Workshop:

Problem Solving and Leading & Sustaining Change
An Introduction to Problem Solving

A structured approach to problem solving & improvement
Problem solving

Not just for problems…

- The **processes** for problem solving & an improvement project are the **same**
  - The only difference is the current performance:
    - Problem Solving: Current performance is not achieving current expectation
    - Improvement Project: Current performance meets current expectation
Why structured problem solving?

“That neighbourhood implemented gates and it improved their safety.”

“We should have a gate”
Why structured problem solving?

- To manage human instinct
  - Generally, people are inclined to fix problems
  - ‘Fixing’ without first understanding often leads to wasted effort & frustration

- To facilitate collaboration
  - A structured framework makes problem solving predictable
  - Staff can engage and collaborate because they know what to expect from the process

- To build individual and organisational capability
  - A structured approach allows individuals to learn quickly
  - Organisational improvement capability relies on individual problem solving capability

- To make problem solving more successful
  - Put simply, a structured approach to problem solving is far more effective than an ad-hoc approach
Which approach is best?

- Practical problem solving (PPS)
- 8-D - 8 “Disciplines” or “Dos”
- C4 – Concern, Cause, Countermeasure, Confirm
- DMAIC - Define, Measure, Analyse, Improve, and Control
- Plan – Do – Check – Act / Plan – Do – Study – Act

All are great – Fundamentally, they all cover the same steps
Key steps of problem solving

- Define
- Measure
- Analyse
- Improve
- Control
Key steps of problem solving

**D - Define**
Identify the gap between current and ideal performance. Set a target for improvement.

**M - Measure**
Understand the current state through data collection and analysis and process mapping. Identify specific problems and establish ‘baseline’ performance.

**A - Analyse**
Investigate the possible causes and conduct root cause analysis to identify all root causes.

**I - Improve**
Identify and assess potential improvements to address the root causes. Plan and implement the changes in a controlled fashion.

**C - Control**
Monitor the process to confirm that improvement is achieved and sustained. Once sustained, spread the learning to other processes and areas of the organisation.
Before jumping in...

- Team roles & responsibilities
  - Project Sponsor
  - Project Lead
  - Project Team
  - Problem Solving SME

- Project Structure

- Project timing & reporting
Before jumping in…

- Teamwork is critical to effective problem solving
- Problems cannot be effectively addressed by individuals
- The Leader needs to establish a team of all relevant people
- There is no hierarchy in the team – everyone must be free and encouraged to contribute
Define
The definition of a problem is a gap between the current and the ideal conditions.

- The ideal condition should be aligned with organisational policy and direction
- The gap (problem) should be quantifiable

Note, while not ideal, in the initial absence of data required to quantify a problem, the process can proceed to the Measure phase where the appropriate data can be collected.
Define

- At this stage, a **target** for the project should be set.
- The target will **not** always be to **eliminate** the **GAP** – often the gap will be too big to achieve with one project.
- The target should be **SMART**:
  - **S**pecific: The scope should be clear
  - **M**easureable: The target should be objectively measureable
  - **A**ppropriate: The ideal condition should be aligned to organisation direction
  - **R**ealistic: The scope and target are realistic given the resource, time & authority available
  - **T**imebounded: Time for successful achievement is clear
Measure
There are two goals to the measure phase:

1. **Understand the current process and performance**
   - Establish a depth of knowledge of the process
   - Identify specific areas & problems for improvement focus

2. **Establish ‘baseline’ performance with reliable data**
   - Collect data to ensure that the impact of the future changes can be objectively assessed
4Ws & 1H of the problem:

<table>
<thead>
<tr>
<th>WHAT?</th>
<th>What specific problems are occurring?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E.g. The main problem may be errors on paperwork. To understand <strong>what</strong>, you should understand what type of errors (spelling mistake, missing info, wrong info, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHEN?</th>
<th>When do the problems occur (&amp; when don’t they occur)?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E.g. The main problem may be errors on paperwork. To understand <strong>when</strong>, you should understand when they occur (days of the week, weeks of the month, are there any patterns, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHERE?</th>
<th>Where are the problems originating or identified?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E.g. The main problem may be errors on paperwork. To understand <strong>where</strong>, you should understand where they originate or are found (specific steps in a process, specific part of the building, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHO?</th>
<th>Who is involved with the problems (&amp; who is not)?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E.g. The main problem may be errors on paperwork. To understand <strong>who</strong>, you should understand who is involved when the problems occur (specific departments, new/old staff, etc.)</td>
</tr>
</tbody>
</table>

| HOW MUCH? | Understand, in a quantifiable manner, how much the problem is affecting the organisation & it’s customers |
Measure

TOOLBOX

- Process Mapping (& Value Stream Mapping)
- Check sheet
- Pareto Analysis
- Scatter diagram
Measure

Process Mapping

- A process that is not understood cannot be improved
  - Understand process inputs and outputs
  - Understand process relationships, dependencies & bottlenecks
  - Identify what data is required to understand the process properly

- A process map is a step by step visualisation of the process
- Capture what actually happens - not what is supposed to happen!
- Keep it simple – post-it notes, butcher’s paper & white boards are your friend!
Measure

Value Stream Mapping

A detailed map of **all** the steps that occur to achieve a specific outcome

- Process flow
- Information flow
- Value add
- Non-value add
Measure

VSM - Current State Map

“We never had any problems until you started your Value Stream Mapping”
Measure

VSM - Current State Map

a. Identify the main steps
Measure

VSM - Current State Map

b. Identify waiting time between steps
Measure

VSM - Current State Map

c. Add process information
d. Add information flow
e. Plot the value added and lead time
Measure

VSM - Current State Map

f. Map the process movement
Measure

VSM - Identify problems

(this is actually part of the “Analyse” stage)
Measure

Check Sheet

- Often the required data to properly understand the process will not be immediately available
- When sufficient data is not available it must be collected
- Checksheets are a quick and easy way to collect data

- Design the Check sheet with the user in mind
- Collect as much detail as practically possible (4Ws, 1H)
- Respect those you are asking to collect the data – involve them and clearly explain the purpose
Pareto Analysis

- Commonly known as the 80:20 rule
  80% of problems can be attributed to 20% of causes
- Pareto charts can help stratify data and focus efforts where the most problems are

![Paperwork errors chart](image)

![Dept 1 paperwork errors chart](image)
Scatter Diagram

- Scatter diagrams are used to identify relationships/correlations.
  
  Note: Correlation does not infer causation.

- Understanding relationships can help better understand the current state and identify abnormal conditions.

![Observed relationship and Abnormal cohort diagram]

30
Analyse
The Analyse phase is a structured approach focused on identifying the **Root Causes** of the problem.

1. **Point of Cause**  WHERE?
2. **Direct Causes**  WHAT?
3. **Root Causes**  WHY?
Analyse

Toolbox

- Process Mapping – Point of Cause analysis
- Fish bone diagram (Ishikawa diagram) – Possible causes
- 5-Why analysis – Root cause analysis
Point of Cause

- The point of cause is where the problem is occurring
- If the Measure phase is completed correctly, this will be a simple task
- Use the process map and the collected data to isolate the problem
Analyse

Cause & Effect

- Identifying all possible causes should be done as an open brainstorming session
- Unusual cause ideas should be welcomed
- Discussion, interaction and idea building should be encouraged
- Use a ‘Fish-bone’ diagram to frame the thinking
Cause & Effect (Brainstorming)

- Focus on Quantity of ideas, not quality
- **Teamwork** will generate synergy of ideas
  - Combine ideas
  - Build on ideas
- Use sticky notes on a wall or a whiteboard for ease
Ask the question:
How could the method contribute to this problem?
Analyse

Fish-bone diagram

- Once the brainstorming is complete, group the ideas into common themes/ideas
- Confirm or eliminate cause ideas using data and process observation

- The confirmed causes are called Direct Causes
Root cause analysis

- Once the **Direct Causes** are identified, it's time to investigate the root cause.
- Root cause analysis is conducted using **5-why analysis**.
When to stop asking “why?”

