Root Cause Analysis Series

Step 2: Causal Analysis Guide

LME/MCO: Select Your LME/MCO

With the problem statement and supporting data from Step 1, the next task is to identify causal factors and root cause(s). A causal factor is defined as, "A major unplanned, unintended contributor to an incident (a negative event or undesirable condition) [1] …". The next section will provide some brief information to assist in selecting the best method to use moving forward.

Part 1: Root Cause Analysis Tools

There are several methods and associated tools for the process of root cause analysis, each with a unique set of benefits, drawbacks, and situations where its use is more appropriate. All three tools highlighted below can provide you with critical information, but there are nuances that differentiate their use.

- Five Whys- The five whys encouraged teams to develop a deeper understanding of the problems they face by asking "why?" five times in succession (sometimes more!). It can be completed as a stand-alone activity or as an intermediate step to support completion of the two tools discussed below.
- Cause and Effect Diagram (CED)- Also known as a fishbone diagram, "the CED was designed to sort the potential causes of a problem while organizing the causal relationships."[2]
- Interrelationship Diagram (ID)- "The intent of the ID is to encourage practitioners to think in multiple directions rather than linearly so that critical issues can emerge naturally rather than follow personal agendas... The ID uses arrows to show cause-and-effect relationships among a number of potential problem factors."[2]

Part 2: Selecting a Tool

There are several factors that can influence the decision of which tool is best for a given root cause analysis effort. These include (but are not limited to): group process-relationship building, time, dedicated team, system characteristics, and inter-relatedness of factors.

Complete the chart below to assist you in deciding which supportive RCA tool is the best for your purposes.

Our [item] is/are:	…nonexistent	…varying	…strong
1. Team relationships	☐	☐	☐
2. Team structure (dedicated recurring meeting, clear roles, decision-making process)	☐	☐	☐
3. Time available	☐	☐	☐
4. System characteristics (size, leadership engagement, available resources, etc.)	☐	☐	☐
5. Number/strength of connections between causal factors	☐	☐	☐

[1] *Causal factor (CF)*. AIChE. (2016, July 22). https://www.aiche.org/ccps/resources/glossary/process-safety-glossary/causal-factor-cf

[2] Doggett, A. M. (2005). Root Cause Analysis: A framework for tool selection. *Quality Management Journal*, *12*(4), 34–45. https://doi.org/10.1080/10686967.2005.11919269

Part 2: Selecting a Tool

- If your responses above mostly fall into column 1, consider starting with the Five Whys or a cause-and-effect diagram. Though each RCA tool should be completed as a team process, these require less time and are the simplest of the three options presented.
- If your answers are scattered across columns, there are a couple of factors to consider:
    - Cause and effect diagrams are often the fastest for a team to complete. They work well in situations in which identifying multiple, rather than one singular root cause is sufficient.
    - Interrelationship diagrams are a great tool in situations where the relationships between root and secondary causal factors are not entirely linear. They take more time to complete, but better capture the multiple relationships that a single causal factor may have.

After selecting the tool your team wishes to use, refer to the accompanying handouts (2 (option a)- 2(option c) for more information on how to complete your selected RCA tool. Please note, our team recommends use of only 1 of the demonstrated tools in handouts 2 (option a)- 2 (option c), but teams may choose to use more than one as needed.