

Pavement Delivery Framework - Lean Construction & Waste

Workshop

16/06/23



Building Business Improvement

Workshop overview



Objectives and outcomes

By the end of this session we aim to show you –

- 🌐 What Lean is and where it come from
- 🌐 How Lean can support your project deliverables
- 🌐 An overview of 8 Waste identification and elimination



Lean in construction



History



62 weeks



1913
Henry Ford
assembly line

1930
Empire State
Building

1949
Prof. E.
Deming PDCA

1993
Term 'Lean
Construction'
first used



1870
Chicago Meat
Packing

1931
Hoover Dam –
Gantt charts

1945
Toyota JIT
system

1990
Last Planner
system

Flowline – work
moves not the
person



Taiichi Ohno
(1912 – 1990)

Known as
Collaborative
Planning



Need for Lean in construction

How would you like to work on a project that has.....

- 🌐 Poor communication / mixed messages
- 🌐 Ever changing priorities
- 🌐 Rework and snags
- 🌐 Conflict between different contractors
- 🌐 Overly complicated processes
- 🌐 Unrealistic timeframes to complete activities
- 🌐 Pressure to reduce costs and labour



Implementing Lean

If you have already started on a Lean journey or are planning to, what was the reason?

- 🌐 The client told us we had to
- 🌐 It's part of our contract



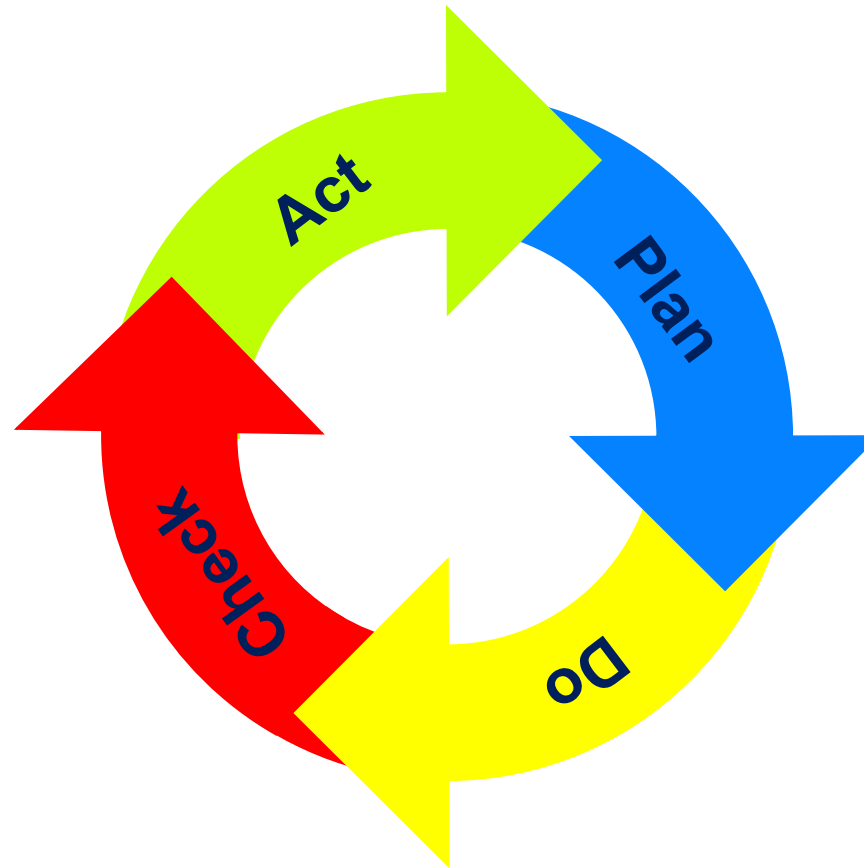
Or

- 🌐 To improve our business and become more profitable



Frameworks for improvement

PDCA is a simple tool that can be applied to all aspects of construction



What can it achieve?

Government

Issues – low productivity, weekly delays, lack of clarity.

- 🌐 **30% productivity improvement** - Kitting solution of all parts & all information to supporting members deployed
- 🌐 **2 Weeks Early completion** - simplified project management & control system



Infrastructure

Issues – milestones not being met, productivity increase needed.

- 🌐 **28% reduction in ring build times** – Implemented process improvements, now meeting stretch targets
- 🌐 **23% reduced excavation times** – Reduced downtime so stretch targets met and maintained.



Residential

Issues – weekly activity counts needed to improve (PPC)

- 🌐 **£2.5 million** cost avoidance
- 🌐 **31% increase** in weekly activity completion - improved from 55% to 86%
- 🌐 **3 weeks saved from critical path** through supply chain improvements on steelwork deliveries



Three-pronged approach

People – change behaviours, build teamwork, develop skills and embed an improvement mindset at all levels

Process – apply World Class Production practices blended with Construction best practices.

