Current Trends in the Quality Profession

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1. Introduction

The purpose of this paper is to is to review some of the current trends in the quality profession. The subject will be presented primarily from an American point of view.

Since its inception with the ideas of Walter Shewhart and W. Edwards Deming in the 1920s and 1930s, the quality profession has been under a continual state of gradual transformation. Initially quality meant conformance of the product to a specification. The preoccupation was with sorting the bad product from the good. Then, in the 1980s, the emphasis shifted to include the idea of defect prevention. This shift was largely due to the overwhelming success the Japanese were having in producing much more reliable and less costly products than American industry. Now the profession began to focus on not just the product but the processes by which the product was produced. Statistics began to play a much more important role with the use of the various charts associated with statistical process control (SPC)[1]. By the late 1980s, the idea of process improvement was expanded to include such things as teamwork, employee empowerment, and working closely with your supplier. This more comprehensive approach to quality was dubbed total quality management or TQM. TQM had its heyday in the late 1980s and early

1) Statistical process control (SPC) is the use of statistics to control a process. For example, a control chart might be used that plots the values of a process' output against what an historical analysis has shown to be the process' capability. If the values should suddenly begin falling outside the historically set upper or lower limits, the process owner immediately knows there is something wrong and can begin to take corrective action.

1990s. However, by the mid-1990s it had fallen into some disrepute. According to Hendricks and Singhal (1999) there were two reasons for this: unrealistic expectations and a "quick-fix" mentality. TQM became so popular initially that many companies saw it as the answer to all their problems. Also, as is all too typical, especially in American business, many thought TQM would begin to turn things around for them almost overnight. Of course when these things didn't happen, there was widespread disappointment. Austenfeld (1994) documents a case history of such an experience by a large American aerospace company.

Another problem for TQM was the ISO 9000 standards movement. These standards have been developed to help companies establish a quality management system that can be certified by a third party and, thus, be recognized publicly at having attained a certain level of "quality excellence." Unfortunately ISO 9000 doesn't guarantee product excellence and, in fact, is often seen as an end in itself rather than a stepping stone to a more comprehensive TQM program.

However, contrary to all this, TQM is not dead. The study by Hendricks and Singhal (1999) shows that "when TQM is implemented effectively, financial performance improves dramatically" (p. 10). Furthermore, there are some encouraging signs that the TQM movement is moving in directions that will make it even more in tune with today's turbulent business environment. Let's look at some of these ways. The paper is organized as follows:

- The "New" ISO 9000 standards
- The Quality Awards
- Recognizing the Need to Give More Attention to the Human Side of the Enterprise
- Recognizing the Need to be More Integrative
- Recognizing the Need to be More Technical

First, the "new" ISO 9000 standards.

2. The "New" ISO 9000 Standards

The new ISO 9000 standards are scheduled for publishing in late 2000, and the responsible technical committee is currently seeking comment from all concerned. Austenfeld (1996b) provides an in-depth look at the "old," or existing, standards. However, let us briefly review them here. The ISO 9000 standards are an outgrowth of the military standards that sought to impose quality requirements on contractors. As the efficacy of such standards became evident, national standards begin to emerge such as: the American National Standards Institute/American Society for Quality Control (ANSI/ASQC) C1-1968, *Specification of General Requirements for a Quality Program*; Britain's BS 5750 *Quality Systems*, BS 5179 *Guide to the Operation and Evaluation of Quality Assurance Systems*, and BS 4891 *A Guide to Quality Assurance*; and the Canadian Z 299 series. In 1979, as the need for an international standard grew stronger, the International Organization for Standardization (ISO) based in Switzerland establish TC 176. This technical committee was charged with the responsibility for developing such an international standard and, in 1987, produced to first version of the ISO 9000 standards. An improved version of the standards was issued in 1994 and, as mentioned, a new version is due out next year.

The "old" (existing) standards consist of five documents as follows:

- ISO 9000-1 *Quality Management and Quality Assurance Standards-Guidelines for Selection and Use*
- ISO 9001 *Quality Systems-Model for Quality Assurance in Design, Development, Production, Installation, and Servicing*
- ISO 9002 *Quality Systems-Model for Quality Assurance in Production, Installation, and Servicing*
- ISO 9003 *Quality Systems-Model for Quality Assurance in Final Inspection and Test*

- ISO 9004-1 *Quality Management and Quality System Elements-Guidelines*

As can be noted from the titles, there are two "guidelines" (ISO 9000-1 and ISO 9004-1) and three "models" (ISO 9001, ISO 9002, and ISO 9003). The models are the actual standards against which certification takes place; the guidelines help companies to select the appropriate model and use it in the most effective way.

ISO 9001 is the most comprehensive of the three models and applies to companies that are responsible for the entire product cycle from design through installation and servicing. The model covers twenty basic elements from "management responsibility" to "statistical techniques." See Appendix A for a complete list of elements. A typical situation where this model applies is when the contract between the purchaser and the supplier (the company interested in ISO 9000 certification) requires design effort and product specifications are primarily in performance terms.

