



Welcome to our Webinar

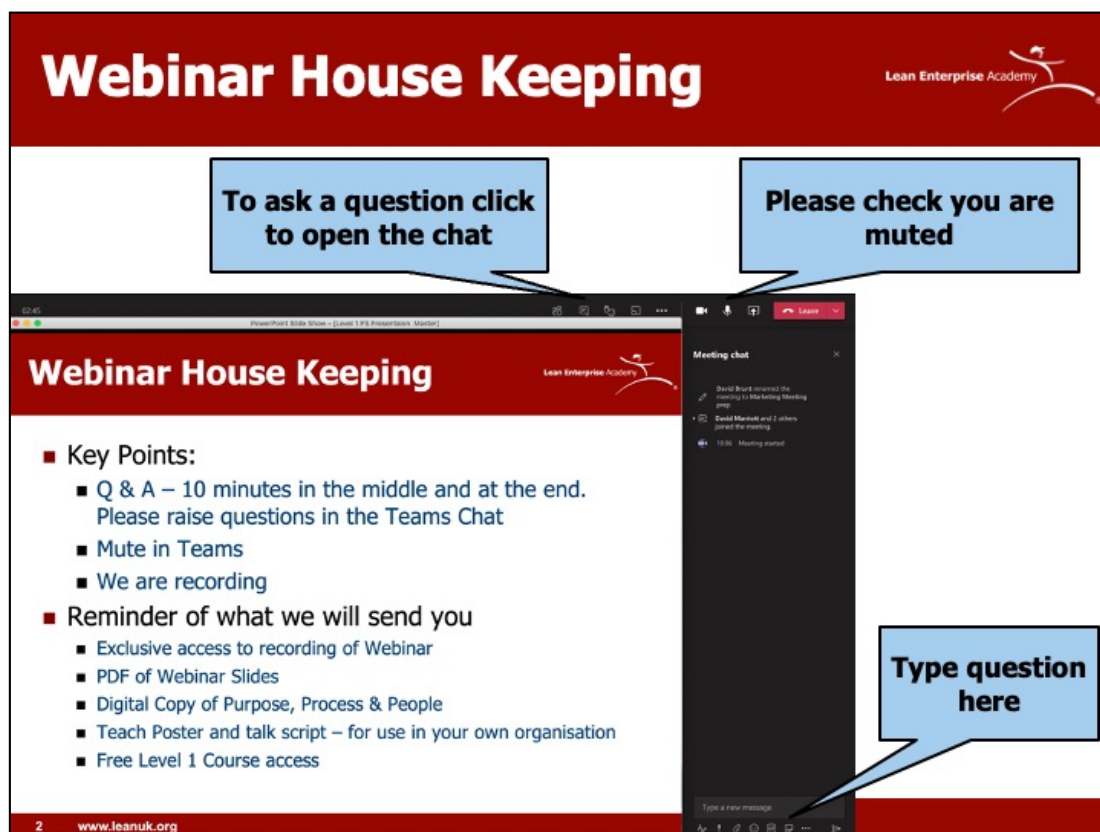
The presentation will start shortly

LEA Webinar

Lean A3 Problem Solving

D.Bruno, D.Marriott, P.Watkins
March 10th 2021

Welcome to our A3 Problem Solving webinar. This is our first webinar of 2021 and we are pleased you are able to join us. My name is Dave Bruno. I manage the activity at the Lean Enterprise Academy, and I am joined by two of our Senior Lean Coaches, Peter Watkins and David Marriott, today.



Before I Handover to David, I just wanted to highlight some housekeeping issues. We will have two sessions for questions. The first will take place after David Marriott has done his session on Purpose, Process and People. The second will be at the end of the webinar. Please raise a question in the chat section of Teams. Click the chat icon to open the sidebar and type your questions at the bottom right hand side of the window.

As a courtesy to everyone on the webinar, please turn your microphone to mute, that way we can all stay focussed on each speaker. We are recording the session. We will edit the content so that only slides and the presentation are in the recording. You will get a recording of the webinar. In addition, a pdf of the slides, a digital copy of the teach poster and free access to the knowledge (level 1) problem solving course we have on the web. We will collate any questions we don't have time to answer and send them as well.

LEA - Purpose & Approach

Our Purpose:

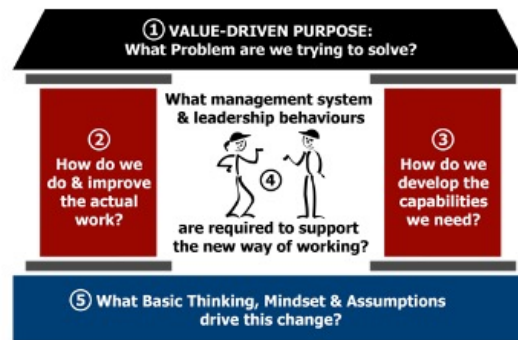
We are a not for profit organisation, established to help customers become self-reliant on their lean journey. Through research, products and services we provide better, faster and cheaper ways to learn and improve.

Our Approach:

SELF RELIANT CUSTOMERS



LEAN TRANSFORMATION FRAMEWORK



Many of you will be aware, but for those that are new to LEA, we were founded in 2003 by Dan Jones – co-author of *The Machine That Changed the World*, *Lean Thinking*, *Lean Solutions* and *The Lean Strategy* as a not-for-profit organisation. Our aim is to help people become self-reliant on their lean journey.

We have products and services that we offer to customers based around 3 key value streams – Learn, Teach & Coach and Share. At the intersection of each of those processes is our “Lean Learning Journey” platform where we are writing down, in a usable form the key knowledge required to learn and implement lean.

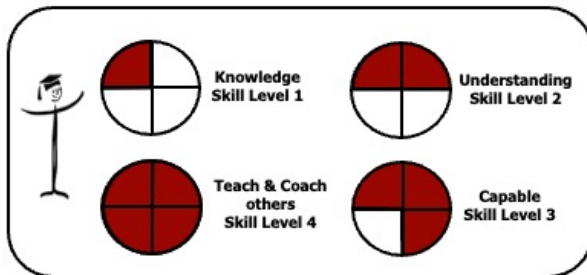
The materials are organised around the Lean Transformation Framework which we both research and develop with partner organisations.

LEA - Learning Lean



"Give a man a fish and you feed him for a day. **Teach** him how to fish and you feed him for a lifetime"
– Lao Tzu

Skill Development – 4 Levels



Online/On Site Support



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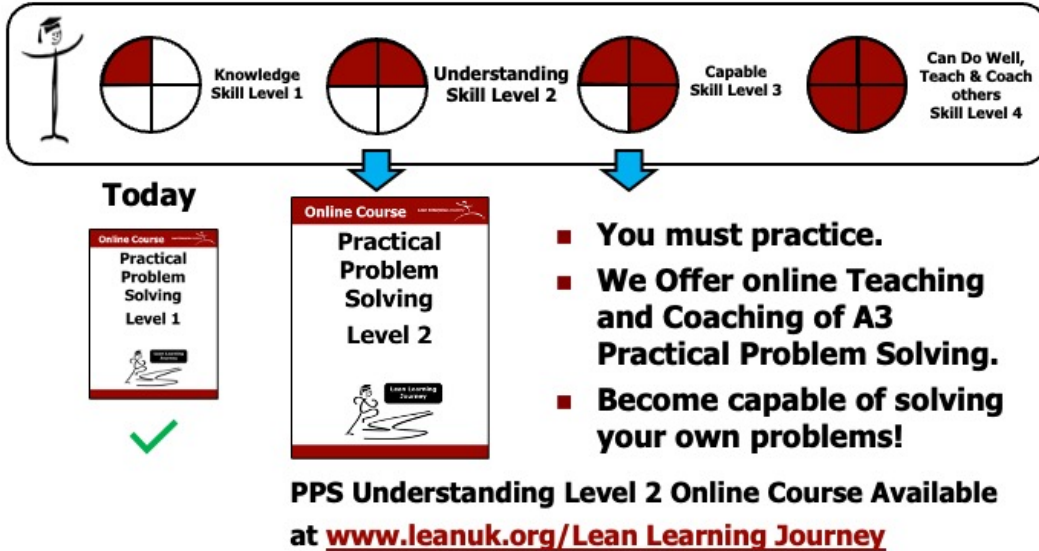
The materials and processes that we develop are based on a fundamental principle – “Give a man a fish and you feed him for a day. Teach him how to fish and you feed him for a lifetime.”

We have done a lot of research to understand how to learn lean most effectively. We know from practical application that skill/capability development is best described as a journey. A guided learning path, progressing from awareness and knowledge of a subject, through understanding, being capable and finally to being able to teach and coach others.

We have always offered onsite support to help people on this progression, but 18 months ago Peter and I started to develop a plan to offer this online. The corona virus pandemic hit us a bit before we were ready, but we had started the process – developing a new website, an online platform in which to develop modules and a process for conducting support remotely. I am sure that as lockdown eases we will go back to what we had originally planned – a combination of coaching remotely at short intervals to cement learning combined with onsite delivery at the gemba.

What is your Lean Journey?