Performance – tackle opportunities to reduce programme durations, reduce risks and embed routines

✓ **Programme certainty & betterment**

✓ **Productivity & quality improvement**

✓ **Reduce costs & risks**

✓ **Improved sustainability measures**



8 Waste identification and elimination



Lean tools and techniques

Think of the tools and techniques as a tool box – you need to select the correct tool for the job. The key tools are –

- 🌐 8 Waste
- 🌐 5S Workplace Organisation
- 🌐 Collaborative Planning
- 🌐 Visual Management
- 🌐 Standard Work
- 🌐 Problem Solving

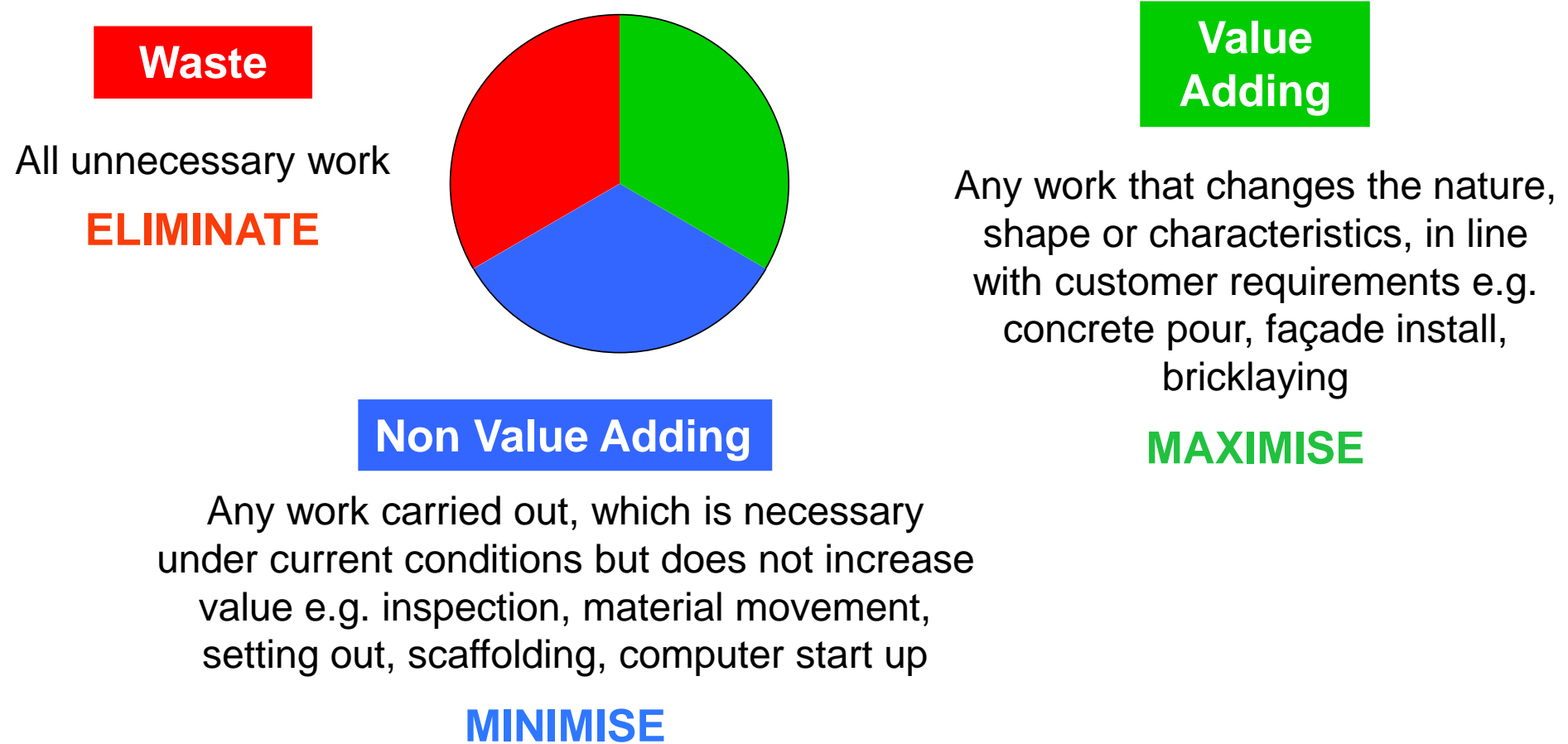


Data and Go-Look-See will let us know which is the most important job we should be working on.





What is work?



