

The Quality Management FORUM

Fall 2001
Volume 27, Number 4



A Peer-Reviewed Publication of the Quality Management Division of the American Society for Quality

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How Good Is Good Enough?

By John A. Bruman

I recently re-read a book that I had enjoyed five or six years ago: Gerald D. Sentell's *Fast, Focused and Flexible – Bold New Imperatives For The High Performance Organization*. One of Sentell's interesting concepts is that products and services quickly become commodities. To Sentell, a commodity is a product or service where the competitive market, rather than the producer's costs, establishes the purchase price. In the book, Sentell explains how products and services can lose their uniqueness and become subject to competitive pressures.

Shortly after revisiting Sentell's book, I read G. Dennis Beecroft's paper relating cost of quality and quality planning in the winter 2001 edition of the *Quality Management Forum*. Beecroft stresses the importance of integrating quality-improvement initiatives with the company's strategic organizational goals. I couldn't agree more with Beecroft's advice and laud him for calling attention to the issue.

However, one of Beecroft's statements caused me to do some careful soul searching. It was his characterization of improvements that exceeded requirements as "waste". This had all the earmarks of traditional "economics of quality" that Joseph Juran and others espoused 40 to 50 years ago. They theorized that quality should be controlled by costs so that no more was spent on quality than the equivalent cost (consequences) of not having quality.

This philosophy raises the question: "How good is good enough?" It force-fits the quality issue into a short-term accounting model in lieu of strategic business management.

Exceed customer requirements

In the customer's eyes, a product or service that meets requirements is an entitlement, not an incentive. Merely meeting requirements cannot prevent products and services from becoming commodities whose prices are determined by competitive pressure, not production costs.

If meeting customer requirements is not sufficient to ensure survival in the marketplace, what is?

Simply put, companies must exceed requirements, not by gilding the lily, but by exceeding expectations. Companies need to influence the direction of customers' evolving sophistication levels and growing expectations. Quality managers can do this by insisting on continual improvement that goes beyond merely achieving requirements to develop traits that are superior to those of competitors' products and services.

This approach transforms products and services from commodities into customer "attractors" and "delightors."

In the customer's eyes, a product or service that meets requirements is an entitlement, not an incentive.

Shift customer expectations

By demonstrating and communicating what makes their products and services superior, companies can steer and shape customers' shifting expectations, rather than continually trying to interpret and react to those expectations. Reacting to expectations causes all competitors' products and services to regress into the commodity classification.

Let's test this theory with some examples:

In the 1950s and 1960s, American automakers consistently met the public's manufacturing and marketing requirements. Customers demanded more cars than could be produced. Prices were established through careful analysis of production costs.

However, several foreign auto companies were quietly learning how to make continual improvements that went beyond the American public's requirements. Car buyers soon discovered that that these foreign autos performed the same functions that American

(GOOD ENOUGH, continued on page 3)



From the Chairman

QMD Helps Members Grow (Including Me)

Grace L. Duffy

I hope you have enjoyed your summer activities. Those of you who start the fiscal year on July 1 are deep into things already; those who start on October 1 are madly closing out the books on what may have been an interesting ride, if we believe all we read in the newspapers. My customers have varied stories; I suspect yours do, too.

The CQIA is a good entry-level certification for those proceeding to the Quality Manager, Quality Auditor or Quality Engineer level.

Report: My QMD exam

I owe you a follow-up on my "From the Chairman" message in the summer *Forum*. I did take the Certified Quality Improvement Associate (CQIA) exam in June. I passed! (Whew). It is a good exam. I encourage all of you to take it, and support your workforce in taking it. This Body of Knowledge is a must for anyone who wants to further organizational improvement. It helps us speak the same language, inside and outside the traditional quality function. The CQIA is a good entry-level certification for those proceeding to the Quality Manager, Quality Auditor or Quality Engineer level.

Share the vision

We all learned when taking over an existing management position to share our vision for the organization within the first 90 days. This fall *Forum* will just about be my 90-day mark as chair of QMD. The division's vision is:

"The Quality Management Division will effectively support its members and the profession in the pursuit of organizational excellence through new products and services and partnerships with other organizations. The division will maintain a close relationship with its members and stakeholders, creating an open environment for sharing ideas and building professional contacts."

Look for more information about the conference, and specifically our other keynoters on page 10, in this issue of the *Forum*.

We got chatty when we wrote that, but it identifies the priorities of supporting members, sharing ideas and building relationships. My personal vision fits well with our overall vision. My goal for the next two years is to help our members grow beyond traditional quality management bounds. The management of quality belongs in every part of the organization. We need tools and relationships that support every aspect of the firm. Quality has never been in my job title and yet I have worked in quality my whole career. My wish

is for all of us to feel more comfortable with our skills as we move up the career ladder.

Have you made your plans for New Orleans?

Have you made plans yet to attend the 14th Annual Quality Management Division Conference in New Orleans, Louisiana, from February 25 through March 1, 2002? The theme of the conference is "The Changing Face of Quality." As quality professionals, we have worked to integrate quality into every aspect of the organization. We were successful...now how do we proceed?

Your stay in New Orleans will be spent with speakers from various industries discussing topics of interest such as implementing strategic initiatives, knowledge and change management, lean manufacturing, and quality tools. Look for more information about the conference, and specifically our other keynoters on page 10, in this issue of the *Forum*.

QMD has formally established a peer review board chaired by our long-time former editor and past QMD chair, Dr. Roger Berger.

Of course, before or after the conference or during your free time in the evenings, you will be able to sample some of the best cuisine in the world. Bourbon Street and the French Quarter are just a quaint trolley ride away from our conference hotel, the beautiful Hyatt Regency New Orleans. Watch for conference updates on our website, www.asq-qmd.org.

Notice the new Forum subtitle

We have changed our title to acknowledge that the material we publish has been reviewed and supported by professionals in our field – world-class professionals. QMD has formally established a peer review board chaired by our long-time former editor and past QMD chair, Dr. Roger Berger.