Lean Learning Journey – Skill Levels

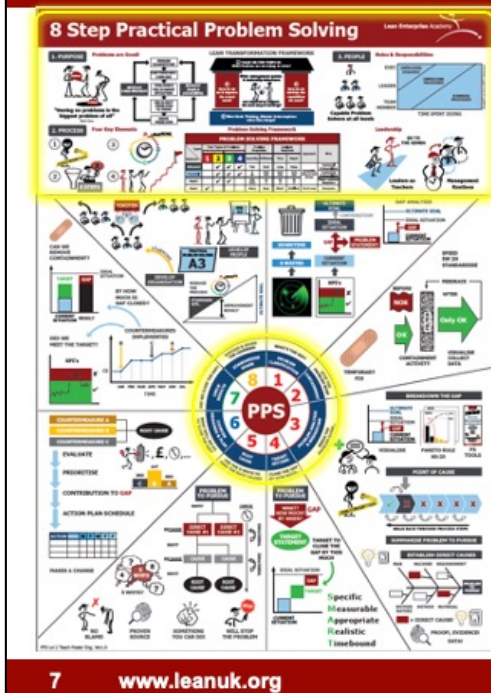


To put today into context, the materials are all about Knowledge – Skill Level 1.

However, you can develop understanding by learning yourself online, using the Practical Problem Solving Level 2 course.

To become capable however – you need to practice. This is best done on real problems, at the workplace. We offer teaching and coaching for this and we offer a process to help you (once capable) to be able to train and teach others in your organisation. This approach mirrors what we know from the way excellent lean companies like Toyota develop capability. It is simple and effective. It uses a Plan-Do-Check-Act methodology at each stage and is far removed from the Lean Competency Systems, belt approach and certifications we see offered by consultancies to “sell” workshops and training days. As one Toyota veteran recently told me “belts” have no place in a good lean organisation, they are for trousers!

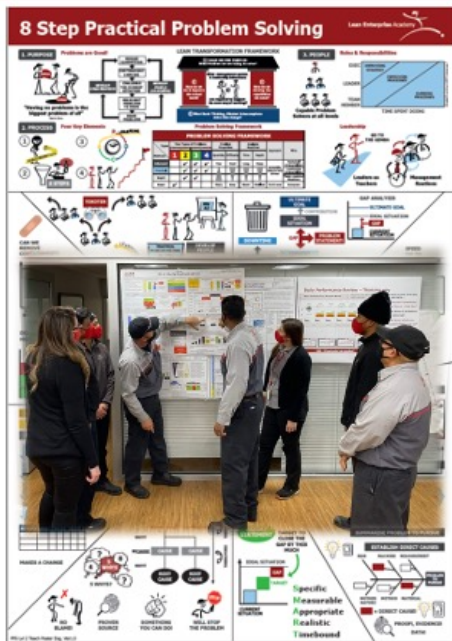
Problem Solving – Agenda



- **Agenda**
- **Teach Poster Concept**
- **Introduction to Problem Solving**
 - **Purpose**
 - **Process**
 - **People**
- **Q & A**
- **Overview of the 8 Steps**
- **PPS A3's**
- **Understanding the 8 Steps – Level 2**
- **Summary/Q & A**

With the Introduction out of the way, let's move onto today's content. David is going to explain the teach poster concept, before providing an introduction to problem solving in terms of purpose, process and people. We will then take questions. Peter will give an overview of the 8 steps of practical problem solving and then hand back to David who will share insights around the problem solving journey using A3s. Peter will discuss how to develop understanding on both your lean journey and the journey you develop for your colleagues before I lead the final discussion and Q & A session. Let me now handover to David Marriott to get us started.

Teach Poster Concept



■ Why do we use a Poster?

- Can be taught by leaders in the workplace or online without the need for a training room.
- Structured in to defined areas making it easier to remember.
- Pictures are remembered easier than words & create more interest and discussion.
- A poster can be put up in your workspace for future reference, not hidden on a pc.

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Thank you David.

Before getting in to the presentation, I'd just like to spend some time on why we use the teach poster concept.

For a sustainable Lean Transformation, we are strong believers in the concept of "Leaders as Teachers".

That is Leaders who take the time to teach and coach their team, on the job to develop their capabilities rather than relying on separate function(s) to do it for them.

As you know, the benefits of doing this are huge in terms of advancing your lean journey better, faster and cheaper, the challenge is however how to provide materials that enable leaders to do that.

After many years of research and experimentation, we have found that this Teach Poster concept works best.

Rather than a 100 page PowerPoint slide deck, we have tried to distil the subject matter down on to one piece of paper – a bit like an A3!

<Auto Animation 41s>

This is much less daunting for the leaders to use and also much more informal than sitting down in a class room looking at a screen.

All the Posters have a similar layout and structure making them easier to follow and remember. And as you can see images/pictures are used over words to stimulate interest and discussion.

A facilitation guide is written for each poster covering the "Important Steps", "Key Points" and "Reasons" for each of the images to assist the Leader when starting out to Teach.

Finally, the Poster can be put up in your workspace for future reference rather than being hidden on a pc.

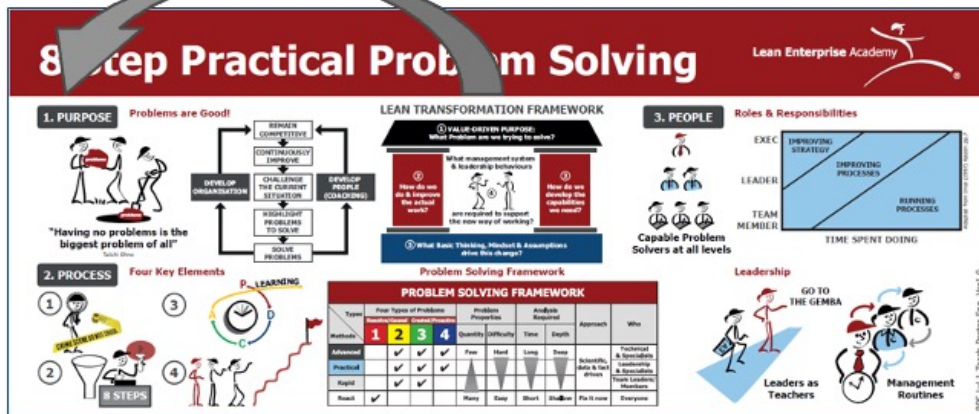
Problem Solving – Introduction

Work through:

1. Purpose
2. Process
3. People

Starting Point:

Lean Transformation Framework



Ok, so we are going to go through the upper portion of the 8 Step Practical Problem Solving Poster.

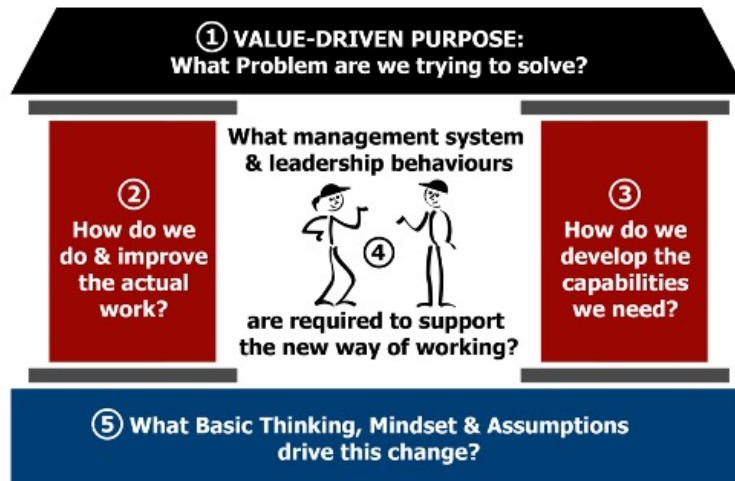
We always start with the learn Transformation Framework and then cover Purpose, Process and People.

Purpose positions the subject and why is it important.

Process the conditions and considerations required to apply it.

And People the roles and responsibilities required to make it happen.

Problem Solving is the #1 Lean Skill!



- Go to www.leanuk.org/what-is-lean/working-with-us to see the full LTF video explanation

We always start with the Lean Transformation Framework, which in essence is our approach or how we do Lean and ask where does this topic fit in.

The framework consist of five dimensions which all need to be considered for a successful Lean transformation.

These dimensions can be asked as a series of questions and starts with Number 1 at the top:

“What is our Value-Driven Purpose and more specifically what Problem are we trying to solve?”

Clearly, you need to be competent problem solvers if we are going to answer the first question!

However it is probably likely that we are going come up against other problems when tackling questions 2 through to 5.

We therefore see Problem Solving and the thinking way as the number one Lean skill and the reason why we decided to use it to launch our Lean Learning Journey platform last year.

If you think about it, a lot of the familiar lean tools we know and love, like 5S, Standard Work, Value Stream Mapping, SMED etc. were all created to try and solve a problem.

It is the number 1 Lean Skill to master.

A full explanation of the Framework can be found on our Website.

1.0 Purpose

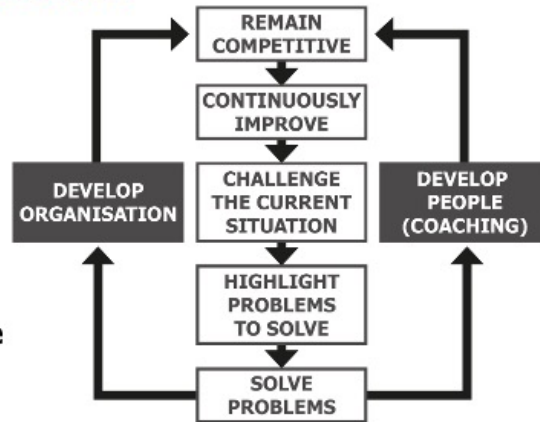
1. PURPOSE

Problems are Good!



"Having no problems is the biggest problem of all"

Taiichi Ohno



Supports People and Business Development

So lets look at Purpose and Why is Problem Solving Important.

Well, firstly we need to accept that Problems are good!

We should see them as golden nuggets of opportunity rather than something to sweep underneath the carpet.

As Taiichi Ohno said, "Having no problems is the biggest problem of all".

We should therefore actively seek out problems and start digging them up for people to tackle.

