



ROOT CAUSE ANALYSIS

Purpose

The goal of a root cause analysis (RCA) is to identify the contributing causal factors that have led to a performance problem.

Needs Assessment Applications

Identifying gaps between current and desired performance is the primary goal of a needs assessment, yet alone this information is not adequate for making decisions about what to do to improve performance. An RCA is, therefore, a useful tool for examining the contributing factors that are preventing current achievements from matching your desired accomplishments (see box 3B.1). An RCA offers a systematic process that can help you determine which processes, procedures, tools, or policies (or combination of the three) are limiting performance and leading to the needs found in your assessment.

Identified root causes can then be targeted by the solution recommendations coming out of the needs assessment. Later, the results of the RCA can

Box 3B.1 Sample Uses of Root Cause Analysis

- Separate problems from symptoms when conceptualizing new projects with clients or partners.
- Identify factors causing a project to be at high risk of failure.
- Determine why a policy reform did not accomplish desired results.
- Resolve questions about how corruption entered a project.

also be monitored to ensure that organizational changes are having the desired effect and to avoid suboptimization (where improvements in one area lead to new problems in other areas). The ability of the RCA to provide this valuable information makes it an integral component to most needs assessments.

Advantages and Disadvantages

Advantages

- An RCA provides a systematic process for examining performance problems for their root causes rather than relying on unverified assumptions or stakeholder perceptions about causes.
- An RCA ensures that you inspect a performance issue from multiple perspectives to determine the range of causes leading to the less-than-desired performance (as opposed to assuming that the causes of the issues are well known and agreed upon by everyone involved).
- Many times an RCA will identify both the components of the system that are blocking desired performance (for instance, out-of-date-procedures or misunderstood expectations) and the parts of the system that are working well at promoting desired performance (for instance, quality managerial feedback). In the end, improving performance routinely requires both fixing the problems and expanding on the things that are being done right.

Disadvantages

- An RCA will frequently identify more causal factors than you have anticipated or are likely to have the budget to address individually. Therefore, it is important to determine the relative effect of each factor and to address as priorities the effects that are the most critical to success.
- As with other systematic processes, an RCA can include procedures that are not familiar to your organization and thus can require that you build a business case for taking additional time and resources to accurately identify the causal factors leading to the performance issue.
- An RCA focuses on causes and does not tell you which interventions or activities will best address each causal factor. However, possible activities are frequently identified during the process. Only after causes are

identified is it beneficial to turn to possible interventions or activities to address the causes.

Process Overview

1. Identify a discrepancy in performance (or need) from the information you have collected thus far in the needs assessment. Frequently, you will only want to complete an RCA for the highest-priority needs so that you can save resources.
2. Create a plan for analyzing the identified need (gap in results). In many ways, the steps of the analysis will often look like a miniature needs assessment within the broader needs assessment. For instance, use a variety of techniques—interviews, focus groups, and document or record reviews—to collect information on the causal factors leading to the performance problem. That information will then be used to identify and prioritize the causal factors and their relative attribution to the performance gap.
3. Remember that your analysis may take from a couple of hours to a week or more, depending on the performance issue. Consequently, as you develop your plan, be sure that you take the scope of the analysis into account when developing a budget and schedule.
4. Know that sometimes your RCA will be driven by a need that is directly related to a specific situation or incident (for instance, you find out that a staff member is using your organization's procurement procedures to make fraudulent transactions or to cover up bribes to a local official). In those cases, it is especially important to start by determining exactly what happened and where the processes, procedures, training, policies, or regulations failed to prevent the incident in the first place.
5. Observe that in other cases, however, the need will not be generated by any single event (such as when an agency fails to meet its annual performance targets for two years in a row). In those situations, it is more challenging to determine which events, policies, procedures, or other activities led to the gap in performance. The RCA processes work effectively in both situations, though the tools and techniques for collecting information may differ.
6. Understand that the analogy of peeling an onion is often associated with RCA because causal factors are frequently many layers deep. At the beginning of the analysis, the causes of the need may seem easily identified.

For example, you may initially find through interviews with managers that a procurement problem is caused by younger staff officers who do not have the experience or training to manage procurement matters. But that is only the first layer. Later, when you talk to staff members you might learn that because of time constraints and inadequate staffing, training is offered only twice a year and contains outdated information. Again, however, as you peel away the next layer and talk to the training department about why the course is offered only twice a year, you may discover that the training department only has a budget to offer training twice a year. Additionally, the training department staff members say that they are waiting for the department that sets procurement policies to update the procurement training manual.

7. As is often recommended, ask the question “Why?” at least five times so you can peel away the layers of causal factors. (See the questions and table 3B.8.)

Problem Statement: In rural areas of the country, the number of female students completing primary school education is significantly below the desired results.

