



A2EP – 2xEP Energy Productivity Summit
04-05 April, 2017
Australian National Maritime Museum
Darling Harbour, Sydney

Session 02
2xEP by 2030 by sector - Manufacturing

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Chair: Paul Orton



Doing more. Using less.



Simplot Continuous Improvement and Energy Productivity

Carmel Gillies

Simplot National CI Manager

SIMPLOT AUSTRALIA – Who are we?

- The company behind many different brands
- Employing approximately 3,000 people across Australia
 - Head Office in Melbourne
 - 7 core manufacturing facilities across NSW, VIC, TAS
- Wholly owned subsidiary of JR Simplot in US
- Simplot Australia also has operational control over Top Cut Foods
- Selling into the Food Service, Retail, and QSR markets
- Categories include chilled, frozen, shelf stable



Every Site is Different!!!!



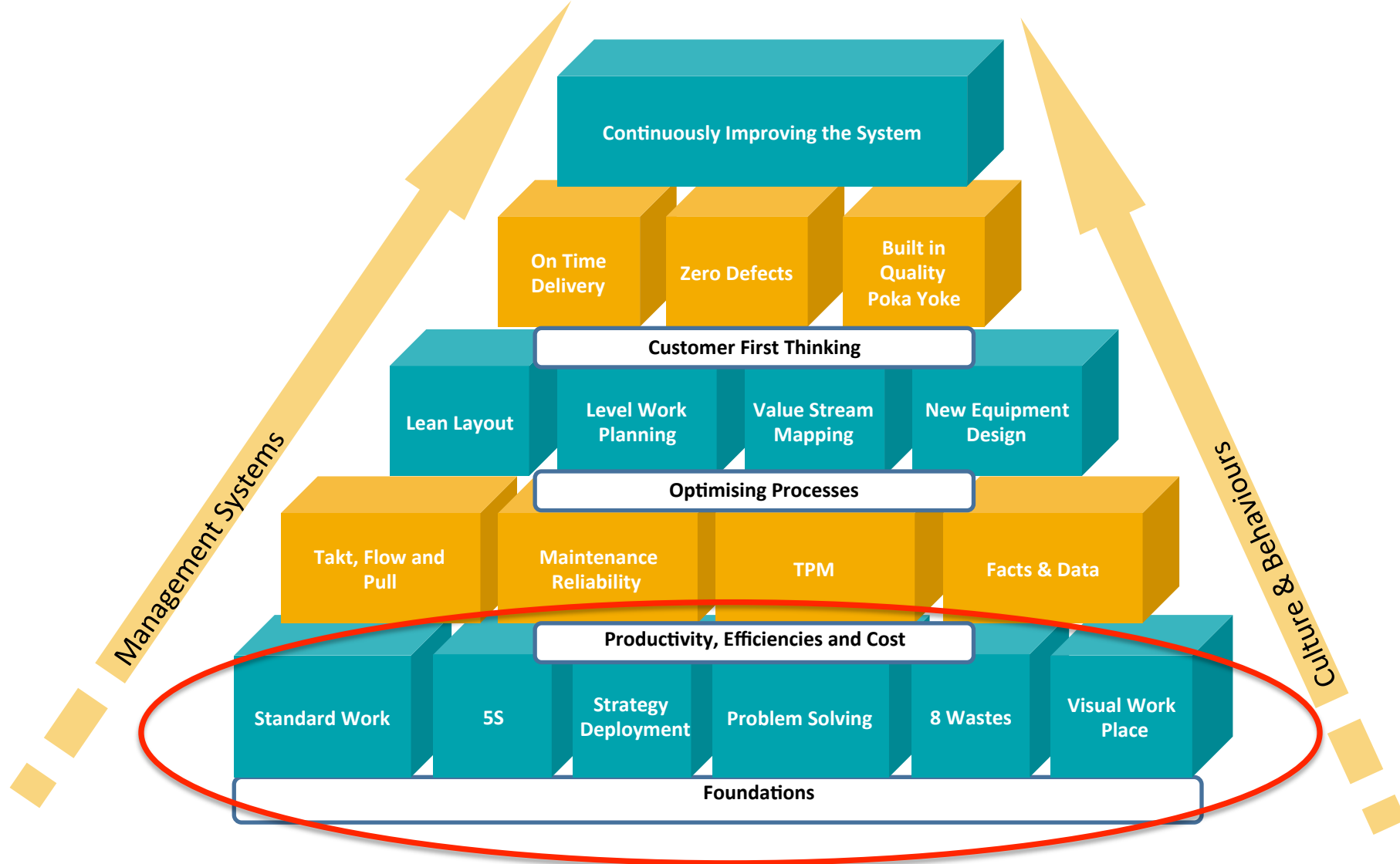
Outline

1. Foundations of Continuous Improvement
2. It's all about Leadership and Culture
3. Creating the Roadmap to Excellence





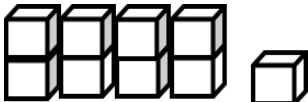





Foundations of Continuous Improvement

Continuous Improvement Framework



Eliminating Waste - AKA(TIM-e-WOODS)

