Improving the way organizations run through participative planning and management.
The Power of One
In a Systems World

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Systems thinking is nothing more than our becoming connected to and cooperating with the way the world organizes itself. We live in a universe that is naturally systems seeking. If you look at a picture of galaxies, for example, you would see that even they are organized in patterns and systems. It seems to me that our efforts to create great teams, to network, to connect, really have their source deeply ingrained in us. When we try to link people together or create teams of any kind, we are trying to connect to a primal source of energy. In essence, it is more natural for all life forms to be together than to be apart. Yet we seem to require a lot of training and exhortation to create teams and achieve teamwork. Additionally, we think there has to be a strong leader to inspire people with an infusion of his or her energy in order to get them do something together. However, as I have read the literature on systems I found that the concept of the individual and the hero was generally absent.

There appears to be a dilemma here—we want to think in terms of organizational systems, teams and teamwork, but we also want very much to have leaders and heroes. So I’d like to play with this question: What’s the power of one in a systems world? The power of one, in this context, is around our cultural emphasis on individualism, the need for a leader and our love for the hero, in concert with systems thinking.

Systems thinking must not become a fad, because it’s the way to understand how natural living systems organize. We need to be asking: Can we make our organizations more self-organizing? Can we create organizations in which we’re not asking the question about the power of one individual, but rather about how do we work effectively, how do we make something happen?

Using a termite analogy to look at organization in a different way

I want to present a different view of what’s really happening when a team or an organization is effective. Termites are a great example of several things in human activity—they build structures, they farm, they take prisoners, they wage wars, and they have social activities.

African or Australian termite towers are engineering marvels, growing 20-30 feet above ground and extending 30-300 feet below ground. They create internal conditions of 100% humidity and very little heat fluctuation to grow the fungus necessary to digest wood. If you looked inside you would see complex airflows and humidity regulation. And they do it all without a leader. They do it from some internal intelligence about being termites, but they can only do it if they are collective, not if they’re acting alone.

There can be some significant learning from this. When scientists first began to study insects, they assumed that a very complex social structure requires leadership. So
they went searching for the leader, and couldn’t find one. It wasn’t the queen because all
she does is lay eggs. But they never challenged their assumption that where there is
complex, well-coordinated behavior, there must be a leader.

About 15-20 years ago, they realized that there’s something different going
on—emergent behavior or self-organization. It’s the capacity of a group to come to-
gether and, if they have good communication and know who they are, they spontane-
ously perform complex, adaptive, skillful behavior; but it just shocks us because we
believe somebody always has to be in charge or there will be chaos.

**Conclusion: leadership and organization can be emergent and effective**

Nature seems to suggest that a whole, complex, human system can emerge and
be self-organizing if people at the local level do their work with enormous levels of
freedom and clarity about what the work is. I don’t want to diminish either of those
elements. Freedom has to be combined with clarity about what we’re in business for. We
have to find the real purpose of a team, and then we can free each other up. This model
is found everywhere in living systems.

**Some examples where leadership and organization frequently “just happens”**

If you’ve ever been on a really wonderful team, you’ve experienced self-orga-
nization. You had freedom, clarity of purpose, and communication with each other; not just
because of the networks, but because you liked or respected each other. And the patterns
of influence on that team would be hard to trace. You couldn’t really say, “When Sam
said that to me, that’s when I did this, and that’s the direct cause.” When I listen to
people talking about their overwhelmingly positive team experiences, the emotional
charge centers around the way it spontaneously organized. They found, on that particu-
lar team, that they felt more alive.

It is common today to talk about rekindling spirits. One way to invigorate our
spirit is by creating a systems-seeking, affiliation-desiring kind of organization that most
of us want. If you’re wondering if there are any human examples of self-organization, the
answer is yes. We typically see this kind of emergent, networking behavior during a crisis
or disaster. What is it that brings out the best in people when the conditions around
them are extremely negative?

I asked this question at Southwest Bell right after the Oklahoma City bombing
tragedy. The Southwest Bell offices were six blocks from the bomb explosion. The
windows of their building were blown out. They knew something horrific had occurred.
Their managers were in Texas for a meeting and when they came back later that day, the
first thing their staff told them was “It’s good you weren’t here. We didn’t have
to hesitate for a moment. We could just respond.” When I asked them what characterized
the situation, they mentioned six different points:

1. **There was an instant sense of team and purpose**
   
   The sense of purpose here is very, very general. It is some deep but undefined
desire to rescue, save, help; it’s not a long mission statement. It’s something that I’ve 
seen in organizations that have values the people believe in.

These values are fuzzy, using the word in the sense in which we talk about logic 
as fuzzy logic—you can’t nail it down to one definition. You may work in an organi-
zation that has very simple value statements. If you do, it’s a great benefit that you 
should appreciate. The ones that work the best are one or two words—honesty, 
fairness, social responsibility. Then, because the concept is strong, but vague, it does 
something wonderful: It invites people to have conversations about what it means.

This is important and to give you a firsthand example, I worked in an organiza-
tion that had a long history of being very deeply connected to its values. It didn’t 
always do well internally, but at least it had this tradition. One day a manager came 
out of a staff meeting and said, “We just spent three hours discussing what we 
thought honesty meant in terms of how to approach clients. Honesty has been a 
value of this company for over 50 years and I thought we all knew what honest was. 
But it took three hours for us to discuss what we thought it meant and what it meant 
with this client.”

For me it’s a sign of health to have conversations about what your values really 
mean in the give and take of organizational life. It also creates a sense of community, 
welcome, purpose and coherence that you don’t find if you spell it all out for people.

In times of disaster and tragedy there’s a vague but instant heartfelt purpose which is 
to save and rescue. People just do what they think is necessary.

2. There were no heroes.

Everyone just got involved and contributed what they could at the moment. 
They were consumed with a purpose to help and there was no egomania.

3. There were no manuals.

They said, “We worked with whatever was available; resources were an issue but 
not in a typical way. You just scrounged for what you could get for what you 
needed.” There was no time to do anything else—they had to quickly find what 
worked in that moment.

4. Their jobs were new, different, strange.

That made it exciting; but on the other hand, they pointed out, there was 
expertise available. They didn’t ask nurses to restore phone lines. A lot of people 
work in their field of competence, they use their expertise, but the setting is so new 
that it keeps them quite alert.

5. Communication is wide open.

The flow of communication happens very quickly; through networks, if net-
works are important. Information moves quickly into all areas where it is needed.

6. Leadership is distributed.

Leadership is not a role, and in fact, some of the leaders that I talked with said 
they felt much more comfortable doing whatever, and they didn’t stick to role 
leaders. So there’s a need, someone fills it, sometimes.
The power of one

Where is the hero in this scenario? What is the power of one in this context? Occasionally it is somebody who makes a very heroic act, who walks out on a precipice to save someone, or who leaps into the water to rescue people from a plane. But even then what’s really going on is a whole system spontaneously organizing, moving resources, moving information, so that one person can step out and do something.

In our culture, the hero has become so important. And yet most heroes, when they were in the emergency situation, were not trying to be heroic and don’t need to take credit. But in non-emergency situations we seem to have an ego-need to feel powerful, and we only feel powerful if our name is on it. I understand this is a very western way, and we all suffer with it, but I think it is something worth pondering.

Who survives, the fit or the fittest?

