



Improving Asset Management Capabilities Towards Excellence Through Integrating Lean Principles

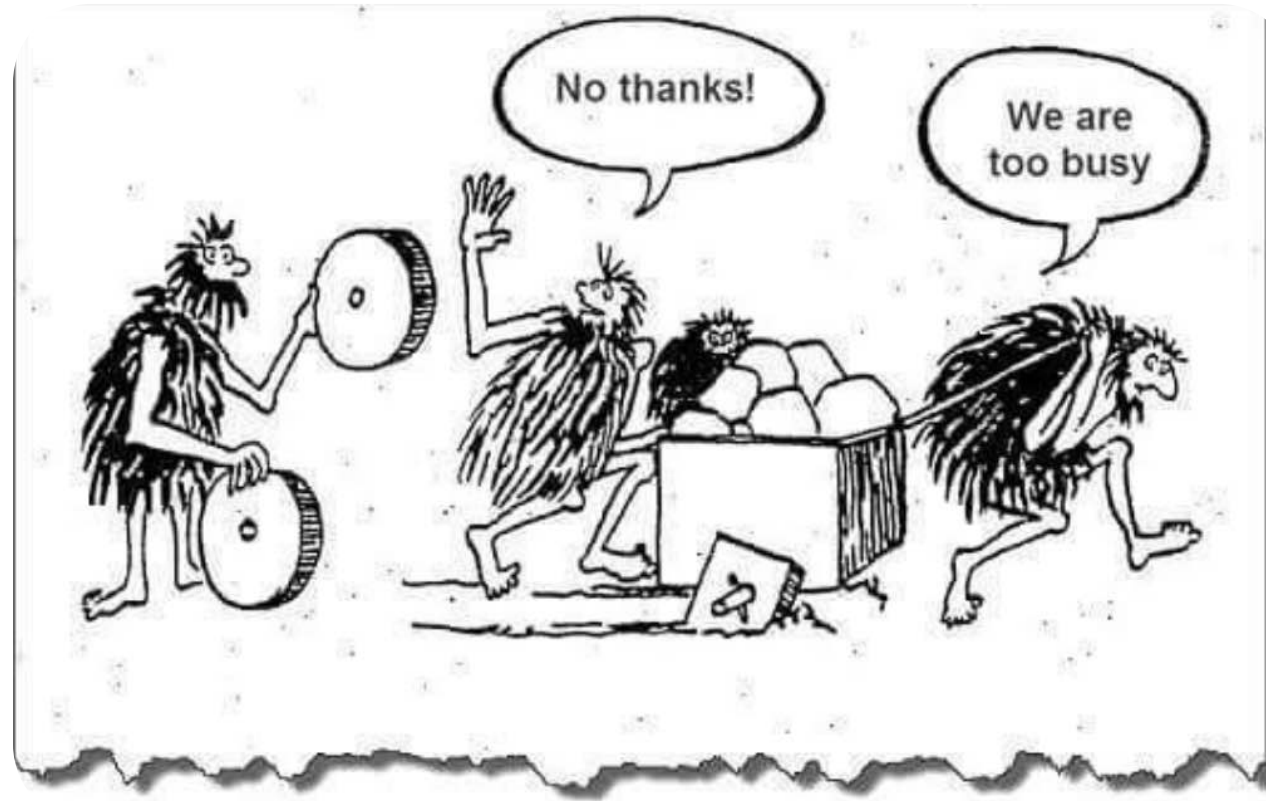


Introduction

- Mega Trend, Hot topics
- Creation of a Lean + Asset Management Group
 - David Kraft-MTA (USA)
 - Christopher Genin-DP World (UAE)
 - Paul Gibbons-NDA (UK)
 - Mark DeClerc-Assetivity (USA)
 - Bernard Gaudreault-Norda (Canada)
- Terms of Reference, Position Statement
- Development of a White Paper

Our Assumptions

- Integrating Lean Principles can help improve value delivery, but how?



