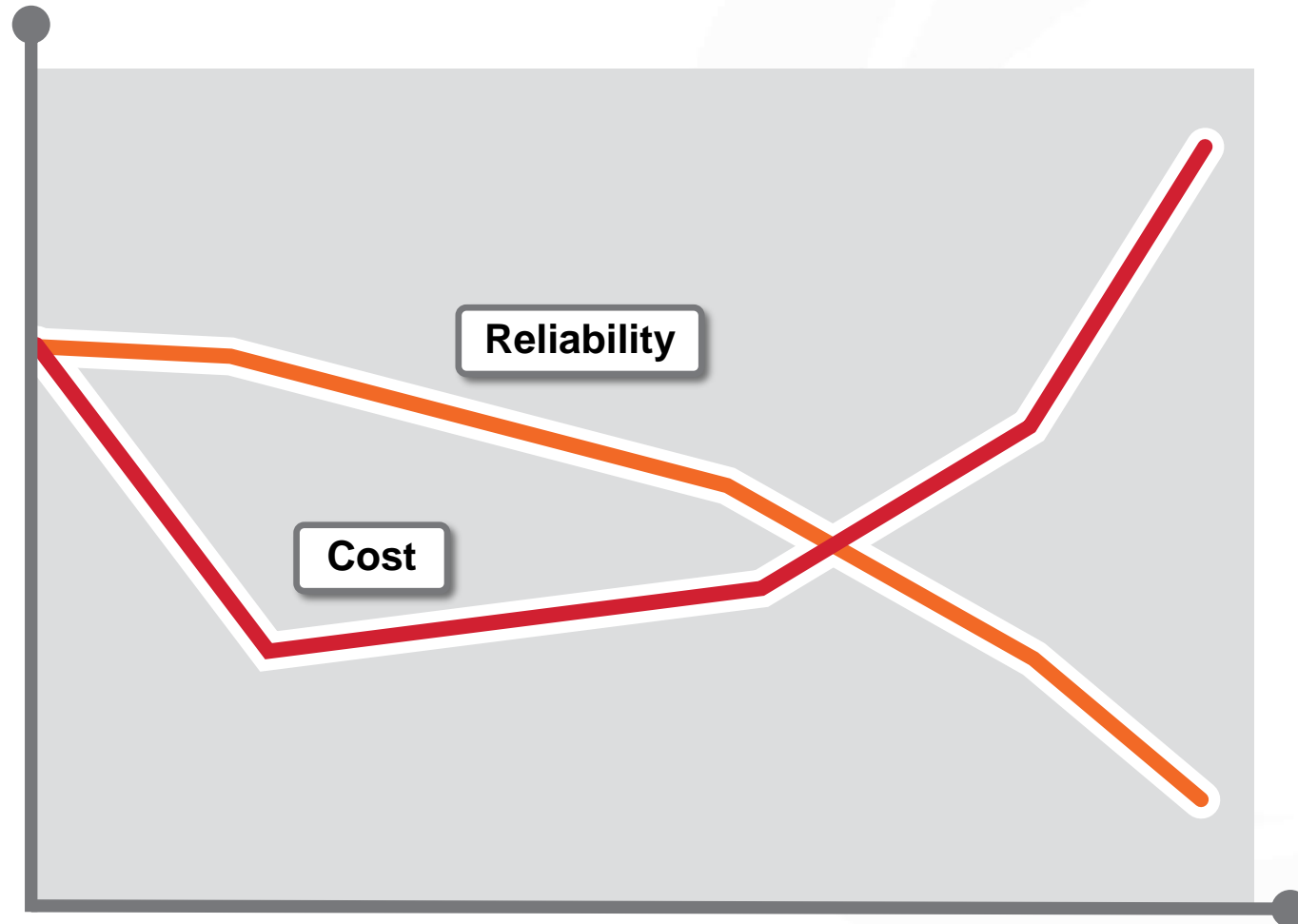
Friendly reminders of new content



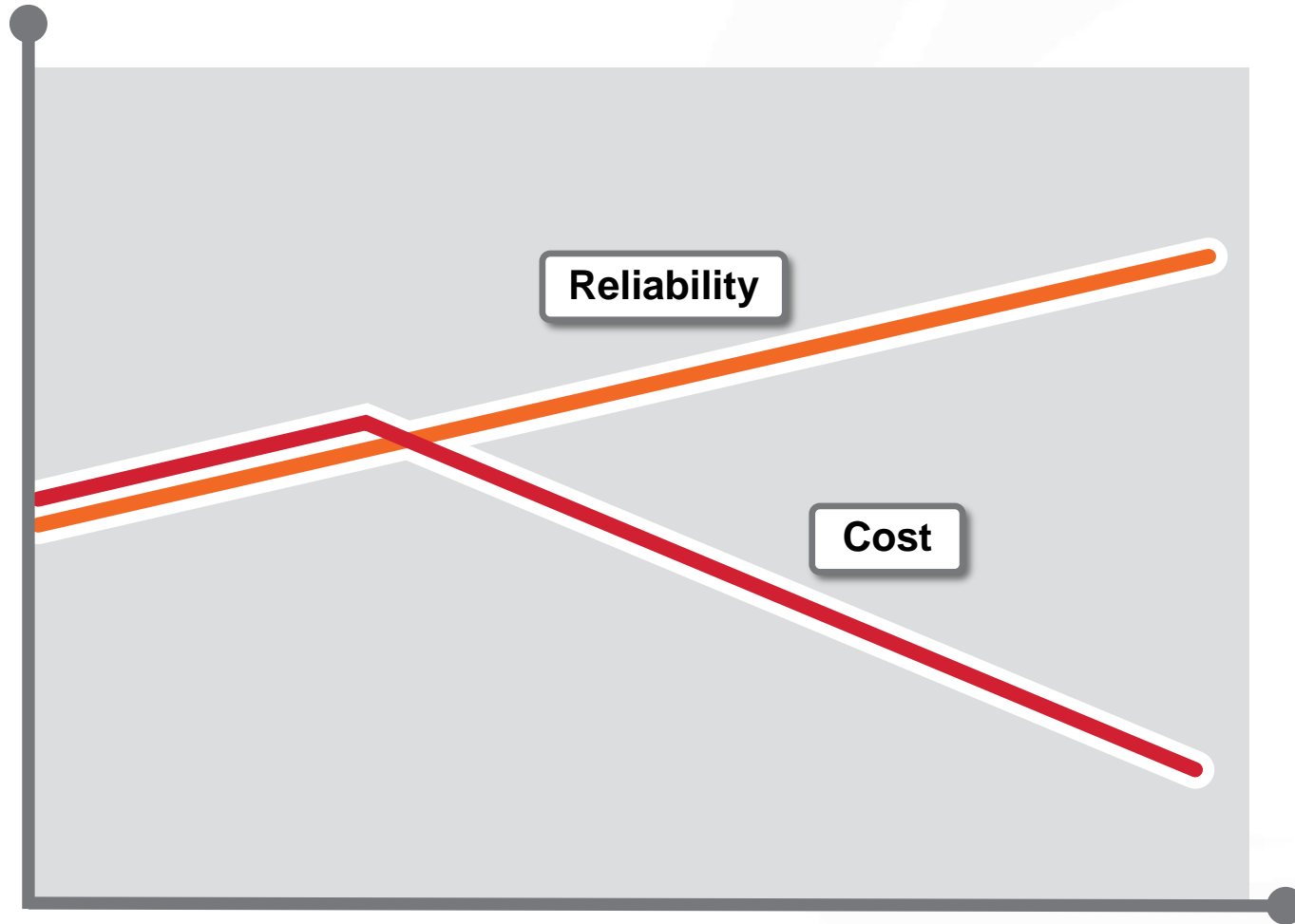
IDCON YouTube

Do Top Managers Want Reliability?