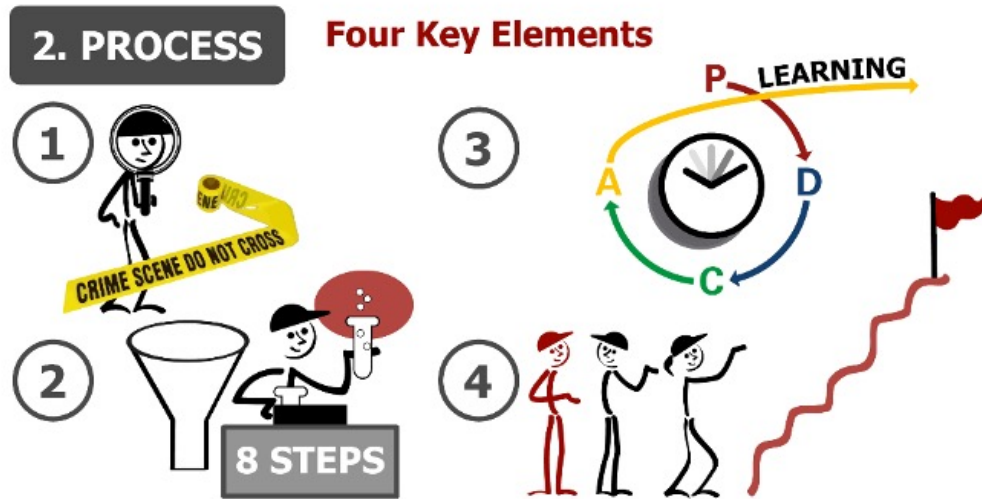
Taking a step back however, and looking at the bigger picture, consider the flowchart on the right.

Clearly as an organisation we want to remain competitive which means highlighting and solving those problems.

But in doing that we have two big benefits and they are to develop the organisation but more importantly develop your people.

And that is why it is so important as it is supporting people and business development at the same time.

2.0 Process



Looking at process next and some considerations around applying it, there are Four key elements with respect to problem solving.

The first is to encourage the "Go and See" approach.

A bit like a Crime Scene Investigator, going to the actual place where the crime took place to see the evidence while it is still fresh and look for clues.

Secondly, it's important to have a scientific method and approach to the problem solving – in this case we have 8 Steps or a Process to follow.

Thirdly is to encourage PDCA thinking to close the loop and most importantly ask "What did you learn?" for next time.

The point of the clock in the middle is to invoke speed, the better and quicker we can do this the faster we learn and the faster we improve.

And finally the last element is to never give up on reaching that Ultimate Goal.

Each problem solved is a step close to that destination and as Leaders we have to recognise that achievement and encourage our people to take the next step.

2.0 Process										
PROBLEM SOLVING FRAMEWORK										
Types	Four Types of Problems				Problem Properties		Analysis Required		Approach	Who
	1	2	3	4	Quantity	Difficulty	Time	Depth		
Advanced	✓	✓	✓	✓	Few	Hard	Long	Deep	Scientific, data & fact driven	Technical & Specialists
Practical	✓	✓	✓	✓	Many	Easy	Short	Shallow	Fix it now	Leadership & Specialists
Rapid	✓	✓	✓	✓	Many	Easy	Short	Shallow	Fix it now	Team Leaders/ Members
React	✓	✓	✓	✓	Many	Easy	Short	Shallow	Fix it now	Everyone

The next consideration in Problem Solving is to explain, as I'm sure you understand, that not one size fits all with respect to the types of problems and the approach to take.

In his book, Art Smalley did a great job of describing Four Types of Problems:

Type 1 - Troubleshooting

Type 2 – Gap from Standard

These are reactive or caused types of problems.

Type 3 – Target Condition

Type 4 – Open-Ended

Where as these are created or proactive types of problems.

What we have tried to show here is are the different methods you can apply to those types of problems.

For example Type 1 is described as Troubleshooting those unexpected events – a flat tyre for example.

Clearly here you just need to React to the problem and fix it now – just change the tyre.

In terms of problem properties, many of these types of problems happen and are relatively easy to fix.

Analysis time is short and really you don't need to think about it too much, just fix it now and these will happen to everyone in the organisation.

The classic Toyota analogy here would be reacting to Andon cord pulls on the assembly line.

Moving up to Rapid problem solving, you can see that this approach tends to work well with for those Type 2 and 3 "Gap from Standard" and "Target Condition" problems.

Typically a four step approach this tends to be for those data driven type issues and used by those front line leaders of teams and their members.

By their nature they are frequent, not too complicated or time consuming but offers a structured approach to get to root cause countermeasures and prepares them well for the thinking behind Practical Problem

Solving.

Practical Problem Solving is what we call the A3, 8 Step approach. It is also suitable for Type 2 and 3 problems but for those more challenging business issues and in some cases those difficult Type 4 Open Ended problems.

These problems are tough to solve and therefore take time and a deeper level of thinking than rapid, but often offer greater rewards and returns.

The trick however is not just filling out and completing the A3 template, but more about the logic and thinking way of solving the problem.

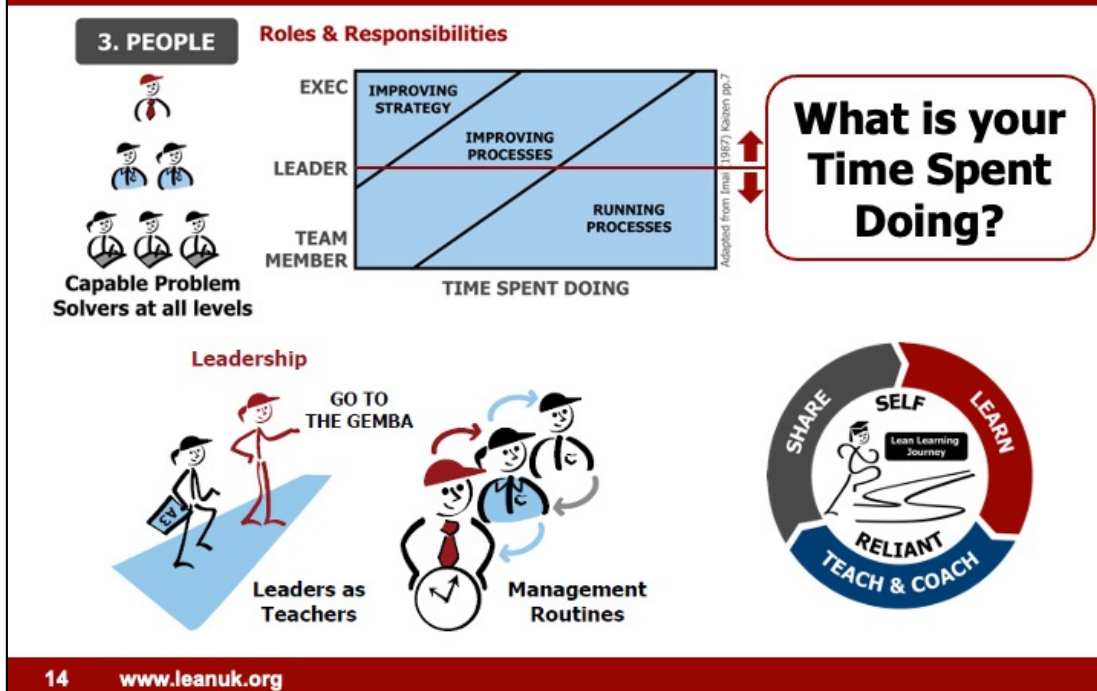
You probably get the thinking now with Advanced methods and problems in that there are not so many of them around, they are difficult and take time to solve with deep analysis and investigation. There are probably only a few in your organisation that are capable of tackling these issues which often result in a new product or way of doing things – a step change.

The point of this framework is to really get you to think about the Types of Problems people face and the best method to approach them considering their level in the organisation.

Why do we focus on Practical, well as a leader, if you can master that you will not only improve the business but also be able to teach and coach others in both Practical and Rapid.

This will probably equip you for tackling over 90% of the problems in your organisation.

3.0 People



Moving on to People, lets think about some roles and responsibilities in the organisation and the connection to problem solving.

Starting with the simple hierarchy on the left, what we want is for everyone in the organisation to be Capable problem solvers

An army of them at all levels right from Team Member level through to the Top Execs.

Of course as we have just discussed they are not all solving the same problems, but applying the right approach to those occurring at the their level.

If we consider the model on the right, lets say that "Improving Processes" is tackling problems.

This tries to show proportionally how much time we should spend doing those activities based upon on our level in the organisation.

At Team member level for example, they should spend most of their time doing the value adding work or running processes, but also have some time made available to improve the process and solve some problems.

At the Exec level, we really want those people spending most of their time thinking about Strategy and where the organisation is going, improving what we currently do and a small amount of their time running the business day to day.

The question to ask is where do you see Leaders in your business spending their time..

Are they too busy firefighting, running the business day to day with no time for improvement? Why is that?

Well if the whole organisation isn't aligned and mobilised to solve problems at their level then your Leaders are always going to be too busy to improve.

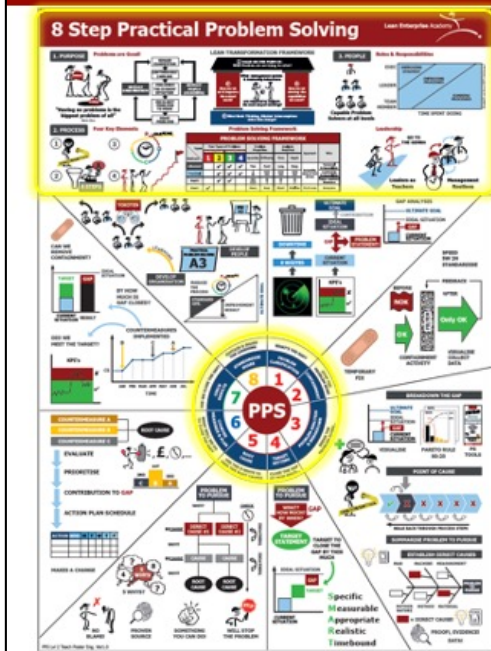
That's why Leaders as Teachers is such a key concept to embrace to allow the organisation to grow through developing its people in to an army of problem solvers.

