

Reactive Improvement

An important enabler to your Organisations Excellence Journey

19/09/2013



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Ports of Auckland

Who we are

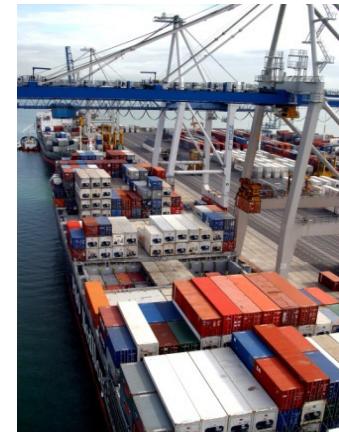
- NZ's largest and most important container port - 109th in the world
- Handles 60% of the upper North Island container trade and 36% of NZ's total container trade
- Handles 894,000+ TEU p.a
- Best portside infrastructure of any NZ port
- Handles \$26.4 Bln in exports and imports p.a. – 16% of GDP
- NZ's main exchange port for cruises
- NZ's main vehicle import POAL
- NZ's largest port for exports and imports by value



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What we do

- Cargo Handling – containers, bulk & breakbulk
- Marine services - pilots, tugs, linesmen
- Own and operate port facilities
- Own property
- Own & operate fuel tanker - Awanuia



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Reactive Improvement at Shop floor

- What does it mean to us?
 - Unexpected Event
 - Causes performance loss of a system
 - To come up with a containment and continue
 - Problem Solve
 - Fix & Forget



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Reactive Improvement at Shop floor

- Commercial Value / Return \$\$\$
- Culture & Maturity
- Technical Information



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Commercial Value

- Damage to Truck, Container & Cargo
 - Reduced from NZD 145,000 / year to NZD 80,000. Now at 2nd stage improvement
- G & H Crane Rail Brake Limit Switch Sticking
 - From 230min of downtime / year to 20min. Payback period 9 months
- Excessive time taken to recover from A-Grid spill
 - Reduced from 9 hours to 3 hours
- Straddle-X tyre blown out due to side wall failure
 - 11 blow outs / quarter to 3 per year, reduced top speed by 2km, saved fuel with no loss of productivity



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Culture & Maturity

- 'How to disagree with your boss and be able to talk about it?'
- How to disagree with your colleague and be able to talk about it?
- How to teach people seeing process & problem solve?



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Excercise

- There is a chance to go back 5000 years in time. Which of the followings would you take along to obtain food and survive?
 - Knife
 - Map
 - Bow and Arrow
 - A 9 year old boy
 - An 80 year old chief
 - Shovel
 - Patience
 - Fire
 - Poison
 - Gold
 - Water
 - Animal Sounds

“Creativity means looking at the same thing as everyone else, and thinking something different.”



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Culture & Maturity

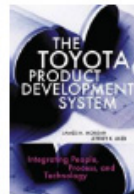
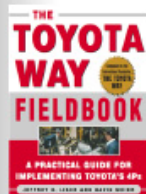
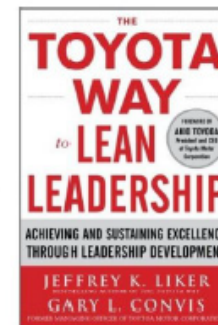
The Toyota Way to Continuous Improvement

