GIRI members' forum:

How can we learn from errors?

Guest speaker: **Helen Soulou**
Head of quality management, Heathrow Airport

30th November 2020 1.30pm

Working together to eliminate error,
by industry, for industry.

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Get It Right Initiative

getitright.uk.com @GIRI_UK @GIRI

Online forum: housekeeping

- Presentation is being recorded and will be posted on our YouTube channel
- ‘Raise hand’ to speak.
- Use chat box to share ideas.
- Microphones – muted unless speaking. Host will mute if necessary.
- Cameras – off, but switched on if possible when speaking.

Today’s agenda

- GIRI update and feedback from previous forums
- How can we learn from errors?
- Q&A discussion
- Summary of key observations

GIRI update: Ed McCann

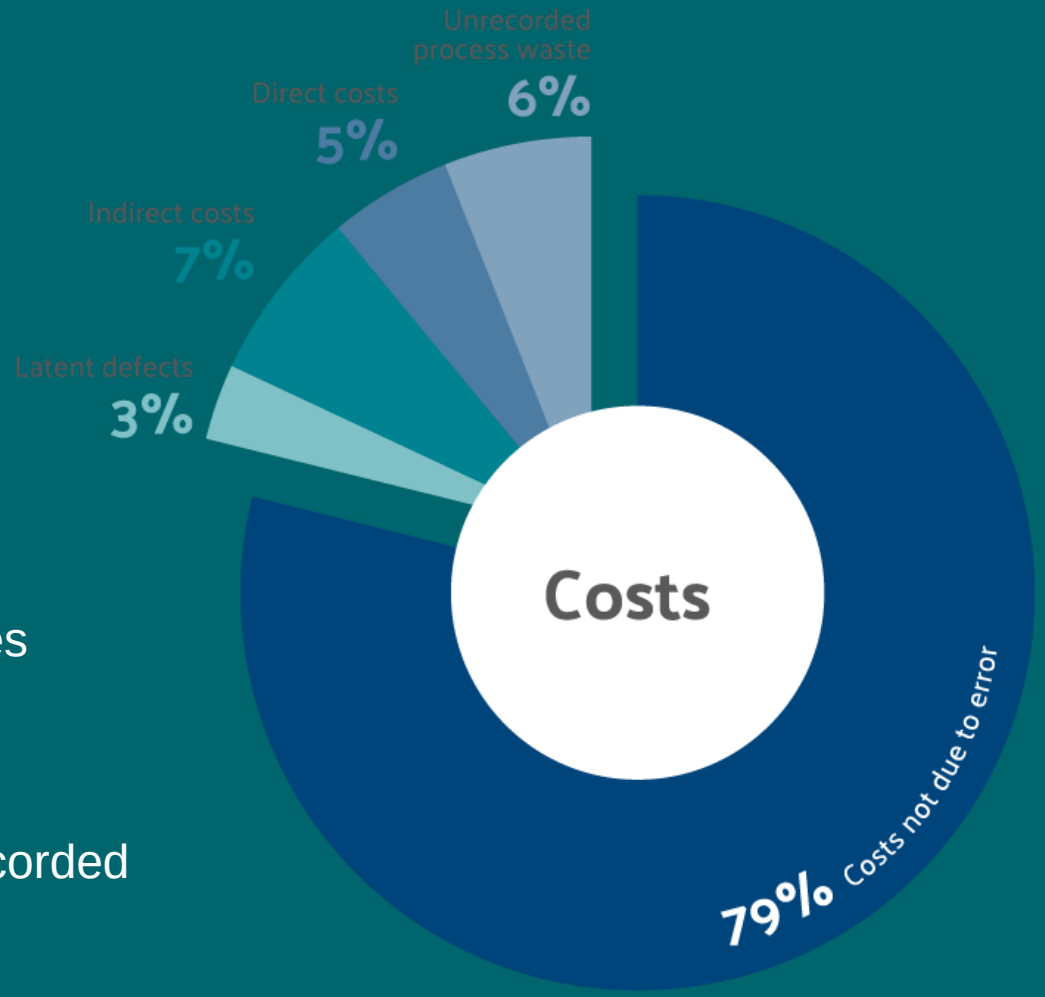
Wasted spend on error

Direct costs of error (5%)
resources used in correcting an error

Indirect costs of error (7%)
Resources used in follow on work and costs to other parties