Management Routines or Leader Standard Work is a key mechanism to facilitate the time to

do this and recognise, coach and feedback to people on their problem solving capability development.

This is the key to becoming self reliant on your Lean Learning Journey.

Problem Solving – Agenda



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Ok, So we have covered the Teach Poster Concept and the Introduction to Problem Solving covering Purpose, Process and People.

Time for some questions, over to you Dave.

Questions ?

What Questions Do You Have?

8 Step Practical Problem Solving

Lean Enterprise Academy

1. PURPOSE

Problems are Good!

"Having no problems is the biggest problem of all!"

LEAN TRANSFORMATION FRAMEWORK

VALUE-DRIVEN PURPOSE: What problems are we trying to solve?

How do we do it & improve the current work?

How do we develop the capability we need?

What Risk Thinking, Mindset & Assumptions drive this change?

3. PEOPLE

Roles & Responsibilities

Capable Problem Solvers at all levels

2. PROCESS

Four Key Elements

8 STEPS

P. LEARNING

Problem Solving Framework

Method	Four Types of Problems				Problem Properties		Analysis Required		Approach	Who
	1	2	3	4	Quantity	Difficulty	Time	Depth		
Advanced	✓	✓	✓	✓	Few	Hard	Long	Deep	Technical & Specialist	Leadership & Specialists
Practical	✓	✓	✓	✓	Many	Easy	Short	Shallow	Schedule, Data & Test driven	Team Leaders
Simple	✓	✓	✓	✓	Many	Easy	Short	Shallow	Plan & Test	Everyone

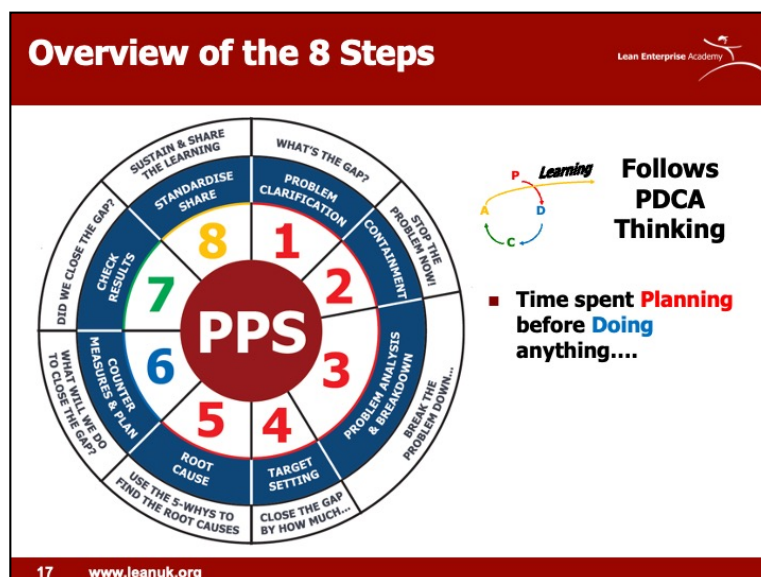
Leadership

GO TO THE GEMBA

Leaders as Teachers

Management Routines

PSS (v1.1) 8step Poster (Eng) Ver 1.0



Thanks Dave

Did you know that 60% of Hiring Managers can't find candidates with the right problem solving skills ! – so we definitely need to get better at learning Problem Solving !

So in this section will give a high level overview of the thinking way behind each step of the Practical Problem Solving Method , which is based on Plan Do Check Act and hopefully demystify it a bit for you!

Toyota has situationally evolved and adapted their practical problem solving method over many years to match the maturity and the needs of their organisation.

There latest version is called Toyota Business Practice or TBP

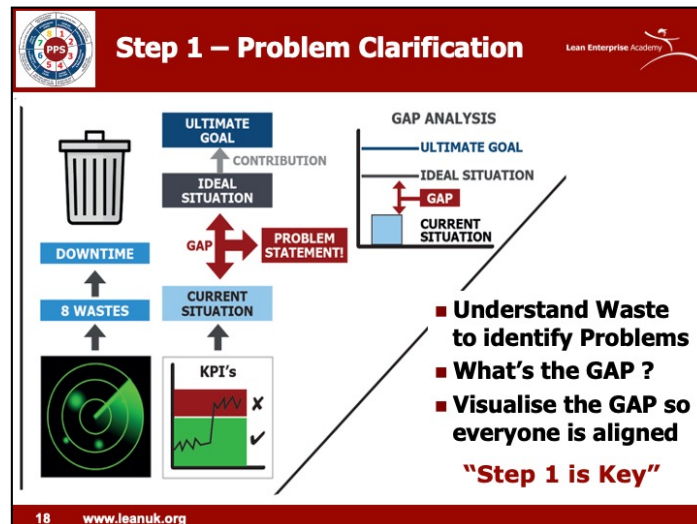
So we shouldn't just blindly copy them with no thought to application of it into different organisations who have less maturity of understanding

Our adapted version called Practical Problem Solving is more useful situationally for the majority of people and organisations outside Toyota to apply the correct thinking way.

This includes the need for understanding how to contain a problem, as was originally focused on by Toyota as part of their method.

Practical problem solving is based on PDCA and as you can see from the step numbers coloured in red, most of the time is spent in Planning before Doing anything... or think before you act!

Using the PPS teach poster visuals we will do a brief overview of the steps to show the more of the thinking behind them



Step 1 is called "Problem Clarification" this is where we ask the question "What's the GAP"

This starts with understanding the problems are coming on to your RADAR –

Understanding & Identifying the 8 wastes through observation can help you uncover the "problems with the work" in your organisation

Step 1 is key as it clarifies the problem you are trying to solve in simple, numeric terms

The problem should be stated as a GAP in relation to where you are today – the Current situation - to where you want to be next - the Ideal Situation,

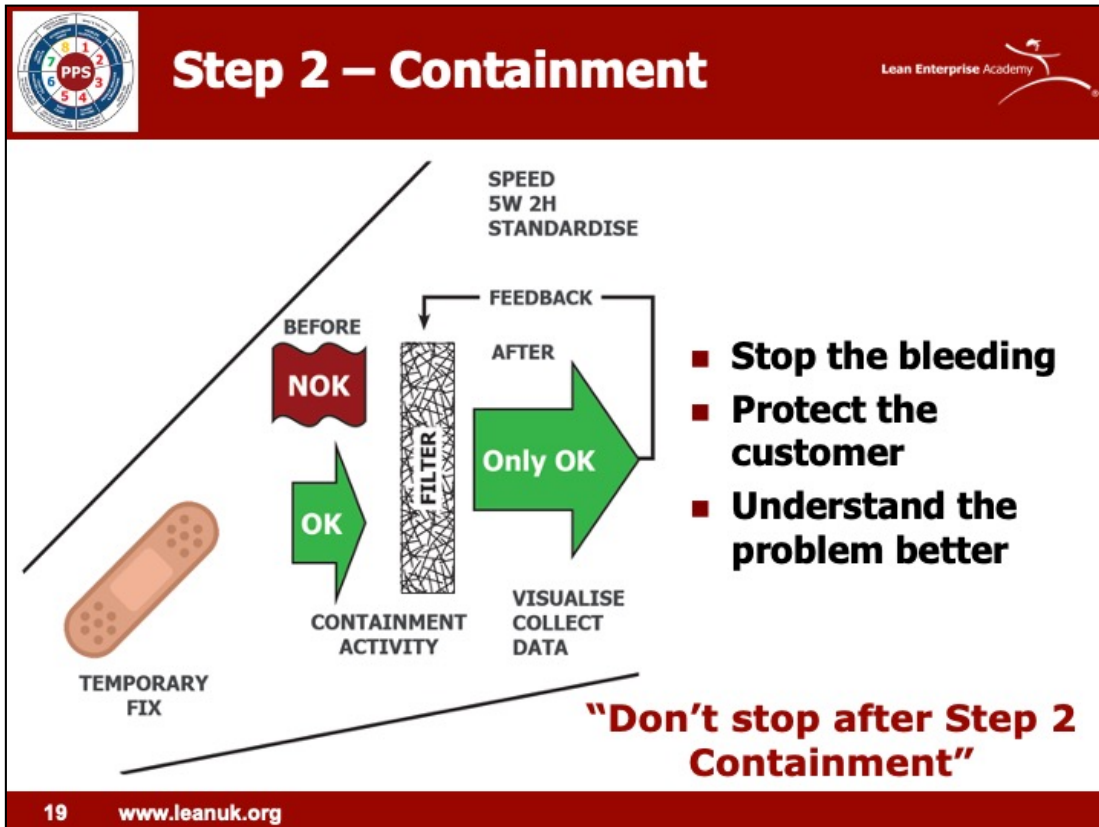
we should also think about how that contributes to the longer term goals and purpose of an organisation – the Ultimate goal

Remember as Dave explained using the problem solving framework there are two main types of GAP's :-

Caused Gaps – to get back to current standard

Or created GAP's – to improve from the current standard

Without a clear GAP a problem might just be perception or opinion, it also creates alignment and stops us going in the wrong direction




Step 2 is Containment - this is where we ask if can stop the problem now?

