

## **Lesson Five: Applications for Principles of Quality Management**

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### A. Key Learning Points

1. You can tell how serious a business is about quality by the amount of data they collect and the methods they use to analyze it.
2. Data replaces opinion with fact; facts drive performance improvement faster than opinions.
3. A run chart is a line graph that illustrates performance over time. It is useful to understand process variation, operational capability, and performance trends.
4. A cause-and-effect (or fishbone) diagram is a quality tool that organizes and illustrates key factors that drive system performance. It is useful to analyze causes of poor performance and to develop an improvement theory.
5. When a business fails to define and communicate its improvement theory consistently, it will fail at continuous improvement.
6. Plan what you Do.
7. Do what you Plan.
8. Act on what you Know – Keep It, Modify it, or Drop It
9. Apply what you have learned.
10. When each of us teaches a co-worker, friend, or family member about quality, the potential for quality improvement at work, at home, and in our community expands exponentially.

### B. Real World Examples and Considerations for Practitioners

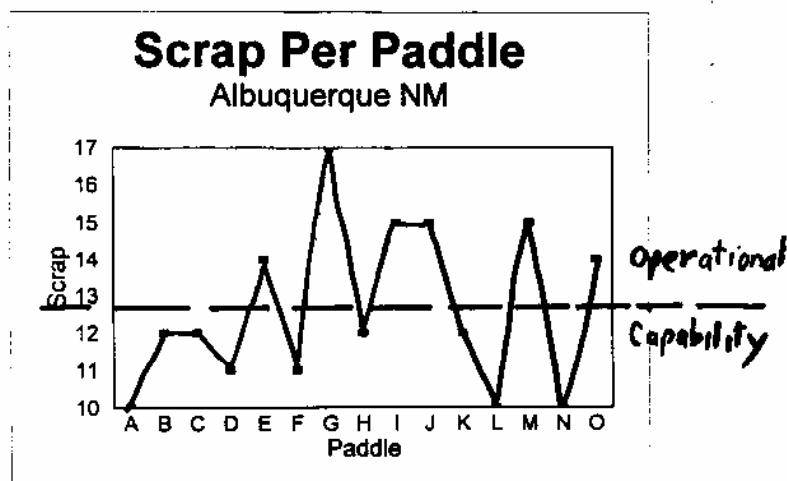
1. One of the elements that most distinguishes “quality management” from other management “fads” is its emphasis on data-based decision-making. You can tell how knowledgeable and serious a business is about its quality effort by the investment and emphasis it is making on data and quantitative information. To improve performance, a business must begin with a clear, quantitative understanding of its current capabilities. Without a baseline measure for current performance, how can we know if our quality efforts have contributed to actual improvement? Without baseline information about our current performance strengths and weaknesses, how can we prioritize and manage process improvement projects that make a significant difference? Without data we can not be sure if there is a correlation between our effort and our results. Without data there is little knowledge and limited sustainable learning.

When you walk into a quality business, you are likely to see data and information about performance trends posted in places where it is visible and useful for the business’s

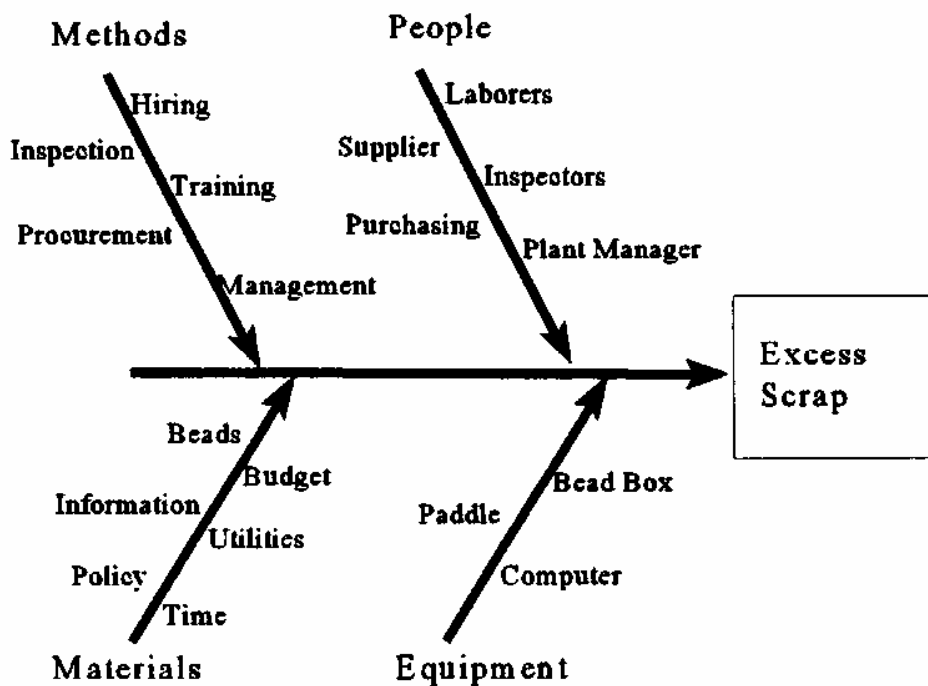
employees. When you talk to employees in a quality business, they will tell you about recent variation and current trends in key areas of performance. Quality businesses have real-time measures of customer satisfaction, complaints, and profitability. Quality businesses also will have data and information about industry performance standards and competitive benchmarks.

Data and information are the fuel that drives quality enterprise.

