

PHILIP B. CROSBY

Zero Defects

- 1926** *Born.*
- 1952** *After war service, begins his career working on an assembly line.*
- 1961** *Establishes "zero concepts" while working for Martin-Marietta.*
- 1965** *Joins ITT.*
- 1979** *"Quality is Free" published.*
Leaves ITT to found Philip Crosby Associates Inc.
- 1984** *Quality without Tears published.*
- 1988** *The Eternally Successful Organization published.*
- 1991** *Launches Career IV Inc.*
- 2001** *Dies.*

Life & Career

Crosby was born in West Virginia in 1926. A graduate of Western Reserve University, he saw service in the Korean War, and started his working life on the assembly line in 1952, becoming quality manager for Martin-Marietta where he developed the "zero defects" concept. After working his way up, Crosby was corporate vice president and director of quality at ITT for 14 years.

As a result of the interest shown in Quality Is Free (1979), he left ITT to set up Philip Crosby Associates II, Inc. and started to teach organizations quality principles and practice as laid down in his book. In 1985, his company was floated for \$30 million. In 1991 he retired from Philip Crosby Associates to launch Career IV Inc., a consultancy advising on the development of senior executives. He died in August 2001.

Key Thinking

Philip Crosby wrote the best-seller *Quality is Free* at a time when the quality movement was a rising; innovative force in business and manufacturing. In the 1980s, his consultancy was advising 40% of the Fortune 500 companies on quality management.

His popularity as a consultant can be partly attributed to his ability to talk about quality management ideas in terms that were easy to understand.

Quality, Crosby emphasized, is neither intangible nor immeasurable. It is a strategic imperative, something that can be quantified and put to work to improve the bottom line. "Acceptable" quality or defect levels produced by means of traditional quality control measures, for Crosby, represent evidence of failure rather than assurance of success. The goal is to meet requirements on time, first time, and every time. 'The emphasis, therefore, should be on prevention, not inspection and cure.

Crosby's approach to quality was unambiguous. In his view, good, bad, high, and low quality are meaningless concepts in the abstract; the meaning of quality is "conformance to requirements." What that means is that a product should conform to the requirements that the company has itself established based on its customers' needs. He also believed, that the prime responsibility for poor quality lies with management, not with the workers. Management sets the tone for the quality initiative from the top.

Nonconforming products are ones that management has failed to specify or control. The cost of nonconformance equals the cost of not doing it right first time, and not rooting out any defects in processes.

"Zero defects" does not mean that people never make mistakes, but that companies should not begin with "allowances" or substandard targets with mistakes as an inbuilt expectation. Instead, work should be seen as a series of activities or processes, defined by clear requirements and carried out to produce identified outcomes. Systems that allow things to go wrong and that result in those things having to be done again can cost organizations between 20% and 35% of their revenues, in Crosby's estimation.

His seminal approach to quality was set out in *Quality is Free*, and is often summarized as the "Fourteen Steps."

1. Management commitment it: the need for quality improvement must be recognized and accepted by management, who then draw up a quality improvement program with an emphasis on the need for defect prevention. Quality improvement equates to profit improvement. A quality policy is needed which states that "...each individual is expected to perform exactly like the requirement or cause the requirement to be officially changed to what we and the customer really need."
2. The quality improvement team: representatives from each department or function should be brought together to form a quality improvement team. Its members should be people who have sufficient authority to commit the area they represent to action.
3. Quality measurement: the status of quality should be determined throughout the company. This means establishing and recording quality measures for each area of activity in order to show where improvement is possible and where corrective action is necessary. Crosby advocated delegation of this task to the people who actually do the job, thus setting the stage for defect prevention on the job, where it really counts.

4. The cost of quality evaluation: the cost of quality is not an absolute performance measurement, but an indication of where the action necessary to correct a defect will result in greater profitability.
5. Quality awareness: this involves making employees aware of the cost to the company of defects, through training and information, and the provision of visible evidence of the results of a concern for quality improvement. Crosby stresses that this sharing process is a key, or even the key, step in the progress of an organization toward quality.
6. Corrective action: discussion of problems will result in the finding of solutions and also bring to light other elements that are in need of improvement. People need to see that problems are regularly being resolved. Corrective action should then become a habit.
7. Establishing an ad hoc committee for the zero defects program: zero defects is not a motivation program: its purpose is to communicate and instill the notion that everyone should do things right first time.
8. Supervisor training: all managers should undergo formal training on the Fourteen Steps before they are implemented. Managers should understand each of the Fourteen Steps well enough to be able to explain them to their people.
9. Zero defects day: it is important that the commitment to zero defects as the performance standard of the company makes an impact, and that everyone gets the same message in the same way. Zero defects day, when supervisors explain the program to their people, should make a lasting impression as a "new attitude" day.
10. Goal setting: all supervisors ask their people to establish specific, measurable goals that they can strive for. Usually, these comprise 30-, 60-, and 90-day goals.
11. Error cause removal: employees are asked to describe, on a simple, one-page form, any problems that prevent them from carrying out error-free work. Problems should be acknowledged and begin to be addressed within 24 hours by the function or unit to which the

memorandum is directed. This constitutes a key step in building up trust, as it will make people begin to grow more confident that their problems will be attended to and dealt with.