Dr. Jeffrey K. Liker

Professor, Industrial and Operations Engineering
The University of Michigan

November 2011

**Due
November**



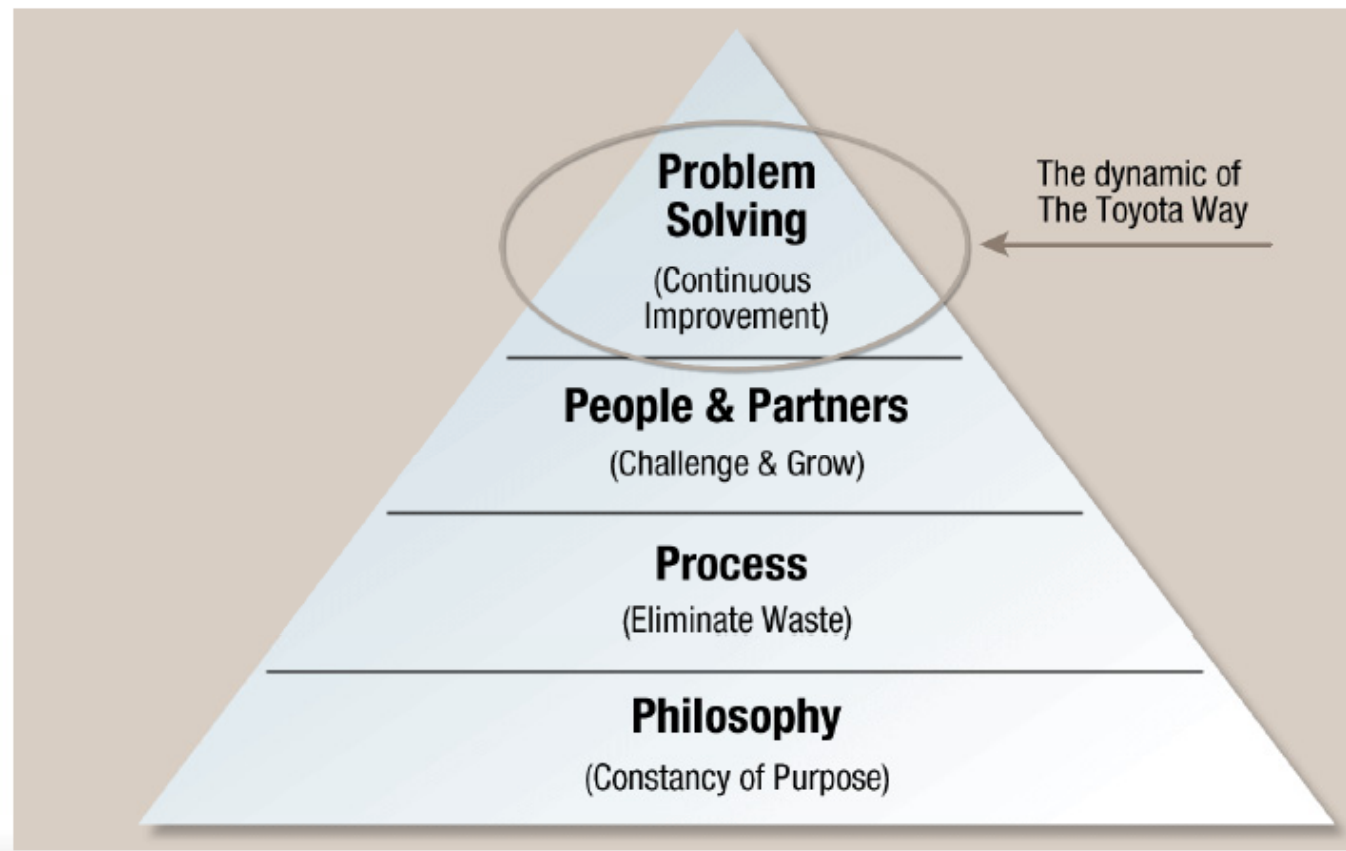
**LIKER
LEAN
ADVISORS**



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Culture & Maturity

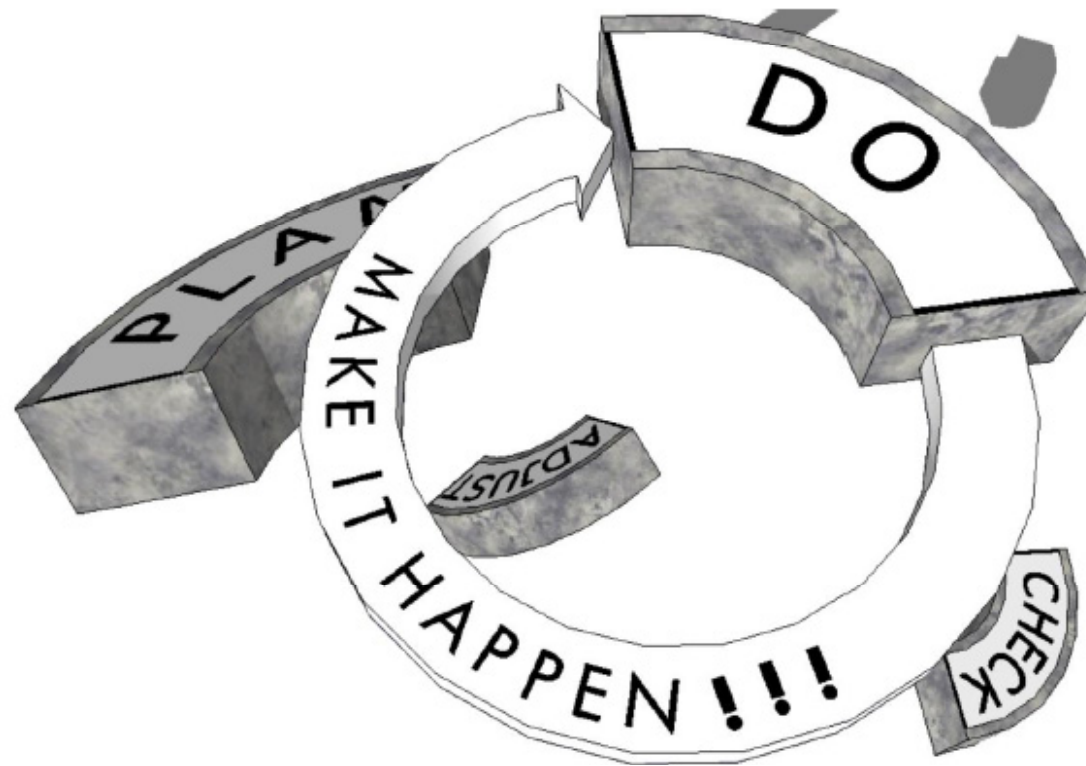
The 4 Ps of 'The Toyota Way'



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Culture & Maturity

‘Get It Done’ Mentality Destroys the PDCA cycle



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Culture & Maturity

- Ohno-san said, “If you deal with problems on the spot when they occur, the person responsible for the problem will understand what he or she has done wrong. If you simply gather data and pass it upstairs, no one will feel any sense of personal responsibility when the report comes out.”

The Birth of **Lean**



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Culture & Maturity

- Ohno-san said, “Managers need to let their people know that they’re happy to see problems show up. Ordinary people tend to want to hide problems. We shouldn’t ever think badly of people who reveal one problem after another. We should welcome situations where problems become clear.”

