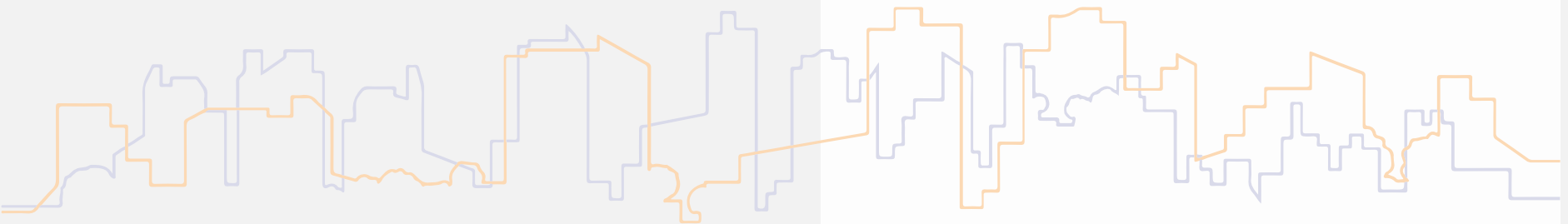




Lean Construction School

Introduction to Lean Construction Workshop





Lean Construction School

Introduction to Lean Construction Workshop

Host Partner:

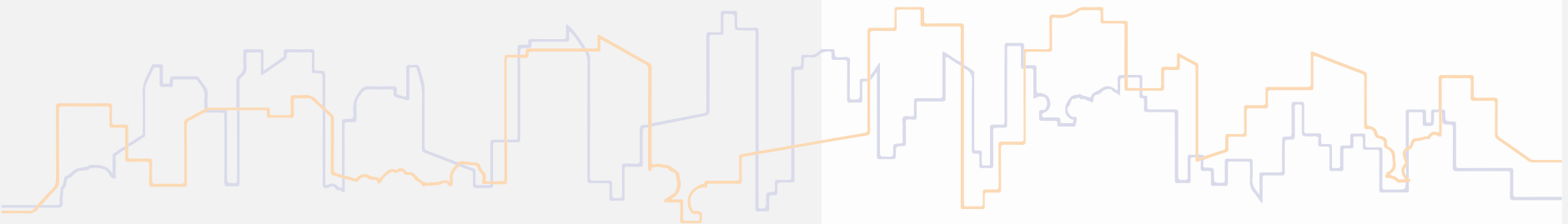
Project:

Location:

Date:



1. Welcome and Introductions
2. Video
3. Overview of Lean Techniques
4. Lean card game
5. Site walk
6. Round up



Introduce yourself

- Your name
- Your role
- Your experience of Lean
- Overview of the Lean Construction School



On completion of this workshop you will be able to:

- Describe basic principles of Lean
- Outline Lean based process improvements
- List examples of Lean tools
- Describe how Lean process improvement can be applied to existing business processes
- Capture initial ideas for potential improvement projects

By the end of the ½ day workshop you should be more knowledgeable on how the use of the Lean in the workplace



Petra Kopp

Lean Construction Portal
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The Lean Construction Portal is a ground-breaking learning space

Learning and development programmes and courses for anyone and everyone in the construction industry

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Lean construction L&D programmes for all sizes of organisations

Lean construction courses and resources for every level and need

Diagnostic tools to identify everyone's ideal learning pathway

View one of our demo courses or resources...

View course

5S workplace organisation

This e-learning course is an introduction to 5S workplace organisation in the construction industry.

View course

Problem solving

This e-learning course is a practical introduction to problem-solving and its application and use in Lean construction

View course

Introduction to lean

This e-learning course is a 'Starter Level' introduction to Lean in the construction industry, and its key features.

View course

Lean construction and waste

This e-learning course is an introduction to recognising and reducing waste in construction work.

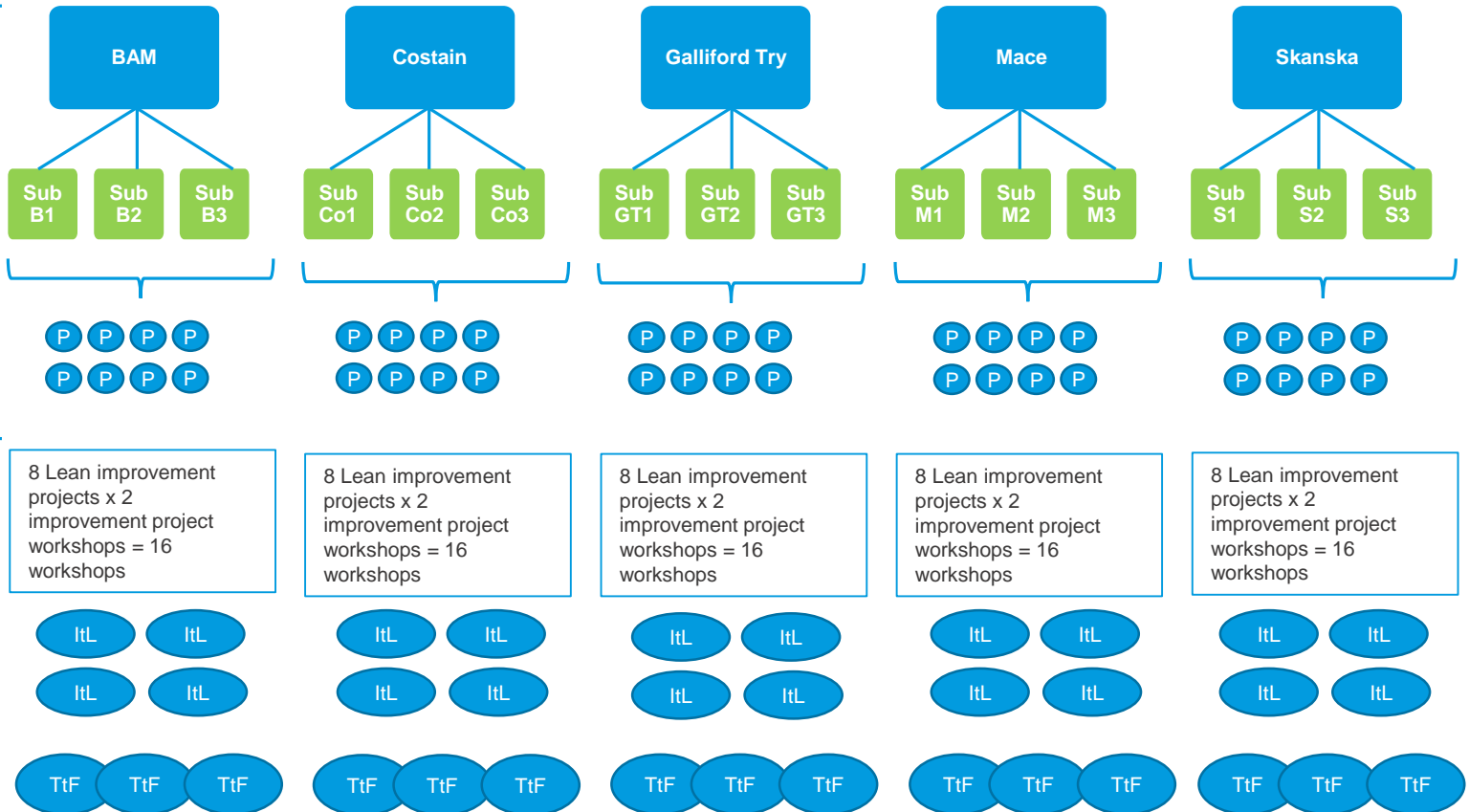
One construction project per Partner = 5 x 8 improvement project workshops = **40 improvement project workshops**