Unrecorded process waste (6%)
Errors occur, are identified and corrected without being recorded

Latent defects (3%)
remain in place after client acceptance and any 'defects liability period' has passed



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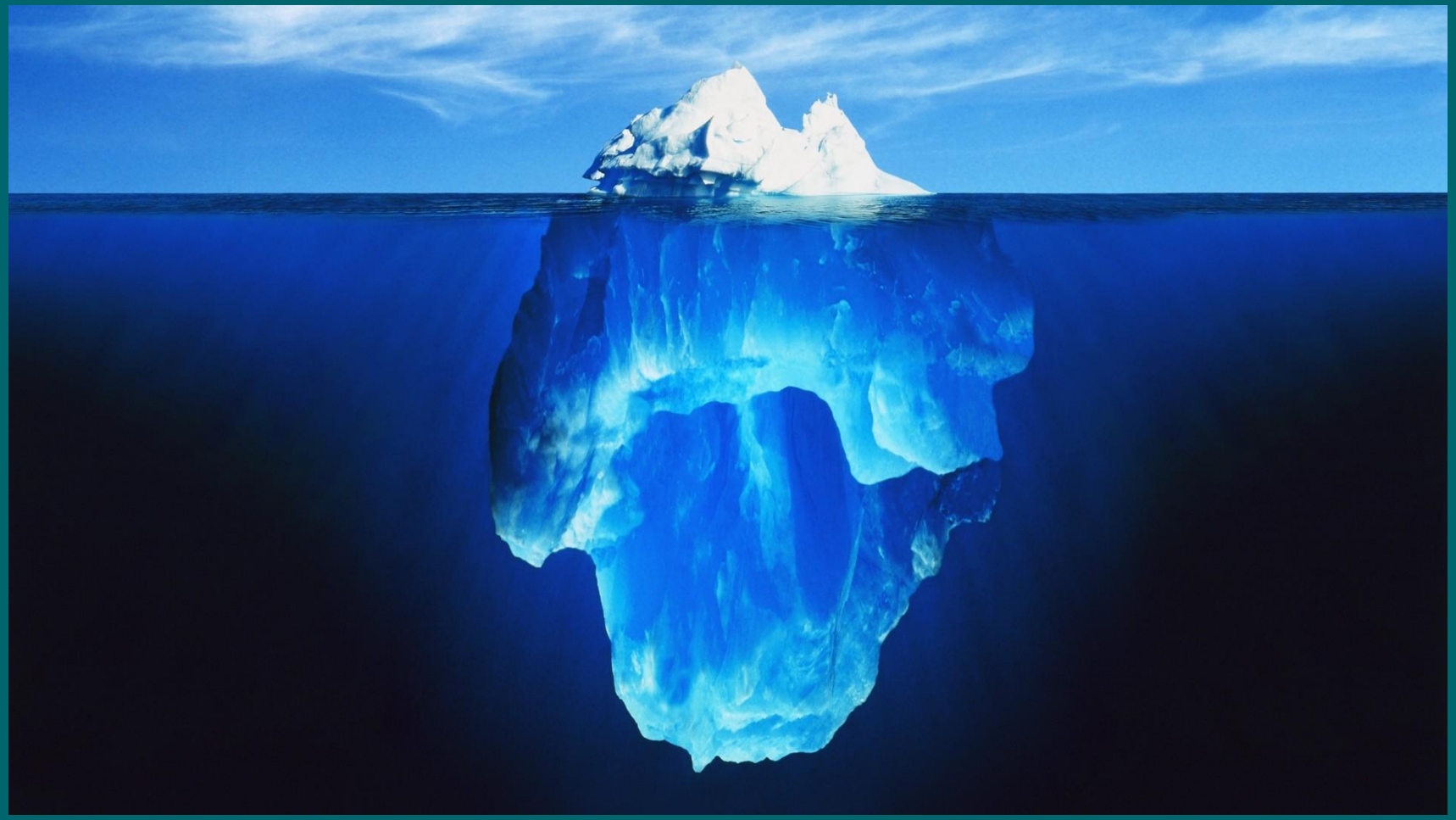