We are now "A Peer Reviewed Publication of the Quality Management Division of the American Society for Quality." Guidelines for the preparation and review of papers are being developed and will be published on our website later this fall. Thanks to all of you who contribute to this excellent publication. ♦

(GOOD ENOUGH from page 1)

products offered, but with better reliability and efficiency.

American products become commodities

What happened next is an old and oft-repeated story: American autos were downgraded to commodity status while the public continually changed its requirements.

Businesses became more and more frustrated with fickle customers who couldn't decide what they wanted. Companies became overnight experts at analyzing customer behavior-and-buying decision models. Automakers searched in vain through tons of warranty data trying to find out what went wrong. Quality managers endlessly analyzed and counted mistakes and problems as they blamed all woes on the federal government, employees, customers and the unique culture of some competitors – everything except the management.

While all the analysis went on, profits took a major hit because the market controlled prices (through sales incentives, reductions, etc.), not operating costs.

Flaws revealed

Gradually, automakers learned about their own management flaws and the relationship between commodities and continual improvement. Eventually, they began to develop unique superiorities that could lift the American auto industry back into the business of attracting and delighting customers. If this process is allowed to develop and move forward, customers will learn what makes American autos superior and they will adopt these attributes as new requirements. Competitors will be challenged to improve their products even more to prevent them from becoming commodities, as American auto products once were.

Market evolves

Watching a market change and evolve and trying to react by meeting continually changing customer requirements is a costly and grossly inefficient way to manage a business.

Here's a true-to-life example from "down in the trenches." The following conversation took place several years ago in the paint and body repair area of a heavy-duty truck assembly plant. A repair foreman lost his patience with a final

inspector who appeared over-critical in judging the quality of visual paint flaws.

"Fred, ya' just gotta' learn this ain't no Cadillac or Mercedes; this is a heavy-duty truck!" the foreman declared.

Competitors will be challenged to improve their products even more to prevent them from becoming commodities.

Trying to justify his position, the inspector replied: "You heard those guys from marketing last week. They're trying to break into the owner-operator market. How can they do that if we keep treating these beautiful machines as just another truck?"

(He was a very shrewd inspector to compliment the foreman's trucks as he rejected them.)

The foreman checked the manifest and saw that the truck in question was a single unit order for an independent owner-operator. That meant that the customer would probably decorate the truck with hundreds of dollars worth of pin stripes, a stylish name and other custom details.

Turning to the inspector, the foreman said grudgingly, "Yeah, Fred. I guess yer' right; it ain't just a truck anymore."

Reductions in quality costs cannot shift or influence customers' requirements or expectations of products and services.

As fate would have it, the vice president of marketing happened to be walking by and heard the foreman's reply. Three months later, the company had adopted the foreman's statement as its new advertising slogan, "It ain't just a truck anymore."

The point of this anecdote is not a gimmicky ad campaign but the inspector's unstated theory:

"Yeah boss you're right. It ain't a Cadillac or Mercedes. But what if we could produce a heavy-duty truck with a Cadillac or Mercedes quality paint job? Isn't that what the owner-operator guys want? What if we could actually show them it was possible?"

Seizing the initiative and demanding continual improvement in processes, products and services beyond the currently perceived requirements is the surest way of staying out of the commodity business.

Advancements attract customers

Product ingenuity and technological advancements are important attributes for attracting and delighting customers. How do companies pay for the research and development necessary to bring these things on board?

Quite simply, they do it by making process quality improvements that reduce cycle time, eliminate waste and increase profits. Yes, companies need to manage the cost of quality efforts as fiscal responsibilities. They also need to invest the cost reductions to make improvements that will facilitate the long-term viability of the organization.

Companies must be careful, however, to prevent these inward looking measures from becoming the focal point of quality improvement efforts. Reductions in quality costs cannot shift or influence customers' requirements or expectations of products and services. The only quality costs that can even remotely affect such things are the ones that are unknown and unknowable.

Efforts must focus on maintaining the alignment between quality costs reductions and the overall strategy, as Beecroft stated repeatedly in his paper. Quality managers do this by insisting that quality-cost efforts be treated as strategic tools or tactics for leveraging the resources needed to attain the overall strategy, rather than as strategic objectives unto themselves.

Quality managers should *not* prepare quarterly management reports showing how much quality costs were reduced over some period of time. Instead, the focus should be on the improvements in processes, products and technological advances that were accomplished by using the resources generated by quality-cost-reduction efforts. Quality managers must keep the metrical focus on the overall strategy not on "doing" cost of quality. ♦

John Bruman is a member of ASQ and works for Precision Die and Stamping in Phoenix, Arizona.

20 Tips to Help Solve Problems Effectively

By Jeanne Sawyer

The ability to solve complicated problems quickly is more important than ever in today's slowing economy. From the time we're little kids, we're taught to solve problems by trial and error. That's fine if the problem is as simple as a burned out light bulb. When the issue is a muddle of business, technical and political problems, we need something that helps us untangle the mess. Unless you're Harry Potter, treating a complex issue the same way you fix a burned out light bulb is as effective as wishing for "magic."

Many key concepts in problem solving seem obvious, but often are overlooked.

Fortunately, there are alternatives to magic. Many key concepts in problem solving seem obvious, but often are overlooked and cause delays and frustration in getting important problems solved. Here are some tips and reminders that will help you solve messy problems quickly and easily.

1. **Define the problem first.** Explain what the problem is — what went wrong, the symptoms, the impact on your business. Write it down. Everyone who reads it should understand what the problem is and why it's important. Caution: describe the problem, not what you will do to fix it.
2. **Use your time for problems that are truly important.** Just because a problem is there doesn't mean you have to solve it. If you ask, "What will happen if I don't solve this problem?" and the answer is, "Not much," then turn your attention to something more important.
3. **Test your assumptions about everything.** Check the facts first. Be sure that you and your team understand the problem the same way, and that you have data to confirm that the problem is important. Test the assumptions about proposed solutions to improve the chances that

your solution will actually solve the problem.