ISO 9002 is the next most comprehensive of the three models and applies to companies that are responsible for the entire product cycle *except* design. The "design control" element does not apply. A typical situation where this model applies is when the contract between the purchaser and the supplier concerns a product that has an already-established design or specification; only the supplier's ability to produce, install, and service need demonstrating.

ISO 9003 is the least comprehensive of the three models and applies to companies that are responsible only for inspection and test of the product. The "design control," "purchasing," "process control," and "servicing" elements do not apply and several other elements are less comprehensive.

According to Young (1999) ISO 9000 certification has often led consumers to believe they will automatically be provided with a superior product or service. Unfortunately, such has not been the case. This is because the ISO 9000 standards are written more from a trade/contractual point of view. Also, as mentioned,

companies often don't see it as but part of a more comprehensive TQM program that is needed to ensure product/service superiority. Young makes this distinction by calling the pure ISO 9000 approach "quality assurance" and the more comprehensive TQM approach "quality management." For example, here are some of the factors Young lists as quality management initiatives but which are *not* explicitly addressed in ISO 9000 certification:

- Linkage/integration of strategic/business/improvement plans
- Customer needs and satisfaction
- Continuous improvement of processes and products
- Cycle time reduction
- Human resource development

Figure 1 (taken from Young,) also shows this distinction by indicating the different emphasis on various quality principles and practices.

Figure 1. Emphasis placed on principles/practices (from Young, 1999).

Quality Management (TQM)	Quality Assurance (ISO 9000)
employee support/empowerment	control/authorization procedures
continuous improvement	preventative/corrective actions
cross-functional activities	product/production functions
satisfaction of customers needs	contractual compliance
superior product features/performance	conformance to specification
self-assessments/benchmarking	internal and third part audits

Another indication of just how far short the ISO 9000 standards fall in addressing the full spectrum of quality management is a comparison that Young (1999) made between the criteria of the Canada Awards for Excellence (CAE) and the 20 elements of the ISO 9000 standards. The following list shows how many of the 20 elements are related to each of the six criteria:

- Leadership 3
- Planning 2
- Customer Focus 1
- People Focus 1
- Process Management 14
- Supplier Focus 1

If we take these six criteria as representing the essential elements of a comprehensive TQM program, then it is apparent that the ISO 9000 standards fall short in all areas except process management; and this area only as it relates to products and services. Young concludes that we should (1) consider applying what we know about process management to other areas such as administration and support and (2) think about what we need to do in those other five criteria areas to improve organizational performance. In fact, he then describes a procedure for doing just that—Canada's National Quality Institute (NQI) Quality Compass.

Given these shortcomings of the ISO 9000 standards, "is anyone listening?" Apparently they are since the new standards, due out next year, will definitely be more "TQM" oriented. According to Young (1999) these are the major changes being proposed for the next revision:

- the revised standards will be based on a commonly accepted set of quality management principles;
- the family of standards will be rationalized to a set of four core standards:

  ISO 9000 Concepts and Vocabulary

  ISO 9001 Quality Assurance Requirements[2)]

  ISO 9004 Quality Management Guidelines[3)]

  ISO 10011 Auditing Guidelines

2) The TC 176 home page (www.tc176.org) shows this as *Quality Management Systems—Requirements*.

3) The TC 176 home page shows this as *Quality Management Systems—Guidelines*.

- the scope of ISO 9001 will be broadened to include requirements for determining customer needs and satisfaction, customer communications, work environment and continuous improvement. (p. 11)

Note that there will no longer be an ISO 9002 or ISO 9003. Also, and more importantly, note the added emphasis on what the customer really wants/needs, improving the employee environment, and continuous improvement. It is apparent the new standards will look more and more like a set of criteria for improving all aspects of the business operation, not just those related to its product/service processes. Let us now turn to what have perhaps had the biggest influence in prompting changes to these standards, the awards programs; especially those in the United States and Canada.

3. The Quality Awards

According to Silverman & Propst (1999) 37 countries, Puerto Rico, and Western Europe have now developed national-type quality awards. These awards have done much to not only draw attention to quality but to serve as models for businesses to improve their operations. Quoting Young (1999) again:

> Although the number of applications for recognition are declining in North America many organizations, in both the private and public sectors, are using the framework and criteria of the CAE [Canada Awards for Excellence] and/or MBNQA [Malcolm Baldrige National Quality Award — the award given in the U.S.] programs as guides to implementing, assessing and continually improving their management systems and performance level. (pp. 11–12)

Because the MBNQA and CAE are perhaps the best known and often used as models for other programs, they will be described here.

The Malcolm Baldrige National Quality Award (MBNQA). Malcolm Baldrige was U.S. Secretary of Commerce from 1981 until 1987. The award was

named after him in recognition of his efforts in developing the act that established the award in 1987. Two awards may be given each year in each of three categories[4]:

- manufacturing companies or subunits
- service companies or subunits
- small business

Any for-profit business in the U.S. or its territories may apply for the award. According to the U.S. National Institute of Standards and Technology (NIST) (1999), which administers the award, its purposes are: "to promote an understanding of the requirements for performance excellence and competitiveness improvement and to promote sharing of information on successful performance strategies."

