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## 16.2. Introduction

The heart of all organizational problem solving is to understand enough of the causes of the problem and finding an acceptable solution to it. Finding the "root cause or causes" of an organizational problem is the single most important determinant of success or failure of any problem-solving method. This is true of all types of problems: chronic problems that have been resistant to solution, day-to-day sporadic problems that occur infrequently but have a tendency to recur, problems that involve identifying and eliminating waste—all require effective root cause analysis and identification to reduce the risks and resistance associated with changing a process.

### 16.2.1. Why Do We Need to Know about Root Causes of Problems?

Though effective root cause analysis is at the heart of all problem-solving methods, such as Six Sigma, Lean, RCCA, and Plan, Do, Study/Check Act, its purpose is to solve problems that occur due to special or assignable causes. A special cause is one that occurs during daily operations. It is sporadic because it happens periodically, but it can cause havoc on the organization if it persists. These problems differ from the larger, chronic problems that quality improvement programs such as Six Sigma focus on. For more on root cause analysis used in solving the other types of problems noted earlier, see [Chap. 15](#), Six Sigma: Breakthrough to in-Process Effectiveness. A comparison of the different methods to discover root causes and their uses is shown in [Table 16.1](#).

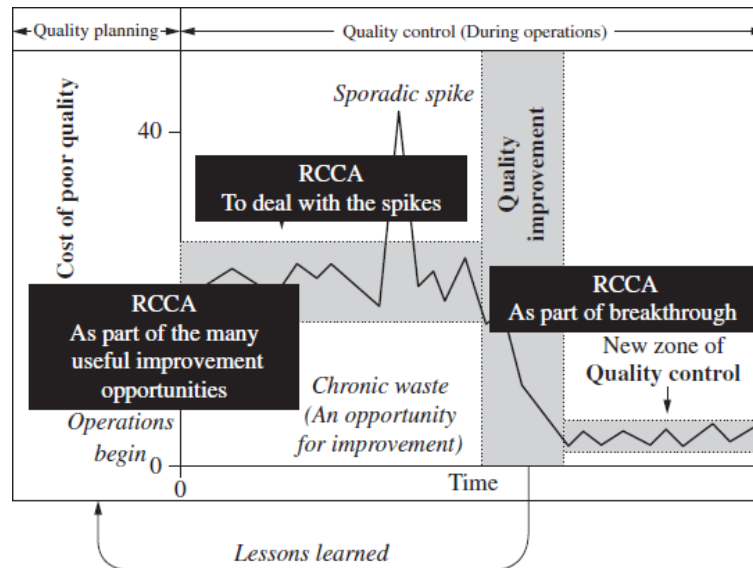
**Table 16.1** *Purpose of Root Cause Corrective Action versus Other Methods*

Method	Purpose	Risk	Benefits	Level of Difficulty
Six Sigma DMAIC	Solve large, chronic, multifunctional problems	Low	High ROI (25:1)	High: Large scope problems require difficult diagnosis and expert skills
Juran's Breakthrough Model	Solve large, chronic, multifunctional problems	Low	High ROI (25:1)	High: Large scope problems require difficult diagnosis and expert skills
RCCA	Solve sporadic day-to-day problems	Low	Moderate ROI (5:1)	Low: Sporadic problems require finding out what changed; skills easy to gain by all staff
PDCA	Solve sporadic day-to-day problems	Low	Moderate ROI (5:1)	Low: Sporadic problems require finding out what changed; skills easy to gain by all staff
Lean Problem-Solving	Solve sporadic day-to-day problems	Med	Moderate ROI (1:1)	Low: Purpose is to identify waste and its causes, which tend to be well understood
PDSA	Solve sporadic day-to-day problems	Med	Moderate ROI (1:1)	Easy: Many services do not use tools to analyze data; rather, they move from symptom to solution
Just Do It	Make daily decisions based on what is already known	High	Moderate ROI (0:0)	Easy: Since this is not recommended, it is easy to do; there are no methods other than instinct

## 16.2.2. When to Apply Root Cause Analysis

The Juran Trilogy has been discussed in detail in [Chap. 1](#), Universal Principles of Quality Management, but the question remains: At what stage of the trilogy does basic RCCA apply? To answer this question, refer to [Fig. 16.1](#).

**Figure 16.1** *RCCA and the Juran Trilogy.*



As seen in the figure, the application of the basic RCCA process is a control activity: restoration of the process performance to a previously acceptable level. Although control also has elements of the broad sense of continuous improvement, for the purposes of the present discussion, we will apply the definitions of the trilogy strictly; that is, control is restoring process performance to a previously acceptable level. Improvement, on the other hand, is defined as changing the very nature of the process, creating breakthrough and moving to a new and better level of performance with reduced waste and cost of poor quality. The former primarily deals with special causes, the latter with common causes of variation.