4. **Measure.** The key question to answer is, "How will you know when the problem is solved?" If you don't measure, you won't know for sure. Use measurements to learn and portray the truth — the real truth, not what you wish were true.
5. **Measure the right things.** A common measurement trap is to measure something because it's "interesting." If knowing a measurement won't change anything, help you make a decision, verify an assumption or prove the problem is solved, then don't waste your time measuring it.
6. **Use your project-management skills.** Solving a big problem is a project: You're far more likely to solve it successfully if you treat it like one. That means you'll need to identify tasks, make and adjust assignments, and keep track of what is due when. Be sure to get appropriate management support for your project.
7. **Look for solution owners rather than problem owners.** Everyone participating in the situation owns the problem, like it or not, and nobody likes it. Avoid the finger-pointing trap by looking for solution owners, for example, the people who can do something to help solve the problem. Helping with a solution is much more fun than being blamed for a problem, so you're more likely to get the response you need.
8. **Whatever you do, do it on purpose.** Doing nothing is a wimpy way to decide not to solve the problem and is quite likely to leave you making awkward explanations when the problem resurfaces.
9. **Communicate.** Don't leave your key stakeholders guessing. Being human, we tend to be bad about keeping others informed about the progress we're making, especially if there is little or no progress. You're more likely to get

support and understanding if you get the word out honestly about what is happening.

10. **Avoid "bug mentality."** Fixing bugs fixes symptoms. Like taking aspirin for a headache, it may provide relief but does nothing to prevent the next headache. It's OK, and often necessary, to relieve the symptoms, but you have to dig deeper if you're going to prevent problems from occurring.
11. **Identify and fix the right root causes.** Complicated problems have multiple root causes, probably more than you can fix in a reasonable amount of time. Don't waste time or money on causes that are either insignificant in impact or only peripheral causes of the problem you're trying to fix.
12. **Choose solutions that are effective and implement the solution completely.** Identifying the right root causes is necessary, but unless you then implement a solution, you still have a problem. Double-check to be sure that

Use measurements to learn and portray the truth — the real truth, not what you wish were true.

your solution plan really will eliminate the causes you've identified, and then execute the plan. It's easy to get distracted by other projects once you get to the implementation phase and never finish.

13. **Focus on avoiding fires.** Although it's generally understood that it costs more to deal with crises than to prevent them, many companies give a mixed message on this. If the guy who puts out the fire is treated as a hero, it tends to make people want to be fire fighters. If you want to focus on prevention, be sure to reward those who do it successfully.

(20 TIPS continued on page 12)

QMD Web Site

NEW MEMBERS ONLY SECTION

QMD announces a new *Members Only Section* on the QMD Web Site bringing Division members current and reference information and new capabilities.



Members Only **password** for the next quarter will be **SAWYER**

- ⇒ **Quality Management Week 2002**
 - ◇ The latest information on the 14th Annual QMD conference
 - ◇ Register online ◇ Find more things to do in the area . . .
- ⇒ **Quality Manager Certification**
 - ◇ See the revised Body of Knowledge
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- ⇒ **The Quality Management Forum**
 - ◇ See the last four issues online ◇ Learn how to get published
 - ◇ Quality Management *Forum* publication guidelines . . .
- ⇒ **QMD Organization**
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The QMD web site has many more features and will continue to expand as QMD expands into the 21st Century and the use of the Internet. Check out our latest step by signing on to www.asq-qmd.org for a visit to Quality Management Division Online.

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Process Management in Marketing and Sales: How To Improve Customer Service

By Neil Reckon

Almost every business function uses process management to be more productive than other management methods like management by objective (MBO). Product development, production and financial functions benefit from adopting process management. However, many corporate marketing and sales functions have not yet adopted this powerful management philosophy.

Generally, sales-management culture rejects the notion of process management based on assumptions. Sales management tends to confuse the definition of process with the definition of bureaucracy. Sales people intuitively know that customers do not like bureaucratic responses. Based on this misunderstanding, how can a company properly apply process management to sales so it does not become bureaucratic?

Process management is not limiting. Some simple, but powerful, examples of process management exist in non-traditional areas. Emergency-room trauma care and Navy Seal missions use process management. Both groups are very responsive and adapt to what comes up in their work environments.

How can process management apply in sales? Process management can be a tool for sales management. Although the actual interactions with customers should be individual, sales management can use process-management methods to manage and improve the entire marketing and sales process.

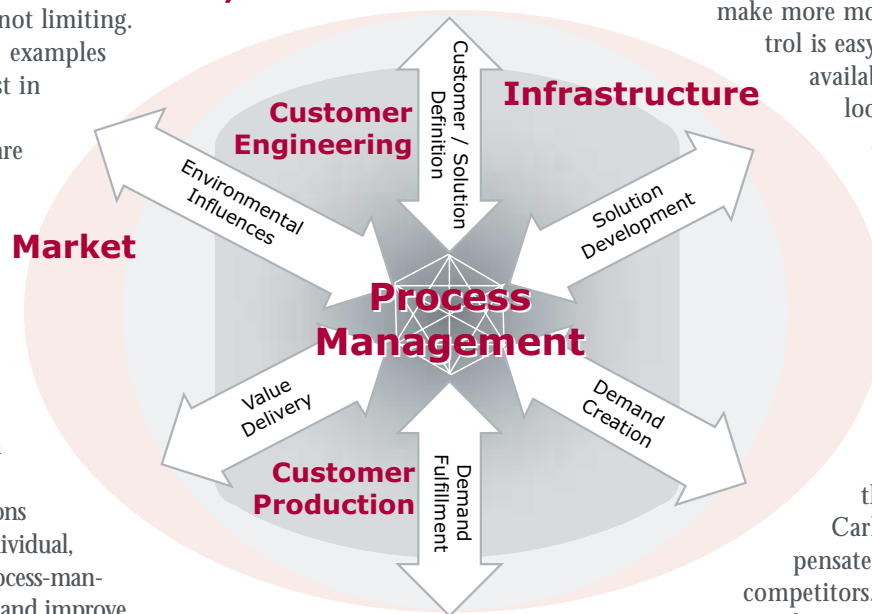
"You cannot accurately measure what you don't understand. And you cannot improve what you can not measure."

