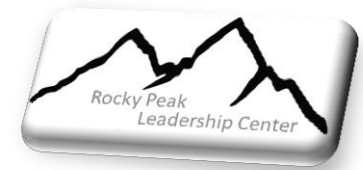
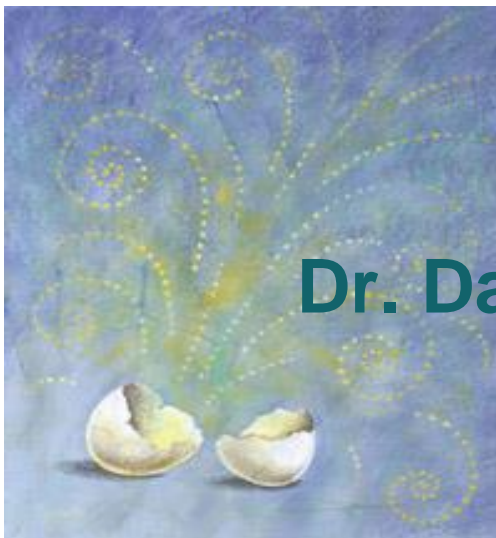


LEAN Lateral Thinking



An Introduction to Creative Manufacturing Thinking Processes and Methods



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LEAN Lateral Thinking Overview



- Quick LEAN Introduction
- PDSA – LAMDA
- 9 Boxes Analysis
- Area & Focus Problem Statements
- Creative Hit List
- Break
- Lateral Thinking “Challenge”
- Cut C, Cut B, Cut A Exercises
- Proto-Storming

LEAN Overview



LEAN Overview

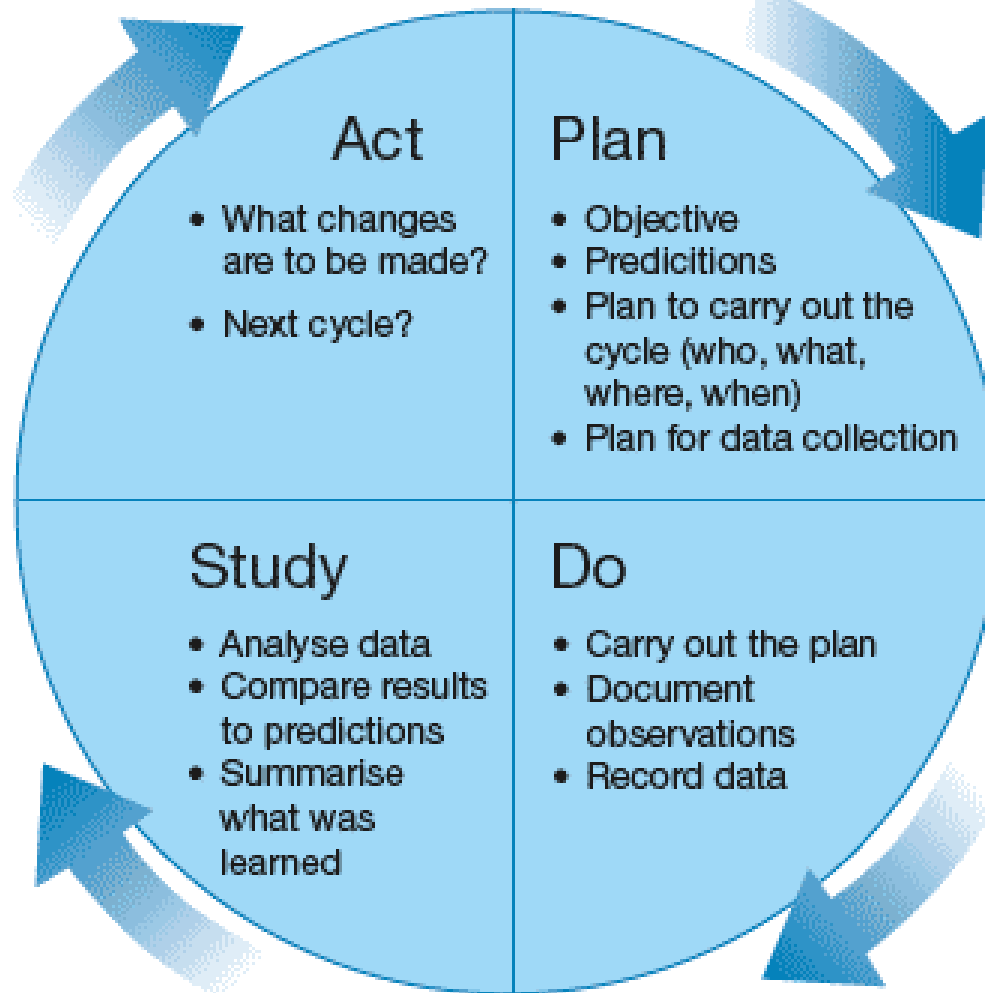
- Stands for LEAN Manufacturing, LEAN Enterprise & LEAN Production
- Centred on pursuing “Value” with less work
- Value = any action or process that a customer would be willing to pay for
- Based on Toyota Management System (TMS)
- LEAN set of tools used to expose problems systemically:

Muda – non-value-added work

Muri – overburden

Mura – unevenness

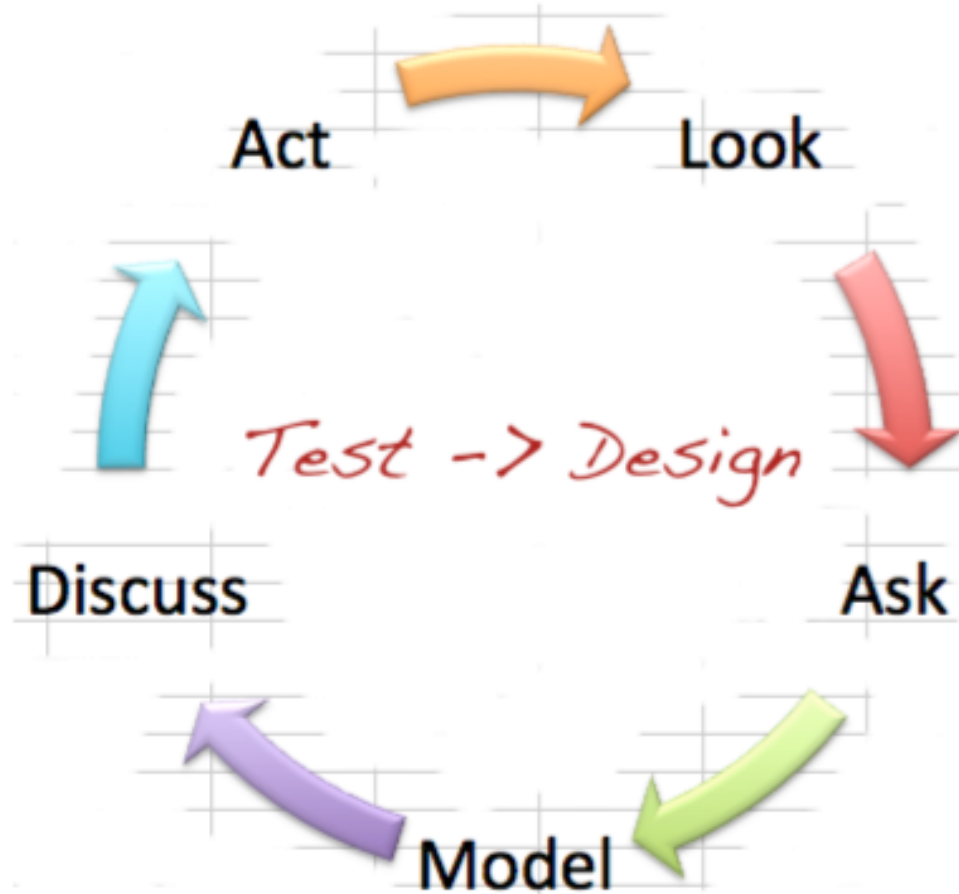
PDSA (Plan-Do-Study-Act) Overview



PDSA (Plan-Do-Study-Act) Overview

- Evolved from the *Deming & Shewhart Cycle*
- Iterative, 4-step method for control and continuous improvement of processes and products
- Based on the “**Scientific Method**” developed by Francis Bacon in 1620
- Fundamental principle is “**Iteration**” to improve a system
- “It is better to be approx. right than exactly wrong” (*Analysis Paralysis* to get things right the first time)