Many of us grew up in a business culture that believes in the survival of the fittest. This belief implies that the world doesn’t want us here—we have to make our own way, we get no support from anybody, any natural forces; we are aliens on this planet. If you’re lucky enough to come up with the right adaptation, you may survive, or at least you’ll survive this round; these are all chance occurrences. One of the basic organizing premises of American society is: “Get it right or you will die. Your window of opportunity is very small. You’ve got one chance to come up with the right solution.”

That’s incredible pressure. I don’t think any other species on earth lives that way, because that’s not what’s going on in these systems. In nature, it’s not survival of the fittest. The race doesn’t go to the strongest and the swiftest in life. One scientist did a wonderful turn of phrase. He said, “It’s not survival of the fittest, it’s survival of the fit.” Now think about how your stress level would change if you could be in the world realizing that you’re trying to find things that work, rather than trying to find things that are perfect. And that you’re trying to find things that are viable right now, without the encumbrance of egomania.

Sharing information improves competitiveness and survival

We need to realize that in a systems world, competition is not the dominant mode of selection. There are some very interesting organizational experiments going on with that. When the semiconductor industry got together, they were a group of competitors—Intel, IBM and other large manufacturers. They ended up regaining the advantage in markets they had lost by exchanging information amongst themselves. They discovered that through the sharing of information, performance improved for all of them and created a new competitive advantage. As information is flowed down into all areas of an organization, whatever the form, an increased capacity to respond intelligently is created.

Merck Pharmaceuticals also transformed the playing field by rethinking competition. They’re trying to understand DNA in all of its specificity. This is a big project with a lot of money, status and potential Nobel prizes attached to it. Merck surprised people by publishing all the information they had about the human gene. They
said their skill, their niche, is in being able to take information about the human body, how it works, and transforming it into pharmaceuticals. They said the advantage is not in what you know, it’s in what is done with it. That’s a major rethinking.

**Flatter hierarchies and rapidly moving organizations require vast information flow**

I first got involved in the United States Army around a conversation about what happens if you give others in the organization information that was formerly the Commander’s purview, his or her privilege. What if you give that information to everyone, down to the lowest tank staffer? They found, in a test run, that it fundamentally changed people’s desire to participate. One ammunition loader came out of the tank, having just seen the battle on the screen, and said, “I want to be involved. Now that I see what’s going on I can contribute to this.” The point is that as we move information down into all areas of an organization we create more capacity to respond intelligently. We create more conditions for self-organizing.

**High clarity of purpose is absolutely essential for organization**

One thing that’s missing or confused in a lot of human organizations is that the people don’t know what the self is that they’re to organize around. When they see an opportunity with a customer, or an opportunity to move into a new market, or an opportunity just to deal with someone differently, what sense of organizational self does one refer to? How many would describe their organizations as having multiple-personality disorder? How many messages are there about what’s important? It is exhausting, sometimes, to catalog the different variety of purposes and missions that are actually at play in our organizations.

**Two basic characteristics that enable self-organization to happen**

I think we can create the right kind of conditions in our organizations for emergence and self-organization. Here are two characteristics:

1. Experiences are not linked to one leader.

   A wonderful term was given to me when someone described an organization to me as leader-full. Whoever has the information, whoever wants to work on it, becomes the leader for that moment.

2. What the team invents is always the team’s invention, and it is unique to that sect. You cannot transfer someone else’s success to another team.

   You’ve spent probably a good part of your life trying to do that if you’ve worked in a large organization. We see a team that really made it work, and what do we do? We study it, we analyze it, we benchmark them, so that we can take that success and bring it over. Well, it doesn’t work. The medical command of the U.S. Army gave me a wonderful phrase a few years ago. They said, “If you’ve seen one, you’ve seen one.” You cannot copy success verbatim; you have to constantly reinvent mechanisms for success, and be creative if you want things to work.
The future for the quality movement

I envision the future of the quality movement as linking into the spirit, kindling people’s desire to do quality. This will not be found in another training program, or in another measurement process. It’s going to be found in trusting that people want to do quality (it’s a natural instinct as far as I’m concerned), and trusting they can do quality work if they’re well-informed, well-connected, and the organization provides the kind of internal, interior, coherence about what’s important. We’ve really gone wrong in thinking that quality is all about predetermined measurements, structures and procedures. The world has a natural desire to do quality work and to be in relationships. That’s what quality is all about—having good relationships, both with your own self, the value of your work, and the value of the person that you call customer or vendor.

Some Conclusions

Let’s not be afraid of messes

Life is messy, because it seems wasteful and redundant. It has none of the machine efficiencies that you and I spend so much time perfecting. When you put a bunch of people together around a clear vision, a clear purpose, and have a heartfelt discussion about what this work is about, it feels like a very messy process. But there is a natural desire to want to be effective in people, and out of that messiness can come order.

Resist the need to draw organization charts for everything

A problem arises when we try to make organization charts. A true, dynamic, living system cannot be drawn— it changes too quickly. When you try to draw it you’re looking at the past. Trying to understand an organizational system by drawing it, mapping it, working up causal loops, will be, I think, a frustrating and difficult task. The reason it’s frustrating and difficult is because it’s impossible. You can understand a living, nonlinear, changing system, but you cannot draw it.

The power of one

If we have a clear sense of organizational self, whether it’s at the team level or at the system level, or the national level, and we are really clear about it, then people will know what to do. The power of one, therefore, is not in one person. The power of one is in one consistent purpose that all in a group share. Not a lone person, but a clear sense of oneness and self.

Experimenting to find what works

A scientist once said, “Life is a tinkerer, it’s experimental, it’s creative.” What people are doing with quality efforts is experimental. It needs to be creative. It isn’t filling out forms, following procedures. It’s about tinkering to find what works.
Examine and understand what’s happening when your organization feels truly alive

Organizations are alive. I think they are best understood as living systems. But we don’t often treat each other as living systems, because living systems, unlike machines, are creative, adaptive, system seeking and, above all, self-organizing. So as you think about the power of one, and what it is to have a rekindled spirit in yourself, or in anyone that you can touch, think about who the people are that work with you, whether they have any of these capacities that I have described. Where have you seen self-organization? Where have you seen people come forth just to make something happen? Then think about what helped make that happen? You might tune in to a self-organizing world.

The bottom line: most everyone wants to do good work if you enable them to do it

We can be in an exploration to see what connects us rather than what separates us. In this exploration we are returning to a world view that is much more hopeful and has much more capacity than any of the machine images that have plagued us for so long. Exploring connections is a natural desire in us. Now, of course, the big question is this: How do we take that into our organization? If you go back to your own experience of times when people did extraordinary work unplanned, you will start to understand that we, as human beings, are not the bad people we’ve given ourselves the rap on. You, as a self-organizing creative individual, have access to a whole different level of sources and dynamics in this world than we ever thought, because it’s not a hostile place; it’s a self organizing world that seeks order. We seek to do good work.

Author Information


Dr. Wheatley became a student of systems theory and communications at New York University, where she received her M.A. in communications. It was there that she discovered the field of organizational behavior, which led her to Harvard University. She received her doctorate from Harvard in the Program for Administration, Planning and Social Policy, with a primary focus on organizational diagnosis and interventions.

Dr. Wheatley has consulted to the U.S. Army and a wide variety of Fortune 500 clients as well as educational and not-for-profit institutions, working at all levels—from CEOs to assembly line workers. She was a keynote speaker at GOAL/QPC’s annual conferences in 1994 and 1995.

The Berkana Institute is a charitable scientific, educational, and research foundation supporting discovery of the new organizational forms required for the twenty-first century.
Total Quality Leadership and the New Military

Linda M. Doherty, Ph.D., Director, Total Quality Leadership Office, Under Secretary of the Navy, Arlington, Virginia.