Wrong Turn: Cut Cost; No Other Improvements



Right Strategy: Focus on Reliability and Cost will Follow

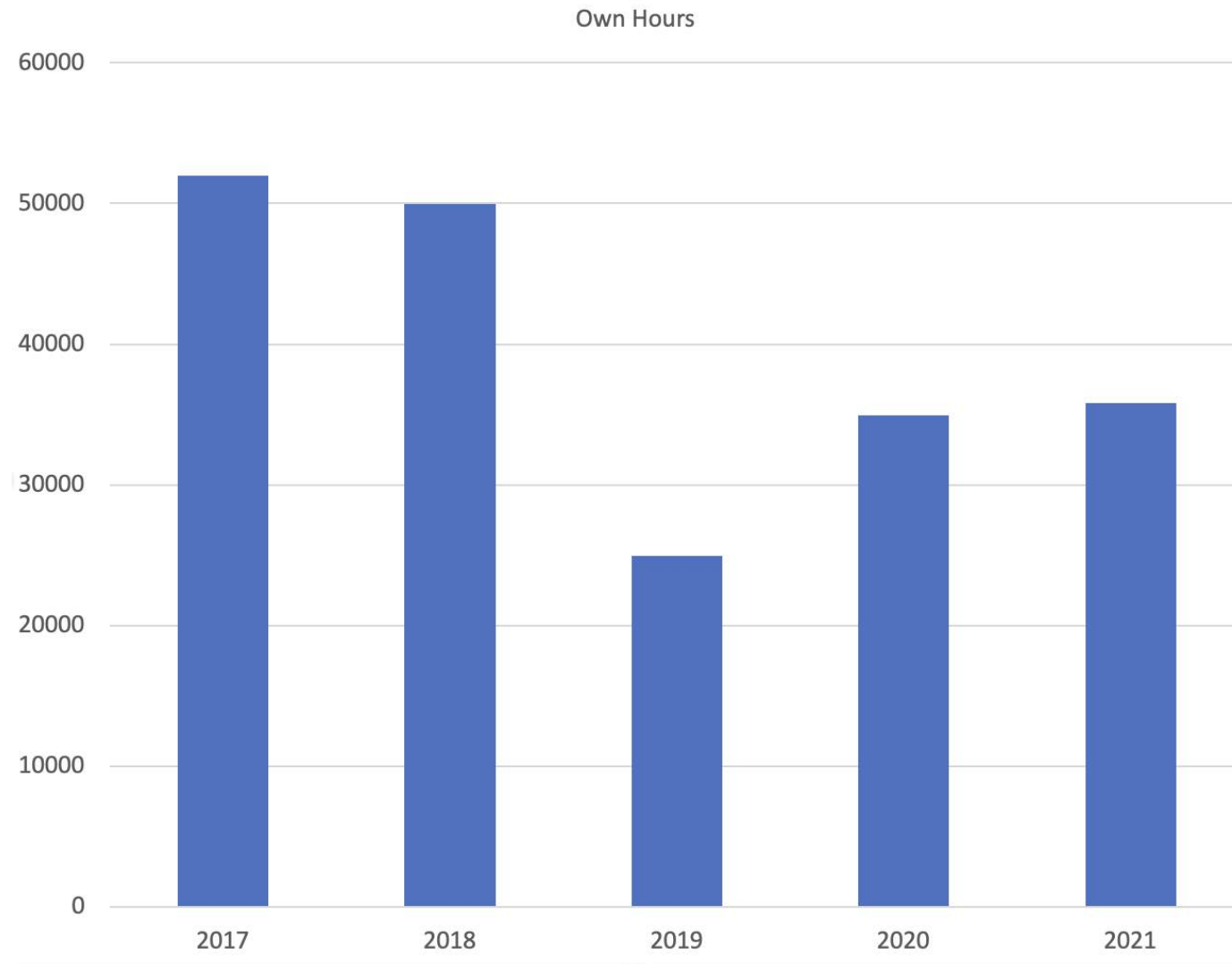


Delay Effect in Maintenance

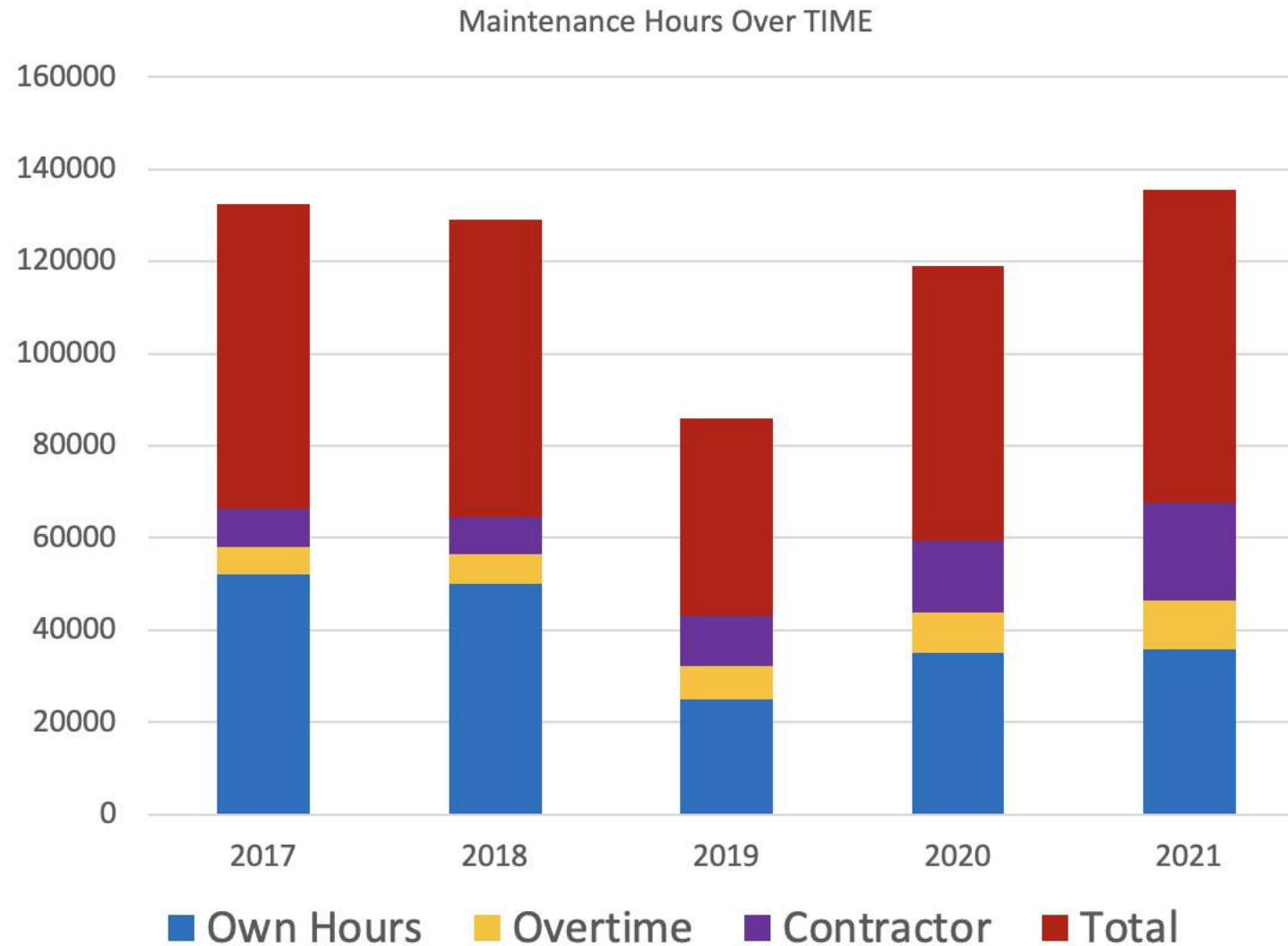
- Misalign 6 thou – life ... 3-4 years
- Misalign 2 thou – full life ... 15 years