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Root causes of error

- Inadequate planning (from task through to project level)
- Late design changes
- Poorly communicated design information
- Poor culture in relation to quality
- Poorly coordinated and incorrect design information
- Inadequate attention paid in the design to construction
- Excessive commercial (financial and time) pressures
- Poor interface management and design
- Ineffective communication between team members
- Inadequate supervisory skills

“Any part of this sector who thinks they can survive by standing still or defending their current territory is sadly mistaken”

Dame Judith Hackitt

Strategic aim of GIRI

To improve construction productivity and quality by eliminating error.

Recent GIRI forums

- Checking procedures and how they impact on error reduction
- Behaviours to prevent error
- Creating and maintaining a positive culture
- Working with a changing supply chain & materials

How can we learn from errors?

Helen Soulou

How can we learn from errors?

Helen Soulou
Head of Quality
Heathrow Airport Ltd.

Helen Soulou

- Board Member at GIRI
- Automotive, aerospace , infrastructure projects
- MSc in Quality Management
- Fellow of the Chartered Quality Institute
- Honorary Lecturer at UCL, Barlett School of Construction and Project Management

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History of the 8D

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The 8 Discipline Problem Solving Tool

- Developed at Ford Motor Company in 1986-1987
- Team Oriented Problem Solving tool - created upon senior management request
- In the 1990s Ford re-wrote some material and it was retitled “Global 8D”
- 1996 Ford-Firestone tyre failures lead to 271 deaths, 23 million tyres recalled – 8D investigation lasted for years and root cause was identified and resolved
- One of the most popular tools used today by any industry to solve complex problems

Designed for: containment, root cause analysis, prevention

Prevention

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Root Cause Analysis linked with Safety Prevention

- 2018: Every safety alert to be accompanied by root cause analysis using a standardised template
- “Workmanship” is banned as a root cause
- Forum to share the learning amongst Heathrow, designers and contractors
- Simple measure: Safe Days
- 2019: Quality and Safety Campaign

2020: Best ever Safe Days score

293 days

An exceptional example

Incident Description

Whilst carrying out **high pressure injection works** to repair a crack in a concrete structure, a member of the team sustained a **high pressure injection injury to their left thumb**.

This resulted in the **amputation of the tip of the affected thumb and extensive surgery to the affected hand**

Root Cause

The root cause of the accident was identified as a **design issue which allowed the system to remain pressurised whilst the feed hose to the wall fitting was adjusted.**

It was this act that allowed the injection fluid to escape under pressure whilst the injured party's hand was in a position that was exposed to danger

An exceptional example

Preventive Action

The pressure injection equipment **was re-engineered to eradicate the potential for this to happen again**. In addition to this additional **control measures were also added to the operating procedures** for the activity to ensure that the safety of the personnel using the equipment was maintained. (i.e. Use of injection resistant gloves, retraining, etc)

To address the root cause of the accident, the supplier re-engineered the pressure injection unit to make it a **two handed operation**. In doing so, this ensures that the system cannot deliver a pressurised flow of resin **unless the two separate controls are activated.**

This effectively means that the operator **cannot then place their hand near to the hazard area when the system is pressurised and that the pressure within the system is "dumped" should they remove either one of their hands from the controls.**

A secondary **thumb cage / guard** has also be attached around the wall fitting connection point to prevent the operator (or any other person) from putting their hand in a position that may be exposed to danger.