Quality management can help sales managers by exposing them to process-management tactics like discovering root causes of problems and defining in-process metrics. For example, if the company expects a higher sales rate, sales manage-

Making a sustained change in measurements, recognition and rewards will effect a real behavioral change.

ment should look for the root cause in the marketing and sales process. Sales management can find the root cause by auditing in-process metrics and looking for out-of-specification process yields. Too often, the assumption is that the sales people are the issue. This does not mean that the sales people are not the causes, but they are not usually. Remember, Deming stated, "People don't fail; processes fail."

Figure 1.
System to Manufacture Customers



This still is a formative concept within the marketing and sales functions. To help marketing and sales, quality professionals should remember the two critical aspects to implementing process management. First is the necessary behavioral shift. The marketing and sales functions cannot manage in the same old way. Second is the need for assessment tools. To monitor the effectiveness and efficiency of a process continuous-

ly, management must monitor functions that are now directed by the process.

Changing behaviors

First, quality management can provide information and training to change sales management's behavior. Making a sustained change in measurements, recognition and rewards will effect real behavioral change. Sales management will gain more control and make more money by adopting changes as it applies the information and training. The good news is that information is readily available from organizations such as the American Society for Quality² (ASQ) or CAM-I³.

Behavioral change will not happen if sales managers cannot see a clear benefit. Getting them to believe that they can make more money and have greater control is easy. Compelling data are available and irrefutable. Just look at the www.nist.gov web site and review the dramatic return on investment of companies who have won the Baldrige Award. These companies outperform the Standard and Poor's 500 Index by four to one. And an informal assessment reports that companies that have won the Baldrige Award like Ritz Carlton and Motorola compensated employees higher than competitors. But implementing change is not always easy and dedicated believers must see it to fruition.

Tools to measure

While there are tools that allow marketing and sales management to measure specific activities within the process, until now, there has been no integrated model to monitor and manage all of the cause-and-effect relationships within marketing and sales. (See Figure 1)

The Customer Manufacturing System® Model categorizes the integrated marketing and sales processes into six functional elements. These six elements support the entire end-to-end marketing and sales processes, including the interaction of a company with its markets. By using this model as the foundation for process management, a business can easily measure the quality of output for all functions within the end-to-end marketing and sales process, rather than looking at each function as a unique and disjointed activity.

'Continuous improvement,' 'theory of constraints,' and 'lean thinking' are the three philosophical cornerstones behind the Customer Manufacturing System Model. Continuous improvement embeds a consistency of purpose throughout an organization.⁴ Continuous improvement changes behavior from reactive, event-specific management to proactive ongoing process management. Theory of constraints defines what are truly the bottlenecks to a company's improvement. The theory helps a company decide what it should focus on in all the local and global processes to realize the global goal. Finally, lean thinking provides the tactics for focusing only on value-added processes to use improving the entire end-to-end process.

A sales forecasting example

Let's say you are called into help sales management. The company call center has forecast \$9 million in revenue. The call center estimates that it will have to call 1.2 million prospects to generate this revenue. The call center manager's first instinct might be to hold a meeting to rally the troops and impress upon the staff the importance of reaching the goal. Sound familiar? Even with motivation, employees can only do so much. What can the manager do to improve the probability of achieving the expected outcome?

By implementing process-management principles, the answers are simple. How can you help the call center manager use the process model? The following are a few process metrics that you can monitor.

The first question you should ask your sales manager is, "Do we have enough information to set up process metrics." For this project, the answer is no. The information presented in the forecast has insufficient metrics. The theory of constraints teaches the difference between local work-

cell output and global goals. This means that the information the sales manager has is insufficient. The forecast uses an "apples to oranges" comparison. The global goal of \$9 million of revenue versus local activity of 1.2 million calls is not necessarily correlated. Other factors can affect the global goal, and these need to be monitored.

Using the model as a guide, assess what else must be monitored to get an accurate cause-and-effect picture of the forecast. Look upstream in environmental influences to determine whether anything has changed in the environment or market. What external factors have affected the forecast? Has anything occurred in the market that would

Theory of constraints defines what are truly the bottlenecks to a company's improvement.

make the forecast impossible to achieve? Maybe the competition has done something that could change the call-to-revenue ratio? Perhaps something in the economy has changed. For example, if the call center was selling dot com stocks, what is the likelihood of a call center's ratio of calls-to-revenue being different today than in 2000? Because the model views marketing and sales as an integrated function, by following the model, you can monitor all contributors to the global goal.

Next, ask the call center manager to check the definition of the customer for the product. Does the call center have a targeted list of prospects? Are these the right people who would buy what the call center is selling? Is what the call center is describing on the phone what the prospect would be compelled to buy?

My firm had a client who manufactured electromechanical components for consumer electronics. The company's call center had been contacting prospect's purchasing departments. The manufacturer used continuous-improvement thinking to assess who were the decision-makers buying its product. Our Pareto analysis of the data revealed that design engineers are most often the decision-makers. The company ran a test, calling on engineers, then comparing the call ratios to the previous data. The test ratios were better than the general historical ratios. The company rolled out a

plan for refocusing and implemented the improved call-center activities. The call center contacted the same companies, but they called on design engineering. The call-to-revenue ratio improved.

Last, look at the local call-center activities. Lean thinking teaches us to apply the appropriate value-added work at the needed time. I suggest assessing the alignment of your sales process with the customer's buying process. Customers know what and when they want to buy. If the call center is two steps ahead and rushing to close the sale, chances are the customer will move on to the competition – who possibly is willing to respect the customer's buying process! Ask: Is the call center operator's sales process ahead of where the prospects are in their buying processes? Do you even know what your customer's buying process is? Have you been a victim of poor alignment at your home around 6 o'clock in the evening? When a telemarketer calls you at home trying to sell something, you are not even thinking about buying.

All these factors are potential constraints or areas that can be improved within the system, and in the end, can affect the forecast. As Deming demonstrated in the Red Bead⁵ experiment, running a contest in the call center might not solve the real problem.