The award is given based on how an applicant scores on seven criteria (also called categories):

1. Leadership
2. Strategic Planning
3. Customer and Market Focus
4. Information and Analysis
5. Human Resource Focus
6. Process Management
7. Business Results

These criteria are, in turn, based on the award's eleven "core values and concepts":

1. Customer-Driven Quality
2. Leadership
3. Continuous Improvement and Learning
4. Valuing Employees

4) Fewer than two awards may be given if the standards of the award program are not met.

5. Fast Response
6. Design Quality and Prevention
7. Long-Range View of the Future
8. Management by Fact
9. Partnership Development
10. Public Responsibility and Citizenship
11. Results Focus

The seven criteria further breakdown into 19 items, each of which is evaluated and awarded points according to how well the applicant did in that area. For example, under Leadership there are two items: Organizational Leadership, worth a total of 85 points, and Public Responsibility and Citizenship, worth a total of 40 points. In all, 1000 points are possible. Appendix B shows all categories/items and their possible points.

The first step in the award process is for the applicant to provide data on each category. Appendix C is an extract of the 1999 criteria for the Leadership category to show the sort of information that is sought. This data is then evaluated by examiners drawn primarily from industry, professional and trade organizations, government agencies, and other not-for-profit groups. If the applicant scores high enough on the review of the written application, a site visit is conducted to verify the application information and clear up any questions.

The Canada Awards for Excellence (CAE). According to Young (1999) Canada has had national awards for quality since 1989. In 1995 the program was expanded to include not only private but public sector organizations such as those in health care, education, and government. Typical award categories are:

- large and small manufacturing organizations
- large and small service organizations
- health care organizations
- education organizations

The CAE program is administered by the National Quality Institute (NQI), a not-for-profit organization. According to NQI's home page, the purpose of the CAE is to recognize and reward excellence in all sectors — business, government, education and health care. This is in line with what NQI calls their mandate "to help you move 'Quality' from your mission statement into your workplace!" (NQI home page, 1999).

Similar to the MBNQA, the CAE has its seven criteria (also called "drivers" of quality):

1. Leadership
2. Planning for Improvement
3. Customer Focus
4. People Focus
5. Process Management
6. Supplier Focus
7. Organizational Performance.

These criteria are, in turn, based on the award's nine (in this case) "quality principles."

1. Cooperation, Teamwork, and Partnering
2. Leadership Through Involvement and Example
3. Primary Focus on the Customers
4. Respect for the Individual and Encouragement for People to Develop Their Full Potential
5. Contribution of Each and Every Individual
6. Process Oriented and Prevention-Based Strategy
7. Continuous Improvement of Methods and Outcomes
8. Factual Approach to Decision Making
9. Obligation to Stakeholders Including an Exemplary concern for Responsibility to Society

It should be apparent that these two awards are very similar. This means that the "art and science" of quality is probably becoming so mature that its essential elements are pretty well known and understood. However, the main point here is that even a cursory examination of these "core values" and "principles" reveals a very holistic approach to quality. One that goes far beyond conformance to a specification or defect prevention. In fact, the distinction between "quality" and simply "good management" is becoming less and less distinct. To show just how similar these two programs are, Young (1999) has (1) compared the CAE's principles with the MBNQA's core values and concepts and (2) compared the criteria sets. These comparisons are reproduced at Appendix D.

Young has also shown how this new, more holistic approach to quality (called Quality Management) differs from the days of simple "Quality Assurance" (QA). These differences are shown in Figure 2.

Figure 2. Differences between Quality Management and Quality Assurance (from Young, 1999).

	Quality Management	Quality Assurance
Basic Focus	Stakeholder* Satisfaction	Customer Confidence
Motivation	Internally Generated	Externally Imposed
Application Areas	Company-wide Operations	Product Related Line Functions
Key Participants	All Management and Staff (everyone!)	Quality Professionals and Line Management and Staff
Principal Drivers	Continuous Product and Process Improvements (competitiveness)	Proof of conformance of Product and QA System
Desired End-Goal	Achievement of Superior Business Results	Market Eligibility/ Advantage

* Stakeholders: customers, employees, owners, suppliers, and society

As we saw in Figure 1, which was with reference to ISO 9000, this holistic trend in quality awards is greatly influencing businesses to see quality as permeating the entire management process from strategy development to how you relate to your customers.