The Toolkit

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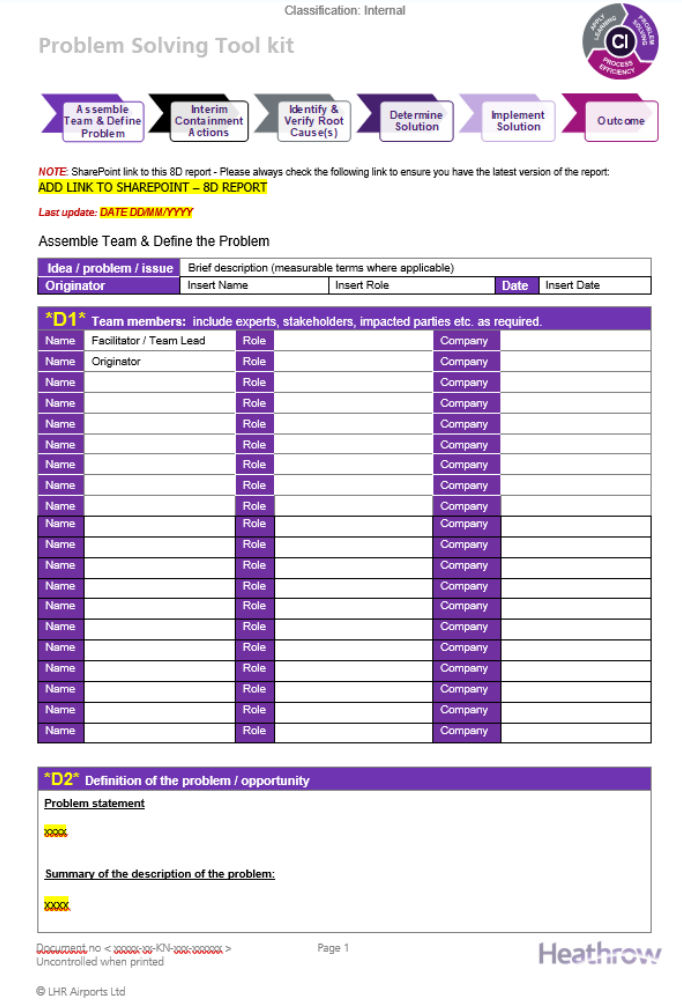
Assemble Team & Define Problem | Interim Containment Actions | Identify & Verify Root Cause(s) | Determine Solution | Implement Solution | Outcome



Classification: Internal

Problem Solving Tool kit

Assemble Team & Define Problem | Interim Containment Actions | Identify & Verify Root Cause(s) | Determine Solution | Implement Solution | Outcome

NOTE: SharePoint link to this 8D report - Please always check the following link to ensure you have the latest version of the report:
ADD LINK TO SHAREPOINT – 8D REPORT

Last update: DATE DD/MM/YYYY

Assemble Team & Define the Problem

Idea / problem / issue	Brief description (measurable terms where applicable)				
Originator	Insert Name	Insert Role		Date	Insert Date

D1 Team members: include experts, stakeholders, impacted parties etc. as required.					
Name	Facilitator / Team Lead	Role		Company	
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Name		Role		Company	
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D2 Definition of the problem / opportunity

Problem statement

xxxx

Summary of the description of the problem:

xxxx

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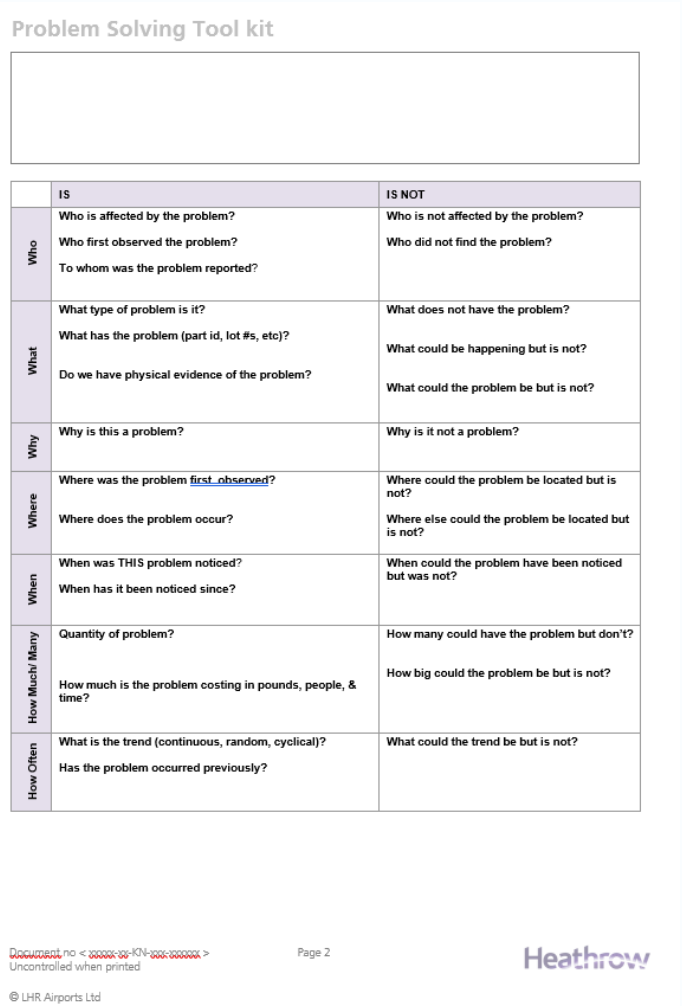

