



Excellence through People, Processes, and Performance

By Connie Borrer, Guest Editor

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Correction Notice

The authors have issued a correction for the article in the Summer 2010 QMF titled "Comparison of Regression and Control Charts: Using Time Series Analysis in Public Health Departments," by Riley and Erwin. The paragraph above Table 1 should have the words "accepted" and "rejected" switched for one another.

The full, corrected version has been posted on the QMD website at http://www.asq-qmd.org/2010_Newsletters.

Bruce DeRuntz, Editor

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In keeping with the theme of the upcoming 23rd QMD Annual Conference, *Excellence through People, Processes, and Performance*, several experts were invited to submit articles on a topic of their choice related to the conference theme and its importance to organizational excellence. The authors' areas of expertise include quality management and process improvement in diverse fields.

The common threads linking the five articles are the necessity for leadership involvement (not just support), integration, and collaboration to achieve high-impact quality improvements that last. Each article emphasizes the need to integrate seemingly disjointed functions and departments within an organization and collaboration among all levels to achieve breakthrough quality improvement. The authors directly and indirectly stress the need for paradigm shifts to bring about significant and long-term process improvements.

Dr. Howard Fuller and Mr. Andrews Jones of Fuller, Jones & Associates write about achieving performance excellence through changing key behaviors of the people involved in the problem solving process within an organization. The authors describe how they have seen these fundamental behaviors affect system-wide performance, based on their extensive experience in implementing successful quality management systems and performance improvement programs in a variety of market segments.

Dr. Elizabeth Cudney, assistant professor at the Missouri University of Science and Technology, discusses a strategic approach to integrating Lean principles and Six Sigma for process improvement and long-term success of an organization. She describes how Hoshi Kanri can be used to identify strategic goals and to integrate these with the organization's day-to-day activities to achieve long-term success.

Mr. Alex Sewell of the United States Air Force describes a continuous improvement initiative titled *Air Force Smart Operations for the 21st Century* (AFSO 21). This methodology integrates Lean and Six Sigma tools as well as a decision-making model, *Observe, Orient, Decide, Act* (OODA). The author provides a detailed outline of the AFSO 21 process as well as challenges he has encountered during implementation.

The team of Drs. Ronald Does, Jaap van den Heuvel, Jeroen de Mast, and Gerard Niemeijer discuss quality improvement in health care through the improvement of health care delivery. In this framework, the authors discuss three definitions of "quality" and describe how these definitions may be used to help clarify misunderstandings about the relationship between quality and cost; that is, the perceived trade-off between improving quality and reducing costs.

The final article provides food for thought by asking, "What methodology will replace our current approaches to quality improvement?" Dr. Roger Hoerl of General Electric and Dr. Ron Snee of Snee Associates first discuss how to identify when or *if* a new approach to quality improvement is needed, and then they present a detailed outline of a holistic improvement system.

I am very honored to have been invited to be guest editor for the Fall *Quality Management Forum*, and I hope you enjoy reading the articles. You might be interested to know that all the authors from this edition of the QMF have been invited to present at the 2011 QMD Annual Conference.

I dedicate this collection of articles to the memory of Dr. Søren Bisgaard.

Chair's Message

By Jd Marhevko



Serving as the QMD chair for the past year has been a tremendous learning experience! The help and support I've received from our extensive network of quality professionals has been incredible. Along these lines, our council is currently in the midst of heavy preparations for the 2011 QMD Conference to provide knowledge content and networking opportunities to our membership. As such, this edition of the QMF is linked to the conference theme of *Excellence through People, Processes and Performance* and features several articles that follow this theme.

Please mark your calendars for the **23rd Annual Quality Management Conference** to be held on **March 17–18, 2011** at the Rosen Centre hotel in Orlando, Florida. Pre-conference courses will be run on March 14–16. ASQ certification exams will be held after the conference on Saturday, March 19th. You can find out more at our QMD website (www.asq-qm.org).

The QMD has partnered with the Rosen as a hosting location for multiple business reasons, including the fact that the hotel site is fewer than 12 minutes from the airport, SeaWorld, Universal Studios, Walt Disney World, and many more attractions! Also, the Rosen conducts its events in specific ways to reduce their environmental impact. They won the Legacy Award, Sustainable Florida's highest honor, in 2009.

Ms. Heather McCain, the QMD's past-Chair, is the 2011 Conference Chair. Along with some of our key movers and shakers, such as Ellen Quinn (VC of Marketing), Mike Ensby (Program Chair), Thane Russey (Courses Chair), Steve Bogar (Sessions Chair), Bill Hackett (Arrangements Chair), Heather and dozens of others are working hard to put together a valuable and memorable event.

We've had many talented professionals submit papers, workshops, and courses for this event. Submitters include practitioners from cross-cutting industries such as logistics, medical, retail, manufacturing, education, the military, and more. The conference will offer many learning opportunities related to proven approaches, valuable tools, and successful strategies for achieving *Excellence through People, Processes and Performance*. The keynote speakers for the conference include:

- **Ms. Lynne Waymon**, co-founder and CEO of the consulting and training firm *Contacts Count*, which specializes in business and professional networking. Ms. Waymon is the co-author of *Make Your Contacts Count*, and she is also an award-winning speaker from the National Capital Speakers Association.

- **Mr. Jerry Ross**, Executive Director of the Disney Entrepreneur Center (DEC). Jerry is an entrepreneur and businessman whose three decades of experience include leadership positions with AT&T, Ohio Bell, Goal Systems Software, and a variety of entrepreneurial ventures. The DEC is a unique public/private partnership that houses 13 independent organizations dedicated to the education, support, and development of the small business community.
- **Mr. John Timmerman**, Vice President of Quality at Marriot. John is an accomplished speaker and will be sharing his experience and knowledge on the topic of service quality and performance improvement. He is a Senior Member of ASQ and a recipient of the Ishikawa Medal for his contributions to the human aspects of quality. He has been actively involved in supporting health care improvement with organizations such as the Institute for Healthcare Improvement, Denver Health, and the Center for Healthcare Transformation.
- **Mr. Mike Micklewright**, President of QualityQuest, a job he has held for over 15 years. Mike is the author of *Lean ISO 9001: Adding Spark to your ISO 9001 QMS and Sustainability to your Lean Efforts* and *Out of Another @#&*% Crisis*. He is a Lean and quality consultant, a trainer and facilitator, and a Deming impersonator and comedian.

To help you see what our conference sessions are like, the QMD converts selected sessions into podcasts, which are available to you on our website. The link to the podcasts from our 2009 QMD Conference is <http://www.asq-qmd.org/2009podcasts>. Also, please remember that you can also view this and previous issues of the QMF at <http://www.asq-qmd.org/qmd-forum-newsletter>.

Please keep in touch and e-mail any comments or suggestions to me at Jd.Marhevko@spx.com or JD.Marhevko@Verizon.net. I truly hope that you enjoy this special edition of the *Quality Management Forum*, and I hope to see you in Orlando!

Jd Marhevko
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ASQ QMD Chair

FALL 2010

Behavior-Based Performance Excellence

By Howard T. Fuller, PhD, and Andrew M. Jones

When considering *Excellence through People, Processes, and Performance*, the key word that comes to mind is *behavior*. In our experience, the path to achieving performance excellence is through transforming the *behaviors* of how people improve and manage processes. Ultimately, if process improvement and process management behaviors are insufficient, the speed and effectiveness of improvement will not allow an organization to achieve or sustain performance excellence. In what follows, we outline some of the key behaviors in both process improvement and process management.

Process Improvement

The ability of an organization to solve problems is directly related to the behaviors of its people in the problem solving process. Interestingly enough, people often use the word *behavior* in their private lives, but rarely think of the explicit meaning as applied in a business context. The dictionary defines *behavior* as “an action or reaction to stimuli.” Applied to the business world where the stimuli are business problems, this translates to the following question: How does an organization respond to a business problem? To achieve performance excellence, the answer needs to be pursued in a collaborative, objective manner that drives cross-functional accountability to the end-to-end process (Kettley and Hirsh, 2000). Unfortunately, however, the functional nature of most organizations does not naturally facilitate this behavior in problem solving. Moreover, in an effort to achieve results quickly, organizations consistently shoot themselves in the foot by driving the wrong problem solving behaviors that, in the end, make the cycle take longer or break the effort altogether. In this section, we discuss a few of the

key behaviors people need to exhibit as part of solving problems on a path towards performance excellence.

- **Explicitly state all key deliverables in the problem solving process.** Explicit deliverables in the problem solving effort drive a clear understanding and mindshare, allowing more collaborative discussion. Too often, many aspects of the problem solving effort exist only verbally (the implicit deliverable). When an implicit approach is taken, often in an attempt to accelerate the process, considerable confusion and frustration arise. The effect of this is a poor team dynamic and time added to the effort, the opposite of what is typically intended. As an example, don't assume everybody understands and agrees about the problem statement; write it down, discuss it, and avoid unnecessary future conflict. It's as simple as writing and discussing, “The XYZ process is not well understood; it is complex and inefficient, causing A, B, C and D to occur...” (which, by the way, covers about 90% of the problems typically seen). Repeat this level of explicitness for all deliverables in the problem solving effort.
- **Use a Socratic approach (ask questions rather than make statements) to drive self-realization and significantly reduce change management obstacles.** Asking questions of each other and allowing people the short amount of time needed to discover the answer is the fastest way to making progress. In the interest of speed, people oftentimes think that showing others how they are wrong or making mandates will speed things along. However, like the implicit approach, it creates a poor team dynamic and causes the process to take much longer.
- **Approach the problem through understanding of the underlying process and data.** Be sure to include all those making significant contributions to the process. Doing this is critical to the team's self-realization of the cross-functional dependencies. Oftentimes it is the team's collective realization of those dependencies that allows breakthroughs. One of the most powerful questions team members can ask of themselves and each other is, “What about the process causes xyz to occur?” And if the answer is, “Because MORE is needed,” then ask, “What about the process requires more?” Using the Socratic questioning process to capture the answers will foster a positive team dynamic that will contribute to a new problem solving behavior. Note that you must also capture the data that support the answers.
- **Avoid the “silver bullets.”** The most common forms of silver bullets are the IT-type solutions, the new measure, the new policy, the best practice, or the new initiative. The reality is that IT systems rarely fix processes (Burris, 2006) but rather enable real-time web-based visibility of just how bad they are. The policy/measure/best practice/new initiative approach typically has unintended consequences and is usually indicative of organizations that are not effective at problem solving and/or process management. Thus, as a last resort they turn to the quick fix. This is not to say these so-called silver bullets don't have a place in problem solving; they do. However, the process needs to be fixed first and then supported with these other pieces, as appropriate. Much to the surprise of those who follow our

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recommended behaviors, they often find the process solutions do not require any silver bullet components.