12. Recognition: it is important to recognize those who meet their goals or perform outstanding acts with a prize or award, although this should not be in financial form. The act of recognition itself is what is important.

13. Quality councils: the quality professionals and team leaders should meet regularly to discuss improvements and upgrades to the quality program.

14. Doing it over again: during the course of a typical program lasting from 12 to 18 months, turnover and change will dissipate much of the educational process. It is important to set up a new team of representatives and begin the program again from the beginning, starting with zero defects day. This "starting over again" helps quality to become ingrained in the organization.

PHIL CROSBY IN PERSPECTIVE

Crosby often used stories to convey his message, and audit techniques and questionnaires to clarify organizational and individual understanding.

Below we reproduce a quick "true or false" questionnaire that features in Quality is Free. (The answers are given at the end of this piece.)

1. Quality is a measure of goodness of the product that can be defined as fair, good, excellent.
2. The economics of quality require that management establish acceptable quality levels as performance standards.
3. The cost of quality is the expense of doing things wrong.
4. Inspection and test should report to manufacturing so manufacturing can have the proper tools to do the job.
5. Quality is the responsibility of the quality department.
6. Worker attitudes are the primary cause of defects.
7. I have trend charts that show me the rejection level at every key operation.

8. 1 have a list of the ten biggest quality problems.
9. Zero defects is a worker motivation program.
10. The biggest problem today is that customers don't understand.

In his 1984 book, *Quality without Tears*, Crosby developed the idea of a "quality vaccination serum," which would be made up of the following ingredients.

Integrity for the chief executive officer, all managers, and all employees. Systems for measuring conformance, and educating all employees and suppliers so that quality, corrective action, and defect prevention become routine. Communications that enable problems to be identified, progress to be conveyed, and achievement to be recognized.

Operations organized in such a way that procedures, products, and systems are proven before they are implemented and are then continually examined.

Policies that are clear, unambiguous, and establish the primacy of quality throughout the organization.

The *Eternally Successful Organization* (1988) presented a broader approach to improvements.

In it Crosby identified five characteristics essential for an organization to be successful.

1. People routinely do things right first time.
2. Change is anticipated and used to advantage.
3. Growth is consistent and profitable.
4. New products and services appear when needed.
5. Everyone is happy to work there.

Throughout his work, Crosby's thinking was consistently characterized by four absolutes.

1. The definition of quality is conformance to requirements.
2. The system of quality is prevention.
3. The performance standard is zero defects.
4. The measurement of quality is the price of nonconformance.

The importance of the contribution made by Crosby to management thinking is indicated by the fact that his phrases "zero defects," "getting it right first time," and "conformance to requirements" have now entered not only the vocabulary of quality itself, but also the general vocabulary of management.

When Crosby's name is not mentioned in the very same sentence as the best known quality thinker of them all, Deming, then it is almost certain to be mentioned in the next. Crosby's practical and easy-to-read books on quality became-and remain-bibles for many, demystifying a great deal of the jargon formerly associated with quality management. His timing was perfect for the quality movement, and his writing has marketed quality to a wide audience.

Answers to Quiz: 1.F; 2.F; 3.T; 4.F; 5.F; 6.F; 7.T 8.F; 9.F; 10.F

Critical extracts from “*Quality is Free*” & “*Quality is Still Free*”

“When General MacArthur's group asked Homer Sarasohn to come to Japan and teach their top management about quality, he kept them locked up for weeks until they got the old ideas out of their minds. It was making these executives understand that all work is a process that turned Japan around. Dr. Ishakawa of the Joint Union of Scientists and Engineers led the quality revolution from that point. Others have leapt forward to take credit, but these men were the real leaders.” *JM – Notice the implication that Juran and Deming took credit. This is malicious and not true. Note also the inaccuracy. JUSE is short for the Union of Japanese Engineers and Scientists. Crosby is bitter that he was always in the “second division” and regarded as a ‘light weight’.*

“People perform to the standards of their leaders” – *JM Crosby, like Deming and Juran, realized that quality started at the top of the organization.*

“It takes four or five years to get people to understand the need for, and learning to have confidence in, an improvement program.” *JM – This is true regardless of the philosophy.*

“Governments, and associations, have the illusion that they can “assure quality” by imposing a specification such as ISO 9000, or an award program such as Baldrige, which is supposed to contain all the information and actions necessary to produce quality. This is the ultimate in naiveté. No one would accept something similar for finance, marketing, administration, or any other function. However, getting companies qualified to such specifications or awards does provide a nice living for those who consult in the field.” *JM – Crosby lumps ISO9000 and Baldrige into the same category. Neither can assure quality but Baldrige in particular can be a great way of measuring progress.*

