

The Quality Management FORUM

Spring 2001
Volume 27, Number 2



The Newsletter for the Quality Management Division of the American Society for Quality

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John Schottmiller visits the world's largest quartz crystal in Yekaterinburg, Russia

Russia's Road to a Market Economy: An Interview with John Schottmiller

It has been less than ten years since Russia was the keystone of the former Soviet Union. During the Soviet years, product decisions were made centrally and factories were measured on production quantity, not product quality or customer satisfaction. The lack of focus on product quality often resulted in unacceptably high defect rates.

Things have changed. Today, Russia is working toward a market-driven economy. International trade has become a key to survival. Like U.S. manufacturers in the late 1970s, Russian enterprises have recognized the need to improve their product quality. They are moving to the use of the same tools and techniques that helped the United States improve quality and productivity.

John Schottmiller, a Rochester, New York-based consultant and chairman of QMD's Quality Cost Committee, recently traveled to Russia to assist several enterprises in improving quality. *The Quality Management Forum* interviewed Schottmiller to learn more about his contribution and his experience in Russia.

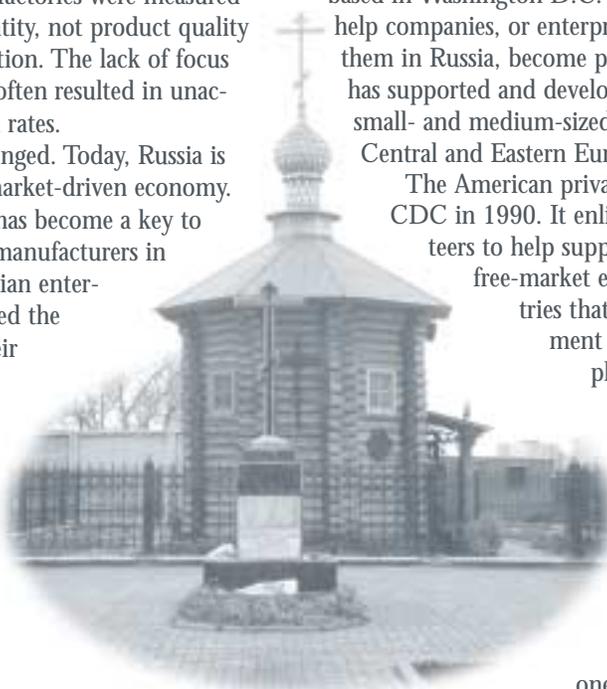
QMF: Let's begin with some background information. How did you become involved in quality consulting with the Russians?

Schottmiller: My trip to Russia was sponsored by a non-profit organization called the Citizens Democracy Corps, or CDC. It is based in Washington D.C. and is trying to help companies, or enterprises as they call them in Russia, become profitable. The CDC has supported and developed hundreds of small- and medium-sized businesses in Central and Eastern Europe and in Russia.

The American private sector formed CDC in 1990. It enlists American volunteers to help support the transition to free-market economies in countries that decades of government control and central planning have left poorly prepared to compete in a market-driven, global economy. I understand that CDC has sent about 350 people to Russia. It is only one of the countries where CDC volunteers have worked.

QMF: Who funds CDC?

Schottmiller: Funding comes from Aid for International Development, which is part of the U.S. State Department. CDC relies totally on volunteers for training and consulting services. If your readers want to know more about volunteer opportunities, they can get complete information on the organization's web site, www.CDC.org.



History: The site of Tsar Nicholas and family's execution in Yekaterinburg

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(RUSSIA, continued on page 4)



A Salute to the Volunteers who Run Division Operations

John Moran

It has been my pleasure to serve as the chair of the Quality Management Division for the past two years. This will be my last column as the chair, and I want to encourage you to be a volunteer in the future. This division is managed totally by volunteers. There is no paid staff.

Volunteers perform all the tasks necessary to produce the newsletters, conferences, training programs, books, and videotapes and to handle the division's day-to-day functions. They invest their time and energy freely to make the Division a continuous top performer, which is reflected by the McDermond Awards we have received.

"Volunteering helped me develop a network of top professionals whom I can call on for assistance or guidance." — John Moran

Why volunteer?

You may be wondering why people volunteer. In my case, it became a way to connect with some of the best in the quality field. I have met and learned from them. I have yet to attend a meeting where I did not walk away with knowledge that I could use at work. Volunteering helped me develop a network of top professionals whom I can call on for assistance or guidance. I feel I have probably gained more than I have given. Working with top professionals is an exhilarating feeling. Being a volunteer will let you contribute your skills to make the Division, the Society and the profession a better place.

At our annual conference in February, we honored a number of volunteers who have contributed their time and effort to make the Division a top performer over the years:

- **G. Dennis Beecroft**, an Outstanding Service Award for his leadership of the quality cost committee and for making this year's conference such a successful event.
- **Roger Berger**, an Outstanding Service Award as outgoing editor of *The Quality Management Forum* and for his long-term commitment to and leadership of the Division. Roger, a past chair, Jones Award recipient and fellow, has earned the respect of every member of QMD for his generous guidance over the years.
- **Jack Campenella**, the Jones Award. This is the highest award the Division can give to a volunteer for distinguished service. Jack was the Division's first full-time chair, and a long-time member of the quality cost committee as well as its past chair. He was responsible for many of the Division's publications and, most recently, was the editor of the third edition of the *Principles of Quality Costs*. He is a fellow of the society and holds many of the society's certifications. Jack has given the Division years of dedicated service, which has helped build the strong division that we have today.

- **Marc Clark**, Division Service Award for his committee leadership.
- **Patti Gonzales**, headquarters staff, an Outstanding Service Award for her help as our GTC Group Five administrator. She performed many functions that helped keep the Division focused on our McDermond achievements over the past few years.

- **David Greer**, the Division Service Award for development of the new QMD Online Operations Manual.
- **Skip Johnson**, an Outstanding Service Award for his long-term leadership and commitment to the Division in a variety of roles.

• **John Sharp**, the Division Service Award for his continued support as QMD examining chair.

- **Art Trepanier**, an Outstanding Service Award for his performance as the conference program chair and for obtaining the outstanding speakers.
- **Russell Westcott** and **Duke Okes**, Outstanding Service Awards for their efforts in editing the *Certified Quality Manager Handbook* and writing the Section Refresher Course.
- **Greg Weiler** and **Dale Tuttle**, ASQ headquarters, Division Service Awards for working in partnership with the Division to develop the Section Refresher Course.
- **Patty Westfall**, an Outstanding Service Award for her leadership as the quality manager exam chair.

We thank all of these people who displayed leadership and commitment to the Division. They have provided major tangible benefits to our members. In addition, I would like to thank all the vice-chairs, committee chairs and function chairs for their cooperation and support over the past two years.

Grace Duffy, your chair as of July 1, will write the remainder of the column.

John W. Moran

Board Sets Division's Strategic Plan

Grace L. Duffy

In the winter issue, our chair, John Moran, asked me to summarize the board's strategic plan for the Division. Since that time, the board has successfully set tactical objectives and deadlines. Input from the 13th Annual Quality Management Conference helped us put in the latest updates to provide better service to you, our membership.

As chair-elect, my responsibility has been to lead strategic planning for the Division. Recently I read *Built to Last, Successful Habits of Visionary Companies* by James Collins and Jerry Porras. This book traces several visionary companies in an attempt to isolate successful decision-making activities. In examining the history of the visionary companies, I am struck by how often they made some of their best moves, not by detailed strategic

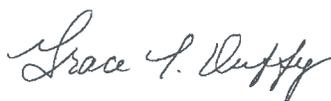
"I am proud to be a member of such an impressive organization." — Grace Duffy

planning, but rather by experimentation, trial and error, and blatant opportunism. For QMD to succeed, I believe we need both planning and experimentation.

The mix of planners and risk takers in QMD delights me. I joined ASQ and QMD for information to do my job. I stay for the people. I have never met a more professional, motivated and happy group. We know who we are and we like what we see. I am proud to be a member of such an impressive organization.