T	I	M	W
Transportation  Mechanical movement	Inventory  Too much inventory, causes increases in cost, transport & decreases flexibility	Motion  People movements – bending reaching, walking	Waiting  Waiting – For parts, information, instructions, equipment
O	O	D	S
Overproduction  Produce only the right amount at the right time	Over Processing  Creating products & services to a great level than that the customer is prepared to pay for	Defects  Any product that does not conform to Quality standards	Skills  Unused employee creativity. Not capturing people's ideas to reduce the other 8 wastes

Note: All these wastes use extra ENERGY

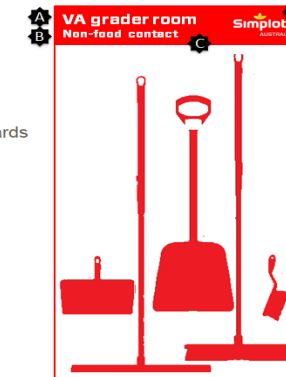
Creating a Path to Excellence – Foundation Standards & Guidelines

- Standard Work
- Daily Management System
 - T1 - Team Members
 - T2 - Team Leaders
 - T3 - Leaders
- 5S / Visual Management
- HR by HR Boards
- Kaizen Improvement



Example tool board

A – Area or location
 B – Tool type (food contact or non-food contact)
 C – Colour of board as per colour standards
 D – Simplot Logo in top right corner

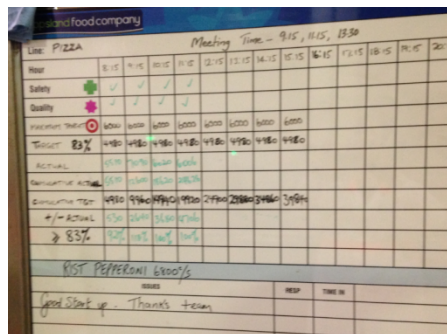


4.5 General Colour Marking Guidelines

Yellow	Aisle Ways & Traffic Lanes, "Paths of Egress" Yellow line marking should be used for all normal foot traffic going through aisle ways (both indoor and outdoor) as well as vehicle traffic. Smaller working areas can also be marked off using yellow lines.
White	Production - OR, Roofs, Machinery, Carts, Benches, and other equipment that does not fall under any other color guidelines. E.g. administrative areas, recycled material, cleaning equipment. White lines should be used for anything related to facility equipment, fixtures, racks, carts and things of this nature. Colouring them with white lines alerts people to their presence and also lets people know where to put them when finished.
Red	Defects / Scrap Area Locations where defective products, scrap materials or items in the facility that need to be reworked should be marked with red lines.
Orange	Materials or product awaiting inspection and testing - OR Energized equipment Any products, materials or supplies that are currently being held for inspection.
Green	Finished goods - OR First Aid Related
Blue	Works-In-Progress
Black	Raw materials and packaging (including recycled packaging materials)
	Areas which present physical or health risks to employees. Indicates that extra caution is to be exercised.
	Areas to be kept clear for safety reasons (around emergency access points, electrical panels, firefighting equipment, etc).
	Areas that need to be kept clear for general operations should be marked with black and white tape. This is not to be used for emergency or compliance areas.

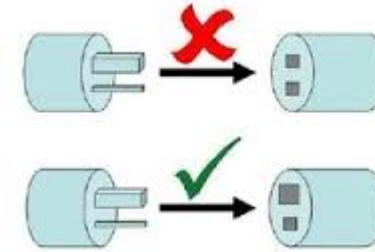
Color Standards for Visual Tool Boards

Food Contact	Non Food Usage	High Care Food Contact	High Care Non-Food Usage	Glass	Outside the factory	Allergens
Blue	Red	Orange	Red	White	Green	Yellow
Pantone: PMS 3135 CMYK: 89, 0, 20, 0 RGB: 0, 176, 202 HEX: #00B0CA	RED R255 G080	Pantone: PMS 167 CMYK: 3, 78, 100, 15 RGB: 189, 79, 25 HEX: #BD4F19	RED - R255 G080	White	Pantone: PMS 350 CMYK: 80, 24, 69, 70 RGB: 40, 78, 54 HEX: #284E36	Pantone: PMS 1215 CMYK: 0, 8, 48, 0 RGB: 250, 221, 128 HEX: #FADD80



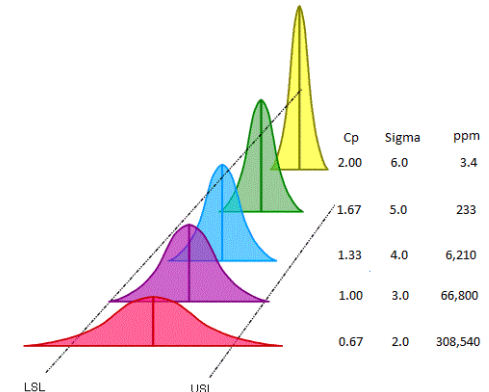
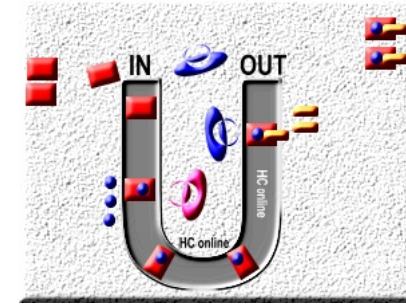
Linking Lean Sigma Manufacturing and Energy