Problem Solving Tool kit

	IS	IS NOT
Who	Who is affected by the problem? Who first observed the problem? To whom was the problem reported?	Who is not affected by the problem? Who did not find the problem?
What	What type of problem is it? What has the problem (part id, lot #s, etc)? Do we have physical evidence of the problem?	What does not have the problem? What could be happening but is not? What could the problem be but is not?
Why	Why is this a problem?	Why is it not a problem?
Where	Where was the problem first observed? Where does the problem occur?	Where could the problem be located but is not? Where else could the problem be located but is not?
When	When was THIS problem noticed? When has it been noticed since?	When could the problem have been noticed but was not?
How Much/ Many	Quantity of problem? How much is the problem costing in pounds, people, & time?	How many could have the problem but don't? How big could the problem be but is not?
How Often	What is the trend (continuous, random, cyclical)? Has the problem occurred previously?	What could the trend be but is not?

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- **D1**: Form the team
- **D2**: Determine the problem

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“Is” And “Is Not” Analysis

	IS	IS NOT
Who	Who is affected by the problem? Who first observed the problem? To whom was the problem reported?	Who is not affected by the problem? Who did not find the problem?
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- **D2**: Determine the problem

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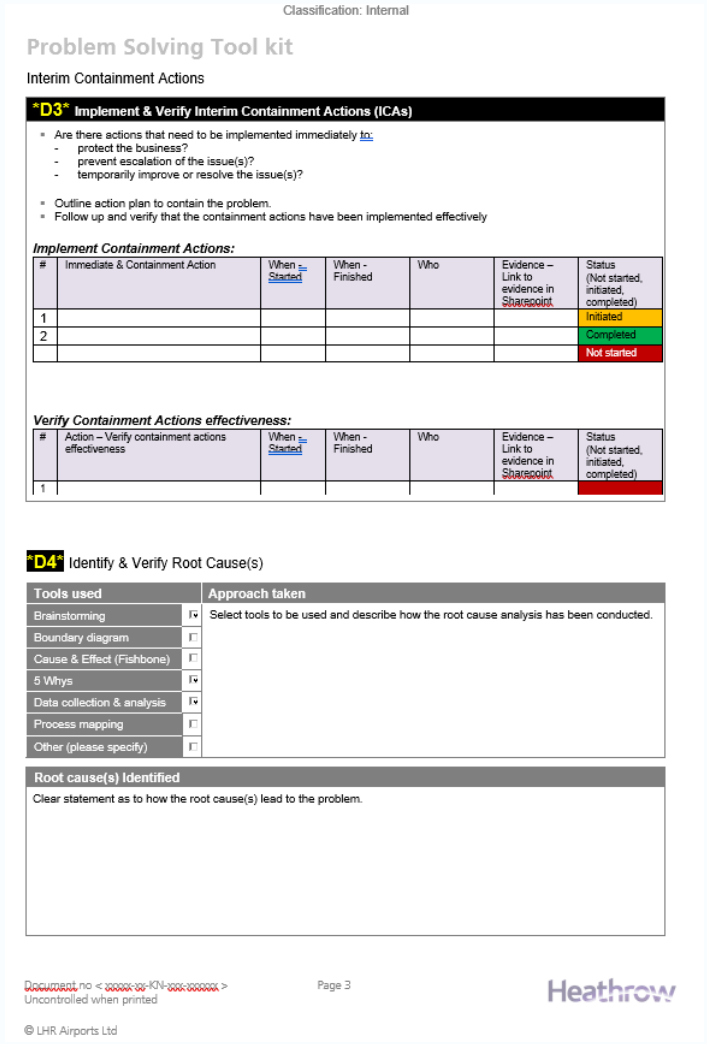