In the next section, we discuss key process management mechanisms that are critical to driving the right process management behaviors.

Process Management

There are several fundamental concepts that are key to understanding process management as an organizational construct. Certainly having a clear understanding of what the key end-to-end processes are is an excellent starting point. Further understanding how efficient and effective these processes are in terms of profitably meeting or exceeding their customer requirements is also essential. Following a fundamental truism that “You measure what you value, and measures drive behavior,” identifying the right process measures will drive the right organizational behaviors ensuring process effectiveness (Ahls, 2001). A fundamental mistake is to subscribe to the belief that it is better to measure everything instead of just the critical few. This would be analogous to a general shouting out ten orders at once at the beginning of battle, rather than a single order. The single order drives clarity and alignment, while the ten orders drive confusion and frustration, or worse. Last but not least, employees need “line of sight” to the key outcomes so there is alignment of work effort at all levels of the organization. There are several behaviors important to achieving effective process management, a few of which we outline here.

- **Manage the process end-to-end.**
A key aspect of end-to-end process management is establishing process owners. Most organizations are functional based, so this is not a trivial matter since the large core processes cut across functions. Selecting the best fit for the overall process owner and the contributing

segment owners is typically the best that can be done. Because this type of cross-functional accountability to the end-to-end process is not something that naturally evolves in organizations, the team should build on the problem solving efforts to establish such a structure, even if the lines of reporting don't follow the process. This group would then need to meet regularly (monthly) to review the process measures and determine where the continuous improvement efforts need to be focused. Finally, ensuring that the anticipated progress is actually being achieved is a critical component for a systematic improvement capability to be successful.

- **Measure only what you need to.** As mentioned previously, “You measure what you value and measures drive behavior.” However, establishing the right measures with the right owners of the measures continues to be a challenge for most organizations. A simple set of test questions for any measure includes: Who are your customers? What do they want? and, How effectively and profitably are you meeting their requirements? As unbelievable as this might sound, few companies can effectively respond with data to those questions. For any given process, there may be 5–10 high-level process steps, all of which can be measured. The key is to understand which measurements will have the most leverage when improved. Once the maturity of the data being collected improves, the causal/correlation relationships can be tested and verified with data.
- **Align processes, people and measures to achieve “line of sight.”** For an organization to achieve performance excellence, everyone must know their position and how critical it is to supporting the organization's overall objectives. This is similar to the overused but correct analogy of each player on a sports team needing to understand his/her role in the context of what the team is solving for. In sports, this type of management behavior is

not even questioned—it is expected. Why it is not as readily required in organizations is a significant opportunity missed. Having said that, there are systematic ways to accomplish just such workforce alignment. While the senior leadership is responsible for clearly setting the direction for the organization, it is the job of the management team to ensure the workforce is sufficiently and efficiently engaged to that end. Too often this is not the case, and “managing up” activities override the essential “support workforce success” related activities. Oftentimes, a simple orientation to an employee or work group regarding how they are directly or indirectly impacting what the company as a whole is solving for (using metrics as an alignment vehicle) is enough to drive an entirely new level of understanding into their world. This, in turn, empowers these employees and work groups to be significantly more effective in their process roles and also significantly improves employee satisfaction.

Having a vertically integrated workforce aligned to the core organizational processes is a necessary component towards achieving performance excellence. The extent to which the desired performance results are realized is directly related to the level of “fire in the belly” of the leadership team. Leadership must address the challenges of continuously improving an organization's self-improvement capabilities and thereby create a performance-driven culture.

Leadership's Role

For all the items mentioned, one final point should not be overlooked: it's up to the leadership to set the example (Kotter, 1996). Employees at every level emulate the behaviors of their boss, following another fundamental truism of “Whatever is important to my boss is completely fascinating to me.” Thus, if the leadership shows *interest* in the process improvement and process management behaviors

described above, the employees will be fascinated and follow suit. The reverse is also true. No amount of talking about, measuring, or driving through policy of employee behavior will overcome leadership's inability to demonstrate the behaviors that are needed to achieve performance excellence.

Summary

In this article we have discussed several of the critical process improvement and process management behaviors necessary to achieve performance excellence. And much like getting in shape and maintaining one's weight and health through life changes, achieving and sustaining performance excellence also requires behavioral changes. While the behavior change can be difficult, like the first few times going to the gym,

the long-term benefits—which include improved business results, increased value-add work, satisfied customers and employees—make it well worth the effort.

References

- Ahls, B. (2001). Organizational behavior: A model for cultural change. *Industrial Management*, 43:4.
- Burris, S. (2006). The missing 'discovery' link to successful business process management. SYS-CON Media, Inc. <http://ne.sys-con.com/node/284590>
- Kettley P., and Hirsh, W. (2000). Learning from cross-functional teamwork, Report 356, Institute for Employment Studies. ISBN: 978-1-85184-285-8.
- Kotter, J., (1996). *Leading change*, Cambridge, MA: Harvard Business School Press.

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Achieving Excellence In Health Care: Baldrige Recipients Speak Out

November 10, 2010, Chicago, IL

The Lincoln Foundation presents Achieving Excellence in Healthcare—a one day conference featuring Baldrige recipients sharing knowledge about how they improved clinical and operational quality. The keynote speakers include:

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- Mike Murphy—Sharp HealthCare
2007 Baldrige Recipient
- Rulon Stacey—Poudre Valley Health System
2008 Baldrige Recipient
- Priscilla Nuwash—Poudre Valley Health System
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- David Fox—Advocate Good Samaritan Hospital
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In three afternoon workshops, physicians and experts explain how to drive excellence in measurements, leadership, and patient focus—key areas that impact operational performance and cost.

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Strategic Quality Improvement through Hoshin Kanri

By Elizabeth A. Cudney, PhD

Introduction

Today, irrespective of industry, corporations must focus on speed, efficiency, and customer value to be globally competitive. Lean and Six Sigma are both powerful tools to improving quality, productivity, profitability, and market competitiveness.

Six Sigma is a customer-focused, continuous improvement strategy and discipline that minimizes defects and variation towards a goal of 3.4 defects per million opportunities in product design, production, and administrative processes. It focuses on customer satisfaction and monetary results by reducing variation in processes. Six Sigma is also a methodology using a metric based on standard deviation(s). Six Sigma targets aggressive goals, such as developing a world-class culture, developing leaders, and supporting long-range objectives. Six Sigma strategy consists of five main phases: Define, Measure, Analyze, Improve, and Control (DMAIC).

Lean principles have enabled corporations to achieve significant economic benefits while improving quality, costs, and cycle time. The Lean approach focuses on the identification and elimination of waste in production industries, product development industries, and service industries. Although Lean principles were originally developed by Toyota for automobile manufacturing, they are increasingly being applied to businesses with many routine processes in support functions.

Lean focuses on eliminating waste and improving flow using proven methods pioneered by the Toyota Manufacturing Company under the banner of the Toyota Production System (TPS). Lean is applied to improve the flow of information and material. Waste stems mainly from unnecessary delays, tasks, costs, and errors. The seven “wastes” of Lean are overproduction, transportation, inventory, processing, waiting, motion, and defects. These wastes can also be applied to support functions such as procurement, engineering, invoicing, inventory control, order entry, scheduling, accounting, and sales.

The primary focus of Lean is on the customer, to address value-added and non-value added tasks. Value-added tasks are the only operations for which the customer is ready to pay. The idea in creating flow in Lean is to deliver products and services just in time, in the right amounts, and at the right quality levels at the right place. This means that products and services must be produced and delivered only when a pull is exerted by the customer through a signal in the form of a purchase. A well-designed Lean system allows for an immediate and effective

response to fluctuating customer demands and requirements. Lean manufacturing tools that are most commonly used to eliminate waste and achieve flow are: value stream mapping (VSM), standard work, 5S housekeeping, single minute exchange of dies (SMED), total productive maintenance (TPM), and visual management.

Even using Lean tools on a stand-alone basis, companies can achieve strong improvements. However, many companies realize suboptimal results due to poor project selection and inappropriate tool selection. An integrated approach to process improvement using Lean principles and Six Sigma begins with a strategic approach to identifying gaps between the current and future state.

Hoshin Kanri offers an effective way to tie the long-term strategy of the organization to process improvement efforts. Typically, organizations select their kaizen events and process improvement projects based on where they currently feel pain. If they have had a recent rash of external defects, they might decide to initiate a Six Sigma project as a corrective action response to the customer. Significant time and money is involved in running a Six Sigma project, and it may not be the best tool. In addition, even though this is currently where the company is feeling the pain, it may not be the true highest priority project in looking at the big picture.

What is needed is a systems approach that focuses on the long-term vision and strategy. The organization’s time, talents, and money should focus on improvements that will impact the flow of the entire organization. Therefore organizations should consider using systems thinking that applies theory of constraints to ensure a broad impact on the entire organization. Doing so will also greatly increase the momentum of improvement. As improvements are completed, their impact will be noticed by more people throughout the organization, and these people will experience the effects more quickly, which will drive the participation and involvement of more people.

Current State and Practices

Many organizations on the Lean path begin by creating a value stream map. In doing so, they develop a current state map showing how they presently create value for their customers. This is followed by the creation of an enhanced future state map that incorporates best practices in their processes through research and benchmarking. The final goal is to optimize the process of value flow by eliminating waste and controlling variation.

However, achieving full implementation of the enhanced future state value stream map is far more complex than developing it. One of the techniques that companies can adopt to make systematic progress in implementing the envisioned process is Hoshin Kanri. This technique encourages employees to reach the root cause of problems before searching for solutions, creating sustainable plans for implementation, incorporating performance metrics, and taking appropriate action for implementation. Though developed in Japan, this technique is based on Deming's classic Plan-Do-Check-Act (PDCA) improvement cycle. Japanese Deming Prize winners credit Hoshin Kanri with being a key contributor to their business success.

In addition, Hoshin Kanri cascades the overall strategic vision of the organization through all levels, enabling employees to see how they fit into the big picture. Such linkage aligns everyone on the same strategy and vision. When employees are focused on a common direction, the improvements can have a much larger impact in considerably less time. Think about a small team whose members understand what they need to do and how effective they are in working together. Imagine a company of 500 or 1,000 employees all working together to achieve a common goal.

Proposed Methodology

The Lean and Six Sigma philosophies both drive continuous improvement. To realize significant improvements, however, Lean and Six Sigma efforts must be linked to the strategic vision and goals of your organization. This will ensure that the most appropriate projects are implemented to achieve the greatest gain for your organization.

To maximize and sustain gains, you need an integrated approach that utilizes long-term strategic planning to identify process improvement activities and then to select the appropriate technique. This section presents a five-phase methodology of how you can use Hoshin Kanri to expedite the implementation of the enhanced future state value stream map. See Figure 1 for a graphical representation of the five phases.

