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Six Sigma & Baldrige— A Synergistic Team

By James R. Evans and Kenneth Pipke

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Management decisions and an organization's ability to implement those decisions determine whether the organization succeeds or fails. A learning organization applies a structured approach to improving the quality of its decisions and actions, resulting in an "upward spiral of success." The Baldrige organization is itself one of these learning organizations. Over the years, its learning is reflected in the continued development of the Core Values and Concepts, and Criteria for Performance Excellence, with a focus on improving its primary product, the assessment. Baldrige is, by design, "non-prescriptive," suggesting that some methodologies may be better than others in achieving performance excellence.

Over the years, many philosophies for improvement have been proposed. As recently as the 1970s, quality revolved around an inspection mentality. Such quality technocrats as Deming and Juran were largely ignored until Crosby wrote *Quality is Free* in 1979. In quick succession, we went through the eras of Total Quality Management, Process Reengineering and dozens of other splinter methodologies promulgated by various consulting organizations. While TQM and Reengineering had many significant impacts, they did not address the results-oriented mentality of senior management and as a result lost much of their credibility.

Enter Six Sigma.¹ There is no question that Six Sigma represents the latest stop on the yellow brick road to quality and performance excellence. Driven by the publicity surrounding Jack Welch and General Electric, Six Sigma has become a household word among corporate executives and quality professionals alike. Depending on whom you ask, Six Sigma has different meanings and interpretations. The generally accepted definition is that Six Sigma is a quality initiative that employs statistical tools to achieve 3.4 defects per million opportunities — the virtual elimination of errors.² GE Harris

Corporation views Six Sigma as a formal methodology for measuring, analyzing, improving and then controlling or "locking in" processes.³ Others view Six Sigma as a cultural revolution that extends beyond simply training specialists.⁴

In observing the evolution of Six Sigma from purely a technical focus to a much broader management paradigm, we see some interesting parallels with Baldrige. From the original 1988 criteria, Baldrige has evolved to a much broader business management framework. Likewise, Six Sigma has evolved from a defect/error metric to a continuous improvement and business development philosophy. We suggest that Six Sigma shares many synergies with the Baldrige framework, and can provide a complementary foundation for pursuing higher levels of performance excellence using the Baldrige framework.

Baldrige Core Values & Concepts

Baldrige is built on a set of core values and concepts that essentially define the culture of a high performance organization. In fact, when we review the Baldrige Core Values and Concepts, we see many synergies with Six Sigma.

Visionary Leadership. Leadership is one of the major contributing factors ensuring Six Sigma's success across the organization. Most testimonials on why Six Sigma works focus on "continued top management support and enthusiasm."⁵ A general manager of a \$1.2B electronics business in Atlanta states that "Six Sigma has to be part of every discussion on the performance of the business — Six Sigma results are discussed daily with his boss."⁶ Senior management has been and is the secret to success at GE. Their support has strongly influenced and enabled the restructuring of the business organization and the cultural change in individual employees' attitudes toward quality in a short implementation period.⁷

(Six Sigma, continued on page 13)



Divisions and Sections Pulling Together

By Grace Duffy

Thanks to all who stopped by the QMD Booth in Denver during AQC. I am invigorated by your ideas on management, quality, volunteerism and the future of our Society. My summer Forum comments included thoughts on Society Unity and our continuing need to encourage involvement by members from all walks of life and discipline. I was reminded during my discussions with you at AQC that we have a related challenge to maximize the potential of section and Division joint activities.

All of us are members of an ASQ section, whether we choose to be active locally or not. My ASQ experience began with section work and only later moved to the content-specific work of the Quality Management Division. I am now a member of several divisions and have recently moved to Florida, which means the fun of a new ASQ section. Each of my ASQ associations is rewarding, although I perform different functions within each group.

If you are active in a section already, please share the information you receive from QMD with your section peers. The Division needs all the ambassadors we can get at the local level. Budgets being what they are these days, it is just not possible to fund division speaker travel to support monthly section programs. We can provide speaker materials for you, if you are willing to carry the message.

If you are not active in a local section, I challenge you to attend just one section meeting this program year. All of us are grass roots advocates for quality. Make it a point to see who else is on your local "quality team." If you are too far from an ASQ section meeting to attend, think about writing a short article for the section newsletter, including your e-mail or phone number. There is no telling what great contacts you may find with whom to share new ideas. "Managers of Quality" are everywhere.

The Denver AQC provided QMD with an opportunity to recognize two more of our leadership team. John Schottmiller, outgoing Chair of the QMD Cost of Quality committee, received an Outstanding Service award for his excellent leadership. George Laszlo, QMD Secretary, was recognized as a Fellow of the Society for his leadership and achievements. The Division received our 8th consecutive McDermond Award for operational excellence during the Annual Business Meeting on Sunday. I was proud to represent you and the Quality Management Division during these three celebrations.

On another subject, I see in the May 2002 Quality Digest Salary Survey that Certified Quality Managers continue to earn 8% more on average than those managers without certification. Keep up the good work, my friends. If you have not yet pursued your Quality Manager certification, I encourage you to consider it.

Which brings me to my final subject for this quarter's "From the Chairman" message. I must introduce you to a true ambassador of Division and local ASQ collaboration. Mr. Akio Miura is a very active ASQ member who lives in Japan. Miura serves as an international contact for both the Quality Management and Quality Audit Divisions. Although QMD does not use the Regional Councilor concept, Miura still works tirelessly in the Far East to support the Quality Manager Certification and Division activities as a whole. Miura serves as a mentor to students of quality and business in Japan and throughout the Pacific Rim. Miura holds nine ASQ Certifications and provides proctoring support to many of the countries in the Far East including Indonesia. I frequently refer international questions about certification testing and locations to Miura when I receive e-mail from our QMD members.

I had a few moments to chat with Miura at the QMD Booth in Denver this May. He shared an interesting assessment model he uses when coaching his new students. It parallels Steven Covey's format of important and urgent, although the approach is more straightforward. Miura learned this matrix from a fencing partner in the 1960s. Since I have been on the faculty of a technical college for the last 10 years, I particularly appreciate his approach.

Miura explains, "Richard Gradkowski was a coach at a fencing club in New York City in 1960s. Once, while we were fencing together, he described four categories of students to me. They are:

- Category 1 - Intelligent and diligent
- Category 2 - Intelligent, but lazy
- Category 3 - Diligent, but stupid
- Category 4 - Stupid and lazy

	Diligent	Lazy
Intelligent	1	2
Stupid	3	4

Gradkowski said, "I have no problem with category 1 students. The coach's role is important for category 2 and 3 students, but you should never commit to category 4 students because it is just a waste of time and effort and we cannot help them forever. For category 4 students any coaching is useless and meaningless. Never try to teach them anything."

Miura's friend, Richard, was quite strong in making his point about use of resources for category 4 students. I hope I don't qualify for category 4 too often, although I know I have my moments. We

(TOGETHER, continued on page 14)

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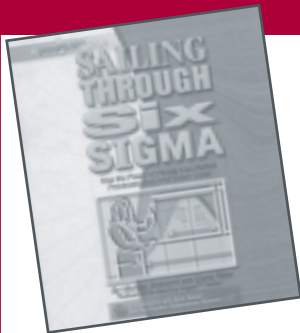
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- Case analysis of effective leadership success stories
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ISO 9001:1994 to ISO 9001:2000

Quality Manual Upgrade Process: The “Cut-and-Paste & Fill-in” Technique

By Jay J. Schlickman

The Upgrade Issue

By December 15, 2003, over 400,000 sites certified to ISO 9001, 2, & 3:1994 will have to either upgrade to the ISO 9001:2000 International Standard (Standard) or lose their certification.¹ Unfortunately, many organizations have been slow to initiate the upgrade process.² Published data on those who have completed the process indicate that there is value in the upgrade process in terms of improved customer satisfaction; quality of products and services; productivity; and customer retention.³ Our experience in this matter indicates that the specific method to upgrade from the 1994 version to the 2000 version is not clearly presented in either the Standard or its guidelines and appears to be a costly and perhaps unproductive exercise. As a result, rather than stub their toes in the process, organizations have delayed the venture.