Major General Joseph D. Stewart, U.S. Marine Corps, Commander, Marine Corps Logistics Bases, Albany, Georgia.

Major General George E. Friel, U.S. Army, Commanding General, Army Chemical and Biological Defense Command, Aberdeen Proving Ground, Maryland.

Rear Admiral Kevin F. Delaney, U.S. Navy, Director, Shore Installations Management Division, Pentagon.*

Introduction

Linda M. Doherty—Total Quality Leadership and the New Military was originally a panel presentation that I arranged and moderated at GOAL/QPC’s Eleventh Annual Conference in Boston. It was one of the first occasions where senior military officers from the four Services came together publicly to talk about how they are leading quality initiatives. They were selected for the panel because of the visionary work they were undertaking within their own commands, and because they could speak with authority about what was going on in their respective Services.

Their stories represent a sea change in the way we look at what we do as military organizations. Indeed, the level of reform, of reinvention within all of the Department of Defense over the past few years has been remarkable. The Department of Defense published a formal statement of commitment a few months after the GOAL/QPC conference in which it called for the establishment of a defense quality workplace. In August 1995, Deputy Secretary of Defense John White took formal action to integrate the Department of Defense quality initiatives into permanent organization processes. Total Quality Management is no longer something separate: It is integral to all we do.

The stories that follow will inspire you. These four officers understood that for Total Quality to take hold, it had to be led top-down. The ultimate responsibility for its success could not be delegated.

At the time of the conference, Brigadier General William R. Hodges was Inspector General for the Air Combat Command headquartered at Langley Air Force Base in

* Brigadier General Hodges and Rear Admiral Delaney have had assignment changes since this presentation was made. Their current positions are shown in author information, page 18 and 35, respectively.
The second presenter on the panel was Major General Joseph D. Stewart, Commander of the United States Marine Corps Logistics Bases. His organization is headquartered in Albany, Georgia. He talked to the audience about the value of having a strategic plan and how his organization had to rethink its own because the initial focus was misplaced: it was on issues, not processes. He spoke about the importance of having a leadership philosophy, too. He invited people with leadership experience to the command to talk about their own personal philosophies—a true learning organization. He finished his presentation with success stories. They are impressive from any perspective, whether it be employee involvement, process improvement, or bottom-line figures.

Major General George E. Friel is Commanding General of the United States Army Chemical and Biological Defense Command, Aberdeen Proving Ground, in Maryland. Under his leadership, the command of 1,800 people began three years ago to look at its future strategically. He and his senior team turned the organization upside down, abolishing all jobs and then redefining them, ending up with an organization far less hierarchical and better able to respond to customers and operate more like a corporate entity. The new organization is based on decentralized teams, with teams managing teams—no boss, and no staff jobs; and what he calls a ZAPP system of communication. His goal is to go from four levels of organization to zero, to what he calls a team-directed work force. No one else could tell it like he does.

Rear Admiral Kevin F. Delaney, at the time of this presentation, was stationed at the Pentagon as Director of the Shore Installations Management Division. He took the audience on a journey to Naval Air Station Jacksonville, where he had previously been Commanding Officer. He is now back at Jacksonville again, as Commander, Naval Base Jacksonville.

The station operates much like a small town, with some major employers and a residential population supported by a variety of services: police department, fire department, public works, and so forth. He introduced Total Quality wherever it made sense, at work and in the community. He also talked about why people resist change and why we have wasted steps in much of what we do. He gave particular attention in his presentation to the inspection process and how it changed under his guidance as Inspector General for the U.S. Atlantic Command and the U.S. Atlantic Fleet.
Reinventing the U.S. Air Force


Introduction

The Air Force you see today is not the Air Force that we all knew five years ago. We took on the challenge of reinventing the Air Force, not because it was broken, but because it was time to face the realities of the new world. There were financial constraints and new defense priorities which have driven a reduced budget along with downsizing of personnel, equipment and infrastructure. Quite simply we needed a different Air Force—not just a smaller version of what we were during the Cold War.

The classic quality principles, some of those used in the commercial sector, have been the basis of our road map for the most significant changes we have seen in the Air Force in our 47-year history. I believe our leadership, up and down the chain of command, has been the key to our success in this transition.

Total Quality Management is a concept that, though old, is still sweeping across the nation. But Air Force Quality has taken on a face of its own. In the past four years a lot has happened. One of it's new to you. The Berlin Wall came down, the Warsaw Pact fell apart, Boris Yeltsen and the Soviet people signaled the end of totalitarian Communism in Europe, and our nuclear bombers came off alert status. We found ourselves in the U.S. as the only world superpower. As a result, all of our assumptions about strategy and force structure changed.

The clamor for defense cuts began several years ago, and we have seen many successive smaller budgets since. In our national strategy we chose to size our forces to fight and win two major regional conflicts, nearly simultaneously. The DOD completed a bottom’s up review of defense requirements to support that strategy. At the same time, we’ve seen on the evening news almost continuous examples of expanding regional, economic, and political strife often demanding our involvement. From the Gulf War, where air power really came of age in a clear response to aggression, to Somalia, Bosnia or Haiti, where humanitarian support and nation building have been at the forefront, we still have many demanding global commitments. Throw in a few extra concerns such as nuclear proliferation and human rights, and it's clear that while our priorities may have changed, we still have vital global interests. And our need for capable military forces in a high state of readiness remains crucial.

The public's expectations have changed too. Americans look now to their military forces for a much broader range of responses in the execution of our foreign policy. In conflict Americans have come to expect quick victories with few casualties on both sides. Yet there has been constant pressure to reduce budgets. So even at the outset of this new era, I believe our Air Force leadership saw the future. They saw the new budget reality coming, and they saw the requirements that would remain out there. All of this demands change. They set about building the objective Air Force, the one we'll need in the future.

1. See author information, page 18.
Reductions in funding, materials and personnel

W e've seen a 44% reduction in terms of real or inflation adjusted funding since our peak period in the mid-'80s. Our biggest problem is how to maintain capability in the face of these shrinking budgets. As our budget gets smaller, it gets tougher to maintain our technological edge, which is so vital to us in combat. Our modernization account is down 68%, significantly impacting both research and development as well as tests and evaluations. Our operations and maintenance funding is down only 19%, but that's been at the expense of cutting other areas more deeply in an effort to avoid the hollow force that we saw in the '70s. Thus we've maintained a fairly high operations tempo of training and exercises despite our budget cutbacks. At the same time we're balancing competing people programs. Training and programs for maintaining the physical, mental, and spiritual health of our service members and their families are equally important to our readiness.

Our active duty Air Force aircraft are down from nearly 7,385 to less than 5,000 now. Our fighter force was over 3,000; it's now about 1,800 aircraft. Our bomber fleet has been cut in half to under 200 aircraft now, while our cargo, transport, and tanker inventory has been reduced from about 1,400 to 1,100 aircraft. And we haven't seen the end of these cuts yet. With a much smaller force, you can appreciate why efficiency and high readiness rates are so important to us and therefore, Quality and Continuous Improvement are part of our program.

We have fewer people, too. Our active duty force is down one third from our peak year in 1985. Similarly our civilian work force has been shrunk 23%. We're now under 200,000 with planned cuts equating to another 15% between 1995 and 1999.