Step 1: Deploy Formalized Training

Start by deploying formalized Lean and variation reduction (or Six Sigma) training. Formal Lean implementation should include training on the technique followed by an implementation project.

Step 2: Hoshin Kanri/Policy Deployment

While deploying the formalized training, capture the strategic goals of the organization. Then drive the goals down through the organization and integrate them into the daily activities.

Step 3: Value Stream Mapping

Map the value stream to identify all value-added and non-value added steps required to bring a product from raw materials to the customer and assess how the process is currently operating.

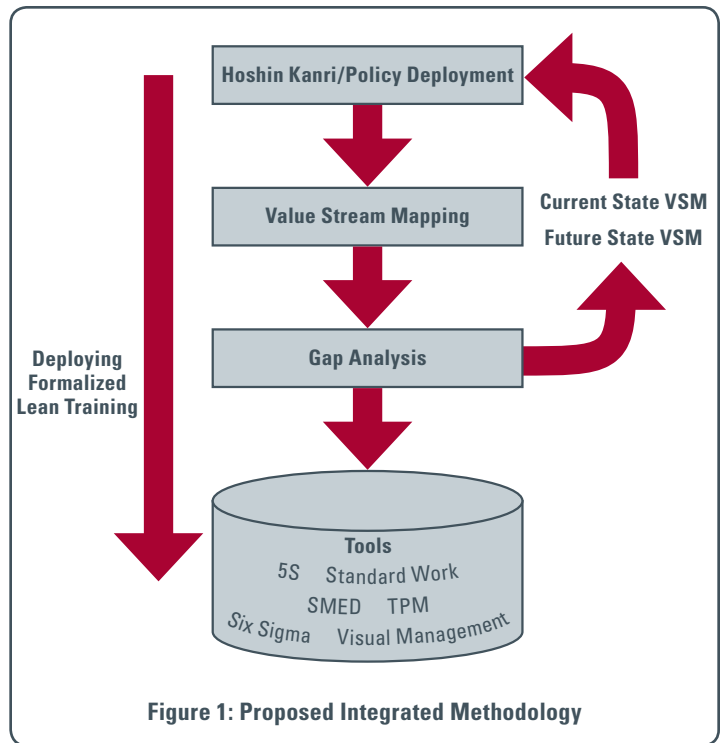


Figure 1: Proposed Integrated Methodology

Step 4: Gap Analysis

Perform a gap analysis between the current state, future state, and strategic goals to identify kaizen events for areas of improvement. Develop the future state to design a Lean flow. Prioritize the identified kaizen bursts.

Step 5: Perform Kaizen Events

Standard work and 5S must be top priority as these techniques lay a foundation by improving consistency. Using the prioritized kaizen bursts, develop action plans or schedules to perform the kaizen events or Six Sigma projects.

Hoshin Kanri

The Japanese quality thinking began before 1645. Miyamoto Musashi wrote a guide to samurai warriors on strategy, tactics, and philosophy entitled *A Book of Five Rings* (translated by Victor Harris in 1974). Musashi was a Japanese swordsman who became legendary for his duels and his distinctive style of swordsmanship. Musashi, known to his fellow Japanese as *Kensei* (Sword Saint), was a Kendo master who lived from 1584 to 1645. In his book Musashi states, "If you are thoroughly conversant with strategy, you will recognize the enemy's intentions and have opportunities to win."

A corporation's strategic plan must be integrated with the macro-level value stream map to identify the optimal improvement opportunities. This promotes strategic thinking. Often improvement activities are identified with silo thinking, and the

(STRATEGIC QUALITY IMPROVEMENT THROUGH HOSHIN KANRI,
continued from page 7)

effects on other systems or processes within the organization are not considered. Improvements in one business area can have a negative impact on another.

Hoshin Kanri began in Japan in the early 1960s as statistical process control (SPC) became total quality control (TQC) (Akao, 2004). Hoshin Kanri is most commonly referred to as Policy Deployment (PD). “Hoshin” means *shining metal, compass, or pointing the direction*. “Kanri” means *management or control*. Here’s an overview of what PD is and does:

- Policy Deployment is a systems approach to management of change in critical business processes.
- It is a methodology for improving the performance of critical business processes to achieve strategic objectives.
- Policy Deployment improves focus, linkage, accountability, buy-in, communication, and involvement in a corporation.
- It links business goals to the entire organization, promotes breakthrough thinking, and focuses on processes (rather than tasks).
- Policy Deployment is also a disciplined process that starts with the vision of the organization to develop a 3- to 5-year business plan and then drives down to one-year objectives that are deployed to all business units for implementation and regular process review.

Policy Deployment is a business management system designed to achieve world-class excellence in customer satisfaction. The system, beginning with the voice of the customer, continuously strives to improve quality, delivery, and cost. The system provides the tools necessary to achieve specific business objectives with the involvement of all employees.

As shown in Figure 2, you should take the voice of the customer to drive your business targets. Then, using Policy Deployment as your management strategy, you should drive this strategy down through all levels of your business to focus on safety, quality, delivery, and cost. Then, using foundational Lean Six Sigma tools such as pull, 5S, SMED, standard work, TPM, and VSM, you can focus on continuous improvement. This leads to improved customer satisfaction, which leads to improved sales growth for your organization.

Conclusions

Hoshin Kanri is a methodology for capturing strategic goals and integrating them with your entire organization’s daily activities. Effective planning is critical for the long-term success of a corporation. Hoshin Kanri is a system that drives continuous improvement and breakthroughs. For organizations to reap maximum gains from their process improvement efforts, they must link their strategic goals with their business system and use this to select the appropriate Lean or Six Sigma technique.

References

Akao, Y. (2004). *Hoshin Kanri: Policy deployment for successful TQM*. New York, NY: Productivity Press
 Musashi, M. (1974). *A book of five rings: The classic guide to strategy*. Translated by Victor Harris. Woodstock, NY: Overlook Press.

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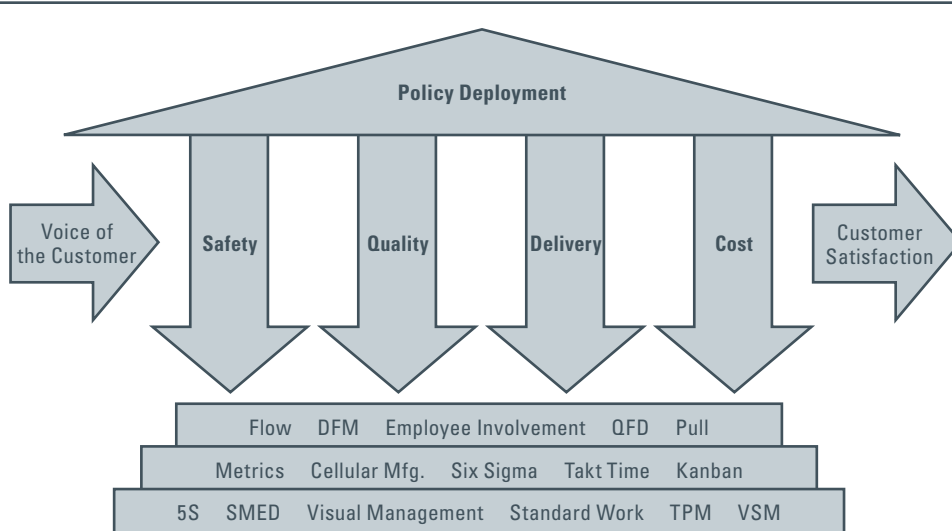


Figure 2: Strategic Business System

Air Force Smart Operations for the 21st Century

(An Introduction to AFSO 21)

By H. Alex Sewell

The US Air Force has a long and admirable history of applying what I will generically refer to as “industrial methods” to the problem of continuous process improvement (CPI). Over the last 40 years, the USAF has progressed from Management by Objectives through Total Quality Management to Total Quality Leadership to the Quality Air Force initiative (Rinehart, 2006). In 2006, a new program was unveiled called Air Force Smart Operations for the 21st Century, or AFSO 21 for short. This article will describe the basic tenets and implementation of AFSO 21 and discuss some of the challenges faced, based on the author’s own experiences as a squadron and group level team leader in both the QAF and AFSO 21 initiatives.

AFSO 21 Fundamentals

AFSO 21 is closely related to several important concepts and methodologies from both industry and the military. Key among them are Lean manufacturing principles, Six Sigma, and Colonel John Boyd’s Observe, Orient, Decide, Act (OODA) model of decision making.

It is the fusion of Lean waste elimination principles with the CPI model of Six Sigma and the practical framework of the OODA loop, which is intended to set AFSO 21 apart from previous efforts.

OODA

The OODA loop was conceived by USAF Col. John Boyd. As originally published, it was the application of what he had learned about decision making in aerial combat (Boyd, 1985, presented by Dr. Osinga 2007). This model held that all decision making was the result of the following four steps:

1. Observe “the target”
2. Orient to take action
3. Decide on appropriate action
4. Act

The four steps continue in cyclic fashion until the goal is accomplished.

This deceptively simple concept is at the heart of modern US military war fighting strategy (Coram, 2002). Specifically, the idea of compressing one’s OODA loop inside that of the enemy is now seen as the key to victory. Applying this theory to business process improvement requires a few minor adjustments, but the ideas of observing the current state, orienting for action, deciding on a specific course of action, taking it, and then “re-observing” to continue as necessary are as valid in a CPI environment as they are on the battlefield.

Five Desired Effects

One key way in which AFSO 21 differs from its predecessors is in the fact that there are five specific, clearly-defined effects that it strives to achieve, as shown in Table 1 below (USAF AFSO 21 CoP, 2009).

Table 1: AFSO 21 Desired Effects
Increase Productivity of Our People
Increase Availability of Critical Equipment
Improve Response Time and Agility
Sustain Safe and Reliable Operations
Improve Energy Efficiency

These five effects provide the bounds within which we conduct AFSO 21. If the process cannot be tied to one of these five, it is out of scope. That said, these effects provide a fairly large stage on which to perform.

Eight Wastes

As mentioned earlier, AFSO 21 borrows heavily from both Lean and Six Sigma. One area in particular is in the definition of waste, which is lifted essentially intact from Lean, as shown below in Table 2.

Table 2: AFSO 21 Forms of Waste
Defects
Over-Production
Excess Inventory
Excess Motion
Non-Value Added Processing
Transportation
Waiting
Injuries

Although not all of these are applicable in most AFSO 21 situations, they provide a useful framework as teams run the process.