Case Study: Reduce Maintenance People



Case Study: Reduce Maintenance People – The Rest of the Story



The Typical Request (Reduce the Budget)



Three Ways to Reduce Cost

1



Cut the Cost
Deferred Maintenance

2



Reduce the Need for Maintenance
Maintenance Prevention

3



Efficiently Execute Remaining Maintenance
Inspect, prioritize, plan, schedule, do, analyze & improve

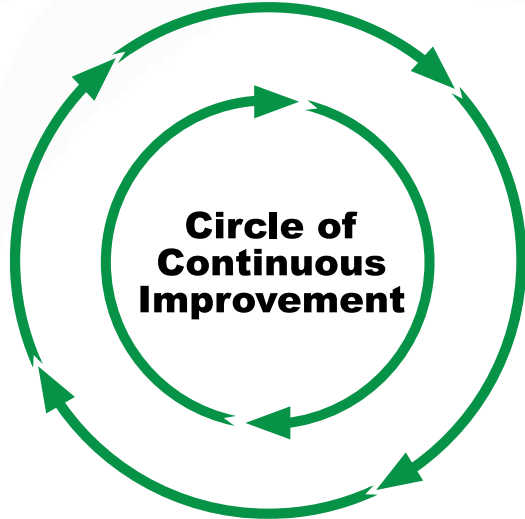
2 and 3 Take Time (Years)

We are stuck with option 1, unless someone is willing to invest long term.

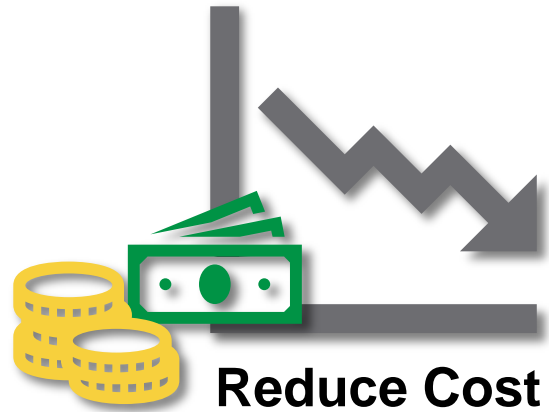


But can't we improve quickly by reducing backlog?

Implementation Plan: Where do we focus time?