“RECOGNITION

This vitally necessary component of any quality program is often overlooked or conducted improperly. Done correctly, it becomes the shining star of the entire integrity system. We established the Ring of Quality program in 1971. The initial thought was to give recognition to those people who had offered outstanding support to the quality program for a period of five years, or had accomplished one sensational, specific, and unique act. However, it quickly became a program where the winners were nominated by their peers. On that basis, we have processed thousands of nominations and have awarded 182 gold rings to winners. We have also presented several hundred silver pins and citations to other nominees. In every case, we tossed out those who were nominated by their subordinates. Peer nominations make it all come out right.” *JM – This is exactly the type of system Deming warns about. Ultimately everyone loses. In ICL we had Bronze, Silver & Gold Medals. The awards were almost universally looked on with derision and often awarded for “fire fighting” instead of prevention.*

““DEFINITION: "CONFORMANCE TO REQUIREMENTS"

The old days of quality being a vaguely defined entity are gone. Each person in the organization, including those suppliers who deal with it, know that management expects things to be clear and clear things met. There is a common language.”

““SYSTEM: "PREVENTION"

This is more of an orientation than a system. The idea is to prepare properly before doing something. Instead of setting out on a world tour with a handbag and \$10 in cash, we are going to plan the whole adventure carefully. We do not want to fly into a dead-end canyon, or walk casually out toward the horizon in Death Valley. Building a culture of prevention raises the intellectual level of the company. It generates ideas and actions; it eliminates feelings of

repression because it focuses everything on what is coming. It is hard to shoot yourself in the foot when the gun is aimed forward.”

“PERFORMANCE STANDARD: "ZERO DEFECTS"

To attain a CTR of 1.0 it is necessary to do things right the first time. To cause that, management has to make it clear that they value this sort of behavior. More sports teams are victorious because of their opponent's errors than because of their own efforts. The team that has the most turnovers usually loses. The individual performer in business, sport, or personal life that develops the reputation for complete transactions gets ahead. Those who are always trying to snatch victory from the jaws of defeat are no longer valued.” *JM – What is Zero Defects is it Conformance to Requirements i.e. within tolerance or is it “On target with no variation”?* *Crosby derides Six Sigma and Continuous Improvement, so I can only assume he means the later. This is perfection. When we were taught we believed Zero Defects was within tolerances. When Leyland Trucks went burst a worker was seen to be carrying a placard saying “Zero Defects, Zero Jobs”.*

“MEASUREMENT: "THE PRICE OF NONCONFORMANCE" (PONC)

The amount we spend for the purpose of doing things wrong is a great deal of money.” *JM – Traditional thinking was based around this idea of an economic quality level. Crosby rightly disposed of this myth by introducing his versions of Quality Costs. $COQ = POC + PONC$. Initially by increasing POC, PONC decreases. In time both come down.*

“**Step Nine:** Zero Defects Day

Action. The establishment of ZD as the performance standard of the company should be done in one day. That way, everyone understands it the same way. Supervisors should explain the

program to their people, and do something different in the facility so everyone will recognize that it is a "new attitude" day.

Accomplishment. Making a "day" of the ZD commitment provides an emphasis and a memory that will be long-lasting." *JM – This is full of exhortations and certainly was not appropriate for British culture.*

"DEI or DIE" where D is management determination, E is education and I is implementation. *JM – Crosby realized the need to train in advance. Unfortunately much of his training was regimented and well in advance of implementation. Just in time or even just too late training have become fashionable.*

JM- PCA (Philip Crosby Associates) developed two tools. The first was graph paper. The second was an elementary Process Definition. As far as I am concerned the later was one of his greater contributions to quality.

JM – DFICE was Crosby's version of PDSA.

- 1. Define the problem.*
- 2. Fix It.*
- 3. Investigate the root cause.*
- 4. Correct the root cause.*
- 5. Evaluate the corrective action.*

Note no emphasis on special and common causes.

“Management assumed that it was easier to spend energy and resources fighting situations than it was to take actions that would prevent problems.” *JM – Crosby emphasizes prevention, DIRFT (Do it right first time) and Zero Defects.*

“The reality of business life is that systems fail because business life, like personal life, is chaotic-it doesn't react to systems, it does what it wants to do.” *JM – Here Crosby hints at complexity theory but doesn't explore it any further.*

“They do not have time to remember and apply the systems.” *JM – This is a cavalier attitude to quality systems which can be prevention orientated.*

“Going through the Baldrige criteria, the ISO series, or some similar list of activities results only in books of procedures and wasted efforts in urging people to comply with them.” *JM – He lumps Baldrige and ISO9000 together. They are different.*

“Rather than coming from systems, quality actually emerges from the way management presents policy, education, and their personal example.” *JM – Crosby really understood the importance of quality leadership.*

“Automobile companies were spending at least \$2000 a car just on repair during assembly, plus warranty and recall expenses after the sale.” *JM - this is a good example of PONC. Crosby argues that quality must be measurable but how who you measure the lost sales because of poor quality – unknown and unknowable.*

“Implementers have the illusion that quality is caused by activities and programs such as Benchmarking, Empowerment, Statistical Process Control, Team Building, and such.” *JM –*

*Crosby is derisory of very important elements of Total Quality. Crosby is the ultimate pragmatist.
Juran & Deming have depth of theory and practice.*