We've also seen a major reduction in infrastructure, with associated base closures. In the United States, 27 Air Force bases have closed or been identified for closure. This will be a reduction of over 25% by 1997. Overseas, we have gone from 38 bases to 15, a 60% reduction despite our increasing global commitments. Even with these closures, our infrastructure reduction has not kept pace with budget, aircraft inventory, and personnel cuts, especially in the area of overhead. The '95 Base Realignment and Closure actions will afford us further savings.

The reinvention began by defining a new vision and mission

Faced with these challenges we set out to reinvent the Air Force. The same quality principles being used across corporate America were at the heart of our efforts. We began with a Vision. It's fairly well advertised: To be the world's most respected Air and Space Force providing global power and reach for America. This Vision keeps us focused on who we are, what we're about, and it gives us purpose. We also defined our Mission: To defend the United States through the exploitation of air and space. Interestingly, we've never really had a clear articulation of our Vision or our Mission before. This Mission Statement is very broad but we have defined our Mission more narrowly as we go down the successive layers of command, all the way down to the squadron level. A clear understanding of Mission is crucial because it focuses our resource allocation and it helps us eliminate the non value-added costs.

Change the organization

To accomplish our Mission most efficiently, it was clear we had to make some
Change the organization, and how we equip our people and units, continued

changes in fundamental areas, beginning with how we organize, train, and equip our units and our people. Incremental change simply wouldn’t get us to our objective. We needed more immediate and radical change. So we developed a systematic program for reform within the construct of Quality Improvement, laying out clear goals and objectives along the way. The initial step in reinventing the Air Force was to make 1991 the Year of Organization. Over time, the Air Force had gotten too complex with too many layers, not uncommon in large bureaucratic organizations.

Keeping in mind that combat operations is our product line, our objective was to give commanders increased flexibility and authority. First we made a huge reduction in overhead, going from 13 to 8 major commands, and eliminating all 19 of our intermediate air divisions. Our numbered air forces became a tactical echelon, responsible for war fighting, not day-to-day management. Many of our installations had become a hodgepodge of unrelated units, with tenants and detachments. So we moved to the “one base, one wing, one boss” concept as our standard. Now wing commanders at installations run integrated air operations at composite wings around the globe and in many bases in the United States. Quite simply, we tore down the functional hierarchies, built teams, and put one leader in charge at a given location. We also pushed more authority and responsibility out of the headquarters and down to the unit level, where our product—combat capability—is produced. Fifty-six of our wing commanders are now general officers, and we’ve cut a large number of our colonel positions. We once had 6,000 colonels; we’re now down to about 3,500. Not good for colonels, but good for reducing middle management. Our year of organization aimed at cutting overhead, flattening our organizational structure, decentralizing to empower those who bring combat capability to life, breaking down barriers, and breaking down those functional stovepipes that we’ve all seen.

Next came the Year of Training, 1992. In the Air Force we expected to get the greatest return on our commitment to trust and teamwork through education. So we devoted an entire year to reviewing the quality and timeliness of education and training. During this effort our senior leadership designed an architecture that integrates quality tenets, practices, and skills into every formal Air Force school and professional military education course that we have. Our goal of developing initial skills and following up with a solid continuation training program is designed to develop the technical excellence necessary to keep pace with modernization. To maintain our emphasis we put the responsibility for technical training and professional military education under a single major command, the Air Education and Training Command.

We refined undergraduate pilot training to economize in an area where we do some of our most expensive training. We now specialize students into either an airlift or a fighter bomber track, rather than training pilots for skills they won’t use in their permanent weapons systems assignments. We now provide navigator training for active Reserve and Guard trainees, not just for the Air Force, but for all the Services. We have some of the best training facilities in the world because we want our people to get the best education possible. Training is the key component of the Quality Air Force. It makes us more efficient and it directly affects our success in combat.
Developing a long range strategic plan

It was important to develop a Strategic Plan which projects our modernization needs out to the year 2020. After 40 plus years of Cold War focus, it was time for the Air Force to shed programs we no longer needed, and we did just that. With the DOD bottom-up review as a basis, we forecast our future combat and airlift needs. We took a fresh look at some of the key programs that are so vital to our modernization, such as the F22, the B2, the C17, the Advanced Cruise Missile, and the Peacekeeper Intercontinental Ballistic Missile. Many of these programs have been restructured to meet budget constraints, but we still maintain our commitment to modernization. Closely aligned with that was our quality approach to turning loose the creative energies of our people, and rewarding them for their efforts. In fiscal year '93 for the first time, we put the dollars for depot repair of exchangeable parts into the Wing Commander's budget instead of a large central global Air Force fund. We also gave our units more flexibility for local repair of parts, repairs that once were restricted to depot level maintenance. Now that the local Wing Commander pays the bill, there is more incentive to come up with new ways to both reduce breakage and to repair broken parts.

Some initial results

Let me give you a few examples of some of the savings and successes we've seen using the Quality Air Force approach:

- At Nellis AFB near Las Vegas, one of our senior non-commissioned officers invented a tool to help take the canopy off an F15E aircraft. It saves us $20,000 every time we do that task, and it cuts the length of the task from 12 days to 2 hours. That achievement alone will save us $4 million a year on the F15E.
- At one of our B1 bases, one of our maintenance troops found a local repair for what was once an expendable $5,200 part. That repair costs $50.
- At another base an NCO came up with a $200 repair for the F111 aircraft that had previously been done at the depot level for $49,000.
- In another area, we ran a test at three bases to cut fuel costs. We gave the fuel dollars that were previously centrally managed to the individual Wing Commanders at those three installations. At Seymour Johnson, where we had our best success, they saved $1.4 million in one year. As a reward they got to keep half of that savings for their local funding requirements. Now all of our bases are managing their own fuel accounts, and we've seen significant savings across the whole Air Force.

Focusing on readiness in a time of rapid change

1994 was declared the Year of Readiness by our Chief and our Secretary, with the emphasis on being highly combat capable despite obvious declining budgets. This is becoming increasingly challenging as it requires continuous attention to recognize shortfalls. To help us monitor our readiness the Air Force has designed a system called ULTRA, which stands for U.S. Long Term Readiness Assessment. It focuses on four elements of combat capability. This isn't a mature system yet, we're still improving it. The goal of the effort is a better way to measure our readiness. We believe that if it doesn't get measured, it won't get improved. As we downsize, we also want to ensure that we don't return to the hollow force days of the '70s when we had airplanes we couldn't fly for lack of parts.
CASE STUDY

Looking at readiness is a crucial area for us. Underpinning all of this reinventing of the Air Force has been an imbedded quality philosophy that has been essential to our success. The term Quality Air Force dates back to 1991, but long before that we were practicing many of the tenets of quality that are espoused by a lot of quality gurus. We take a lot of pride in the fact that Air Force leaders, over the years, have practiced a leadership style that has promoted initiative, innovation, and continuous improvement, even before we heard about Total Quality Management. However, the event which set the stage for a new culture of quality in the Air Force was the establishment of the Air Force Quality Council in December 1991. This Council is cochaired by the Air Force Chief of Staff and the Under Secretary of the Air Force. The members include 4-star generals from across the Air Force.

The Council establishes policies and strategies, reviews and assesses our progress, and acts as our senior quality champions. Early on, the Council agreed upon our Mission and Vision. They also defined the Quality Air Force environment we expect all of our leaders to strive to create in all of their organizations. This environment includes an operating style, our institutional values, and a set of basic principles to provide a road map to help us reach our objectives.