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Problem Solving Tool kit

Interim Containment Actions

***D3* Implement & Verify Interim Containment Actions (ICAs)**

- Are there actions that need to be implemented immediately to:
  - protect the business?
  - prevent escalation of the issue(s)?
  - temporarily improve or resolve the issue(s)?
- Outline action plan to contain the problem.
- Follow up and verify that the containment actions have been implemented effectively

Implement Containment Actions:

#	Immediate & Containment Action	When – Started	When - Finished	Who	Evidence – Link to evidence in Sharepoint	Status (Not started, initiated, completed)
1						Initiated
2						Completed
						Not started

Verify Containment Actions effectiveness:

#	Action – Verify containment actions effectiveness	When – Started	When - Finished	Who	Evidence – Link to evidence in Sharepoint	Status (Not started, initiated, completed)
1						

D4 Identify & Verify Root Cause(s)

Tools used		Approach taken
Brainstorming	☑	Select tools to be used and describe how the root cause analysis has been conducted.
Boundary diagram	☐	
Cause & Effect (Fishbone)	☐	
5 Whys	☑	
Data collection & analysis	☑	
Process mapping	☐	
Other (please specify)	☐	

Root cause(s) Identified
Clear statement as to how the root cause(s) lead to the problem.

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- **D3**: Implement and verify containment actions
- **D4**: Root cause analysis (with selection of tools)

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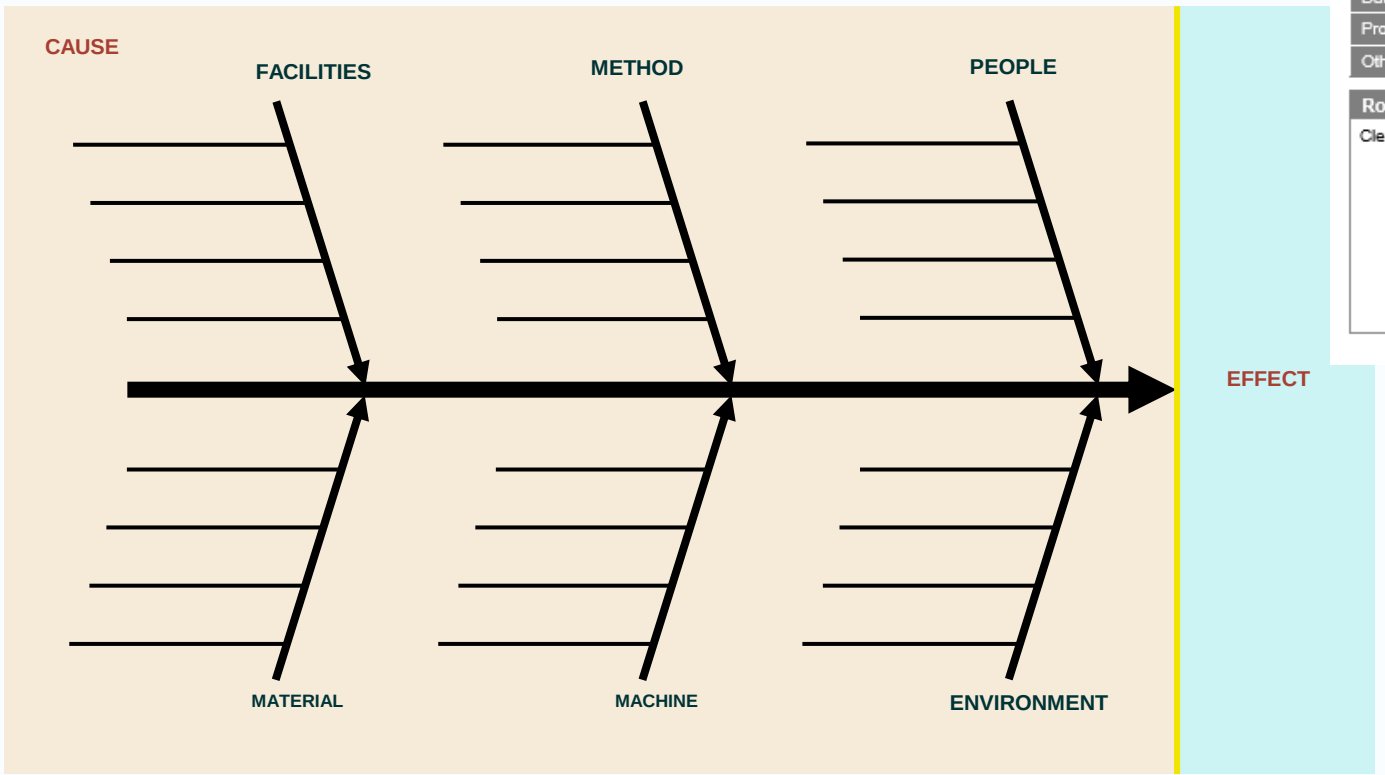
D4: Root cause analysis