However, our experience with both upgraded ISO 9001:2000 manuals and first-time written manuals indicates that organizations have expedited the upgrade process by means of a technique called the “cut-and-paste & fill-in” (CAPFill) technique. As a result, the purpose of this paper is to present the method in the hope that it will serve to help others to be less fearful of the upgrade task.

In this regard, we have observed that the upgrade effort can be achieved without an enormous amount of time on the part of document champions since *all* of the 1994 version documentation is applicable, plus possibly a few additional procedures. In fact, those who believe that only six procedures are really needed for the new Standard are well advised to take a cautious position on this matter because of Par. 4.2.1 d) of the Standard.

For example, the perfect auditor question is, “Which documents do you use to ensure the effective planning, operation and control of your processes?” As a result, the fully documented set of Tier I, II, III and IV documents already created for the

1994 version are ideally suited for the 2000 version documentation to indicate the effective planning, operation and control of your QMS processes.⁴

For the sake of clarity we will discuss the several possible methods available to upgrade 1994 version quality manuals to ISO 9001:2000 manuals and then focus the discussion on the method.

Four Possible Quality Manual Sequences

The process necessary to upgrade the 1994 quality manual to the required 2000 manual depends upon the sequence chosen for the Quality Manual (Manual) which in turn depends upon the nature of the enterprise and the manner in which we intend to propagate information within the quality management system (QMS). There are at least four basic sequences for the Manual which are compliant with the Standard's requirements (as long as the relationship to each section and clause of the Standard is clearly defined by means of either cross-reference charts or references within the text):

- I. *Direct sequence* based on the Standard's sequence, i.e., Sections 4.0, 5.0, 6.0, 7.0 and 8.0. This is also the CAPFill method in which the ISO 9001:1994 Manual is cut-and-pasted into an ISO 9001:2000 format.
- II. *Shewhart cycle sequence*, i.e., Plan, Do, Check, Act. The direct sequence, discussed above, approximates this sequence.
- III. *Operational cycle sequence*, e.g.,
Marketing & Sales >>> Engineering
>>> Production Control >>>
Purchasing >>> Receiving >>> Kitting
>>> Assembly >>> Test >>> Shipping
>>> Customer Service (Here again the direct sequence, especially Section 7.0, approximates this sequence, however, this approach, for example, is weak in the support areas of document control and corrective & preventive action.)

IV. *According to another standard's sequence*, e.g., the sequences defined in the FDA/CGMPs, EN 46001 or ISO 13485/8 (all of which are presently based on the ISO 9001:1994 Standard), or the direct revision of the present ISO 9001:1994 Quality Manual, i.e., keep the ISO 9001:1994 twenty (20) sections and add the additional ISO 9001:2000 requirements.

Preferred Method is the Direct Sequence

We have selected the “direct sequence” as our preferred sequence because of its ease in auditing, adherence to the continual/continuous improvement cycle of Plan-Do-Check-Act, and maintains the process orientation mandated by the Standard.

In this sequence, the pertinent clauses (“shalls”) of the Standard are located in five sections numbered consecutively from **4.0 Quality Management System to 8.0 Measurement, Analysis, & Improvement**. As it was for the 1994-version quality manuals, it is already common to find Manuals configured in this fashion for the 2000-version, i.e., as sections which correspond directly with the numbering system of the Standard. We find this to be true for quality manuals that have been upgraded from the 1994-version to the 2000-version, and for those who have created their initial quality manual for their first ISO certification.

We will now describe the method required in Manual creation for the direct sequence and stress the CAPFill technique.

The following *definitions* will hopefully clarify the discussion:

Manual Labels by Sequence:

- An ISO 9001:2000 Manual that uses the **Standard's** numbering system will be termed a **Manual:2000**.
- An ISO 9001:2000 Manual that uses the **1994** numbering system will be termed a **Manual:2000(20)**.

- The present ISO 9001:1994 Manual will be termed a **Manual:1994**.

Figure 1 is a pictorial view of the several configurations which can occur when an available Manual:1994 is upgraded into either the Manual:2000 or Manual:2000(20) configurations. Notice that in both cases there are a number of additional 2000 requirements that must be addressed to bring the 1994 Manual in conformance with the Standard. The difference in effort between the two configurations is that the cut-and-paste effort required for the Manual:2000 takes approximately one to two days sitting in front of a computer (this means about two weeks for the average overloaded ISO 9000 management representative). Adding the additional requirements afterwards takes a realistic month of effort and is independent of which sequence is chosen. The toughest sections are 4.0 and 5.0. In addition, a limited number of enhancements to the 1994 set of lower tier documents should take a few more months.

The key advantage of the Manual:2000 configuration is the ease of auditing the system — because an elaborate cross-reference chart is not required — and the use of the more logical operations and process format of the Standard. Both ways require modifications to the lower tier documents. *The Manual:2000 configuration is the one that is used in the CAPFill technique.*

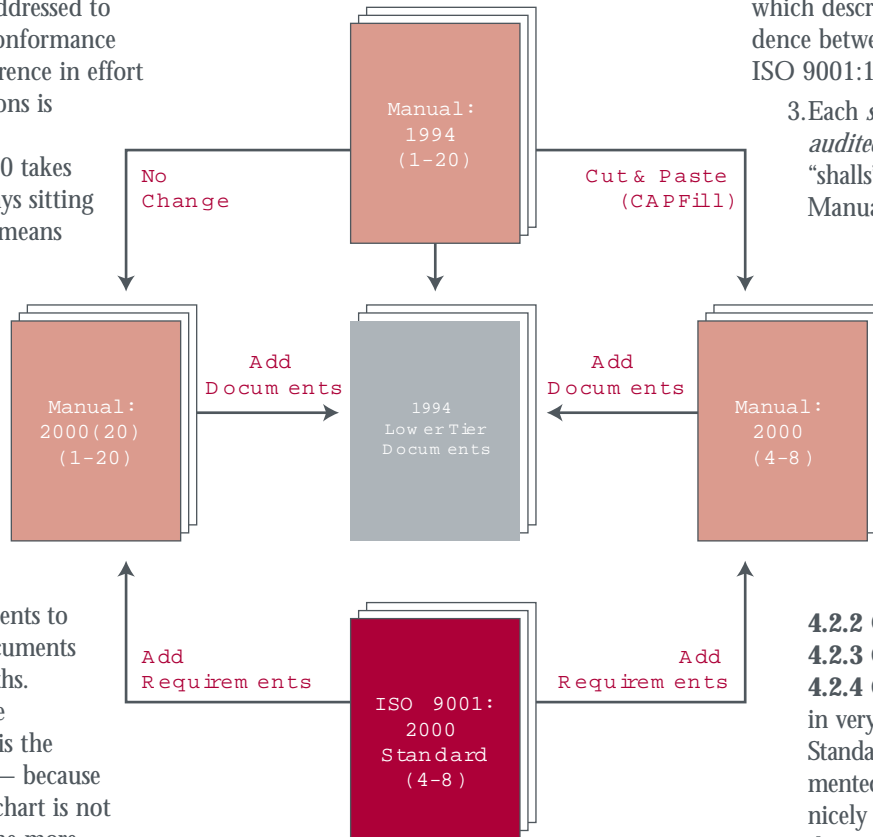
CAPFill Method

The organization creates a Manual:2000 based on the Standard’s numbering system by first cutting and pasting the present Manual:1994 into the Manual:2000 format.