1. **Why** are female students in the area not completing primary school?
 - *Because very few of them ever start primary school.*

Table 3B.8 Root Cause Summary Table

Problem: *Low education rates for girls in rural areas*

Causal factor #1	Path through root cause map	Recommendations
Costs to rural families to send girls to school	<ul style="list-style-type: none"> • School fees • Girls provide labor in the home (child care, food preparation, water gathering) 	<ul style="list-style-type: none"> • Eliminate or reduce fees • Subsidize parents who send girls to school
Causal factor #2	Path through root cause map	Recommendations
Cultural norms about girls' education	<ul style="list-style-type: none"> • Boys regularly favored over girls • Religious or other cultural restrictions 	<ul style="list-style-type: none"> • Advocacy programs • Awareness-raising about longer-term household economic benefits of girls attending school
Causal factor #3	Path through root cause map	Recommendations
School access	<ul style="list-style-type: none"> • Schools are not available in all villages 	<ul style="list-style-type: none"> • Education reform to reach rural schools • Visiting seasonal tutors

Source: Adapted from Rooney and Vanden Heuvel (2004).

2. **Why** do they not start primary school?
 - *Because it is a great burden on their family to have them go to school.*
3. **Why** is it a great burden?
 - *Because it is expensive to send a child to school.*
4. **Why** is it so expensive?
 - *Because school fees must be paid for each child.*
5. **Why** are there additional fees for attending school?
 - *Because to get a teacher to come to a rural school, the village must supplement the teacher's salary.¹*

With each need having many layers of closely related causal factors, plan to analyze at least four or five layers for each causal factor and its root causes. Use fault tree analysis (see page 214), fishbone diagrams (see page 197), concept mapping (see page 220), performance pyramids (see page 236), and many other tools and techniques described in this book to assist you in peeling away the layers of causal factors.

8. Review the information you have collected at each layer of the RCA to identify and prioritize the causal relationships. For instance, using that information, you might determine that the primary causes leading to the performance issue are related to motivation and incentives, with lesser causes being knowledge, skills, and available time to complete required procedures. In the end, you want to have a prioritized list of all the causal factors you identified during your analysis.

In most circumstances, you will not be able to quantify the contribution of each causal factor to the performance gap—that is, you will not be able to attribute 45 percent of the performance gap to cause A, 30 percent to cause B, and 25 percent to cause C—though it is usually beneficial to prioritize causes from major to minor contributors. You can use a number of collaborative decision-making techniques included in this book to assist in setting the priorities. Often, it is also valuable to create a visual representation of the relationships among causal factors.

For example, ask several of the participants who provided you with information during your analysis (through interviews, surveys, focus groups, reports that they authored, and so on) to review the prioritized list of causal factors. Each participant should review the list to determine whether (a) all of the causal factors are identified, (b) all of the relationships between the causal factors are taken into account, and (c) the highest-priority factors are those that contribute most significantly to the need.

9. For each high-priority causal factor that is identified (and verified through participant review), find at least two potential interventions or activities that address the causal factor, and ensure that it doesn't continue to negatively affect performance. The activities can then be assessed and compared as possible recommendations coming from the needs assessment.

Tips for Success

- Don't assume that the first causal factor that people tell you about is the root cause of the performance problem. Take time and ask lots of questions as you peel away the layers of causal factors to identify all of the factors leading to less-than-desirable results.
- Focus on what components of the performance system (activities, processes, procedures, equipment, rules, policies, interpersonal relationships, and so on) are limiting the achievement of desired performance.
- Avoid shifting the focus to any solution, intervention, or activity that might be recommended during the analysis. Make note of the recommendation, and maintain your focus on the causal factors. Later, all of the recommended activities for improving performance can be compared and assessed for their potential value (both singularly and in various combinations).

Note

1. Based in part on an example from <http://www.isixsigma.com/library/content/c020610a.asp> (July 23, 2008).

References and Resources

- Altschuld, James W. 2010. *Needs Assessment Phase III: Collecting Data* (Book 3 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.
- Altschuld, James W., and J. N. Eastmond Jr. 2010. *Needs Assessment Phase II: Getting Started* (Book 2 of *Needs Assessment Kit*). Thousand Oaks, CA: Sage Publications.
- Paradies, Mark, and Linda Unger. 2000. *Tap Root: The System for Root Cause Analysis, Problem Investigation, and Proactive Improvement*. Knoxville, TN: System Improvements.

Rooney, James, and Lee N. Vanden Heuvel. 2004. "Root Cause Analysis for Beginners." *Quality Basics* (July): 45–53. Milwaukee, WI: American Society for Quality.

Watkins, Ryan. 2007. *Performance by Design: The Systematic Selection, Design, and Development of Performance Technologies That Produce Useful Results*. Amherst, MA: HRD Press, and Silver Spring, MD: International Society for Performance Improvement.

Website

"Root Cause Analysis for Beginners" is available at http://www.nmenv.state.nm.us/aqb/Proposed_Regs/Part_7_Excess_Emissions/NMED_Exhibit_18-Root_Cause_Analysis_for_Beginners.pdf.