My vision for QMD is to strengthen our division as an association of professionals. Like all professionals, we change to meet the needs of our customers. QMD must change to remain useful to you, the Division's customers. We must provide services to those with broader interests and less time. We must provide just-in-time learning and management tools. We must balance the new need for "faster" with the old lessons of "vintage."

Most important, I want to thank Jack Moran, QMD chair, and Rickey Bowen, QMD past chair, for many years of coaching and guidance. Supporting our membership is a team effort. We are a good team and will continue to be one. I also thank those past chairs who are rotating off the QMD board to allow room for our next generation of leaders. Skip Johnson, Roger Berger and Michael Murphy, all strong Division leaders, are saying goodbye to active service this June. We will miss your visible contributions. We will not forget the friendship.



CALL FOR PAPERS 14th Annual Quality Management Conference

The 14th Annual Quality Management Conference will be held during Quality Management Week at the Hyatt Regency New Orleans February 25 through March 1, 2002. The conference theme is "**The Changing Face of Quality**." Quality Management Week will include four- and eight-hour tutorials on Wednesday, February 27, and one- and two-hour paper presentations on Thursday, February 28 and Friday, March 1. The proposed tracks for conference papers include: (1) International, (2) Academia, (3) Basic Applications, (4) Advanced Applications, and (5) Quality Management Tools.

Program Chair, Art Trepanier, is currently soliciting proposals for tutorials and conference papers. If you or any of your peers wish to present a tutorial or paper at this conference, please submit your proposal to Art Trepanier via e-mail at art.d.trepanier@lmco.com or trepanier@airmail.net by May 31, 2001. Proposals should include a brief abstract, presentation length, a biographical summary, and complete contact information. At a minimum, contact information should include name, title, company name, mailing address, phone, and E-mail address. Proposals for conference papers should also include the suggested paper track.

Suggested topics include but are not limited to:

- Knowledge management
- Quality managers' impact on the bottom line
- Cost and cycle-time reduction
- Supply chain management
- Manufacturing at multiple locations and countries
- Lean manufacturing concepts
- Managing part-time, temporary, and contract workers
- Implementing strategic initiatives
- Quality tools to improve performance excellence in the day-to-day operations
- Audits and assessments as a basis for improving quality

The papers should be presented in a manner whereby attendees will be able to gain an understanding from practical examples and have the ability to implement knowledge gained from the conference to immediately improve organizational performance.

If you have any questions or require additional information, please contact Art at work from 6:30 AM until 5:00 PM Central Time at (972) 603-2925 or at home at (972) 618-3887.

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Is Six Sigma Being Misused?

By Marc S. Clark

Recently, the president of a company I was working with asked me to help answer some questions about quality on a Request For Quote for services. Specifically, the questions were about Six Sigma. We were asked if we had a Six Sigma program. If not, then we would have to send at least two senior personnel to the requesting organization's Six Sigma school for training (at our expense). Being a statistician did not qualify. Being a certified quality manager did not matter. So what gives?

The concept was nothing more than a way to monitor and manage suppliers.

As I read through the information, I noticed that the Six Sigma concept this organization employed was really nothing more than a method of using statistical control charts with six standard deviations rather than the three standard deviations commonly used. Additionally, the concept was nothing more than a way to monitor and manage suppliers. I liked this approach. It appeared to be a system for providing feedback to suppliers on their performance. As I read on, however, I realized that there was a dragon in the concept.

As I read on, however, I realized that there was a dragon in the concept.

Deviations bring action, termination

The organization's use of Six Sigma became clear as I read further. It appears that, if a data point fell within the three- to four-standard deviation area, the supplier had to identify the root cause, recommend a solution and report the findings. If a data point fell within the four- to five-standard deviation area, the supplier was given 30 days to identify the root cause, implement corrective action and report that the corrective action eliminated the cause. The alternative was to be terminated as a supplier. If a data point fell between the five- and six-

standard deviation area, the supplier was given 30 days' notice of termination of contract. At the five- and six-deviation area, the only way to continue service was to identify the root cause, implement corrective action and explain how the quality system allowed the problem to happen. If a data point fell outside the six standard deviation area, the supplier was given an immediate termination notice.

I recommended to the president that he consider not doing business with the organization because there was no opportunity for long-term partnering. The theory of variation assured that, over the long haul, data would eventually have to fall outside the three-standard deviation area. We were being set up for failure. World-class companies try to establish long-term relationships with their suppliers in an effort to turn

We were being set up for failure.

them into business partners. This was missing from the Six Sigma concept the organization used.

Six Sigma can augment long-term partnering activities. The focus should be on using Six Sigma as a performance feedback tool to stimulate improvement, not as an indicator of contract compliance. If three standard deviations in measured data are acceptable, any measurement outside the control limits should be investigated for cause and, as applicable, followed by corrective action. Sound familiar? ◇

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(RUSSIA, continued from page 1)

In fact, I had been in contact with CDC for several years but none of the opportunities were good matches. Then the situation in Russia opened up. The CDC wanted someone to go to Yekaterinburg, a

It is very important for Russian companies to get certified for ISO and other international standards because they are trying to export goods and bring capital into Russia.



With world's largest single crystal of Quartz in Geological Museum in Yekaterinburg, the center of mining and metallurgy for 275 years.

city of 1.4 million people located about a thousand miles east of Moscow. This is a city rich in history. It was founded by Peter the Great and named after his wife, Catherine the First. The Soviets renamed the city Sverdlovsk, but the name was changed back to Yekaterinburg when the Soviet Union was dissolved.

QMF: Who was your client in Yekaterinburg?

Schottmiller: The organization ask-

ing for assistance was the Ural Inter Regional Certification Center, or UIRCC, a group of about ten consultants who help enterprises prepare for certification, primarily to ISO 9000 standards. It is very important for Russian companies to get certified for ISO and other international standards because they are trying to export goods and bring capital into Russia. The primary target market is Western Europe and certification is key.

QMF: What did you do for UIRCC?

Schottmiller: I taught two courses: a five-day course on statistical methods for improving performance and a three-day course on using quality costs for continuous improvement. The second course was based on a seminar that the Quality Management Division's Quality Cost Committee delivers as part of the QMD array of products. We usually give the course in about a half-day, but for the Russian application, I expanded it to include additional workshops and related material. Also, it takes longer to teach a course when everything has to be translated.

UIRCC was interested in these two courses because its clients are getting ready to move from the 1994 version of ISO 9000 to the 2000 version. They correctly see the 2000 version as emphasizing more measurements. Statistical methods and quality costs are two of the topics that add measurement dimensions to the ISO 9000 standards.

QMF: Where were the class participants from and what kind of companies did they represent?

Schottmiller: Some people were from Yekaterinburg and the Ural region. Others came from as far away as Smolensk and the suburbs of Moscow, a two- or three-day train ride away.

A lot of people were in the metallurgical business — either iron or steel or copper refining, but we had people in service industries as well. One woman, who represented a health organization, was concerned about the safety of the blood supply. Somebody else worked in food processing, so we had people from a variety of organizations.

A key to improving their exports is improving their quality.



Top to bottom: Schottmiller with director Olga Korolova of Urals Interregional Certification Center on visit to Vokhoturia; Brainstorming session - collecting ideas on fish-bone diagram in the Statistical Methods Workshop; Sub-group reporting out. Interpreter Vladimir on Schottmiller's right.

QMF: How did the participants react to the courses?

Schottmiller: The courses were very well received. Russians have a different style of expressing appreciation. For example, at the end of the courses, everyone came up with a participant's manual and had me autograph it. Then they designated a person in the class to give a tribute to the teacher. Finally, several people expressed their personal appreciation for the course. After each course, we had a party in the certification center. The participants set the

table, and they and I and the members of the certification center sat around and ate. Various members of the class brought out their regional vodkas and proposed toasts and we had quite a happy time...Really, it was fun.

People often ask me, 'How was it? Did you have a good time?' I say, 'Yes. I had a good time, except I had to work.' I never in my life had to lecture eight days in a row, seven hours each day like that, and I was getting laryngitis. My feet were getting tired, too, but it was a very rewarding experience.

QMF: What else did you do while you were in Russia?