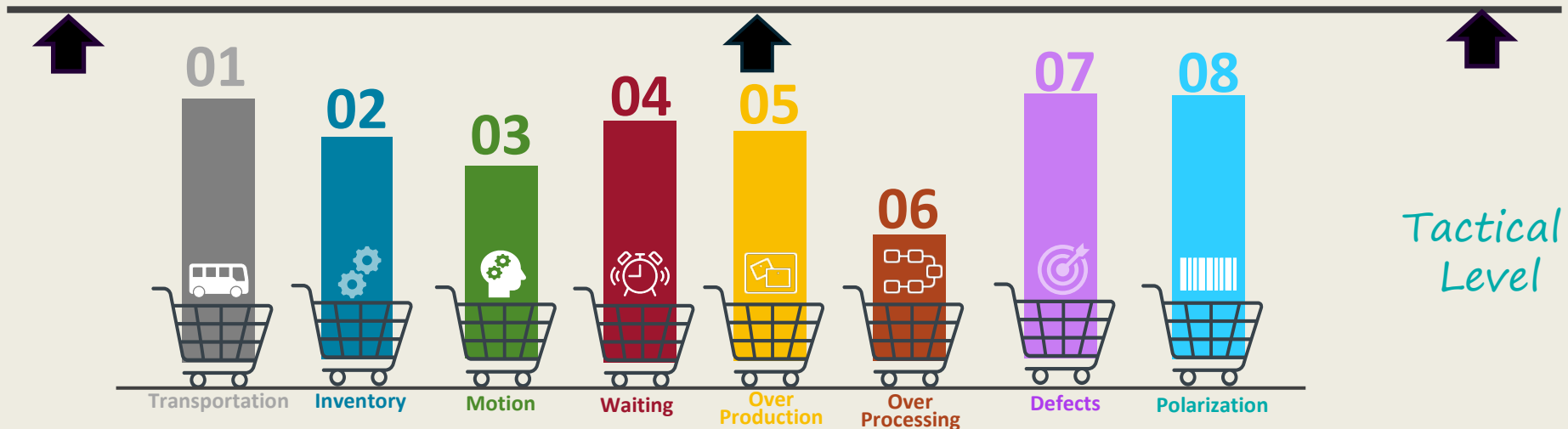
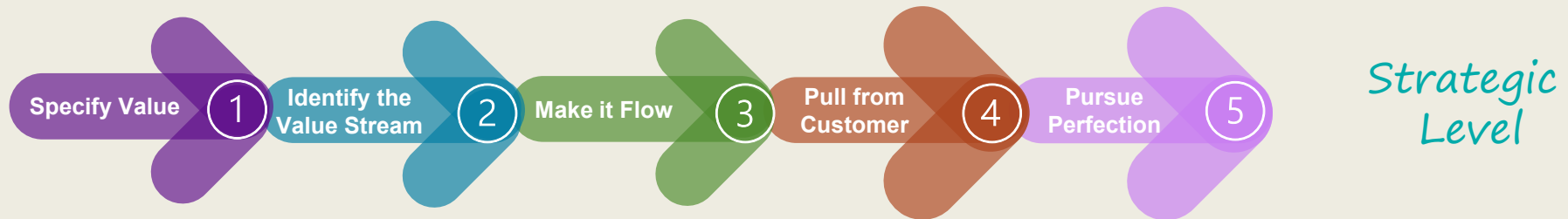
Understanding Asset Management



Asset Management is often confused with **Managing Assets** where practitioners focus on the tactical level activities associated with maintaining assets without the portfolio and strategic asset management views that help set the context and understanding of the wider implications of their decision making.