Types of AFSO 21 Events

AFSO 21 events are generally divided into three categories (USAF AFSO 21 CoP, 2009):

1. Just Do It (JDI): These are the simplest to implement and as the name implies involve simply implementing the solution to eliminate waste with no further staffing. Typically these do not require a formal AFSO 21 event, but are the result of the application of Lean principles nonetheless.
2. Rapid Improvement Events (RIE): These events are formal AFSO 21 team activities. Teams are composed of subject matter experts, decision makers, a team leader, and generally an AFSO

(AIR FORCE SMART OPERATIONS FOR THE 21ST CENTURY, continued from page 9)

21-trained facilitator. These events are typically five days long and involve a detailed cross-functional look at the process under question, utilizing the tools of Lean and Six Sigma (USAF AFSO 21 CoP, 2009). The entire process of pre-work, execution, and implementation of solutions should take from four to six weeks.

3. High Value Initiatives (HVI): The HVI is the most complex of the AFSO 21 activities. These are designed to produce results against key USAF problems and generally involve cross-functional teams working on a four- to six-month timeline to solve big problems.

The AFSO 21 Process

The OODA loop has four components:

1. Observe
2. Orient
3. Decide
4. Act

AFSO 21 breaks each of these into sub steps, as shown in Figure 1.

When an AFSO 21 team meets for an RIE or HVI, this is the method they will use to improve the process under question.

Step 1: Clarify and Validate the Problem

Initially, the team leader and the AFSO 21 representative will coach the team into a clear and concise statement of the problem. This is the basis for all that follows and—from the author’s own

experience—can be surprisingly difficult. It is common for elements within a team to have quite different opinions on the problem.

Step 2: Break Down the Problem/ Identify Performance Gaps

This is the second part of the “orient” phase. During this phase, the team will map the value stream of the process, typically using supplier, input, process, output, customer (SIPOC), or similar models to capture the process as it currently exists. Step 2 typically takes a couple of days. The main challenge is to keep everyone focused on capturing the existing process instead of jumping straight to the solutions.

Step 3: Set Improvement Targets

This is the first step in “orienting” to improve the process. Now that the process is mapped and the team has reached a common “sight picture,” they set reasonable targets for improvement. An example might be to improve performance report timeliness by 20%.

Step 4: Determine Root Causes

After setting targets, the team moves into ferreting out waste within their process. In our example, the team would begin examining the previously constructed value stream map for the eight types of waste mentioned at the beginning of this article. Typically, the VSM is literally flow-charted out on butcher paper on a wall, and color coded notes are made on the graph indicating points where waste occurs. These are traced back to the point of origin in preparation for the “decide” and “act” phases of the improvement process.

Step 5: Develop Countermeasures

This is the sole step in the “decide” portion of the OODA loop. At this point, possible solutions are annotated and discussed with SMEs for feasibility. Step 5 normally terminates with a briefing to the appropriate level of leadership on the team’s findings and a request for authority to implement solutions.

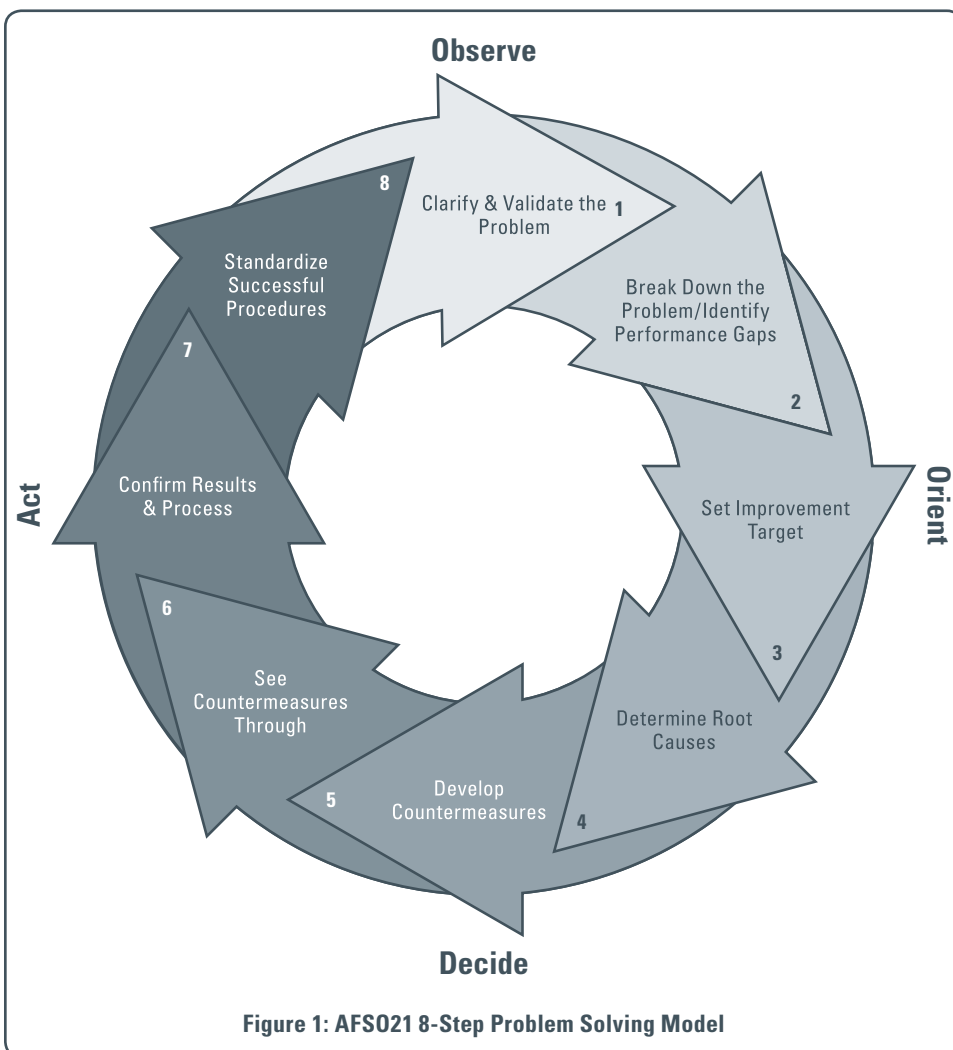


Figure 1: AFOS21 8-Step Problem Solving Model

Step 6: See Countermeasures Through

This is the actual implementation of solutions and initiates the “act” portion of the OODA loop. Team solutions are turned over to appropriate action personnel or agencies for execution.

Step 7: Confirm Results and Process

An essential part of the “act” phase is confirming that the solutions are actually working. This phase involves analyzing post execution process performance and answering the all-important question: Did we fix the problem?

Step 8: Standardize Successful Processes

This step is both the end of the process and the lead-in for the next “define the problem” step in the iterative process of CPI. Documentation is critical, particularly in the context of the USAF. High turnover of leadership and other key personnel is virtually guaranteed in a military environment. If successful practices are not documented and passed down, the problems are destined to reoccur.

Challenges and Lessons Learned

Two critical components to adapting AFSO 21 to private sector business and industry are developing the proper mindset and ensuring leadership buy-in at every level.

Mindset

Industry leaders are trained and experienced in the “art of the bottom line.” They are comfortable thinking in terms of profitability, efficiency, and product quality. By way of contrast, USAF leaders are trained in the art of fighting and winning our nation’s wars. Efficiency and “profitability” are secondary to victory. If the commander on the battlefield needs to expend a \$30,000 munition to eliminate a three-man machine gun team, he or she will do so unhesitatingly. Again, the key metric is victory. This is simplistic, of course, but the point is that thinking in terms of managing a process is not necessarily second nature to a career military officer.

Leadership Buy-in, at Every Level, Is Critical

In part because they have been through so many quality improvement initiatives, most USAF leaders below the Wing level¹ are skeptical of methods claiming to be unlike anything that came before. This is especially true when accompanied by extravagant claims of improvement, highly specialized “buzz word” vocabulary, and methods that all look very similar to what came before. In fairness to these skeptics, most of the CPI methods do come out of the same industrial engineering-based body of knowledge.

What is needed, then, is heartfelt and genuine support from the Wing commander on down. The support must be accompanied by realistic presentation of the advantages of CPI and realistic examples of success, without hyperbole. Military officers are skeptics by nature, but they are also success-oriented and will readily adopt methods that they genuinely feel will improve performance.

Conclusions

Simply stating that AFSO 21 differs from previous, largely unsuccessful, quality initiatives of the past is not enough. USAF members will demand proof by trial. The method must have solid, believable and visible support from leadership at every turn. AFSO 21 offers the promise of standardized and proven effective problem-solving techniques employed USAF-wide, but there are significant challenges.

Endnotes

1. A Wing can be thought of as a base-sized organization, generally commanded by a senior colonel. It is usually composed of between 1000 and 2000 personnel comprising all of the functional areas to carry on as an independent unit. Each Wing is divided along functional lines into groups. In a flying unit, for instance, there would typically be an operations group that would conduct flight operations, a maintenance group to maintain the aircraft and a mission support group, which would be composed of finance, security and various other support functions. Groups are usually commanded by less senior colonels. Each group is composed of squadrons, typically commanded by a lieutenant colonel.

Disclaimer

The conclusions and opinions expressed in this document are solely those of the author. They do not reflect the

official position of the US government, Department of Defense or the United States Air Force.

References

- Boyd, J. R. (1985, Presented by Dr. Osinga 2007, July 13). *A discourse on winning and losing*. Retrieved Feb 26, 2010, from USAF Air University Public Portal: www.au.af.mil/au/awcgate/boyd/osinga_boydconf07.pdf
- Coram, R. (2002). *BOYD: The fighter pilot who changed the art of war*. New York: Back Bay Books Little, Brown and Company.
- Deputy Undersecretary of the Army. (2009, Aug 25). *Continuous process improvement (CPI)*. Retrieved Feb 26, 2010, from Deputy Undersecretary of the Army Knowledge Center: www.army.mil/ArmyBTKC/focus/cpi
- Greenwood, R. G. (1981). *Management by objectives: As developed by Peter Drucker, assisted by Harold Smiddy*. *The Academy of Management Review*, 6:2, 225–230.
- Krahenbuhl, D. W. (1975). *Management by objectives: Can it be used to improve management of Air Force squadrons?* *Air University Review* (Nov–Dec) .
- Rinehart, G. W. (2006). *How the Air Force embraced “partial quality” (and avoiding similar mistakes in new endeavors)*. *Air & Space Power Journal* (Winter), 34–42.
- USAF AFSO 21 CoP. (2009, Jan 21). *AFSO 21 Fact Sheet*. Retrieved Feb 24, 2010, from AFSO 21 CoP Home Page: <https://www.bca.hq.af.mil>
- USAF AFSO 21 CoP. (2009, Jan 21). *Intro to Basic Principles*. Retrieved Feb 24, 2010, from AFSO 21 CoP Homepage: <https://www.bca.hq.af.mil>

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Improving Quality in Health Care While Reducing Costs

By Ronald J.M.M. Does, Jaap van den Heuvel, Jeroen de Mast, and Gerard C. Neimeijer

Cost and quality are two critical issues facing the health care industry throughout the world. Finding ways to improve quality and reduce costs is one of the most important issues facing the medical profession as well as the public in general. Leaving it to health care administrators to worry about costs and the clinical staff to worry about quality is *not* a recommended approach. The two sides need to collaborate closely to obtain better quality while containing the spiraling costs of health care.