When we say, “cut-and-paste” we mean an electronic process in which we cut out the appropriate sections from the 1994 manual and paste them into the appropriate sections of the 2000 manual. Don’t be surprised if you have a few clauses left. With a little thought, they will fit nicely into the 2000 format.

In fact, those who have upgraded their 1994 quality manuals soon discover that,

indeed, all of the 1994 quality manual can be cut and pasted into the new format, e.g., **4.5 Document & Data Control:1994** and **4.16 Control of Quality Records:1994** paste directly into Section **4.0:2000**. **4.17 Internal Quality Audits:1994** and **4.14 Corrective & Preventive Action:1994** paste directly into **Section 8.0:2000**.



Possible Sequences for Upgraded 1994 Manuals

Figure 1

This is true because all of Manual:1994 is either just as meaningful in the process of maximizing QMS effectiveness, or in some cases, is beyond the 2000 version requirements. Don’t throw anything away! You will need to enhance the 1994 version in the Manual:2000, but will not need to waste any of it.

The Specific CAPFill procedural steps are:

1. Manual:2000 is *formatted* into the five direct sequenced sections of the Standard, i.e., Sections 4.0, 5.0, 6.0, 7.0 and 8.0. (Sections 1.0, 2.0, and 3.0 usually contain items such as Table of Contents, Company History,

Certification Scope, Distribution List, approval sign-offs and any disclaimers.)

2. Each *clause* of Manual:1994 is *cut-and-pasted* into the Manual:2000 template, as appropriate, based on the Standard’s **Table B.1 – Correspondence between ISO 9001:1994 and ISO 9001:2000**, on pages 19 and 20 of the Standard, which describes in detail the correspondence between ISO 9001:2000 and ISO 9001:1994.

3. Each *section* of Manual:2000 is *audited* against the Standard’s “shalls” to determine where Manual:2000 created from Manual:1994 does *not* comply with the Standard, e.g., in Section 4.0, there will be significant additional effort over the 1994 quality policy statements needed to respond to **4.1 General Requirements**, **4.2.1 General Documentation Requirements**, and **4.2.2 Quality Manual**. However, **4.2.3 Control of Documents** and **4.2.4 Control of Records** will be in very close conformity with the Standard, including already documented procedures which will very nicely cover the need for two of the mandatory procedures.

4. In the case of *regulatory or statutory standards*, e.g. FDA/CGMP 320, EN46001 or ISO 13485, be sure to cut-and-paste *all* of those requirements within the Manual:2000. If they were already in Manual:1994, and you have fully cut-and-pasted every clause, this issue will automatically have been resolved. For some reason there is a tendency to forget to bring over the sector-specific requirements.

5. *Fill-in* the additional quality policy statements that are required above and beyond the 1994 requirements.
6. *Enhance* the lower tier documents as necessary.

Alert — The cut-and-paste transformation of the Manual:1994 into Manual:2000 does have some difficulties because the

The Self-Assessment Matrix:

A Baldrige-based tool for the introduction, training and assessment of organizational performance excellence

By Denis Leonard

There are a range of local, national, and international Quality Models, which have been specifically developed to aid companies in creating strategic performance improvement. These include the EFQM Model for Business Excellence and the Baldrige Criteria for Performance Excellence; both have common themes and methods of conducting organizational assessment.¹

These Models or criteria for excellence have been applied widely and have provided positive results.^{2,3} The National Institute for Standards and Technology (NIST) showed that Baldrige winners had beat the S&P 500 by 4.4 to 1.⁴ However, positive impacts are not exclusive to those companies that have won the Baldrige award, nor even to those who formally entered the Baldrige process. Companies that have used self-assessment have had higher levels of annual sales turnover, market share and return on sales than those that have not.⁵

Self-Assessment

The Baldrige Model provides a non-prescriptive conceptual Model of TQM which can articulate many of the basic precepts of TQM in a systems-theory approach. In this manner the Model can present and highlight such crucial issues as:

- The importance of leadership
- The need to consider all elements of an organization
- The strategic importance of scanning and analyzing the business environment
- The value of creating focus on customers and employees
- The emphasis of identifying and monitoring key performance indicators
- The methods of approach and deployment for improvement action plans

This provides the basis for conducting companywide self-assessment and, using this as the basis for establishing current and

target performance measures, for coordinating and implementing continual improvement, and as a method to aid benchmarking.⁶

Managers should not be put off by the logistics involved in submitting a formal application, but rather should become familiar with the Model and embrace what it can offer. Self-assessment provides a simple method of independent and flexible assessment, which can have powerful results.⁷

The Self-Assessment Matrix

To reduce the perception that conducting self-assessment is costly, time consuming and intimidating, a Self-Assessment Matrix based on the Baldrige Model was developed. (Table 1, Pages 8-9) The goal was to ensure that the key elements of the Model and self-assessment were included, while creating a summary sheet which would provide accessible yet adequate explanation of assessment criteria. This dramatically reduces the documentation required for assessment and provides speed and simplicity.

The key elements included are:

- 7 Criteria Categories
- Items from the Organizational Profile
- 11 Core Values
- Performance Outcomes
- Point Values of each Criteria
- Strengths and Opportunities for Improvement
- Scoring Guidelines of Approach, Deployment and Results⁸

The Matrix is made up of columns representing the Criteria and rows representing Score increments of 1-10. The Matrix is used by beginning with the left column and reading the scoring descriptions, moving up or down the column until a score that best represents the relevant organization's practice is found. This determines the score for that Criterion. This is continued until each of the Criteria are completed. The Score for

each Criterion is noted at the bottom of each column and is then multiplied by the Factor, which relates the score to the appropriate Point Value for that Criterion. When completed, the 7 Criteria Scores are totaled to create a Grand Score. This is the overall Score for the organization out of a total possible score of 1000.

A Tool for Introducing, Training and Conducting Self-Assessment

The matrix can be used as a training tool to aid in the explanation of Self-Assessment and the application of the Baldrige Model, while emphasizing the importance of customer focus and strategic awareness.

A presentation of a self-assessment to senior management could include relating self-assessments' focus and potential impact on the demands of investors, customers and employees and how to address their priorities. The current corporate objectives can be presented with quantitative data to show how quality aided by self-assessment can improve the bottom line.⁹ This can be achieved through presenting the NIST S&P comparisons to Baldrige companies, relating the stories of past winners, using diagrams of the Baldrige Model to articulate the inter-relation of all the key elements in an organization and relating the impact of linking Approach and Deployment to Results.

However with Quality, the full and active participation of senior management is essential for its success.¹⁰ To create this involvement one needs to move beyond a presentation to creating a hands-on experience in applying and interpreting the Criteria and the Scoring Guidelines. Yet in the initial introduction and selling of Baldrige and Self-Assessment to Senior Management there is usually no time for pre-work case studies to be reviewed on an individual basis and for consensus groups to be formed. Yet there is no better way to

understand the Scoring Guidelines and the other elements that underpin Self-Assessment than to use them.