3 subcontractors per Partner = 15 subcontractors in total

8 Lean improvement projects per Partner x 2 improvement project workshops each x 5 partners = **80 improvement project workshops**

20 Intro to Lean workshops. 4 per Partner.

*** 15 Train the Facilitator workshops.** 3 per Partner. 5 delivered in Q2 and 10 in Q3.





Video on YouTube at :<https://youtu.be/qSVPX6jhLfw>
Alternative video <https://www.youtube.com/watch?v=OTH0z6xSSJM>

Lean, what is it and what are its objectives?

A way of thinking to improve processes – a philosophy

A way of doing more, better with less – less human effort, less equipment, less materials, less time and less space

The heart of Lean is to continuously solve problems using - proven methodologies and tools

Five Lean Principles

Customer value

- Identify and specify value from the customer's perspective

Value stream

- Identify and map the value stream of end to end process and eliminate wasteful steps

Flow

- Make value flow by eliminating waste / bottlenecks

Customer pull

- Let the customer pull value by designing process that respond to customer demand

Pursue perfection

- Totally eliminate waste and create a flawless process/service.

There are several key aspects to Lean

The Lean Construction School covers the following seven key Lean methods:

1. 7 wastes
2. 5S workplace organisation
3. Collaborative planning
4. Problem solving and continuous improvement
5. Standardised work
6. Visual management
7. Process / value stream mapping

TIMWOOD

Defects

Not right the first time, repetition or correction of a process



Transportation

Unnecessary movement things (parts or machines) between processes

Inventory

Raw material, work in progress or finished goods which is not having value added to it



Movement

Unnecessary movement of people/items within a process



Overprocessing

Processing beyond the standard required by the customer



Overproduction

To produce sooner, faster or in greater quantities than the customer demands



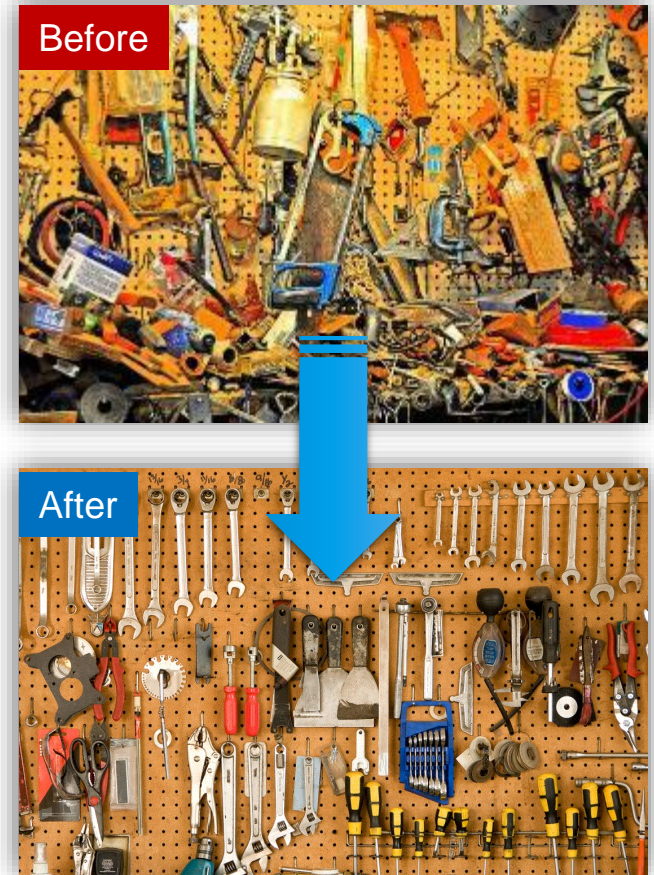
Waiting

People or parts that wait for a work cycle to be complete



Exercise

- Get into groups of 2-3
- Identify one of each of the 7 wastes which exists in your current role
- Brainstorm how we make it better
- Pick one from your seven that you as a team can take away from here and action



What is it?