- Standard Work, Visual Controls, Employee Engagement and Mistake-Proofing
 - Encourage energy conservation
 - Making it easy or “mistake-proof” to be energy efficient.
- Right-Sized Equipment
 - Identify and replace oversized and inefficient equipment with smaller equipment tailored to the specific needs of manufacturing lines
- Kaizen (Improvement) Events
 - Identify and implement employee ideas which save energy
- Total Productive Maintenance (TPM)
 - Incorporate best practices into day-to-day autonomous maintenance activities resulting in energy reductions



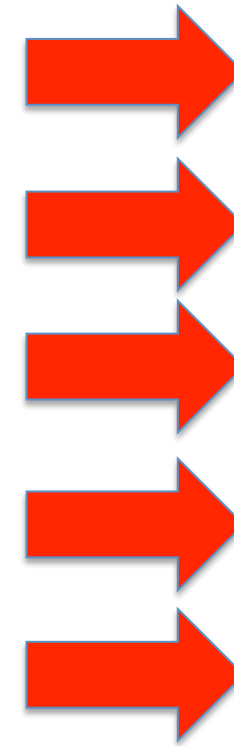
Linking Lean Sigma Manufacturing and Energy

- Plant Layout and Flow
 - Design or rearrange plant layout to improve product and vehicle flow
- Partners - Transportation Efficiencies
 - Look at transportation fleet and mobile equipment
 - Improve routes, reduce idling, minimize the number of trips
- Process Improvements
 - Reducing line stops
 - Cooling with recycled water rather than electricity
 - Heating with steam
 - Conveyor belts not running while not producing
- Use Six Sigma to find and eliminate energy waste and variation



Standard Work Management System

- Plant Manager Leaders Standard Work (LSW)
- Production Manager LSW
- Area Manager LSW
- Team Leaders LSW
- Operator Standard Work
 1. Work Standards
 2. Training Documents
 3. Standard Work Sheets
 4. Improvement and Study Tools



Different Operator Standard Work Documents

1. Work Standards

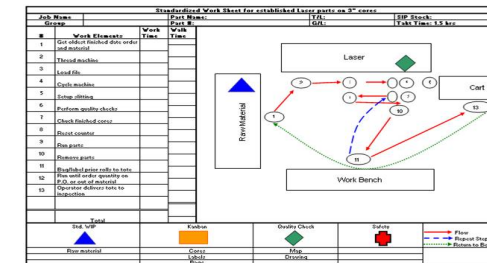
SAMPLE OF SKILLS MATRIX

X = Critical to role

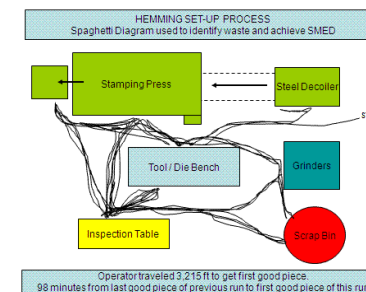
Role	Project Management	Leadership	Financial Acumen	Strategic	Policy Development	PC Software	Customer Service	Written Communication	Teamwork
Joe Smith	X								
Sally Johnson									
Susan Jones									
John Taylor									
Sandra Day									
Frank Wright									
Jane Doe									
Barbara Steel									

2. Training Documents

3. Standard Work Sheet






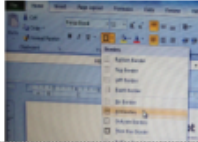
4. Standard Work Improvement & Study Tool Documents



2. Training Documents

- Standard Work Instructions
 - Front page
 - Work Element Sheets
 - Assessment criteria
- Training Matrix
- Training sign-off sheets

Example of Work Element Sheet

Test Version 2016/2018.1			Pending Approval		
WES Test 1					
Step #	Important Step (What)	Alert	Key Points (How)	Reasons (Why)	Visual
11	A logical segment of the operator when something happens to advance the work	 	Anything in the Important Step that might: 1. Make or break the job 2. Injure the worker 3. Make the work easier to do (i.e. knaps, special information, skill, special timing, which button to use.	• Write multiple reasons here as many as you like. • How to make dot points: press copy and paste a dot point from MS Word OR alt+0+1+4+0 (only for people with shortcuts set up on their computer) • How line is alt+enter	• When inserting a picture ensure your camera is set to low resolution • Try to keep the size of the image low, 2MB pictures take up a lot of space
12			Key points now have their own assigned number!	This will make it easier to refer back to e.g. when repeating steps	<div><p>Insert a different photograph into these cells:</p><ul style="list-style-type: none">- right click on this image- select the Change Picture... option- navigate to the Network Folder containing your photograph & click on the required photo- Click on the Insert option at bottom right- You can then re-size & re-position the photo to fit in the cell, as required.</div>
2	Hide all sheets not being used		Right click on the tab you want to hide and select 'hide'	Avoid printing all sheets when the excel file is converted to a PDF	
3	Borders around text		Highlight the cells that require borders and then click on the border button on the home ribbon	Borders make the text easier to read	
4	Choose standard font		Use Calibri as the standard font and size as 11 (adjust as necessary to fit)	To avoid any issues with converting to PDF in Release	