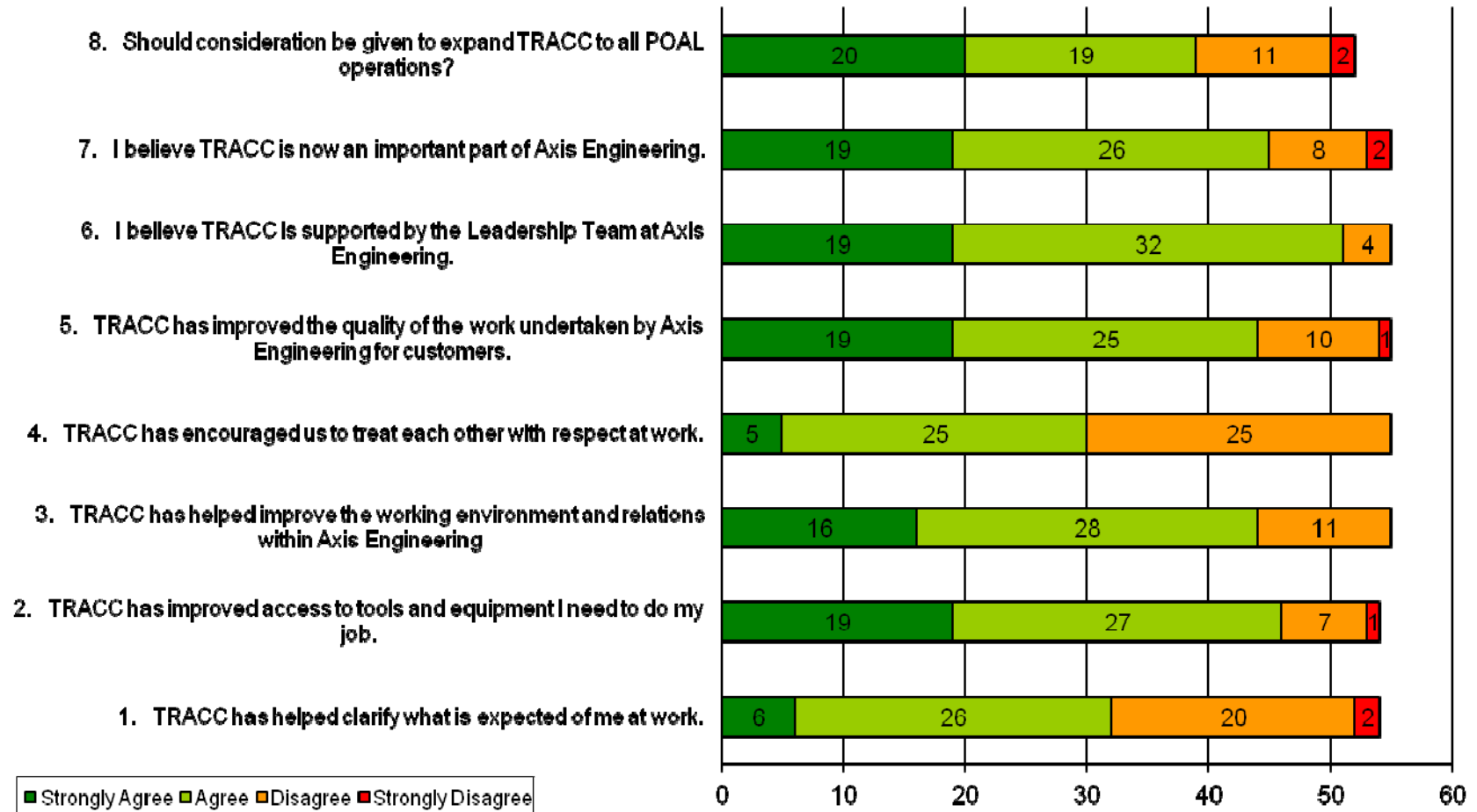
The Birth of **Lean**



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Culture & Maturity

TRACC Climate Survey Results May 2010



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Selection Stage