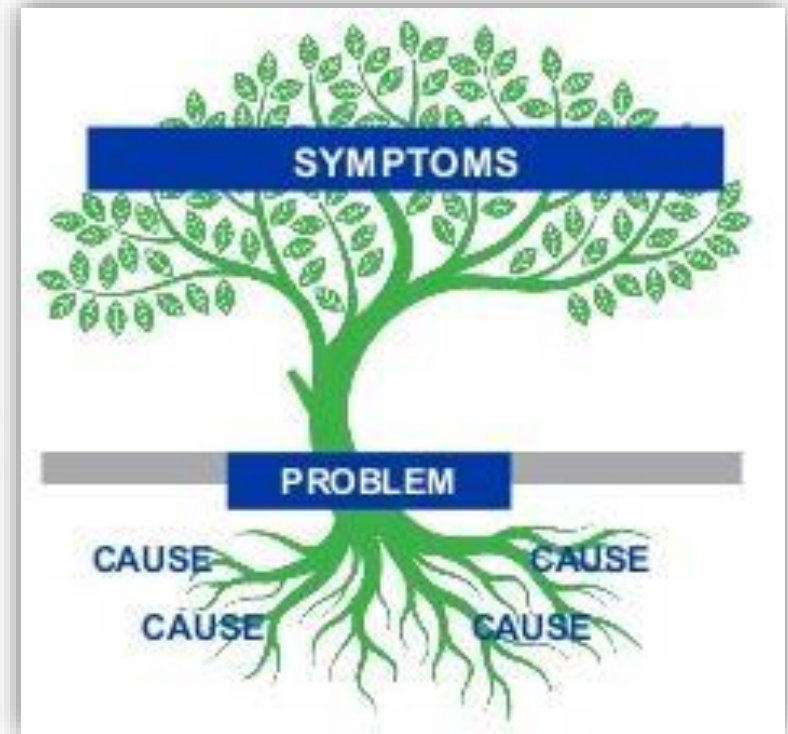
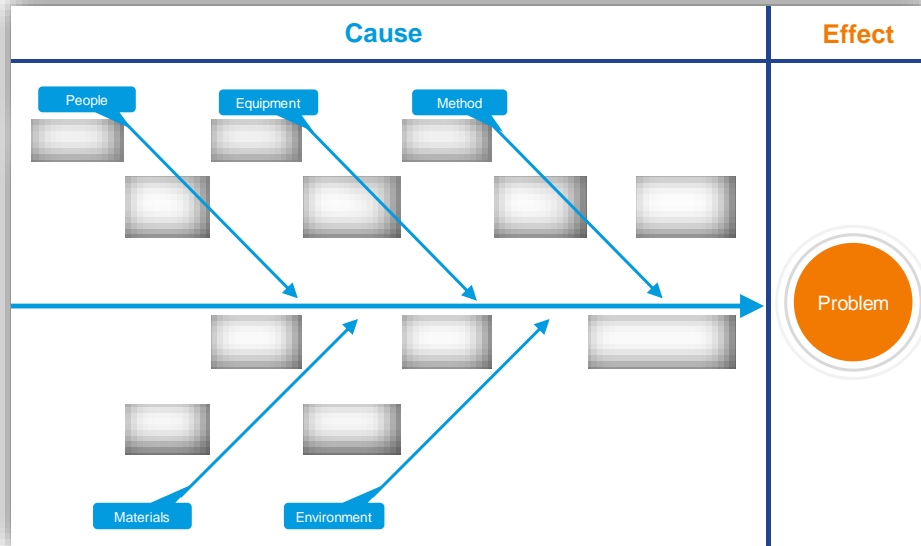
The collaborative planning system consists of a series of tools, approaches and processes that can be easily implemented on projects.

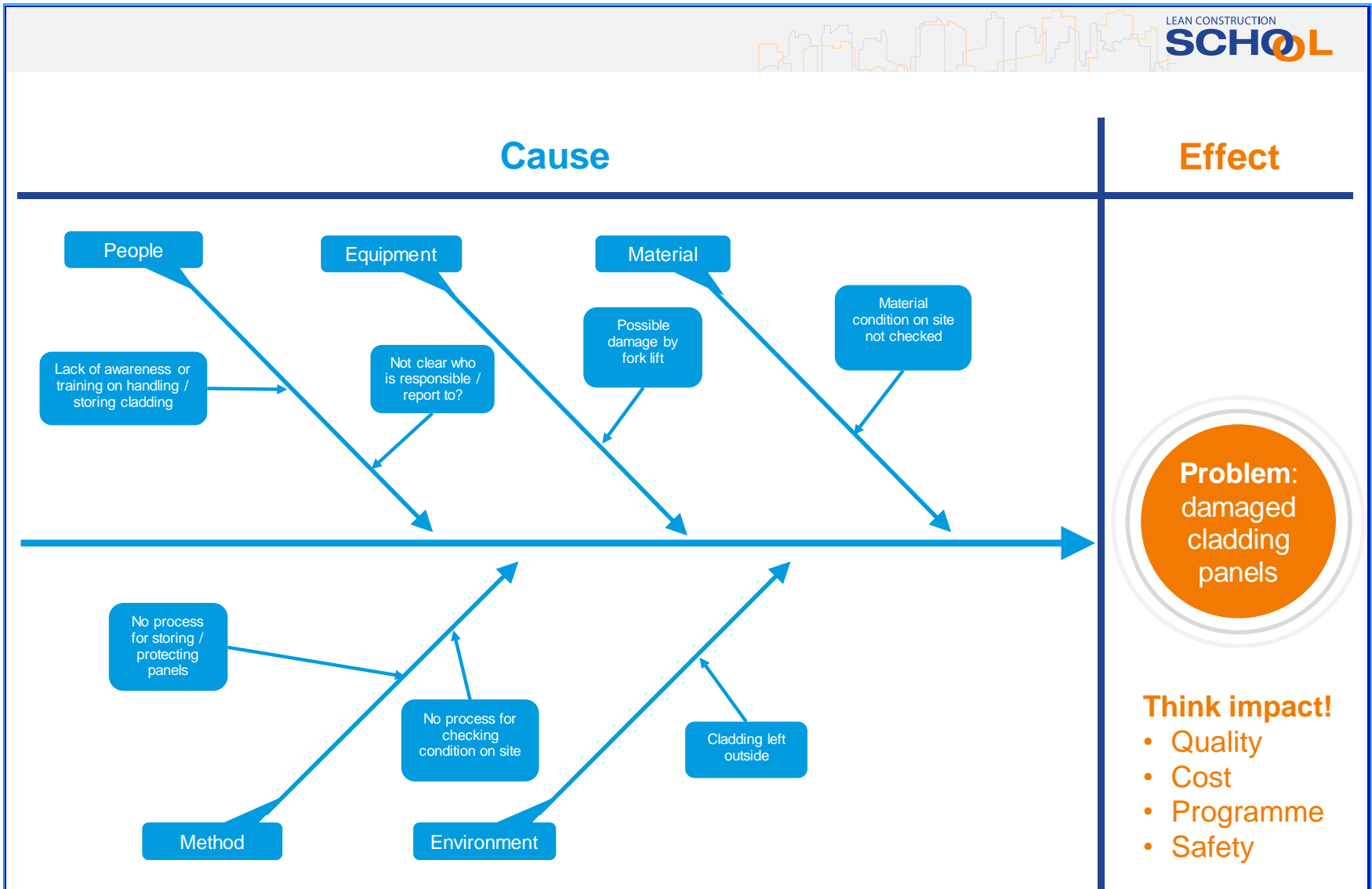
It helps us:

- Deliver better value to the customer to increase satisfaction
- Remove waste from work processes to reduce time and cost
- Increase programme certainty
- Visualise programme
- Align all involved
- Identify opportunities



4. Problem Solving & Continuous Improvement





- A process map is a flowchart of the actual process.
- This needs to be walked through rather than relying on manuals and we need to involve the right stakeholders.
- A process map highlights where non value added problems may exist, e.g. design issues, late procurement of long lead-time items, lack of resources etc
- Can be used for any process type, e.g. fit out, design, commercial etc.



5. Value Stream Mapping

Concrete pour – current state value stream map



How can we refine the process to make it better and standard?:

- What are the **main steps**?
- What are we **standardising**: quality, productivity, ease of application?
- Could we use a **different order**?
- Could we do it a **different way**?
- How can we **reduce wastes**, such as downtime?
- How can **variation be reduced**?

Now adjust the baseline process map!



6. Documenting the New Standard

We need to capture the new standard process

- Let's discuss and **agree on the wording and explanation** of the new process
- It **needs to be understandable** to people new to the process
- Describe **why it is better than the current way of working**: what are the benefits?
- What are the **key differences to the current situation**: what has changed?
- **Are we agreed on this is as the new Standard Operating Procedure?**

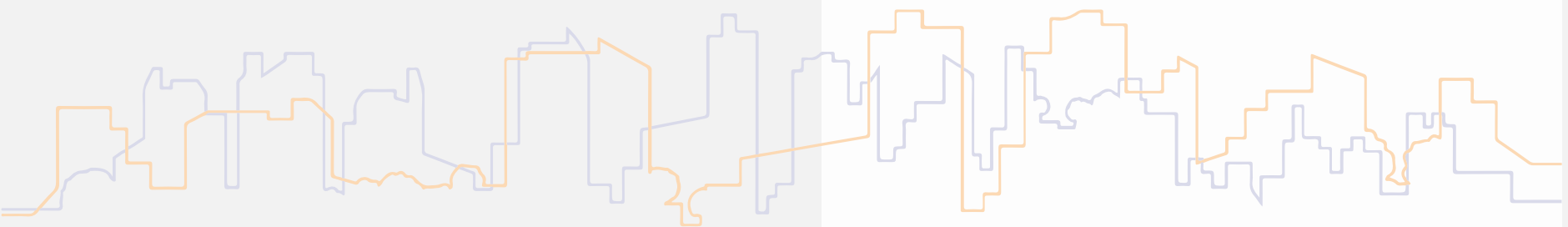


7. Visual Management





Lean Construction Card Game



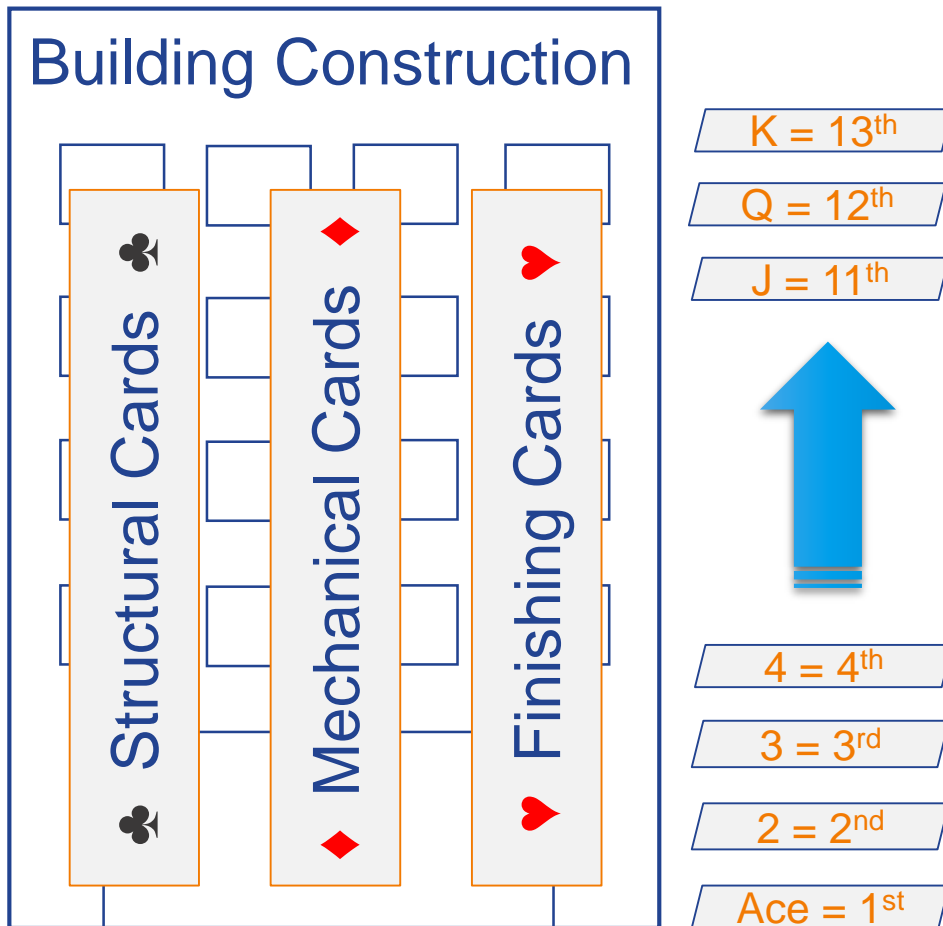
The Game:

- Create a '13 storey building' as quickly as possible
- Each card represents the resources to construct a specific portion of one of the thirteen floors
- Round is finished when the **King of Hearts** is played last on the 13th floor

Each of the four suits represents a specific trade (or waste):

- ♣ **Player 1**
Structural contractor
- ♦ **Player 2:**
Mechanical contractor
- ♥ **Player 3:**
Finishing contractor
- ♠ **Waste:**
Non-value adding activities

Sort Cards into:

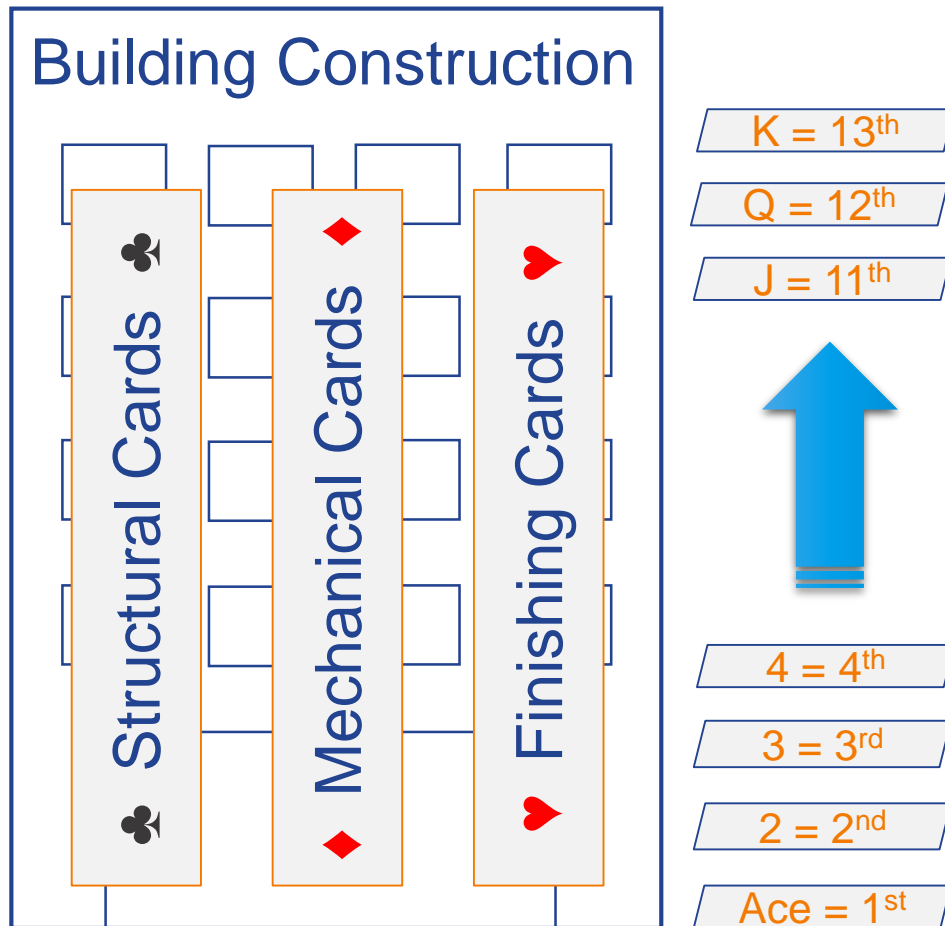


Each floor of the building is represented by the face value of the card (Ace = 1st floor, etc.)