The Typical Request



Reduce Cost



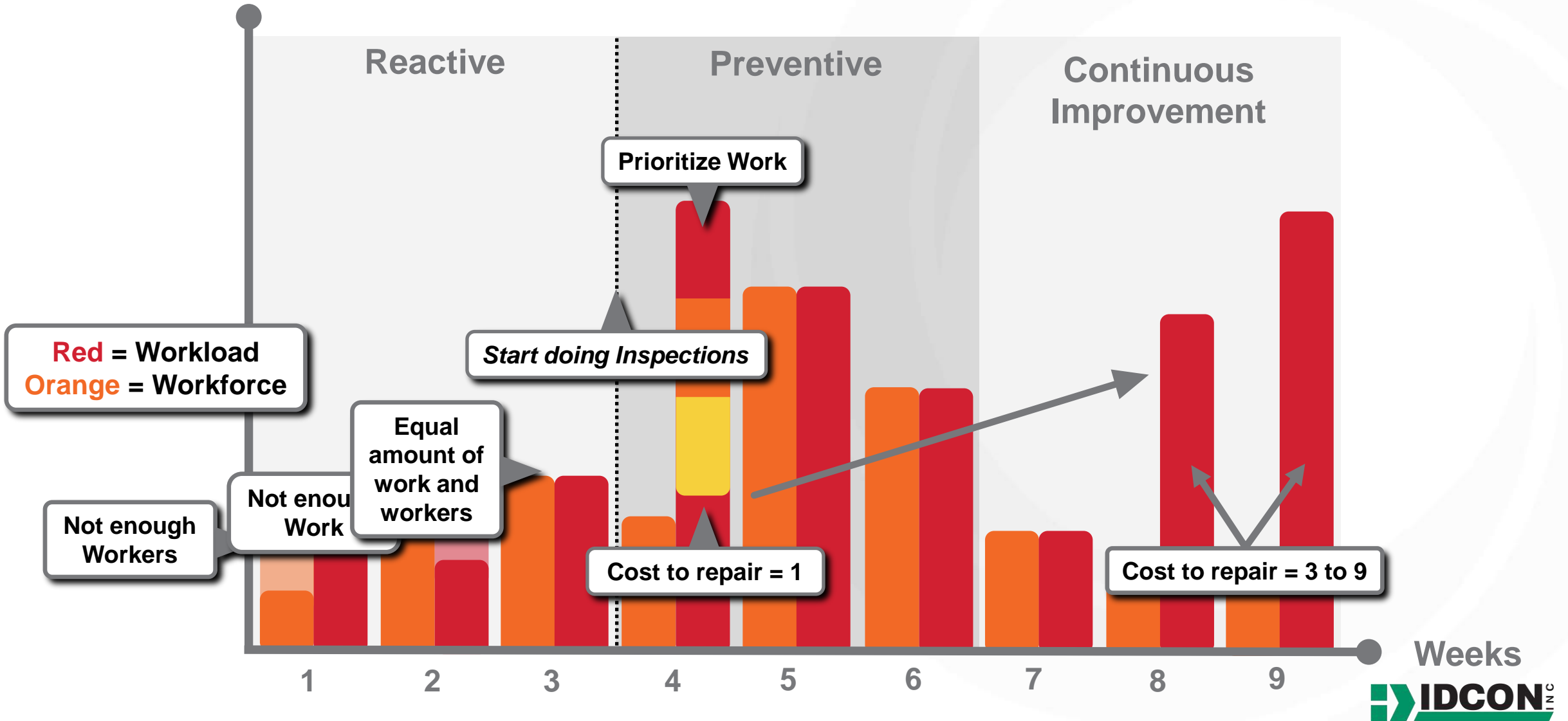
Increase Reliability

One is an outcome of the other



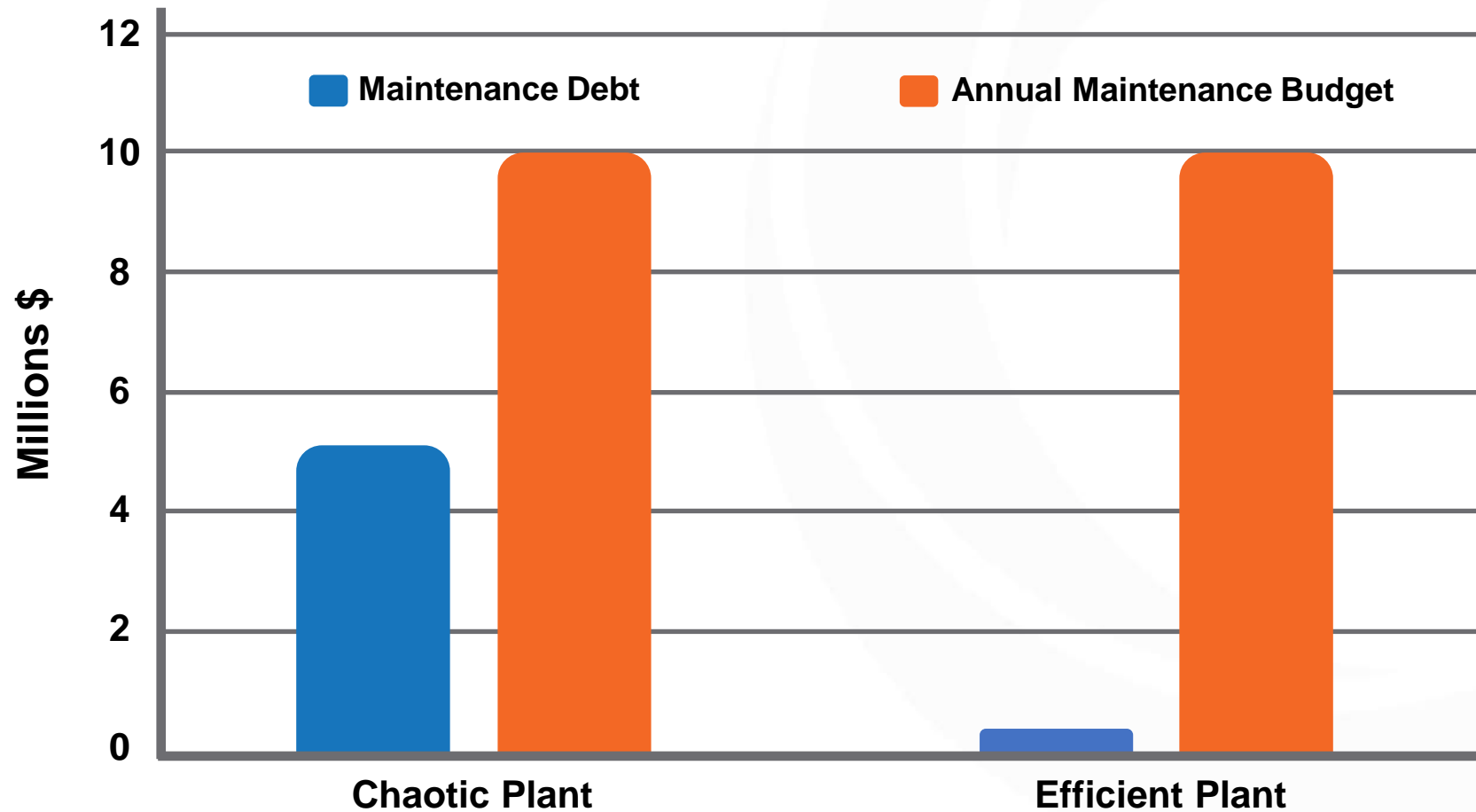
**If you truly believe
you would fix jobs in
priority order...**

The Mountain: Move from React to Prevent to Continuous Improvement



Consideration: The “Maintenance Debt”

Similar plants, different (maintenance) history...



The Important Questions



How much reliability?

By when?

Future annual cost (budget) in the future

What is the investment to improve reliability

Which Cost



Maintenance Cost?

Maintenance Cost per Unit?

Total Cost per Unit?

Total Cost?

Business Case Reliability: Uptime Focus (Example)

Sales Price = US\$600/ton

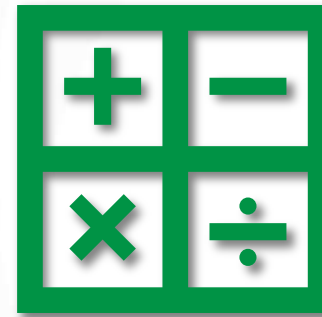
Variable Cost = US\$333/ton

Contribution to fixed Cost = US\$267/ton

Total annual production forecast = 330,000 tons

1% increase through reliability = 3,300 tons

1% reliability is “worth” $3,300 \times 267 = \text{US\$}888,000$ per each additional percent [%] annually

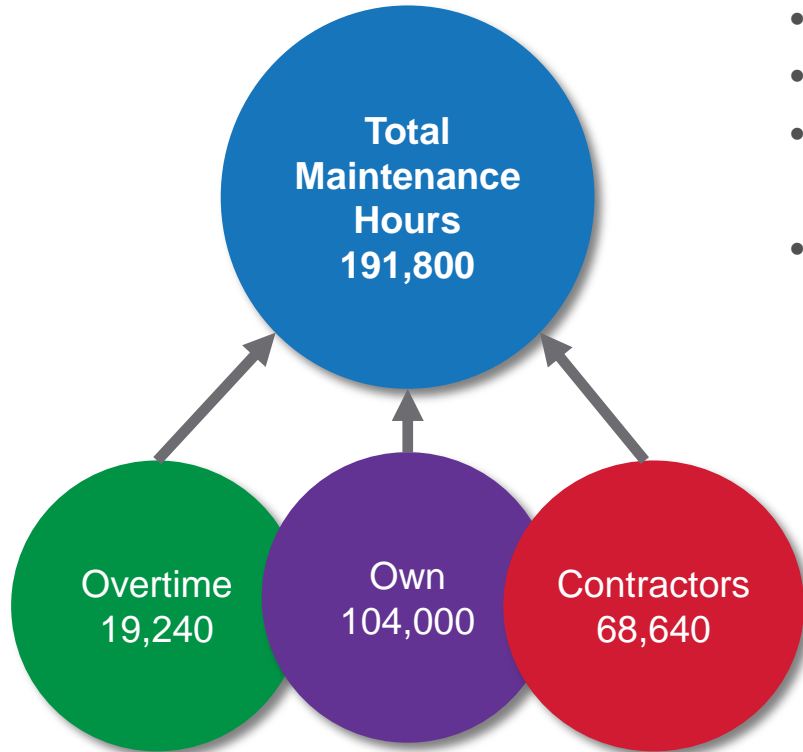


Business Case for Improvement (Example)

Business Case Benefits 18–24 months

Improvement Area	Current Performance	Target Performance	Performance Opportunity Gap	Potential Benefit Savings \$ Million USD/yr
Throughput Improvement				
1-1.5% Reliability	90% 83%	90% (Lines)	1-1.5%	\$0.88M – \$1.32M
Planning, Scheduling, Execution Efficiency				
Planning and Scheduling	25%	60%	35%	1.85M
Maintenance hrs/ton	0.50	0.41	0.09	See above
			Total	\$2.7M-\$3.2M

Business Case for Improvement (Example)



- OT = 18.5%
- Total Maintenance hours = Own+ OT + Contract = 191,880
- Planning and scheduling level estimated to 25%
- Assumption: We waste at least 50% of work time when work is unplanned and unscheduled
- 75% unplanned and unscheduled

