

1.4: Alternative Text for Complex Images and Figures

5-Step Practical Problem-Solving Process

The Practical Problem-Solving Cycle involves five steps:

1. Start with a team-based approach. This should be cross-functional with a process owner.
2. Identify the problem. Problem identification requires a goal (target), an actual baseline (the current state), a gap (the difference between the actual and target), and a trend (results over time).
3. Investigate the root cause. Use data, the Pareto principle, Gemba, and the Five Whys methods to generate multiple potential root causes and likely root causes.
4. Implement short-term countermeasures and long-term corrective actions. Short-term countermeasures are quick “Band-Aids to stop the bleeding” and are based on hypotheses. Long-term corrective actions are prioritized by their likely impact on the problem’s resolution.
5. Verify the impact of countermeasures and corrective actions and then start the cycle again.

[\[Back to image\]](#)

Appendix A – Organization Chart

This organizational chart depicts the reporting structure of Crawford Automation. There are three levels from top to bottom.

1. Hugh Robertson, general manager.
2. Direct reports to Hugh Robertson: Frank Jamieson (Marketing and Sales Manager), Harvey Morrison (Plant Manager), Priyanka Kaur (Supply Chain Manager), and Tanya Smith (Human Resources Manager).
3. Direct reports to second-level managers. Jack Tennyson (Ontario Sales), Gilles Langlois (Eastern Canada Sales), and Kyle Adams (Western Canada Sales), report to Frank Jamieson (Marketing and Sales Manager). Michael Brown (Production Supervisor), Arthur Shepherd (Material Coordinator), Neil Sinclair (Maintenance Supervisor), and Paul Robertson (Shipping and Receiving Supervisor) report to Harvey Morrison (Plant Manager). Kevin MacDonald (Purchasing Supervisor), Brian Stewart (Logistics Supervisor), and Linda Jamieson (Inventory Supervisor) report to Priyanka Kaur (Supply Chain Manager). Rosemary Clark (Human Resources Supervisor), Jim Baker (Human Resources Clerk), and Maria Lopez (Benefits Administrator) report to Tanya Smith (Human Resources Manager). End of the organizational chart.

[\[Back to figure\]](#)

Appendix F – Ishikawa Diagram

This Ishikawa diagram shows six broad areas of consideration and the potential root causes within each area. The team cast votes to determine the most likely root causes, which are highlighted in blue, together with the number of votes each potential root cause received. The six broad areas and associated possible root causes identified in the diagram are:

1. Mother Nature (Environment) – comprising possible root causes: Winter weather, Customs delays, Cargo bumping, and Supplier execution (highlighted blue with 10 votes received)
2. People (Resource) – comprising possible root causes: Data management – confirmation not entered (highlighted in blue with 7 votes received), Data entry error by Receiver, Data entry error by Buyer, Process adherence, and Received out of sequence by Receiver (highlighted in blue with 1 vote)
3. Method (Process) – comprising possible root causes: Supplier selection, Supplier relationship management (highlighted in blue with 9 votes received), and Purchase order re-approval / delayed receipt
4. Material – comprising possible root causes: Incorrect freight terms on a Purchase order, Address book set-up, and Commodity performance (highlighted in blue with 1 vote received)
5. Machine – comprising possible root causes: Purchase order issue due to SAP discrepancy, and purchase order receipt out of date
6. Measurement – comprising possible root causes: How we calculate OTD – i.e. transit (highlighted in blue with 1 vote received), Supplier clarification of delivery date shipped versus date received, Movement and disposition time– QA inspection in building 2, No confirmation date received (highlighted in blue with 1 vote received), and By-pass receiving

[\[Back to figure\]](#)

Appendix F1 – Ishikawa Top Three

This figure depicts the top three most likely root cause areas identified through the completion of the Ishikawa diagram in Appendix F.

1. Supplier execution. This received 10 votes. Supplier execution includes delta between request and promise, top contributing suppliers to on-time delivery, transit offset validation, delta between promise and actual, line volumes versus on-time delivery performance, percentage of order completion, ABC complexity versus on-time delivery, manufacturing versus purchase on-time delivery, and geographical versus on-time delivery.
2. Supplier relationship management. This received 9 votes. Supplier relationship management includes the number of supplier corrective action reports issued versus on-time delivery, score cards issues versus on-time delivery, supplier longevity versus on-time delivery, and invoice issues by the supplier.
3. Data management. This received 7 votes and includes invoice issues by the buyer.

[\[Back to image\]](#)

Appendix G – The Five Whys Template

The template is a table with three double-column sections, one for each cause. Each cause is divided into two columns, one with the heading Why? and one with the heading Evidence. The table has five rows with empty cells to fill in the Whys and Evidence for each cause.

There are four main steps to using the Five Whys template:

1. The observed problem is documented to initiate the process.
2. Use the template to document the answers to the following questions.
 1. Why (#1) is the observed problem happening?
 2. What Gemba evidence supports the answers generated?
3. Continue the process for Why (#2) through to Why (#5) as required.
 1. Why (#2) are the answers/findings in the previous step happening?
 2. What Gemba evidence supports the answers generated?
4. Repeat the process by asking up to 5 Why questions until the root cause(s) are identified.

[\[Back to template\]](#)

This page titled [1.4: Alternative Text for Complex Images and Figures](#) is shared under a [CC BY-NC-SA 4.0](#) license and was authored, remixed, and/or curated by [Stephen Thomson, Kevin Hollis, and Laurie Turnbull](#).