All cards must be placed sequentially in 3 columns

- ♣ May be placed independently of other suits
- ♦ Are only placed **AFTER** ♣ (structural card) on the same floor
- ♥ Can only be placed **AFTER both** ♣ and ♦ cards are in place for that floor
- ♠ Waste cards should be left unsorted on the table

Round 1: Unilateral Construction Chaos



- Players may pick up only one card at a time and must play this card before picking up another one
- No sorting of the cards is allowed
- No talking, collaboration, or teamwork

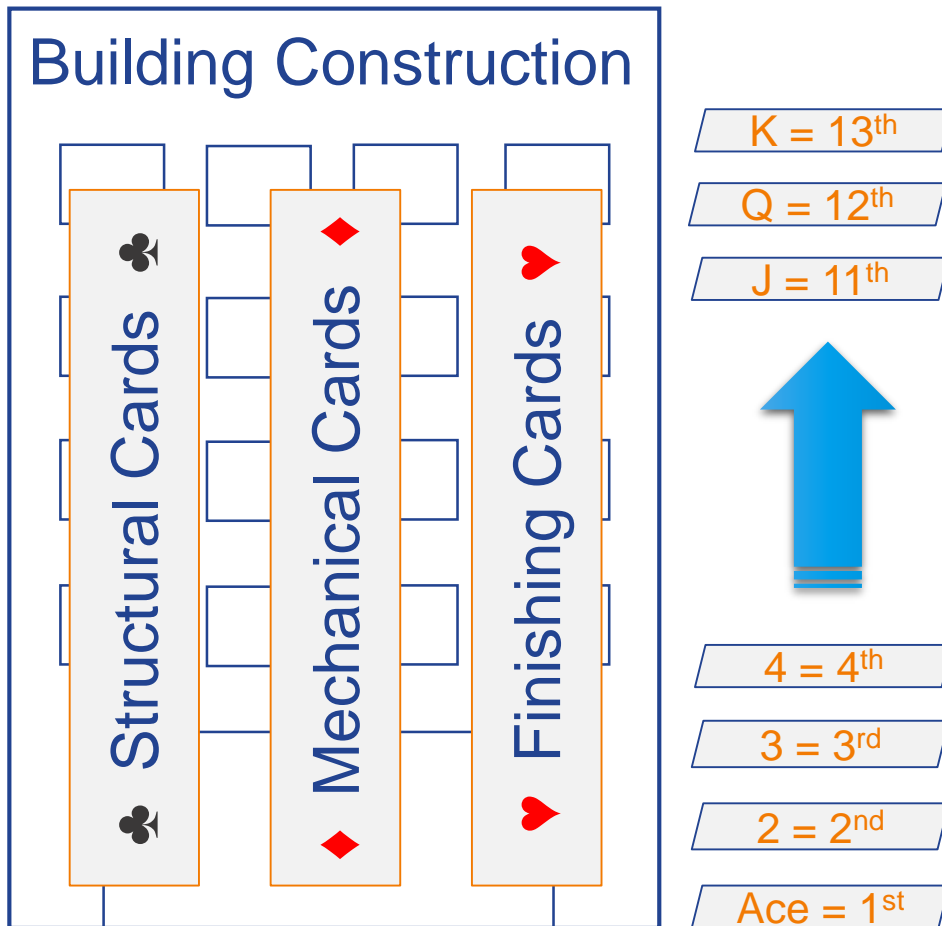
♣ Sequential placement

♦ AFTER ♣

♥ AFTER **both** ♣ and ♦

♠ Waste cards should be left unsorted on the table

Round 2: Improved site laydown organisation

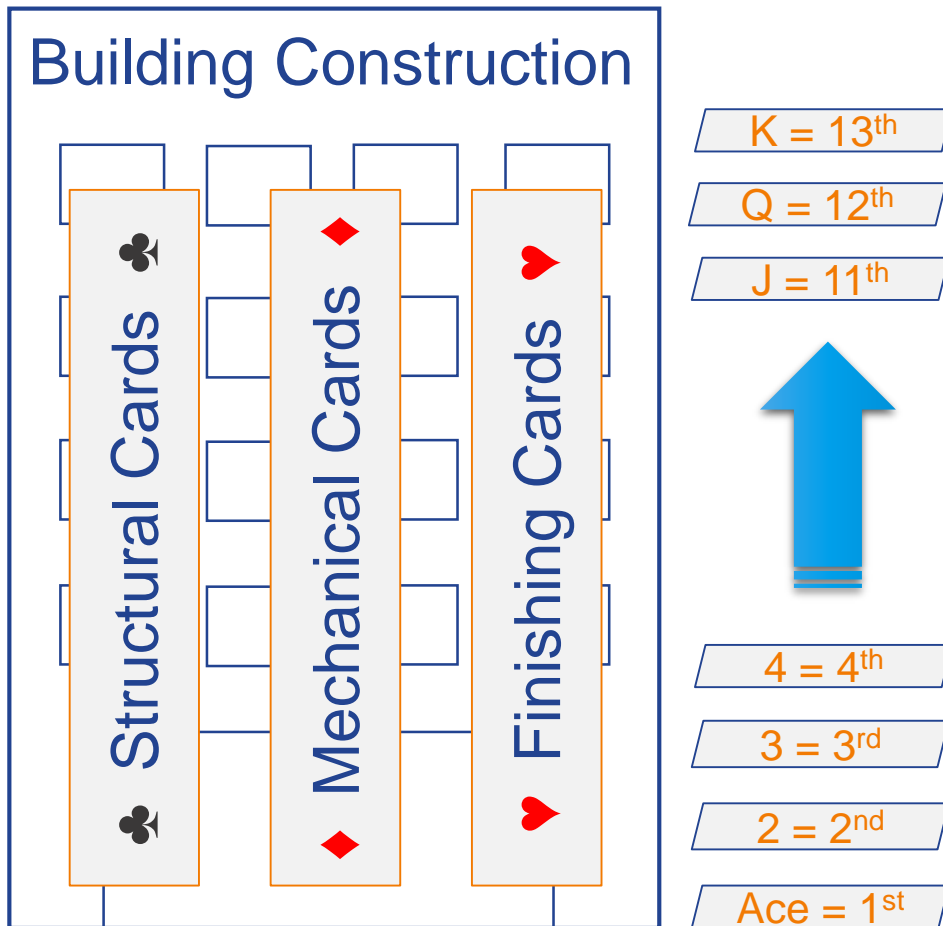


- Players may gather all their cards at the start
- Players may sort their cards during play
- No talking, collaboration, or team work
- ♣ Sequential placement
- ♦ AFTER ♣
- ♥ AFTER **both** ♣ and ♦
- ♠ Waste cards should be left unsorted on the table

What Lean principles did we see just now?