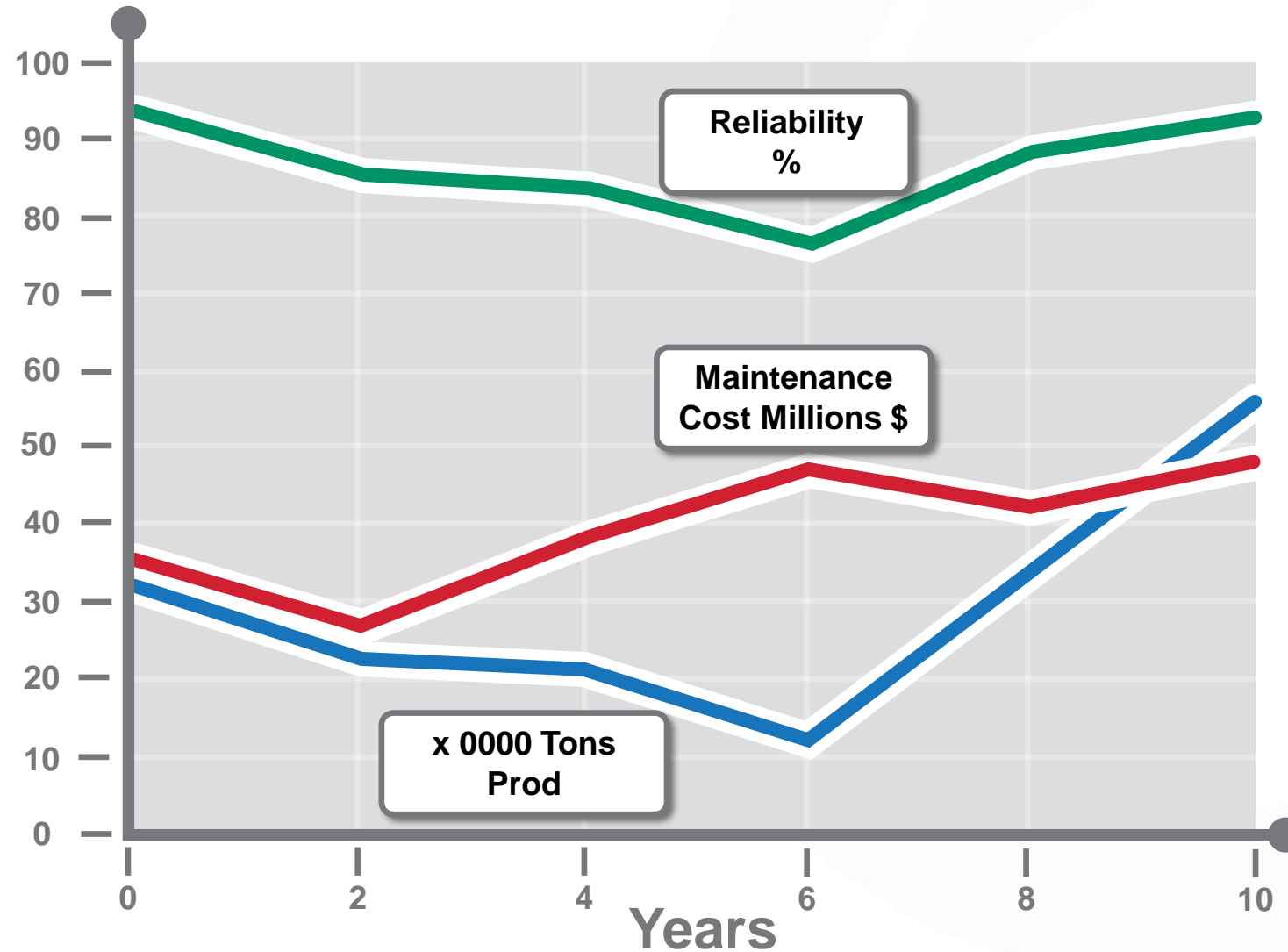
Now: $75\% * 50\% * 191,880 = 71,955$ hrs. wasted

Future: $40\% * 50\% * 191,880 = 38,376$ hrs. wasted

Difference: 33,579 hrs. saved from improving P&S

OT & Contractors: \$55/hour = \$55 x 33,579 = US\$1.85 M/year

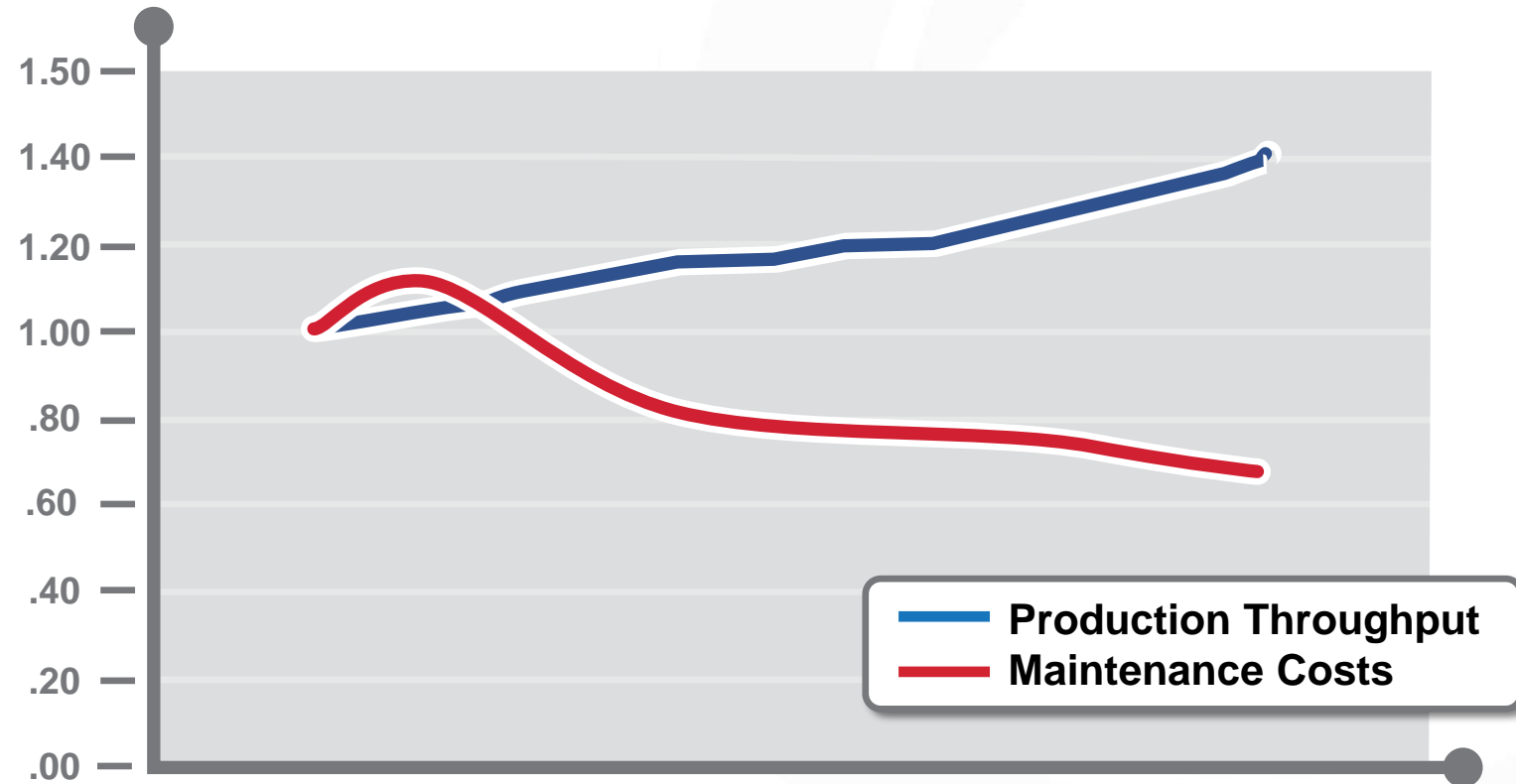
Ten Years' Effect of Two Years Cost Cutting Focus Scandinavian Chemical Factory