Now the sales and marketing management team can enjoy the same improvements that the other business functions have. It's up to marketing and sales management to take advantage of these proven methods. The good news is you can help. And remember . . . this solution also is available to your company's competitors. ♦

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Neil Reckon, an architect of the Customer Manufacturing Group's System to Manufacture Customers®, has spent more than 20 years speaking on and implementing more efficient and effective business process infrastructures to increase his clients' productivity and profitability. For more information, contact Reckon at the Customer Manufacturing Group, 909 484-3333, or at neilr@customerimg.com

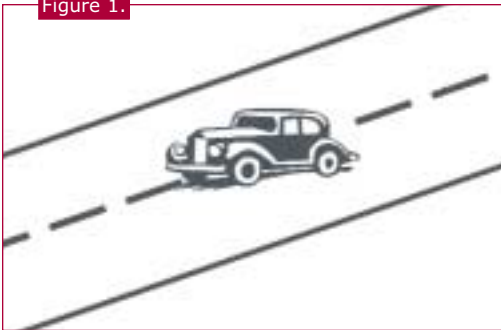
A Car Without a Steering Wheel: Issues in Statistical and Engineering Process Control

By Murat Caner Testik

Think of driving a car without a steering wheel. The forward movement of the car is the only control. The goal is to drive the car on the road. Since the road has left and right boundaries, you try to drive the car by centering it on the road. You regularly make decisions to go forward or to stop at some points in time.

A lot of good methods are developed with the underlying assumption that the road is straight.

Figure 1.



A car on a straight road — there is no need for a steering wheel.

In statistical concepts, this example tests the null hypothesis that the car should stop against the alternative hypothesis that the car should continue going forward. As a rule, deviations from the center of the road are acceptable unless the car goes off the road. If you drive the car outside the road's boundaries, this is a penalty and you should stop the car and move it inside the boundaries. Since roads have curves and turns, penalties are inevitable. How can you drive this car to minimize penalties? (The solution will be discussed later.)

Most quality-control work focuses on developing methods that differentiate in-control processes from out-of-control processes. When using control charts, the main objective is to detect an out-of-con-

trol process as soon as possible. Performance measures used for comparing the efficiency of the control charts detects the process upsets. These quality control charts have been used successfully over the years. A lot of good methods are developed with the underlying assumption that the road is straight. Sometimes sums of the deviations from the center of the boundaries are calculated; sometimes weight is given to the past deviations. Nevertheless, most practitioners ignore the question, "Is the road really straight?" Sometimes, it is possible to reach a straight road but this requires a huge effort; sometimes, even with the greatest effort this is impossible. (See Figure 1)

This car-and-road analogy expresses classical quality control charts that have been used successfully since early 1920s and have roots in Dr. Walter A. Shewhart's pioneering work. The assumption in these control charts is that a constant process average with a reference distribution is mostly the normal distribution. The objective is to monitor and quickly detect a quality characteristic for statistically significant shifts from the target.

What if the road is not straight and there is not a way to make the road straight, economically or technologicaly? Even if the road is perfect, without curves and bumps, the wheels of the car will need alignment. Otherwise, the car will zig and zag inside and outside the road boundaries. Even in a perfect world, adjustments are inevitable. In the words of Box, Coleman and Baxley¹, "We need control because we live in a nonstationary world, where, if left to themselves, machines do not stay in adjustment, operators forget or change jobs, and things wear out."

The steering wheel is a necessary part of the car. When approaching a curve, a

turn of the steering wheel, proportional to the angle of the curve, keeps the car on the road. The center of gravity will take the car a little bit off the center of the road during turns, but this is acceptable, since the car is still on the road. In technical terms, this is called manual adjustments using feedback control. Also, if it is hard for the driver to steer the wheel often, he does not have to steer the wheel for small curves. This depends on how you want to drive. In technical terms, this can be called bounded manual adjustments using feedback control. The driver decides whether or not to steer the wheel.

Moving processes cannot be left alone to wander forever. Adjusting some controllable factors is essential to point the process

The driver decides whether or not to steer the wheel.

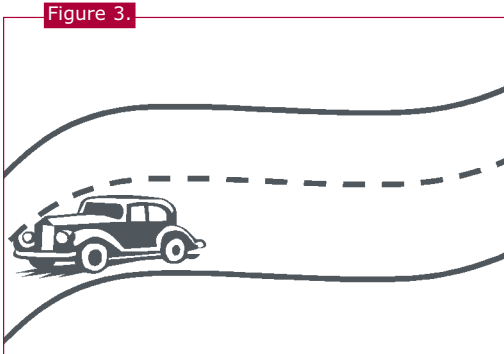
Figure 2.



A car without a steering wheel — it goes out-of-control.

output in a certain direction. Adjustments compensate for disturbances and minimize variability around the target. These adjustments, or corrective actions, can be taken each sampling period or when it is required, depending on cost, time and ability. In their book, *Statistical Control by Monitoring and Feedback Adjustments*,² Box

Taking corrective actions on a stable process increases the variance.



A car with a steering wheel – it survives and stays on the road.

and Luceno detail how to deal with nonstationary processes where there are irremovable deviations from the target. They describe feedback control techniques to use in statistical process control, which is regarded as the domain of Engineering Process Control or equivalently, of Automatic Process Control. This is what I call the “steering wheel.” (See Figure 2)

Keep in mind that if the road is straight, or in other words, if the process is on target with random variations, there is no need to use a steering wheel. This can only increase variations, which is not desirable. Deming’s famous funnel experiment illustrates this fact: Over-controlling a process that is on target but has random errors will only increase the process variation. Instead, taking corrective actions on a stable process increases the variance. A recent article by W. Davis III³ in *Quality Progress* illustrates this fact with Monte Carlo simulations of Deming’s funnel experiment.