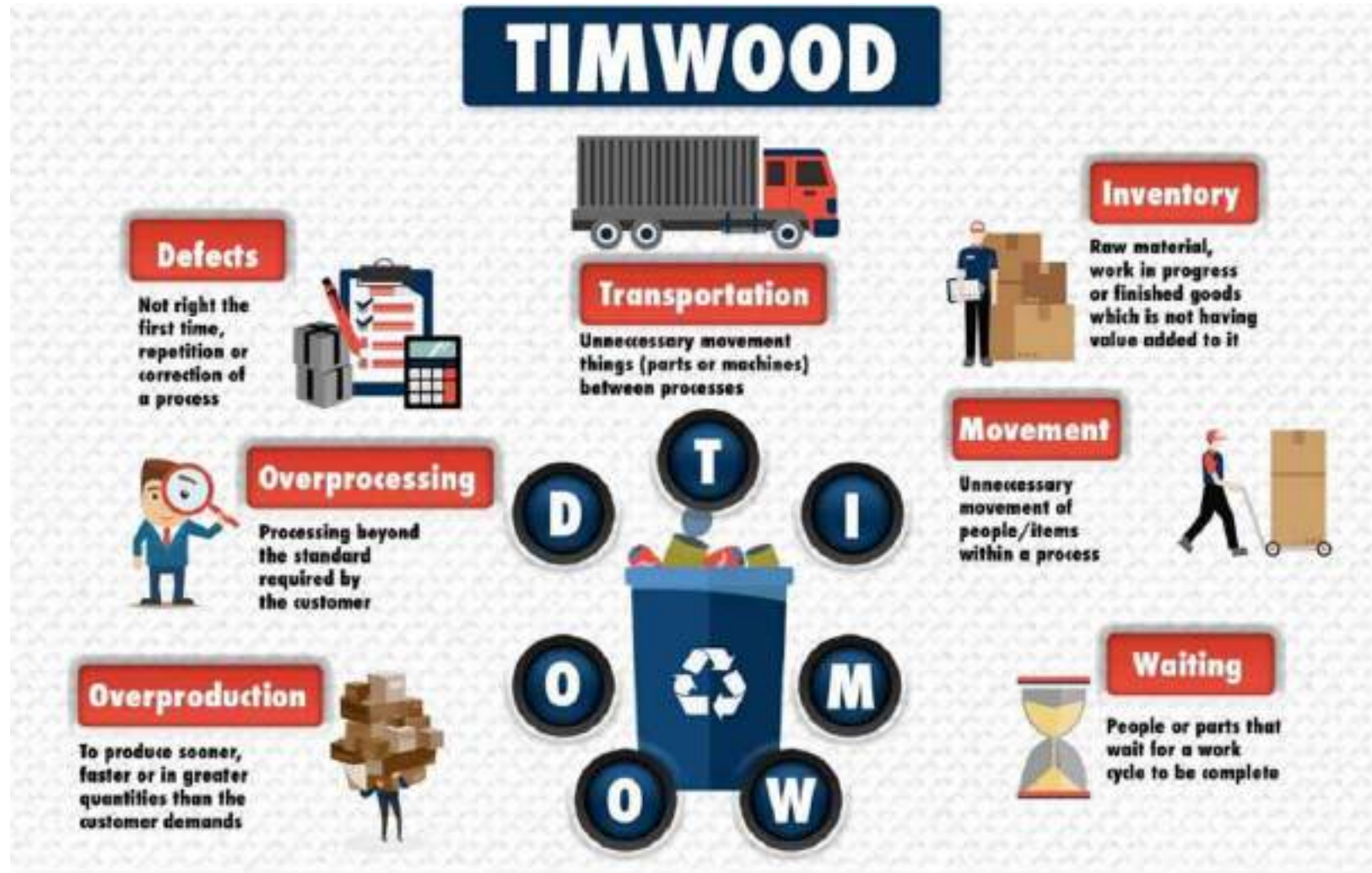
Identification



Go-Look-See (Gemba walks)



8 Waste



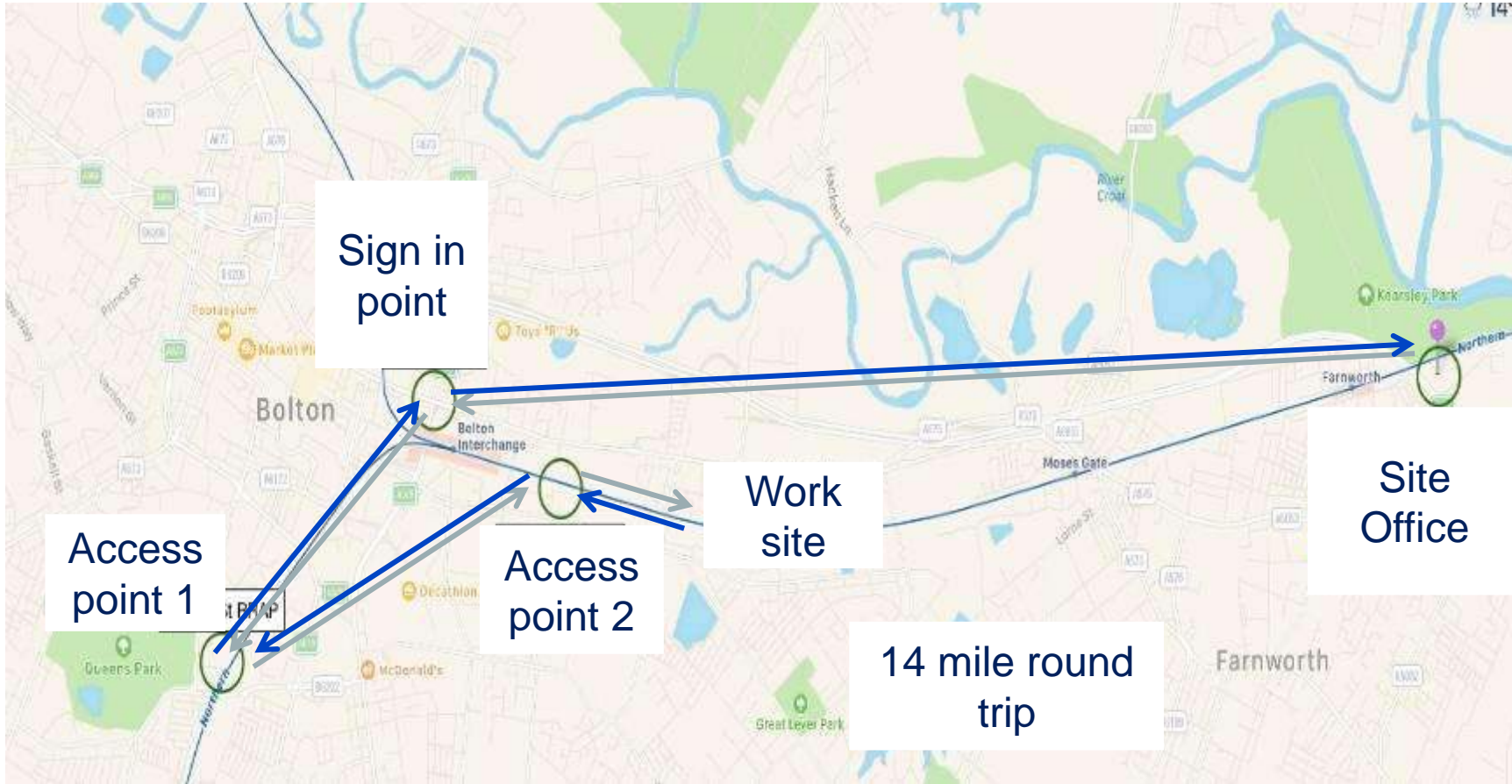
The 8th Waste
Underutilising
people's skills,
talent and
knowledge