It is here that the Matrix can be invaluable by providing a concise yet powerful method of communication. The Matrix can be distributed among managers and used to conduct a high-level evaluation of the organization. When this has been completed on an individual basis, the scores can be listed and discussed to create a consensus score. It is not important at this stage of limited analysis for lists of Strengths and Opportunities for Improvement to be created. Rather, getting the concepts across and creating familiarity with the terms and methods of self-assessment are more important. By embedding and incorporating all of the key issues of Self-Assessment into the matrix, Senior Managers will have to be thinking about all of the Criteria, Scoring Guidelines and other fundamentals while evaluating their organization.

This is also a good tool for creating discussion since questions will be raised during individual assessment and later when the total scores are listed. Here the true value is found. Discussion about the difference in scores will be related to each individual's evaluation of the organization's Strengths and Opportunities for Improvement.

More important than the scores are the Opportunities for Improvement which have been identified. The Model can then be used at another level of detail and application as an aid in co-ordinating and implementing actions to address those Opportunities for Improvement and as a basis for creating measures to monitor improvements.

A key question that can be focused on is the variation in the opinions and perceptions of the Managers. If Senior Managers all have differing opinions with regard to the Approach, Deployment and Results of the Organization, what would the difference

be between Senior Management's perception and that of Middle management and staff? Would the understanding in each department, division or geographical office in the organization differ greatly from that which Senior Management perceives it to be? This raises questions regarding communication, deployment, focus and application of such crucial elements as organizational policies, mission and practices. This can be a perfect note on which to end, ensuring that Senior Management will want to discuss this further to find out just what this could mean for their organization.

Assessment can be used at all levels and to not only assess a whole organization, but also departments, divisions or units. It can also be used in workshop situations where much more time is taken to consider, gather and evaluate data.

Conclusion

The Self-Assessment Matrix provides a simple yet powerful tool to aid in introducing, training and conducting organizational Self-Assessment. However, its most valuable role may be in making Self-Assessment an accessible and engaging proposition. ■

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Baldrige Aligned Self-Assessment Instructions

Go to the **Baldrige Aligned Self-Assessment Matrix Table** on page 8. Start with the Leadership criteria, read down the column and select the description that reflects the current organization profile. Place the corresponding number to the far left at the bottom of the column as the score. Continue in the same manner across each criteria assigning a score to each. Multiply each score by the relevant factor to create a total for each criteria. Finally, add up all the totals to produce a grand total out of a 1000 possible points.

TABLE 1 – BALDRIGE ALIGNED SELF-ASSESSMENT MATRIX

Score	Leadership	Strategic Planning	Customer & Market Focus
1	Management makes decisions as individuals. Promotes developing & improving organization but no systematic approach is established. Targets set. Information is anecdotal. Management not seen as champions of quality.	Business plans focused only on financial targets. Plans not widely communicated or championed. Mission statement exists. No systematic approach to review vision, mission, values or strategic challenges.	No systematic approach determining or targeting customers. Information is anecdotal and mainly relates to customer complaints. Some corrective action, but root causes not sought. Limited customer satisfaction data available.
2	Systematic approaches to increase awareness of business issues across organization. Major deployment gaps. Management acts as team to set & deploy short & long term goals. Two-way communication. Improvement group involvement. Ethical business practice focus.	Start of systematic approaches. Critical success factors identified. Processes to collect key internal information enables reviews. Monitor business plans and targets. Performance comparisons to past performance and competitors. Project future performance. Major gaps in deployment.	Systematic collection & analysis of customer complaints and trends. Key measures identified. Current and former client information gathered & analyzed. Key requirements identified. Focus on building relationships and partnerships. Major gaps in deployment.
3	Effective systematic & responsive approaches. Management develops & supports improvement teams. Management fully communicates values and strategy vertically & horizontally. Prevention & continuous improvement focus. Sets priorities. Supporting local community groups.	Innovative approach forming. Systematic, responsive approach. Move from reacting to problems to prevention and continuous improvement. Early stages of deployment. Competitor & customer satisfaction data collection & analysis. Results widely communicated.	Effective and responsive approach created. Customer data used to set performance targets. Moving from reaction to prevention. Early stages of deployment of systematic approach to integrate awareness of customers & market & their impact on competitive position. Key success factors improved.
4	Well-deployed in many areas. Fact-based systematic approaches. Management creates improvement teams, checks progress & gives timely recognition. Reviews organizational performance. Assesses community perceptions.	Fact-based, effective approach well-deployed through many areas to ensure processes are reviewed. Promotes understanding of vision, strategy, policy & responsibilities to all stakeholders. Effective, efficient communications.	Relevance of targets to customer satisfaction strongly assigned. Fact-based effective systematic approach well-deployed in many areas. Action plans have defined time-scales, responsibilities are clearly assigned. Customer perceptions gathered.
5	Fact-based systematic evaluation, improvement process. Aligned with organizational needs. Trends improved. Process ensures good relationships with customers & suppliers. Well-deployed throughout. Managers seen as improvement role models. Culture for empowerment, agility, risk taking & learning.	Relevant resources proactively made available for improvement efforts. Aligned with the organizations' needs. Fact-based systematic evaluation, improvement process. Well-deployed throughout. Strategy takes full consideration of Baldrige model. Two-way communications monitored and improved.	The need to meet and exceed customer needs is related in the strategic and operational plans. Fact-based systematic evaluation, improvement process in place for improvement. Well-deployed throughout. Customer satisfaction trends reaching target levels. Meeting customer needs seen as key focus.
6	Systematic continuous improvement & use of organizational learning & innovation. No deployment gaps. Senior managers visibly seen as champions of quality.	Processes assess the relevance of strategy; policies and plans based on business results. Organizational learning. No deployment gaps. New culture developed.	Systematic evaluation using continuous improvement & learning to focus on drivers of customer satisfaction. Used to modify targets. No gaps in deployment.
7	Evidence of refinement, improved integration of evaluation system. Employees empowered. Organizational analysis, sharing of info. better regulatory requirements. Proactive recognition & rewards of employees.	Modification of strategy and policy a result of focus on being proactive. Organizational level analysis & evaluation, sharing of results. Clear evidence of refinement & improved integration of evaluation system.	Evidence of refinements. Improvements regarding integration of evaluation system. All employees understand and are involved in achieving customer targets. Benchmarking across industry/best-in-world.
8	Fully-deployed with no gaps. All current business needs considered. Consistent management approach to continuous improvement. Local community and employee views are proactively sought and acted upon.	Strategy understood by all stakeholders and senior management champions vision. Critical factors i.e. customer satisfaction reviewed at all levels. Fully-deployed no gaps. All business needs considered.	70% of customer targets met. Fully-deployed. Current business needs considered. Ongoing efforts to identify & exceed customer needs. Integrated into strategic planning, improvement & innovation processes.
9	All current and future business needs considered and projected for potential future needs. Managers actively promote & demonstrate involvement in quality. 70% of impact on society issues met & exceeded. Evidence of visionary leadership.	Process to analyze competitor strategy & maintain competitive advantage. Business needs considered in addition to future needs. Projection/scenario planning for future needs integral part of strategic planning process.	Customer satisfaction achieved. Current and future business needs considered. Planning for potential future customers. Reached best-in-class benchmarks. High levels of internal & external customer loyalty & trust.
10	All leaders proactively sustain the improvement, culture & business ethos. Fully responsive systematic approach considering current & future needs. Fully-deployed, no weakness. Very strong fact-based evaluation, improvement process. Extensive organizational learning. Socially responsible.	Strategies achieved. Continual improvement focus. Responsive systematic approach considering multiple issues. Fully-deployed, no weakness. Very strong fact-based evaluation & improvement processes. Extensive organizational learning. Strong refinement & integration across organization.	All customer satisfaction targets exceeded. Fully responsive systematic approach to changing needs. Fully-deployed with no weakness. Very strong fact-based processes for evaluation & improvement. Strong organizational learning Sustained improvement in customer satisfaction. Evidence of excellence.
Score			
Factor	12.0	8.5	8.5
Total			