In his paper, J.F. MacGregor⁴ points out that assuming a process can remain average may be realistic for some industries but in many industries, such as chemical process industries, this is not realistic since a true process average will usually drift because of uncontrollable disturbances. For the latter case, processes need some active controls to keep the process mean on target. Do processes need to be adjusted even if these disturbances are mild? Box and Luceno² show that when a process is in a perfect state of control, if adjustments are fully

applied, the variance of the process will be doubled. This is also evident in Deming’s funnel experiment. However, in the case of an IMA(0,1,1) disturbance with parameter θ , and an adjusted sequence on length n , the ratio of the mean square errors of the unadjusted series to adjusted series will be $1 + \frac{1}{2}(n-1)(1-\theta)^2$. Therefore, for an IMA disturbance series of 100 observations with the parameter value 0.6, reduction in the mean square error will be more than ninefold.

D.C. Montgomery and W.H. Woodall⁵ offer a valuable discussion on statistically-based process monitoring and control in an article published by *The Journal of Quality Technology*. Or as J.S. Hunter wriest in *Quality Progress*; “Box-Jenkins manual adjustment chart is a simple and robust statistical tool used to adjust a process in order to approach ideal statistical stability.”⁶

“These manual adjustment charts, by employing real-time process data, bridge the gap between ad-hoc manual adjustment and automatic control.”⁷

Isn’t it good to have a steering wheel? (See Figure 3) ◇

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2002 Quality Management Week & the 14th Annual Quality Management Conference

February 25 through March 1, 2002

Hyatt Regency
New Orleans

Conference theme:
“The Changing Face
of Quality”

Quality Management Week includes:

- **Classes** ◦ **Four-and eight-hour tutorials**
- **Papers and keynote speakers**
- **QMD annual meeting** ◦ **Banquet**
- **Certified Quality Manager, Certified Quality Auditor, and Certified Quality Improvement Associate examinations**



For the latest Quality Management Week information, visit QMD Online at www.asq-qmd.org.

For complete information, watch your mailbox for the conference brochure arriving around November 1. Mark your calendar now and make plans to attend!

Speakers Preview for Quality Management Conference

Hospital President to Open Quality Management Conference

Alan H. Robbins, M.D., president of New England Baptist Hospital, will be the opening keynote speaker on February 28, 2002, at the 14TH Annual Quality Management Conference. The conference, to be held in New Orleans, Louisiana, will focus on "The Changing Face of Quality."

Dr. Robbins is the chief executive officer of New England Baptist Hospital and senior vice president of the parent CareGroup. In addition to being a world-renowned radiologist, he is a widely sought after speaker on patient satisfaction and leadership.

Dr. Robbins led his organization to a 96% customer satisfaction level in the past year and consistently managed satisfaction at over 92% for the last four years. Under his leadership, the hospital has pursued both customer market expansion and expense reduction efficiencies. New England Baptist is ranked third nationally in orthopedic surgery, with clients coming from all over the world to benefit from its excellence. Join fellow leaders at the Quality Management Conference as Dr. Robbins shares a real success story.



Hutton to Keynote Annual Conference



David Hutton is a practitioner of quality management and a successful author, who has extensive experience of applying quality improvement methods – as an engineer, as a manager and as a senior executive. He is recognized as an authority in Baldrige-style assessments as a means of driving change and performance improvement.

David has specialized since 1990 in organizational assessments as a means of driving continuous improvement and change. He also served for eight years as a Lead Examiner for the Canada Awards for Excellence program, which is the Canadian equivalent of the Baldrige Award. He participated in the design of the award criteria, and chaired the committee of Lead Examiners, which oversees the adjudication process.

David is the author of two popular books from ASQ Quality Press. "The Change Agents' Handbook" is a practical guide to managing organizational change, and dealing with the personal challenges facing those who act as catalysts for change. "From Baldrige to the Bottom Line", a detailed guide to the assessment process, shows how to use this methodology to drive organizational change and improvement.

In 1998 David was elected a Fellow of the American Society for Quality:

"For outstanding leadership and a humanistic approach in promoting quality management principles and practices across Canada and internationally; and for exceptional professional contributions as a consultant and author in the field of quality management."

Futurist Brant to Speak at Annual Conference

Steven G. Brant, founder and principal of Trimtab Management Systems, will be the keynote speaker on February 28, 2002, at the 14TH Annual Quality Management Conference.

Steve Brant is a business futurist who first started working to achieve the vision of a world that works for everyone in 1979. Brant is a leading advocate of the application of systems thinking and quality management's principles to making the globalized world work. He is past chair of



the American Society for Quality's Community Quality Councils Committee and a past steering committee member of Business for Social Responsibility's New York City network. He is currently helping

launch the new Ackoff Center for Advancement of Systems approaches at the University of Pennsylvania. Brant will discuss the impact quality managers can have on the bottom line of their organizations when they apply quality's principles, especially systems thinking.

Brant was born and raised in New York City. He graduated cum laude with a bachelors degree in civil engineering from the University of Massachusetts at Amherst in 1976. From 1980 - 81, he pursued graduate studies in management at the New York University Graduate School of Business Administration. Since then he has studied with futurist R. Buckminster Fuller, Dr. W. Edwards Deming and Dr. Russell Ackoff, the dean of the Systems Thinking community. ♦

Quality Manager Certification Brochure Has a New Look

By Wendy Zwolenski Lambert

In keeping with ASQ's commitment to continuous improvement and customer satisfaction, the Certification Department recently updated the Quality Manager Exam brochure to provide the most comprehensive guide to the certification process ever developed.

The brochure's developers felt it was important to provide candidates with a clearer understanding of how to formulate sound responses.

Potential candidates for the quality manager certification rely on the American Society for Quality's (ASQ) Certification Exam brochure. It provides helpful information about the certification requirements

and explains the application process and how to pursue certification. However, candidates want information that goes beyond the basics and need to know more about exam content to evaluate their readiness to take the exam. In addition, candidates are curious about the scoring process and the criteria for success.

Brochure contains details, reference suggestions

While the exam brochures have always provided candidates with helpful information about becoming certified, the latest brochure goes many steps further. The brochure now:

- Details the current Quality Manager Body of Knowledge and suggests reference materials that are categorized

according to corresponding areas of the Body of Knowledge.

- Includes enhanced sample multiple-choice questions and a constructed response problem.
- Offers criteria for effective constructed responses, including examples of high, medium and low scoring essays. The brochure's developers felt it was important to provide candidates with a clearer understanding of how to formulate sound responses.
- Candidates can read about the many phases of exam development and gain insight into how ASQ exams are graded.