SAMPLE OF SKILLS MATRIX

X = Critical to role

Basic skill
Advanced skill
Needs Training

	Role										
		Project Management	Leadership	Financial Acumen	Six Sigma	Help Desk Software	PC Hardware	PC Software	Customer Service	Written Communication	Presentation
Joe Smith	Supervisor		X	X					X	X	X
Sally Johnson	Technician					X	X	X	X		
Susan Jones	Technician					X	X	X	X		
Alex Taylor	Technician					X	X	X	X		
Sandra Day	Technician					X	X	X	X		
Frank Wright	Analyst	X		X	X	X	X	X	X	X	X
Jane Doe	Quality Engineer			X					X	X	X
Barbara Steel	Project Manager	X	X	X					X	X	X

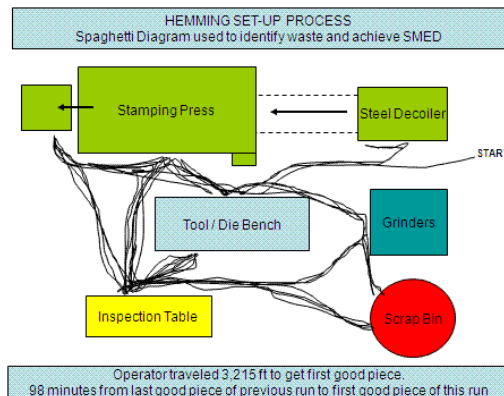
3. Standard Work Sheets

Standardized Work Sheet for established Laser parts on 3" cores				
Job Name		Part Name:		T/L:
Group		Part #:		G/L:
				SIP Stock:
				Takt Time: 1.5 hrs
#	Work Elements	Work Time	Walk Time	
1	Get oldest finished date order and material			
2	Thread machine			
3	Load file			
4	Cycle machine			
5	Setup slitting			
6	Perform quality checks			
7	Check finished cores			
8	Reset counter			
9	Run parts			
10	Remove parts			
11	Bag/label prior rolls to tote			
12	Run until order quantity on P.O. or out of material			
13	Operator delivers tote to inspection			
Total				
Std. WIP		Kanban		Quality Check
Raw material		Cores		Safety
		Labels		
		Bags		
		Map		
		Drawing		

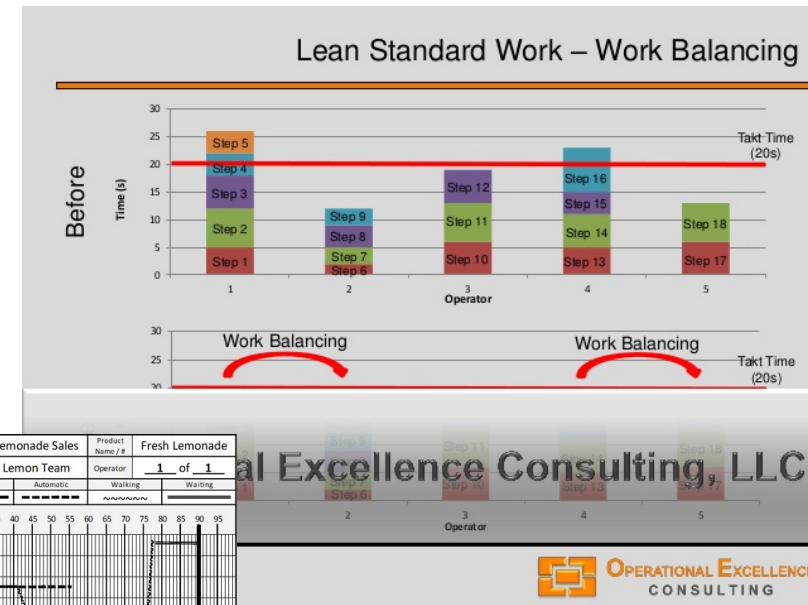
4. Standard Work Improvement & Study Tool Documents

Kaizen Tools

- Spaghetti Diagrams
- Time Observation Sheets
- Combination Sheets
- Waste Sheets (TIMWOODS)
- Videos



Standard Work Combination Sheet				Operation Name	Lemonade Sales	Product Name / #	Fresh Lemonade
Takt Time		90 Sec	Units/Shift	300	Work Group	Lemon Team	Operator
Cycle Time		78 Sec	Time		Manual	Automatic	Waiting
Step #	Step Description	Manual	Auto	Work			
1	Take order	15	3				
2	Prep lemons	15	3				
3	Juice lemons	5	15	3			
4	Mix ingredients	15	3				
5	Add lemon juice	5	3				
6	Serve customer	5	3				
				Totals	60	18	
Date Prepared		12 Mar, 2008	Prepared By	Jimmy	Reviewed By	Jimmy's Dad	www.Velaction.com ver. 10/19/2008, © 2008