Schottmiller: I spent the last two days of my trip consulting with the Magnitogorsk Metallurgical Company Steel Mill in Magnitogorsk, a city about 250 miles south of Yekaterinburg. The city was built after World War I on the river that divides Asia and Europe. At one time, it was the largest steel mill in the USSR with about 85,000 employees.

The trip to Magnitogorsk began immediately after the second class concluded at UIRCC. Three UIRCC staff members and I boarded a bus on Sunday night and traveled to Chelyabinsk. We switched to an overnight train to Magnitogorsk, arriving at 8:00 in the morning. We had about an hour to freshen up and get to the steel mill.

A review of the mill's current quality process revealed that the people there were doing a very good job. They have not received any government money at all in the last several years, and yet they are adding employees, which is unusual in Russia. They are using a lot of sophisticated techniques like Design of Experiments and are tracking their quality losses.

I did have some recommendations, but I also told the people I spoke to that the mill was a very progressive enterprise that was already doing very well. The mill's management is interested in getting certified to ISO 9000 standards. The mill is one of the UIRCC's new clients.

(RUSSIA, continued from page 14)

QMF: What is the biggest barrier that the Russians face?

Schottmiller: The biggest barrier for the Russian economy is attracting Western investment. Matters were on the upswing until 1998 when Russia devalued the ruble. The country still has not recovered from that. Russia needs money coming into the country. Although Moscow and St. Petersburg have real economies, some of the outlying districts are struggling. A key to improving their exports is improving their quality.

The courses were very well received.

feedback from some of the class participants. Middle management needs to be convinced that it is important. When you walk through the plants, you don't find any indications of employee involvement teams and you don't see charts and graphs. Employees need more belief, support and commitment from their management. Of course, I hear the same thing in the U.S.

Americans. The Russians picked up statistics very quickly and they are good at it. Diversity is another strength. American industry has been struggling for a couple of decades to have more diversity. Russia is already there. I was just amazed. For instance, two-thirds of the students in my classes were women. Women in Russia have been working in factories right beside the men and have been moving into management jobs for the past 70 years. Although Russian women don't need affirmative action or diversity programs today, they haven't always seen them as good things. They had to worry about the children and working at the same time. It is interesting that we have arrived at the same place in this country that the Russians have been in for a long time.

QMF: Have you been in contact with your colleagues at UIRCC since your trip last fall?

Schottmiller: Yes, as a matter of fact, I recently received an e-mail with some good news. UIRCC was helping five clients prepare for ISO 9001 certification. All five have recently become certified. The people at UIRCC are quite happy about that. ♦

(Editor's Note: *Quality Management Forum* is interested in learning about other QMD members' experiences that we can share with our readers. If you have a story to tell, please contact Roger Berger, the *Quality Management Forum* editor. His complete contact information is on the back page of this issue.)



Graduation party at completion of course in "Statistical Methods for Continuous Improvement." Schottmiller is in the center. UIRCC director Olga is far right. Vodka not in view.

That raises the question, how do these enterprises improve their quality? For many, it requires basics like simply getting a quality system installed. They are struggling with what it means to do that. Western companies are converting from the 1994 standard to the 2000 standard and they have three years to do it. The Russian enterprises that are starting out now are going directly to the 2000 standard and there is not a lot of experience. They don't know exactly what they have to do and how to do it.

Management support for employee involvement is another barrier. I got this

QMF: What are the Russians' strengths?

Schottmiller: Education is something that the communist system did very well, especially the emphasis on science and math. I found a very well educated population. By American standards, Russians are very good at math, algebra and statistics. Often, when I began to go through material about statistics, the class participants would tell me that they did not have to cover that material because they already understood it. These were topics I normally would go through when teaching a class for

John C. Schottmiller is an independent consultant and trainer in quality improvement tools and methods. His specialty is the quantitative and statistical aspects of quality. He teaches statistical process control for Finger Lakes Community College and the Rochester Institute of Technology. He is a Motorola-certified Six Sigma quality instructor and has provided extensive training for Eastman Kodak and GE. He also teaches quality cost principles for ASQ and chairs the QMD Quality Cost Committee. Before becoming an independent consultant, Schottmiller had a 30-year business career, mostly with the Xerox Corporation. He holds a Ph.D. in chemistry from Syracuse University.

Focus on Improvement, Not Training

By Ronald D. Snee

Few people will argue against the value and importance of training. Yet in practice, training does not get the respect, support and involvement of management that many feel it should. The reason for this behavior is that much of training focuses on training *per se* and not on helping the organization improve in a real and measurable way. It is widely recognized that a clear, measurable business benefit should be the goal of every training event. Six Sigma and its associated training, which has this characteristic, illustrates this alternate way to think about, design, and deliver training that management will see as essential to the success of the organization.

'It's improvement, stupid!'

During the 1992 presidential election, someone on the Clinton team recognized that "It's the economy, stupid," suggesting that the key issue on the minds of Americans was the U.S. economy. Similarly, the key issue on the minds of American business executives is getting better business results. It's my belief that getting better business results and improving business performance should be the focus of professionals providing training for corporations.

Many quality professionals have complained for years that management doesn't support training. Training events get cancelled or postponed for other priorities. Training budgets are the first to get cut when business takes a downturn. Senior management has trouble finding time to participate in training events personally or in letting their people attend training events. Employees cancel out of training at the last minute because some "important" work must be done.

I believe that such behavior results because the whole organization, not just management, views training as a cost rather than as an investment that will produce a positive return to the bottom line. Indeed, many think that industry is not getting its money's worth out of training. In order for this view to change, the mindset of management and training professionals must change. I believe that this change must

Table 1. **Actions Taken – What They Do**

Training Mindset	Improvement Mindset
<ul style="list-style-type: none"> • Focused on training 	<ul style="list-style-type: none"> • Focused on improvement – train to build needed skills and knowledge
<ul style="list-style-type: none"> • Train everyone 	<ul style="list-style-type: none"> • Train those who need it
<ul style="list-style-type: none"> • Learn, then get results 	<ul style="list-style-type: none"> • Get results as we learn
<ul style="list-style-type: none"> • Work on anything –results will follow 	<ul style="list-style-type: none"> • Focus on getting breakthrough bottom line results, >\$250k/project
<ul style="list-style-type: none"> • Get everyone involved 	<ul style="list-style-type: none"> • Involve people as needed to support projects
<ul style="list-style-type: none"> • Use large teams to involve more people 	<ul style="list-style-type: none"> • Keep teams small to get improvements quickly
<ul style="list-style-type: none"> • Measure number of people trained 	<ul style="list-style-type: none"> • Measure bottom-line impact (\$\$) and number of people trained

begin with professionals managing and delivering training.

Six Sigma links to bottom-line

Fortunately, Six Sigma provides an example of an approach that puts training in the proper context.^{2, 3, 4, 7} First, Six Sigma focuses on improving process performance in such a way that the bottom-line also improves. Six Sigma uses the

Six Sigma focuses on improving process performance in such a way that the bottom-line also improves.

project-by-project approach to make improvements in the projects that are linked to business priorities, are important to the success of the organization, and are of keen interest to management.

Six Sigma training creates the skills and knowledge that managers, champions, black belts and others need to implement the project-by-project approach to improvement. Six Sigma training pays for itself very quickly. Black-belt projects produce bottom-line results that are typically in the \$175,000 to \$250,000 range. The total cost

of black-belt training is typically around \$20,000 per black belt. A single project usually more than pays for the training of the black belt.

The training is in-depth, with management typically receiving two to three days of training; champions, two to five days; black belts, four weeks; and green belts, two weeks. Over time, other training is added as the need arises during Six Sigma deployment. In every instance, the training focuses on what each participant needs in order to do his or her job in deploying Six Sigma.

The result is a developing infrastructure — managers, champions, black belts and others — that can use the Six Sigma approach to improve processes to produce better bottom-line results. Project-based training also is discussed by Bisgaard,¹ and Hoerl and Snee.⁵

Different mindset required

Focusing on improvement and not training requires a different mindset; a different way of thinking about the role and contribution of training in the organization. Briefly stated, the mindset must be that the role of training is to build the skills and knowledge needed to improve the performance of the organization. This will pro-

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(Focus, continued from page 7)

duce different actions and involve the use of different languages.

