

## **Lesson Four: Plan, Do, Study, Act**

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### A. Key Learning Points

1. We are being ruined by best efforts.
2. When we adjust a process in response to a specific incident, the result will be worse than if we had left the process alone. This is called “tampering.”
3. To improve a system, we need a system for improvement.
4. It is difficult to sustain and replicate improvement efforts that are not systematic.
5. Many businesses lack the knowledge and discipline to succeed at systematic quality improvement.
6. The Deming (or Shewart) Plan-Do-Study-Act cycle is a systematic framework for quality improvement.
7. It is essential to begin an improvement initiative with a clear, agreed-upon definition of the process that is targeted for improvement.
8. The Deployment Flow Chart is a useful quality tool that helps groups develop a shared definition and understanding of the process that is targeted for improvement.

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

1. Deming insisted “we are being ruined by best efforts.” He believed we expend excessive energy and precious resources trying to improve without sufficient understanding or a plan for improvement. In his own way, he was saying we need to work smarter, not harder. Avis car rental, for example, might “Try Harder” but Hertz is “Number One – Exactly.” On a personal level, trying harder to improve at a sport or a recreational interest will not succeed unless one learns and practices fundamental concepts and skills. Trying harder with poor fundamentals typically results in bad habits that are difficult, if not impossible to break.
2. Managers tend to take a short-term view of quality improvement. As a result, they tend to over-react to individual incidents that may be either positive or negative. Such over-reaction results in increasing variation in the process that threatens customer confidence and increases costs.

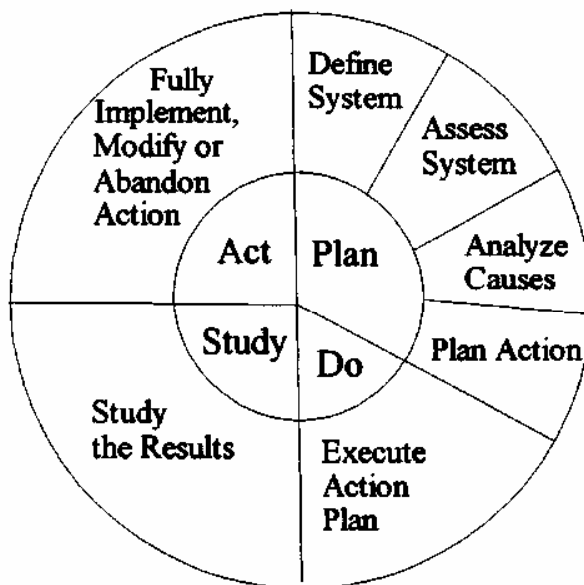
For example, on the first week of October a restaurant experiences an unusually high volume of customers that, in turn, contributes to slow service and shortages of basic menu items. Applying short-term thinking, the manager decides to add wait staff and increase his orders for food supplies to meet expected increased demand in the second week of October. Demand, however, in the second week returns to normal and the restaurant is over-staffed and over-supplied. The following week, the manager cuts staff levels and offers menu “specials” at reduced prices to sell the excess food inventory. A longer term management perspective in this case would determine staffing levels and food orders based on deeper understanding and greater historical information about customer volume and seasonal variation based on tourism or special events (like the state fair or international balloon fiesta in Albuquerque) that drive unusual or “special” events.

On a personal or family level, parental over-reaction to individual incidents in their child’s behavior tends to have adverse impact on the child’s overall development. When disciplined or educated for short-term results, the child soon learns to succeed or survive within a narrow context that emphasizes

immediate behavior at the expense of longer term judgement, learning and growth. [This also is a familiar scenario for relationships between micromanaging supervisors and staff].

Here are more examples that Dr. Deming used to explain the hazards of “tampering”:

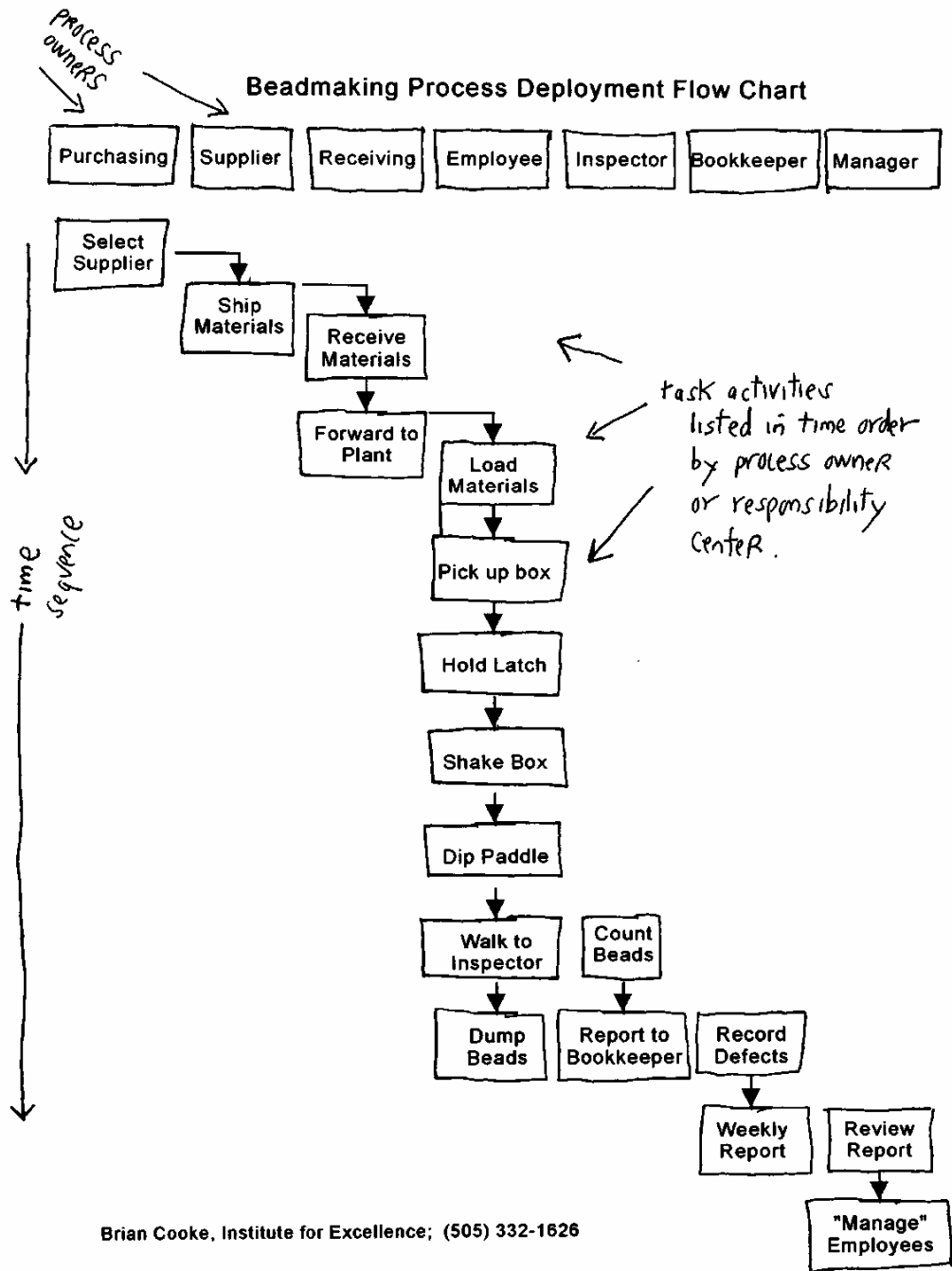
- (over) reaction to a customer complaint
  - (over) reaction of the stock market to daily news
  - foreman resetting a process at the beginning of his shift based on yesterday’s performance
  - changing company policy based on the latest attitude survey
  - continual change in tax laws, each change to try to correct a previous mistake
  - price wars among competing businesses
  - use the last batch to set the standard for the next one
3. Since the success of employees depends heavily on the capabilities of business systems and work methods (see Lesson Three), it is essential that improvement efforts emphasize improvement of business systems and work methods. Even the best employees will not succeed at long-term business improvement without a systemic foundation for quality improvement. Although employees’ best efforts may contribute to short-term local gains, few businesses are able to sustain and replicate these efforts and short-term successes in wider markets and company-wide applications. In successful organizations the quality improvement system assures a common vocabulary and methodology for sharing local successes and learning throughout the company. For example, a successful US West quality team in Albuquerque is better able to share its achievements/improvements for replication in the Tulsa market because they share a common US West approach to continuous improvement and company-wide learning.
4. Dr. Deming recommended we use the Plan-Do-Study-Act cycle to guide and manage systemic quality improvement efforts. The figure below illustrates this “Deming” cycle. Dr. Deming believed successful organizations: Plan before they do; Do what they plan; Study what they have accomplished; and, Act on what they have learned (Keep it; Modify it; Abandon it; Try Again.)