As a final comment to this section I would note that not only are many countries now rewarding good quality on the national level but there are many regional awards. For example, according to Hendricks and Singhal (1999) about 44 out of the 50 states in the U.S. have their own state-level awards. In Canada there are several regional and provincial awards for quality such as the Manitoba Quality Awards and the British Columbia Quality Awards Excellence Program. The recent growth of all these programs, often modeled on the quite comprehensive national programs, bodes well for the continued development and improvement of the quality profession. Now we will turn out attention to another trend that we already alluded to several times: more attention to the human side

4. Recognizing the Need to Give More Attention to the Human Side of the Enterprise

Young (1999, p. 12) includes a telling quote in his tutorial from Richard Barrett's *Liberating the Corporate Soul*: "Emotional and spiritual motivation, not physical reengineering, provide the ultimate answers to increased productivity and creativity." In other words, we haven't even begun to tap the enormous potential of our work force. As has been said so many times, "people are our most important resource"; however, we seldom act that way. Recently several articles and conference presentations have emphasized the importance of bringing people more and more into the "quality" equation. For example, Young's description of Quality Management (QM), as opposed to Quality Assurance (QA) shows these importance differences:

- employee support and empowerment versus control/authorization procedures

- employee (et al.) satisfaction versus emphasis on customer satisfaction only
- internally generated motivation versus externally imposed motivation
- making everyone a participant in quality initiatives versus only the quality professionals and line managers/staff

Also, as we saw above, the national standards emphasize the need to be "people focused." One of the MBNQA's core values/concepts is valuing people. And one of the CAE's principles says it even better: "Respect for the individual and encouragement for people to develop their full potential." Furthermore, each award's criteria include people focus as a major subset. As also mentioned above, the changes to ISO 9000 include improving the work environment so employees can satisfy their "physical, emotional, mental, and spiritual" needs. All this towards showing employees that we really care about them with the ultimate goal of better products and services for our customers.

This link between employee satisfaction and customer satisfaction apparently is finally being realized by more and more companies. In fact, some companies operate almost solely on the principle of employee satisfaction versus customer satisfaction in the belief the latter will automatically result from the former. One example of the link between employee and customer satisfaction, reported in the January/February 1998 *Harvard Business Review*, is cited by Silverman and Propst (1999). As part of a major turnaround effort, Sears, Roebuck and Company, a large U.S.retailer, developed an "employee-customer profit model" to see if improving employee satisfaction could be shown to be related to customer satisfaction. As the model was put into practice, Sears also learned better what things are important to its employees. As summarized by Silverman and Propst:

> This model demonstrates that a five-point increase in employee attitude (as measured through an employee survey) will drive a 1.3 point increase in customer satisfaction, which in turn drives a 0.5% improvement in revenues growth. Sears also found that 10 of the questions on its employee survey,

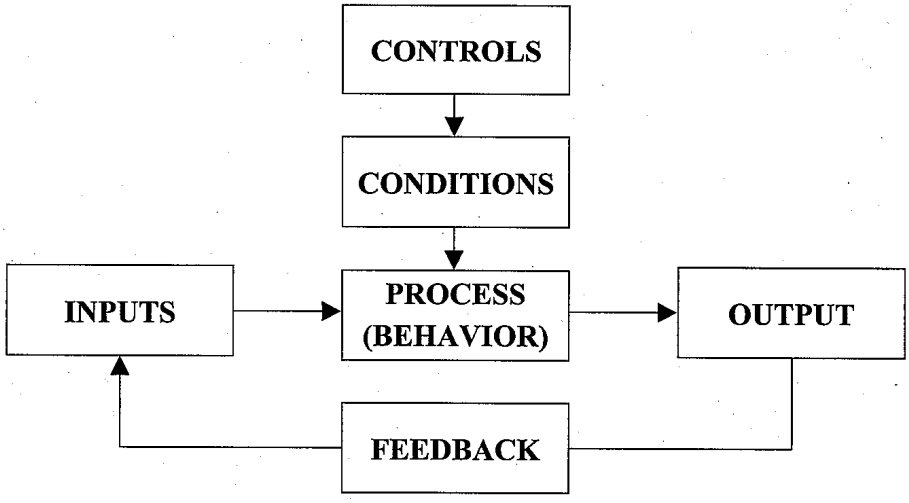
specifically those on personal growth and development and empowered teams, have a higher impact on employee attitude, and ultimately, customer satisfaction. (p. 54)

The idea that we've only begun to understand and tap the potential of humans is a theme echoed by Patton (1999). He claims we are still at the "primitive" stage as far as understanding and effectively using human behavior. Deming's classic, *Out of the Crisis* (1986), lists as the twelfth of his famous fourteen points: *Remove barriers that rob people of pride of workmanship*. He then goes on to cite example after example of things companies do that frustrate the typical production worker. For example:

A production worker told me that instructions for every job where she works are printed and visible, but that nobody ever read them more than halfway through. Anyone by the time she is halfway through is already so confused that she is afraid to go on; she could only be more confused. (p. 78)

Patton has develop a Behavioral Management System (BMS) shown in Figure 3

Figure 3. The Behavioral Management System (BMS) (from Patton, 1999).



to help management identify and eliminate these Deming barriers. The parts of the BMS are:

- Controls: Those things, often determined by management, that control the

process, such as policies and procedures, and including such things as *rewards and recognition systems, total compensation*, etc.

- Conditions: Other environmental elements such as the weather, tools availability, wear and tear, health, etc.
- Inputs: Things that initiate and are required for the process such as raw materials, customers, training, equipment, tools, staffing, and *process and performance feedback.*
- Process (Behavior): The behaviors and technical elements necessary to do the work and produce the output.
- Output: The final product/service.
- Feedback: Information provided to the performer that allows him/her to improve.