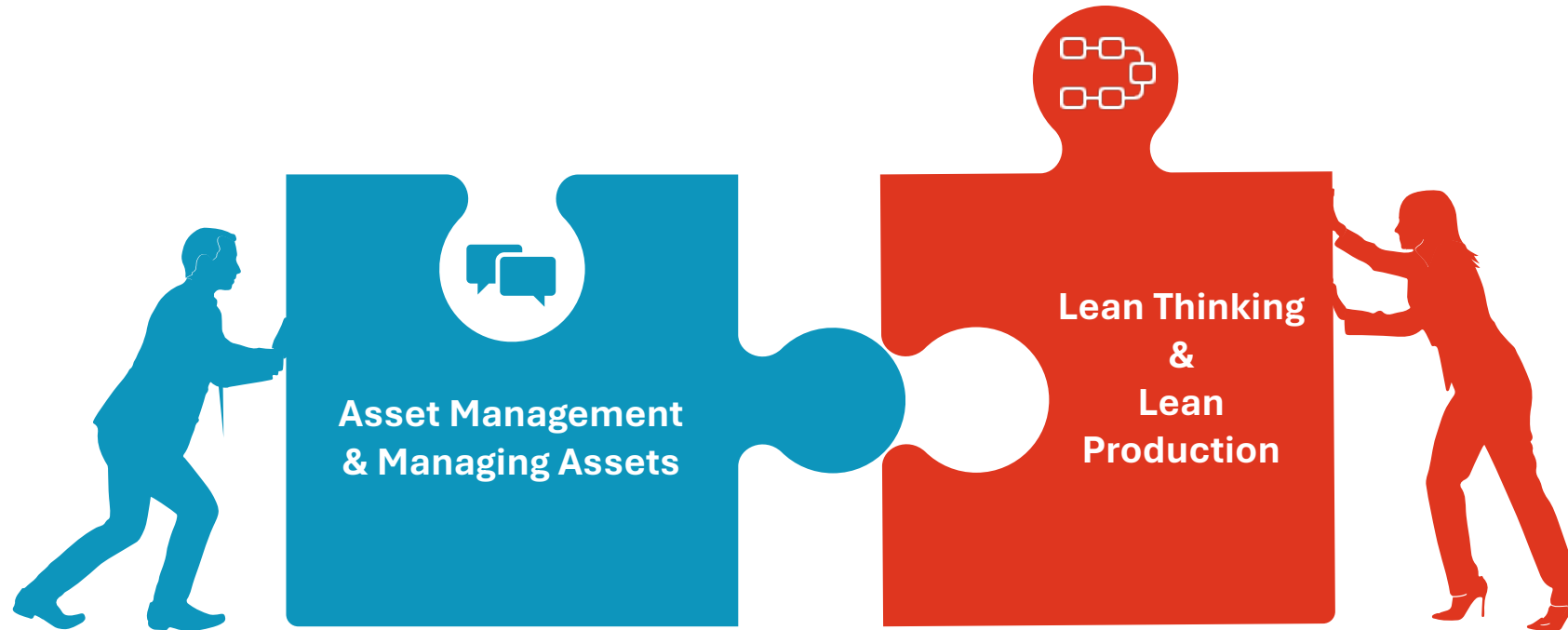
Understanding Lean Management

Lean Thinking: Focus is on Understanding Value → Be Effective



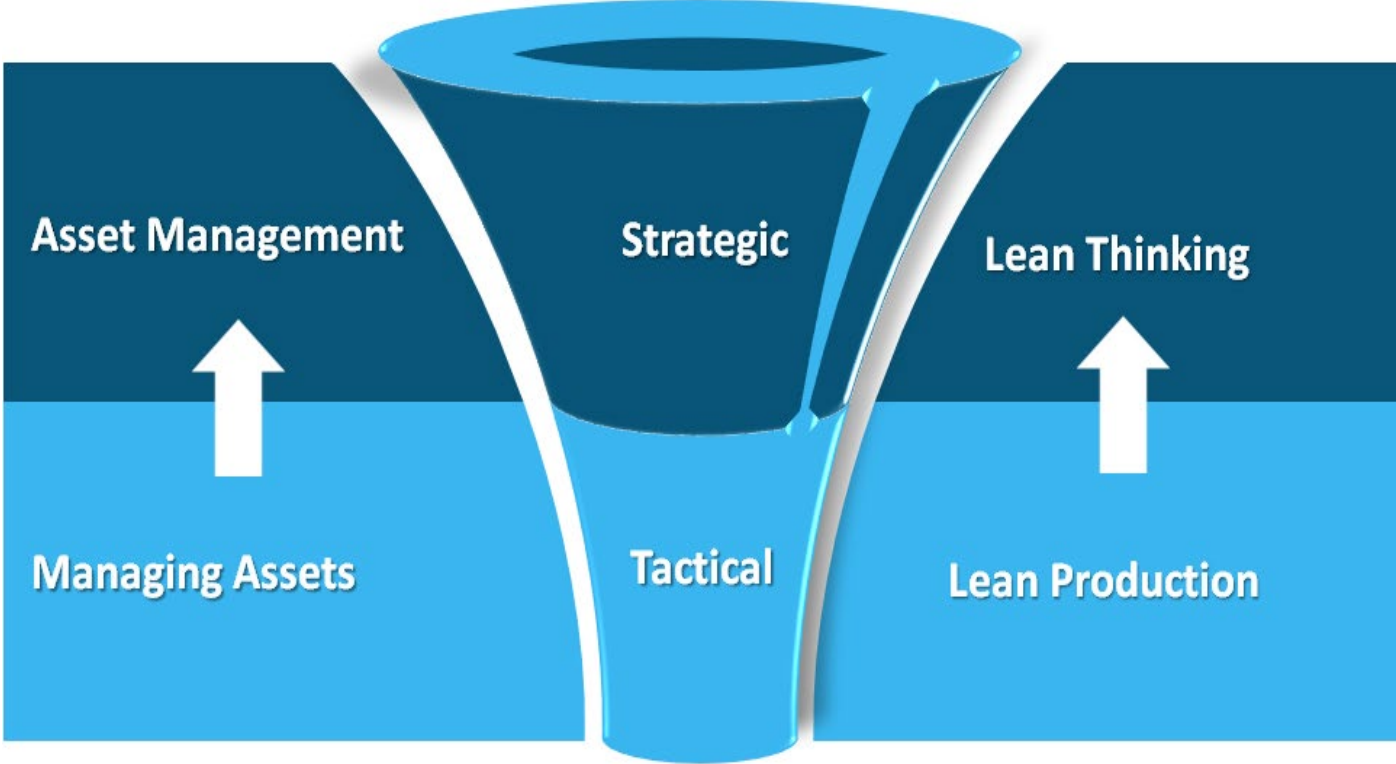