- It won’t always take 5 ‘whys’ to reach the root cause
- Stop asking why if...
  - The causes start becoming more vague (rather than more specific)
  - The causes are outside of the scope of the project
  - The causes become a matter of individual personality

Common misconceptions

- 5-why analysis is linear (once answer to every why)
  - 5-why analysis is messy and branches out
  - Just answer the question “why?” - don’t worry about what it looks like

- There is only 1 root cause to any problem
  - Most problems cannot be effectively eliminated by addressing only 1 root cause
Improve
The Improve phase involves identification, development and implementation of improvement actions for each root cause.

1. Identify possible improvements

2. Assess potential improvements

3. Implement agreed improvements
Improve

TOOLBOX

- How-How Diagram
- Decision Matrix
Solution Development

- Multiple solutions for each Root Cause should be identified
- Solutions should be developed primarily by the staff from the area that will be affected
- For complex solutions, a How-How Diagram can help simplify and guide a team’s thinking process
**Improve**

**How-How Diagram**
- By repeatedly asking “How?” you can explore the possible solutions

Example:

- Improve form usability
- Improve knowledge
  - Make it more logical
  - Create ‘how-to’ sheet
  - Train staff
  - Align to work sequence
  - Use common language
- Group Training
- In team meetings

Possible solutions

**How, How, How…**
Assessing possible solutions

- Not all proposed solutions should be implemented
- Solutions should be assessed for effectiveness and cost

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy (assuming 100% adherence)</td>
<td>Efforts &amp; cost to implement</td>
</tr>
<tr>
<td>Ability for solution to be sustained</td>
<td>Training costs</td>
</tr>
<tr>
<td>Suitability for all scenarios</td>
<td>Effort &amp; cost to maintain</td>
</tr>
</tbody>
</table>
Decision Matrix

MED-HIGH COST, HIGHLY EFFECTIVE

“Change Projects”

LOW COST, HIGHLY EFFECTIVE

“Quick Wins”

MED-HIGH COST, LESS EFFECTIVE

Unlikely to implement

LOW COST, LESS EFFECTIVE

“Stop gaps”
Solution Implementation

- Once solutions and improvements have been agreed and appropriately approved, they must be implemented in a controlled way.

- The implementation process will vary for each change but should consider:
  - Implementation sequence & schedule
  - Communication of changes
  - Training (directly affected staff and potentially up and down stream stakeholders)
  - Update of standards (forms, training material, policies, etc.)
Solution Implementation

Implementation sequence & schedule

- Plan the implementation in stages
  - Wards/ units
  - Patient cohorts
  - Campuses…
- Document the plan
- Refer to the plan often (regular management)
Solution Implementation

Communication of changes

- Initial communication should come from project team members
- Not just at implementation timing!
- Consider different communication styles
Solution Implementation

D.O.P.E. Personalities – communicating with them

- Be systematic
- Listen
- Talk about teamwork
- Don’t rush

Doves

- Be systematic
- Provide analysis
- Don’t get personal

Owls

- Develop relationship
- Be enthusiastic
- “what’s in it for them”

Peacocks

- Be direct
- Talk about facts
- Expect to talk about results

Eagles
Solution Implementation

Training

- Changing the way you work takes effort
- Provide structured training
- Expect that the process will slow down for some time
Improve

Solution Implementation

Training
Control
Control

The Control phase ensures that improvements are achieved, sustained and that the lesson’s learnt are shared.

