Root Cause Countermeasure (RCCM)

8-Step Problem Solving
Purpose, Objectives, Scope, Challenges

**Purpose and Benefits**

- Develop a common problem-solving language, pertinent to all functions across the company
- Get to the underlying cause of a significant problem rather than treating the symptom
- Avoid “Ready, Fire, Aim”
- Turn a bias for action into a fact-based problem-solving effort
- Expected Benefits
  - Improved SQDCC results
  - Speed to problem resolution

**Learning Objectives**

- Learn the 8 steps for effective RCCM process
- Understand the resources required and how to provide oversight of the process

**Training Scope**

- In Scope: 8 step process involved in the RCCM process
- Out of Scope: Other uses of the A3 such as project management

**Challenges To Overcome**

- Absence of data to clearly understand the problem
- Jumping to solutions before truly understanding the problem
- Lack of follow through on monitoring after countermeasures are implemented
- Local expertise to support ongoing activity
- Hesitancy to “Slow down to go fast”
- Attacking too much and bogging down
8-Step RCCM Problem-Solving Framework Using A3

Why is it called an A3?

- A3 is just the name of the size of the paper
- You can use them for problem solving, project management, and transformation planning

Straight forward process with everything fitting on one page
Based on Toyota Business Practice (TBP) and Dr Deming PDCA

Toyota Eight Step Problem Solving Process

1. Clarify the Problem
2. Breakdown the Problem
3. Target Setting
4. Root Cause Analysis
5. Develop Countermeasures
6. See Countermeasures Through
7. Confirm Results and Processes
8. Standardize Successful Processes

Lean and Six Sigma Tools Can Be Integrated
Step 1: Clarify the Problem

1. Clarify The Problem

Ultimate Goal
Statement summarizing the "Ultimate Goal" of one's responsibilities and work. Should link purpose of work to Customer viewpoint. (Next process may be customer)

Ideal Situation
Typically a target derived from Scorecard, Transformation Plan, etc (What should happen?) (Reaching the Ideal Situation should contribute to the Ultimate Goal)

Current Situation
What is Actually happening? What are the current results in relation to the Ideal Situation? (Use the same metrics stated in Ideal Situation)

Gap
Visualize the difference between Ideal & Current

Problem Statement:
Summarize problem by restating the Gap

Step 1 is NOT Target setting!

The Problem Should Be Self Evident To The Reader After Reviewing Step 1.
Ask Yourself: “If I Am Not There To Explain It, Can It Be Understood?”
Step 2: Break Down the Problem

There are many tools you can use to break down the problem.

2. Break Down The Problem

Restate the Prioritized Problem at the Point of Occurrence:

First, break down the problem by relative division points (stratification points) using Genchi Genbutsu (Go and See) — so you can break your problem down into manageable pieces to solve one at a time as each may contribute to your overall GAP.

Do not ask why in step two!

Guiding questions to assist in breakdown of data: Who, What, When, Where

Through Genchi Genbutsu — confirm facts — visualize the process and determine the Prioritized Problem at the Point of Occurrence.

**Key Point** — It's where the problem is happening within/at the process.

If the process isn't defined, you must visualize it.

**If there is an output, there is a process!**

If there is not adequate data to state the Prioritized Problem, DO NOT continue to step 3!

There are many tools you can use to break down the problem:

- Brainstorm/Affinity Diagram
- Value Stream Mapping
- Process Mapping With Disconnects

Understand the process through Genchi Genbutsu:

If there is not adequate data to state the Prioritized Problem, DO NOT continue to Step 3!
Step 3: Target Setting

3. Target Setting
Do What, To What, How Much, By When:

Use the Prioritized Problem from Step 2 to select a specific Target, stating; DO WHAT, TO WHAT, HOW MUCH, BY WHEN

Link Specific Target to the Main Gap found in Step 1 (Ex: By reducing x# of defects, Quality should improve 1%)

Does the Target have a clear link to the Gap from Step 1?

Do What? How Much?
To What? By When?

Is it quantitative, detailed, and challenging enough?

Prioritized Problem To Pursue
Step 4: Root-Cause Analysis

4. Root Cause Analysis

Repeatedly ask “Why?”

Problem to Pursue

“WHY?” (Speculate Causes)

Cause

Cause

Cause

Check Back From Root Cause With “Therefore”

Root Cause

Go & See

Confirm FACTS, and if there’s no cause-and-result sequence in the cause, stop asking “WHY?”

Listen to Process TM

* It is quite normal to find multiple Root Causes

PROBLEM
Our client is refusing to pay for leaflets we printed for him

WHY
The delivery was late, so the leaflets couldn’t be used

WHY
The job took longer than we expected

WHY
We ran out of printer ink

WHY
The Ink was all used on a large, last-minute order

WHY
We didn’t have enough Ink in stock, and couldn’t order new supplies in time

COUNTER-MEASURE
Find an Ink supplier who can deliver at short notice, so that we can continue to minimize inventory, reduce waste, and respond to customer demand.