Some examples of “training mindset” and “improvement mindset” actions and languages are summarized in Tables 1 and 2. These tables show that focusing on improvement leads to a broader view of organizational needs and shows how training can help these needs get satisfied. Management becomes more interested and involved in the initiative that requires the training, thanks to this broader view and its focus on solving problems that are important to the organization and produce bottom-line results.

Looking at training from this perspective creates a new role for training professionals. They will be working more closely with the management team. They will be involved in identifying opportunities for improvement and selecting improvement projects. They will identify the needed skills and assess the skills of the organization. Requirements for performing this new role include a deep understanding of the business and its strengths, limitations, strategies and goals. People who are successful have leadership skills and a deep understanding of business and management. In many instances, training professionals will need to develop new skills to be successful in this new environment.

Table 2. **Language Used - What They Say**

<i>Training Language</i>	<i>Improvement Language</i>
<ul style="list-style-type: none"> • We monitor participant surveys and number of people trained 	<ul style="list-style-type: none"> • We monitor bottom-line impact (\$\$), participant surveys and number of people trained
<ul style="list-style-type: none"> • Training projects • Homework assignments done 	<ul style="list-style-type: none"> • Strategic improvement projects • Number of projects completed
<ul style="list-style-type: none"> • Who should we train as black belts? 	<ul style="list-style-type: none"> • What projects should we work on to reach our goals? Who should be the black belts and champions for these projects?
<ul style="list-style-type: none"> • Here is my training plan for next year 	<ul style="list-style-type: none"> • Here is my improvement plan for next year and the training plan that will provide the needed skills and knowledge
<ul style="list-style-type: none"> • They liked it and learned it 	<ul style="list-style-type: none"> • They liked it, learned it, used it and got the results they needed
<ul style="list-style-type: none"> • Training classes • This training is needed by everyone 	<ul style="list-style-type: none"> • Improvement workshops • Train those who are leading and working on improvement projects

How to deploy Six Sigma

The emphasis on improvement should be apparent from the beginning and highlighted throughout the deployment of the initiative. Introduce Six Sigma to management, not in an overview, but an executive workshop in which goals and the deployment plan are developed, roles are defined, key personnel are selected to fill the roles, and areas for improvement are identified. Management has an important role to play and learns about this role in the workshop.

In the champion workshop, the champions learn about their roles in selecting and chartering projects, guiding black belts and reviewing projects among other things. The black belts come to their training with a project that addresses a key issue identified in the executive workshop that has been chartered by their champion. During the black belt training, the projects are reviewed during each week of training. Emphasis is placed on the successful completion of each project.

Be sure time is spent in all the training venues on understanding Six Sigma and its strengths, limitations and benefits. But the number-one agenda item is always the successful completion of projects that improve process performance and produce significant bottom-line results.

Getting the right results

To evaluate training, include an assessment of results as well as whether the participants liked and learned the material. Kirkpatrick (1998) points out that training should be evaluated at four levels that are best stated as these four questions:

1. Did they like it?
2. Did they learn it?
3. Did they use it?
4. Did they get results?

Six Sigma Training Evaluation

Table 3.

<p><i>Participants LIKE the training experience?</i></p> <ul style="list-style-type: none"> • Survey of participant evaluations of content, exercises, delivery, materials, instructors, facilities, food, etc • Participant evaluation of each day of training <ul style="list-style-type: none"> - What went well? - What needs to be done differently?
<p><i>Participants LEARN the methodology?</i></p> <ul style="list-style-type: none"> • Score on weekly quiz on tools used. • Written exam at end of training as part of certification requirements
<p><i>Participants USE the methodology</i></p> <ul style="list-style-type: none"> • Number of tools used per project • Project completion cycle time • Projects completed per training session (%) • Number of persons certified as black belts • Other tools needed for success • Time devoted by black belts to project work • Number of meetings/month between champions and black belts
<p><i>Participants GET RESULTS</i></p> <ul style="list-style-type: none"> • Project results, for individual projects and for business and functional groups <ul style="list-style-type: none"> - Improvement in key process-performance metrics - Improvement in bottom-line results (\$\$)

Here, “they” refers to those who participated in the training and “it” refers to the content and use of the training. This model was developed in the late 50s and early 60s and has stood the test of time. It is important to note that the prime responsibility

(Focus, continued on page 16)

Manage Operating Culture as it Should Be Managed

By Dean L. Bottorff

Culture has been suffering from an identity crisis in the corporate world. The crisis is keeping organizations from getting down to business and managing culture as it should be managed.

Culture sports many titles, including “operating culture,” “organizational culture,” “business culture,” or just “culture.” While each alleges to be unique, the definitions, or “how we do things around here,” though vague, suggests that each is describing the same thing. It can be difficult to find better definitions in business texts. Instead of splitting hairs over terms, pursuing differentiations that do not exist and losing focus, let’s do a better job of defining the core concept of culture so managers, quality professionals and management can get down to the business of managing operating culture in meaningful ways.

One business text describes culture as “a complex phenomenon that has no universal definition, is difficult to pin down and is remarkably resistant to change.”¹ Another describes culture as a collection of cultural products, including “values, beliefs, rites, rituals, ceremonies, myths, stories, symbols and heroes.”² The problem with these definitions, and with most business text definitions, is that they are oversimplifications, are often categorically incorrect and are irrelevant to the task of managing operating culture.

This article focuses on:

- Identifying more accurate definitions of operating culture to dispel common myths and better support the task of managing culture
- Characterizing culture’s mechanics, objectives and behavior patterns so effective managerial strategies can be formulated
- Examining the frequency of culture failure, the costs involved and why a supportive culture is important to organizational success
- Analyzing the nature of culture problems, their root causes and how to prevent them

- Questioning why existing quality and management programs are limited in their ability to improve culture
- Looking at ways for managers to take concrete steps toward improving culture.

What is operating culture?

Organizational behavior, of which culture is a part, is described as a social system with complex “interaction effects” among the organization’s leadership, the physical and psychological background factors, the formal work requirements and process capabilities, and the results and conse-

Culture management is inextricably connected to the philosophical fields of logic and ethics.

quences. These interaction effects have been made conventional as the “complete basic social science conceptual scheme” that is supported by thousands of academic studies, doctoral dissertations and quantitative research done over the last four decades. Since every kind of organizational behavior falls within this conceptual scheme, it is only logical that culture operates within these mechanics as well. A major point of the conceptual scheme, and a very useful point for managers, is the suggestion that emergent behavior always differs from required behavior (the culture effect), and the most effective way to change emergent behavior (culture) is to engineer needed changes in the underlying system.³

The vast field of philosophy also contributes significantly to the study of culture. The ancient Greek philosophers, Plato and Aristotle, described cultures as “the unchangeable normative order in human nature”⁵ which can be identified through reasoning alone.⁶ Aquinas and Kant referred to culture as “natural law” that exists independent of human authority but nonetheless governs human behavior.⁷ The ancient philosophers also recognized that the efficiency, or utility, of the social system

improved when man’s law more closely approached natural law. This contributed to an important realization that human behavior and man’s law ought to comply with natural law to the greatest degree possible to maximize both utility and the greater social good. These philosophers also exposed how important it is to apply the rules of sound rational thinking to purely social matters such as ethics, as the lack of such quality itself will become a major cause of poor ethics and social inefficiency. For these reasons, culture management is inextricably connected to the philosophical fields of logic and ethics, and any serious culture management effort needs to have substantial grounding and focus on these bodies of knowledge.

Ethicists describe cultures as complex and diverse people systems that seek the same universal principles of utility, relevance, internal consistency, mutual sympathy, cooperation, justice and greater good. This holds true for all organizations, from the smallest business to the largest of nations.⁴ How organizations pursue these universal objectives defines their values, priorities and norms, which will vary by place and time. One common error in culture management is the misjudgment of the universal-situational context. This can happen when managers try to change things that should not change or when they act to retain those elements that ought to change. In this particular instance, it is philosophical ethics, not prevailing management theory, that gives us the tools to reason and manage effectively.

