

# Deming Philosophy Synopsis

The philosophy of W. Edwards Deming has been summarized as follows:

"Dr. W. Edwards Deming taught that by adopting appropriate principles of management, organizations can increase quality and simultaneously reduce costs (by reducing waste, rework, staff attrition and litigation while increasing customer loyalty). The key is to practice continual improvement and think of manufacturing as a system, not as bits and pieces."

In the 1970s, Dr. Deming's philosophy was summarized by some of his Japanese proponents with the following 'a'-versus-'b' comparison:

(a) When people and organizations focus primarily on quality, defined by the following ratio,

$$\text{Quality} = \text{Results of work efforts} / \text{Total costs}$$

quality tends to increase and costs fall over time.

(b) However, when people and organizations focus primarily on costs, costs tend to rise and quality declines over time.

## The Deming System of Profound Knowledge

"The prevailing style of management must undergo transformation. A system cannot understand itself. The transformation requires a view from outside. The aim of this chapter is to provide an outside view—a lens—that I call a system of profound knowledge. It provides a map of theory by which to understand the organizations that we work in.

"The first step is transformation of the individual. This transformation is discontinuous. It comes from understanding of the system of profound knowledge. The individual, transformed, will perceive new meaning to his life, to events, to numbers, to interactions between people.

"Once the individual understands the system of profound knowledge, he will apply its principles in every kind of relationship with other people. He will have a basis for judgment of his own decisions and for transformation of the organizations that he belongs to. The individual, once transformed, will:

- Set an example;
- Be a good listener, but will not compromise;
- Continually teach other people; and

- Help people to pull away from their current practices and beliefs and move into the new philosophy without a feeling of guilt about the past."

Deming advocated that all managers need to have what he called a System of Profound Knowledge, consisting of four parts:

1. Appreciation of a system: understanding the overall processes involving suppliers, producers, and customers (or recipients) of goods and services (explained below);
2. Knowledge of variation: the range and causes of variation in quality, and use of statistical sampling in measurements;
3. Theory of knowledge: the concepts explaining knowledge and the limits of what can be known (see also: epistemology);
4. Knowledge of psychology: concepts of human nature.

Deming explained, "One need not be eminent in any part nor in all four parts in order to understand it and to apply it. The 14 points for management in industry, education, and government follow naturally as application of this outside knowledge, for transformation from the present style of Western management to one of optimization."

"The various segments of the system of profound knowledge proposed here cannot be separated. They interact with each other. Thus, knowledge of psychology is incomplete without knowledge of variation.

"A manager of people needs to understand that all people are different. This is not ranking people. He needs to understand that the performance of anyone is governed largely by the system that he works in, the responsibility of management. A psychologist that possesses even a crude understanding of variation as will be learned in the experiment with the Red Beads (Ch. 7) could no longer participate in refinement of a plan for ranking people."

The Appreciation of a system involves understanding how interactions (i.e. feedback) between the elements of a system can result in internal restrictions that force the system to behave as a single organism that automatically seeks a steady state. It is this steady state that determines the output of the system rather than the individual elements. Thus it is the structure of the organization rather than the employees, alone, which holds the key to improving the quality of output.

The Knowledge of variation involves understanding that everything measured consists of both "normal" variation due to the flexibility of the system and of "special causes" that create defects. Quality involves recognizing the difference in order to eliminate "special causes" while controlling normal variation. Deming taught that making changes in response to "normal" variation would only make the system perform worse. Understanding variation includes the mathematical certainty that variation will normally occur within six standard deviations of the mean.

The System of Profound Knowledge is the basis for application of Deming's famous 14 Points for Management, described below.

## Deming's 14 points

Deming offered fourteen key principles for management for transforming business effectiveness. The points were first presented in his book *Out of the Crisis* (p. 23-24) [20].

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and stay in business, and to provide jobs.
2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.
3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move towards a single supplier for any one item, on a long-term relationship of loyalty and trust.
5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease cost.
6. Institute training on the job.
7. Institute leadership (see Point 12 and Ch. 8 of "Out of the Crisis"). The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers.
8. Drive out fear, so that everyone may work effectively for the company. (See Ch. 3 of "Out of the Crisis")
9. Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.
10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.
11. a. Eliminate work standards (quotas) on the factory floor. Substitute leadership.
11. b. Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute workmanship.
12. a. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.
12. b. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolishment of the annual

or merit rating and of management by objective (See CH. 3 of "Out of the Crisis").

13. Institute a vigorous program of education and self-improvement.
14. Put everyone in the company to work to accomplish the transformation. The transformation is everyone's work.

### **Seven Deadly Diseases**

The Seven Deadly Diseases (also known as the "Seven Wastes"):

1. Lack of constancy of purpose.
2. Emphasis on short-term profits.
3. Evaluation by performance, merit rating, or annual review of performance.
4. Mobility of management.
5. Running a company on visible figures alone.
6. Excessive medical costs.
7. Excessive costs of warranty, fueled by lawyers who work for contingency fees.

A Lesser Category of Obstacles:

1. Neglecting long-range planning.
2. Relying on technology to solve problems.
3. Seeking examples to follow rather than developing solutions.
4. Excuses, such as "Our problems are different."