Information & Analysis	Human Resource Focus	Process Management	Business Results
Decisions made by few. Key information kept by few. No systematic approaches. Anecdotal information. Regulatory environments are not scanned or analyzed for changes that may relate to potential opportunities or negative impacts.	Processes to track employee perceptions, but limited follow up action. No systematic approach. No consistent 3-5 year trend data. Most data is anecdotal and limited. Absenteeism and staff turnover high. Training seen as costly.	No systematic approaches. Limited information relates only to key processes. No analysis of current or future technology or equipment needs. Few procedures exist. Changes & improvements made only when problems arise.	Some financial and non-financial results identified and available. Results limited in scope. No improvement trends of 3-5 years. Limited data on community perceptions. Monitors some organization effectiveness & customer satisfaction.
Data exists, often discussed but rarely used for improvements. Start of a systematic approach. Focus on timeliness, integrity, reliability, accuracy, security and confidentiality. Market research up-to-date, relevant and useful. Strengths and opportunities assessed.	Employee satisfaction issues identified. Forms start of a systematic approach. Management recognize success comes from employees. Major gaps in deployment. Training made available and aligned to strategic and employee plans. Educational levels and job diversity considered.	Beginning of systematic approach. All key processes are identified, flow-charts/ documented. Opportunities for improvement assessed. Major deployment gaps. Awareness of new technologies, changing customer needs. Focus on business performance improvement beginning.	System exists to measure & monitor key financial & non-financial indicators. Some results are reported for critical aspects. Some areas of improvement indicated. Some benchmarking on community perceptions, environmental issues. Key performance outcomes established.
Process in place to manage dissemination of relevant info to vendors, customers & employees. Moving from reacting to problems to prevention and improvement. Early stages of deployment of an effective systematic, responsive approach with a focus on integration across the organization.	Effective systematic, responsive process to create two-way communication of information. Employee views actively sought. Data used to set targets and action plans. Emphasis on diversity, ideas and succession planning. Proactive focus. Early deployment.	Responsive and systematic approach created to evaluate effectiveness of key & value-added processes. Move from reacting to problems (corrective action) to preventive action and continuous improvement. Transfer of learning from past projects across organization.	Results communicated to all employees on a regular basis with improvement targets indicated. Results included for many critical aspects of the organization. Improvement trends of 3-5 years are reflected in many of the areas reported. Environmental targets set, data gathered, results analyzed and trends established.
Decisions are made on the basis of fact-based information. Stock, materials, etc related to customer requirements and linked to project management. Fact-based, effective systematic approach. Well-deployed in many areas.	Fact-based, effective systematic approaches. Strong links to employee satisfaction. Effective appraisal system. Skill gaps identified, planned and reviewed. Training supported & reinforced on the job. Trends are established, targets set.	Well-deployed through many areas, aim to focus on key improvements with targets set. Focus on innovation. Fact-based effective systematic approach. Partnerships with suppliers are established. Focus on agility for the future.	Trends used as indicators monitored regularly & are used to set targets for improvements. Good improvement trends of 3-5 years based on some comparative (best-in-class and world-class) benchmarking data evident in many to most critical areas. Consistently improve trends.
Data gathered/analyzed for accurate view of competitors. Used in business plans. Processes that identify additional resources that can strengthen competitive advantage. Fact-based systematic evaluation & improvement process. Aligned with organizational needs. Well-deployed throughout.	Fact-based systematic evaluation, improvement process. Alignment with organizational needs. Employee satisfaction increasing with positive trends 3-5 years. Some targets met. Reduced errors, defects, waste, improved cycle time; responsiveness & performance direct links to improved learning.	Aligned with needs of organization. Customer needs linked to processes. Well-deployed throughout. Quality Management Systems i.e., ISO9000 and or Environmental Management System (ISO14000) exist. Fact-based systematic evaluation & improvement processes.	50% of targets met. No negative performance. Improvement trends in most critical areas ie key customer, market & process requirements are evident. Many trends are compared to relevant world-class benchmarks & reflect good performance levels. The priority of meeting agreed customer needs is reflected throughout strategic process.
Processes for identifying, assessing & evaluating new technologies and their impact. Systematic evaluation using continued improvement & organizational learning.	No deployment gaps. Climate based on personal development exists. Changes that adversely affect employees jointly considered. Focus on organizational learning.	Evaluation of all processes via continuous improvement and organizational learning. Some evidence of improved processes. No gaps in deployment.	Improving and negative trends are evaluated and linked directly to the approach/deployment enablers. Benchmarking is used for best-in-industry, class & world comparisons.
Benchmarking against the best-in-class, focus on key improvement indicators. Clear evidence of refinement & improved integration of evaluation system. Results in organizational level analysis & info sharing.	Benchmarking reflects high employee satisfaction on range of issues. Organizational level analysis and sharing of info. Clear evidence of refinement and improvement of evaluation systems.	Clear evidence of refinement and improved evaluation system. Use of key measures to continually evaluate and improve processes and their value to the customer. Use of cross-functional teams.	Benchmarking targets are reset to create new stretch improvement targets. Data available to stakeholders. Good performance trends are presented for many critical areas. Targets are set & compared to best-in-class/world with good relative performance.
Focus on innovation and continual improvement. Fully-deployed. All current business needs considered. Strategic objectives and resource allocations needed to accommodate such needs determined, action taken.	Evidence that employees feel valued for their contribution. Most targets met. Fully-deployed, no gaps exist. All current business needs are considered. Strong links between learning & ability to apply & practice skills.	Performance has strong links to customer needs and satisfaction. Targets being met in many cases. Good deployment, all current business needs considered. Processes owned by empowered employees.	75% of targets achieved. Performance is good/excellent in many critical areas. Most improvement trends are sustained. Many benchmarks show good relative performance levels. Results monitored include most key customers, markets, competitors and processes.
Considered all current and future business needs. Data used to determine trends to create projections, scenario planning, brainstorming & partnering to aid in identifying potential future needs and outcomes.	Consideration of all future needs and projection/scenario planning for potential impacts on employees and all training requirements/gaps. Employees & families feel part of organization. Innovative environment, cross-functional learning.	Value added processes analyzed managed & improved. All targets achieved. Planning for needs of external & internal customers, suppliers & partners. Continuous incremental & dynamic innovative improvements exist.	All targets met. Continued improvement in 25% of trends. Performance excellent in most critical areas. Excellent and sustained improvement trends. Evidence of world-class leadership in many areas. Results cover all customer, market competitor, new entrants & processes.
All resources aligned with strategies. Focus on innovation. Responsive systematic approaches considering changing business needs. Fully-deployed, no weakness. Very strong fact-based evaluation,improvement process. Extensive organizational learning. Constant refinement & Integration of processes.	Responsive approach to current/future changing business needs & impact on employees. Fully-deployed, no weaknesses. Very strong fact-based systematic evaluation & improvement process. Satisfaction levels exceed world-class benchmarks. Improvement trends sustained. Integration across organization.	All targets exceeded. Fully responsive systematic approach considers multiple issues & future needs. Stakeholders' needs exceeded. Customers find it easy & beneficial to do business. Strong refinements to processes. Very strong fact-based evaluation & improvement process. Extensive organizational learning.	All targets exceeded. 50% show continued improvement. Considered world-class in regard to benchmarking in most/all areas. Results clearly linked to approach/enablers. Leadership participates in public responsibility & citizenship. Recognized for roles in education, research community, environment & improving industry practices.
9.0	8.5	8.5	45.0

Improving Events the 3-W Way

By Rick Copenhaver

Companies are improving repetitive processes that generate income; that's a good thing. We don't however, use a consistent methodology for improving events; that's a bad thing. The 3-W is a good tact to improve events. Events are activities which are not part of a routine. When we don't try to improve events we send a message to our employees that improvement is not as important as we say. Worse yet, rare events can be a major cost.