The quality profession gives us two definitions that agree more with organizational behavior and the ancient philosophers than the business texts. Crosby defines culture as “patterns of behavior.”⁸ Juran defines it as “a certain system of values, beliefs, and behaviors, individual and team, created within the organization, that is necessary for organizational success.”⁹ Add to these

(CULTURE, continued from page 9)

the universal principles of natural law and human nature toward which people and their cultures constantly aspire, and any manager can begin the journey into culture management with a definition that is sufficient, accurate and useful.

Dispelling the myths

The following myths are tempting, if not compelling, to believe. Upon closer review, each, while perhaps correct in limited contexts, is categorically false when subjected to the culture logic test. The combination of poor definitions and unrealistic perceptions of the manager's role has given rise to the following popular myths about culture:

Myth #1. Cultures have no universal definition. Culture may not have consistent, conventional definitions in business textbooks; however, its underlying principles have strong conventional support in organizational behavior and ethics and these principals are universally acknowledged within these fields.

Myth #2. Cultures cannot be pinned down or measured. Through skilled observation of culture's underlying principles, its properties can be identified and measured with scientific certainty.

Myth #3. Cultures are resistant to change. Cultures are resistant to changes that run at cross-purposes to their natural objectives. Changes in line with the culture's values can find speedy implementation. Changes that are out of step may never be implemented.

Myth #4. Cultures reflect their leader's values. A leader can influence a culture's response to a situation; however, a leader can rarely impose values that run at cross-purposes to the culture.

Cultures align with their own natural law, not the leader's values. Any leader will enjoy heightened followership if his or her values align with the culture's natural law. In the short run, a leader may use false reasoning to con a culture into following, but in the long run, false reasoning generally results in culture failure and a deposed leader.

Myth #5. Cultures can be controlled by direct managerial intervention. Management can force changes in the variables and responses, but unless the

leadership style and underlying ethical reasoning changes commensurately, these changes will be, at most, only situational advances. If the new requirements are at cross-purposes with the culture, the culture will merely adapt to circumvent the constraint to meet its own natural objectives. Management can have one of three influences on a culture. It can constrain a culture and create inefficiency. It can harness a culture and create productivity. Or it can facilitate alignment within a culture and improve its efficiency. It cannot control a culture as it controls other business resources.

Business success needs culture

Leading management and quality experts have cited poor operating culture as one of the leading constraints on business success.¹⁰ It is purported to con-

**A high percentage
of failure costs can be traced
to failures in
the operating culture.**

strain innovation and change in organizations ranging from quality improvements and new product development to mergers and acquisitions.

In quality management, a high percentage of failure costs can be traced to failures in the operating culture. Whether it is an internal failure like an engineering error that caused rework, or an external failure like a warranty claim, often the real root causes were not the direct processes involved but the indirect processes. Frequently, the true root cause is a management/culture divide that resists rational thinking about improving processes.

In marketing, approximately two-thirds of all new products introduced fail and in some industries, the failure rate is as high as 90%.¹¹ Leading causes of these failures are inadequate pre-launch planning (hasty, selective or slothful induction) and inadequate organizational interaction and support after the product is launched.¹² Once again, the ability of an organization to conceive new strategies, shift gears and support new programs is heavily influenced by the operating culture. The cost of failed product ventures alone conservatively runs in the billions every year.

In acquisitions and mergers, culture plays a huge role in determining success and failure. A New York University study tracked thousands of acquisitions in the 1980s and 1990s and found only a third of the mergers paid for their cost of capital. A similar McKinsey & Co. study of 115 large acquisitions in the early 1990s found, over a five-year period, 60% failed to pay for their cost of capital and only 23% succeeded in creating appreciable value. Another study by the University of Chicago and the University of Arizona concluded that companies eventually divested themselves of 44% of the businesses they acquired – usually at a loss.¹³ A leading cause of merger failure cited throughout these studies has been the inability of the merging organizations to align their strategies and management philosophies (cultures). It also was duly noted that “some companies are better at making mergers work than others,” suggesting it is as much about an internal-process capability as it is about buying and selling well. With such a high failure rate and so much money on the line, even minor improvements in culture management could save merging companies, and stockholders, billions annually.

It is not just the high-profile activities like quality programs, marketing campaigns and mergers that are affected by culture. Sometimes, cultures cause disasters all by themselves. Cultures that appear healthy and cohesive may harbor deadly internal flaws that precipitate large-scale failures. Examples are the sinking of the Titanic, the Bay of Pigs, the Challenger disaster, the SUV tire-failure case. Groupthink, when highly cohesive groups block threatening information and logical reasoning from being considered, and the Abilene Paradox, when decisions are made not out of consensus but out of the lack of spoken dissent, are but two documented cultural disorders that are caused purely by inconsistencies in ethical and logical reasoning.¹⁴ Indeed, any time an organization institutionalizes ethical or logical flaws, the risk of severe culture failure runs high, and the cost of these failures to society and to business can be measured both in lives and in dollars.

Operating culture failures are expensive. They can occur in large organizations or small ones, and their staggering cost to business organizations and to society war-

rants a rethinking of culture management as a possible means of prevention.

Culture's root causes

The idea that culture is based on natural law, that it automatically seeks to comply with natural law, and that it maximizes utility as it approaches compliance with natural law, suggests that cultural forces themselves are never the problem.

Excluding possible errors in reasoning, cultural forces already are working to do the right things for the organization.

Operating-culture problems arise when the natural processes are constrained or misled. Hence, the role of management is not to change or fight the natural forces but to align with them.

Culture failures can have two kinds of root causes.

1. **Common Causes.** Common causes rooted in the organizational system include leadership styles, work environment, process capabilities, consequences and rewards, and ethical and rational thinking. These are common because they are systematically perpetuated, making them ongoing problems. Even if detected, the task of preventing organizational failures can require comprehensive corrective action, training and change management.
2. **Special Causes.** Special causes are situational events that, if detected, can be prevented immediately. Examples include
 - a. *Tampering*, when management attempts to change universal principles that should not change or fails to change situational principles that need to change
 - b. *Narrow objectives*, when management pursues isolated objectives at the expense of the cultural needs
 - c. *Incongruent ethics*, when management's ethics are at cross-purposes with the culture's universal ethics
 - d. *Logical error*, when there exists a formal flaw in rational reasoning, resulting in the promotion of false conclusions.

The greatest causes of culture failure are common causes, and all of the special causes mentioned above also can become common causes if they are perpetuated routinely. One common denominator among all

these causes is that they are all internally created. Therefore, operating culture problems also can be characterized as constraints to performance that are strictly internally generated. When employees and managers say, "We are our own worst enemy," or "We blew it again," more than likely, they are referring to a culture failure.

Whether the causes are classified as common or special, management is the primary culprit and can prevent the problems. Management is responsible for the supportive or unsupportive state of the culture. When managers blame an organizational failure on the culture, they are in effect blaming themselves, and the degree to which managers realize this is an excellent measure of how ready they are for culture management.

How to manage culture

Culture management requires five critical cognitive dimensions:

1. **Humility.** Recognize your own ignorance and restrain yourself from doing things that might make the culture problem worse. Many managers can do more for their cultures by preventing harmful actions than by initiating grandiose changes.
2. **Diagnose before acting.** Before taking any action, managers need to know the difference between what is universal and vital, and what is situational and changeable, and why. There needs to be an objective methodology for gathering information and analyzing the needs and constraints within the culture.
3. **Build consensus before acting.** In culture management, it is better to be 80% correct and have consensus than to be 100% correct without consensus.
4. **Refine ethical and logical reasoning before acting.** The notion of consensus comes with one caveat: the consensus must be based on rational, internally consistent propositions or the culture will internalize a false proposition, which can result in a culture failure later. This means that consensus should not be based on patently unethical pretexts such as "might makes right," "an illegal action," or "a false promise." One of the easiest ways to tamper with a culture is to sell it on an improper question for ulterior motives. The pure fallacies of logic are

easily bought into and are used by charlatans to persuade unsuspecting followers. Hence, sound culture management requires that formal requirements not be based on logical fallacies such as circular reasoning, begging the question, forgetful, hasty, or slothful induction, ambiguity, black-and-white thinking, fallacies of composition such as "whole to part" or "part to whole," or fallacies of irrelevance such as personal attacks, threats, or reference to a false authority. False reasoning is a major cause of disillusionment and the commensurate expansion of the management/cultural divide which is damaging to culture. For these reasons, ethics and logic training are among the most important aspects of any culture management program.