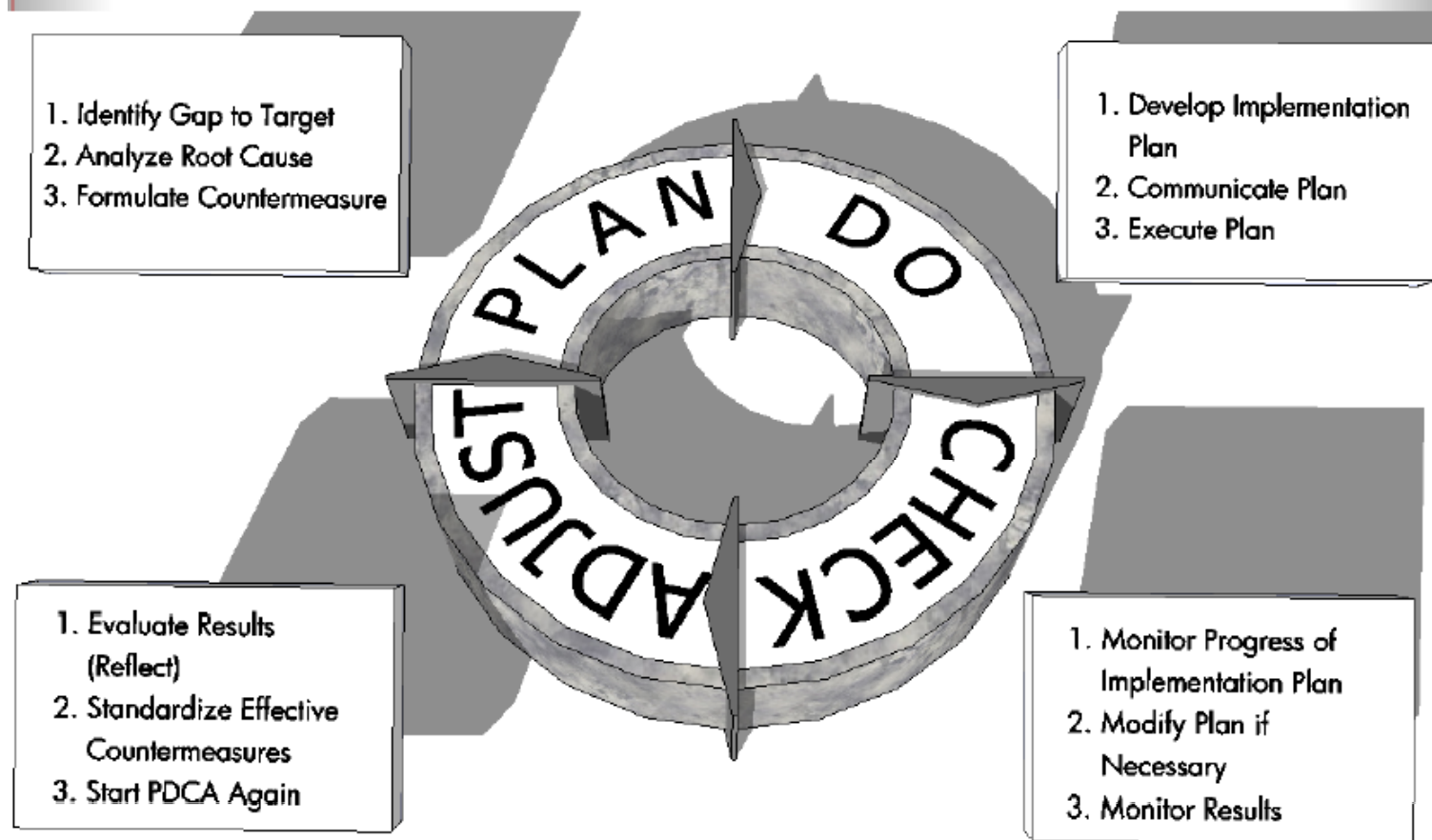
- Analysed major problem solving methodologies
 - DMAIC
 - PDCA
- Structured what it would suit our place
 - A Simple Methodology
 - Teach, Practice, Practice & Practice
 - Fix and Forget
- Found out 6 vendors, obtained quotes & picked one