This model can be applied at any level from individual processes to a way to look at the entire company. By giving attention to each part of the model, managers can begin giving employees the support they need to make the company a truly high performer. For example, here are some questions a manager could ask based on the model: Are there any unnecessary controls? Do I provide my employees positive, objectively based feedback on performance? Do I work with my employees to continuously improve their processes? Do I share rewards with my employees for process improvements? And so forth.

Another "human" trend in the quality profession is the attention being given to creating "learning organizations." According to Cayer (1999), a learning organization is one that provides "an atmosphere of cooperation and learning that encourages innovation within the organization that is prepared to learn from mistakes" (p. 7). She lists these as the main characteristics of a learning organization:

- *Sharing of Values and Goals* — to give you the various perspectives of the different employees working towards the same goals.

- *Empowerment* — encouraging employees to make improvements within their respective areas and within the bounds specified.
- *Participatory environment* — encouraging employees to participate in the decisions of the organization and to submit ideas, and management acting on these ideas.
- *Innovation and Risk-taking* — not punishing someone because his or her idea failed and being willing to take calculated risks..
- *Continuous Improvement* — learning from experience and, when a problem is identified, doing a root cause analysis so the root cause can be eliminated. This also means being pro-active in improving processes; for example by benchmarking[5].
- *Continuous Learning* — instituting a training program to overcome skill/ knowledge gaps, making appropriate formal education programs available, and providing OJT and mentoring programs. This also means employees pursuing career-oriented courses and *a culture that says we learn from our mistakes*.

It is apparent from these characteristics that a learning organization is one that focuses on it people and really *does* consider them its most important asset. This idea of tapping the potential of the human psyche is also a theme of Tom Peters in his book *The Tom Peters Seminar* (1994). To give you a feel for how Tom Peters sees most companies, listen to this: "Most organizations bore me stiff. I can't imagine working in one of them. I'd be sad if my children chose to. Most organization, large and even small, are bland as bean curd" (p. 199). If an organization practices the characteristics of a learning organization, there is little chance of it being "bland as bean curd"; in fact, it should be a pretty exciting place to work. And, its product and services should also be first-rate.

Although we have mentioned the increased emphasis on people in the new ISO

5) For a good explanation of benchmarking, see Austenfeld (1996a).

9000 standards many articles have been written about how to go beyond the minimum requirements of the present standards and make your business truly worldclass when it comes to quality. Typical of these is one presented at a recent conference on quality by Marsha Ludwig-Becker (1999). In it she lists eight principles that represent a common sense interpretation of the present standards as a "CEO's formula for success." Principle 3 is involving people at all levels. This means, according to Ludwig-Becker, that everyone knows the leader's vision and feels they are a participant in working towards that vision. She believes one of the biggest difficulties in implementing such a culture is getting the middle managers (and probably below) to solicit input from everyone. Of course, it seems the logical approach would be to set up a systematic suggestion system. One of my favorite examples is the Toyota Motor company where, in 1995, there were 764,402 suggestions submitted by employees (Toyota Motor Corp., 1997). Of these, *99% were adopted* and the number of suggestions per employee was 14.0! Surely Toyota sees people as an important part of the quality equation and it has paid off.

5. Recognizing the Need to be More Integrative

Silverman and Propst (1999) identify this as one of the recent important trends in the quality profession. The quality profession developed in a somewhat piecemeal fashion — going from "inspection/conformance" in the 1970s and before to the various parts of TQM such as teamwork, empowerment, and continuous improvement. Then, when TQM failed to deliver because of unrealistic expectations, organizations began to turn to other "programs of the month" such as reengineering and what Silverman and Propst call personal principle-centered change (e.g., the ideas of Steven Covey[6]). The question then is, according to Silverman and Propst, can we develop an integrated approach to quality that will

6) See, for example, Covey's *The 7 Habits of Highly Effective People* (1989).

bring all these disparate approaches together into a unified and effective whole? Something like TQM started to do but, it seems, fell short by not seeing the whole business picture. As Silverman and Propst express it:

> What if the tools and methods that have been bantered about over the past 20 years are actually part of a single coherent picture? What if there are synergies to be gained through using them in concert with each other? What if there is a unified way to organize and apply these seemingly disconnected approaches to achieve the business results that organizations have not yet realized? (p. 56)

To answer these questions, Silverman and Propst cite the results of "45 in-depth interviews and research on the workplace of the future"[7] where five areas of practice were identified that, if conscientiously pursued, should lead to "market leadership and competitive advantage." These are:

- Quality assurance
- Problem resolution
- Alignment and integration
- Consumer obsession
- Spiritual awakening

If the reader is beginning to feel that he/she has heard this before, it is not surprising since a lot of what has been discussed in the paper already has suggested this is a direction the quality profession must go and, indeed, is going. Let's take a brief look at each area of practice and consider how it is already being addressed.