Think of step 2 as like a Band aid / Plaster, if focuses on stopping the bleeding and protects customer , which will then buy you time to solve problem properly by following the rest of the steps


Stopping the problem “flowing out” immediately to an internal or external customer will relieve pressure on leadership not to jump to solutions. It also help you collect data and understand the problem better

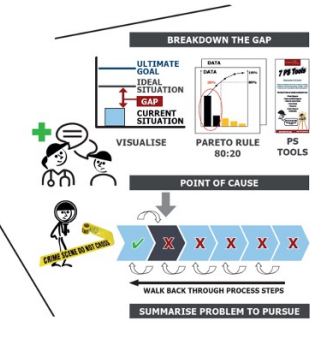
Warning – When dealing with problems a lot of organisations stop after step 2 containment !

– this usually builds in waste & cost into your processes and even worse the problem could happen again as you didn't understand the causes and end up in a fire fighting loops



Step 3 – Problem Analysis & Breakdown





- Start with GAP from step 1
- Breakdown the large vague problem with data
- Prioritise the biggest contributing causes
- Go Study for yourself
- Problem to Pursue - What, When, Where,

"Define the Problem to Pursue"

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Step 3 is Very Important Step as it Breaks down the GAP from Step 1 into to something you can tackle – but it takes time to do.

Think of step 3 in comparison to seeing a Doctor when you are not well . The doctor would never just say here is a prescription this will fix your problem.

The doctor would begin by asking you a series of questions to break your problem down ,i.e where is your pain? how long does last ? what does it feel like?

and then may investigate further with tests or xrays if needed to understand what’s really going on

The Use of Data is key in order to break down the GAP and understand what is happening through having a Inch wide – mile deep approach , but ensure you use facts & data so you don’t jump to solutions

There are 7 Problem Solving Tools to aid your data analysis and the use of Pareto charts will help you prioritise the biggest contributors to the GAP.


Visualisation of the data is KEY as it ensures you focuses on the right issues with the BIGGEST Impact / contribution and creates alignment around understanding the problem

Next find the Point of Cause to understand where the problem happens.


Ensure you go see and study for yourself –This is done by walking back through the process steps to investigate and talk to the people involved

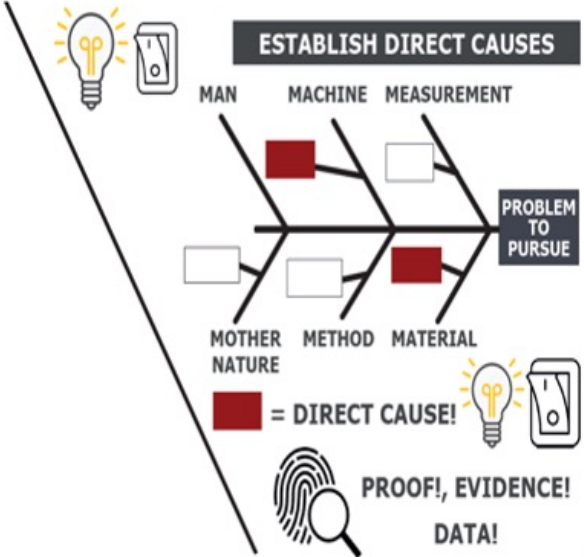
Using the breakdown analysis data & the Point of Cause, you can then define the "Problem to Pursue" into a summary statement (what, where when), so everyone is clear about what problem you are going to tackle first

This is the problem you will try to solve, NOT the large vague GAP in step 1. It should be the Contribution to closing the GAP!



Step 3 – Problem Analysis & Breakdown





- **Establish Direct Causes of Problem to Pursue**
- **Can use Fishbone diagram as brainstorm framework**
- **Must Prove with Data**

"Prove Cause & Effect"

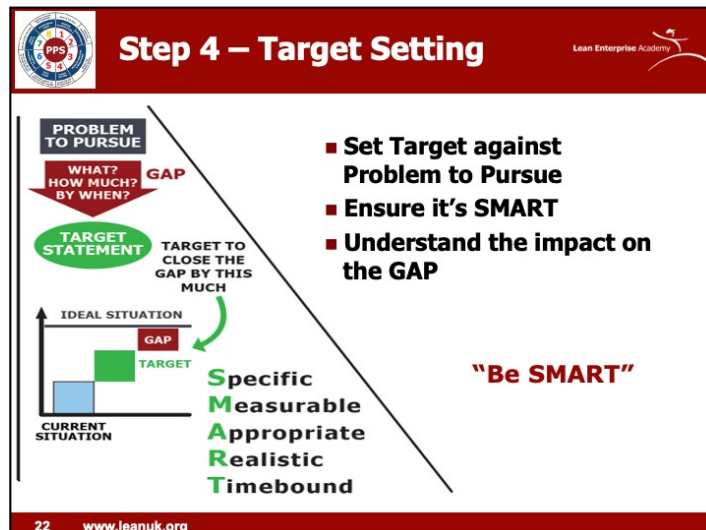
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Next we need to establish Direct Causes of the "problem to pursue", this should be proven by data or experiment through go see and study

Its like a light switch – Turn the cause off, the Effect stops...,every effect has a cause – this is what you must prove through data or experiment

Use data to establish direct causes or use an Ishikawa (Fishbone) diagram as a framework to structure potential causes through Brainstorming.

The Direct Causes should be clearly summarised and proven with data, as these are what you need to prevent from recurring and will take to step 5 to analyse their root causes - why they are happening



Step 4 is Target Setting where you determine how much you are going to Close the GAP by

-A Target and measure should be is set against the "problem to pursue", you will need to consider the impact on GAP by removing direct causes from step 3.

Visualising the evolution of your target and timing to show how much, by when is also key in managing expectations

Ensure your Target meets the SMART criteria !

Specific

Measurable

Appropriate

Realistic

Timebound

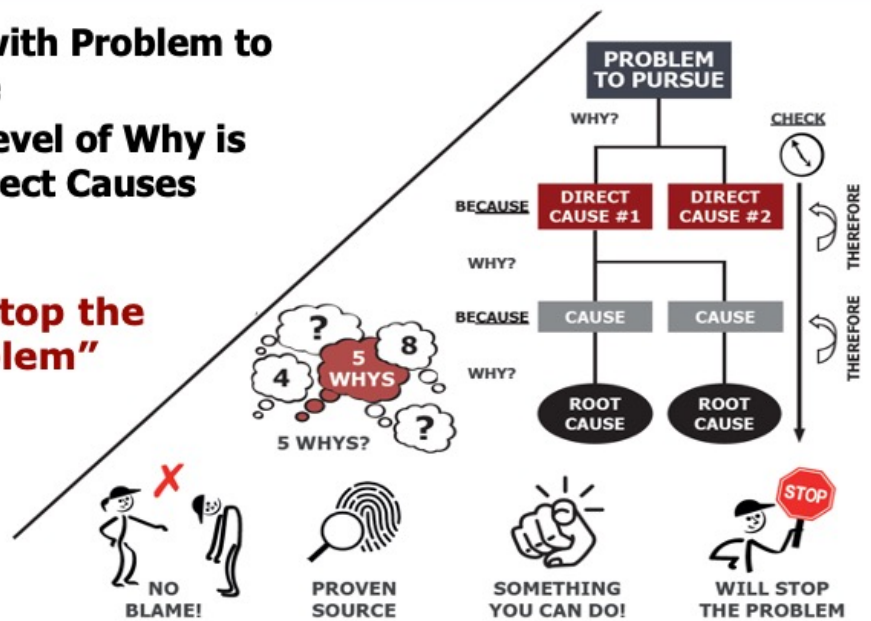
To close the full GAP in stated Step 1, you may need to repeat process a few times



Step 5 - Root Cause

- Start with Problem to Pursue
- First Level of Why is the Direct Causes

"Will Stop the Problem"



Step 5 Focuses on finding the Root Cause of your problem using the 5 why's – probably one of the most difficult steps to do correctly

This is done by starting with the Problem to Pursue and then using the direct causes found in step 3 as the first level of your 5 why's analysis. By asking why you will drill down to root causes , it might be more or less than 5 whys.

Each why might give multiple answers , you will need to capture them all and use data and facts at each stage to understand a proven pathway to root causes


You can then check your thinking logic by going up back up the path and asking therefore

Make sure you root causes


don't blame individuals

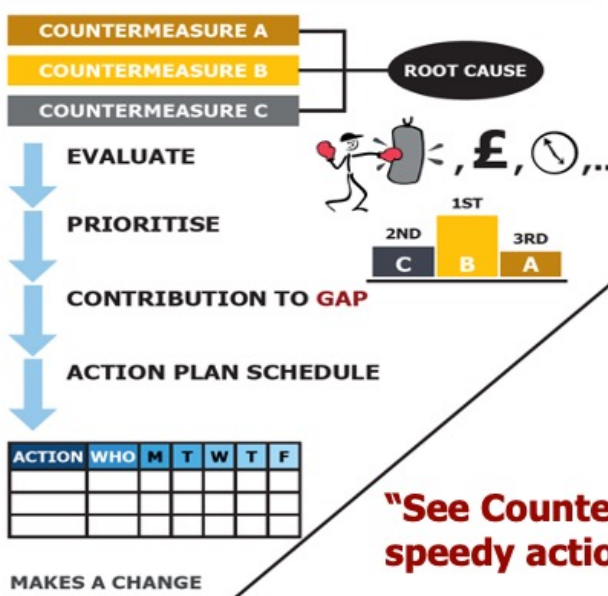
is something you can do –i.e its in your or the organisations control

And if addressed will stop the problem from happening again !