In this article we discuss the three definitions of quality promoted by quality management pioneer Dr. Joseph M. Juran. Conceptually, these definitions may help health care professionals—clinicians and administrators—clarify the relationship between cost and quality and explain the seemingly paradoxical idea that we can indeed enhance quality while reducing cost of health care.

The term *quality* has several interpretations. Confusing these may cause problems, some of which may confuse policy discussions, create conflicts between patients, health care professionals and hospital management, and impede progress in solving problems with the health care system. If the prevailing paradigm is that reducing cost inevitably will compromise the quality of care, the very mindset becomes an obstacle to dealing with some of the industry's most vexing problems.

The majority of activities in professional organizations are done as routines, and “routinization” (that is, turning something into a process) of activities constitutes the most important form of storage of an organization's specific operational knowledge. Process management has an analogy with financial management. The latter is carried out through three managerial processes: financial planning (budgeting), financial control (budget), and financial improvement (cost reduction). It was Juran (1989) who first explored this analogy for managing quality. It may seem logical to implement process planning before engaging in process control and process improvement. However, Juran suggested that it is more pragmatic to start with process improvement (Bisgaard, 2007).

Perhaps the first association people that make with the topic of health care improvement is innovation in medical science, including innovations in treatment protocols, medical equipment, and pharmaceuticals. This article, however, focuses on the improvement of health care by improving its delivery. Health care delivery concerns the routines in hospitals, including primary patient processes, medical support processes, and nonmedical support processes. Characteristics of these processes, such as their capacity, efficiency, and reliability, determine

important performance dimensions of health care, such as throughput, patient safety, and waiting times. Ultimately, they have a substantial impact on patient satisfaction, cost, and the quality and timeliness of medical care.

Quality as Fitness for Use

Juran's primary definition of quality is “fitness for use” (1989). This somewhat peculiar definition implies that more is not necessarily better. Instead, the paramount focus should be patient needs and expectations. Quality as “fitness for use” provides a conceptual guide for caregivers to focus attention on what is “fit” for the patient in his or her current circumstances and helps clinicians clarify what is needed to prevent “overuse,” “underuse,” or “misuse” (Becher and Chassin, 2001). For example, patients do not want to undergo large or risky surgical procedures or diagnostic tests unless there is a reasonable probability of benefit to their health care condition. It is the health care workers' professional responsibility to judiciously apply the fruits of medical science to that end. Most patients are realistic and do not expect miracles. However, it has been observed that health care professionals—possibly out of fear—sometimes prescribe tests, procedures, and medications regardless of cost and without sufficient consideration of relevance and effectiveness (Chassin and Galvin, 1998; Schuster, McGlynn and Brook, 1998; *Crossing the Quality Chasm*, 2001, Chapter 8). On the other hand, situations also occur wherein health care administrators or funding agencies try to ration tests, procedures, and medications. By establishing actual needs, clinicians can stay true to the principle that the only tests and medical procedures that should be administered are those that contribute to satisfying these needs.

Juran's definition of quality as “fitness for use” may offer clinicians a conceptual framework for thinking through how to provide better quality while reducing costs. As an example, more costly procedures do not necessarily imply better quality of life: one cancer patient may desire to live as long as possible and endure the hardships of chemotherapy, radiation therapy, and operative procedures; another cancer patient may wish to receive palliative care and spend the available time at home with the family. Obviously, the cost implications differ significantly. Every possible therapy within medical and ethical standards should be made available, but the final choice should be based on the principle of “fitness for use” for the particular patient.

Although “fitness for use” is his predominant definition of quality, Juran realized a need for subsidiary definitions, chiefly for economic reasons, and we will cover these in the next two sections.

Quality as Features

Juran further quantifies “fitness for use” in two different categories: quality as “features” and quality as “freedom from deficiencies” (1989). Both have important implications for conceptualizing the quality of health care and helping to clarify the relationship between quality and cost. Quality as “features of a product or service” implies that more features lead to better quality. However, more features typically cost more. There are, or at least should be, two reasons to add features in health care. The first is the patient’s justifiable needs, the likelihood of improved health, and—ultimately—improved quality of life. The second reason is the state of the art of medical knowledge and technology. For example, in the past, coronary artery obstruction was treated with balloon dilatation. Today this procedure usually requires specially coated stents to be implanted as well, which adds significantly to the cost.

In the upper portion of Figure 1, we have sketched out the economic relationship between quality interpreted as features, cost, and revenues. In a fee-for-service system (*Crossing the Quality Chasm*, 2001, Chapter 8) and certain other pay systems, added features may have the following financial benefits to the provider: Better health care attracts more patients and produces more revenues, provided that the additional features are paid for, and typically, that margins are higher for more expensive features.

The definition of quality as “features of a product or service” forces us to make tradeoffs between quality and costs. Unfortunately, improved quality as “more features” often is the only definition people have in mind when they talk about health care quality. Such a mindset causes many health care professionals, administrators, politicians, pundits, and the general public to assume that reducing costs inevitably will force us to compromise quality. However, as we will discuss in the next section, that is not necessarily so.

Quality as Freedom from Deficiencies

Juran’s second subsidiary definition of quality as “freedom from deficiencies” has the opposite cost implication (1989). Fewer deficiencies cost less! Costs are reduced if we succeed in lowering the number of deficiencies—medication errors, rejected products, lost paperwork, missing X-rays, rework, delays, hospital acquired infections, and lost materials due to failures and mistakes. The focus of this definition is typically not on the “product or service” as in the “features” definition, but is related primarily to processes, either clinical or administrative. As indicated in the lower portion of Figure 1, the reduction of deficiencies in health care and administrative processes results in many cost reductions at all levels of the organization.

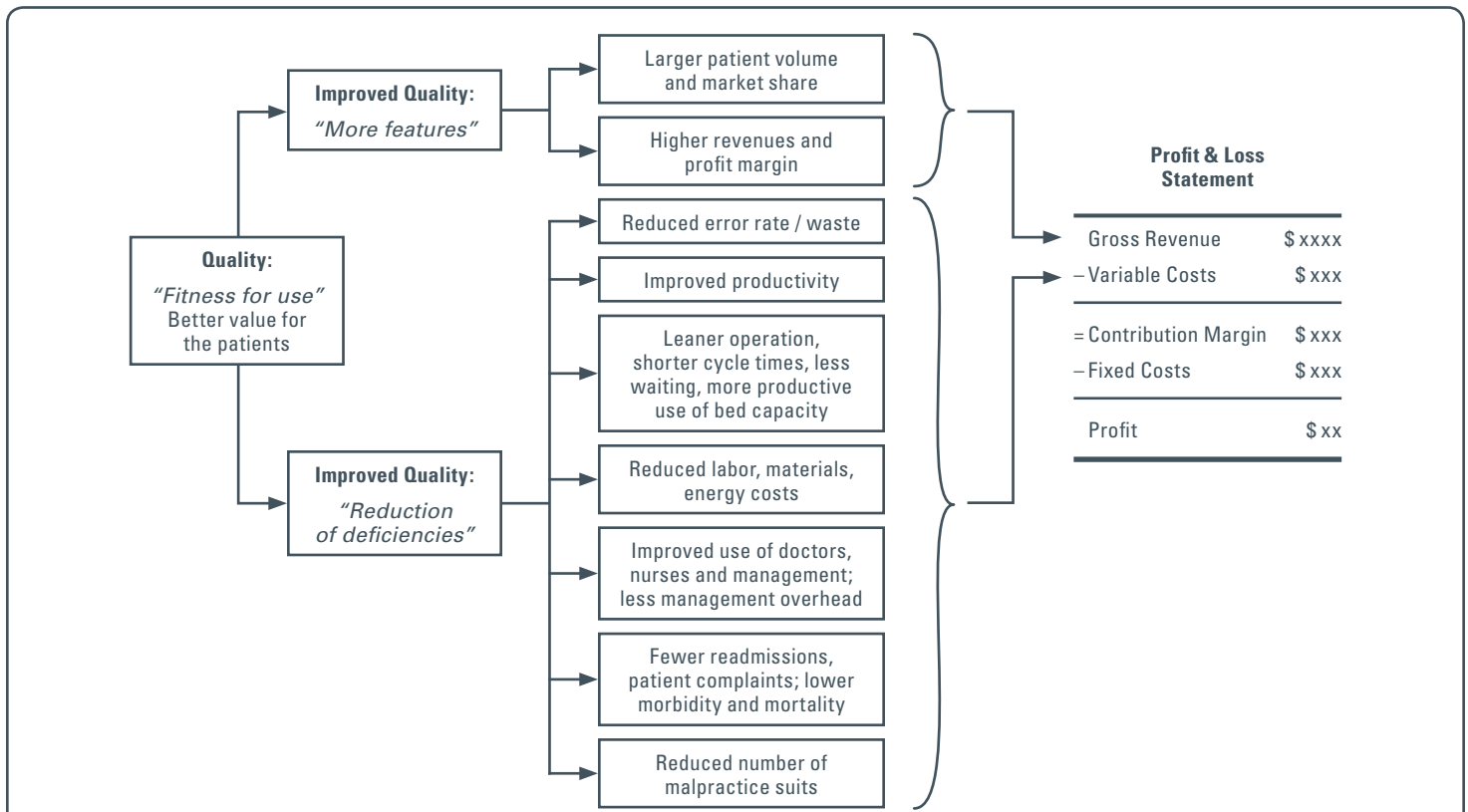


Figure 1: Graphical Summary of the Main Economic Relations of Quality Defined as “Features” and “Freedom from Deficiencies”

(IMPROVING QUALITY IN HEALTHCARE WHILE REDUCING COSTS,
continued from page 13)

As in manufacturing, efforts intended to improve the “production” process of health care services (that is, health care delivery) invariably lead to lower costs for the provider. But there is also a crucial difference between manufacturing and health care that has further cost implications. For instance, if the number of rejected cars at the end of a production line is reduced from 20% to 2%, costs related to rework will be significantly reduced. However, with effective outgoing inspection, the customer will experience only cars that meet given quality standards. In health care, if 20% of the operations in a hospital are not successful, it directly affects the patients. Failures, defects, and rework in health care processes are synonymous with complications, inconvenience, waiting and delays, morbidity, and mortality rates.

Thus in health care, deficiencies not only increase costs but also reduce the quality of care and always impact the patients adversely. For example, postoperative wound infections result in costly lengthened hospital stays and the risk of death. In health care, the patient and the product are one and the same; the customer (the patient) is intimately involved in the delivery process (Van den Heuvel et al., 2006). Consequently, in health care there is a direct loop from improved process quality to improved health care product quality.