5. Most of us have worked for organizations that use the Deming cycle in selective areas. For example, many businesses have substantial strategic and operational Plans, although fewer companies actually

deploy or execute (Do) those plans effectively. Even more companies tend to work (Do) with great effort but limited or no planning. When we do not plan what we do, it is difficult to know (Study) whether our effort made a difference. Sometimes we confuse “doing” something with “succeeding” at it. We assume that our efforts are enough and fail to Study the results of our labors. Whether we succeed or fail, our organizations are stronger and more profitable when we share and apply (Act on) what we have learned throughout the business. If a quality initiative succeeds in one team or unit, it’s likely it will succeed in other teams or units. The Deming cycle helps us accomplish this objective.

6. The Plan-Do-Study-Act cycle is difficult for organizations that emphasize short-term results at the expense of long-term performance. Many businesses lack the discipline, patience, and knowledge to roll-out such a systemic improvement effort. But Dr. Deming argued, “there is no instant pudding.” The short term approach tends to increase variation in performance for better and worse without establishing a sustainable foundation for successes or a principled framework to analyze and understand failure. The longer term approach tends to defer short-term gains via quick fixes in return for more deliberate, knowledgeable, and sustainable performance improvement.
7. Definition of the process that is targeted for improvement is the first step in the Planning cycle. This is an essential step because employees in an organization typically have different understanding or perception of the targeted process. In many cases, this variation in process definition contributes to variation in management methods that, in turn, result in variation in product and/or service quality. For example, in an ice cream store each employee will scoop a small ice cream cone or prepare a shake differently. Clear definition of the process and specification of standards for performance are the first steps toward managing variation and assuring quality.
8. A Deployment Flow Chart is a quality tool that illustrates the sequence of activities and process owners that create value in a system. A deployment flow chart is used to develop agreement on what is to be done by whom and in what order. A flow chart strengthens understanding and cooperation among team members and across work functions. It can be used to identify redundant, wasteful, or inappropriate activities. It illustrates discrepancies between the way work is designed and the way work is actually done. It is also used to document and communicate changes to the process.
9. The figure below is a deployment flow chart that illustrates the Beadmaking process for the Red Bead Experiment. The responsibility centers or process owners are represented by the top (horizontal) row of boxes. The boxes flowing down the page show the sequence of each step or activity and the relationship among the activities. Each step or activity is shown beneath the process owner responsible for completing or managing it. Time flows down the page (vertically).



B. Recommended Reading Assignment & Highlights – All selections are from Walton, *The Deming Management*

Chapter 20: Doing It With Data, (section on flow charts pp. 102 - 104)

*Vernay Laboratories, Inc., an Ohio manufacturer of precision products and a client of Dr. Deming, decided to streamline its billing procedures. Vernay asked three people in the department to flow chart the way it worked. The result was three different flow charts. No one really knew.*

Chapter 24: Toward A Critical Mass: American Telephone & Telegraph

*“If you’re going to have an impact, you really need to get a critical mass of people educated, talking the same language, understanding the same concepts, so that these folks can really have an influence on the way we do business.”*

*“17 percent of manufacturing costs were devoted to finding, repairing, or disposing of defects – inspection and rework, in other words.”*

*“Doing something over again in a better way ... didn’t mean you had done it wrong the first time. What it means is I’ve learned something new in the process. It’s a great thing to have a situation where you say I can do it better tomorrow and even better the next day. Some people have that very nasty habit of saying ‘Why didn’t you do it right the first time? Then you wouldn’t have to do it over again.’ That’s a terrible detriment to progress, because you won’t do anything. It’s like asking why the Wright Brothers didn’t design the 747 first.”*

D. Additional Resources and Links to Others Sources

Deming, W. Edwards, *Out of the Crisis* (MIT Press, 1987), Chapter 11, p. 327 Monte Carlo with the funnel  
Deming, W. Edwards *The New Economics*. (MIT Press, 1993), Chapter 9 The Funnel (Tampering)  
Galloway, Diane. *Mapping Work Processes*. (ASQC Press, 1994)

E. Questions for Reflection and Discussion

1. What did Dr. Deming mean when he said “we are being ruined by best efforts?” Describe a personal example that illustrates how best efforts do not guarantee quality results?
2. What is “tampering?” Give an example that illustrates the dangers of non-systematic, short-term approaches to quality improvement.