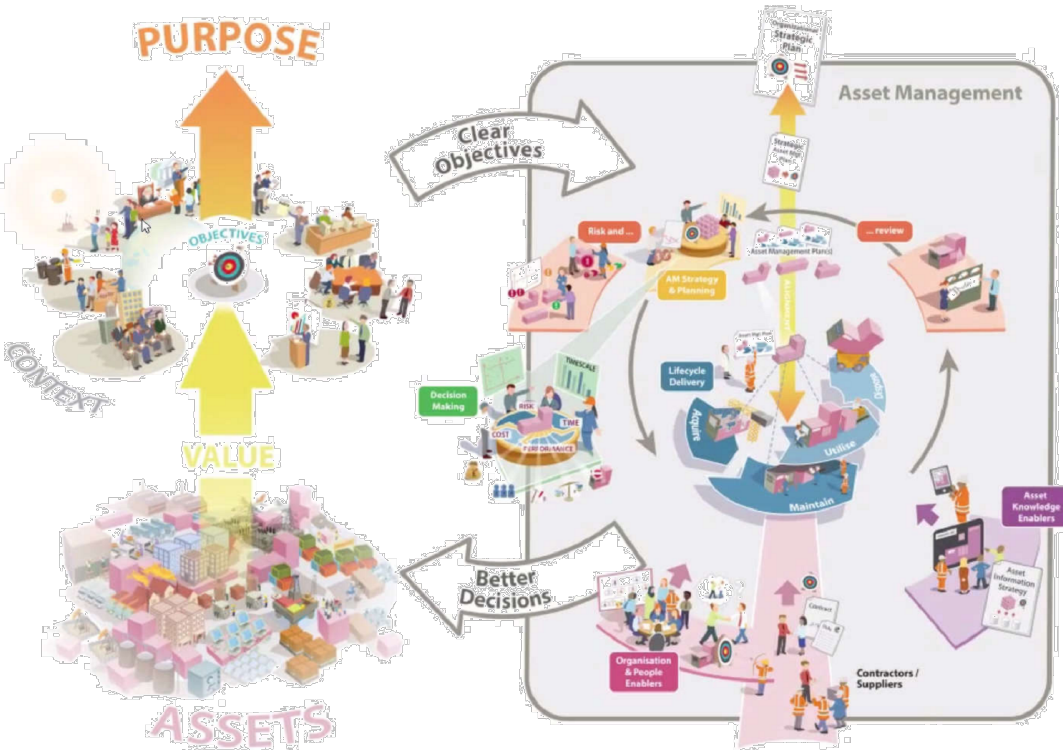
Lean Production: Focus is on Reducing 7 + 1 Wastes → Be Efficient

Different Concepts, Same Thinking?