Cause and Effect – the Fishbone Diagram

Technique to help identify all of the likely causes of a problem / issue



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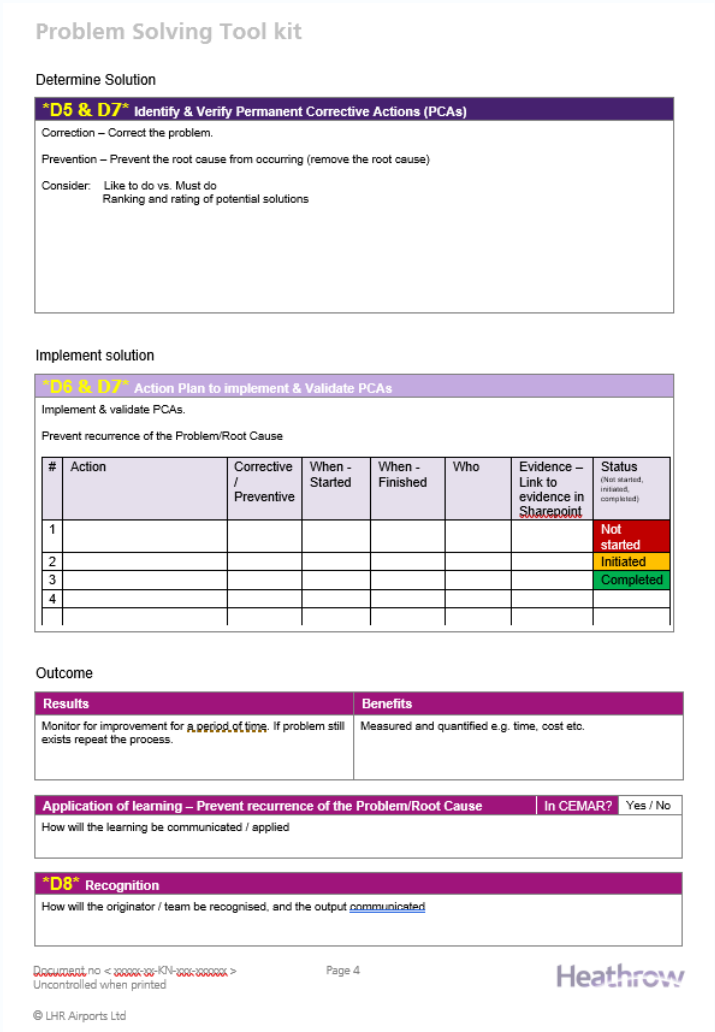

Problem Solving Tool kit

Determine Solution

D5 & D7 Identify & Verify Permanent Corrective Actions (PCAs)

Correction – Correct the problem.