Examples of Improving Quality While Reducing Costs

So how do we improve quality of health care while reducing cost? In this section we provide a few concrete examples of the use of (Lean) Six Sigma, a data-driven scientific approach to quality improvement that has been popular in industry for some time. Its main focus is on improving quality while reducing cost. Lately, Lean Six Sigma has also been used with success in health care (De Koning et al., 2006). Its main strength is the application of a scientific and data-driven approach to problem solving and its use of a broad spectrum of quality improvement tools and techniques, many of which are statistical. Improvements are achieved by a team-based, project-by-project approach involving hospital employees trained in the Lean Six Sigma methodology. A few examples will illustrate how quality can be improved while costs are reduced. A Dutch multidisciplinary team has implemented Lean Six Sigma in eight medium or large hospitals in the Netherlands. So far more than 300 successful projects have been completed. The main focus has been on improving processes, clinical as well as administrative, either by reducing the number of deficiencies or by reducing non-value adding activities. Each project has produced savings of at least €20,000, and some projects have saved more than a million euros.

Some examples are:

1. Reducing the length of stay for COPD patients from 10 days to 7.5 days (Bisgaard and Does, 2009)

2. Reducing the number of errors in invoices from 10% to less than 1% (Van den Heuvel et al., 2005)
3. Optimizing the utilization of operating rooms by reducing the delay in start-time by 50% (Does et al., 2009)
4. Increasing the availability of infusion pumps in a hospital to 100% after reducing the total number of infusion pumps by 20% (Kemper et al., 2009)
5. Improved staffing of nurses in the maternity ward by aligning the right people to the right job and reducing the number of temporary workers (Wijma et al., 2009)

Money saved in these projects was used to reduce budget shortfalls or was reinvested in quality features, innovations, or new equipment.

Conclusion

In the current debate about escalating health care costs, it is typically assumed that there must be a trade-off between quality and cost of health care. This misconception is rooted partly in confusion about the definition of quality. Such misconceptions may impede progress in improving the management of health care and paralyze leadership. In this article we have discussed quality management concepts and strategies for improving quality while halting the escalating costs of health care.

In particular, we have discussed how defining quality as “fitness for use” with the two subsidiary definitions of quality as “features” and quality as “freedom from deficiencies” conceptually help us understand the relationship between quality and costs. The “freedom from deficiencies” definition offers an opportunity for clinicians to redirect the focus to initiatives that will increase quality while reducing costs. Agreements on reinvestment priorities can be made before initiating a given project. Doing so will enhance the participation and facilitate input from clinicians, which is essential for success of any project related to health care delivery.

Dedicated to the memory of Søren Bisgaard (1951–2009)

References

- Becher, E. C., and Chassin, M. R. (2001). Improving the quality of health care: Who will lead? *Health Affairs* 20:5, pp. 164–178.
- Bisgaard, S. (2007). Quality management and Juran's legacy, *Quality and Reliability Engineering International* 23, pp. 665–677.
- Bisgaard, S. and Does, R. J. M. M. (2009). Health care quality: Reducing the length of stay at a hospital, *Quality Engineering* 21:1, pp. 117–131.
- Chassin, M. R., Galvin, R. W., and the National Roundtable on Health care Quality (1998). The urgent need to improve health care quality, *Journal of the American Medical Association* 280:11, pp. 1000–1005.
- Crossing the Quality Chasm* (2001). Washington, DC: Institute of Medicine, the National Academy of Sciences, Appendix A.
- De Koning, H., Verver, J. P. S., Van den Heuvel, J., Bisgaard, S. and Does, R. J. M. M. (2006). Lean Six Sigma in health care, *Journal of Healthcare Quality* 28:2, pp. 4–11.
- Does, R. J. M. M., Vermaat, M. B., Verver J. P. S., Bisgaard, S. and Van den Heuvel, J. (2009). Reducing start-time delays in operating rooms, *Journal of Quality Technology* 41:4, pp. 95–109.
- Juran, J. M. (1989). *Juran on Leadership for Quality*, New York: The Free Press.
- Kemper, B. P. H., Koopmans, M., and Does, R. J. M. M. (2009). The availability of infusion pumps in a hospital, *Quality Engineering* 21:4, pp. 471–477.
- Schuster, M. A., McGlynn, E. A., and Brook, R. H., (1998). How good is the quality of health care in the United States? *Milbank Quarterly* 76:4, pp. 517–563.
- Van den Heuvel, J., Does, R. J. M. M., and Bisgaard, S. (2005). Dutch experiences implementing Six Sigma in health care. *Six Sigma Forum Magazine* 4:2, pp. 11–14.
- Van den Heuvel, J., Does, R. J. M. M., Bogers, A. J. J. C., and Berg, M. (2006). Six Sigma: Why does it work even better in health care? *Joint Commission Journal on Quality and Patient Safety* 32:7, pp. 393–399.
- Wijma, J., Trip, A., Does, R. J. M. M. and Bisgaard, S. (2009). Efficiency improvement in a nursing department, *Quality Engineering* 21:2, pp. 222–228.

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What's the Next Big Thing in Quality Management?

By Ronald D. Snee, PhD, and Roger W. Hoerl, PhD

Lean Six Sigma, ISO-9000 standards, the Malcolm Baldrige Award, and other modern approaches to quality management have been used effectively for the last couple of decades (Juran 1989; George 2002; Snee and Hoerl 2003, 2005). Much has been learned over this time period about managing and improving quality. More and more, people are now asking: What's next? What's the methodology that will replace our current approaches to quality improvement? But before we ask these questions, we need to ask how we can know if a new methodology is needed. Fortunately, there is a way to decide, and that process is the subject of this article.

The Improvement Imperative

To help us think about what's next, let's consider the current situation. It's clear to many that global competition and information technology have created the Improvement Imperative. Around the globe there is a need to improve to remain successful in a highly competitive marketplace that will only get more, not less, competitive. We must improve all measures of performance: quality, cost, delivery, and customer satisfaction. These metrics are affected by all parts of the business. A single improvement focus is helpful but is not enough.

Fortunately we have some theory to guide us. Thomas Kuhn (1962), in his landmark work *The Structure of Scientific Revolutions*, told us that you need a new approach, a new paradigm, when people are messing with the rules and existing methodology cannot solve the problems you are currently facing. Joel Barker (1985) taught us how to use Kuhn's theory in the business world. Kuhn and Barker emphasized that a paradigm is a description of how things are done—the rules of the game. When the rules

change, the game changes, and you need a new approach, a new paradigm, a new way of doing things.

Do We Need a New Approach?

As we assess business and industry's need for improvement, we see three critical needs not being adequately addressed by current quality management approaches:

- True continuous improvement culture is not developing
- Improvement efforts tend to be disjointed, rather than integrated
- No one has yet "mastered" improvement

We expand on each of these in the following paragraphs.

There is an increasing body of evidence that a true continuous improvement culture is not developing. In all but a few companies, improvement is not seen as a strategic business imperative or function. Improvement initiatives are focused primarily on operations and less so on other functions. Improvement methodology is not made part of daily work. As a result, improvement opportunities are not being fully realized. There is a lot of opportunity and money being left on the table.

This lack of progress is due to improvement efforts being disjointed, rather than integrated. For example, Lean Six Sigma projects are typically managed separately and are not part of other quality management initiatives. People continue to think of Lean and Six Sigma as separate improvement approaches—many are "choosing sides." Innovation is seen as something different from quality management or improvement—a competitor. Process management is seen as separate from Lean Six Sigma.

The fact that no one has yet "mastered" improvement is clear when we hear the persistent assumption that there is one best method for improvement, as evidenced by the constant search for the latest fad/bandwagon. There are few books or articles on improvement per se, but many on improvement techniques and improvement initiatives. There is a growing body of evidence that process improvements frequently aren't sustained. Even worse, we that see pre-determined solutions are frequently "force fit" to problems for which they are not appropriate: If all you have is a hammer, every problem looks like a nail.

Holistic View of Business and Improvement

A root cause (and associated solution) for these problems is a different view of business and improvement themselves. Peter Drucker (1964, p. 23) said it best when he stated, "Only the overall review of the entire business as an economic system can give real knowledge." The holistic view of a business as a system has a very worthwhile by-product. This view leads us naturally to an approach that reduces opportunity for sub-optimization; not a new idea but certainly not a well-practiced philosophy.

A company is made up of core processes such as sales and marketing, product development, manufacturing, customer touch points (delivery, collections), and enabling processes such as finance, human resources and legal. Business performance is a result of all of these interconnected processes. If sustained improvement is to be realized, there is a strong need and opportunity for improvement to be implemented in a holistic manner.

We believe that *holistic improvement* captures the essence of what is needed (Snee 2008, 2009; Hoerl and Snee 2007). We define holistic improvement as: “An improvement system that can successfully create and sustain significant improvements of any type, in any culture, for any business.” Discussion of the key words in this definition will be helpful in understanding the breadth and depth of the approach.

First, in order to “create and sustain” improvement, some things are needed, including a quality-focused infrastructure: management systems and resources, creation of a continuous improvement culture, and leadership development (Snee and Hoerl 2003).

“Significant improvements” refers to enhancing all measures of organizational performance: quality, cost, delivery, customer satisfaction, and the bottom line.

“Any type” refers to any of the process performance measures noted above, speeding up process flow, reducing variation, and the design, improvement, control, and optimization of processes. A holistic improvement methodology is needed to address this broad array of issues.

Improvement is needed in many places, in “any culture,” including any function in the business (functions can create cultures, often described as silos), any region or culture around the world.

Organizations run many different types of businesses and processes. “Any business” refers to manufacturing, non-manufacturing processes, and service. Holistic improvement also works in non-profit, health care, and government organizations.

A case study of the use of holistic improvement is discussed by Snee (2009), and the characteristics of holistic improvement are shown in Table 1.

Holistic Improvement Strategic Success Factors

It is important to ask what has to be done in order to successfully utilize the holistic approach to improvement. We have found that there are four strategic success factors (Snee and Hoerl 2003):

- Management leadership and involvement
- Use of top talent
- Holistic improvement methodology
- Infrastructure in terms of resources and management systems

First, management must be involved, which will require their time. Supportive management is not enough—management must be actively engaged. One effective way is to actively participate in improvement project and initiative reviews.

Second, top talent must be utilized. Improvement is too important and too difficult to be left to anyone other than the best of the organization.

Third, note that there is more to holistic improvement than the methodology. Holistic improvement methodology is necessary, but not sufficient.

Finally, management systems are critical to success. For improvement to be sustained it must become a formal business process and function, just as finance, HR, and other enabling functions are. Management systems are needed to make improvement a formal business process. For example, the strategic, managerial, and operational elements of holistic improvement are shown in Table 2. All of these must be in place for improvement to be successful as a core business process.