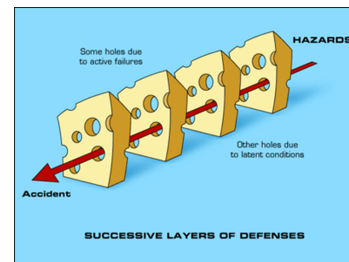
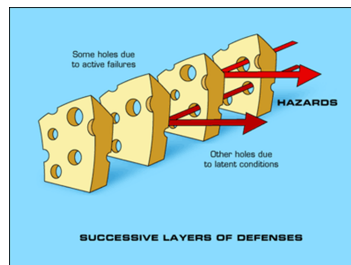


THE OVERALL PURPOSE IS WASTE ELIMINATION

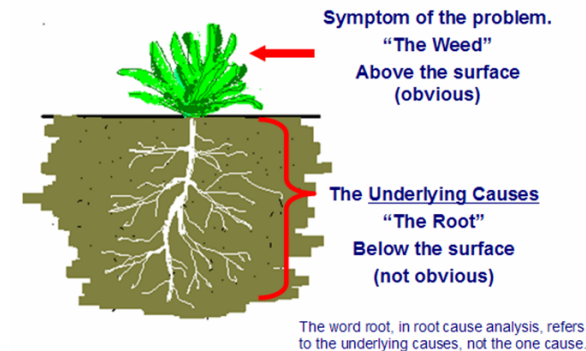
Standardized Problem Solving

Why do we do formalised problem solving?

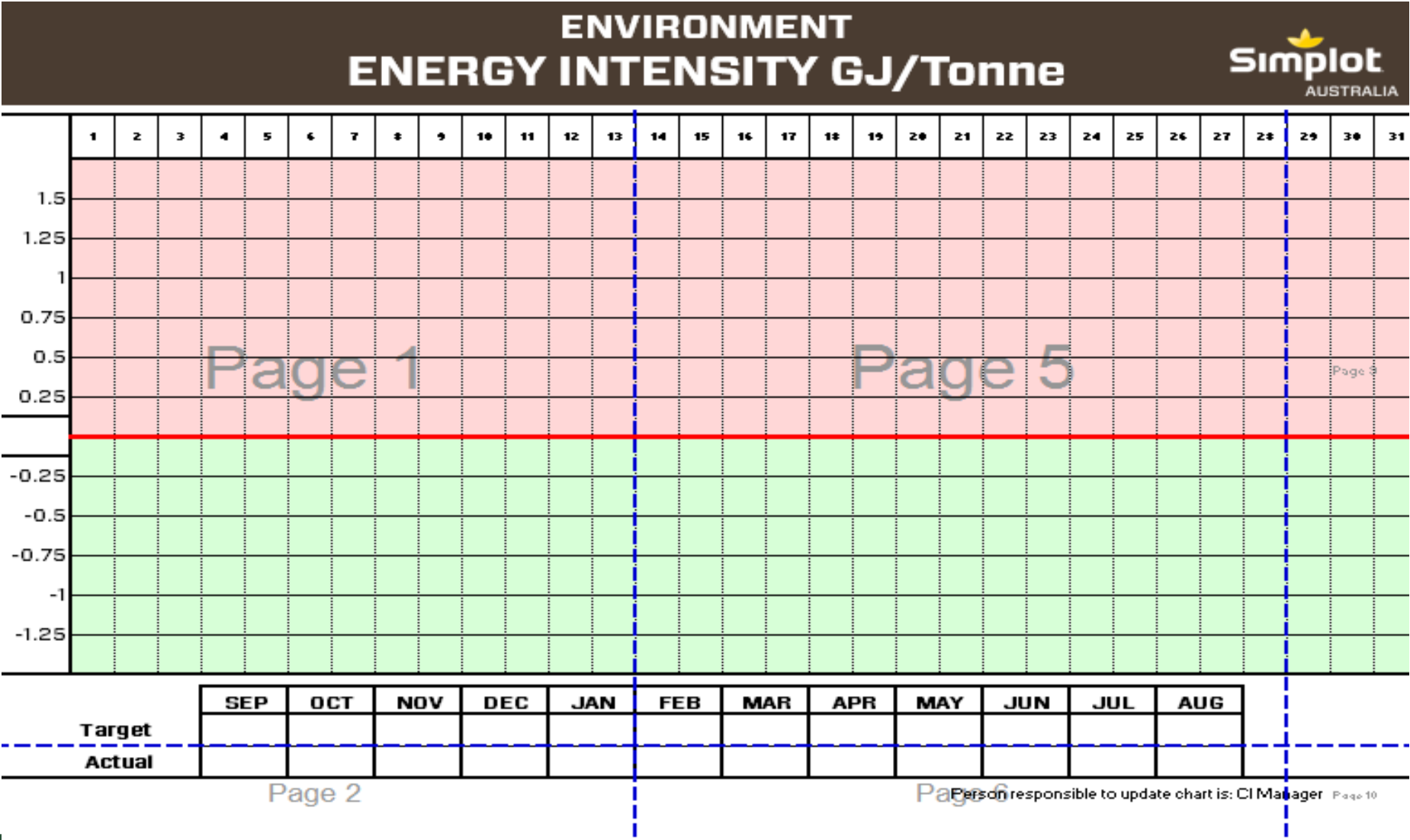
- Every step in a process has the potential for failure, to varying degrees.
- To relentlessly identify and eliminate potential failures in our processes and systems so that stability and reliability will inevitably follow