There are different kinds of events. We will look at two. Scheduled and unscheduled. Scheduled events include the company picnic, plant meetings and the Christmas party. Unscheduled are the first aid code blue, or even loss of a customer.

The 3-Ws (listed in pullout) set a disposition of continual improvement in all that a company does. It helps establish the culture for improvement that is intertwined in everything.

What went right?

Ask what went right so those actions that were successful are retained.

Events are more emotionally charged. Take a second to think about a Christmas party, a picnic or a code blue. The person performing a function is being evaluated by all their peers.

We've trained ourselves to think critically; we've not taught people to look for the good. By asking "what went right," the stage is set for people to be "positively objective."

We are after positive in the sense of being objective vs. what we'll call an Eeyore approach. By asking "what went right" the Eeyore team members are more objective. If you would say, "it is so nice to have the sun out on this gorgeous spring day." The

Eeyore would look at a sunny day and say in a low slow voice, "It is sunny. I cannot stand the sun. I have to wear sunglasses when it is sunny. Sunglasses don't look good on me. My sunglasses are scratched. My one bow on my sunglasses is bent." But by asking the Eeyore "what went right" you bring him around to a more positive outlook.

Let's use the company picnic as an

The 3-W way of improving events.

What went right?

What went wrong?

What can we improve on?

example. The food was great, the pavilion held all the people, the desert contest had the most ever participants, people said they liked the children's games, and so on.

What went wrong?

The leader of the 3-W exercise must control the flow or you'll have a brawl. The key is try to keep it as objective as possible.

Go back to the picnic again. What went wrong? We ran out of food. Why? Because we let people start eating before all the food was cooked. Why? Because we started late. Why? Because we miscalculated how long it would take to heat up that huge grill we rented. How long did it take? We allowed 30 minutes, but it took 45 minutes.

What can we improve on?

Your "what went wrong" will provide some of the data for this. However, it does not have to go wrong for it to be improved upon.

Using the picnic example: We ran out of meat. What can we improve on? We can start the grill an hour earlier. Remember to be exact when taking notes or you'll look at the fuzzy note and wonder what its exact intent is — does "an hour earlier" mean an hour before the picnic which would be two hours before lunch? The objective more succinctly stated would be: Start the grill an hour prior to serving time.

An example of the 3-W method for a code blue might be: What went wrong? The person was unconscious by the time the ambulance arrived. Why? No one called the ambulance until first-aid was applied which took ten minutes. What can we improve on? Dial 911 as the first aid is being applied.

Keys to successful 3-W

1. Hold the 3-W meeting as soon as possible after the event. The more time that goes by after the event, the more detail is lost.
2. The facilitator should take notes in front of the room on a large board or note pad so everyone can see the notes. Keep each note posted so that people can review them during the session.
3. Have separate pieces of paper for each W.
4. Allow people after the first W to go back and forth between Ws to add ideas.
5. Someone record the notes on regular paper. ■

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(UPGRADE PROCESS, continued from page 5)

1994 clauses are mixed about within the 2000 sections in some novel ways, e.g., the **4.10 Inspection & Test:1994** clauses are distributed in **Section 7 - Product Realization:2000** and **Section 8 - Measurement, Analysis, & Improvement:2000**.

To make things a bit more complex, pertinent 4.10 clauses appear in the five new clauses 7.1, 7.4.3, 7.5.3, 8.1 and 8.2.4. However, the Standard has worked diligently to make the cut-and-paste operation as smooth as possible via a cross-reference chart between the clauses (Re: pages 19, 20, 21, and 22 of the Standard). In particular, if you follow **Table B.1 – Correspondence between ISO 9001:1994 and ISO 9001:2000**, on pages 19 and 20 of the Standard, your cut-and-pasting exercise should take less than two days of work.

CAPFill Process Issues

The hard part begins after you have cut-and-pasted the 1994 clauses into Manual:2000 because you must now fill-in the quality policy statements dictated by the Standard above and beyond 1994 requirements.

Example of an additional Quality Manual Response: The desk audit against the Standard will find that certain quality policy statements will need to be added to the Manual:2000. For example, clause 8.2.1 of the Standard is a quality policy statement in regard to “monitoring information related to customer perception.” In this case, the quality policy statement in Manual:2000 might sound something like this:

“Customer perception of (your organization’s) performance is monitored and measured rigorously by means of (1) weekly sample interviews with key customers by the National Sales Manager; (2) monthly reviews by Quality Assurance with the Executive Committee on customer complaints and customer commendations; and (3) monthly Customer Service Reports on all aspects of service performance. Metrics are established for each of these activities (Re: Doc. #MS3-08 entitled, “Marketing & Sales Customer Metrics”).”

Potential Lower Tier impact: This “customer perception” response might require an enhancement to the present Tier

II document #MS2-001 entitled, “Marketing & Sales Procedures.” This enhancement might require the creation of a new Tier III document #MS3-08 entitled, “Customer Perception Work Instruction. And the Tier III document might require the creation of a new Tier IV form #MS4-009 entitled, “Marketing & Sales Metric Performance.” However, the document control process to revise lower tier documents is already established in your 1994 QMS and so the time impact on your staff can be directly calculated based on the throughput effectiveness of the document-change process. So far, we have found that new documents have seldom been required, only paragraphs and sentences added to already available QMS documents.

Everyone has made good use of their Standard Operating Procedures to meet the requirement for process documents.

Overall Documentation Impact on Fill-ins: There are about 170 possible quality policy statement enhancements needed to bring the 1994 requirements in conformance with the Standard. As previously discussed, these modifications can ripple through the lower level documents and have the potential to cause multiple revisions throughout the QMS documentation. For those readers who have been blessed with aggressive auditors — who’ve constantly pushed the envelope of your QMS to consider all of your core competencies — the amount of revision will be reasonable. For others who are not so fortunate, the amount of revision could be daunting; allow yourself plenty of time to work on your upgrades.

As a rule-of-thumb, many organizations are giving themselves a year or so and are timing their upgrades to a surveillance assessment, e.g., carry out the document review three months before the surveillance, the pre-assessment two months before the surveillance, and the upgrade assessment at the same time as the surveillance audit. Very roughly, the pre-assessments have been waived about one-third of the time.

Summary

A sampling of nine ISO9001:2000 quality manuals — and additional inputs from other organization’s with plans to create upgraded manuals — indicates a tendency to choose the Standard’s numbering system in the creation of ISO 9001:2000

quality manuals. The cut-and-paste & fill-in technique, with minor variations, has been the method observed in eight of nine upgrade cases that we have analyzed. The other structure was essentially a Manual:2000(20). This is contrary to what we have heard, i.e., that there is a strong desire by organizations to stay with the 1994 numbering system. We maintain that the cut-and-paste & fill-in (CAPFill) technique produces an expedited useful and effective Manual:2000 that significantly enhances the audit process; adheres to the continual/continuous improvement cycle of Plan-Do-Check-Act; and maintains the powerful, process-orientation of the Standard. ■

REFERENCES

Portions of a book entitled, “ISO 9001:2000 Quality Management Systems Design”, which has been submitted to Artech House for review, have been extracted for use in this paper.