Table 1: Characteristics of Holistic Improvement	
Works in all areas of the business—all functions, all processes	
Works in all cultures, providing a common language and tool set	
Can address all measures of performance—quality, cost, delivery, and customer satisfaction	
Addresses all aspects of process management—process design/redesign, improvement, and control	
Addresses all types of improvement—streamlining, waste and cycle time reduction, quality improvement, process robustness	
Includes management systems for improvement—plans, goals, budgets, and management reviews	
Focuses on developing an improvement culture	
Uses improvement as a leadership development tool	

Table 2: Critical Elements of Holistic Improvement System	
Strategic Level	Senior management involvement; led by Chief Improvement Officer (CIO) Creation of improvement culture—part of each job description Improvement Council (IC) is permanent part of the business planning cycle.
Managerial Level	Rigorous, defined system for planning and implementing improvements Process management systems are integrated with the improvement system There is a defined organizational structure to support the improvement system
Operational Level	Dynamic “core set” of proven improvement methodologies—Lean Six Sigma, ISO-9000, self-directed work teams, and so on: <ul style="list-style-type: none"> • Dedicated experts in core methodologies • All employees are trained at a basic level in all core methodologies • Additional “non-core” methodologies may be utilized as needed Employees are expected to implement improvements outside of formal projects

(WHAT'S THE NEXT BIG THING IN QUALITY MANAGEMENT?, continued from page 17)

Two Critical Elements of Holistic Improvement System

Holistic improvement has too many elements to discuss in a single article. But to provide an idea of what holistic improvement entails, we will discuss two critical elements of the approach: a management system for holistic improvement, and the use of a project portfolio to manage the improvement projects.

Management System

The management system for holistic improvement is shown schematically in Figure 1. The system has several critical elements: process data collection, analysis and review, process adjustment, process improvement, and process design/redesign. The organization collects data from the process on a routine basis. Various levels of management review these data on a regular basis to

decide what process actions should be taken. Typical review groups for high-throughput environments (billing, logistics) are shown in Table 3.

Process operators, such as customer service reps, accountants, and salespeople, review the process performance data continuously to look for out-of-control situations and review daily summaries to detect other sources of problems. Analysis tools often present the data in a statistical control chart format, or some other graphical presentation.

The process control plan shows the workers what to look for, what actions to take, and whom to inform when additional assistance is needed. The control plan typically details the process adjustments needed to bring the outputs back to the desired target and range. The tools used by the operators for troubleshooting typically include process maps, control charts, histograms, and Pareto charts.

Examples of such process adjustments include calling in additional accountants to close the books on time or having a salesperson work overtime to meet a sales quota. However, such efforts are aimed primarily at sustaining current performance levels, rather than achieving new levels. Improvement to new performance levels often requires the involvement of additional people with specialized skills, such as engineers (in manufacturing), or experienced underwriters (in insurance). Project teams that include process workers, technical specialists, and perhaps someone trained in improvement methodologies if needed, are typically required to make true improvement.

Note that in Figure 1 the reviews of the data also feed the process improvement system, and—when needed—process redesign. Within this process improvement system, the organization identifies good improvement opportunities, identifies specific projects, makes improvements, and provides feedback on how the overall system is working so that it can continue to be improved. The team also identifies the best methodology for implementing a given project, such as Lean Six Sigma,

Table 3: Review Teams and Timing

Review Team	Review Timing
Process Workers	Continuously and Daily
Process Managers and Staff	Weekly
Site Manager and Staff	Monthly
Business Manager and Staff	Quarterly

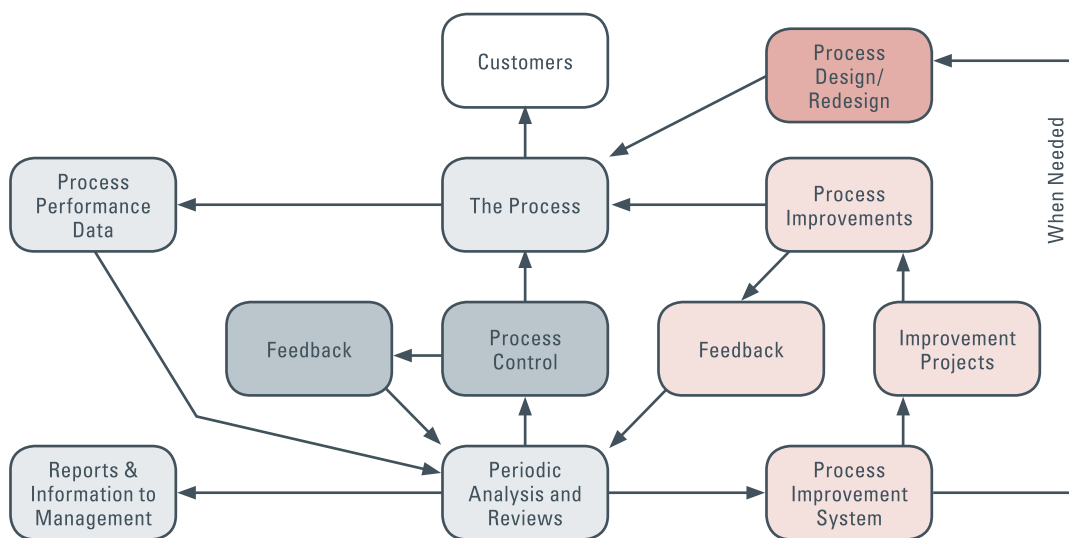


Figure 1: Management System for Holistic Improvement Process Control, Improvement and Design Integrated

Work-Out, or perhaps a “just do it” project utilizing a standard project management structure. The approach and tools used to streamline a process are typically very different from the approach and tools used to assess and improve process stability. There is no loyalty to any improvement methodology, only to improvement itself. If newer, more effective improvement methodologies become available, they can easily be integrated into the improvement system.

Improvement Project Portfolio

The improvement project portfolio is the second element of holistic improvement that we will discuss here. Table 4 lists some common improvement needs; obviously it is not an exhaustive list.

The integrated project management system starts with project selection; projects that have the highest business value are selected, and the approach that should be used on each project is identified. The projects are managed as a project portfolio, and a common improvement framework guides project execution. We believe that the DMAIC framework used in Lean Six Sigma is the best available framework for guiding process improvement and problem solving projects (Snee 2007). The improvement infrastructure to manage and lead the effort includes project Champions, Master Black Belts, Black Belts and Green Belts. Note that while these terms are borrowed from Six Sigma, this does not imply that the roles are specific to Six Sigma—we might have Master Black Belts in ISO-9000, for example. The management systems that guide and sustain improvement include project tracking, management review, communication, recognition and reward, and so on. Project selection is guided by criteria such as:

- Business goals
- Process performance—where the pain is coming from

Product and Operating Processes	Flow of information and materials—process streamlining Product quality Product delivery—consistency is critical to success Process and product cost reduction
Enterprise Management Processes	Employee development Business planning Public relations and brand image Supplier management

Project	Category
Increase capacity of Process Z	Product/Process Impvt
Relocate milling process	Capital
Secure environmental permits	Infrastructure
Upgrade DCS software	Infrastructure
Automate packaging line	Capital
Increase yield of Process XX	Product/Process Impvt
Reduce downtime of Mixer M	Product/Process Impvt
Reduce manuf cost of Product P	Product/Process Impvt
Improve steam trap performance	Product/Process Impvt
Install new pump on Line K	Capital
Reduce Plant B reactor cycle time	Product/Process Impvt
Reduce the impurity of Product 741	Lean Six Sigma
All Projects Compete for the Same Resources	

- Improvement in flow of materials and information while reducing waste and cycle time

As a result, improvement is a business process just like staffing, budgeting, auditing, and so on. If you want improvement to happen on a sustained basis, you should emphasize having a management system in place to guide and sustain the necessary work.

The portfolio contains projects of three major types:

- Projects with known solutions (e.g. capital projects)
- Product and process improvement projects (no known solution)
- Infrastructure—improvement initiatives like ISO-9000, new performance management system, IT system, and so on

Table 5 shows an example of a project portfolio. This is a partial list taken from a much larger list for illustrative purposes. The list is a mixture of capital, product and process improvement, and infrastructure projects. Having all these projects in a single list helps the decision process as ultimately all of these projects compete for the same pool of resources and management attention.

Holistic Improvement Addresses the Limitations of Current Approaches

Earlier in this article we identified some problems not adequately addressed by today’s improvement approaches, including Lean Six Sigma and the Malcolm Baldrige criteria. We are now in a position to discuss how holistic

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(WHAT'S THE NEXT BIG THING IN QUALITY MANAGEMENT?, continued from page 19)

improvement could solve these problems. Some potential solutions are summarized in Table 6.

Start Small, Think Big: A Good Way to Start

Since many organizations already have in place some form of an improvement process, it seems that a prudent strategy would be to adopt a “start small, think big” approach and migrate slowly to move your current approach towards holistic improvement. For example, where a Lean Six Sigma Leader or Quality Council exists, work to broaden their scope to improvement in general. Integrate potentially competing improvement groups, such as ISO certification, Lean Six Sigma, and reengineering. Migrate all improvement projects to a common project portfolio, keeping in mind that:

- All projects compete for the same pool of resources.
- Typical project types include product and process improvement, capital based, and infrastructure enhancement.
- Project selection decisions made from a common prioritized list are most effective

Initiate data-based process management systems (refer back to Figure 1) by beginning with the most critical processes and linking together process control, process improvement, and process redesign. Process improvement and redesign will identify additional improvement projects.

Finally, require all business units and functions to have a continuous improvement process in place—the business is a system.

Accepting the Challenge of the Improvement Imperative

There is a growing body of evidence that improvement must become a keen focus for organizations looking to compete effectively in the 21st century. Lack of

True Improvement Culture	Improvement would be strategic and a permanent business function An individual is responsible for creating the culture, with supporting metrics Improvement in every job description would expand, broaden improvement efforts
Disjointed Versus Integrated Improvement Efforts	All improvements would be under one organizational “umbrella” Permanent improvement council would manage improvements as a portfolio Diverse improvement types and methods would coexist and be integrated
Ability to “Master” Improvement	Permanent infrastructure allows long-term organizational focus on improvement Incorporating new methodologies along with existing approaches minimizes “flavor of the month” bandwagons, and subsequent employee cynicism Defining a “core set” of improvement methods allows deeper thought as to which method is likely to work best for a given problem As shown back in Figure 1, there would be an ongoing cycle of implementing improvements, and obtaining feedback on how they worked; learning and enhancement of the improvement system would naturally result Integrating improvement with process management institutionalizes improvement

understanding of improvement and the needed approaches to it has reduced the effectiveness of quality and improvement methodologies. The holistic improvement system removes these limitations by using a variety of approaches, including a focus on improvement of the entire business, careful project selection that identifies the right projects and the right improvement strategy for each project, and a robust improvement methodology that can handle the wide variety of problems an organization experiences.

