

THE JURAN TRILOGY

The explosion of the field and practice of quality management can largely be attributed to a mere handful of individuals, one of whom is Joseph Juran. Along with contemporaries Deming, Crosby, Ishikawa, Feigenbaum, and Taguchi, Juran will be long remembered as one of the true pioneers of quality management. While Juran's contributions to quality management could certainly fill volumes—and indeed *do* fill volumes—this paper focuses only on Juran's most well known contribution, the Juran Trilogy.

The Juran Trilogy Explained

The Juran Trilogy can be thought of as strategic framework for the implementation of quality management. While a great deal of Juran's writing discusses the details of specific tools and steps to improve quality in the firm, the Juran Trilogy is the strategic reasoning that explains why all these tools and steps are necessary. Specifically, the Juran Trilogy is comprised of three major stages—quality *planning*, quality *control*, and quality *improvement*. These three stages, taken as a whole, form the basis for the entire quality management effort.

How to Use the Juran Trilogy

To Juran and experts on quality management, the subjects of quality planning, quality control, and quality improvement, may each fill an entire book. Thus, a brief review of Juran's thoughts on these topics will have to suffice for our purposes. Quality planning is the first stage of the Juran Trilogy and is essentially concerned with designing products and processes that align with customer needs. According to Juran, quality planning is comprised of the following steps:

1. *Determine who your customers are.* Where customers are numerous, customers should be segmented using the Pareto principle. This allows you to place more of your planning emphasis on your most important customers.
2. *Discover your customers' needs.* Keep in mind that your customers may have needs that they do not voice explicitly.

3. *Develop products whose features align with the customers' needs.* Utilize tools such as Quality Function Deployment—also known as the House of Quality—to translate customer needs into product specifications.
4. *Develop processes that are capable of producing these products along with their accompanying features.*
5. *Hand these plans off to operations.* Often this entails an abrupt transition of responsibilities as the quality planning team moves on to the next planning project.

The second stage of the Juran Trilogy is quality control. After the planning team hands its plans off to operations and production begins, the firm should simultaneously take steps to ensure that its operations maintains the level of quality that was planned for (based on the products and processes that were designed). This is the purpose of quality control. According to Juran, quality control is comprised of the following three steps:

1. *Evaluate actual operating performance.* It is important that you know what to measure; i.e., those dimensions that are important enough have operating goals attached to them. Statistical tools are very useful for evaluating operating performance.
2. *Compare actual performance to operating goals.* In addition to merely comparing, you should again use statistical tools (as well as common sense) to interpret the meaning of any differences between performance and goals.
3. *Take action in response to differences.* Because your operating goals should be based on your processes' capabilities, you should find that any differences between performance and goals are merely sporadic and attributable to unique, identifiable process breakdowns. Often the corrective actions for such problems are as simple as replacing a worn-out part or re-adjusting a machine component.

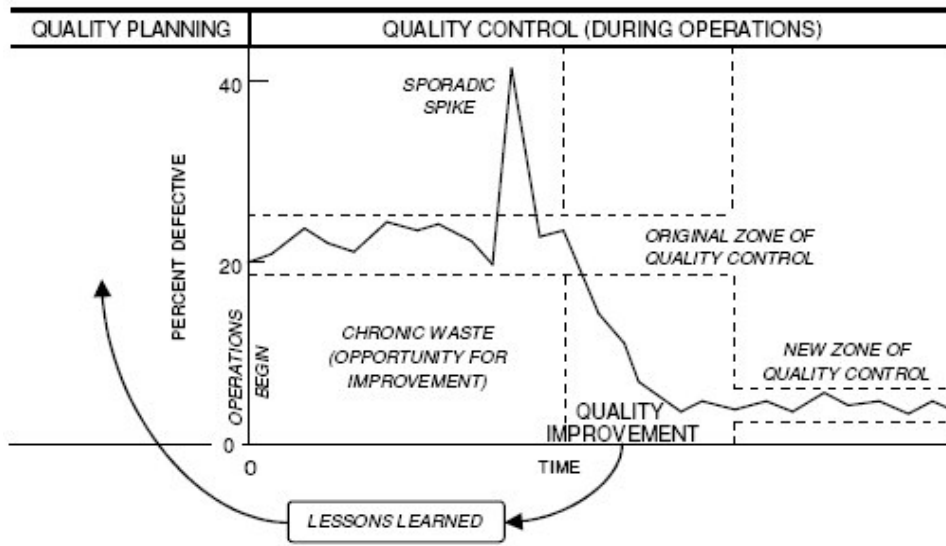
Quality improvement is the third and final stage in the Juran Trilogy. Improvement goes beyond control in that it allows the firm's operations to reach levels of quality heretofore unattainable. The quality improvement process does this by removing the chronic quality problems that were built into the products and processes in the planning process. Additionally, the organizational learning that occurs during quality improvement efforts—the “lessons learned”—should be taken into account and utilized, where applicable, in future quality planning. According to Juran, quality improvement includes the following steps:

1. *Establish the infrastructure needed to facilitate continuous quality improvement.* This step should include the formation of a standing Quality Council whose responsibility it is to ensure that quality improvement efforts receive sufficient attention, effort, and resources.
2. *Identify specific improvement projects.* The Quality Council should consult employees, customers (via market research), and cost-of-poor-quality data in identifying potential projects. If this is your firm's first quality improvement project, the Council should select a project that has a high chance of success, deals with a significant and perhaps long-neglected problem, and is easily measurable in terms of results. Subsequent projects should be selected on the basis of the expected financial return on investment, the urgency of the problem, the amount of the potential improvement, and so forth.
3. *For each project, establish a team that is clearly charged with the responsibility of bringing a successful resolution to the project.* At a minimum, the following departments should be represented on the team:
 - The ailing departments – the departments most adversely affected by the problem.
 - The suspect departments – the departments generally believed to be the source of the problem.
 - The remedial departments – the departments most likely to be able to solve the problem.
 - The diagnostic departments – the departments with the resources to diagnose the problem.
4. *Provide project teams with the necessary training, resources, and motivation to successfully complete the project.*

An Example of the Juran Trilogy at Work

Figure 1 offers a graphical example of the Juran Trilogy that will be explained here. Before operations begin, the example firm shown here performs the first stage in the trilogy, quality planning. Thus, before operations begin, the planning team identifies the firm's customers, assesses their needs, and develops a product that meets those needs and processes capable of producing the product. When operations for this product begin, the firm initially experiences a relatively high defect rate hovering just above 20 percent. This defect rate, as it turns out, is what the firm *planned for* by way of the product features and processes it developed. In the meantime, the firm practices quality control by attempting to maintain the status quo in terms of quality. The firm shown here experiences a "spike" in its defect rate, and it is the quality control team that deals with this sporadic occurrence, solves the problem, and brings the defect rate back into the zone of control. At some point during this process's operations, the firm's

Figure 1 – The Juran Trilogy Diagram



Quality Council decides to target this particular process for quality improvement efforts due to its high level of “chronic waste”—quality problems built into the process during the planning stage. Following the improvement steps discussed previously, improvement project team successfully diagnoses and remedies the source of the chronic waste. The result is a breakthrough in quality improvement. The defect rate drops sharply—not in a sporadic fashion, but in a permanent fashion—until it begins to hover around its new baseline (about five percent, in this case). Thus, this process has reached a new, much-improved zone of quality control. The quality control stage is ongoing, so the quality control team continues to maintain the process’s status quo, albeit a “new” status quo. Lastly, the firm utilizes a system of organizational learning to capture the lessons that were learned during the improvement stage. Future planning teams will be able to take advantage of this learning in the future to develop processes that contain less chronic waste to begin with.

For More Information / Bibliography

The following sources contain a great deal of information on the Juran Trilogy, statistical tools, and/or Quality Function Deployment (or House of Quality). These sources also constitute my bibliography for this paper:

Foster, S. Thomas. *Managing Quality: An Integrative Approach*, Ed. 2 (Upper Saddle River, NJ: Pearson Prentice Hall, 2004).

Juran, J.M. and Frank M. Gyrna, Eds. *Juran's Quality Control Handbook*, Ed. 4 (San Francisco: McGraw-Hill Book Company, 1988).

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