1 “Registrations to ISO 9001:2000 Spike in North America. Quality Systems Update”, December 2001, and *Quality Systems Update*, Vol. 11, No. 7, QSU Publishing Company, July 2001, pp.1 The worldwide total of ISO 9000 registration certificates now stands at 408,631.

2 “IAF Warning: Transition Time Running Out, Upgrade Now,” *Quality Systems Update*, QSU Publishing Company, March 2002, p.4, .

3 Sandford Lieberman, and James Mroz, “ISO 9000:2000 Experiences: First Results Are In”, *Quality Progress*, April 2002, pp. 52, .

4 We were not surprised that authors Lieberman and Mroz (footnote 3) reported little evidence of reduced documentation since a process is described by a procedure and, as a result, Par.4.2.1d) requires many more procedures than six to control the effective planning, operation, and control of the processes.

5 For a more recent, though less detailed, discussion of quality policy statements see Tony Wright, “ISO 9001 Without Tears”, *Quality Progress*, August 2001, pp.57, . For a detailed discussion refer to Jay J. Schlickman, “ISO 9000 Quality Management System Design, optimal design rules for documentation, implementation, and system effectiveness”, ASQ Quality Press, Milwaukee, WI, 1998.

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The ASQ Certified Quality Manager Section Refresher Course (CQM-RC) has earned high praise from hundreds of graduates. The ASQ Certified Quality Manager Refresher Course materials, authored by experienced Certified Quality Managers from the Quality Management Division (QMD), has been the source material for numerous section courses and received national acclaim as the core of the three-day, “on-the-road” RC courses conducted in Orlando, St. Louis, New Orleans (and coming to Reno and Phoenix within the year).

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For a printout of testimonials from the QMD CQM-RCs or information on upcoming QMD-sponsored CQM-RCs, contact Russ Westcott at **860-388-6094** or **russwest@snet.net**.

(Six SIGMA, continued from page 1)

Customer-Driven Excellence. One of the key reasons to pursue Six Sigma is to be ahead of, responsive to and focused on customers. Customer requirements, both external and internal, are paramount in choosing which Six Sigma projects to undertake.⁶ For example, a Sales and Marketing VP at GE Aircraft Engines directly attributes the success of the division to the Six Sigma initiative. "It has helped our salespeople focus on building relationships with our customers [whose demands] for increased value have forced us to place a greater emphasis on speed, quality and productivity."⁸ Critical to Quality (CTQ) is one of the mainstays of Six Sigma at the design, processing, delivery and recovery (if needed) stages of the relationship with customers. Effective Six Sigma efforts focus directly on reducing variation to the customer and on improving customers' perception of the product/service value and of the entire Six Sigma effort.⁹

Organizational and Personal Learning.

A key aspect of Six Sigma is to create a learning environment where both the individuals and the organization learn and act based on that learning, improving all the time both from internal and external perspectives. Six Sigma provides a structured environment for taking the best ideas from every source, internally and externally, and rethinking the who-what-when-where-why-how of all the processes both within the organization and as they interface with the outside world.

Valuing Employees and Partners.

Besides hardware and software, people are needed to make Six Sigma work. "Conversion to a Six Sigma culture is an enormous undertaking. Many people have to be directly involved, and many support systems have to be in place to make it all work smoothly."⁷ In a forum on Empowered Productivity staged by GE and Microsoft, it was agreed that training is a cornerstone and that improved human input is critical in the productivity equation.¹⁰ It is critical to "communicate both the why and the how of Six Sigma as early as possible, and provide the opportunity for people to improve their comfort level through training classes."⁷ Six Sigma supports a culture where every individual has the opportunity to contribute not only by doing their work, but also by improving their work. Most successful companies believe that training in Six Sigma is worth the investment:

- Welch expects to reap a hefty return for every dollar spent on Six Sigma. In 1998, GE spent \$400 million on Six Sigma (most of it for training) and will derive about \$1.2B in benefits as a result.²
- One company was willing to spend \$20M (part of which was training) for a revenue increase of \$50M back to the bottom line.¹¹

Agility. Organizations must have the ability to respond quickly and flexibly to changing customer needs, wants and desires, and in response to other internal factors and changes in the business environment. Six Sigma supports both process management and directed positive change on a timely basis while taking into consideration all the appropriate relationships.

Focus On the Future. A company that focuses on the future needs a goal, a plan for achieving that goal and a working methodology to fulfill that plan. Six Sigma offers a methodology for improving the overall performance of an organization, giving it access to the resources that will allow it to continue to grow, develop and succeed.

Managing for Innovation. Within Six Sigma, both incremental and breakthrough change is supported and expected, and this change is directed not only at what the company produces but also at how the company itself works internally and interfaces with the rest of the world. Although Six Sigma was originally applied to manufacturing processes, companies like GE have shown that the theory applies everywhere.⁷ For instance, at GE Harris Corporation, the process is today being applied to all aspects of their business: manufacturing, program execution, product development, new business acquisition, customer service, accounting and more.³

Management By Fact. Six Sigma demands the effective use of data to analyze business issues.⁷ Six Sigma uses measurement to discover opportunities, drive business results and drive improvement. Measurement drives results and improvement in many ways:

- *To improve product and service performance.* The goal of Six Sigma is to improve product and service performance by reducing defects inherent in the processes and materials used to produce them.¹² Company executives say they want zero defects from their plants.²

- *To quantify its quality programs.* The Six Sigma process strives to eliminate those defects by forcing a company to quantify its quality. Implementation of Six Sigma within a business' processes eliminates "I think" and "I feel" from conversations about plant operations.²

- *To reduce variation.* Six Sigma teams use extremely rigorous data collection and statistical analysis to ferret out sources of errors and to find ways to eliminate them. The basic approach is to measure performance on an existing process, compare it with a statistically valid ideal and determine how to eliminate any variation.⁶

Public Responsibility and Citizenship.

While not specifically addressed in Six Sigma, it would be almost impossible for an organization to use all the other principles and concepts of Six Sigma, deliver better products and services, and grow in revenue and profitability without being a good citizen in its community.

Focus On Results and Creating Value.

Six Sigma breaks the barrier between quality and business results, focusing directly on value-added processes and achieving improved business results for the organization. At GE, project teams might speak in terms of reducing cycle time, improving customer satisfaction, cutting down on returns, and improving the speed and accuracy of order fulfillment. No project is considered complete until the benefit has been shown and a team of financial auditors signs off.⁶

Systems Perspective. One of the characteristics stated and implicit in both Baldrige and Six Sigma is that it is expected to encompass the whole organization; while the pieces are important, taken in total, integrated, and in relationship to one another, the system makes up the real value of the organization. While processes differ significantly, all must be viewed from a systems perspective and their impact on and benefit to the ultimate customer, which is certainly consistent with Baldrige.

Synergies Between Six Sigma and Baldrige

A critical question is whether an organization using Baldrige will be more successful if it also uses Six Sigma. If one views Six Sigma as only a small part of the Process Management category, one might believe that the impact would be marginal.

(Together, continued from page 2)

all have our days when things just aren't breaking our way. That is what friends are for. I have been fortunate to have mentors and coaches willing to pull me out of my stupid and lazy phases. Miura has been one of those friends over the past two years.