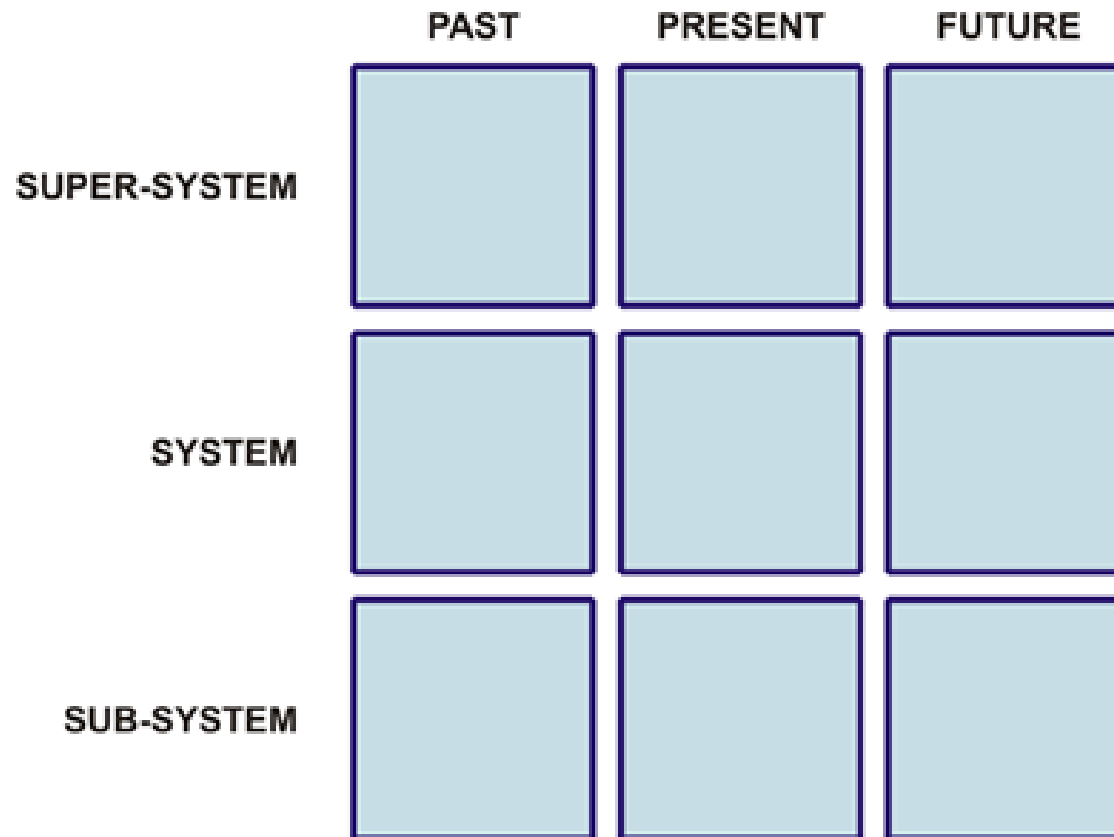
LAMDA Thinking Overview



LAMDA Thinking Overview

- Used for “***Knowledge Creation***” in problem solving
- Understanding the **root cause** of the problem prior to acting before implementing a solution
- Visit the “***Gemba***”, which is the site of the problem to understand its full impact
- Gather expert input by asking ***Why*** and ***Who***
- Discuss & examine the information gathered
- Implement the “**Design and Test**”


Nine Boxes



Nine Box's


- Works on “**All**” problem types both technical and management
- Applied at different ways at various stages of *Time* and *Space* domains
- Used to accurately capture history of a problem & the problem context
- 9 Box's map allows you to sort the possible *Place* to solve a problem
- 9 Box's sets up the “**System**” context, defines the environment (*Super-system*) & the details (*Subsystems*)

Soggy Pizza Problem (Present)

	Past (Preventive)	Present	Future (Corrective)
Sub-system			
System		Soggy Pizza 	
Super-system			


Pizza was baked at a pizza shop, delivered to a home, the delivery takes typically 25-35 minutes.

Soggy Pizza Problem (Present)

	Past (Preventive)	Present	Future (Corrective)
Sub-system		Crust, Cheese, Sauce, Pepperoni, Mushrooms	
System		Soggy Pizza 	
Super-system		Pizza, Box, Carrier Pouch, Delivery Car, Driver	

The sub-systems, or components, of the system are listed and the super-system is identified. Sometimes there are multiple possible super-systems. In this case, the pizza is part of the family dinner super-system, and it is also part of the pizza production and delivery super-system.

Soggy Pizza Problem (Past & Future)

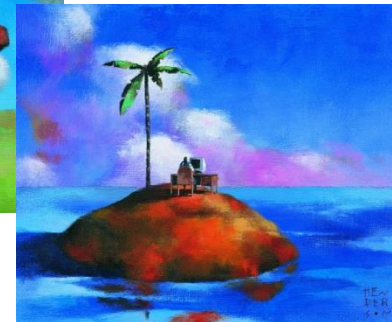
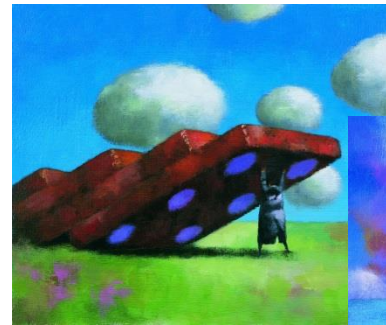
	Past (Preventive)	Present	Future (Corrective)
Sub-system	Can we change a component to prevent going soggy?	Crust, Cheese, Sauce, Pepperoni, Mushrooms	Can we do anything to a component to re-crisp the pizza?
System	How can we prevent the pizza from going soggy?	Soggy Pizza 	How can we make a soggy pizza fresh and crisp again?
Super-system	Can we prevent wilting by changing the packaging and delivery system?	Pizza, Box, Carrier Pouch, Delivery Car, Driver	Can we use the package and delivery system to re-crisp the pizza?

It is easy to expand the system operator in many directions. In the pizza example, the box collects moisture that evaporates from the pizza and condenses on the cold surface of the box. Considering separately what to do about the box, the moisture, the heat transfer, etc., could produce new thinking about crisp pizza.

Focus

Why Is Focus Important?

- Focus is generally the weakest part of practical creativity.
- Those who become skilled at Focus can achieve good creative results even if they don't have a high degree of skill in the Lateral Thinking tools.



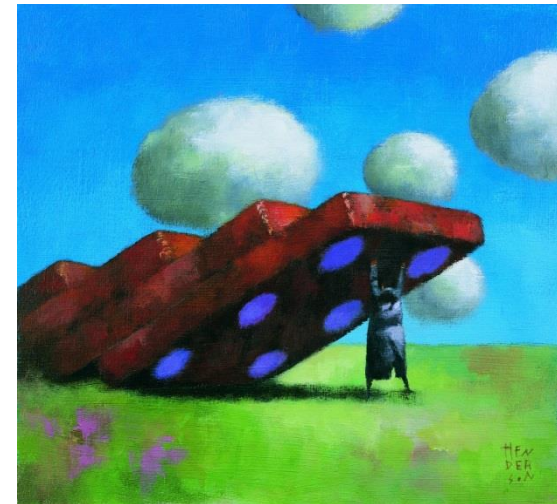
Purpose Focus

Purpose Focus

Thinking with a purpose in mind

“How do we improve team morale?”