Root-Cause Assessment Is a Critical Step; Identify the Biggest Cause
Step 5: Develop Countermeasures

5. Develop Countermeasures

Without preconceived ideas develop as many potential countermeasures as possible. Utilize your network of team members for ideas to get diverse opinions from inside and outside the Group. This is an opportunity to seek bold and creative ideas.

<table>
<thead>
<tr>
<th>Root Cause</th>
<th>Countermeasure</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Cost</td>
</tr>
<tr>
<td>Poor Jig Design</td>
<td>Develop New Jig</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Modify Current Jig</td>
<td>X</td>
</tr>
<tr>
<td>No Std Process</td>
<td>Benchmark other areas</td>
<td>∆</td>
</tr>
<tr>
<td></td>
<td>Develop Std Process</td>
<td>O</td>
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</tbody>
</table>

Evaluate Countermeasures using a Criteria Matrix to prioritize implementation. Consider impact, such as “will this create another problem?”

Focus Countermeasures On Biggest Root Causes
Step 6: See the Countermeasures Through

Create a clear and concrete action plan using a Gantt Chart. Involve all stakeholders (Nemawashi). With united efforts, implement countermeasures with speed and persistence.

- Avoid potential risks and prepare contingency plans for unforeseen changes.
- NEVER Give up in seeking to eliminate the root cause!

<table>
<thead>
<tr>
<th>Countermeasure</th>
<th>Who</th>
<th>When</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B Modify Jig</td>
<td>Tool &amp; Die</td>
<td>1/24, 1/31</td>
<td></td>
</tr>
<tr>
<td>2A Post Focus Area at Gate</td>
<td>Eric M.</td>
<td>2/7, 2/14</td>
<td></td>
</tr>
<tr>
<td>2B Take Defect Pictures (negotiate w/ Assembly GL)</td>
<td>Eric M.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2C Post Pictures at Process / in Breakroom</td>
<td>Eric M.</td>
<td></td>
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</tbody>
</table>

Anyone who has never made a mistake has never tried anything new. -- Albert Einstein

- Mistakes happen.... It’s OK!
- Continue to work through the process
- Persistence is the key

Many of life’s failures are people who did not realize how close they were to success when they gave up.”  Thomas Edison
Step 7: Confirm Results and Process

1. Evaluate the process and share it with all members involved.
2. Evaluate from three key perspectives; Customer’s, Wilo’s, and your own.
3. Understand the reasons for success and failure.

Validate That the Process Can Repeatedly Achieve Intended results.
Step 8: Standardize Successful Processes

Start The Next Round Of Kaizen. Continually Improve The Level And Value Of The Output To Achieve The Ideal “Situation.”
Use RCCM champions and Auditing To Improve Problem Solving Quality

- Select RCCM Champions at each site to mentor others in RCCM usage
- Champions present 8 step RCCM to the panel before coaching others
- Use the Audit Tool to confirm the process is being followed
Typical RCCM Training Session

Plan for;

• Two-day workshop held on site
  • Participants address current problems of the hosting site
  • This is a full focus effort... turn off phones and laptops

• Teams of 4-6 individuals use the 8 Step RCCM process to address preidentified problems

• “Train the Trainer” leaders are identified at each site; each leader must attend two 8 Step RCCM classes and then teach a class

• After each workshop concludes the site leadership has ongoing reviews of the A3s in progress to ensure successful completion
Tips

• Don’t be afraid to fail. The first RCCM event will be clunky and feel uncomfortable

• Brainstorming is hard work. Don’t judge ideas

• Focus on the event. Turn your phones and laptops off. Hold each other accountable for multitasking. “Be Here Now”

• Focus on data quality and then make the best decision you can. Most RCCM events fail to achieve the optimal results because data quality was poor.

• Do not try to cover the whole gap from current to optimal goal in one event. It took a long time to get to where you are, and it will take time to get better. Focus on realistic, but still challenging, goals and constantly improve.

Other Resources

by Art Smalley (Author) Durward K. Sobek II. (Author)

The A3 Workbook: Unlock Your Problem-Solving Mind 1st Edition
by Daniel D. Matthews (Author)
8 Step RCCM Thinking Enables Sustainable Results Improvement

- 8 step RCCM problem solving is critical for to take your performance to the next level
- Effective RCCM problem solving will accelerate SQDCC improvement, growth, and innovation
- It applies to all functions, not just operations
- The most critical steps in the process are:
  - Identifying the underlying root cause(s)... use pareto analysis whenever possible
  - Focusing countermeasures on the biggest root causes (left side of the pareto analysis)
  - Confirm results and clearly understand the results of the implemented countermeasures (issue is no longer the main problem)
- Improve 8 step RCCM quality by using A3 Champions and audit
- Consider using a bowling chart to track multiple projects
Discussion?

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