Root Cause Analysis Basics



Daily Management System



Energy Reduction Focuses at Simplot

- Higher Efficiency Lighting
- Eliminate leaks in inert gas and compressed air lines / valves
- Use more efficient motors
- Install compressed air intakes in coolest locations
- Utilise energy-efficient belts and other improved mechanics
- Reduce compressed air to the minimum required
- Insulate bare equipment
- Install occupancy sensors
- Use more efficient lighting source
- Analyse flue gas for proper air / fuel ratio

Leadership and Culture

The Simplot Way

'The Simplot Way': ONE WAY of Operating, designed by our people for Simplot

What is 'The Simplot Way'

1. The behaviours and culture of continuous improvement at Simplot
2. The systems, tools, and training material to support lean best practice

Why do we want this?

- To be the worlds best at what we do
- To become the worlds best practice role model in our field
- Have a Common Goal as one team without barriers or silos dividing our efforts

Create the Culture

- Change Management Model
 - ADKAR
 - Awareness
 - Desire
 - Knowledge
 - Ability
 - Reinforcement

Awareness



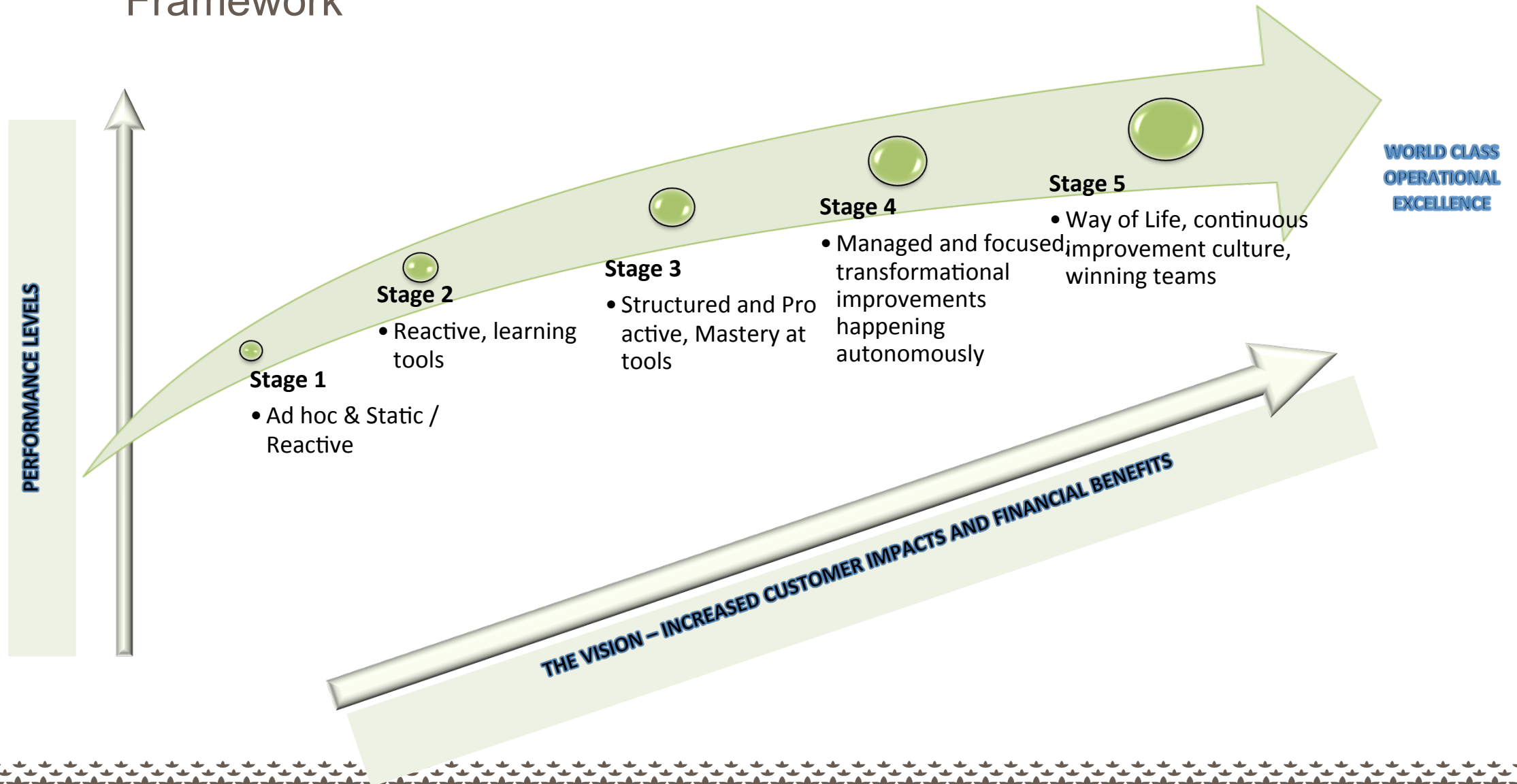
Managing Directors Awards

- Plant of the year
- Energy Champion
- Energy Employee

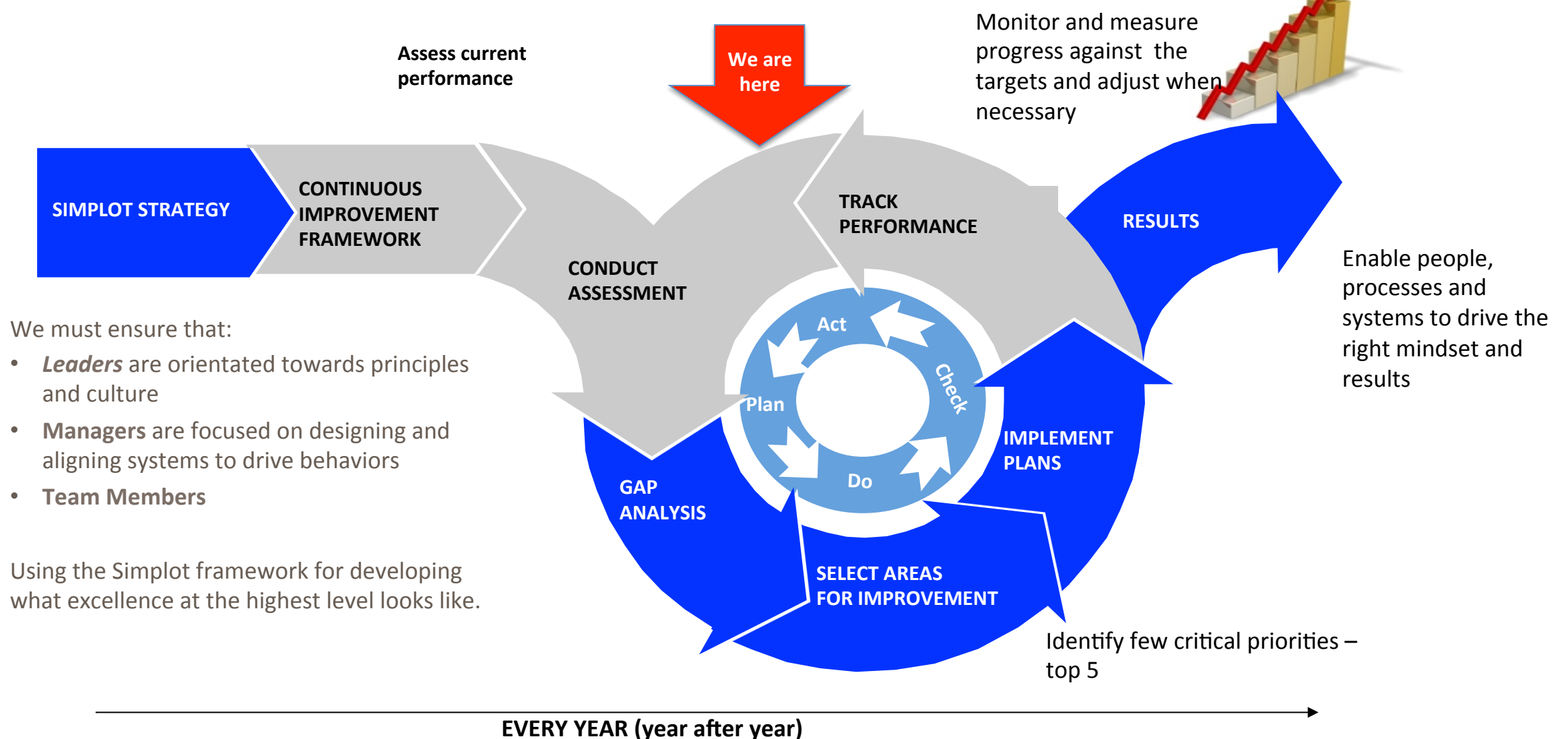


Creating the Roadmap to Excellence

Progressive Development of Continuous Improvement Framework



How do we achieve Lean Sigma Excellence?



We must ensure that:

- **Leaders** are orientated towards principles and culture
- **Managers** are focused on designing and aligning systems to drive behaviors
- **Team Members**