Quality assurance. This might be considered a minimum requirement for providing good quality; ensuring conformance with the customer's requirements and is best seen in a conscientious implementation of an ISO 9000 compliant quality management system.

7) No details given.

Problem resolution. This practice area embodies the next phase of the quality movement that evolved into TQM; that is, not just ensuring conformance but continuously improving our processes and products/services. Included in this area are training in problem solving, process improvement through the use of statistics, working closely with our suppliers, and just-in-time inventory systems[8].

Alignment and integration. Here we're talking about ensuring our strategy is linked to our customer requirements and everything in between such as our performance objectives, measurement and information systems, culture, and organization. This is perhaps one of the most difficult areas to implement because businesses are still not that used to doing the hard thinking about the organization's mission, values, assumptions, and guiding principles and working to mold a culture that will be in alignment with these things. Cayer (1999) makes this a key element in the development of a learning organization; that is, having shared values and goals. In their study of organizational learning, Meegan, et al. (1999) developed the concepts of "executive intent"[9] and "shared mindset." According to Meegan, et al., it is not enough for the managers to have the executive intention to improve the organization, they must take whatever steps are necessary to ensure the management team (and, I would add, everyone) understands this intention so they can work towards the organization's objectives. Of course this is just good strategic management but, unfortunately, it is often (usually?) not practiced — maybe because the senior managers themselves often don't have a clear idea about where the organization should be headed.

Consumer obsession. What Silverman and Propst are talking about here are

8) A just-in-time inventory system seeks to minimize the amount of inventory a company must hold by working closely with its suppliers so that only the amount of supplies needed for, say, each day are delivered. Needless to say, supplier quality and reliability become paramount to make such a system work. However, the benefits in costs savings and, incidently, much better supply quality, are usually well worth the effort.

9) This concept is similar to the important military concept of "commander's intent."

systematic approaches for: creating value for the customer, anticipating future customers needs, using competitive intelligence, innovating, etc. As we've seen, this idea is already embodied in both the U.S. and Canadian national quality awards with their categories for "Customer Focus." Also it is, at least in general, very much a part of TQM which advocates not just satisfying a customer's wants/needs but going beyond that to delight the customer. By highlighting this area of practice here, it is probably being suggested that we need to do more "operationalizing" of just how we will strive to do this delighting.

One additional approach which is gaining favor these days is targeting customers on an individual basis—something Peppers and Rodgers (1993) predicted as a future trend. This "one to one" marketing is especially playing an important role in the ever expanding world of e-commerce since it becomes quite easy to track consumer preferences over the Internet.

Spiritual awakening. This one I found a bit flaky as far as the Silverman and Propst explanation. For example, the aim of this area of practice is "to improve life for everyone on the planet and to manage the planet as a total system" (p. 58). However, I believe this area would encompass the "People Focus" categories of the two national awards and all the other things mentioned under Section 4 of this paper such as creating a learning organization and employing a model such as the BMS to remove barriers to employee performance. Also included here is the idea of being a "good corporate citizen" and not just "not polluting" but taking positive steps to make the community and world a better place.

6. Recognizing the Need to be More Technical

This trend can be seen as a counterbalance to the "need to be give more attention to the human side of the enterprise; the "softer" side of quality. In some quarters it is feared the quality profession has forsaken it roots in statistical quality control and gone *too* "soft." As Gunter (1998) says "It's a lot easier to send everyone

through a class on how to hold better meetings or improve interdepartment communications than it is to learn SPC or experimental design" (p. 113). Gunter not only calls for a return to a more technical approach for ensuring quality products and services, he also see the need to look to *new* technical approaches. Why won't the traditional control charts of the past suffice today?

> For the most part, we no longer have production lines manually producing physical goods, a few of which are laboriously measured and recorded. Rather, if we manufacture at all, we do so on automated lines on which data of all sorts — process conditions, environmental conditions, product conditions — are routinely measured and recorded every few milliseconds or so. Moreover, we measure not one property of a product (the resistance of a resistor, for example), but simultaneously hundreds or thousands (for instance, electrical characteristics of an integrated circuit, or dimensions and ultrasonic readings of a complex assembly). (Gunter, 1998, p. 117)

And as for the service processes:

> And service processes are still worse. Long-distance companies routinely record and save details on every single call that is made (start, duration, distance, time of day, and so on). This can amount to literally billions of records a month. (p. 117)

So what are we to do? Well fortunately, according to Gunter, there are plenty of new statistical tools available[10]; however, it may take a little digging to find the software and effort to learn how to use them. Gunter, a long time quality professional in the field of statistics, says quality engineering seems to be falling further and further behind the other professions in the use of statistics.

Despite Gunter's bleak view of things, there are apparently some companies that are taking advantage of these new and more sophisticated statistical techniques.

10) For example: multivariate analysis, data reduction, mixed models and Bayesian methods using Gibbs sampling, and time series just to mention a few.

Silverman and Propst (1999) cite two: AlliedSignal and General Electric.