“In what ways might we reduce paperwork?”



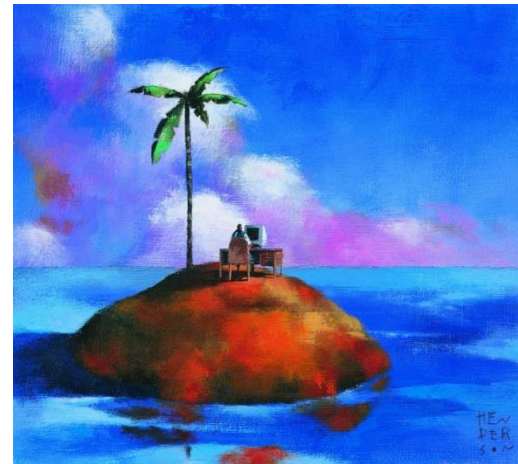
Area Focus

Area Focus Questions

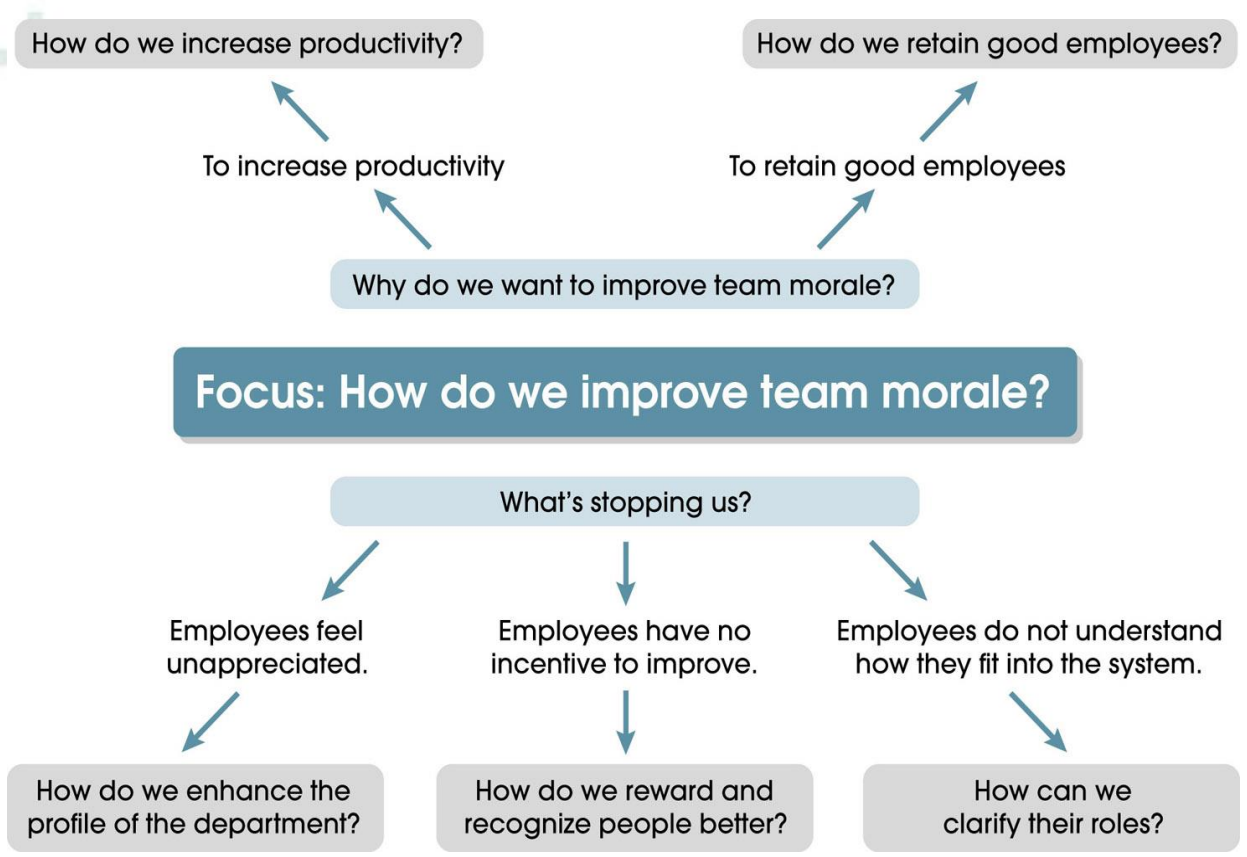
The topic can be narrow or broad.

“New ideas about water glasses”