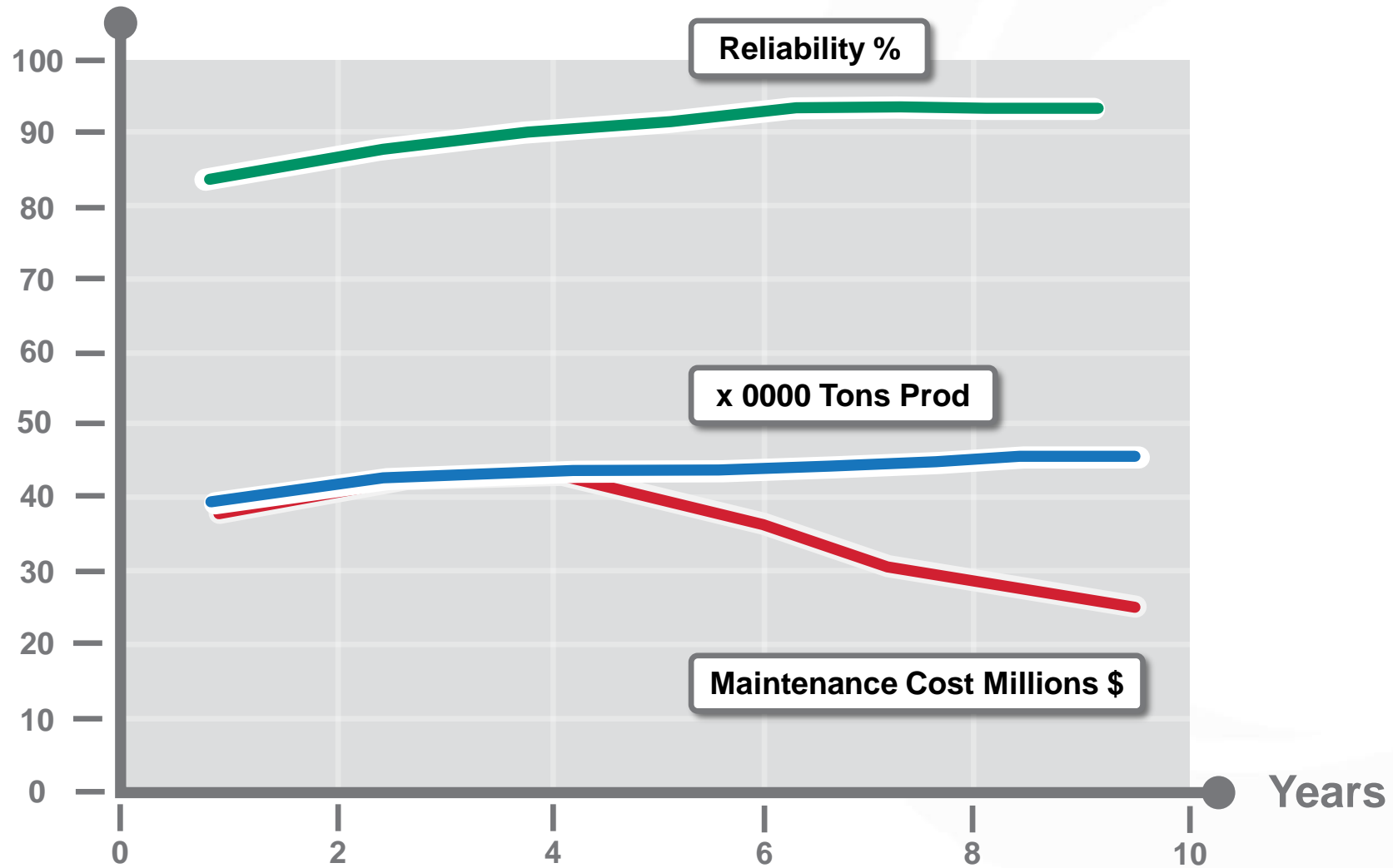
Fonterra

Reliability Focus at Fonterra – Edgecumbe (10 years)