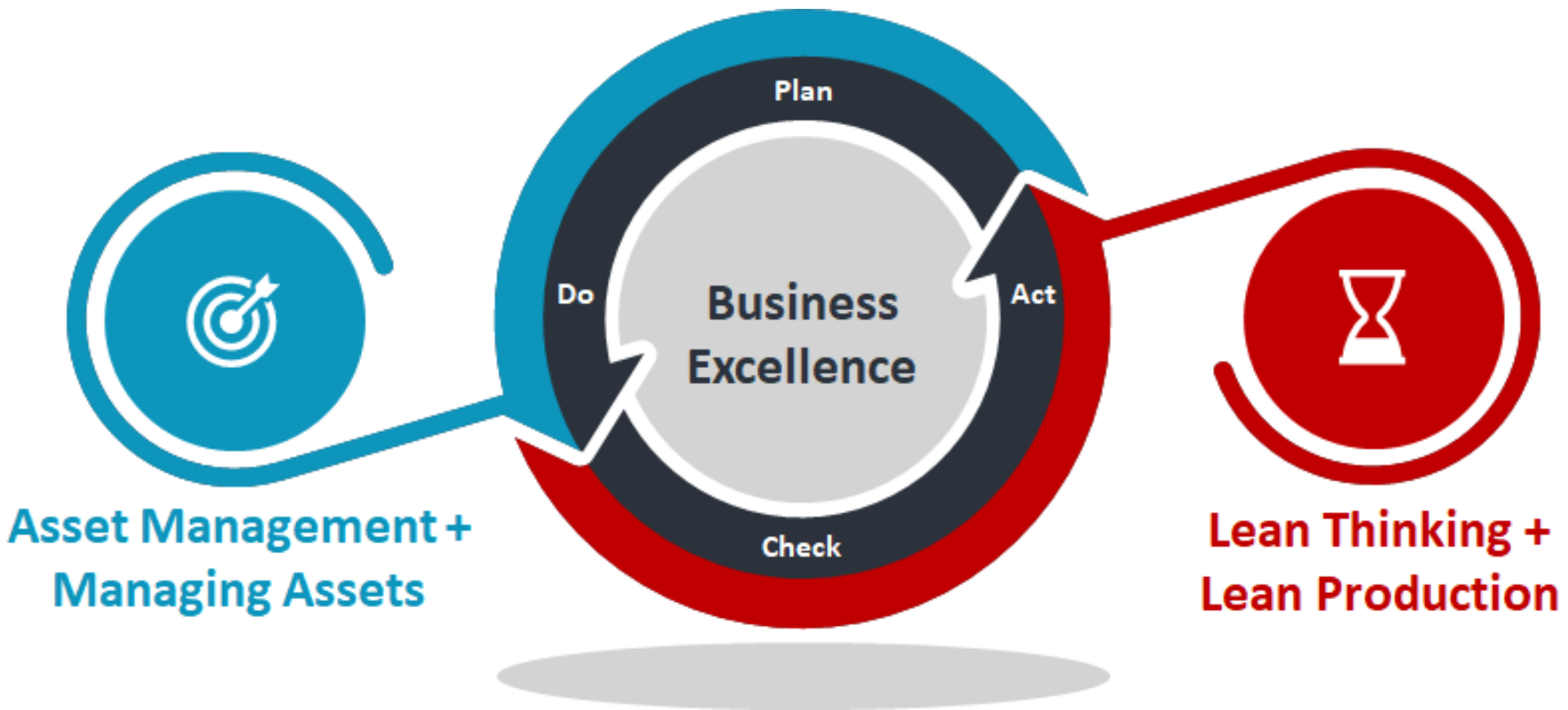
- ✓ Perhaps, to be good at asset management, you need to have a good foundational approach for managing assets?
- ✓ Similarly, perhaps, to be good at lean thinking, you need to have a good foundational approach for lean production?

Other Similarities– Line Of Sight



Lean Thinking supports Asset Management in building the line of sight of the organisation...and linking it at the operational level with Lean Production tools

Combining the Concepts



✓ Perhaps combining the four elements together helps us think about the continuous business improvement cycles moving towards excellence in both Asset Management and Lean Thinking?