Many organizations are using some form of an improvement approach. This fact suggests that a good way to proceed is to adopt a systematic approach to deployment beginning with the end in mind and utilizing a “start small, think big” strategy. Doing so will provide organizations with an effective way to evolve from where they are to holistic improvement.

References

Barker, Joel (1985). *Discovering the future: The business of paradigms*. St. Paul, MN: ILI Press.

Drucker, Peter F. (1964). *Managing for results: Economic tasks and risk-taking decisions*. New York: HarperCollins Publishers

George, M. I. (2002). *Lean Six Sigma: Combining Six Sigma quality with Lean speed*. New York: McGraw-Hill

Juran, J.M. (1989). *Juran on leadership for quality*. New York: The Free Press.

Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago, IL: University of Chicago Press.

Snee, R. D. and Hoerl, R. W. (2003). *Leading Six Sigma: A step-by-step guide based on experience with GE and other Six Sigma companies*, New York: Financial Times Prentice Hall.

Snee, R. D. and Hoerl, R. W. (2005). *Six Sigma beyond the factory floor: Deployment strategies for financial services, health care, and the rest of the real economy*. New York: Financial Times Prentice Hall.

Snee, R. D. and Hoerl, R. W. (2007). Integrating Lean and Six Sigma: A holistic approach. *Six Sigma Forum Magazine*, May, 15–21.

Snee, R. D. (2007). Adopt DMAIC: Step one to making improvement part of the way we work. *Quality Progress*, September, pp. 52–53.

Snee, R. D. (2008). W. Edwards Deming’s Making a New World: A holistic approach to performance improvement and the role of statistics. *The American Statistician*, 62:3, pp. 251–255.

Snee, R. D. (2009). Digging the holistic approach: Rethinking business improvement to improve the bottom line. *Quality Progress*, October, pp. 52–54.

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Quality Management Journal Preview

QMJ vol. 17, no. 3 Executive Briefs

As a continuing feature of the QMF, we are showcasing the most recent articles in our sister publication, the *Quality Management Journal* (QMJ). The QMF focuses on the practical application of quality principles, and the QMJ focuses on the research aspect of quality. We hope that you will visit their website and begin the synthesis process of merging theory with application to advance the field of quality. <http://www.asq.org/pub/qmj/index.html>

The QMJ provides relevant knowledge about quality management practice that is grounded in rigorous research. They seek:

- Empirical articles that provide objective evidence concerning actual quality management practice and its effectiveness.
- Research case studies that consider either a single application or a small number of cases.
- Management theory articles that present significant new insight and demonstrated practice.
- Review articles that create links to the existing academic literature and aid in the development of an identifiable quality management academic literature.

Here is a summary of their most recent articles.

Toward Socially Responsible SMEs? Quality Award Model as a Tool

Semra F. Acigil, Middle East Technical University

It is becoming more and more important for small-to medium-sized enterprises (SMEs) to learn to respond to the emerging expectations of their business partners. To survive, it is necessary for SMEs to expand their agenda to include meeting economic, social, and environmental responsibilities beyond just the minimum requirements. Thus, corporate social responsibility (CSR) has been integrated into the quality management concept with increasing emphasis, and although CSR strategy is mostly applied by large firms, recent revisions of quality award programs serve as a means to promote the concept to smaller firms.

The interest of SMEs in award models compared to larger firms is fairly new in some quality award schemes. The Baldrige Award added SME categories in the late 1980s, but the European Foundation for Quality Management (EFQM)

didn't add the category until 1997 in Europe. The EFQM Excellence Model now combines social issues, strategy, stakeholders, and structure in a unique way to support SMEs in fulfilling their social responsibilities. The study presented in this article investigates the extent to which the EFQM Excellence Model provides guidance in integrating CSR in quality management and then addresses the extent to which the concept can be operationalized by SMEs, providing examples of two quality award finalists in Turkey.

The award submission books of these finalists were content analyzed to identify examples of varying CSR implementation levels regarding relations with different stakeholders. The booklets revealed that both CSR and quality management are intertwined and reinforce one another's strengths. Stakeholder focus is a common area, making it more convenient to operationally link EFQM and CSR theory.

On Baldrige Core Values and Commitment to Quality

Jeffrey A. Ogden, Air Force Institute of Technology, Cynthia Wallin, Brigham Young University, and S. Thomas Foster, Brigham Young University

Supply chain quality management (SCQM) is an emerging area of research in the quality field. It represents an evolutionary step forward and a theoretical foundation for externalizing the view of quality. As firms externalize their view of quality management upstream and downstream, the question arises of how this influences quality thinking. The authors conducted a study to examine how differently operations and supply chain managers emphasize the Baldrige core values, which are a set of foundational beliefs that underlie modern quality improvement. Data were gathered via Web or paper surveys, and items for the study were developed using the Malcolm Baldrige National Quality Award core values.

Two research questions were addressed:

- Is there a difference in emphasis on Baldrige core values between operations and supply chain managers?
- Does the difference in emphasis affect perceptions of firms' emphasis on quality improvement overall?

(QUALITY MANAGEMENT JOURNAL PREVIEW, continued from page 21)

The results of the study clearly show that there are differences in the perspectives of operations managers and supply chain managers when it comes to Baldrige core values and their influence within their respective organizations. For instance, operations managers tend to prioritize partnering, social responsibility, and future orientation more than supply chain managers. Supply chain managers, on the other hand, prioritize organizational and personal learning higher than operations managers. An exploratory stepwise regression analysis was also performed for three groups—both groups combined, supply chain managers, and operations managers.

An Exploratory Analysis of Preliminary Blinded Applicant Scoring Data From the Baldrige National Quality Program

James R. Evans, University of Cincinnati

The Malcolm Baldrige National Quality Award (MBNQA) is a powerful catalyst of quality and organizational performance excellence in the United States, and has been for many years. To date, however, no research has been performed using Baldrige applicant data because of the Baldrige National Quality Program's effort to preserve the confidentiality of applicant information and maintain high standards of integrity

of the program and award process. While the Baldrige Program carefully guards all applicant-related information and does not release individual data, in 2009 it prepared and released a set of blinded applicant scoring data covering 17 years (1990 to 2006).

This paper explores the blinded Baldrige scoring data released by the National Institute of Standards and Technology (NIST) to address some fundamental questions and provide insights relating to the Baldrige program and scoring process. Specifically, the author investigates how applicant performance has evolved during the aforementioned time period as reflected in examiner scoring, and presents some insights regarding examiner performance using a descriptive analysis of the data, supplemented by some basic statistical inference tests.

While the preliminary data are somewhat limited in scope because neither category-level nor item-level scores are provided, the study does provide some insights into the trends and sector differences in performance. For instance, the data revealed significant differences between large organizations and the small business sector. Gaps exist between perceived importance and implementation of performance excellence practices in small business. Also observed is a decline in the performance within the for-profit sectors relative to the Baldrige criteria, suggesting a lack of sustained improvement or attention to criteria changes. On the other hand, health care and education are progressing well with their efforts.

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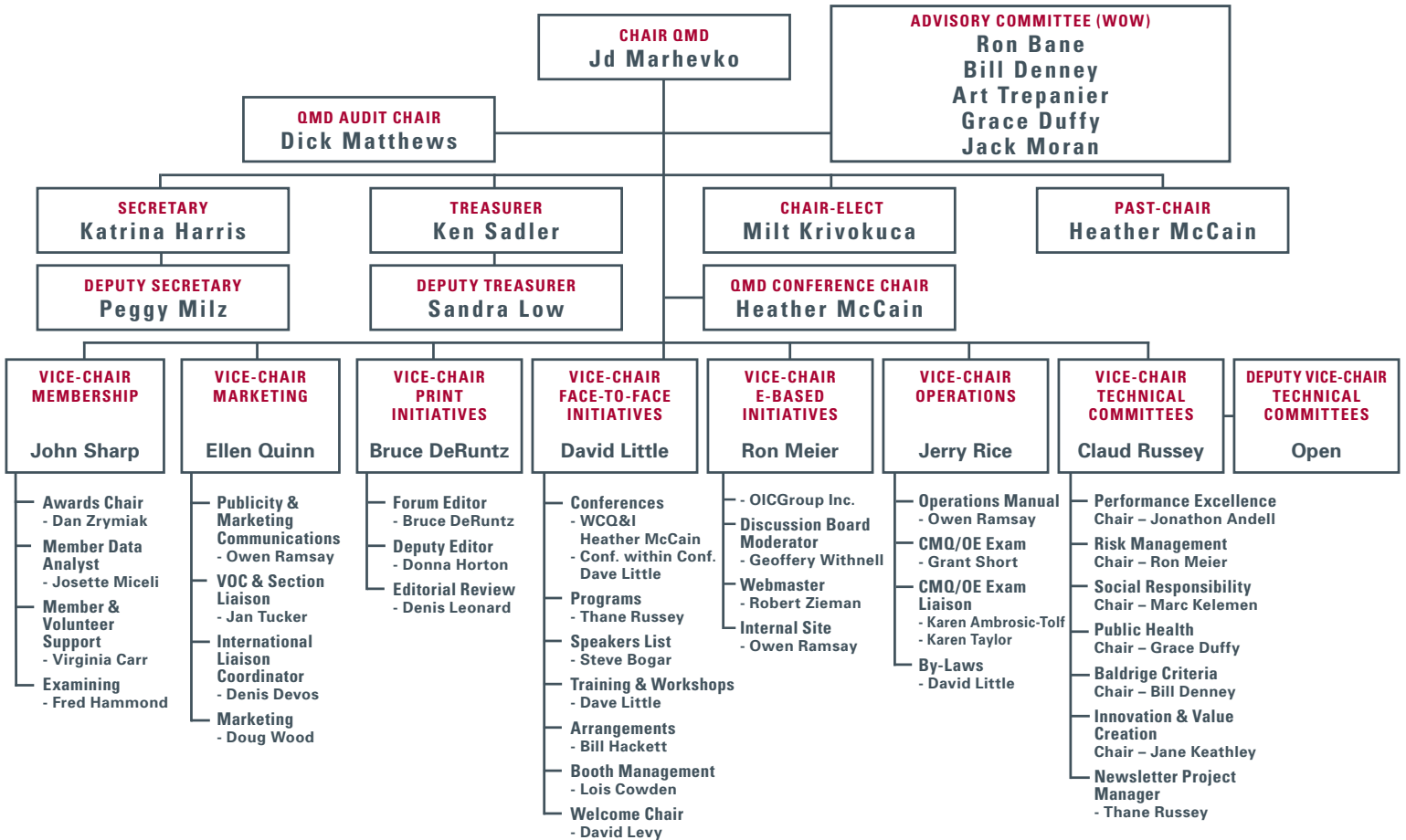
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