We expect our leaders to create a positive working environment, delegate responsibility, set goals, get people involved, and move towards continuous improvement. One of the earliest decisions of our Quality Council was to establish the Air Force Quality Institute at Maxwell AFB. It’s a schoolhouse for quality consultants, coaches, and leaders. The Quality Institute functions as our Center for Continuous Improvement, providing training, sharing ideas and experiences, and benchmarking best practices across the Commands and across industry. We cascade this training down to the lowest levels by training quality advisors. Those trainers then go back to their own units and provide training at the local level.

Another initiative was to streamline the way directives are written and promulgated. We cut 46,000 pages of Air Force regulations down to 16,000 pages, and we put them all on a single compact disk that cost us $2.00 to produce and distribute to the field. Instead of being prescriptive our policy directives provide guidance. Our directives now tell us what to do, not how to do it. This empowers our people, encourages innovation, and cuts the bureaucratic red tape that stifles continuous improvement. In another area, inspection, you’ll recall one of Deming’s 14 Points is “cease dependence upon inspection.” Instead he tells us organizations should develop character and trust in their members to assess themselves.

Following this quality tenet the Air Force Quality Council established a new assessment system patterned after the Department of Commerce Malcolm Baldrige Quality Award. Our system for assessing effectiveness and efficiency at the lowest levels changed from one of micro management of compliance with regulatory guidance to a focus on process, measurement, continuous improvement (CI), customer satisfaction. Our new Quality Air Force Assessment, or QAFA as we like to call it, validates the unit self assessment and emphasizes benchmarking opportunities, not a focus on giving them...
Creating a new assessment system, continued

Unit self-assessment helps make improvement process continuous

Leadership importance is emphasized

a report card. The Quality Air Force criteria that we use for our Quality Air Force assessments or QAFAs parallel the Baldrige award assessments. We use them as a set of indices by which to measure our Continuous Improvement at the unit level. Their value is in allowing organizations to assess themselves against a set of standards, and then seek continuous improvement once this baseline is established. Even before our Quality Air Force emphasis, we have historically done very well in many of these areas. However, I would report to you that process improvement, measurement, and analysis as well as customer focus have really received greater emphasis in the Quality Air Force.

Closely aligned with the Inspector General’s QFA is unit self-assessment. Again, using the same Quality Air Force criteria patterned after Baldrige, our units periodically evaluate themselves, typically once a year, against this standard set of quality criteria, with the goal of continuous organizational improvement.

Although we’ve achieved many successes with our quality efforts today, most of our units are still in the early stages of their quality journeys. We have a high percentage of people who have been formally trained in Air Force Quality fundamentals as well as many trained in tools and techniques. We have also trained many coaches. Nonetheless, even with all that training, many of our people down at the unit level, down in the wheel and tire shop and supply squadrons and the like, these people are struggling with how to bring quality to life in their workplaces. They can sit in the base theater and hear the orientation course, but bringing it to life so continuous improvement is part of the organization has been a struggle for them. The unit’s self-assessment has proven to be the vehicle by which we most quickly transition from training to implementation of quality at the unit level. The Unit Self Assessment (USA) immerses a unit in quality, so that its members really begin to understand how to apply these principles to their everyday efforts, so that it makes sense to them and doesn’t just come across as an academic, esoteric kind of a discussion.

From the Strategic Planning area to Process Analysis, from measures of success to customer feedback, the USA has moved our units a giant step forward and it fosters teamwork as well. The USA also identifies areas where we need to improve. But equally important, it identifies the best practices that we’ve been able to share across the Air Force so all of our units improve.

Every basic course in quality emphasizes the importance of leadership commitment. Our experience certainly has been no different. Leadership has been and will continue to be the key to our success, not just at the top, but leadership up and down the chain of command. The Quality Air Force is not about management; you can’t manage people to change or to excel. Leadership makes that happen. Leadership establishes the Vision, creates the operating style for our organization. Our leaders stay in touch with their organizations, always fighting for feedback. I emphasize this is not just our senior leadership, but leadership up and down the chain of command, including our NCOs and first line supervisors.

Our leadership challenges and rewards the initiative of our people whose individual strength is diversity, but when working in teams, rise to greater heights.
Leadership importance is emphasized, continued

Leaders keep the big picture in sight. That’s pretty important in our business. We work at avoiding the trappings of quality, making quality the way we do the things we do, and not just a thing on our list of things to do.

We frequently find ourselves getting off into quality for quality’s sake if we’re not careful. Leaders stay focused on the bottom line and of course, for us, that’s Combat Capability. The key role of leaders at every level is making sure they’re walking the talk, practicing what they preach, and creating a working environment where trust, teamwork, and continuous improvement can flourish.

Conclusion

Ours is no longer the Cold War Air Force. Today it’s a streamlined, tougher, more flexible Air Force and through quality initiatives, we’re making it better every day. Our people are still our most important asset. Harnessing their talents is the heart of the Air Force Quality effort. Our presumption is that we have top quality people and top quality leadership out there. If the unit’s not doing well, either they don’t have enough resources or they don’t have the right training. We assume that people are there to do a good job if simply given the right training, the right resources, and the right infrastructure. We’re making that happen one base at a time, but the key has been our senior leadership— their commitment and personal involvement has been crucial.

Implementing Total Quality Management in the U.S. Air Force has not been without its challenges. Even with extensive orientation and training, our people tend to fall back into old habit patterns when they return to the workplace. The Unit Self Assessment has proven to be the key in bridging this transitional gap. There are variations in other major commands, but in Air Combat Command, the largest Command in the Air Force, the focus is on unit self-assessment at the squadron level, down at the point where combat capability is produced. We’re looking for every squadron to examine themselves using the Baldrige-style Quality Air Force criteria, from leadership through customer satisfaction, and to do it with the focus being on results: “How do we know we’re better tomorrow then we were yesterday? How do we measure that?”

With this approach, we’re making improvements in our organizations at every level— units are evaluating their processes, their strategic plans, and the measurement tools that they use. We are institutionalizing a spirit of continuous improvement that will make us a more capable and efficient force in the years ahead. We are doing it by harnessing the creative talents of our most valuable asset— our people.

Author information

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   General Hodges is a combat pilot with over 3,200 flying hours. His stateside assignments are varied, and include being Commander of the 5th Bomb Wing, Minot, North Dakota. The Fifth Wing was chosen as the 1993 Air Combat Command’s nominee for the Secretary of the Air Force Unit Quality Award. General Hodges has also worked for the Joint Chiefs of Staff, first as its representative for International Negotiations Maritime United Nations Division, and later as Executive Officer of the Strategic Plans and Policies Directorate.
U.S. Marine Corps Logistics

Major General Joseph D. Stewart, Commander, U. S. Marine Corps Logistics Bases, Albany, Georgia.

The Marine Corps has put all its Logistics bases together, and I am responsible for them. It’s actually three separate organizations headquartered at Albany, Georgia. The others are located in Barstow, California, and what we call the Blount Island Command. The Blount Island Command is located in Jacksonville, Florida. It is where we take care of our maritime preposition ships. The mission there is the regeneration and refurbishment of the equipment and supplies aboard 13 ships that we have around the world.

I want to mention at the outset the importance of the Marine Corps’ new strategic plan in guiding our planning at Albany. The leadership of the Marine Corps put an enormous amount of energy and effort into developing a strategic plan. The plan has a Mission and a Vision, with guiding principles following from that Vision, and goals flowing down from those. Each of these goals, in turn, has strategies. For example, one of the goals says something about the “supporting establishment.” That’s where I am at the Logistics Bases. We are part of the Marine Corps supporting establishment.