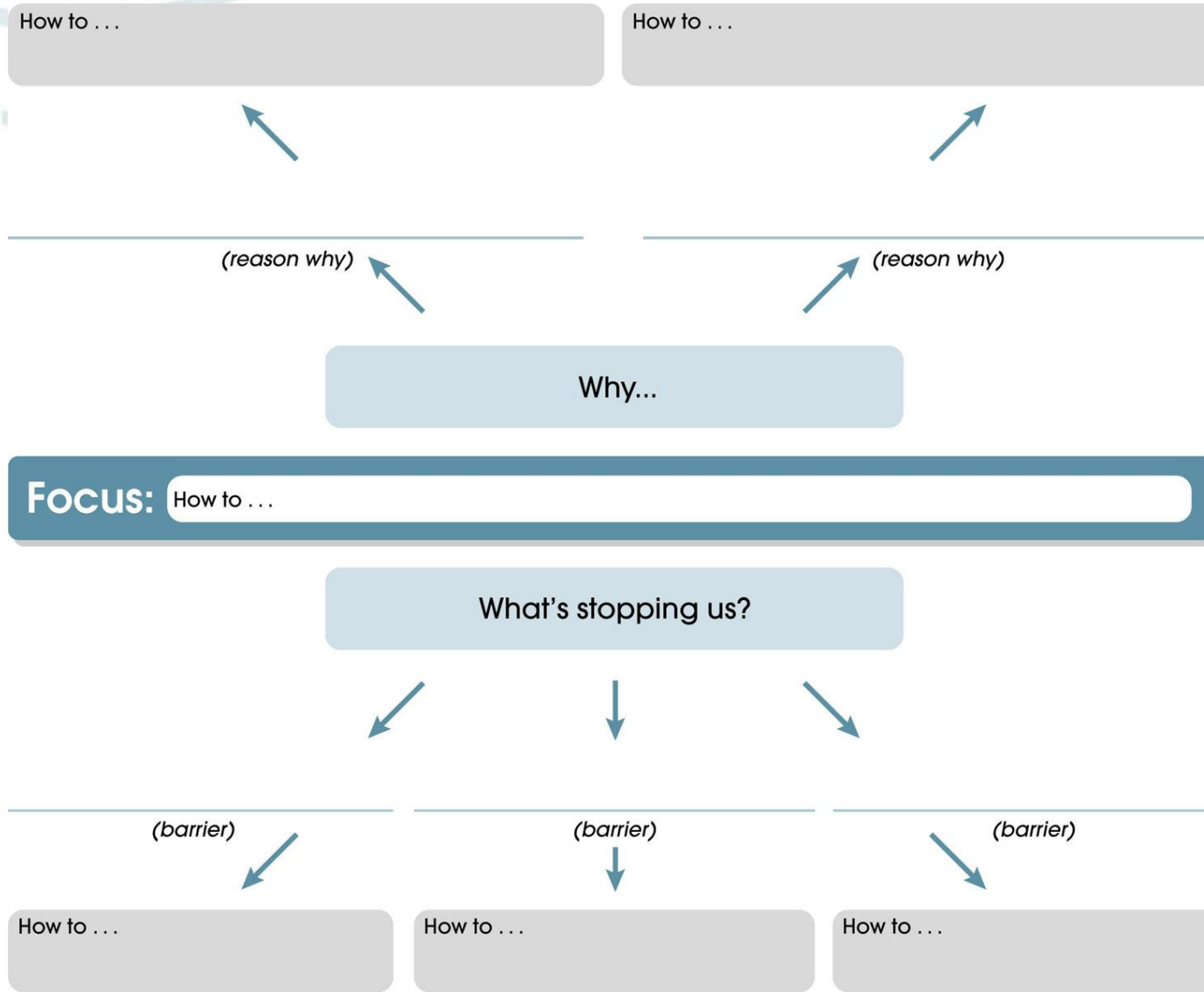
“New ideas about water”



Focus Statement Development



Focus Statement Exercise (10 min)



Creative Hit List



Experience the Creative Hit List

- Develop a creative hit list for yourself or your table group.
- Include both Purpose and Area focuses.
- Consider topics that involve product, process or people.

Creative Hit List Exercise (10 min)

Think about fifteen (15) items, including a range of types of **Focus** statements. On a small easel page of paper create a list that represents your:

(Purpose Focus, Problems)

- 1.
- 2.
- 3.
- 4.
- 5.

(Purpose Focus, Improvements)

- 6.
- 7.
- 8.
- 9.
- 10.

(Area Focus)

- 11.
- 12.
- 13.
- 14.
- 15.

- List your top 5 **Problems** or **Issues**.
- List your top 5 areas that can be **Improved**.
- List 5 **Areas** that you feel need “**New Thinking**”.

Break (15 min)

Time to take a “Thinking “Break”



Go stretch your Brains and come back !

Challenge Lateral Thinking Tool



- Challenge is never a criticism.
- Apply Challenge even when things appear to be perfect.

Challenge



Why Challenge Is Important

- There is always a different and better way of doing something.
- Challenge is part of any change process.

“If it isn’t broken, break it.”

Challenge



What We Can Challenge?

What is out there?

- all or part of an object or situation
- a system or process
- a concept

What is the thinking?

Challenge



Challenging the Thinking

- **Dominating Thought** Why does this exist?
- **Boundaries** What are the restrictions?
- **Assumptions** What do we take for granted?
- **Essential Factors** What must we have?
- **Avoidance Factors** What do we steer clear of?

Challenge



Challenge = Why?

Why/C

Is this necessary? Can we cut it?