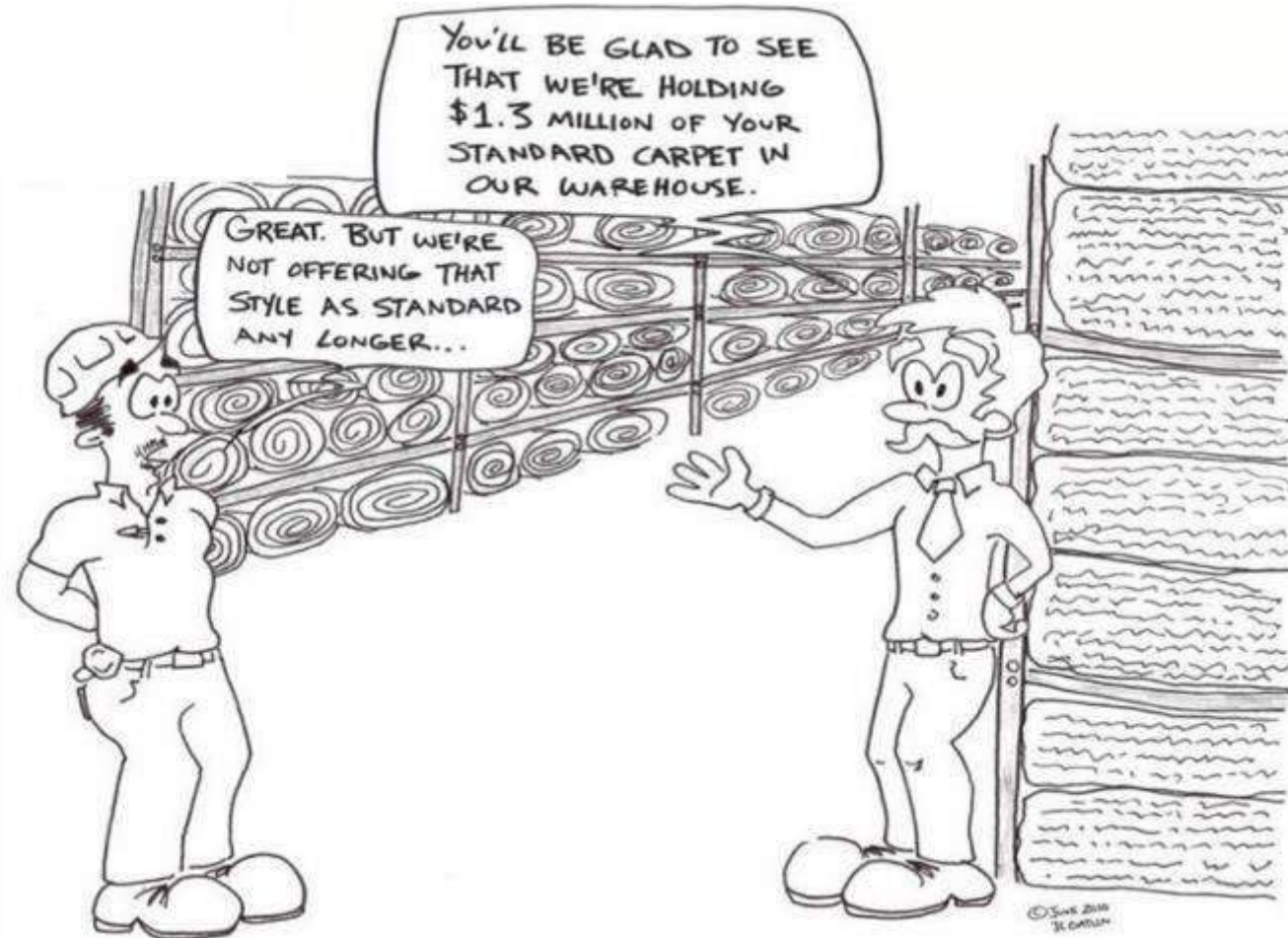
Transportation is excessive moving or handling