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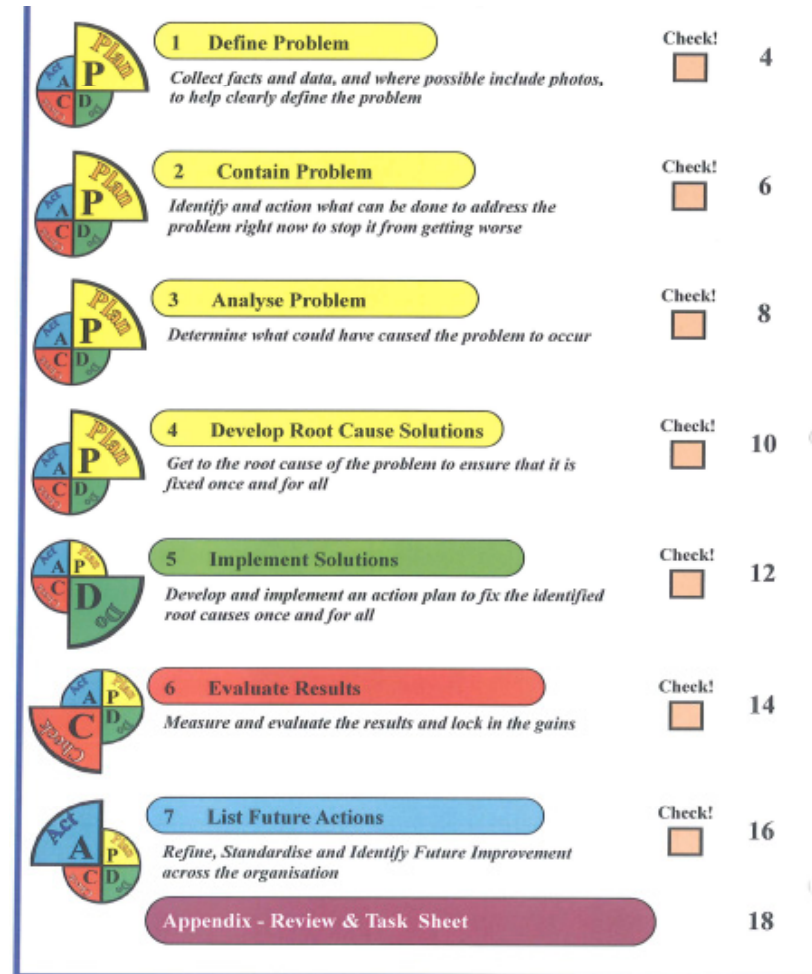
Methodology

PDCA Problem Solving is the Core of Lean Thinking



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Methodology



A3 Reporting

- Logical Thinking – What/How to accomplish
- Decision-Making – All facts on one page
- Provides Standardised Method of Communication – is easy for to recognise and read
- Forces Addressing of All Issues – any steps/facts left out?
- Focuses Problem–Solving Activities – 5 Whys
- Eliminates Waste – New methods help you think about waste and how it can be eliminated
- Encourages You to Ask:
 - Why do this? Does it make sense?
 - Will it solve a problem?

Have a nice journey...



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A3 Reporting

PROBLEM		SOLUTION	
1. Define Problem Problem Statement: Problem Description: What? Where? When? Significance: Frequency of this problem?		4. Develop Root Cause Solutions – Summary Result of Root Cause Analysis Cause #1 supported by evidence or data: Proposed Solutions: Cause #2 supported by evidence or data: Proposed Solutions: 5-Why	
2. Contain Problem - Detail the containment action required and completed Detail the containment action: Date Implemented: Containment		5. Identify Effective Solutions - Implement Solutions What? Who? When? Where? Cost? Root-Causes	
3. Analyse Problem – Summary of the Cause & Effect diagram Cause & Effect diagram: Materials, Methods, Man, Machine Cause & Effect		6. Evaluate Results - Evaluate the results of the improvements made Plan, Actual Results Actions & Follow Up	
Fix & Forget A3 Summary Sheet Approved Solutions: Leader Signature:		Approved A3 Summary Sheet: Leader Signature:	
A4 – Problem / Containment / Analysis		A4 – 5-Why – Root Cause – Actions – Solution	





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A3 Reporting

Improvement Theme: REDUCE CRANE DOWNTIME		Title: STOP / REDUCE RAIL BRAKE CLAMP FAULTS		Site: FX TERMINAL	
Department: ENGINEERING	Equipment / Process: G&H CRANES	Prepared By: David, Aaron, Harry	Date Initiated: 30/7/11	Date Completed: 	Latest Update Date: 10/11 Latest Version: 4

1. Define Problem

Problem Statement: G & H CRANE RAIL BRAKE LIMIT SW. STICKING.