Round 3: Collaboration



Players may:

- Gather all their cards at the start
- Sort their cards during play
- Talk and collaborate, assist each other

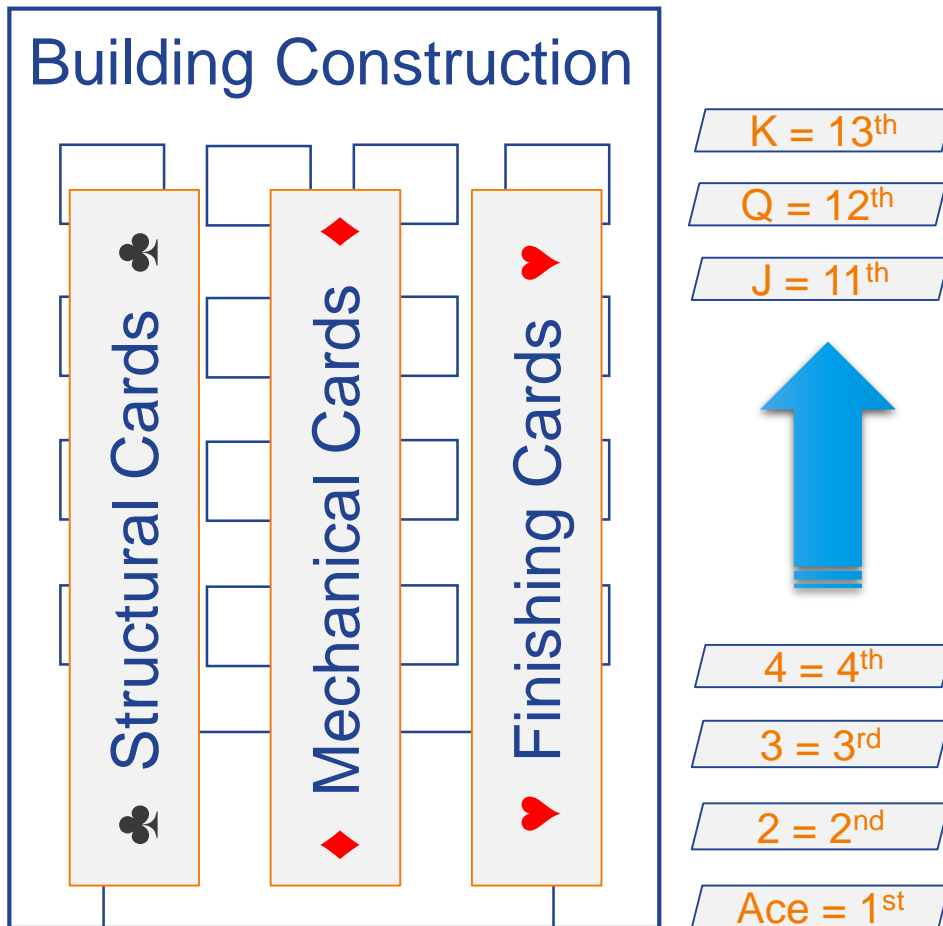
♣ Sequential placement

♦ AFTER ♣

♥ AFTER **both** ♣ and ♦

♠ Waste cards should be left unsorted on the table

Round 4: Reducing Waste



Players may:

- Gather all their cards at the start
- Sort their cards during play
- Talk and collaborate, assist each other