Step 6 – Countermeasures & Plan





- Countermeasures aligned to specific to root causes
- Alternative Ideas
- Evaluate & prioritise
- Make a change
- PDCA process for each countermeasure

"See Countermeasures through" with speedy action together as a team

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Step 6 is Countermeasures & Plan and focuses on you will do to close the GAP
 The starting point for developing countermeasures is the root causes from the analysis made using the first 5 Steps .

Now you can develop specific actions to address the specific root causes (rather than the large vague gap from step 1). – this is why people fail to solve a problem if they jump to solutions

You should have more than one countermeasure idea, think of at least three alternatives

The countermeasure ideas should be evaluated based upon some kind of relevant criteria e.g Cost, Leadtime, risk.

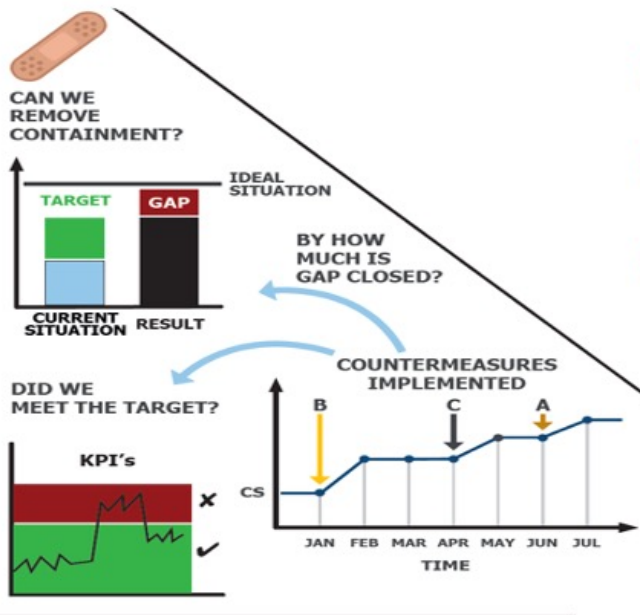
The countermeasures should be then prioritisation based on the evaluation and by their contribution on how much will it help to close the gap by

A countermeasure should make a change by doing something different, they should be planned & implemented quickly through PDCA to ensure they are seen through to conclusion and their impact evaluated

Team Work and the right behaviours is Key to seeing Countermeasures through quickly



Step 7 – Check Results



- Did we meet the Target?
- By how did we close the GAP?
- What else do we need to do?

“Can we remove Containment?”

In Step 7 we check the Results of countermeasures by asking did we close the Gap?

Ongoing measurement enables understanding of impact of your countermeasures that address the root causes of the problem to pursue You should use the measures identified in step 4 Target Setting and summarise the results data to show conclusions and key learnings


For step 7 we should ask:-

Did we meet the Target?


By how much did we close the Gap?

And What else do we need to do?

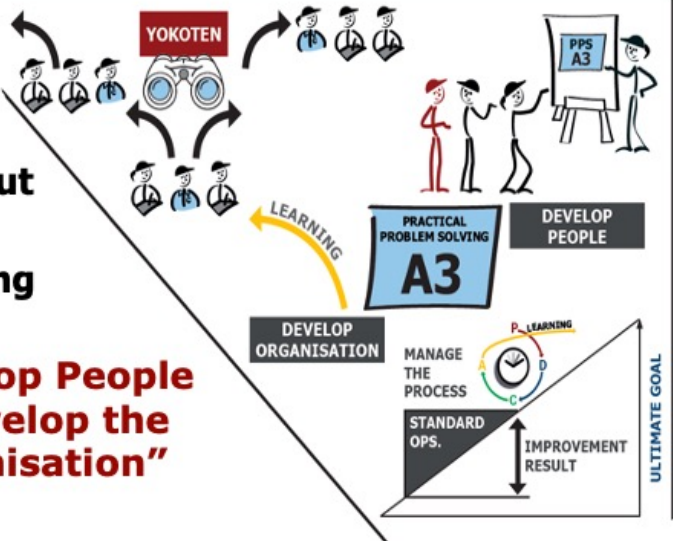
It's also very important to check if you can remove the containment now that was put in place from step 2- so we don't build waste into to the work



Step 8 – Standardise & Share



- **Update Standards to sustain the results**
- **Yokoten - Share out the Learning**
- **Summarise thinking using an A3**




“Develop People & Develop the Organisation”

More Detailed PPS Video Overview Available at www.leanuk.org/Lean Learning

Online Course

**Overview
8 Step
PPS
Video**



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The last Step focuses on Standardising the changes made & Share the learning from the PPS activity
 This involves creating or updating work standards to use as a new base line for the work and to do further Improvement.

Periodic process checks should also be used to help maintain and review for problems with new way of working

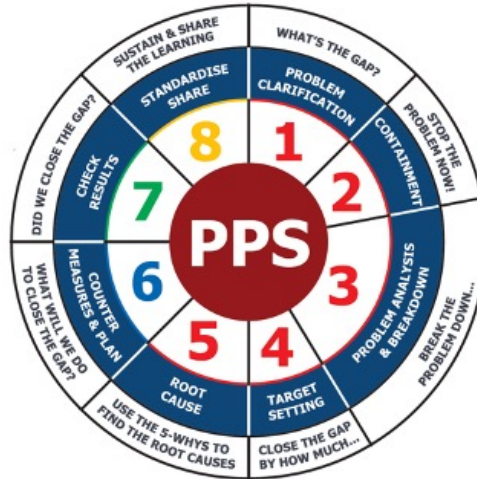
Create a plan using 5w's & 2Hs to think where else can we use this learning to benefit the organisation both internally and externally .

Toyota is very good at step 8 – team members take personal responsibility to share out the learning to the organisation and also use it to develop peoples thinking way about improvement

This was a very brief overview - if you want some further detail on the 8 steps there is a also 30 min introductory PPS Video overview available on our website for you to review at your own convenience. But our Skill level 2 course gives you a much more detailed understanding of the thinking behind each step.

Now I will hand back over to Dave to talk about how you can visualise and evaluate your A3 problem solving story

What Questions Do You Have?



- PPS A3 is how we summarise the problem solving journey.
- All 8 Steps are completed.

Online Course

Practical Problem Solving Level 2

PPS Title

Vehicle Operating Costs Reduction

Step 3 PROBLEM ANALYSIS & BREAKDOWN

“If you can’t explain it simply enough, then you don’t understand it well enough.” – Albert Einstein.

And really that is the thinking behind A3’s – being able to simply explain your thinking on one piece of paper.

As you know, this is a real skill and takes time to do.

In our Level 2 - Understanding Course we show you how to complete a PPS A3 using a Case Study. NEXT SLIDE

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The Case Study provides a fictional sequence of events for a Logistics Leader challenged with the problem of reducing his Vehicle Operating Costs.

Each Step is broken down as per the process Peter has just explained.

Part of it is in the form of dialogue with his Coach supplemented by data and information gained as he proceeds with his investigation.

The content is then translated in to each section of the A3.

You get the chance to do it yourself and then compare with how a solution might look.

Emphasis is on visualisation and being able summarise the key points to build the case and solve the problem.

PPS A3 – What Good Looks Like

- PPS A3 What the Story Should Look like .
- Visual guidance on creating an A3 PPS Story.

The image shows a detailed A3 PPS Story template for Step 3: PROBLEM ANALYSIS & BREAKDOWN. It includes a title bar, a table for tracking progress, and a main content area with various diagrams and text boxes. The diagrams include a bar chart for 'Breakdown the Current Situation or Gap', a Pareto chart for 'Breakdown key points', a process flow diagram for 'Point of Cause (PoC)', a fishbone diagram for 'Establish the Direct Causes', and a bar chart for 'Summarize the Direct Cause(s)'. Text boxes provide instructions and key points for each diagram, such as 'Use data and facts to determine: What is the problem you are going to tackle?' and 'Walk back through the process steps'. The template is titled 'PPS A3 - What the Story Should Look Like' and is part of an 'Online Course' titled 'Practical Problem Solving Level 2'.

The case Study is all well and good and gives you some Understanding of applying the 8 Steps to an actual problem and creating a PPS A3.

However, the challenge comes when people start to tackle your own problem. This is when the "Rubber hits the road" shall we say but often this can be quite a daunting prospect.

All logic can go out of the window and it can be easier to start jumping to conclusions rather than following the 8 step process.

To try and combat this therefore, we have also created a guide to describe what a good PPS A3 should look like.

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Again each Step is broken down covering all of the key points from the Teach Poster and what you should expect to see in a good A3.

Step 3 for example takes you through breaking the problem down using the 7 Problem Solving Tools.

Making sure that you have adequately summarised the problem to pursue describing the what, the where and the when in to a simple statement.

Reminders about finding the direct causes which switch on and off the problem to pursue and how they become the first why in your five why analysis.

From our experience and feedback we have found this to be a very useful aide memoir.

PPS A3 – Evaluation Method

- Evaluation Method for PPS A3's.
- Learn how to Teach & Coach PPS & A3's with Us!

The screenshot shows the 'Practical Problem Solving' online course interface. The main content is a table titled '1.0 Problem Clarification' with three columns: 'Expected Content', 'Evaluation Levels', and 'Coaching Questions'. To the left of the table is a diagram illustrating the relationship between 'ULTIMATE GOAL', 'IDEAL SITUATION', 'GAP', 'PROBLEM STATEMENT', and 'CURRENT SITUATION'. The 'Expected Content' column lists: '- Background / context / why solve this?', '- Clarify the Ultimate Goal, Ideal and Current Situation', '- Clear Problem Statement', and '- Gap clearly visualised'. The 'Evaluation Levels' column lists five criteria from 1 to 5. The 'Coaching Questions' column lists 11 questions (a to k) designed to guide the learner through the problem-solving process.