1. **Monitor performance of the process**

2. **Share the improvement and lesson’s learnt**
Control

TOOLBOX

Statistical Process Control (SPC) tools

- Run Chart
- Control Chart

A3 reporting
Statistical Process Control (SPC)

- SPC is an approach to performance monitoring that primarily uses data.
- Some level of SPC should be conducted during and after the implementation of change in a process.
- SPC will allow you to:
  - Monitor the effectiveness of the changes.
  - Objectively measure success.
  - Monitor performance to ensure there are no unintended consequences to the changes (e.g. quality, leadtime, etc.).
Statistical Process Control (SPC)

- There are many SPC tools but the basic tools that will be used most often are:

1. **Run Charts**
   - Monitor change over time
   - Used to monitor the impact of discrete changes (assuming different implementation timing)

2. **Control Charts**
   - As the name suggests, used to ensure the process is ‘in control’
   - Often used to monitor peripheral processes to ensure no detrimental impact after change
   - Can be used to monitor variation reduction projects
Control

Statistical Process Control (SPC)

- The cadence of review should reflect the importance and volatility of the data being measured (Expect problems!)

- High frequency of checking early until actions are proven

- Not all actions will work first time – be prepared to check and adjust
Control

Sharing the learning

- The process of successfully addressing a problem or implementing an improvement is something that should be celebrated, shared and spread.

- Problems and solutions are rarely unique to individual departments, units, wards, etc.

- **A3 reporting** provides a vehicle for sharing success
A3 reporting

- The purpose of an A3 report is to **tell a story** that is easy to understand.

### EXAMPLE

<table>
<thead>
<tr>
<th>1. DEFINE: Initial Problem</th>
<th>4. ANALYSE: CAUSE &amp; EFFECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. MEASURE: Current Condition</td>
<td>5. ANALYSE: ROOT CAUSE</td>
</tr>
<tr>
<td>3. ANALYSE: Point of Cause</td>
<td>6. IMPROVE: IMPROVEMENT ACTIONS</td>
</tr>
<tr>
<td></td>
<td>7. CONTROL: RESULTS</td>
</tr>
</tbody>
</table>

- Space is limited – focus on what’s important.
- The amount of space should align with the length of time spent on each phase – typically most on MEASURE & ANALYSE.
- Tell a story – anyone should be able to read and understand it.
1. DEFINE: Initial Problem

2. MEASURE: Current Condition

3. ANALYSE: Point of Cause

4. ANALYSE: CAUSE & EFFECT

5. ANALYSE: ROOT CAUSE

6. IMPROVE: IMPROVEMENT ACTIONS

7. CONTROL: RESULTS
If one doesn’t have time to prevent problems recurring, where does one find the time to keep on fixing them?
Coaching through problem solving

- Manage the process, not the outcome
- Ensure all steps are followed, even when they seem trivial
- Manage enthusiasm to ‘jump ahead’
Coaching through problem solving

- All steps of the problem solving process are important but some may require extra focus to ensure an effective result

- Recognise the key focus points:
  1. Problem Definition & Cause & Effect Investigation (same risk)
     - Be aware of individuals’ bias
     - Avoid jumping to conclusions
     - Allow everyone to be heard
  2. Create & Follow Schedule
     - Be disciplined in following up
     - Manager’s should also follow up
Coaching through problem solving

Problem Definition and Cause & Effect Analysis

- An open mind is a key requirement for effective problem solving

- Often people think they ‘already know’ what is causing the problem
  - If this is not managed, the problem solving process becomes useless

- An effective Leader will carefully guide the team through this process
Coaching through problem solving

Create & Follow Schedule

- Once a countermeasure has been agreed, develop an implementation plan

- Make sure the plan includes:
  ✓ Standardisation
  ✓ Training (of all staff)
  ✓ Increased cadence of management at implementation
  ✓ Confirmation of effectiveness (multi checks over time)

- Monitor the plan (who, when, how?)

- Share the results – A3 reporting
Key steps of problem solving

1. **Define**
2. **Measure**
3. **Analyse**
4. **Improve**
5. **Control**
Leading & Sustaining Change
But ideas are cheap; plenty of armchair generals have proposals for winning wars, some of them quite clever, but only those who can shape and manage a force capable of doing the job ultimately succeed.