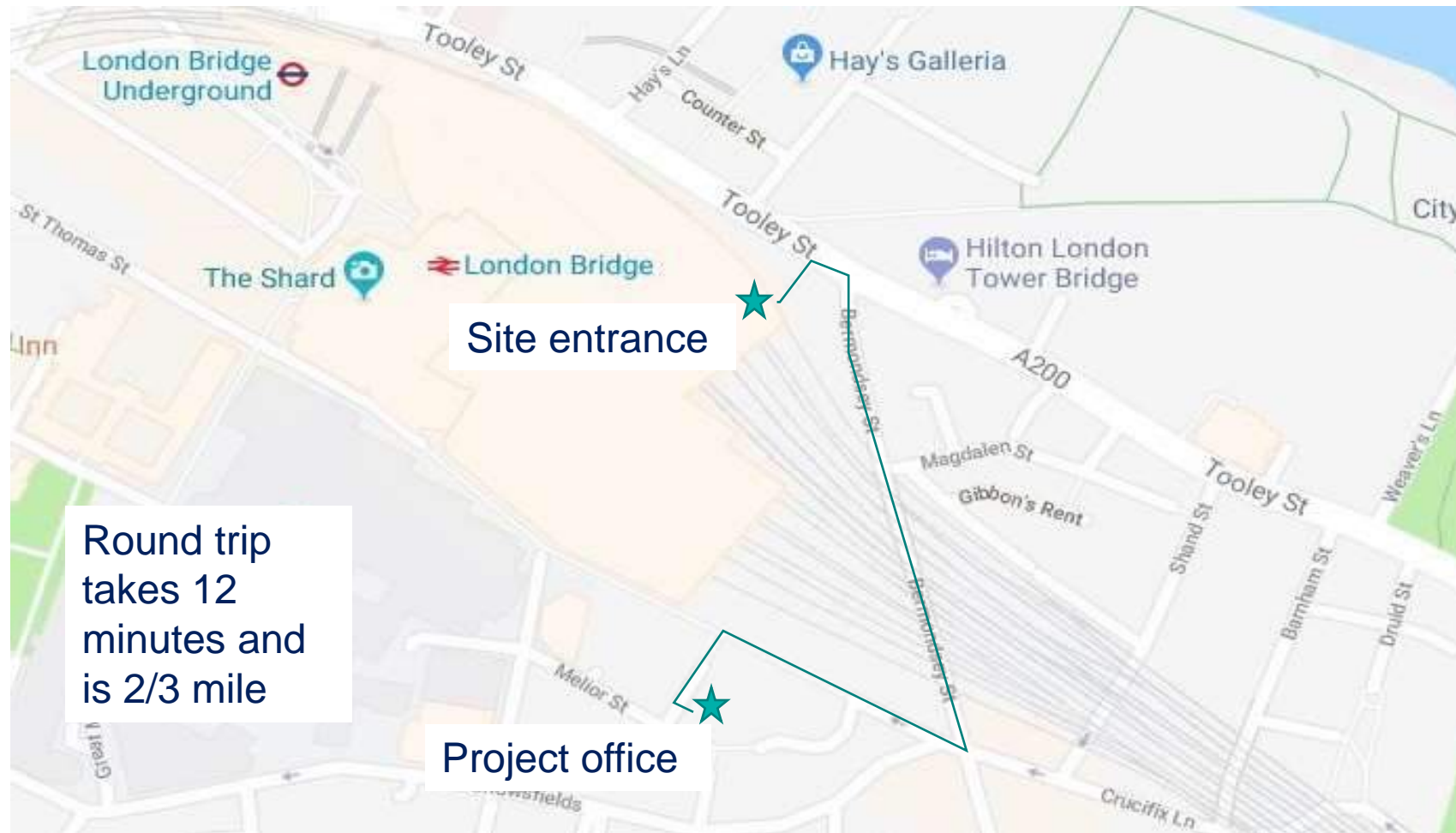
Inventory is excess materials, equipment, time, people or information