Expected Content	Evaluation Levels	Coaching Questions
- Background / context / why solve this? - Clarify the Ultimate Goal, Ideal and Current Situation - Clear Problem Statement - Gap clearly visualised 	1 The Problem is not clearly stated or clarified.	a. Describe the problem to me in your own words?
	2 Although the problem is stated it is not clear why it is a problem or why they are tackling it.	b. What is the impact of this problem on your area or the business?
	3 Background, gap analysis and problem statement (UG,IS,CS) are complete & it is easy to understand what the problem is and why selected.	c. What will be the benefit if we solve this problem?
	4 In addition, broader views are stated such as impact on the business, organisational strategy.	d. Where would you like to be, in the future say, for this KPI?
	5 Also, the content is simple, clear and easy to share with no explanation.	e. Where should we be for this KPI?
		f. Where are we currently for this KPI?
		g. So, what's the difference between the Ideal and Current situation?
		h. How does this problem affect other Departments/Customers?
		i. What would happen if we did nothing?
		j. How did you decide or select this problem?
		k. Where does the Ultimate Goal come from?

But that's only part of the story, the last piece of the A3 jigsaw puzzle is being able to evaluate whether someone has met the criteria of following the 8 Step Process, completing the A3 to and good level and solving the problem!

To address this we have developed an A3 Evaluation Method.

It covers all of the 8 Steps and also and 9th criteria for the A3 overall.

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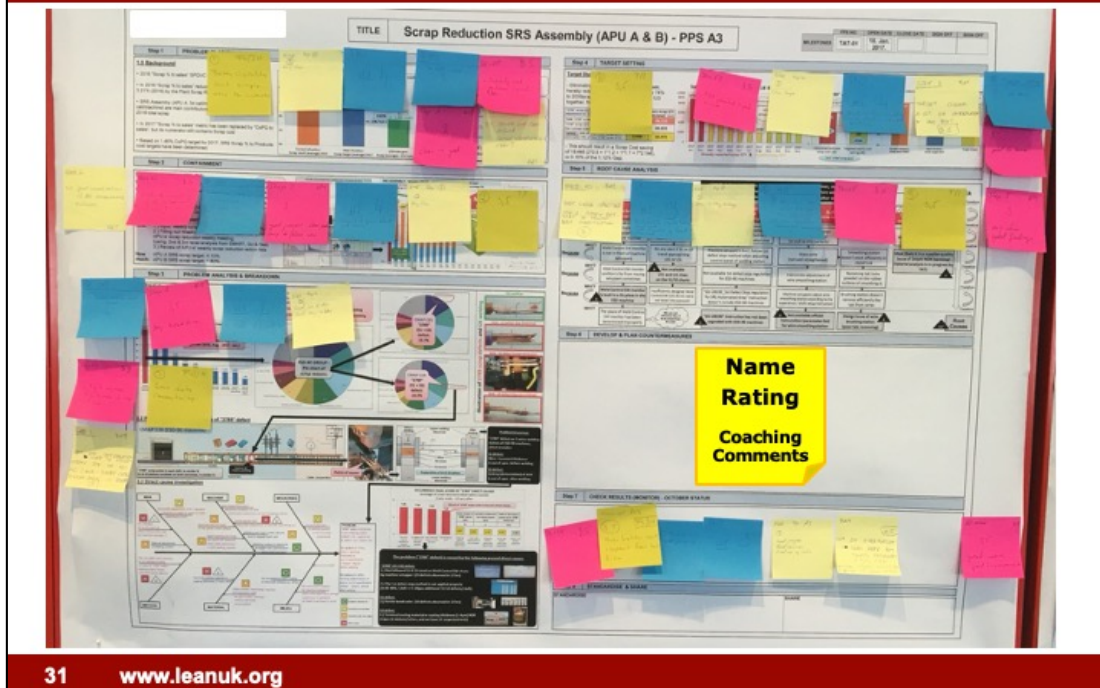
Each Step is taken and again broken down in to three criteria:

The Expected Content - From the Poster

An Evaluation Level – Which is a score out of 5

And Coaching Questions – these are probably the most important part as they offer the Leader open style questions to encourage the right thinking for each Step and steer the team member in the right direction to achieve the desired Evaluation Level.

PPS A3 – Evaluation Onsite



How does the Evaluation Process work?

For Onsite face to face situations, it is a relatively low tech high involvement activity.

As you can see, the PPS is printed A0 size and presented back to the team members for review and discussion.

The team members are encouraged to ask Coaching Questions the using the Evaluation Criteria as a guide.

The purpose is to get them to develop their coaching skills whilst developing the PPS owners thinking on the problem.

At the end, a sticky note is used to record the rating and most importantly the improvement or recognition points for each Step.

Their name is added so that the PPS owner can go back and clarify any points later on when improving their A3.

PPS A3 – Evaluation Online

Delegates #	PPS A3 Coaching Session Ratings and Progress Summary																																																	
	Review Sessions				#1								#2								#3								#4								#5													
	Dates				17/12/19								19/01/20								18/02/20								24/03/20								20/04/20													
	Delegate Name		PPS Ratings		PPS STEPS				PPS STEPS				PPS STEPS				PPS STEPS				PPS STEPS				PPS STEPS				PPS STEPS																					
#1	David Marriott		Plan	1.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0					
	Vehicle Operating Costs		Actual	2.0	2.4	2.7	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9

Note: Target is to achieve at least an average rating of 3.0 or above to demonstrate capability in the application of the PPS A3 process to solve a problem. In Reviews #1, #2 and #3 the greyed out Steps are not expected to be evaluated. The A3 Document must be rated in each Review.

PPS A3 - Coaching Sessions Feedback and Ratings						
Review Session #1	Coach Names		David Brent		Peter Watkins	
	PPS Step	Average	Rank	Coaching Comments	Rank	Coaching Comments
	1	2.8	2	Improvement in quality, reduction in cycle time and reduced scrap.	2.4	More information needed on the cost reduction project.
	2	2.4	2.5	Waste still considerable apart.	2.2	Improvement in quality, reduction in cycle time and reduced scrap.
Review Session #2	Coach Names		David Brent		Peter Watkins	
	PPS Step	Average	Rank	Coaching Comments	Rank	Coaching Comments
	1	2.9	1	More information needed on the cost reduction project.	2.8	Improvement in quality, reduction in cycle time and reduced scrap.
	2	2.9	1.9	Waste still considerable apart.	2.3	More information needed on the cost reduction project.

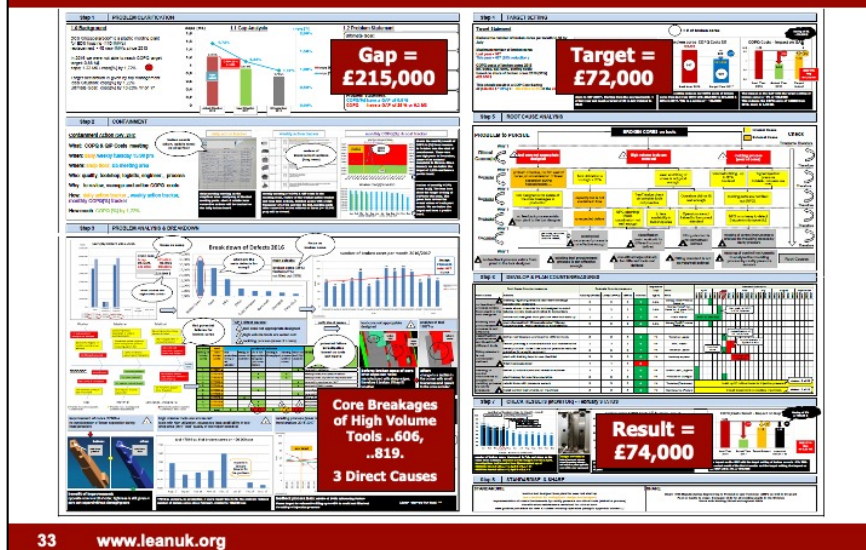
- Delegate Ratings and Comments are Captured during Online Reviews and Feedback Sessions.
- Scores are rolled up in to a Progress Summary.
- Evolution of their Capability Development is Captured.

For Online situations it is a similar process but the coaching comments and ratings are captured on a spreadsheet.

The PPS is presented Step by Step on the screen by the owner and the team members review and discuss as if face to face.

Rather than using sticky notes, the ratings and comments are captured and rolled up in to a progress summary which shows their evolution over time.

PPS A3 – Typical Outcome



So what is the typical outcome from this process.

Here you can see an example of a PPS looking at reducing the cost of poor quality by Michael the Tool Room Manager.

The business was a 24-7 365 days a year plastic injection moulding company supplying electrical connectors to the automotive industry.

The site had 110 injection moulding machines and 100's of injection moulding tools.

The gap was identified as approximately £215K from the prior year.

By focussing on the top 10 tools he identified core breakages as the problem to pursue and identified 3 direct causes amongst those tools.

His target was to close the gap by approximately one third or £72K.

Some examples of the root causes were:

No formal feedback process from manufacturing to the tool designers for troublesome core designs.

No clear fitting standard for the cores in the tool room.

Tool maintenance frequency was time based not actual workload based.

No proactive tracking process for tool spares procurement and delivery.

To name but a few.

The result was a reduction of just under £74K.

However, that was just a couple of the worst tools we targeted, think about the Yokoten or look across potential when the countermeasures to those root causes are shared across

the other tools.

This is just one example, from our experience the average savings of PPS's completed in that in that organisation was £25K.

However the key point is not the money, it's the fact that Michael went on to train his team of four tool technicians in PPS and deliver similar projects.

Michael was part of an initial team of six leaders we developed to teach and coach others.