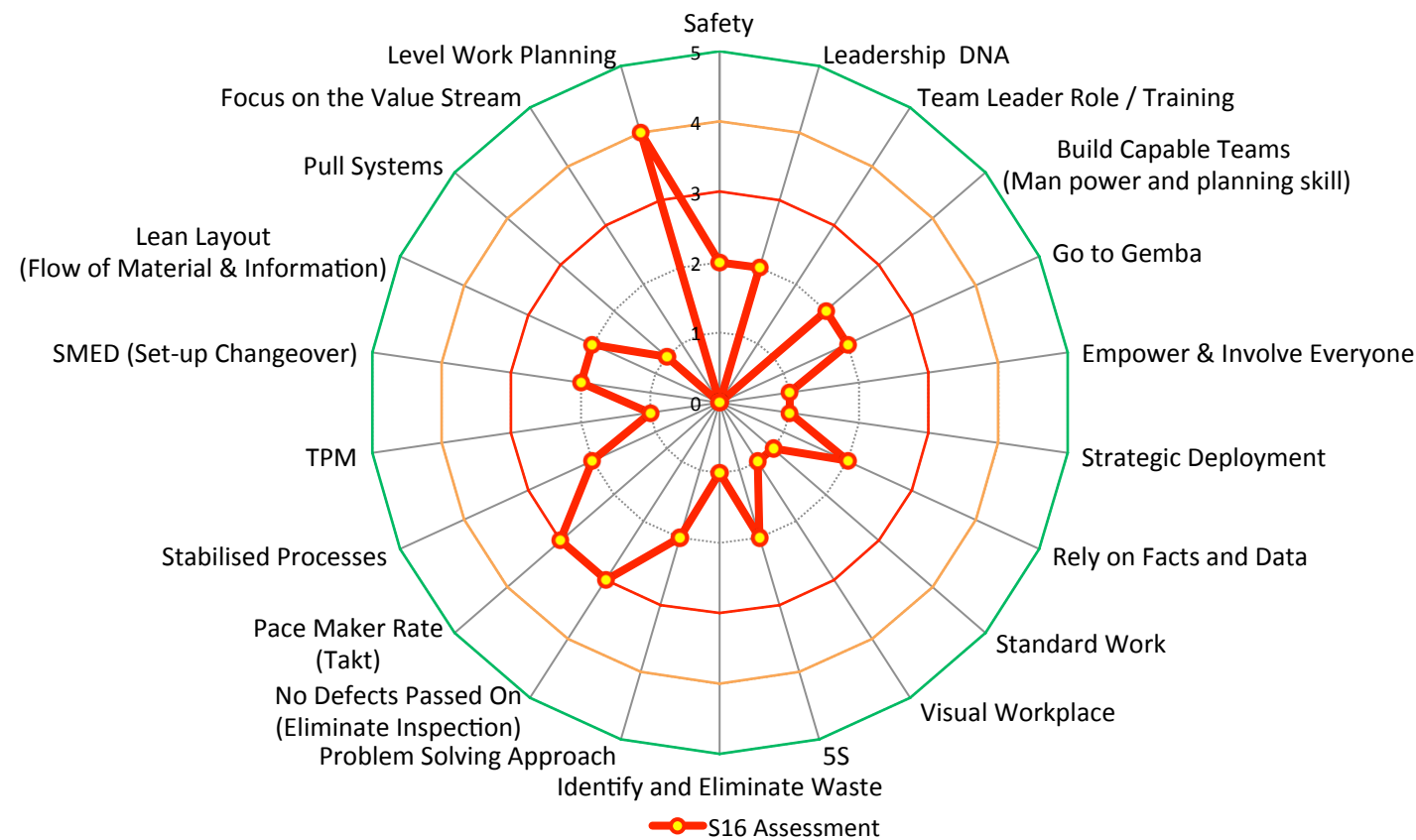
Using the Simplot framework for developing what excellence at the highest level looks like.

Create a Path to Achieving and Sustaining Excellence

Levels of Achievement Continuous Improvement							
Element #	Sub Elements	Elements	Level 1	Level 2	Level 3	Level 4	Level 5
1	Safety	Leadership	2	3	3	4	5
2	Leadership DNA	Leadership	2	3	3	4	5
3	Team Leader Role / Training	Leadership	2	3	3	4	5
4	Build Capable Teams (Man power and planning skill)	Leadership	2	3	3	4	5
5	Go to Gemba	Leadership	2	3	3	4	5
6	Empower & Involve Everyone	Company Culture	2	3	3	4	5
7	Strategic Deployment	Company Culture	2	3	3	4	5
8	Rely on Facts and Data	Company Culture	2	3	3	4	5
9	Standard Work	Foundations	2	3	3	4	5
10	Visual Workplace	Foundations	2	3	3	3	4
11	5S	Foundations	2	3	3	3	4
12	Identify and Eliminate Waste	Foundations	2	3	3	3	4
13	Problem Solving Approach	Foundations	2	3	3	3	4
14	No Defects Passed On (Eliminate Inspection)	Quality	1	2	3	3	4
15	Pace Maker Rate (Takt)	Operational Stability	1	2	3	3	4
16	Stabilised Processes	Operational Stability	1	2	3	3	4
17	TPM	Operational Stability	1	2	3	3	4
18	SMED	Operational Stability	1	2	3	3	4
19	Lean Layout (Flow of Material & Information)	Create Flow and Pull	1	2	3	3	4
20	Pull Systems	Create Flow and Pull	1	2	3	3	4
21	Focus on the Value Stream	Create Flow and Pull	1	2	3	3	4
22	Level Work Planning	Create Flow and Pull	1	2	3	3	4

Measure Progress

Continuous Improvement Radar Chart



Summary

- Continuous Improvement systems, tools, and culture drives Energy Productivity
- Benefits
 - ✓ Reduce operating and maintenance costs
 - ✓ Reduce vulnerability to energy and fuel price increases
 - ✓ Meet customer expectations
 - ✓ Enhance productivity
 - ✓ Improve safety
 - ✓ Improve employee morale and commitment
 - ✓ Improve environmental quality
 - ✓ Reduce greenhouse gas emissions
 - ✓ Increase overall profit

(www.epa.gov/lean)



Questions