Motion is excessive or unnecessary movement

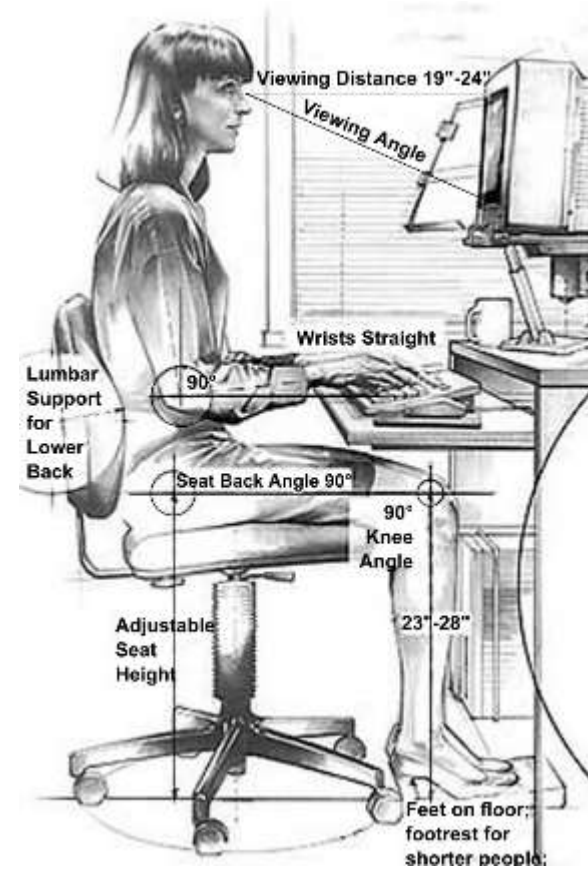


Round trip
takes 12
minutes and
is 2/3 mile

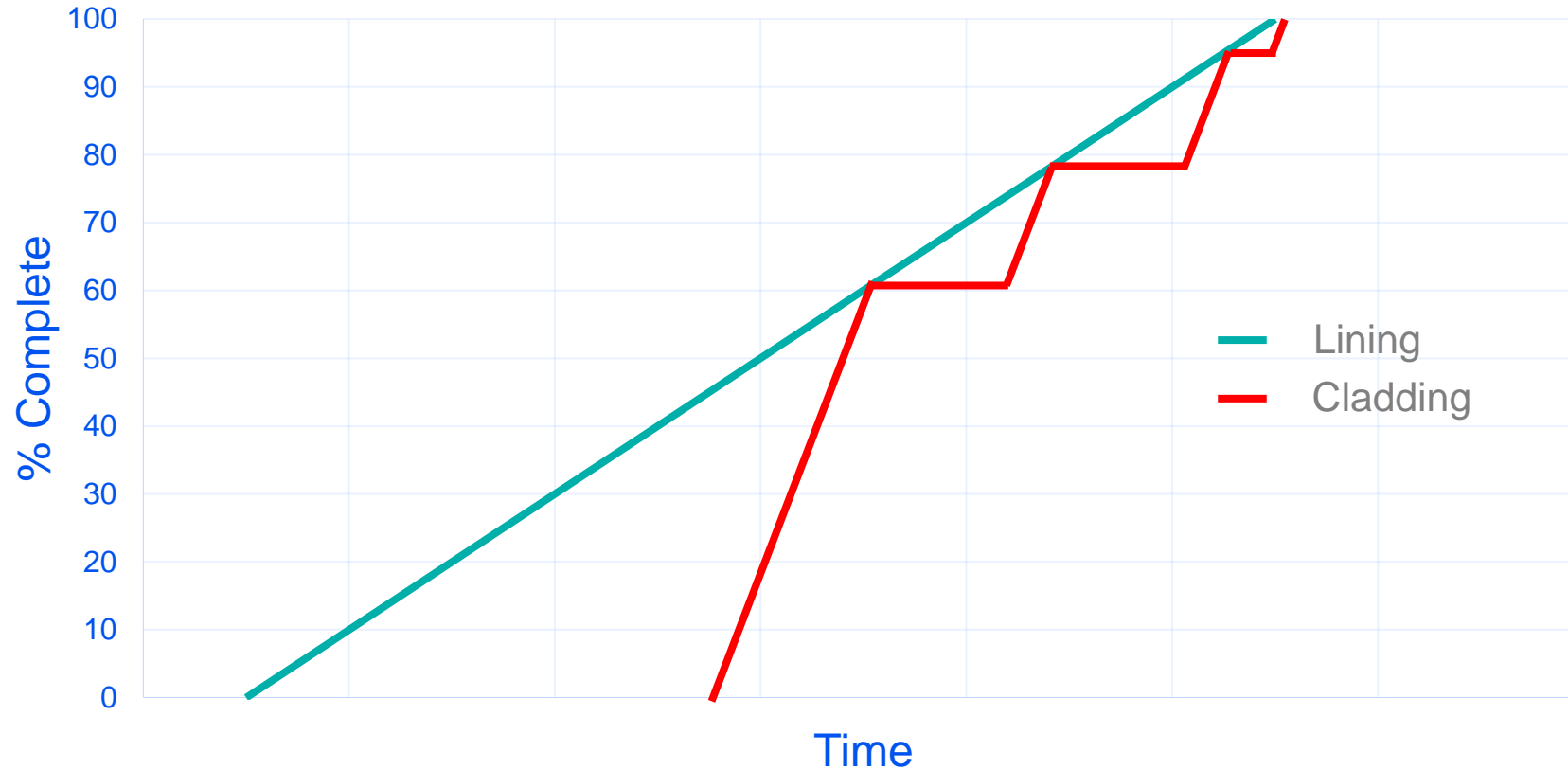
Project office







Waiting is equipment or employee inactivity during a planned task

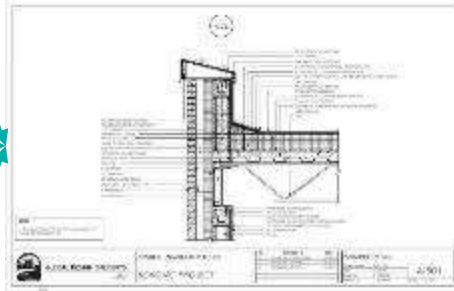




Comments



Signatures