Problem Description	Is	Is Not	Problem Definition
What	RAIL BRAKE CLAMP FAULTS ON G&H CRANES.	RAIL BRAKE CLAMP OPERATION.	 
Where	LIMIT SWITCHES FOR RAIL CLAMPS ARE STICKING.	HYDRAULIC OPERATION OF RAIL CLAMPS.	
When	WHEN CRANE ATTEMPT TO LONG TRAVEL.	WHEN CRANE IS NOT WORKING.	
Size	LOST PRODUCTION, CRANE DOWNTIME, Moderate		
Point of Occurrence	LIMIT SWITCHES FOR RAIL BRAKE		

Is there any history of this problem? 20 Faults in last 12 months caused 230min of downtime when G&H required.

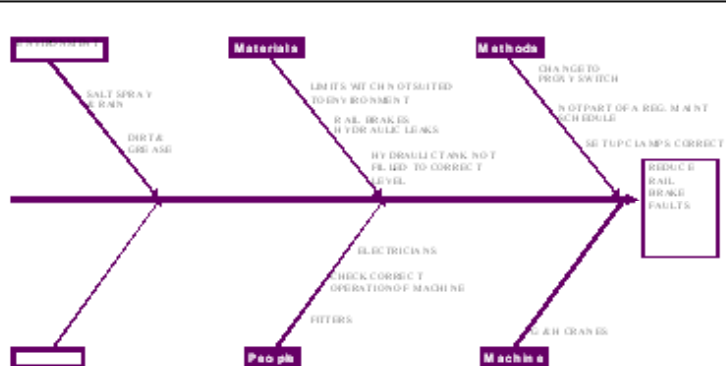
2. Contain Problem - Detail the containment action required and completed

Detail the containment action that has been taken:

- CLEAN & LUBRICATE LIMIT SWITCH PLUNGERS
- CHECK OPERATION & SET UP PLUNGERS

Date Implemented: 30/06/11 Place Implemented: Implemented by: Verification of action by:

3. Analyse Problem - Summary of the Cause & Effect diagram



4. Develop Root Cause Solutions - Summary Result of Root Cause Analysis

Cause 1:

LEAST OBVIOUS	LEAST VISIBLE	LEAST UNDERSTANDABLE / PRESSURE	LEAST EASY TO BUY	HARDEST TO DO FOR MOVING PARTS
Possible Solutions: • CHECK OPERATION • CLEAN L.S.	Possible Solutions: • REG. SCHEDULED • MAINTENANCE	Possible Solutions: • CHECK SPRINGS • CHECK ALIGN.	Possible Solutions: • CHECK WATER INGRESS • STAINLESS SPRINGS	Possible Solutions: • CHANGE TO PROXY SAME AS IJK CRANES

5. Implement Solutions - Summary of an action completed

Proposed Actions / Approved Actions	Who	Date	Results
Find suitable Proxy & Lead MOUNTINGS part and workmanship	DAVE & Aaron	13/07/2011	\$12500 each
Finance	Harry & Aaron	13/07/2011	2 CRANES = \$40000 LIMITSWITCH \$100 Downtime 4 hrs per 2 cranes Attempted 20 faults over 12 months
Change TWO switch limits with Proxy and try out the solution	Harry & Aaron & David	ASAP	\$5000's covered for the trial
Inform JM and Electricians re the trial. Keep limit switches in a common area, if faults then undo	Aaron/H	Just before trial	To keep everyone in the loop. If fault then undo
Three queries for Proxy vendors, lead and fittings	David C	End of Jul	For Nevit to raise a CAPEX

6. Evaluate Results - Evaluate the results of the improvements made

Plan / Justification	Actual Results
Full plan valuation: Justification: 4hrs crane downtime = \$5,000 per yr JM Electricians attending 20 calls = 30manhrs per yr Material Cost = 32 * \$169 = \$5,408 Workmanship = 32 * 2hrs = 64 calls/yr.	

7. List Future Actions

Nevit to raise a CAPEX form. It may take couple of months to be approved. Once the trial is successful, after three months on G crane, we expect to standardise G & H.