When I took that goal and look at the strategies, they tell me that we need to train the workforce, take care of the civilians, make sure the communication capabilities are up to date, improve the computer network and the local area network capabilities, and those kinds of things. In short, it gives me, as a commander, some guidance on things that I’m supposed to do. Of course a lot of other Strategic Plan goals fit as well, and the strategies that follow them. I think it’s a great story on the part of the Marine Corps.

The Logistics Bases had a strategic plan based on five issues: Customer Satisfaction, Work Force Development, Organizational Streamlining, Sound Business Practices, and Environmental Excellence. After thinking about it and getting into it a little bit, I think we probably didn’t do it exactly right. We built our Strategic Plan around those five issues and not around processes. There were Quality Leadership Boards responsible for each issue. They had strategies and goals, and actually accomplished quite a bit. But after reading more about it, and having experienced people visit us, I believe we were doing Management By Objectives more than we were doing Total Quality Leadership process improvement. But I will tell you that it worked. There was a Strategic Plan with objectives, timelines and specific goals. An enormous amount was accomplished. We’re sort of running out of gas right now, and we’re in the process of reviving this plan, making it more process-oriented and getting our energy back up.

Now as things sometimes go with changes in command, when I rolled into the organization there was already a strategic plan in place. Unfortunately, I didn’t realize that and went around telling everybody my goals. Then I found out that we had a...
Total Quality Leadership and the New Military

Logistics bases unified, continued

Strategic Plan and the goals of the Strategic Plan were a bit different from mine. So I got the organization a little out of balance then, because I made all my key leaders report to me on what they were doing on my three goals—to improve quality, reduce costs, invest in and involve the people. They were doing that and making a lot of headway. But at the same time they wondered, “Is it General Stewart’s goals or is it what we put forth in the Strategic Plan that we should be focused on?”

The reason I did that is because the Commandant really got my attention several months earlier. He sent all the generals in the Marine Corps a letter saying, in effect: We have been talking about Total Quality Leadership, we’ve been training people in TQL, for a long time. It’s about time I started to see some results. What are the results? What have you used TQL for in order to save some of our scarce resources, because the Marine Corps in my view is underfunded?

That letter really got my attention and of course all the generals, Marines being as we are, generated a lengthy letter to the Commandant to tell him how wonderful we were doing and how much money we were saving and how we were using TQL. Then I thought if the Commandant could get my attention that way, I could get my subordinate commanders’ attention in the same way. And it worked, because I feel like I’ve gotten them to use the tools of TQL a little more than they did in the past.

Understanding leadership

I think there is leadership that is different from TQL, particularly in a large civilian organization. When I arrived at Albany and looked at what was going on there, and also in Barstow and Blount Island, I found an awful lot of civilian supervisors who had grown up in the system, and their leadership techniques were based on the old style, a kick in the butt, and that was the way they got success. They were not really interested in taking care of people.

I thought it was important that we work on their leadership philosophy, teach them what leadership is all about, and see if we couldn’t get them to develop their own leadership philosophy based on listening to successful leaders. So we have established a program where we bring in people to just tell all of our supervisors, military and civilian, what their leadership philosophy is. In other words, I stood up and told what mine was and the Sergeant Major gave them his. We have a Senior Executive Service civilian, Ralph Price, who did the same thing. I brought in generals and other senior people who have had enormous leadership experience, and had them describe to all of our supervisors how important it is to take care of people, and how important it is to communicate and employ the other skills of leadership that those speakers thought was important to them.

Improved environment emerges

Now this may be my imagination, but I’ll tell you we used to lead the league in Equal Employment Opportunity complaints. Now we don’t. Maybe it’s a coincidence that has happened, but a lot of our problems seem to be starting to go away, and after a year now, our leaders seem to be more interested and more concerned with the people they lead.
Training everybody

We've had some problems, maybe you have too, in trying to get everybody trained. We've only been able to train about 36% of our people, at these three installations, in the Fundamentals of TQL. We're also training them in Team Skills and Concepts, and have only been able to train about 7% in these concepts. We're using the train-the-trainer technique, and we have some satellite training and those kinds of things. We do have some non-believers, too, and until we can get everybody trained, I think we're probably going to stay that way.

Now I want to tell you about some of our successes:

- **Depot Maintenance Activities**: One of the biggest missions that we have at Albany and Barstow is depot maintenance. We repair the major items of ground equipment for the Marine Corps. It's a pretty significant area, particularly after the war in Southwest Asia where we used our equipment to an enormous extent and it ended up being in bad shape, and we lacked the funding to get it all back together again. We had to find ways to do the all the work with less money. We put together a group, they did a business plan, and we have now reorganized those organizations. It sounds simple and it sounds painless. It isn't painless! There were a lot of people who were upset about the reorganization. But for the most part it has worked quite well, and the new organization is much flatter, more efficient, and we think it is going to allow us to do the job better and save a lot of money.

- **High Mobility Multi-Wheeled Vehicle (HMMWV)**: It’s the replacement for the Jeep. We were repairing in the neighborhood of 10 HMMWVs a month. The people who did the work, most of them temporary employees who were concerned that they weren’t going to have a permanent job, got together and formed a team. They decided who the leader would be, looked at the process, and came up with a way to make it better. By just changing the process, with no extra time, and with the same number of employees, they raised production up to 60 a month.

- **Reverse Osmosis Water Purification Unit (ROWPU)**: This is kind of a strange piece of gear, but it’s very important in the Marine Corps. We wouldn’t have survived in Southwest Asia without it. Most of ours are now in pretty bad shape. They probably ought to be thrown out. But because we don’t have the resources to buy new ones, we have to repair what we have.

  Our production on those was down to a level of about one a month. That was really all we could do and it wasn’t meeting the demand. Again, employees got together. It was one of the most heartwarming things I’ve ever seen. These people, who had never made a briefing before, who never had a chart or anything like that in their hands before, put together a very special briefing that told everyone how they had examined the process, and how they could do this job better. This group included problem employees who actually turned their lives around, in my view, and now they are model people who are proud of what they are doing, and really feel like they are part of the mission.

- **Amphibious Assault Vehicle (AAV)**: In 1993 and 1994, again employing the same process—getting the people who do the work together, having them think out new ways of doing the job, and then letting them do it. We estimate that we have
Some initial successes, continued

avoided about $4 million in costs.

- **Barracks improvement**: Our barracks were a total disaster. Marines should not have been allowed to live in them, but it would have cost about $600,000 to rehab them and we didn’t have the funds. All we really did was self help there. We put the troops together, gave them some materials, and they did it after hours and fixed them up. Now they have a decent place to live. Whether that is really TQL I don’t know, but at least we looked at taking care of our troops and taking care of our people.

- **Paying bills**: At Albany, we are responsible for paying all the transportation bills for the Marine Corps, whether it be material moving from Albany or Barstow to a Fleet Marine Force Unit, or whether it’s someone’s household effects being transferred from Camp Pendleton, California, to Okinawa. We pay these bills. Two years ago Headquarters Marine Corps sent a message that said this was part of the Prompt Payment Act. This means that anyone who pays the bills and pays them late has to pay interest, and that organization is going to be responsible for footing the bill for those interest payments.

We found out, in one quarter, that we were paying over $100,000 in interest payments, because we weren’t getting these bills paid on time. So the people who do that process got together, no extra people were involved. They looked at the process, looked at what they do, and worked out how they interact with the Defense Financial Accounting Service. The result? In fiscal year ‘94, we only paid $231 in interest payments for the whole year. That’s a real good example of the power of looking at the process and improving it, making it better in order to save money.