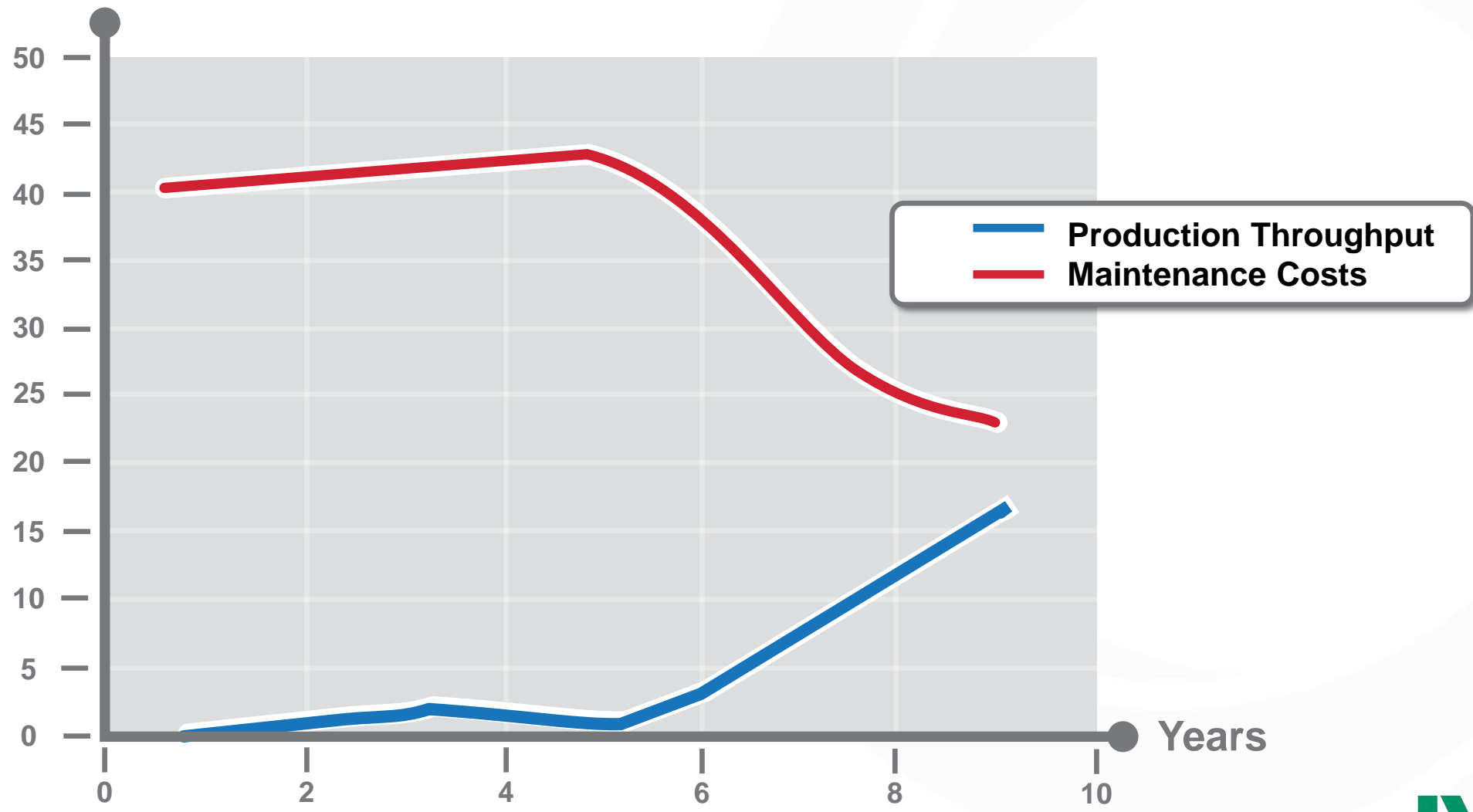
CBP Score 78

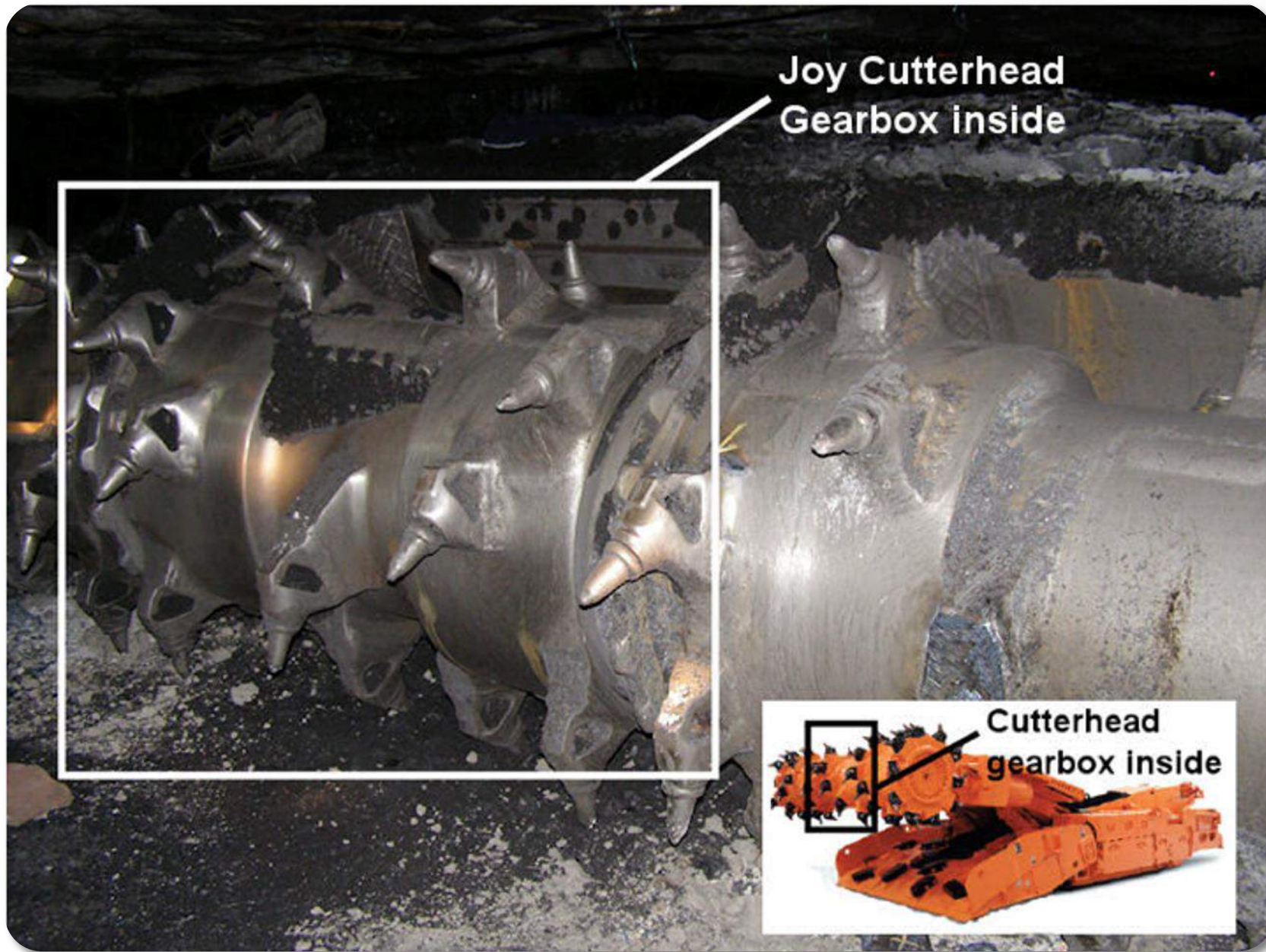


Ten Years' Effect of Reliability Improvements Focus



Ten Years' Effect of Reliability Improvement Focus





Joy Cutterhead
Gearbox inside

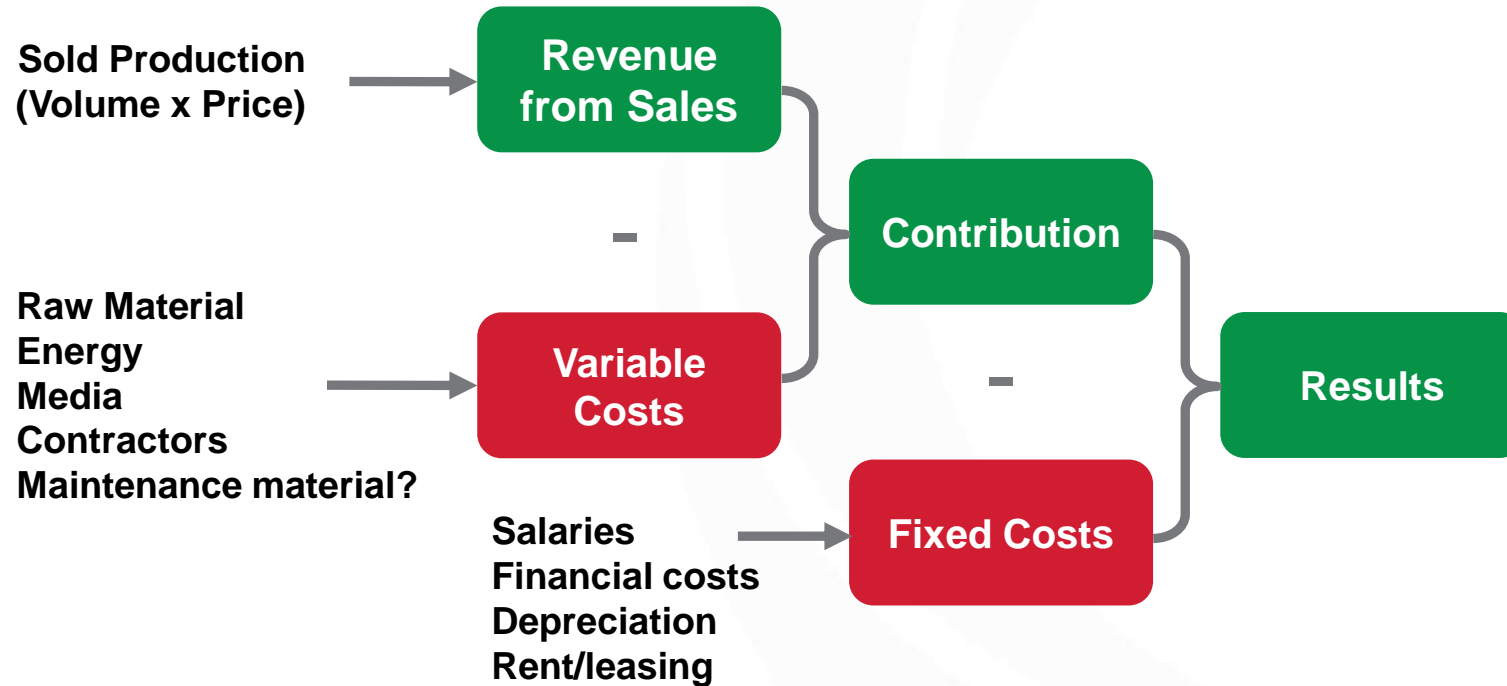
Cutterhead
gearbox inside



Compare 2 Work Orders: Reactive vs. Proactive

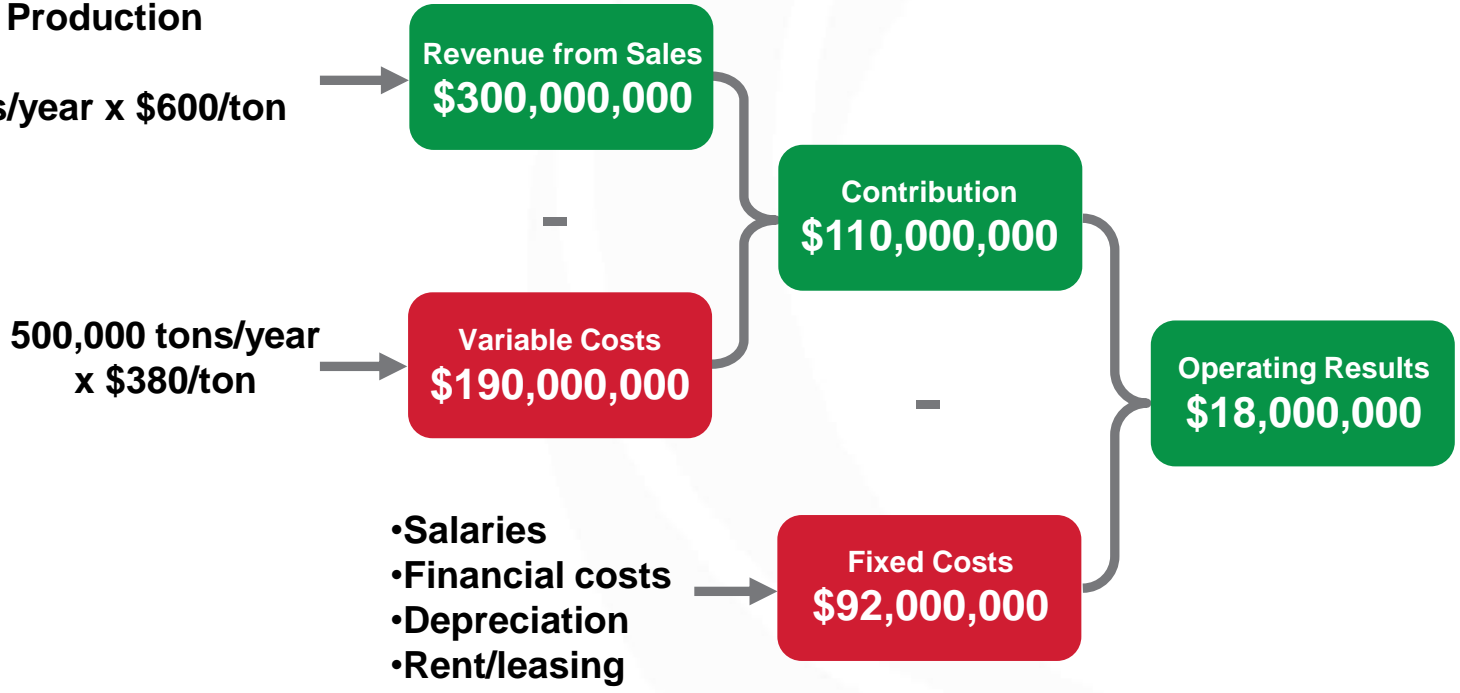
Planned Repair (CBM)		Unplanned Repair (OTB)		Comments
Work Order 37309		Work Order 44699		
Price of Component	\$124,000.00	Price of Component	\$189,755.00	Repair and Return vs. Exchange cost
Additional repair cost	\$0.00	Additional repair cost	\$32,555.70	Additional damage from failure
Hot Shots	0	Hot Shots	3	
Cost of Hotshots	0	Cost of Hotshots	\$750.00	
R&R Gearcase - Labor Hrs.	68.5	R&R Gearcase - Labor Hrs.	101.5	
Maint Labor Cost	\$1,678.25	Maint Labor Cost	\$2,486.75	