- General Stanley McChystal, US Army (retired)
Leading & Sustaining Change

Performance

Time (weeks)

Time (years)

…what now?
Leading & Sustaining Change

- Sustaining a discrete improvement is important – but it’s not enough
- The goal is to sustain the **trajectory of improvement**

![Graph showing performance over time with a trajectory of improvement](image-url)
The iceberg of success

What we see

SUCCESS!

What we don't see

Failures
Discipline
Organisational capability
Leadership
Persistence
Leading & Sustaining Change

Direction

Capability

Control
Leading & Sustaining Change

- Where are we going?
- Organisational Behaviours
- Targets
- Trust the process
- Leadership style
Where are we going?
Where are we going?

Leadership

Why?

Vision & Purpose

How?

Strategic Plan

What?

Operational Plans

The most important but is uninspiring without understanding the Purpose
Organisational Behaviours
Organisational Behaviours

- Establishing organisational behaviours becomes the “How” for an organisation

- Established and agreed behaviours form the basis for what is commonly called ‘culture’

- Leadership plays the critical role in establishing and maintaining them
Organisational Behaviours

Example Organisational Behaviours:

**Challenge** the status quo

**Continuous Improvement** of everything we do

**Go, see & study** to deeply understand the real condition

**Respect** for each other

**Team work**

*Toyota Motor Company*
"You get what you measure"
Targets

These will change as the maturity of an organisation’s improvement capability changes

- **Low capability** – focus on *quantity* of activity (engagement)
- **High capability** – focus on *quality* of activity (results)

Targets should be appropriate for each level (S.M.A.R.T)

Be aware of unintended behaviours that your measures may elicit
Trust the process

"Every system is perfectly designed to get the results it gets."

– W. Edwards Deming
Trust the process

- The right process will get the right outcome

- Only by focusing on the process can we affect the outcome

- When we become entirely focussed on the outcome we become fire fighters
Trust the process

The right process will get the right outcome

Leadership

PROCESS
focus

OUTCOME
focus

PLAN
DO
ACT
STUDY
Leadership style

“I haven’t read your proposal yet, but I already have some great ideas on how to improve it!”
Leadership style

“Lead as if you have no power”

- Consider yourself as a coach or teacher
- Allow team members to own what they do and provide them with the necessary support

Manager
“You need to focus on this area”

Leader
“What is your next focus area?”
## Leadership style

<table>
<thead>
<tr>
<th>Leadership Style</th>
<th>Team Facilitator</th>
<th>Coach, Teacher</th>
<th>Hierarchical Manager</th>
<th>Task Level Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Motivator</td>
<td>Guides the team</td>
<td>“Do it because I said so”</td>
<td>Micro-manager</td>
</tr>
<tr>
<td></td>
<td>“Tell me what you’re doing”</td>
<td>“This is our problem/goal, I will help you address it”</td>
<td></td>
<td>“I want you to do this task and do it like this”</td>
</tr>
</tbody>
</table>

- To drive improvement, Leaders must drive organisational learning
- Only through learning can an organisation improve
- A Leader understands the process deeply through practicing “Go, see, study”

**Functional / General**  
**Deep, thorough**

**Process/ Product/ Service Understanding**
Leadership style

The emotional curve of change:

- Ignorant optimism
- Informed optimism
- Borrowed courage
- Informed pessimism

Without leadership

With Leadership
Leading & Sustaining Change

- Improvement & Problem Solving framework
- Organisational knowledge
- Time
- Reward & Recognition
Improvement & Problem Solving framework
Improvement & Problem Solving framework

- If I identify a problem, what do I do?
- If I have an improvement idea, what do I do?
- If I need help problem solving, who do I see?
Organisational Capability

Improvement & Problem Solving framework

Control
Standardisation
Alignment

Ease of use
Autonomy
Flexibility
Organisational knowledge
Organisational knowledge

- People solve problems... if they know how

- How are people trained in problem solving:
  - Formal training
  - Doing (involvement in projects)
  - Leading (leading projects)
Organisational knowledge

- Contributors
- Active Contributors
- Leaders
- SMEs
Organisational Capability

Time
Forget the sugar coating… **Improvement doesn’t come for free!**

Investment in “off-process” time is needed for:

- Data collection
- Team problem solving
- Training
Reward & Recognition
Reward & Recognition is an important way of advertising the importance of improvement efforts

- Informal
- Project Based
- Formal
Leading & Sustaining Change

- Standardisation
- Appetite for problems
- Visual Management
- Cadence of management
- Front line awareness
Standardisation
Q. What should be standardised?