Prevention – Prevent the root cause from occurring (remove the root cause)

Consider: Like to do vs. Must do
Ranking and rating of potential solutions

Implement solution

D6 & D7 Action Plan to implement & Validate PCAs

Implement & validate PCAs.

Prevent recurrence of the Problem/Root Cause

#	Action	Corrective / Preventive	When - Started	When - Finished	Who	Evidence – Link to evidence in Sharepoint	Status (Not started, initiated, completed)
1							Not started
2							Initiated
3							Completed
4							

Outcome

Results	Benefits
Monitor for improvement for a period of time. If problem still exists repeat the prooess.	Measured and quantified e.g. time, cost etc.

Application of learning – Prevent recurrence of the Problem/Root Cause	In CEMAR?	Yes / No
How will the learning be communicated / applied		

D8 Recognition

How will the originator / team be recognised, and the output communicated

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- **D5**: Evaluate root causes and generate solutions (corrective actions)
- **D6**: Implement solution
- Outcome: Results and benefits achieved
- **D7**: Application of learning (prevent recurrence of the problem/root cause-s)
- **D8**: Recognise the efforts of the Team

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Thank You

Any Questions?

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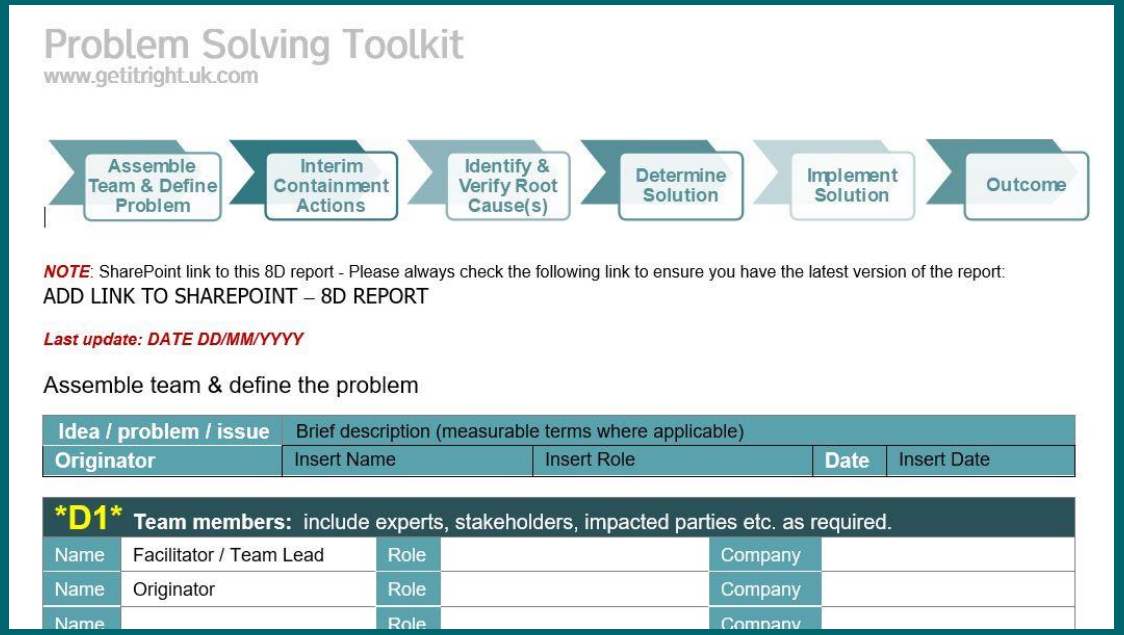
GIRI toolkit template



Problem Solving Toolkit
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Name	Originator	Role		Company	
Name		Role		Company	

Sign up to our newsletter on www.getitright.uk.com to receive download link

Next event:

Better knowledge means fewer errors

Guest speaker: **Dr Gregor Harvie**
Co-founder and director of Designing Buildings Wiki

14th December 2020 1.30pm

Working together to eliminate error,
by industry, for industry.

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