Candidates want information that goes beyond the basics and need to know more about exam content to evaluate their readiness to take the exam.

Best Seller on Quality Management Updated for 2001 Body of Knowledge

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The brochure even dispels some long-held misconceptions about the process in the section "Top 10 Myths of Certification," which first appeared in *Quality Progress* (April 2000).

The original *Quality Progress* article, authored by John W. Moran and Patricia C. LaLonde, generated an overwhelming amount of positive feedback from readers because it addressed many unanswered questions about the exam process. The certification department evaluated readers' comments and recognized the opportunity to update exam literature to include the information that candidates said was important to them.

The result is a new brochure that is the most comprehensive that ASQ has ever developed. Even those who are already certified will find interesting information about the exam that they may not have known before taking it. By enhancing the brochure, ASQ has provided potential Certified Quality Managers with a valuable guide that shows why certification is a tremendous career investment. ♦

(20 Tips continued from page 4)

- 14. Have the courage to say “no” when appropriate.** If you believe the problem can't be solved in the time frame allowed or with the resources available, your best option is to say so right away. Accepting an assignment that you believe is impossible is setting yourself up for failure. Do, however, choose your strategy for how you refuse to take on the project: gather evidence, explain what it will take to accomplish the desired results, etc.
- 15. Meet your commitments.** Do what you promise and don't promise what you can't deliver. Meeting commitments strengthens relationships and builds trust. You need both to solve messy problems. If the situation changes and you do have to change a commitment, let everyone know right away so they can make appropriate changes to their own plans.
- 16. Everything necessary, nothing extraneous.** Make sure you solve the problem completely, but don't get sidetracked into doing other things that won't make this problem go away. Put

those extras aside to evaluate later as special projects.

- 17. Everyone necessary, no one extraneous.** Make sure everybody who can contribute to the problem-solving effort is appropriately involved. Only have the people on your team who will

Accepting an assignment that you believe is impossible is setting yourself up for failure.

contribute actively to solving the problem. People who need to know what's going on can be informed more efficiently in other ways.

- 18. Plan for things to go wrong.** We've heard it before, and it's still true: if something can go wrong, it will. Figure out what can get in the way of your problem-solving effort and develop appropriate contingency plans.
- 19. Use completion criteria.** Define what successful completion of each task entails. Specify when it is due and what standard must be met to avoid misunderstandings and delays. You don't

want to tell someone who has worked really hard to complete a task that he or she misunderstood and you wanted a sledgehammer rather than an ordinary hammer.

- 20. Acknowledge and thank everyone who helps.** Solving an important problem deserves recognition, and nobody else is going to take care of this for you. Make sure management and key stakeholders know what you and your team have achieved. Remind them of the risks avoided. Thank everyone who participated in the project. It's the polite thing to do, and encourages them to help you next time. ◇

*Jeanne Sawyer, an author, trainer and consultant, helps her clients solve expensive chronic problems such as those that cause customers to take their business elsewhere. Visit www.sawyerpartnership.com for more free information on problem solving or to find out about her new book, *When Stuff Happens: A Practical Guide to Solving Problems Permanently*.*

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Join Us in New Orleans for Quality Management Week

The Quality Management Division invites you to Quality Management Week in New Orleans, Louisiana, February 25 to March 1, 2002.

This jam-packed event should be part of your organization's 2002 budget. Registrations received by December 21, 2001 earn a \$50.00 conference discount.

The weeklong program premiered this year in Orlando. The QMD conference committee wanted to provide members with the best return on their travel dollars.

.Quality Week offers a rich menu of views and opinions from 24 speakers and four keynoters.

QMD continues the tradition in 2002 with an entire week focused on "The Changing Face of Quality for the 21st Century."

Members can take advantage of these pre-conference events:

- **Monday, February 25, and Tuesday, February 26** — Three or four classes covering a wide range of quality and change topics. Some classes will be Monday only. Others will be two or three-day series. The conference committee is currently selecting the best proposals. Look for the final agenda in the conference brochure.
- **Wednesday, February 27** — Five daytime courses will address issues vital to quality professionals. In the evening, conference attendees are invited to a networking event in the exhibition area, an opportunity to renew old acquaintances and make new ones.

The conference itself opens Thursday, February 28, with a continental breakfast featuring keynote speaker Alan H. Robbins, M.D. (see Preview, page 10). The conference offers four subject-matter tracks with hour-long sessions in the morning and after lunch Thursday and Friday.

Thursday afternoon's keynoter is David Hutton (page 10). Members are welcome to attend QMD's annual business meeting Thursday evening.

Keynote speaker for the continental breakfast that opens the conference's second day is Steven Brant (page 10).

All told, Quality Week offers a rich menu of views and opinions from 24 speakers and three keynoters. Don't worry about missing any of the discussions. A CD accompanies the speakers' presentations.

On Friday, when the conference closes, take the opportunity to fill out a critique before moving on to the excitement of Bourbon Street and New Orleans' fantastic restaurants, the return trip home, or the chance to further stretch the travel budget by taking the Certified Quality Manager, Certified Quality Auditor, or Certified Quality Improvement Associate examinations.