A. The minimum amount of standardisation to consistently achieve the right result.
Standardisation

- Predictability
- Reliability
- Ease of training

Easy to see when a problem occurs!

Without standardisation, everything’s a problem and nothing’s a problem.
Daily Management

Standardisation

**VARIABLE RESPIRATORY SYMPTOMS THAT SUGGEST ASThma**

**HISTORY AND PHYSICAL EXAMINATION**
- Findings that increase or decrease the probability of asthma in adults
- Supports asthma diagnosis?
  - NO
  - YES

**SPIROMETRY**
- FEV1 before and 10-15 mins after bronchodilator
- Reversible airflow limitation?
  - NO
  - YES

**INVESTIGATIONS FOR SPECIFIC ALTERNATIVE DIAGNOSIS**
- Alternative diagnosis confirmed?
  - NO
  - YES

**FURTHER INVESTIGATIONS**
- Tests as indicated
  - Consider bronchial provocation test
  - Supports asthma diagnosis?
  - NO
  - YES

**CONSIDER REFERRAL**

**ASTHMA**
- Start asthma treatment and review response
Appetite for problems

a must!

Failure is not an option

Step 1 – accept that problems happen
Appetite for problems

The human cost of not addressing problems…

- Delays
- Errors
- Duplication
- Confusion
- Variation
- Backlogs
Appetite for problems

But it gets much, much worse…

At some point, some people will stop caring.

Their desire to “do a good job” is diminished and their effort to improve the process stops altogether.

Problems are accepted as ‘normal’.

People become frustrated, especially at long-running and re-occurring problems.

Problems are identified but not addressed.

“Too busy to improve”
Appetite for problems

But it gets much, much worse…

- If it’s not addressed, this cycle can effectively ruin the culture of an organisation

- Instead of discussing ideas for improvements, the discussions are about “how bad this place is…”

- **Respect** and **Teamwork** are lost

- Improvements cannot be made or sustained
There is a way forward…

- Break the cycle by removing the fuel for the fire
- Make **Problems** the common enemy
- Focus on what everyone can agree on – **Problems!!**
There is a way forward…

- Encourage the identification of problems
- View it as a genuine opportunity

Drive problem solving through team activities. Develop improvement targets.
Visual Management
Visual Management is a set of tools we use to quickly interpret our environment and help us decide what we need to do.
Visual Management should show:

1. Where should we be?
2. Where are we?
3. Any gap between standard & current
Visual Management

- Standard
- Current Status
- Problem
Daily Management

Visual Management
Visual Management

Visual

- Simple
- Relevant
- Easy to update

Easy to do. Often done well.

Management

- Updated regularly
- Reviewed regularly
- Problems actioned

More difficult. Often poorly done.
Cadence of management

Big problems start small…
**Cadence of management**

- **Daily Management**

- **Monthly**

- **Fortnightly**

- **Weekly**

- **Daily**

---

Proactive effort

Reactive effort

**problems**
Daily Management

Cadence of management

Daily Management

Monthly Reporting
Front line awareness
**Daily Management**

**Front line awareness**

- **Reading reports**
  - Management reports
  - A3 reports

- **Discussing performance**
  - Daily huddles
  - Problem solving report-outs

- **Looking for yourself**
  - Process walk
  - Fact / data gathering & checking
  - Looking for problems

Understanding Increases Time to dedicate
Front line awareness

Walk the process regularly but don’t be a tourist
In your own Health Services…

Examples of things that work

Leadership

Organisational Capability

Examples of things that don’t work

Daily Management
Knowing how to solve a problem is a small (but very important!) part of the puzzle.