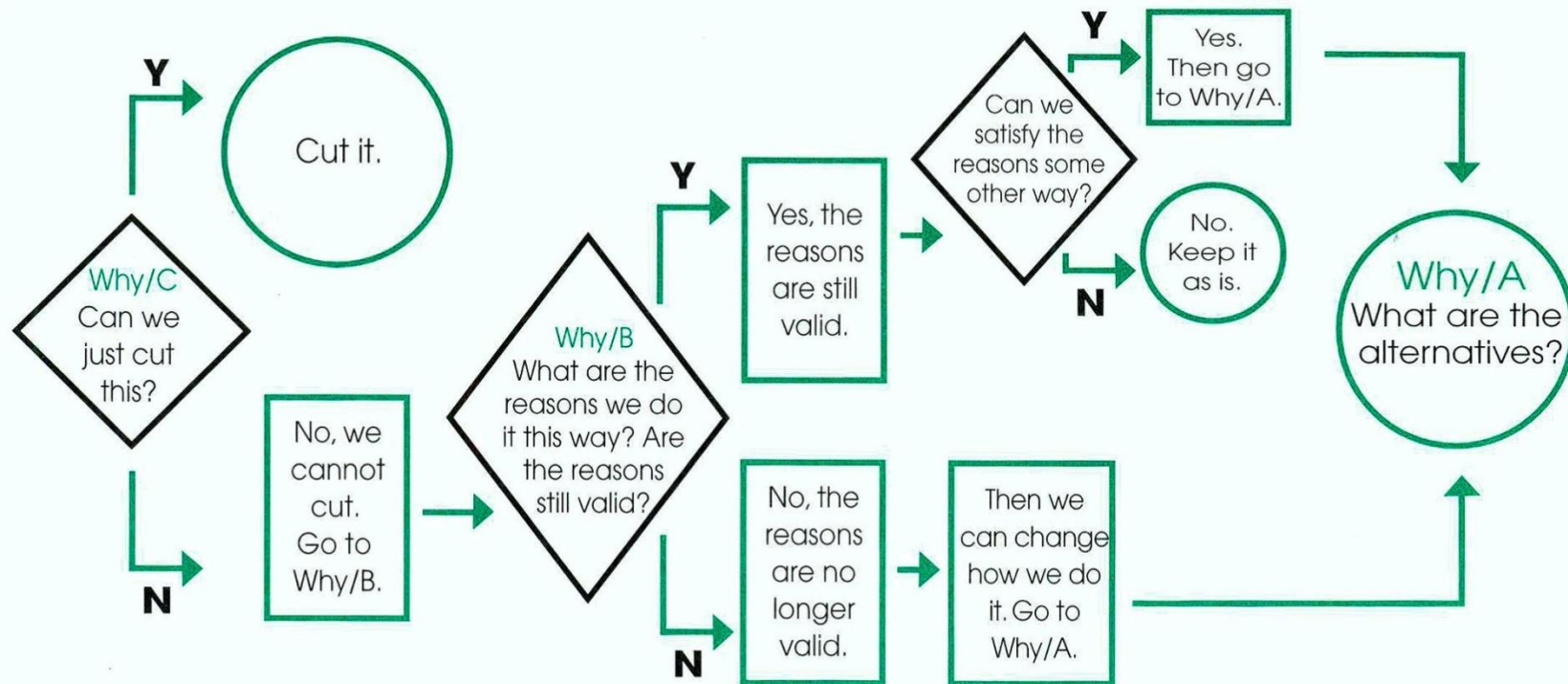
Why/B

Are there valid reasons for it?

Why/A

Are there alternative ways?

Challenge Flowchart



Cut C – “Can it Be Eliminated”