5. **Think from the culture's perspective, not management's.** Perhaps the leading barrier to sound culture management is the cognitive orientation of the manager. Culture management, like marketing or quality management, is about managing a system that cuts across all organizational lines. Those involved in change management often say their greatest obstacle is the lack of a system-wide orientation in the minds of those with the power to implement the changes. These individuals in positions of power are so accustomed to dispatching their power for their own purposes that they often are reluctant to share this power in a broader endeavor. It is not the organizational culture that is difficult to change. Usually, it is the management culture that resists change the most. This power hoarding is symbolic of a management culture working at cross-purposes to the organizational culture, and this may well be the leading cause of culture failure throughout the corporate world. Unless management can consider culture issues from the perspective of the organizational culture and act principally from that perspective, culture management may never get beyond collecting fiefdoms and chiefdoms to addressing the high-impact issues at hand.

(OPERATING CULTURE, continued from page 11)

Existing programs don't improve culture

While many quality improvement programs report visible improvements in their cultures as a direct result of the quality programs, most quality programs eventually reach a point where they are constrained more by the culture than by anything else. When this level is reached, the culture yields a greater influence on the quality program than the quality program can yield on the culture. There are several possible reasons for this.

One reason might be the "low hanging fruit" scenario. At the beginning of a quality journey, the gains might be more consistent with the natural objectives of the culture. Hence the culture would be more likely to be supportive of the initial quality activity. Examples of this might be fixing causes of massive waste, reducing firefighting and hassle or improving safety. All participants win with these kinds of improvements, which are consistent with the natural objectives of the culture and earn its support.

Similarly, a possible reason for the cultural resistance later in the quality journey might be the "high hanging fruit" scenario. Once the easy fruit is picked, and more difficult fruit is sought, management, under pressure, easily can fall victim to reasoning errors and set goals that work at cross-purposes with the culture. Because higher fruit is more difficult to reach, it is tempting for management to do whatever it takes to get that fruit, even if it results in disproportionate sacrifices from the participants. Have you ever heard of workers innovating quality improvements only to find that, due to the improved efficiency, their jobs are no longer needed? If cooperation is correlated with pain and injustice, and crosses purposes with operating culture, the culture quickly will adapt away from similar kinds of cooperation.

A concern with both the low-hanging and the high-hanging-fruit scenarios is they could be begging the question of whether quality initiatives actually influence culture at all. After all, many quality programs are stopped in their tracks before they ever really get started. What would explain the variation of why culture supports some quality programs more than others? It is entirely

possible, and theoretically more likely, that the culture is a constant force merely seeking to meet its natural objectives and the quality initiatives are just brief situational episodes that either earn the support of the culture or not. If this is the true situation, and a substantial body of knowledge suggests it is, then organizations will need to approach culture independently of other programs and do so in a manner that addresses its unique nature and management requirements.

How to begin a culture-management program

The best way to begin a culture-management program is to commit the organization to a management philosophy that is consistent with the natural objectives of culture. These objectives include utility, relevance, internal consistency, mutual sympathy, cooperation, justice and greater good. Each of these principles needs to be understood in detail, separately and in applied combinations at the philosophical level.

Commit the organization to a management philosophy that is consistent with the natural objectives of culture.

Thinking at the philosophical level means that decisions follow a rational process where several options are considered, refined and then refined further in open discussions before decisions are made. Training typically is needed to achieve this level of philosophical thinking. It is not a sign of low intelligence to need training in ethics and logic. Like many other bodies of knowledge, these skills require constant exposure to the material and lots of practice, and unless the opportunity is provided by the organization, most individuals will not naturally apply high-quality reasoning methods. This is true not just for workers at the lower end of the organizational hierarchy or for those with the least education but for everyone in the corporation. The need for training may even be the greatest in the management ranks. The higher the position and the more power a manager yields, the greater the risk of error and culture failure. Training is cheap prevention. It helps to unite the management and the culture into a cohesive collection of like-mind-

ed individuals and to shrink the management/culture divide.

Any time a complex undertaking is attempted, whether it involves scientific innovation, a multifaceted marketing campaign or a culture management issue, many sharp minds are always better than one. To promote reasoning patterns consistent with culture's natural laws, an environment is needed where open discussion is possible and mandatory. The organization needs to open channels of communication to allow discussion, questioning and even spirited debate regarding the rationale behind decisions. The everyday working environment needs sufficient openness so that questions of logic and ethics can be raised by anyone, at any time, and those questions need to be guaranteed a due process of review without penalty to the originator. The open-dialog initiative needs to be virtually penalty free, with illogical or unethical views being forgiven quickly in favor of promoting a learning organization — an organization capable of learning how to manage culture.

One of the best ways to create such a learning organization is through a properly designed ethics or management philosophy program. A properly developed ethics program should never be just a "do-good" program with an ethics policy nailed to the wall. Such policies, if promoted in the absence of legitimate ethics programming, often result in cultural chaos as inevitable double standards widen the management-cultural divide, making culture problems worse instead of better. The highest purpose for any ethics program, and indeed the primary economic incentive for having one, is to create a culture-management process capability within the organization.

The primary managerial goal in culture management is not to change the culture but to change the management approach so it will be soundly supported by the culture. Unless a culture is corrupted by false reasoning, it will automatically pursue its natural objectives consistent with its environment, leadership, capabilities, rewards and reasoning. Management can change a culture's response by managing these background factors; however, management does not have control over, nor should it have reason to interfere with, culture's natural objectives, as to do so would violate well-

(OPERATING CULTURE, continued on page 18)

Campanella Receives Prestigious Leadership Award

Jack Campanella, the first full-term chairman of American Society for Quality's (ASQ) Quality Management Division (QMD), received the division's most prestigious award, the Howard L. Jones Leadership Award. The award was given to Campanella at the 13th annual Quality Management Conference in Orlando, Florida.

During Campanella's term of office, 1989-91, the division grew from approximately 5,000 members to more than 20,000 and went from near-bankruptcy to excellent financial shape. The division was able to plan for and begin some of its outstanding programs including the quality manager certification, a scholarship program, and a grant program. By the time Campanella's term was completed, the division had 47 active committees.

The award was given to Campanella at the 13th annual Quality Management Conference in Orlando, Florida.

Campanella is a 20-year member of the division's Quality Costs Committee, a past committee chairman, and is presently chairman of its Principles and Standards Standing

Committee. He was responsible for several committee publications, the most recent being the third edition of *Principles of Quality Costs*, one of ASQ Quality Press' best selling publications which is considered the authoritative work on the subject.

Campanella recently retired from the corporate quality staff at Underwriters Laboratories Inc.

With more than forty years in the quality field, Campanella held positions at AIL Systems, Fairchild Republic Company, Hazeltine Corporation, General Instruments and Sperry Gyroscope Company. He has presented and published numerous papers and articles on various quality-related subjects, has had three books published and has contributed to several others.

A fellow of ASQ, Campanella is chairman of the advisory committee for the *Quality Engineering Journal* and is a past chairman of ASQ's Long Island section. He is a member of the Section's Seifer Quality Institute, where he teaches a course in quality auditing and CQA preparation. In 1992, the section awarded Campanella its highest honor, the McGrady-Seifer Award.

Campanella is an ASQ certified quality engineer and certified quality auditor as well as a registered professional quality engineer in California. ♦

By the time Campanella's term was completed, the division had 47 active committees.

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How to Use Processes and Procedures in ISO 9000: 2000 Certification

By Stephen B. Page, MBA, CSQE

After more than five years, the ISO 9000 standards are being updated to reflect the day-to-day needs of running an organization and to make them applicable to any industry, not just manufacturing. These standards can readily be applied to small, medium and large organizations in the public and private sectors, and will apply equally to users in industrial, service and software businesses, among other areas. This is good news, because now any company can apply these standards to its processes and procedures and reap the benefits of certification or of working toward certification.

