

The Influence of Dr. Deming in QFD — part 1 of 3

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W. Edwards Deming is widely acknowledged as planting the seeds of statistical process quality control in [Japan](#). The Japanese, as willing learners, carried forward his use of data-driven management into broader company-wide applications.

Quality Function Deployment (QFD), which begun in 1966, can be understood as one extension of such applications. The goal of QFD is to uncover positive quality that will excite the customer, and then to assure the quality of all downstream activities in design, manufacturing, service, and so forth. While SPC and SQC focus on manufacturing and TQM expanded Deming's teachings to organizational activities, QFD applies them to new product development.

When you understand this evolution in the history of quality, it is easier to understand QFD even if you may not know all of the tools. It is easier to see the big picture and realize that QFD is not about matrices, but that it is all about delivering value to customers.

In this and next issues, we will share an excerpt from a presentation given at the recent 2008 Transformation Conference held by the Deming Forum UK. It explains how Dr. Deming's teachings relate to QFD and shows some of the modern QFD tools and examples.

The Influence of Dr. Deming in QFD

Among Dr. Deming's legacies are his **14 Points for Management** (bold letters below), the red bead experiment, and the System of Profound Knowledge. These permeate the QFD process in many ways. Elaboration of some of the 14 points shows the following influences:

1. Create constancy of purpose for the improvement of product or service.

Constancy of purpose in QFD means to improve tomorrow's products to help people to live and work better - to bring value to the customer.

3. Cease dependence on inspection to achieve quality. QFD is a quality assurance approach by solving/preventing problems and creating positive value during design and development. Inspection is used to validate that quality has been achieved and maintained.

4. End the practice of awarding business on the basis of price tag alone.

Instead, minimize total cost by working with a single supplier. When customers

seek a single source supplier we call that brand loyalty. QFD helps product developers understand which customer needs are key to repeat and referral business.

5. Improve constantly and forever every process for planning, production and service. Reducing waste and variation in "chief quality characteristics" is aided by QFD tools such as the House of Quality (HoQ) which quantifies which quality characteristics are critical to customer satisfaction.

6. Institute training on the job. Modern QFD implementation is custom tailored for each organization and training is done on real projects.

7. Adopt and institute leadership. Deming replaces supervision with leadership - developing stable systems that assure quality. QFD creates a reproducible process for identifying the intent of a new product and translating the intent into design and the actual product.

8. Drive out fear. Fear of knowledge is replaced by having customer satisfaction drive innovation and development.

9. Break down barriers between staff areas. QFD promotes cross-functional teams consisting of marketing, sales, R&D, engineering, design, manufacturing and production, procurement, quality, service, etc.

11. Eliminate numerical quotas for the work force and numerical goals for management. QFD is one of the methods to achieve numerical management goals for revenue, market share, profitability, etc.

12. Remove barriers that rob people of pride of workmanship. Eliminate the annual rating or merit system. Pride in a job well done, but in whose eyes? QFD clarifies what the customer needs and then translates that into key activities at every level and department in the organization.

14. Put everybody in the company to work to accomplish the transformation. QFD diagrams how each stage in product development works with the next and preceding stages toward quality the customer will "boast about."



Figure 1 Red bead experiment

The Red Bead Experiment

The Red Bead Experiment (Figure 1) was demonstrated by Dr. Deming to the Japanese. Deming showed the futility of rewarding or punishing production workers when the source of the undesirable red beads was the supplier selected and the process created by management.

QFD might raise the question, though, why does the customer demand white beads? Could the specifications be wrong? What is their purpose? If the customer wishes to decorate a heart-shaped box of chocolates, perhaps the inclusion of red beads might be even more attractive to the consumer than just white beads. In other words, QFD encourages the product development team to go beyond stated customer specifications and understand the true needs underlying them. After all, customers may not be as expert in the supplier's domain.

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