✓ Our Business Excellence Model based around the Plan → Do → Check → Act Deming Cycle

Making it Real – Tactical Level

- Lean Production and Managing Assets can create faster improvements at the tactical level while always seeing the line of sight, including:
 - ✓ 7+1 waste tools
 - ✓ Total Productive Maintenance (TPM)
 - ✓ Overall Equipment Effectiveness (OEE)

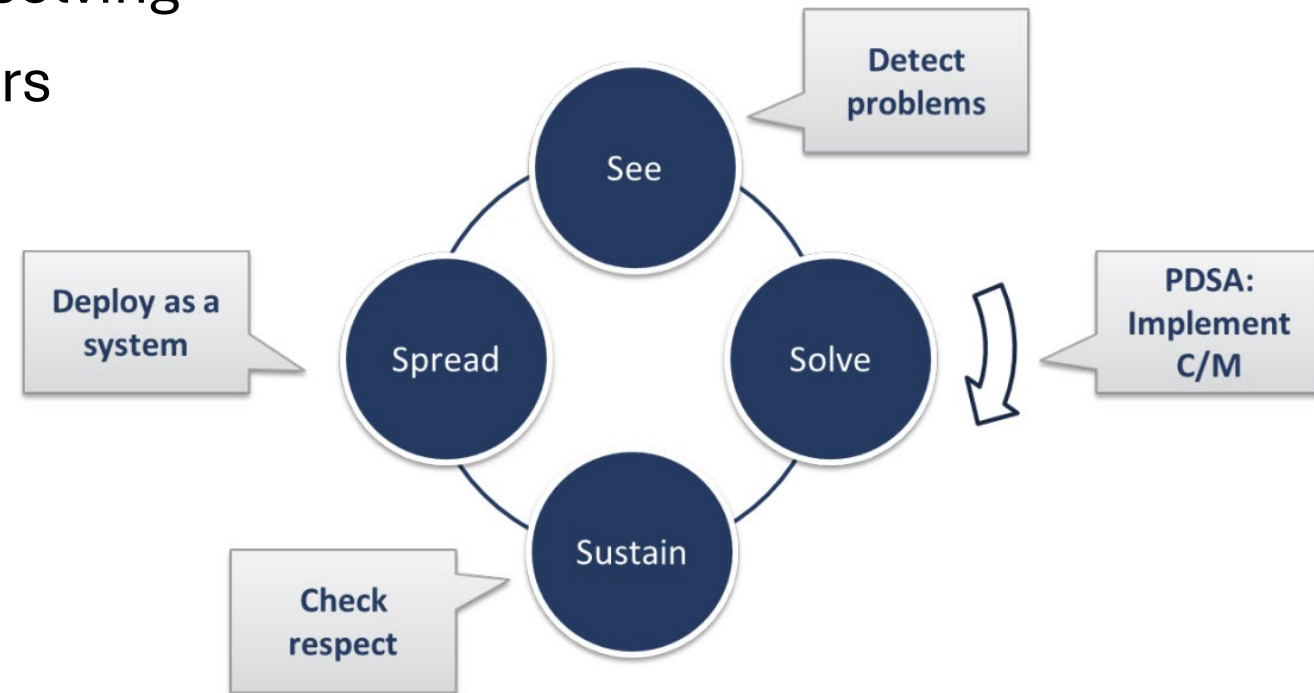
Overall Equipment Effectiveness - OEE



Adopt A Lean Business System (LBS)

Lean Thinking + Asset Management + Lean Production + Managing Assets = LBS

- ✓ Continuous improvement culture needs to be embedded
- ✓ Empowering people in problem solving
- ✓ Value creation to the stakeholders
- ✓ Flow of information: DATA



Measuring Maturity For Business Excellence

Combining Lean Principles and Asset Management Themes to Measure Business Excellence Maturity – an idea for testing