While maintaining the essential requirements of the current standards, the ISO technical committee, TC 176, has introduced structural changes that reflect modern management approaches and improve organizational practices. These changes establish a process framework, which the committee defines as the “systematic identification and management of the various processes employed within an organization, and particularly the interactions between such processes.” This new process-based structure is consistent with the “Plan-Do-Check-Act” improvement cycle that Shewart and Deming suggest. The committee reduced the number of standards and permitted quality professionals at organizations to write procedures that focus on the intended audience (a much smaller audience), rather than on all employees. For organizations working toward ISO certification, this requirement should result in fewer documented procedures.

These new standards increase focus on top management commitment and customer satisfaction. They emphasize processes within the organization, show a renewed interest in measurements and stress the importance of continual improvement.

The updated standards give users the opportunity to add value to their activities and to continually improve their performance by focusing on the major processes within their organizations.

The committee reduced the number of standards and permitted quality professionals at organizations to write procedures that focus on the intended audience.

Let's get some definitions out of the way. A process is “any activity or operation that receives inputs and converts them to outputs.” Put simply, a process is “a series of activities.” Almost all activities and operations involved in making a product or providing a service are processes. In order to function, organizations have to define and manage numerous interlinked processes. The systematic identification and management of the various processes employed within an organization, and particularly the interactions between such processes, may be referred to as the “process approach.”

Organizing by processes is nothing new; companies use processes every day. They range from making coffee to closing a multimillion-dollar deal on the telephone. Most likely, many companies already are organized by processes but didn't know the “technical” jargon. The primary concern is how to document these processes in a hierarchy that demonstrates a process approach and focus on standards like customer satisfaction, metrics and measurements, and continuous improvement activities.

Concentrating on business processes is a good thing. Such a focus:

- Allows the organization to pay attention to the customer
- Provides a means to rapidly effect major changes in very complex activities
- Enhances the organization's ability to

A baseline is needed so variations from it can be identified.

compete by improving the use of available resources

- Helps the organization manage its interrelationships effectively
- Gives a systematic view of organization activities
- Eliminates errors and minimizing delays
- Creates competitive advantage.

Organization process goals and procedures

Okay, so now my emphasis should be on processes, I understand that. What about my existing procedures? Can I discard them? Can I trim them down? How can I document my processes and still achieve the intent of the ISO standards?

These are good questions, but let's get serious. If the aim is only to reduce documentation to satisfy the standards, then perhaps the goals are not in the right place. For some companies, achieving the standards is just as important, if not more so, than receiving the certification. Let's hope that the primary goal is improving processes for the sole purpose of helping the organization become more competitive and succeed in the 21st century. The updated standards will do just that by employing a process approach. However, you can't get away from procedures but you should be able to reduce their quantity and complexity. The updated standards still require six mandatory administrative procedures. The ISO committee never intended to eliminate all of them. Processes and procedures are interrelated; there is no escaping this point.

The proof lies with the endorsements

In the next few pages, I will present a method for documenting the process approach through the use of a work-break-down structure. As for endorsements, the Software Engineering Institute's (www.sei.cmu.edu) Capability Maturity Model (CMM) uses a process approach and procedures to carry out the intent of processes for documenting evidence of

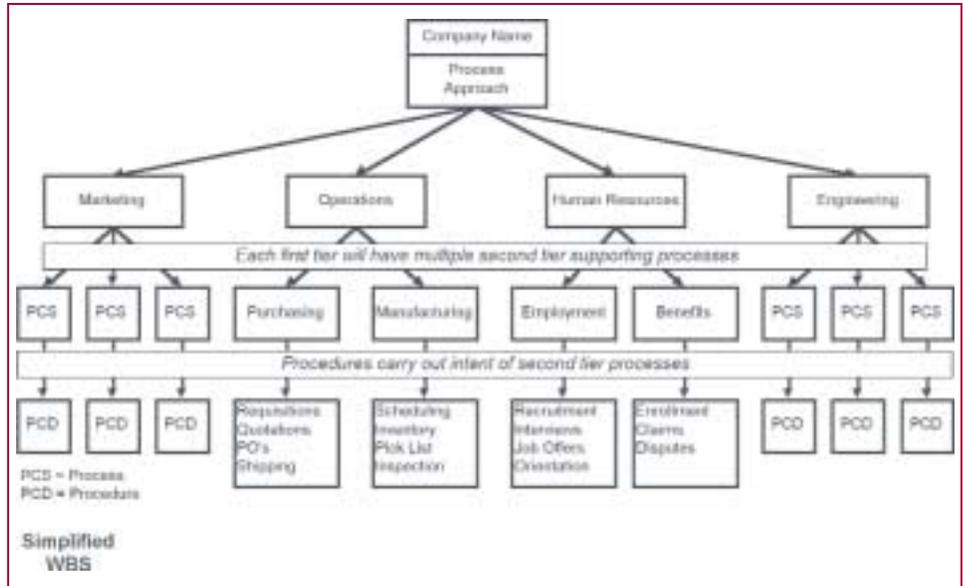
mature software organizations. The CMM is a world-renowned model that organizations use to demonstrate the maturity of their software. H. James Harrington, author of *Business Process Improvement*, states that the “standardization of processes is accomplished through procedures.” The U.S. Army, (cpol.army.mil/library/bpm/), uses standard operating procedures to document process maps.

While the next point is not an endorsement, I do want to present the argument that procedures, not processes, should be the baseline for measuring and improving. These two central themes of the updated standards are not easily satisfied unless the process can be frozen (in this case, the process would be the baseline).

Let me explain. A baseline is a “snapshot in time.” A baseline is needed so variations from it can be identified. The amount of variance and the reasons for the variance are used for continual improvement studies. When a procedure is frozen in time — documented and approved — it becomes a baseline.

Now let’s get to the nitty-gritty. I don’t see any logical way to freeze a process that has been illustrated in a visual process map or flow chart and use that process as a baseline. Procedures have written statements; processes don’t have this luxury. Measurements — data collection efforts — must be tied to specific points in a process or procedure to determine the extent of variation. The “action-type” statements in procedures often are used for this purpose. Processes are not normally subdivided into this much detail; they usually are presented at summary levels. I find it difficult to reliably measure processes that are not in the form of a written document and may be a moving target because they cannot easily be approved and implemented.

Let’s face it, procedures are easier to measure than processes because the action-type statements can easily be converted to questions with a “yes/no” format. The answers can be entered into measurement tools like histograms, control charts, or scatter diagrams, and then used for continual improvement purposes. Reliable measurements are especially important in continuous improvement because potential problems can be identified and investigated through the results of the measurements. The results often lead to corrective action



and improved procedures, and consequently, to the processes they support. This “measurement-continual improvement” continuum is the result to strive for in applying the updated standards. My current book, *Achieving 100% Compliance of Policies and Procedures*, explains the continuum and how to apply it.

Demonstrate the process approach

Organizing with processes can be very straightforward and many companies will find that they already have most of the structure in place. The question of how a company organizes with a process approach has been perplexing me since I

Why not use a Work Breakdown Structure (WBS) to lay out the processes of a company?

was asked to write this article. The answer finally came to me. Why not use a Work Breakdown Structure (WBS) to lay out the processes of a company? With the WBS, it will be easy to show how processes and procedures interact. Project managers use this tool for most of their projects, so why not use this proven and tested multi-tiered model to illustrate a company’s use of a process approach? There are entire books on this approach, so for simplicity’s sake, I will just explain my thoughts, provide a brief illustration and leave it at that.

The WBS is like an organization chart. In the sample below, I show three tiers of a typical manufacturing company. The first tier is the major function or process; the second tier lists the supporting processes; and the third tier shows the procedures necessary to carry out the processes identified in the second tier. Note that there could be many tiers, processes and procedures: this is only an example. I also believe that the ISO registrar would be pleased to see the process approach presented this way. Work with your registrar; it will pay off in the long run.