2. Without data, opinion rules. Where opinion rules, decisions are made by those with the most power and authority. Those with the most power and authority are typically the most removed from the business's day-to-day operations and its customers. Data is the equalizer. Data substantiates opinion regardless of power and authority. Data assures that executives are knowledgeable and responsive to the issues, problems, and opportunities emerging at the line level and customer service interface.
3. Quality businesses use run charts to illustrate variation and trends in business performance. For example, you will find run charts in the business section of the daily newspaper that show annual, quarterly, and weekly performance of major stock fund indexes. The figure below is a run chart that shows the total scrap or defects per paddle that were produced by students at a recent Red Bead Experiment. Each letter (on the horizontal axis) represents one paddle of beads; the vertical axis shows the number of defective beads (scrap) per paddle. The data tells us that defects vary between 10 and 17 per paddle. Variation appears random – there is no apparent performance trend. The “operational capability” of this process is approximately 12.6 defects per paddle. As a manager, you could look at this data and predict the variability and scrap of future paddles. Any changes that you make to the production process will impact the variation and capability of the process. If the changes that you make are positive, the run chart will show that the process variation and operational capability (average scrap per paddle) have decreased.



4. A Cause and Effect (or Fishbone) Diagram is a graphic tool to organize and display causes of a complex problem. The figure below is a Cause and Effect (C&E) Diagram that illustrates factors that contribute to the performance problem listed in the right-hand box – excess scrap (defects or errors). The factors are organized into four groups – People, Methods, Materials, and Equipment. This diagram helps management understand the complexity of the problem before isolating or prioritizing key factor(s) for improvement. Better understanding of complexity contributes to more knowledgeable improvement decisions that tend to increase the potential for real, measurable performance improvement.



5. A quality business typically is clear about the specific processes that it is improving and the performance measures it will use to evaluate improvement. An Improvement Theory statement helps a quality business clarify and communicate its improvement priorities and results. Such a statement typically looks like this

To improve the \_\_\_\_\_ (process)  
 as defined by the \_\_\_\_\_ (measure)  
 we will \_\_\_\_\_ (planned action)

For example:

To improve the BEADMAKING PROCESS

as defined by the NUMBER OF SCRAP BEADS WE MAKE EACH DAY

we will BUY BETTER RAW MATERIALS and INSPECT RAW MATERIALS UPON RECEIPT

This improvement theory statement helps eliminate confusion, misunderstanding or variation among employees working toward quality improvement. It also contributes to sustained employee focus and attention to the improvement initiative on a regular basis.

6. Continuous improvement is a long-term process that requires discipline and perseverance based on the Deming Cycle – Plan what you do; do what you planned; study what you achieved; act on what you know. Improvement efforts that lack continuity tend to increase performance variation. On the one hand, intermittent efforts do tend to achieve periodic “spikes” or runs of exceptional success. On the other, intermittent efforts do not sustain such high performance and subsequently lapse back to prior capabilities. This is frustrating for all parties – shareholders, employees, and customers - because the business at times shows great potential and value but more often disappoints. This also is very costly because the business is forced to renew and repeat improvement efforts rather than building learning and improvement systematically and continuously into its infrastructure. Although many managers tend to stress “improvement”, the single greatest contributor to improvement is “continuity” of effort. This, in part, is why Point One of Dr. Deming’s teachings focuses on “constancy of purpose.”
  7. In most organizations, 20 percent of employees are change makers, 30 percent are change resisters, and 50 percent are followers. Sustainable quality improvement requires change makers to lead and teach the followers. Don’t waste your energy and time on the resisters. And, by all means, don’t make “quality” an exclusive club that separates you from potential followers. Teach someone about quality and, by your example, show others how quality makes a difference in your own professional and/or personal sphere of influence. The power of teaching and leading by example is enormous. When we teach one other -- together we are 2. When the two of us teach one other – together we are 4. When the 4 of us teach one other – together we are 8. The power of teaching and practicing quality is exponentially enormous. The satisfaction and rewards are even greater.
- B. Recommended Reading Assignment & Highlights – All selections are from Walton, *The Deming Management*

Run Charts, pp. 107-108; Cause and Effect Diagrams pp. 99-101

Chapter 29: The Transformation of an American Manager; Microcircuit Engineering

*“It takes courage to admit that you have been doing something wrong, to admit you have something to learn, that there is a better way” – Dr. Deming*

*“Top management must feel pain and dissatisfaction with past performance, and must have the courage to change.” Phylis Sobol*

*“After the Fourteen Points were handed down, a respected employee wrote a devastating commentary on the way they were constantly being violated at MEC.”*

#### Epilogue

*“Western management, having abandoned the responsibility of leadership, depends on reports. Too late!” – Dr. Deming*

*“Failure to understand people is the devastation of western management. It’s obvious. America has people. America has natural resources. Japan has people and no natural resources. The difference is management.” – Dr. Deming*

D. Additional Resources and Links to Others Sources

Kearns, David and Nadler David. *Prophets in the Dark: How Xerox Reinvented Itself and Beat Back the Japanese*. (HarperBusiness, 1992)

Langford, David and Cleary, Barbara *Orchestrating Learning with Quality*. (ASQC, 1995)

Main, Jeremy *Quality Wars; The Triumphs and Defeats of American Business*. (Free Press, 1994)

Osborne, David and Gaebler, Ted *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector*. (Plume, 1993)

Seymour, Daniel *Once Upon A Campus: Lessons for Improving Quality and Productivity in Higher Education*. (ACE/ORYX, 1993)

E. Questions for Reflection and Discussion

1. What is the most significant concept or principle that you would most want to teach someone else about quality management?
2. How do you plan to apply what you have learned in this course to your professional or personal life? Be specific.