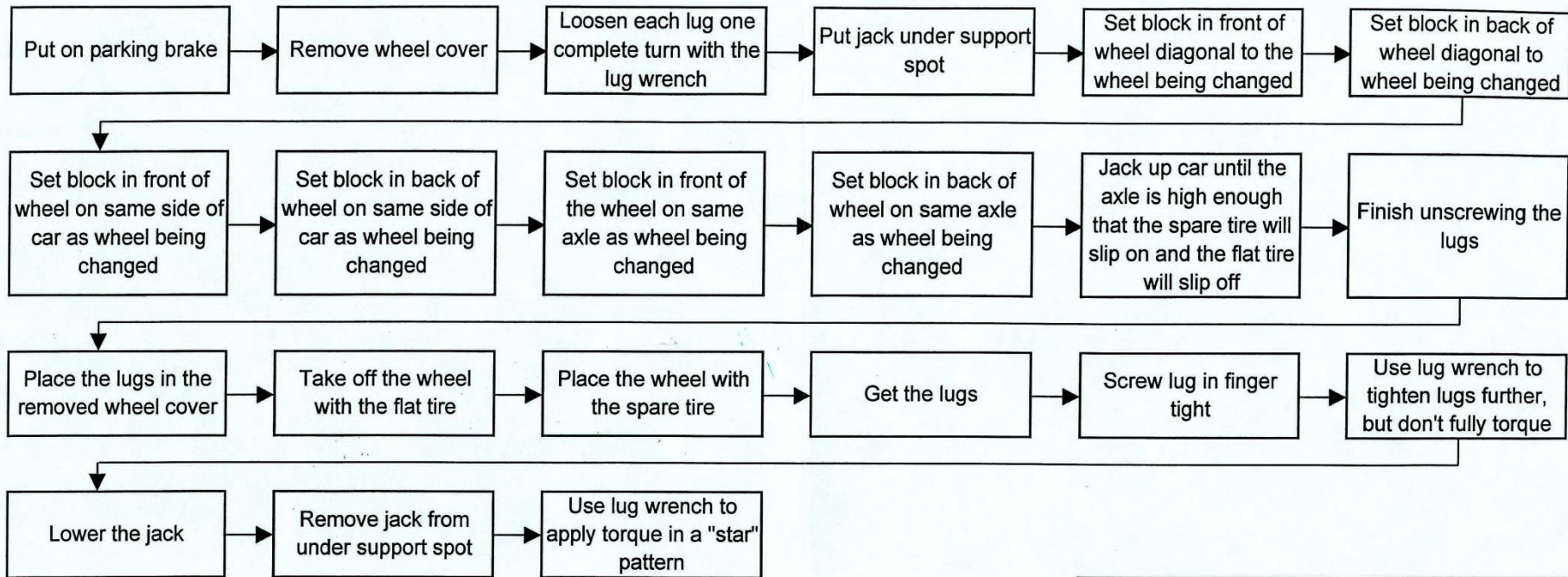
Why/C: Cut

- Can we cut this?
- Can this be dropped without making any adjustments?
- If it can't be removed, go to why B or A.



Cut C Exercise (10 min)

Change a flat tire



TOOLS
jack, lug wrench, wheel cover remover, tire blocks for wheels, spare tire

Review this process step-by-step with everyone in the team

If you find a step that can be eliminated or is redundant place an "X" through it and move to the next step.

Cut B – “Because Why”

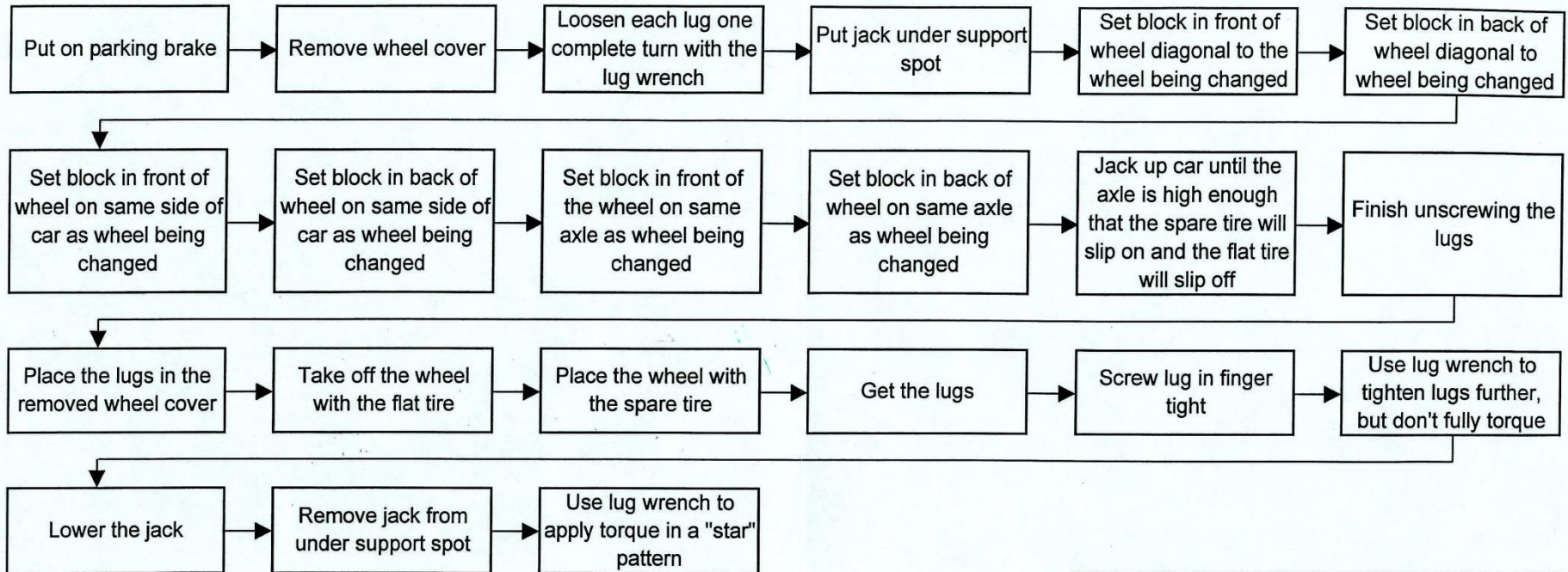
Why/B: Because

- Why do we do something the way that we do?
- Are these reasons still valid?
- Can we satisfy them in another way?
- Can we escape from the reasons?



Cut B Exercise (10 min)

Change a flat tire

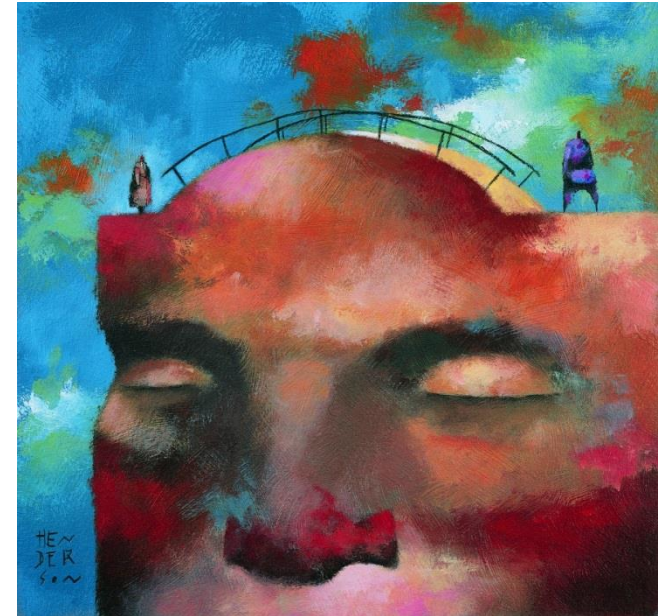


TOOLS
jack, lug wrench, wheel cover remover, tire blocks for wheels, spare tire

Review this process step-by-step with everyone in the team to check for flaws in logic.