> The underlying assumption in these two organizations is that the proper use of six sigma[11] and its accompanying technical tools (i.e., contingency tables, t-tests, design of experiments (DOE), and regression analysis) will lead to defect rates of less than 3.4 defects per million, which will ultimately lead to increased profitability and market share. (p. 59)

And Silverman and Propst agree with Gunter that the traditional basic tools of quality will no longer suffice. However, they do believe that, as the situation calls for it, the basic tools can still find a place in organizations. However, many of today's processes are just too complex to be controlled and improved with only the use of these traditional methods.

7. Conclusions

This paper has tried to briefly describe some of the major trends in today's quality profession. These are: a "new," more holistic ISO 9000 standard due out next year, the increased popularity of national and state/regional quality awards, a recognition of the need give more attention to the human side of the enterprise, a recognition for the need to take a more integrative approach to quality, and a recognition of the need for a more technical approach to quality. Hopefully these positive signs bode well for making the profession even more relevant in today's high-paced business world.

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APPENDIX A (page 1 of 2)

THE TWENTY ELEMENTS OF THE ISO 9000 SERIES

Note: Under the ISO 9002 and ISO 9003 columns, "np" = ISO 9001 element not present and "lc" = ISO 9001 element present in less comprehensive form.

ISO 9001	ISO 9002	ISO 9003		
1		lc	Management responsibility	Define, document and communicate quality policy; appoint management representation for periodic review to ensure continuing suitability of quality system.
2		lc	Quality system	Write and maintain quality manual that meets criteria of applicable ISO 9000 standard (9001, 9002, 9003) to ensure conformity to requirements.
3			Contract review	Review contracts to assure requirements are adequately defined and assure capability exists to meet requirements.
4	np	np	Design control	Verify product design to ensure requirements are being met and procedures for design planning and design changes are in place.
5			Document and data control	Establish and maintain procedures for controlling documentation through approval, distribution, change, and modification.
6		np	Purchasing	Ensure purchased products conform to requirements.
7			Customer-supplied product	Verify, store, and maintain purchased items.
8		lc	Product identification and traceability	Identify during all stages of production, delivery, and installation.
9		np	Process control	Ensure production processes are carried out under controlled conditions-documentation, monitoring, use of approved equipment, criteria for workmanship.
10		lc	Inspection and testing	Inspect and test with a record of maintenance at all stages.

APPENDIX A (page 2 of 2)

THE TWENTY ELEMENTS OF THE ISO 9000 SERIES (continued)

Note: Under the ISO 9002 and ISO 9003 columns, "np" = ISO 9001 element not present and "lc" = ISO 9001 element present in less comprehensive form.

ISO 9001	ISO 9002	ISO 9003		
11			Control of inspection, measuring, and test equipment	Calibrate and maintain equipment, including documentation of maintenance procedures.
12			Inspection and test status	Label products throughout all stages of production.
13		lc	Control of non-conforming product	Avoid inadvertent use of non-conforming product.
14		lc	Corrective and preventive action	Investigate causes of non-conformance, take action to rectify, and create controls to prevent in future.
15			Handling, storage, packaging, preservation, and delivery	Properly handle, store, and deliver products.
16		lc	Control of quality records	Identify, collect, index, file, and store all records relating to quality system.
17		lc	Internal quality audits	Create a system of internal audits to determine if activities comply with requirements.
18		lc	Training	Identify needs and provide training of personnel.
19		np	Servicing	Perform service as required by customer contract.
20		lc	Statistical techniques	Identify statistical techniques used in process, product, and service.

APPENDIX B

THE MALCOLM BALDRIGE NATIONAL QUALITY AWARD (MBNQA) ITEM LISTING

	1999 Categories/Items	Point Values	
1	**Leadership**		**125**
	1.1 Organizational Leadership	85	
	1.2 Public Responsibility and Citizenship	40	
2	**Strategic Planning**		**85**
	2.1 Strategy Development	40	
	2.2 Strategy Deployment	45	
3	**Customer and Market Focus**		**85**
	3.1 Customer and Market Knowledge	40	
	3.2 Customer Satisfaction and Relationships	45	
4	**Information and Analysis**		**85**
	4.1 Measurement of Organizational Performance	40	
	4.2 Analysis of Organizational Performance	45	
5	**Human Resource Focus**		**85**
	5.1 Work Systems	35	
	5.2 Employee Education, Training, and Development	25	
	5.3 Employee Well-Being and Satisfaction	25	
6	**Process Management**		**85**
	6.1 Product and Service Processes	55	
	6.2 Support Processes	15	
	6.3 Supplier and Partnering Processes	15	
7	**Business Results**		**450**
	7.1 Customer Focused Results	115	
	7.2 Financial and Market Results	115	
	7.3 Human Resource Results	80	
	7.4 Supplier and Partner Results	25	
	7.5 Organizational Effectiveness Results	115	
	TOTAL POINTS		**1000**

APPENDIX C (page 1 of 2)

EXTRACT FROM THE MALCOLM BALDRIGE NATIONAL QUALITY AWARD (MBNQA) CRITERIA (LEADERSHIP ITEM)

1999 CRITERIA FOR PERFORMANCE EXCELLENCE

1 Leadership (125 pts.)

The *Leadership* Category examines how your organization's senior leaders address values and performance expectations, as well as a focus on customers and other stakeholders, empowerment, innovation, learning, and organizational directions. Also examined ia how your organization adresses its responsibilities to the public and supports its key communities.