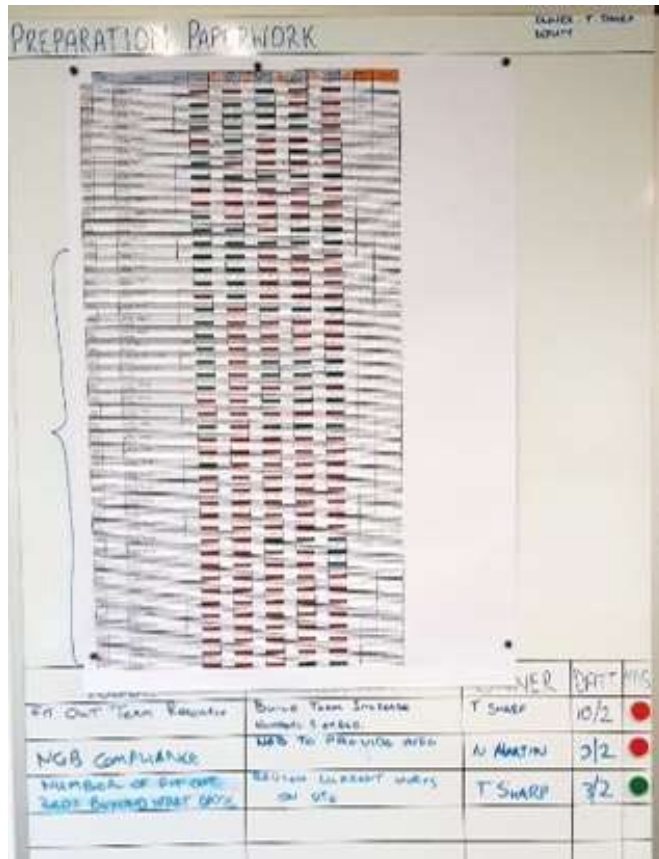
Design review



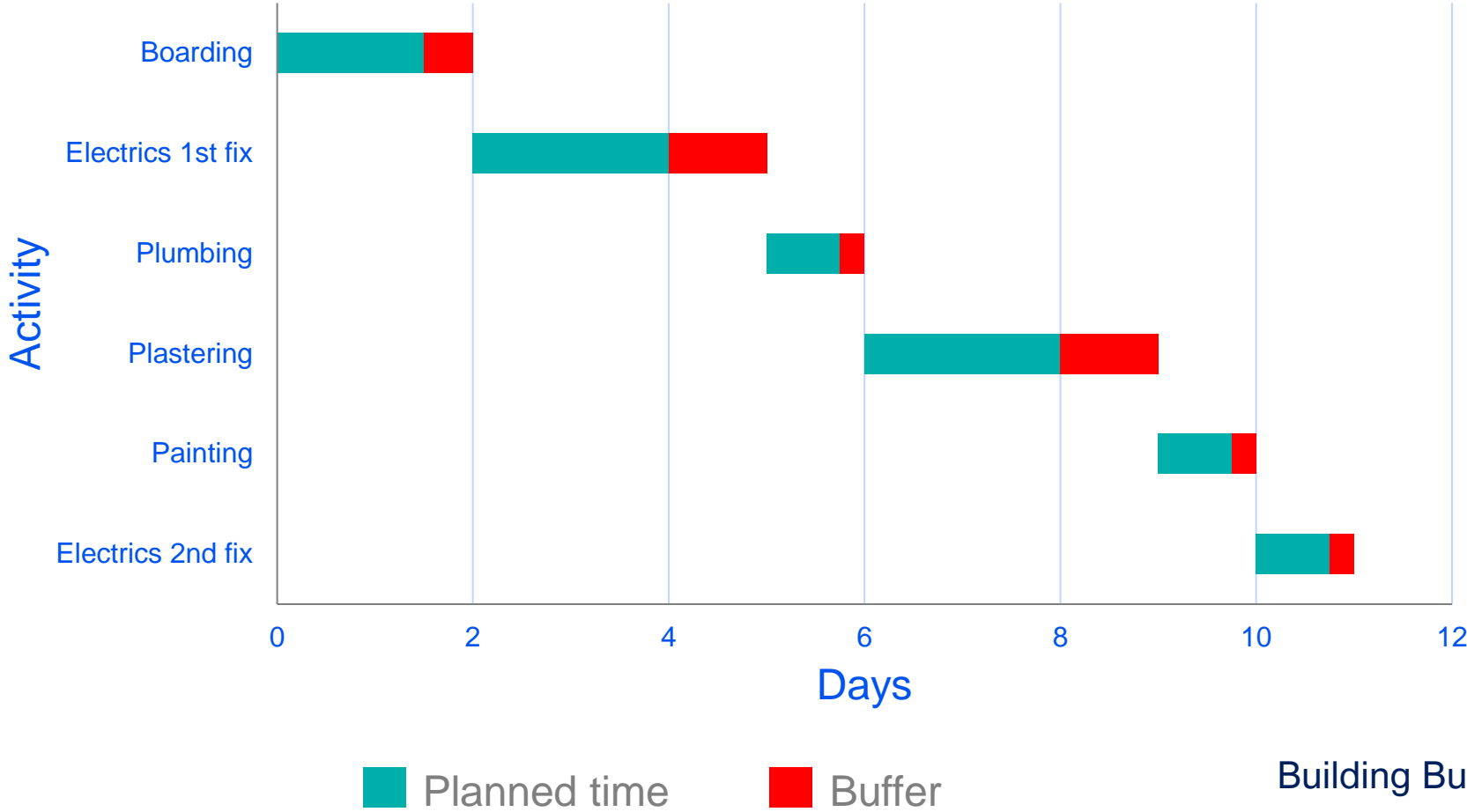
Overprocessing is unnecessary or complicated processes



Overprocessing caused by unnecessarily complicated visual management



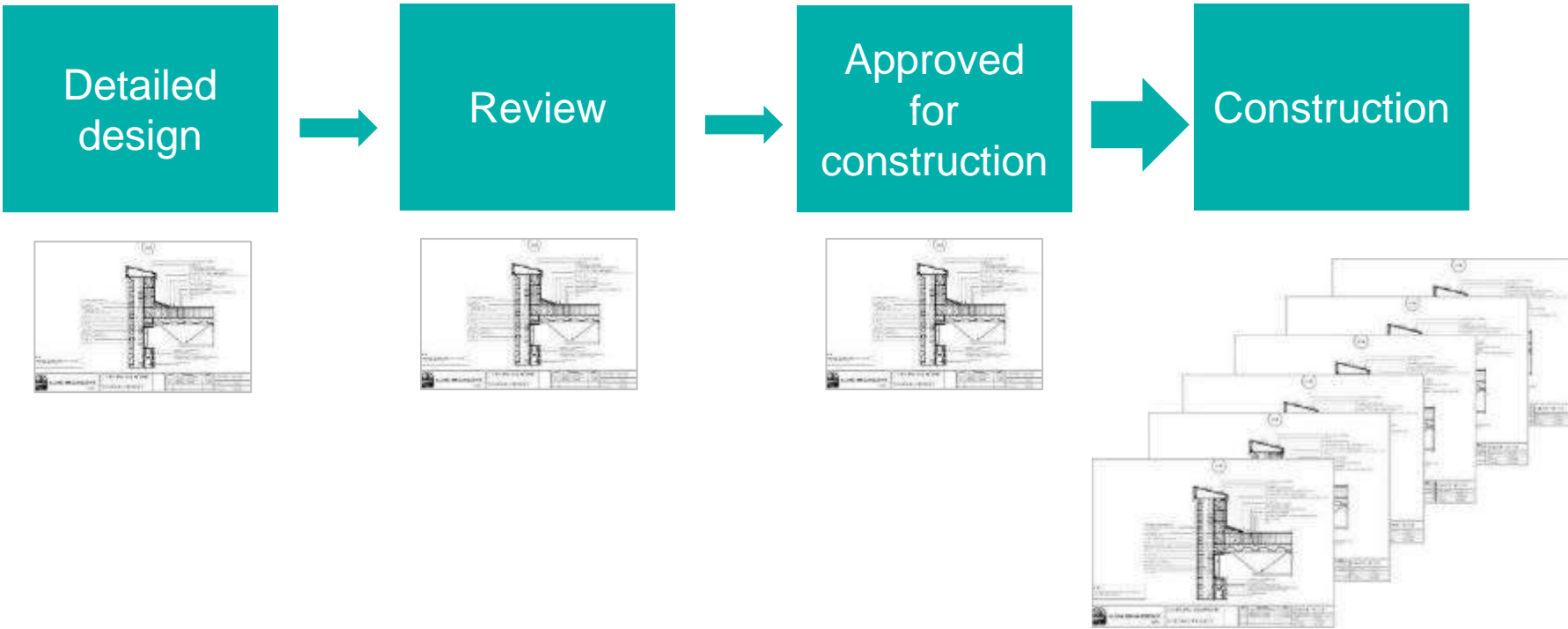
Overprocessing resulting from excessive time allowances