Down Time	0	Down Time	4.58 hrs.	Lost production to swap out miners
Cost of Down Time	\$0.00	Cost of Down Time	\$85,091.82	
Total Cost of Repair	\$125,678.25	Total Cost of Repair	\$310,639.27	

Business Case 4: Reliability Focus using DuPont Model

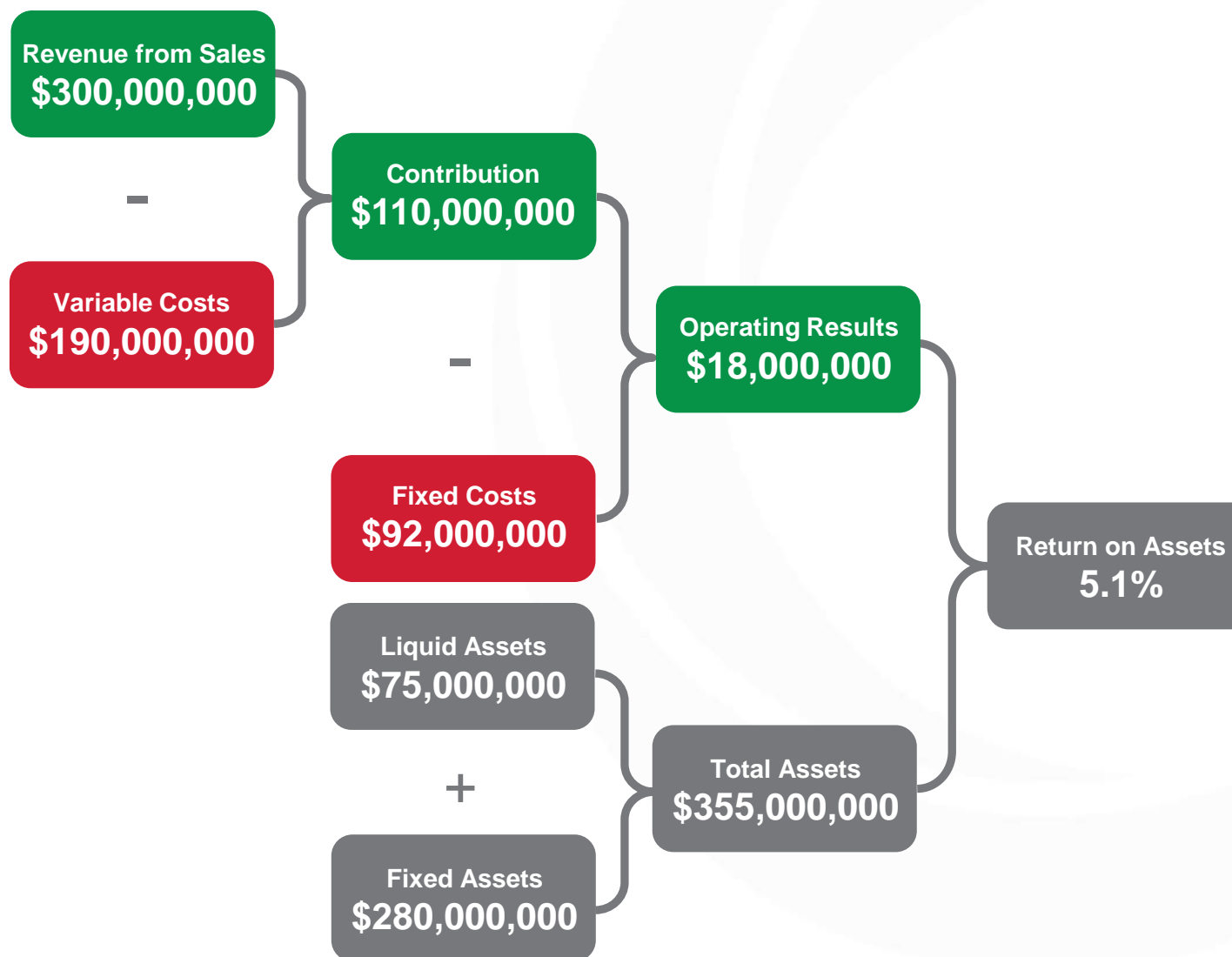


Business Case 4: Reliability Focus using DuPont Model (cont.)

- 88% Overall Production Reliability
- 500,000 tons/year x \$600/ton



Business Case 4: Reliability Focus using DuPont Model (cont.)



Business Case 4: Increase Reliability 6% from 88% to 94%



Increase Reliability 6% from 88% to 94% and Market Price Increase 10%





CONGRESO DE
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& CONFIABILIDAD
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EDICIÓN

THANK YOU!

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