Approved Solutions:	Approved A3 Summary Sheet:
Leader Signature: John & Nevit	Leader Signature: Nevit



Frontline Problem Solving A3 Summary Sheet

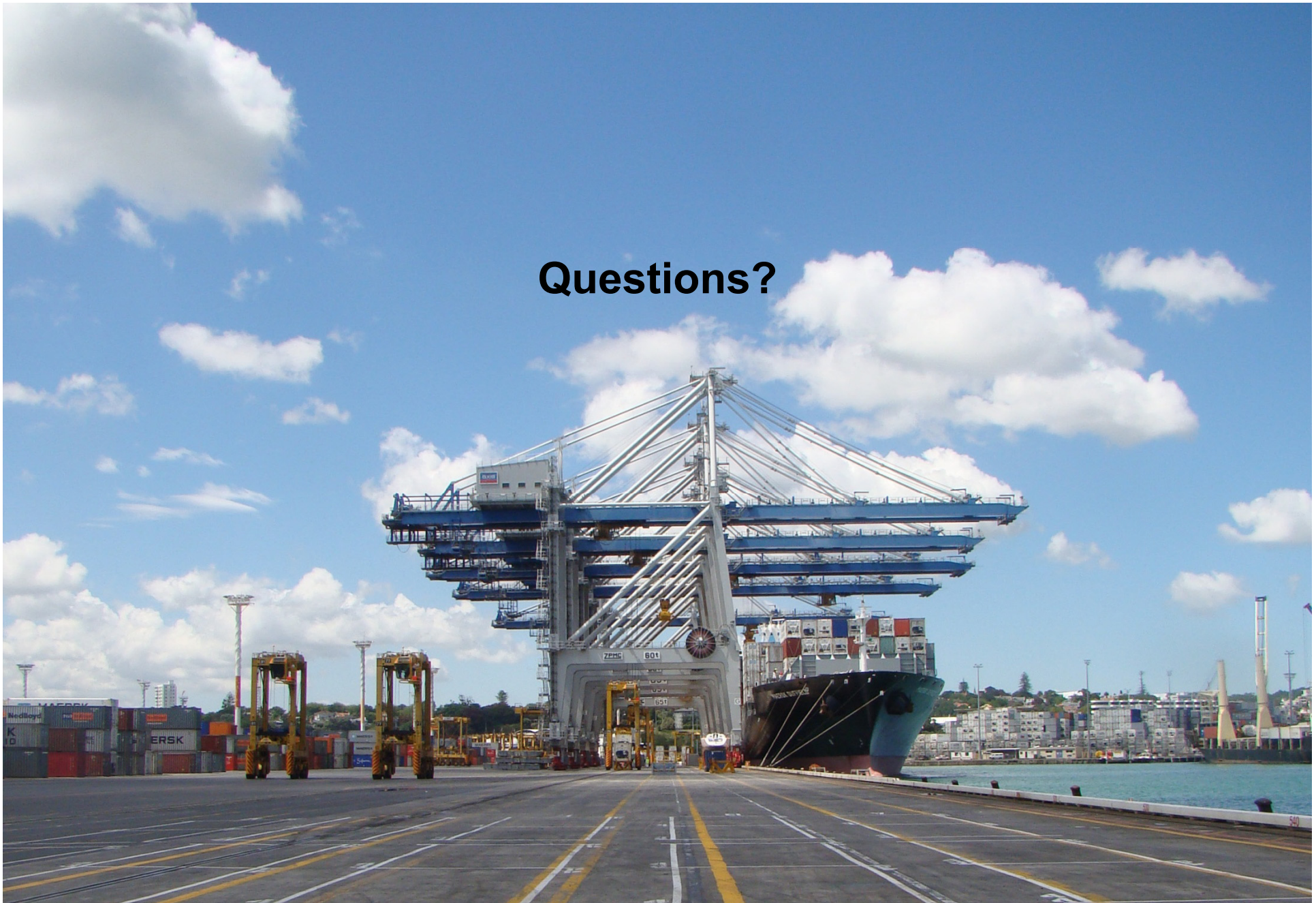
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Questions?



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