**Conclusion**

Marine Corps Logistics Bases Albany, Barstow, and Blount Island Command are a ReInvention Laboratory under Vice President Gore’s initiative to reinvent the government. We have 34-35 initiatives pending and these are just some of the things that we have tried which I think are still of value. We have worked hard as a ReInvention Laboratory. Our workforce is enthusiastic about this opportunity and we’ve submitted many valuable initiatives. Several have been approved. One rather radical idea that I think would be very helpful is to eliminate performance appraisals. This one, we’re told, is being looked at by Congress. In conclusion, let me say that Total Quality Leadership is alive and well at the Marine Corps Logistics Bases. We continue to work on process improvement. We have focused on strategic planning and leadership. We are committed to providing quality logistics support at the lowest possible cost.

**Author information**

Maj. Gen. Joseph D. Stewart, U.S.M.C., is the Commander, Marine Corps Logistics Bases in Albany, Georgia. He’s a graduate of the U.S. Naval Academy and returned there later to teach. He has two Masters degrees, one in Operations Research from the Navy Postgraduate School, and one in Management from Salve Regina College. His assignments over the years reflect an abiding interest in installations and logistics, both overseas and in the United States at Marine Corps Headquarters. He has many decorations, among them the Defense Superior Service Medal, Legion of Merit, and Combat Action Ribbon. (Editor’s note: The Marine Corps Logistics Bases received Vice President Al Gore’s “Hammer Award” in 1995 for new standards of excellence and customer satisfaction.)
U.S. Army Chemical and Biological Defense Command

Major General George E. Friel, Commanding General, U.S. Army Chemical and Biological Defense Command, Aberdeen Proving Ground, Maryland.

The Chemical and Biological Defense Command (CBDCOM) is a chemical and biological defense organization developing equipment for all of DOD and some of our allies. We’re also responsible for the storage of the chemical stockpile at Johnston Island and its destruction between now and the end of the century, as well as implementing the treaties we’ve negotiated with the Soviets and others.

In 1992 we were very hierarchical with a very narrow mission. We were basically about 1,800 people—a small research and development center located at Edgewood, Maryland. We had 14 layers of staff between the Commander and someone working on a piece of equipment. We had long cycle times.

The primary reason we never did anything perfectly and never got finished with programs, is because people were afraid they would lose their jobs when they finished what they were working on. Therefore they perpetuated things—and they were good at it. As many bureaucrats in and out of the government know, they can build a bureaucracy and it can become near impossible to interfere with it. I’ve tried. I’ve been in the Army for 34 years, and for about the last 30 years I’ve been making bureaucracies uncomfortable. When I started to reduce unnecessary hierarchies, I put up a sign in my office that said: “Which bureaucrat will I kill today?” I left a blank space to fill in a name, and had a grease-pencil attached. One morning I came to work and my name was on it. So I had a meeting with my office staff, and I learned that I also was prone to creating bureaucracies. We’re all that way.

I resolved to create an organization that got away from that mentality. In 1992, on the 7th of August, I assumed command and in 30 days I abolished my total organization; told all 1,800 employees “you don’t have a job today.” I abolished every job, including my own, and wrote new job descriptions for every one of them. Most of the job descriptions were “define your own job.” I abolished 10 layers of the organization. Then I had a bunch of people walking around with nothing to do.

I wanted to go from centralized decision-making and multiple layers to one layer of organization where a team leader working on something could come directly to me without going through any staff part of the organization. We’ve done that.

I’m striving for synergism—decentralized flexible teams, with teams managing teams; no boss. To change an organization so people basically work on their own, you’ve got to break the boss mentality. That’s not an easy thing to do, because the moment you do it they have lost their comfort, their security blankets, and they want a boss to make sure they’re doing what’s right or to tell them what to do if they don’t know what to do. It is not an easy task to create an organization that generates its own work, but I have some teams that are doing that.

I wanted to leverage our capabilities and we’ve been able to do that—that’s what CBDCOM has brought to the Army. We’ve collected the fragmented programs that
Abolishing the existing structure and creating a new organization, continued

were scattered over about 20 organizations. I went from 1,800 employees in that R&D Center to 1,000. I then built the organization back to 1,500 while tripling our missions. We built the first biological detection system our country has ever owned in 18 months.

I formed a Corporate Board that was basically the senior leaders of the organization, took them off-site, as many of you do, developed our vision and values, and then we went about teaching every person in the organization what they were. Our Vision is to become The Center of Excellence for NBC Defense for the World, not just our country. That’s a pretty strong vision, but we’ve established it. We’re defining our core capabilities so that I can begin to leverage those, and then identify the challenges.

Then we took a clean sheet of paper on organization and I allowed the team leaders, many of whom were selected by their own team members, to build their part of the organization. One of the first lessons I learned is that you can’t create an organization if you don’t know what it’s supposed to look like. Put it on a sheet of paper in a block diagram. But the moment you do that you risk creating a new bureaucracy. I made the assumption that I don’t know what we’re going to look like, and neither does anyone else in the organization; but two years from now, whatever we look like will have to be designed by us. I finally convinced the people who approve our organizational documents that I can’t give them a piece of paper that details what we’re going to look like. If I’m forced to do that, then I can’t achieve the flexible and dynamic organization that is needed for us to do our job. In effect, we’re a learning organization. We’re still creating new parts of it, still abandoning other parts of it.

After putting all the teams together, in most cases, we retrained them as teams with 3-4 days of intensified team training. Then we told the teams to sit down and write their own charter, lay out their goals, and come back and tell me what they needed to do their jobs. Then we would charter them and give them their budgets. Then they’re on their own.

Second thing I did was abolish all the staff jobs, so the teams had to do all of their own work. The former staff members were placed on teams. For the first time in our organization, old staff members, who were formerly sitting on the sidelines—picking plans and projects apart, nitpicking, changing happy to glad, sending it up and down the organization, adding friction and non value to it—were now being held accountable to the team for producing a quality product.

We went off-site with every employee, 1,800 of them. A lot of people still hate me for this, but I took them all off-site, bought them lunch, brought in a facilitator, and we walked them through the process of defining what our organization was all about, and what’s wrong with it. That resulted in 1,200 action items from the group. We put together an action plan and worked those all out. They were primarily people issues and communication problems.

Establish safe, open communications

Then we developed what I call the ZAPP system, which is an open communication system within the Command. Basically the leadership has 24 hours to answer the ZAPPs. We average 3-4 a day. Let me tell you, it has been open. I get it every day. Actually, there are two kinds of ZAPP. One spelled ZAPP, the other SAPP. I get SAPPED every day, but the employees get ZAPPED. It’s a good process. It will open up your organization to all kinds of wonderful ideas if they understand what you’re trying to do. It gives them an avenue to solve problems immediately, because they can ask the questions anonymously, and get answers that are broadcast to the entire Command every day.
Establish safe, open communications, continued

I personally respond to the entire workforce. I put it out on the electronic bulletin board every day. Everybody gets to see all the questions and the answers we give them. Three thousand comments to date in 24 months. It is unique to the federal government. When I came to the organization we had about 15-20 active grievances, EEO complaints. We’ve had zero in 24 months.

Guarantee the work

We guarantee our products. I don’t want to just satisfy customers; we are going to delight our customers. There’s a difference. To satisfy customers means you negotiate with them. The problem is that when we negotiate with our customers, we deal with what’s acceptable, and not the customer’s desire. So now when we talk to our customers, I don’t care what we can negotiate. I want to know what they want.