♣ Sequential placement

♦ AFTER ♣

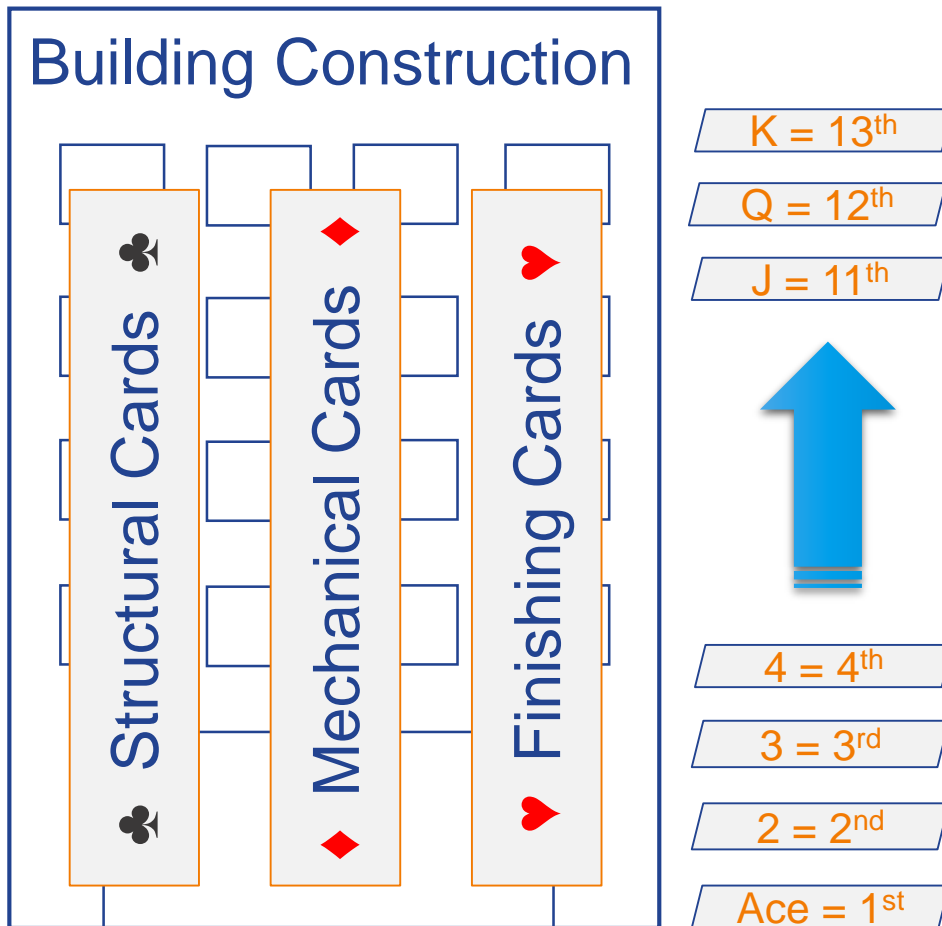
♥ AFTER **both** ♣ and ♦

♠ Waste cards removed from play

What Lean principles did we see just now?



Round 5: Improved Material Management



Players may:

- Gather all their cards at the start
- Sort their cards during play
- Talk and collaborate, assist each other

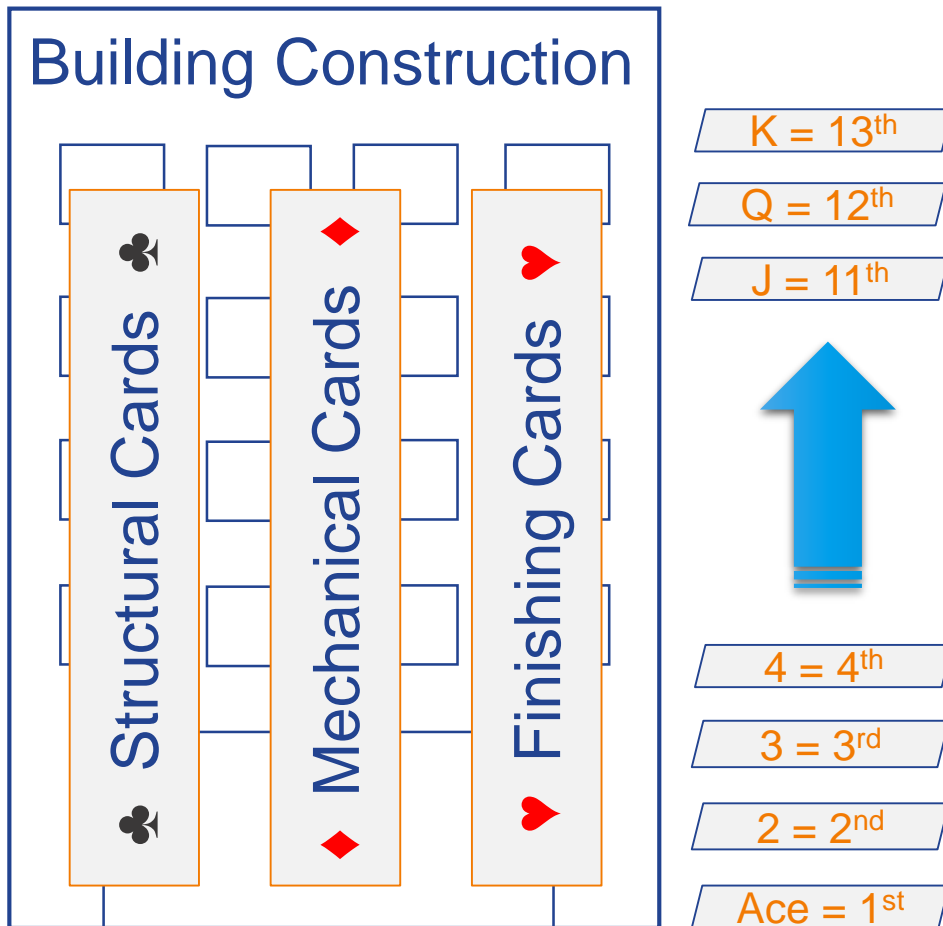
♣ Sequential placement

♦ AFTER ♣

♥ AFTER **both** ♣ and ♦

♠ Waste cards removed from play

Round 6: Optimised Resource Management



Players may:

- Gather all their cards at the start
- Sort their cards during play
- Talk and collaborate, assist each other

♣ Sequential placement

♦ AFTER ♣

♥ AFTER **both** ♣ and ♦

♠ Waste cards removed from play

What Lean principles did we see just now?



- Can you see the relevance of Lean to your work and that of contractors, suppliers and others?
- How can we translate what we have just learnt to the real world?
- Where could you apply Lean thinking in your work place?
- What actions could you take on your site?
- Where could more efficient ways of working be implemented?



Site Walk: Look for things like

- People doing nothing / waiting
- Excessive movements, vehicles or people
- Large amounts of inventory sat around
- Untidy work spaces
- Poorly organised /untidy storage areas
- Different trades working 'on top' of each other
- Lack of clear signage / markings
- Workers doing same/ similar tasks in different ways
- Delivery vehicles waiting to get in to drop off, etc

Ask questions, take notes



Use the sheet to capture your observations

- Ask questions, take notes, take pictures
- How could it be better?



Lean Opportunities Sheet – Introduction to Lean

Partner Company:

Site/Project/Package:

Location:

Date:

Issue Identified – brief description	Lean aspect(s)	How do we make it better?	Who needs to be involved?	What benefits would you expect to see after action has been taken?

Sign off (Name/position):

- What opportunities have you identified? We need a volunteer to collate the ideas!
- Name one thing you'll do differently as a consequence of today
- Go and do e-learning on the LCS
- Agree on topics for Improvement Project Workshops, plus identified subcontractors to participate, dates and locations
- Identify people for Train the Facilitator sessions, from which organisations / suppliers, as well as workshop dates