Summary

The ISO technical committee, TC 176, has enhanced the ISO Quality Standards to change the focus of the standards to a “process approach.” In this article, I have provided reasons and endorsements why you still need to document your procedures to carry out the intent of your business processes. I have also provided a possible method for organizing by processes. Thus, the mystery of organizing with a process approach has been solved. ♦

Stephen B. Page is the author of two books, Establishing a System of Policies and Procedures, and Achieving 100% Compliance of Policies and Procedures. He is also a consultant working in a large multinational company with more than 25 years of experience in policies and procedures, business process improvement, problem-solving, statistical process control, training and auditing. He has an MBA from UCLA and is certified as a software engineer, quality analyst, records manager and forms consultant. Email him at info@companymanuals.com or visit www.companymanuals.com/compliance/index.htm.

Quality Management Division On-line News

In the Winter Issue of the *Quality Management Forum*, the Division announced the new QMD web site, *Quality Management Division On-line* at www.asq-qmd.org. Since that ad appeared in early January, the new web site has been averaging over 250 visits a day, an increase of more than 80% above the average for the previous six months. Member and ASQ HQ feedback has been very positive. Visitors are telling us they like the new look, the site navigation, and the content.

New members-only pages

As this column is being written in early February, plans for the next major web site update are underway. Of course, all of the information on the site will be reviewed and updated. However, the biggest change will be the partition of the site into public

**The first password
will be *Deming***

and members-only sections. General information about QMD and its products and services will remain on the public pages. Back issues of the *Quality Management Forum* and additional quality management articles will appear in the members-only pages. As time and funding permit, we also plan to add the Division's operations manual, strategic plan, and by-laws to the site.

Members will need a password to access the members-only pages. The password will be updated quarterly and printed in a conspicuous place in the *Quality Management Forum*. The first password will be *Deming*

Additional Quality Management articles posted on the web site

Although QMD plans to continue publishing the *Quality Management Forum* in its traditional hardcopy format, we will use the web site to bring you even more Quality Management content. Beginning with this issue, we have published additional articles of interest on the web site. A

brief article summary is included in the Forum. If you wish to read the article in its entirety, just sign on the web site and read the article online or print it out for reading and filing for future reference.

Order Certified Quality Manager reference materials on-line

The Certified Quality Manager pages of the new QMD web site include a list of reference books for exam preparation. Each book is linked directly either to ASQ Quality Press or Amazon.com. A click on the book listing will take you directly to a description of the book and a place where you can order it. ASQ members generally receive a discount on books published by Quality Press. QMD members also receive a discount when ordering through Amazon.com.

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Denney appointed new Electronic Communications Chair

As a result of the favorable response to the new web site, QMD will continue to expand its use of electronic communications to provide quality management information and keep members up to date on Division activities. To support this effort, the Division has appointed Bill Denney as the new Electronic Communications Chair and given him responsibility for developing and implementing QMD's electronic communications strategy. If you have suggestions or feedback for Bill, you can reach him at WilliamHDenney@aol.com.

If you have not already visited QMD's new web site at www.asq-qmd.org, check it out today. If you have not visited in the past month, visit us again and see the updates and new information. ◇

(Focus, continued from page 8)

for the success of training rests on the shoulders of two groups of people, the instructors and the managers of the training participants. The instructors have the primary responsibility for whether the participants "like it" and "learn it." Management is responsible for whether the participants "use it" and "get results."

Some examples of how these four questions can be answered for Six Sigma training are summarized in Table 3. The contents of Table 3 are some examples of metrics that have been found to be useful in a number of situations. Each organization and training event is different and the metrics should be designed accordingly.

Conclusion

It is my strong belief that we should follow the Six Sigma lead and focus our efforts on improvement, not on training *per se*. Training for training's sake is of little value and is a low-yield strategy. Train to build the skills that improve processes and make organizations better. In general, I believe that all training should have a clear, measurable business objective connected to the bottom line. This is more difficult in academic environments, but not impossible. The more we focus on clear, measurable objectives, the better and more successful both our organizations and our training will be. Those providing the training become a more important part of the business team and are seen as part of the solution rather than as part of the problem. The task is not an easy one, but one in which the view is well worth the climb. ◇

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Look for These Papers on our Web Site

A Method for Critical Analysis and Control Improvement in the Productive Process

By Antonio José dos Santos and Paulo Mauricio Selig

Abstract

This paper discusses the conception of a systematic method for the productive continuous improvement process that has been applied in a company in the home-appliances market.

The method considers that, if the field problems and the internal problems were known (although sometimes their relationship is not so clear), by using the Quality Function Deployment (QFD) philosophy, it is possible to connect these problems to the stages of the productive process and identify the problems that have more influence on the unexpected results.

This six-phase method presupposes the use of a process-improvement methodology as a way of effectively adjusting the controls and assuring the expected results. The

method proved easy to apply and presented satisfactory short-term results.

Key words: QFD, Processes, Quality Tools.

QS 9000/ISO 9000 Series Certification and Recertification: A Case History

By Robert L. Desatnick, Dennis Detzel, and Jim Peters

Abstract

This paper presents a case study of two recertifications to QS 9001. The client was an automotive supplier with a plant producing revenue in the range of \$35 million and the potential to reach \$45 million. QS

9000 is the automotive-industry equivalent of the ISO 9000 series. It is more demanding. Virtually all automotive companies, including Ford,

General Motors and Chrysler, insist that their suppliers' plants be QS 9000-certified. Several qualified registrar organizations, including KPMG, perform QS 9000 audits and consideration for recertification.

The method proved easy to apply and presented satisfactory short-term results.

The authors had two primary objectives: maintain financial viability and obtain recertification.

The authors had two primary objectives: maintain financial viability and obtain recertification. This meant that the plant had to continue running at improved cost-effectiveness while it prepared for a QS 9000 audit.

This paper provides many tips and descriptions of innovative approaches to recertification on a tight time schedule. The details are authentic and provide a good "feel" for the human dynamics in certification and recertification.

Key words: QS 9001, Audits, Registration, Process Improvement ♦

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(OPERATING CULTURE, continued from page 12)

established ethical principles that cannot be fully discussed in this space.

A major goal of culture management should be to use diagnostics to prevent common-cause and special-cause culture failures. This can be accomplished with objective diagnostic tools such as the OrgCulture Survey (www.orgculture.com) or with other established diagnostic tools. Another managerial goal of culture management should be to facilitate logical and ethical reasoning processes, both in the management and throughout the organization, to minimize faulty reasoning, to reduce operating constraints and to prevent catastrophic as well as ordinary failures.

Summary

Operating culture is a complex social force that heavily influences organizational performance. Its nature is known and predictable, but popular definitions continue to perpetuate myth and incorrect notions about its true nature. Culture is indeed identifiable, measurable and manageable and can be improved, within limits, with

assistance from other quality-improvement programs. However, significant and lasting improvement requires a more comprehensive approach, which includes the application of a unique and separate body of knowledge independent from other management programs.

Culture management is an acquired process capability that gives organizations a strategic advantage. When an organization's objectives are closely aligned with the culture's objectives, social efficiency is at its best. This efficiency gain translates into significant economic advantages that reveal themselves in the form of fewer people problems, increased cooperation and teamwork, fewer operating constraints, improved operating performance and fewer costly boondoggles. ♦

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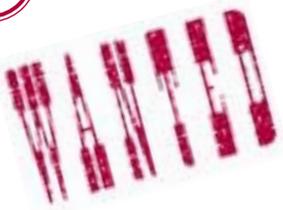
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To see a QMD organization chart and complete roster of QMD officers, committee chairs, and volunteers go to the QMD Organization pages on the QMD web site at www.asq-qmd.org.



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QMD has Region Councilors located in each ASQ region. Their role is to represent the Division and assure that it has an effective liaison with our large membership.

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- ▶ Be an information channel between the QMD and the ASQ sections
- ▶ Support the development and implementation of new QMD initiatives
- ▶ Build and maintain partnerships with the sections

Effective July 1, QMD will have openings for Region Councilors in ASQ Regions 2, 4, 6, 7, 8, 9, and 10. For information on these volunteer opportunities, contact Ron Bane, Vice Chair Regional Activities, at ronbane@yahoo.com or (916) 920-2678. To apply, complete the QMD Volunteer/Leadership Form on the QMD web site at www.asq-qmd.org.



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