Miura is a valued member of the Quality Management Division. He can be reached at a-miura-qadiqai@mwa.biglobe.ne.jp. I hope we will have a long and rewarding relationship with him.

Let me close my comments with some thoughts on coaching others in the management of quality and continual improvement. We chose to join QMD for the association with other experts in our field. What an opportunity we have to share our experiences and knowledge with others, whether they are already "intelligent and diligent" or are still working in some other category of the model.

Most of us involved in Division work are geographically dispersed and cannot spend large amounts of time with each other. ASQ sections, however, offer us a chance to pass on what we have learned and to gather new information for future success. I encourage you to ask your section database chair to identify other QMD members. Spend time with them, share ideas and draw others into your discussions. Let's try to get the best of both worlds... the Quality Manager Body of Knowledge and a strong network with whom to carry it forward.

Have a wonderful fall. Get out and enjoy the cooler air. Life is beautiful. Take advantage of every bit of it. Thank you for being a member of the Quality Management Division. Remember to update your address book for my new e-mail: grace683@usa2net.net.

Affectionately,



Grace L. Duffy

(Six SIGMA, continued from page 13)

However, let us examine the role of Six Sigma in each of the seven Baldrige categories. First, let's eliminate any significant impact on the Leadership and Strategic Planning Criteria. Although Six Sigma involves both leadership and strategic planning, as a methodology, it contributes only marginally to them. However, the ability to successfully implement Six Sigma depends on strengths in these two Baldrige categories.

Customer and Market Focus. Critical to Quality (CTQ) or more precisely, Critical to Customer Quality (CTCQ) is one of the important concepts in Six Sigma. Understanding customer requirements and linking them to processes and delivery systems is a principal focus of Baldrige.

Information and Analysis. Six Sigma methodology is driven by a management-by-fact methodology — Define, Measure, Analyze, Implement and Control (DMAIC). Information and analysis are critical elements in each of these stages.

Human Resource Focus. The role of people in Business Process Councils, championing projects and providing the technical and application-specific knowledge is vital. Six Sigma can improve work systems, training and the work environment — all critical components of this Baldrige category.

Process Management. With Six Sigma, process management is not a byproduct, but it is one of the primary organizational goals. The DMAIC methodology provides a structured approach to process management.

Business Results. Six Sigma is the first true improvement methodology to transcend a technical perspective and focus on business results, which earlier quality approaches failed to recognize. Evaluation of Six Sigma success would naturally be reported in the Baldrige results Category.⁷

Conclusions

So are Baldrige and Six Sigma a synergistic team? Taking a broad view, Six Sigma contributes to nearly 80% of the points available in a Baldrige assessment. Although no formal studies have appeared that investigate these synergies, many organizations have successfully married the two. These include Texas Instruments, Motorola, Compaq, Solectron, Boeing, and others. In fact, Jack Swaim of Compaq Computer and a former Baldrige examiner, observed that Six Sigma can provide the impetus for

change, while the Baldrige Core Values provide the keys to sustainability. He also suggests that pursuing Baldrige first can make it easier to implement Six Sigma. We also believe that Six Sigma can lay the foundation for a broader Baldrige perspective. This is reflected in a comment from another colleague, Cynthia Scribner at Raytheon, who noted that Six Sigma makes a great unifying story for a Baldrige application. Unfortunately, consultants and advocates appear to support their own perspectives, and such synergies are seldom exploited.

We invite readers to contact us with examples or case studies that either support or refute our hypotheses, and given sufficient response, will summarize them in a follow-up article. ■

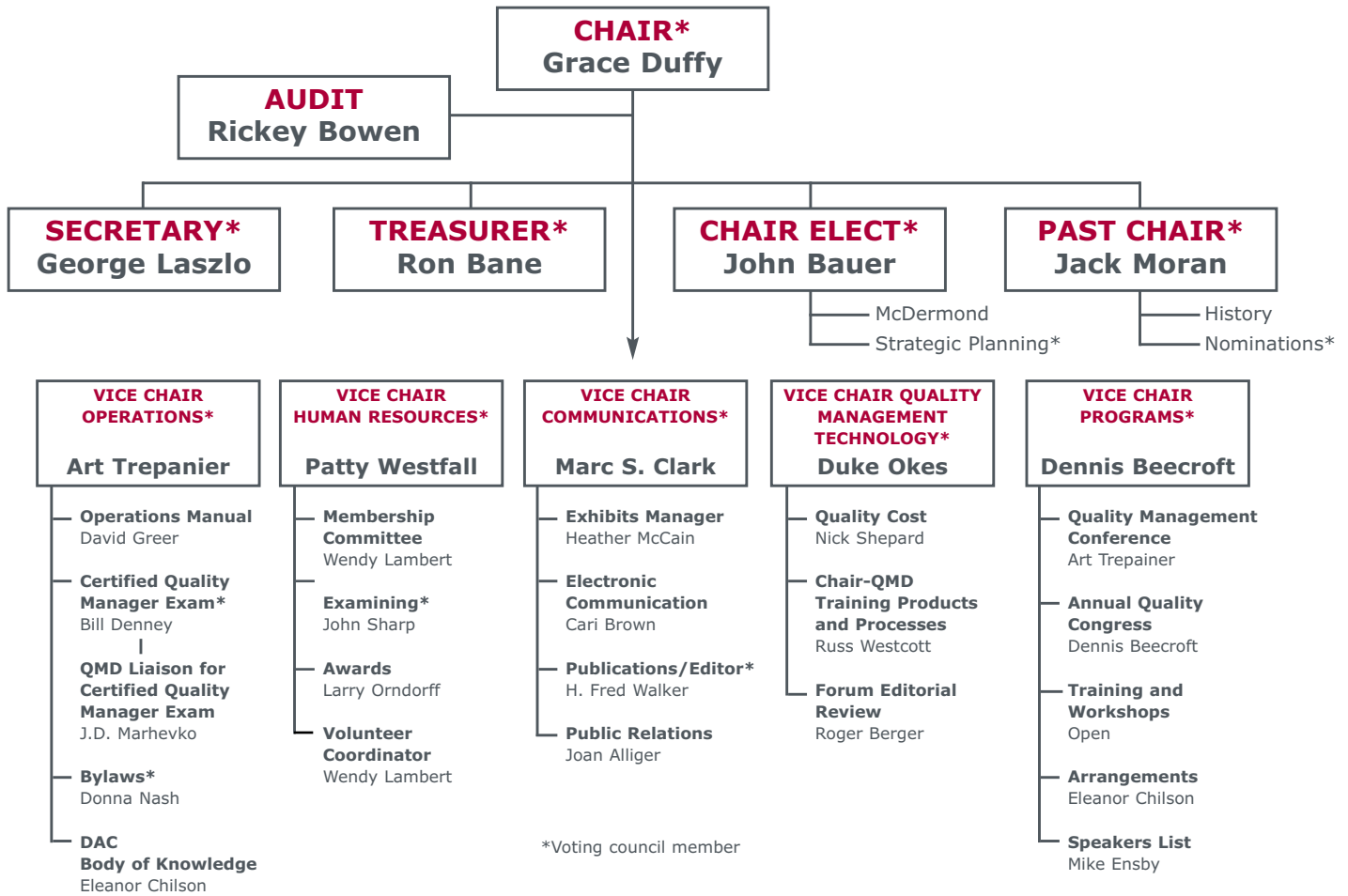
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Corrections: Steve Brant's e-mail address in the Summer issue appeared incorrectly. His correct e-mail address is sbrant@trimtab.com

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