Overproduction is producing more than the customer requires



Overproduction is producing more than the customer requires



Defect waste is scrap or where rework needs to be done





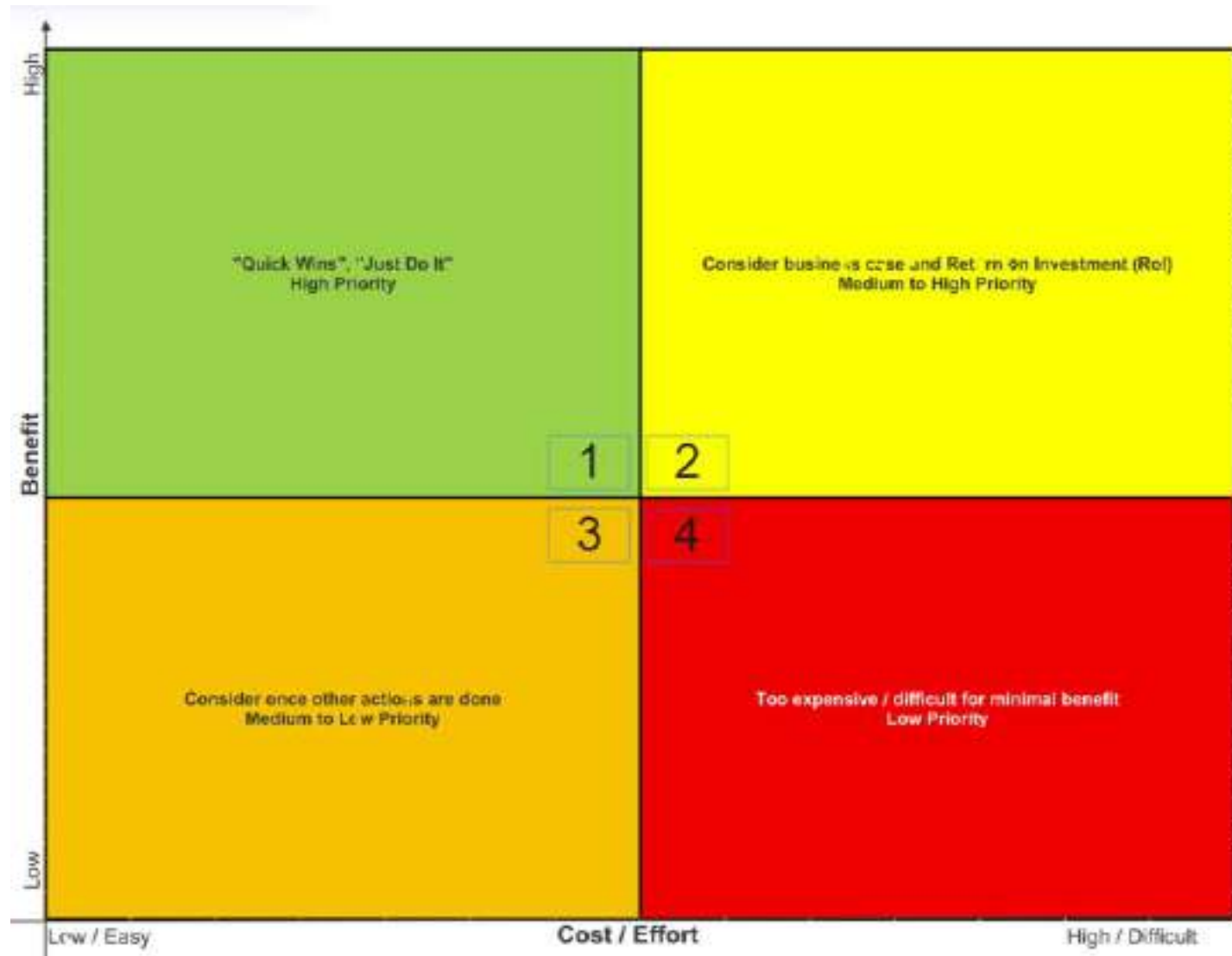
Skills - not making the most of employees' creative brainpower











Elimination



Elimination of waste - Prioritise



Elimination of waste – Action plans

Project		Follow Up Sheet					Author				
Area							Countermeasure		Follow Up Result		Status
Sheet number							Action	Owner	Date	Result	
No.	Issue										
											
											
											
											
											
											
											
											



Spirits of improvement

1. Challenge all the fixed ideas
2. Do it now! No excuses
3. Use your wisdom, not money!
4. Get to the root causes by asking 'why?' five times
5. Improvement is infinite, better is not good enough



Learning points



Key takeaways

What are
your key
takeaways
from this
session?



Thank you

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