For the latest information, visit the Web site, www.asq-qmd.org, and watch for the conference brochure in your mailbox. We hope to see you at the Hyatt Regency in New Orleans in February 2002. ♦

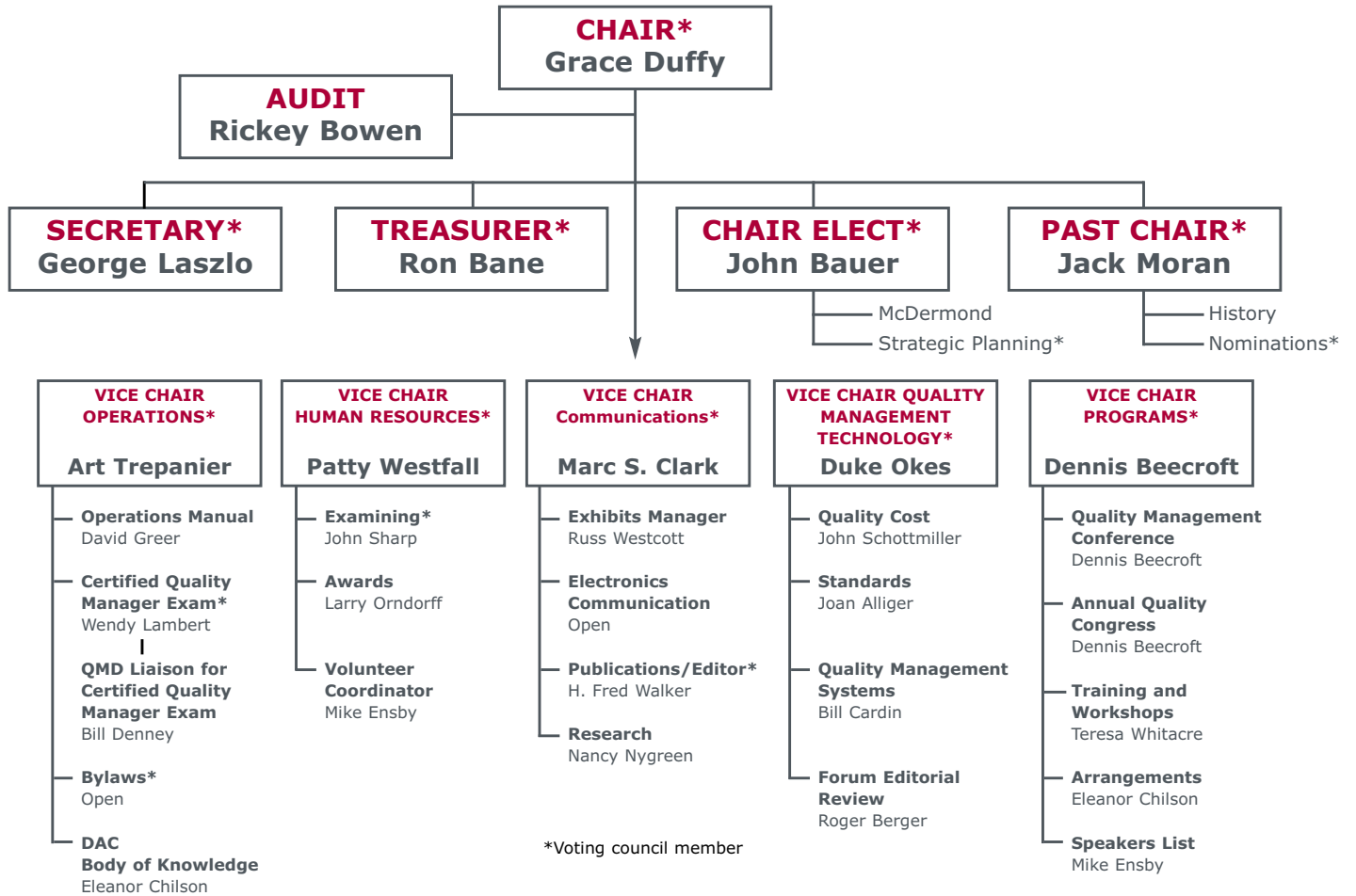
Philip B. Crosby Remembering a Hero



Philip B. Crosby

The QMD Division of ASQ regrettably acknowledges the passing of Phillip B. Crosby after a life-long career in support of quality management and the Quality Management Division of the American Society for Quality.

1926 — 2001



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To see a QMD organization chart and complete roster of QMD officers, committee chairs, and volunteers go to the QMD Organization pages on the QMD web site at www.asq-qmd.org.

The 14th Annual Quality Management Conference

Monday, February 25 through Friday, March 1, 2002

Get us on your calendar and in your budget!

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- ✓ Certified Quality Manager Refresher
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- ✓ Quality Costs
- ✓ The Changing Face of Quality Tools

Tutorial Costs

4 hour =	\$150	2 day =	\$ 450
1 day =	\$ 275	3 day =	\$ 675

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Conference Speakers

Thursday through Friday

Keynote speakers include:

Dr. Alan Robbins on Thursday

President, New England Baptist Hospital, and Senior VP of CareGroup, Boston, MA

Mr. Steven Brant on Friday

Founder and principal of Trimtab Management Systems, Brooklyn, NY

Mr. David Hutton

Renown Author

Certification Exams

The following certification exams will be offered on Friday, March 1, 2002:

- ✓ Certified Quality Manager
- ✓ Certified Quality Auditor
- ✓ Certified Quality Improvement Associate

Register for the exams by contacting ASQ Headquarters at 1-800-248-1946 or www.asq.org. Make sure to indicate the exam will be held at the 14th annual Quality Management conference.

Conference

Register Early and Save \$ 50

Register and Pay in Full on or BEFORE December 21, 2001

ASQ and QMD Members	\$ 599
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Register and Pay in Full on or AFTER December 21, 2001

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Electronic Communications Chair

QMD has an opening for a volunteer to manage the division's web site and electronic communications functions.

Responsibilities include:

- Gathering QMD news and quality management information from division officers and chairs
- Working with the *Forum* editor to determine how best to distribute information
- Guiding the creative design firm in maintaining and expanding the QMD web site

The position requires effective communications and management skills. It is not a technical position, and knowledge of web site programming and graphic design are not required.

Marketing Skills and Experience

QMD has opportunities for volunteers to help market the Division and its products and services. Hone your marketing skills. Help design effective marketing programs, write marketing copy for brochures and advertisements, and work with exceptional vendors.

For more information, contact Marc Clark at qmdcomm@cs.com. To apply, complete the QMD Volunteer/Leadership Form on the QMD web site at asq-qmd.org.

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Attend weekend workshops to write and grade Certified Quality Manager exam questions. These workshops are an opportunity to:

- Interact with fellow quality management professionals
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Travel expenses are paid within ASQ guidelines. Each participant receives 2 Recertification Units. Participants must be Certified Quality Managers and current ASQ members.

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