Objectives : Associate lean principles (14 lean principles by Jeffrey Liker) with AM themes	Theme 1 : Strategy and Planning	Theme 2 : AM decision-Making	Theme 3 : Lifecycle delivery	Theme 4 : Asset Information	Theme 5 : Organisation & People	Theme 6 : Risk & Review	Comments
LEAN Principle				https://www.thefuturefactory.com/blog/			
Principle 1 – Base your management decisions on long term philosophy, even at the expense of short term financial goals.	X						2.3.3 Alignment
Principle 2 – Create continuous process flow to bring problems to the surface. (Just in Time)			X				17. Asset operations
Principle 3 – Use pull systems to avoid 'overproduction'.	X		X				
Principle 4 – Level out the workload. (Eliminate waiting)			X				
Principle 5 – Build a culture of 'stopping to fix problems' to get quality right. (Eliminate rework)							28. Organisation
Principle 6 – Standardised tasks are the foundation for continuous improvement and employee empowerment.					X		
Principle 7 – Use visual controls so no problems are hidden. (Opportunities are exposed to all)						X	
Principle 8 – Use only reliable and thoroughly tested technology that serves your people and processes.				X			27. Asset Management
Principle 9 – Grow leaders who thoroughly understand the work, live the philosophy and teach it to others.					X		29. Organisational Culture
Principle 10 – Develop exceptional people and teams who follow your company's philosophy.					X		30. Organisation
Principle 11 – Respect your extended network of partners & suppliers by challenging them and helping them improve.					X		
Principle 12 – Go and see for yourself and thoroughly understand the situation.						X	
Principle 13 – Make decisions slowly by consensus, thoroughly considering all options and then implement rapidly.		X					
Principle 14 – Become a learning organisation through relentless reflection and continuous improvement.					X		29. Organisation

Objectives : Associate AM subjects with LEAN tools	5S	Gemba walk	A3	JIT	KAIZEN	PDCA	KANBAN	KPIs	SMED	TPM	VSM	AGILE	Risk management	Inventory management	Industry 4.0	SIX SIGMA
AM sub-themes																
Asset Management Policy																
Asset Management Strategy & Objectives																
Demand Analysis																
Strategic Planning				X												
Asset Management Planning																
Capital Investment Decision-Making																
Operations & Maintenance Decision-Making				X												
Lifecycle Value Realisation																
Resourcing Strategy																
Shutdown & Outage Strategy																
Technical Standards & Legislation																
Asset Creation & Acquisition			X			X		X				X	X			
Systems Engineering														X		
Configuration Management																
Maintenance Delivery																
Reliability Engineering	X					X	X				X					
Asset Operations						X	X	X								
Resource Management																
Shutdown & Outage Management				X					X							
Fault & Incidence Response																
Asset Decommissioning & Disposal				X												
Asset Information Strategy																X
Asset Information Standards																X
Asset Information Systems																X
Data & Information Management								X								
Procurement & Supply Chain Management	X		X													
Asset Management Leadership			X													X
Organisational Structure																
Organisational Culture																
Competence Management																
Risk Assessment and Management													X			
Contingency Planning & Resilience Analysis																
Sustainable Development																
Management of Change				X												
Asset Performance & Health Monitoring								X					X			
Asset Management System Monitoring																
Management Review, Audit & Assurance																
Asset Costing & Valuation																
Stakeholder Engagement													X			

Case Study 1 - Ports

- Business Objective : Increase ROCE (Return on Capital Employed)
- KPI: TTT (Truck Turnaround Time)
- Tools employed to reduce waste in process and improve Performance: A3 Thinking
- Targeted assets: Horizontal transport assets
- Results of Fleet replacement:
 - ✓ 11 assets disposed
 - ✓ 9 replacements

Case Study 2 – Transit

- Business Objective : Improve Whole Life Asset Management Practices
- Assets targeted: bus engines
- Moving from time base replacement to performance base replacement
- Using lean principles the team defined, measured and analysed the two concepts
- Results:
 - ✓ Decreased the number of bus engine replacements by 70% for the calendar year
 - ✓ Major time saving by maintenance team allowing them to allocate time to higher priority backlog items

What are the Expected Benefits?

We feel that combining Lean Management and Asset Management can deliver significant benefits including:

- ✓ Increased Efficiency and improved Effectiveness
- ✓ Cost Reductions
- ✓ Improved Asset Lifecycle Management
- ✓ Enhanced Quality and Reduced Defects
- ✓ Better Alignment with Business Objectives
- ✓ Increased Responsiveness to Market Changes
- ✓ Sustainable Improvements
- ✓ Cultural Transformation
- ✓ Enhanced Competitive Advantage

Next Steps

- Creating bridges with the Lean Enterprise Institute [LEI]
 - ✓ Stimulate knowledge exchange activities
 - ✓ Shared events
- Exploring guidance material development as a complement to the IAM Anatomy and SSGs
- Finalise and Test the proposed Business Excellence Maturity Tool
- Finalise and publish our Paper to the wider Asset Management Community



Summary & Questions

- ✓ Thank you for listening
- ✓ We are happy to share knowledge and network so please do contact us
- ✓ If you want to get involved in this project, please do contact us too
- ✓ Questions?