If something can be rewritten, moved or restructured do that and move to the next step.

Cut A – Other “Alternatives”

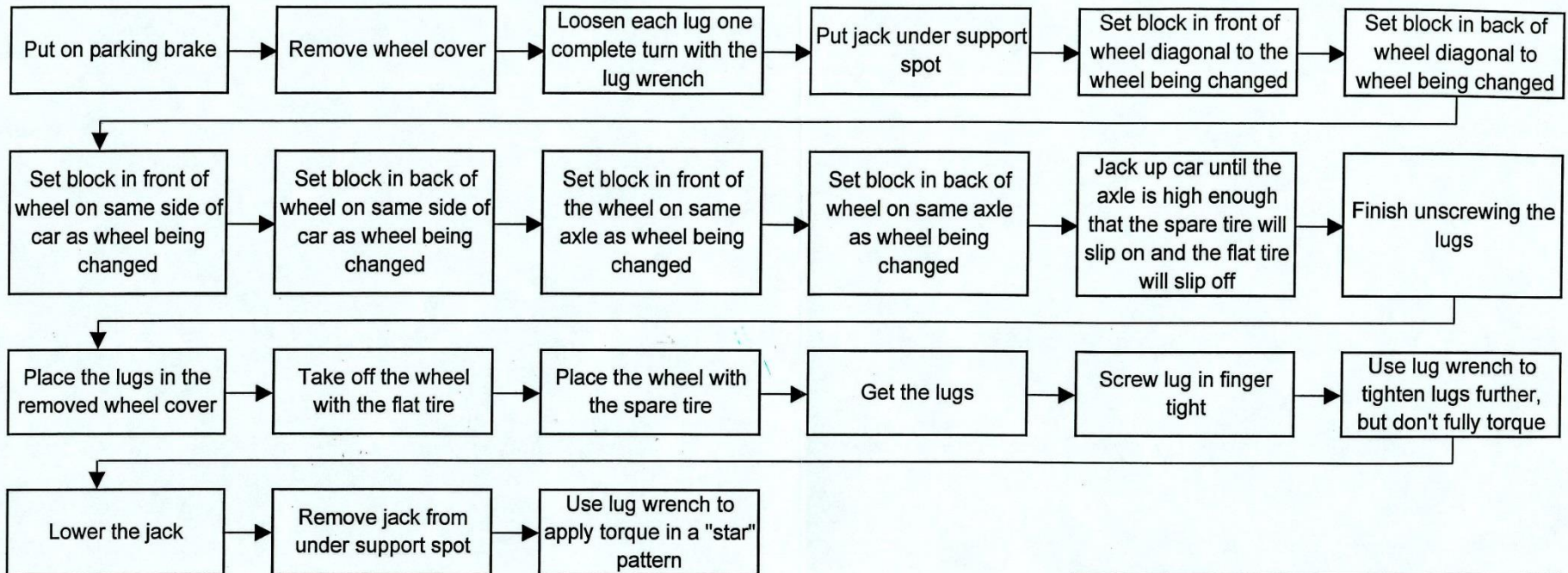


Why/A: Alternatives

- Look at what is (characteristics or thinking).
- Immediately try to find alternatives for each.

Cut A Exercise (10 min)

Change a flat tire



TOOLS
jack, lug wrench, wheel cover remover, tire blocks for wheels, spare tire

Review this process step-by-step with everyone in the team to find new ideas to do in each step.

Place new ideas on a sticky note and place it on the process (capture all new ideas)

Challenge



Application Guidelines

- Use Challenge where improvement is needed
- Focus on any aspect, not just faults
- A helpful tool in change
- Gather the list of “what is” beforehand

Proto-Storming



Proto-Storming

- “**Brainstorming**” combined with “**Rapid Prototyping**”, Similar to a Kaizen event.
- Used by *IDEA*, *DO Global* & *DSC* as part of product development process (many others without knowing it)
- Explore business Issues & concept ideas “**Immediately**” to check for form, fit and function
- Develop tangible prototypes from common items such as duct tape, cardboard, small miscellaneous parts & widgets
- Small passionate teams (4-6 people) working with minimal or no design specification
- Mitigates **Design loops & Risks**

LEAN Lateral Thinking Conclusion

- LEAN - Pursue Value
- PDSA - Iterative Continuous Process Improvement
- LAMDA - Create Knowledge
- 9 Boxes - Understand Space & Time Domains
- Focus - Area and Purpose Thinking
- Creative Hit List - Personal areas of New Thinking
- Challenge Cut C - Cut it out
- Challenge Cut B - Because Why
- Challenge Cut A - New Alternatives
- Proto-Storming - Fail Fast

Final Questions

Are there any Questions..?



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