1.1 Organizational Leadership (85 pts.) **Approach – Deployment**

Describe how senior leaders guide your organization and review organizational performance.

Within your response, include answers to the following questions:

a. Senior Leadership Direction
   (1) How do senior leaders set, communicate, and deploy organizational values, performance expectations, and a focus on creating and balancing value for customers and other stakeholders? Include communication and deployment through your leadership structure and to all employees.
   (2) How do senior leaders establish and reinforce an environment for empowerment and innovation, and encourage and support organizational and employee learning?
   (3) How do senior leaders set directions and seek future opportunities for your organization?

b. Organizational Performance Review
   (1) How do senior leaders review organizational performance and capabilities to assess organizational health, competitive performance, and progerss relative to performance goals and changing organizational needs? Include the key performance measures regularly reviewed by your senior leaders.
   (2) How do you translate organizational performance review findings into priorities for improvement and opportunities for innovation?
   (3) What are your key recent performance review findings, priorities for improvement, and opportunities for innovation?
   How are they deployed throughout your organization and, as appropriate, to your suppliers/partners and key customers to ensure organizational alignment?
   (4) How do senior leaders use organizational performance review findings and employee feedback to improve their leadership effectiveness and the effectiveness of management throughout the organization?

Note:

Organizational performance results should be reported in Items 7.1, 7.2, 7.3, 7.4, and 7.5.

Item responses are assessed by considering the Criteria Item requirements and the maturity of your approaches, breadth of deployment, and strength of your improvement process relative to the Scoring System. Refer to the Scoring System.

For definitions of the following key terms, click here: alignment, innovation, measures, performance, and value.

For additional description of this Item, click here.

APPENDIX C (page 2 of 2)

EXTRACT FROM THE MALCOLM BALDRIGE NATIONAL QUALITY AWARD (MBNQA) CRITERIA (LEADERSHIP ITEM) (continued)

1.2 Public Responsibility and Citizenship (40 pts.) **Approach – Deployment**

Describe how your organization addresses its responsibilities to the public and how your organization practices good citizenship.

Within your response, include answers to the following questions:

a. Responsibilities to the Public

(1) How do you address the impacts on society of your products, services, and operations? Include your key practices, measures, and targets for regulatory and legal requirements and for risks associated with your products, services, and operations.

(2) How do you anticipate public concerns with current and future products, services, and operations? How do you prepare for these concerns in a proactive manner?

(3) How do you ensure ethical business practices in all stakeholder transactions and interactions?

b. Support of key Communities

How do your organization, your senior leaders, and your employees actively support and strengthen your key communities? Include how you identify key communities and determine areas of emphasis for organizational involvement and support.

Notes:

N1. Public responsibilities in areas critical to your business also should be addressed in Strategy Development (Item 2.1) and in Process Management (Category 6). Key results, such as results of regulatory/ legal compliance or environmental improvements through use of "green" technology or other means, should be reported as Organizational Effectiveness Results (Item 7.5).

N2. Areas of community support appropriate for inclusion in 1.2b might include efforts to strengthen local community services. education, teh environment, and practices of trade, business, or professional associations.

N3. Health and safety of employees are not addressed in Item 1.2; these are addressed in Item5.3.

APPENDIX D

A COMPARISON OF THE PRINCIPLES/CORE VALUES AND CRITERIA OF THE CAE AND MBNQA (from Young, 1999)

Similarities Between the CAE and MBNQA Programs

The CAE and MBNQA criteria are based upon a similar set of management principles as shown in the following table.

Canada Quality Principles	Baldrige Core Values and Concepts
Co-operation, teamwork and partnering	Partnership development
Leadership through involvement and by example	Leadership
Primary focus on customers	Customer-driven quality
Respect for the individual and encouragemeent for people to develop their full potential Contribution of each and every individual	Valuing employees
A process-oriented and prevention-based strategy	Design quality and prevention
Continuous improvement of methods and outcomes	Continuous improvement and learning
Factual approach to decision-making	Management by fact
Obligation to stakeholders, including exemplary concern for responsibility to society	Company responsibility and citizenship Long range view Fast response Results focus

Both criteria sets:

· contain a similar content and cover similar ground

· employ almost identical evaluation systems

· employ an "approach" deployment, results' logic

· call for continuous improvement of the management system

· group the elements of the management system into à similar set of subsystems (starting withe 'Leadership' and culminating in 'Organizational Performance' as shown below.

Canada Awards for Excellence	Malcolm Baldrige National Quality Awards
1. Leadership	1. Leadership
2. Planning	2. Strategic Planning
3. Customer Focus	3. Customer and Market Focus
	4. Information and Analysis
4. People Focus	5. Human Resource Focus
5. Process Management	6. Process Management
6. Supplier Focus	
7. Organizational Performance	7. Business Results