I'll let you do the maths on that one.. (£530K).

So, I expect you are all asking how can you get your people to do the same, I'll let Peter explain our thinking and process for that.

The Elephant in the Room !

How do you get individuals or organisation's to learn this well ?



Better, Faster & Cheaper



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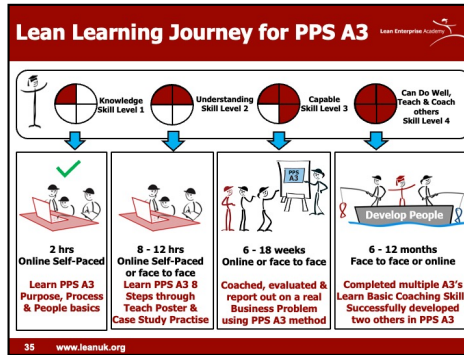
I suspect many of you are thinking this is all good, but real issue for me is How do I learn this well as an individual or cascade it successfully in to my organisation (NEXT ANIMATION)

So where do you start ?

External training can be confusing, expensive or very often done as quick one off training activity to achieve a certificate or belt, instead of a supported and progressive skills development journey. Real learning and skills is achieved through on the job practice with support – just like learning to drive!

To build a true problem solving culture in an organisation can only be done when the line leadership become the teaches and coach's, so the thinking way and behaviours become embedded at every level of the organisation

Our research with partner companies applying A3 PPS has helped us develop a better, faster & cheaper lean learning journey for A3 Problem Solving, that either individuals or organisations can follow to learn it well and also cascade it into their organisation successfully themselves



Our recommended Lean Learning journey for A3 Practical Problem Solving is to first to gain some initial basic knowledge around the Purpose Process & People of the topic to get familiar with it , most of which you have covered today.

We offer a FREE online Skill Level 1 course for you or your organisation to use , or you can buy one of the many books from our e-shop to help gain some basic knowledge

AMINATION

The next step on your learning journey is to be taught a deeper understanding of the thinking way behind the 8 steps and do some initial safe practice of developing an A3 on a know case study . This way you can reflect on the case study answers and learn from your mistakes. This is actually how Toyota develop their people at the beginning in the USA

AMINATION

Skill Level 3 is aimed at making you capable through step by step implementation on a real business problem. You should be coached by an experienced Skill level 4 leader and implement directly on a real business need.

.An experience PPS A3 coach is necessary so you can receive the feedback and correct evaluation process necessary to develop your skill – much as describe in John Shook’s Managing to Learn book.

AMINATION

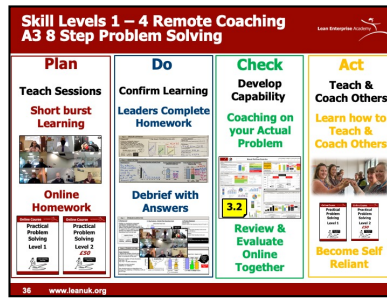
If you have a role as a leader in an organisation , then we recommend you go onto complete Skill Level 4 , so you can to do PPS A3 well and be able to teach and coach others

Here we recommend you gain more experience through completing multiple PPS A3’s and develop the basic coaching skills necessary before you start to teach and coach others.

You should then aim to successfully develop and evaluate at least 2 other people in Practical Problem Solving Skill level 3 Capable

Depending on your circumstances or if you don’t have access internally to a Skill level 4 Coach we can offer you an online or face to face level coaching – just contact us directly if you are interested

NEXT SLIDE



So what does that leaning process look like in practically when we do this remotely with organisations

Well our Learning Process is based on PDCA and is run in groups of 1 – 5 leaders maximum to ensure enough time is available to support them properly

After an initial kick off session the leaders start to progress through skills level 1 & 2 by completing multiple short burst study sessions using our interactive online learning platform.

The learning is then initially practised through a case study Homework as part of the learning sessions. After the homework is complete a live group debrief session is held by the coach on each of the learners answers. This is done to reflect, feedback and confirm there base knowledge & understanding

To gain capability at Level 3 The group members start working on a real business problem, where they complete one step at a time of there A3 off line and then present it back to the group members and the LEA coach through hourly online coaching sessions.

In these session the leaders receive direct feedback on improvement points through being asked a series of coaching questions and also agreeing what there next steps are going to be.

At certain stages each leaders A3 is formally evaluated against a standard criteria – to check the right thinking way and visual story has been applied.

one hour sessions are held over 12 weeks till all 8 steps of the A3 have been completed . At the end there is also a final online report out of each leaders A3 results to their senior management

Once Leaders have achieved level 3 skill they can then act on it by starting to teach & coach others by progressing through skill level 4 learning process

This starts with leaders have some initial short burst learning & practice sessions on how to teach coach others . Then they have to select and support 2 other leaders through the same skill Level 3 development process over 14 weeks . An LEA Coach has several review points with both the Initial Leaders and there learners to reflect and adjust there approach during this time to ensure learning process is robust

The aim is by following this learning process organisations can then become self reliant in the leaders developing others

Capable – Level 3

Canal & River Trust
Lean Enterprise Academy
Making life better by water

Capable – Skill Level 3

Key Learnings:

- Easy to jump to conclusions on the cause of an issue, this way allows us to focus our efforts in the right place
- Working as a team and cross teams support is necessary
- Can be a challenge to change the "blaming" etc, but good results happen when we manage it

Benefits:

- Allowed a mindset change from "having a moan" to "how can we work to find solutions"
- Empowered teams to see they can implement improvements
- Reduction of error rate from 9% to less than 1% which relieves frustrations & time in the process

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Remember to achieve level 3 and become capable you should have access to an experienced Level 4 coach to support you through working on a real business problem. Using this learning process individuals can get good results and great personal learning even on their first Problem Solving A3

A good example of this is with one of our partner organisation's - The Canal & River Trust Charity

We taught 4 finance leaders A3 Practical problem solving up to level 3 skill Capable – using the method described previously.

Part of the Level 3 course is to do a final report out to Snr Management , these comments are taken from Hannah's final report out to the CEO describing her personal Key Learning Points and Benefits to the organisation from her first problem to solve using the PPS approach

Hannah's key learning points shows how their organisation's default mindset of silo thinking / blame can start to change and help break down organisational barriers if you follow the eight step method correctly

Mindset change through the involvement of team members is key – so it's not just the leaders trying to solve all the problems anymore!

Now these leaders are teaching Rapid Problem Solving to their team members and supporting other leaders that are being developed in A3 PPS


They are now on the journey to being self-reliant !

Summary
Lean Enterprise Academy


Our Purpose:

We are a not for profit organisation, established to help customers become self-reliant on their lean journey. Through research, products and services we provide better, faster and cheaper ways to learn and improve.


Our Approach:




Knowledge
Skill Level 1




Understanding
Skill Level 2




Teach & Coach
others
Skill Level 4



Capable
Skill Level 3



**Develop
capability to
teach others –
cascade the
learning**

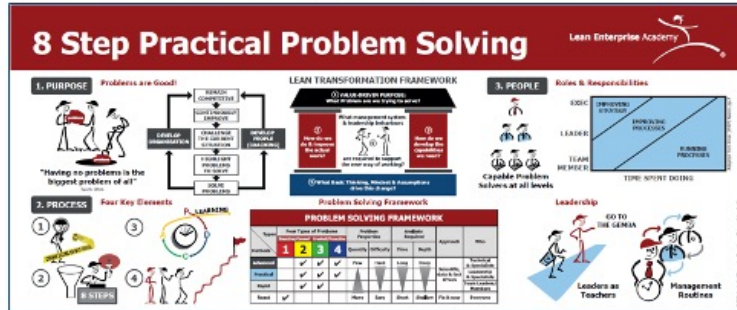


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Thanks David and Peter. I just wanted to pick up on something Peter has highlighted. We've known for a long time that the real benefits of lean occur when organisations and individuals are self-reliant. However few organisations have become self-reliant without a process to do that and to keep doing that – continually learning. So, if you are running a company, a site, a department or a team please ask yourself how you are developing capability. Do you have a process for it? And if you are an internal or external lean practitioner please ask whether you operate a process to do this. Organisations need to develop people and get the work done/improve their performance at the same time.

Any capability development process needs improvement on at least 2 dimensions. Firstly deepening capability through practice of a level. Secondly developing a journey through the levels. You need everyone able to do, but not necessarily everyone able to teach. However the more teachers you have, the more you will be able to spread doing. The argument for leaders as teachers is extremely strong and it's not the way many have gone about implementing lean thinking. RETURN

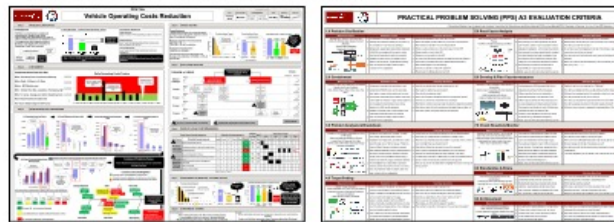
Introduction to Problem Solving



8 Steps Overview



PPS A3 and Evaluation Method



We've provided an overview of our teach poster method, exploring problem solving in terms of purpose, process and people. We then gave you an overview of the 8 step method as well as a PPS A3 and the evaluation method.

There have been quite a few questions. Let's try and get through as many as we can....

What Questions Do You Have ?



Our Next Webinar Topic: **Lean Standardised Work**

28th April 3:30pm UK time

Visit: www.leanuk.org/Events

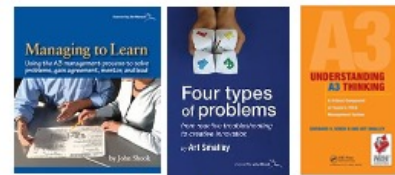


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