Identify, define, and serve a customer or you don’t have a job

I require every one of my team leaders to identify their customers; if there is no customer, the team is abolished. I went to a team meeting and spent two hours forcing them to go to the blackboard and write down their customers. That was one of their goals from a year ago and they hadn’t finished it yet. One person had been working on a research project for five years. We spent over $1 million, and he couldn’t define his customer. I asked, “Who is your customer?” He said, “I don’t know, I was just told to do this.” I said, “OK.” I went to the person who supposedly told him, and he said, “I told him that about two years ago. I have no idea who wants that.” A long story made short—when I got around to one of the other team members sitting there, he was working on a project that required the output from this other person. Sitting on the same team, they were each other’s customers and didn’t even know it.

If you require people to define their customers, who they deliver things to, then write down their deliverables, and then force them to go talk to their customers, ask what they want, when they want it, and what they’re willing to pay for it, and make them define the quality, then you can hold your teams accountable.

A lot of my staff said, “well, my job isn’t to deliver things to customers.” I said, “then you don’t have a job. You must have a customer somewhere, internal or external, or you don’t have a job.” Then they found customers. A lot of them were fake, and we refined it, and now all my folks understand that their job is to satisfy somebody. They don’t exist to just come to work in the morning.

Letting teams pick their own leaders

I created a team that had GS-15s, senior military, about 4-5 Ph.D.s, a secretary and a couple of business analysts, and a young whippersnapper of an engineer, a GS-12. I put the team in a room and I said, “basically one of the rules is, I’ll give you the money and you figure out how to spend it—after you define your customers. I’ll let you decide your leadership.” The GS-15s said, “We don’t want to lead. I don’t know how to do that. All I know how to do is do work. I’m a scientist.” So we have a team that is being led by a GS-12. The secretary last year was given the highest monetary award because she made the greatest contributions to the team. In a hierarchical organization, that would never happen. But the team was given their money; they were told, “here are the rules for creating your work policy, you figure out how to do it. Give it to one person or split it up, I don’t care.” And the team basically decided at the beginning of the year on the criteria they would use for determining who would get the rewards. And the secretary got the highest award.
What’s ahead? I’m going to rebreak the mold and eliminate all bosses. We’re going from four levels of organization to zero—totally to a team-directed work force. A team will manage it. We’re creating an Executive Board which has four functions starting with the five-year strategic plan that we’ve laid out. It ends with allocating resources. Then the teams figure out how to do their jobs. They figure out what they’re going to do, when they’re going to do it, and how they’re going to do it. The strategic plan will tell them basically where we’re going. It’s up to them to figure out their priorities and the organization needs of their teams.

We’re going to the 360° Performance Appraisal System. It’s not hierarchically oriented, which means the team rates itself. With the experiment we’re running this year with two pilot teams and about 40 other employees, it’s rather unique, where you let your subordinates, your peers, and your customers rate you. Then the computer tells you how you’re doing. We’re not going to use it as a performance appraisal system, but we’re certainly going to use it for improvement.

The empowered teams get a charter. They get a piece of paper from me that says they’re in charge. The problem I have, is dealing with the rest of the world. When you have a GS-13 or -14 civilian dealing with general officers somewhere, and they say, “Your General has the power to approve that. You want money? He can sign that.” They come back to me. I’ve had battles going on with people throughout the Army sending stuff back for my signature. I tell them, “You don’t understand. I don’t do that any more. That person’s in charge.”

I now have a little letter that I send out that says, “They’re empowered.” So the charter is important. It gives them the authority they think they need, and tells others they have the authority to do it. We have horizontal communications now; they don’t need to come to me. In our three business areas we get synergy from communicating to each other across the organization. I will tell you that we have E-mail traffic that stacks up; the computers hum all day long. People talk backwards and forwards; there’s no staff intervening in between. It does in fact speed up the organization.

Teams have to manage teams. The moment you put a boss in there you’ve destroyed it. And you cannot have a staff telling them what to do. How do you create this organization without using the staff to create it? Well you flounder for two years like we’ve been doing.

It’s a tough journey. I will tell you it’s worth it. We are better. Continuous improvement is real. We’re doing twice as much for half the money. We’ve exceeded my expectations. All my employees are great. We went to an empowered work force with team leaders. The team leaders are in charge. You don’t give them any rules to tell them when they can’t make decisions. We’re on the right path but we have much, much work to do to stay on it. Let me tell you about some key lessons.

You can’t ease into this. I decided that we could not start with a little core team and say, “Let it get its act together and let it spread throughout the organization.” That will not work. The territorial issues will beat you down. I’ve been at it for two years. Imagine if they would have pulled me out in October after I finished my two years. The place would have collapsed. You have to put it in at the bottom so that leaders are not important. I can’t stop the trend, because I created it across the organization. People in
Total immersion made it work, continued

every component part of the organization want to make this happen. It’s not my ball game any more. It’s their ball game.

What helped us was getting fully involved; otherwise we would not have created a quality organization. You cannot create one from the top. It’s got to be created from the bottom. You’ve got to cut the apron strings— and I’ll tell you they will make mistakes and you have to let them do it. But you will make mistakes, and you get by with it! So I let them make mistakes and get by with it. I’m here to report that they’re making a lot less mistakes than I would have. And they’re doing it right, because they’re close to the problem.

Continuous communication is vital

Continuously communicate, visit often, reward success. I did “meet the boss sessions.” They get an invitation, a General Officer’s star invitation; they don’t know who else is coming, I show up, we close the door, and have a frank open discussion with employees. We use computer generated lists, randomly selected, at all levels of the organization. You really get an earful that way.

I have village meetings where I meet with teams regularly, and I conduct frequent town hall meetings, and I send out regular communications to all levels of the organization. When we get a cut in money or people, I don’t hide that from the people any more. Even the labor union— we formed a labor-management partnership council— is given copies of everything I get. Now they have the same problems I have and the same challenges. You have to move from a boss-orientation to a customer focus.

Customer focused teams don’t need bosses

Now I’ll say it again, if you want to change your organization you change those teams or whatever you call them, branches, divisions, give them a name, change it from a boss-orientation, where they’re waiting for someone above to tell them what to do, or waiting for something to show up in their in-box, to “Who are my customers?” and “What do they want from me?” When you create teams that are focused on customers, then all of a sudden they’re focused on customers and don’t need a boss.

A flexible organization structure is needed

My reinvention laboratory request says that I have a flexible TDA; in military jargon that means a source document that authorizes the people. My organizational structure that’s currently authorized lists all secretaries, all budget analysts, all military, all engineers, all scientists, all chemists, etc., in one block. I don’t have an organizational structure. The first thing they said was, “You can’t have a GS-15 unless you have four GS-14s working for him.” I said, “GS-14s don’t work for GS-15s here. They work with each other.” Some teams require more senior experienced people only because we need the experience. I don’t need the grade structure. We pay them more because the risk and responsibility are greater.

Constant leadership is vital to success

Leadership is the most important skill and all leaders must be on board. Every leader in the organization must be on board or you’re going to have the bureaucracies continuously creep back in. Build organizational concept first, then bring the organizational structure to it. We still have not yet documented what our organization is going to look like. I know how we’re going to operate, but I don’t know what we’re going to look like. Customers define the quality, time, and costs, not the bosses. We continuously reinforce the call for changes needed. I’ve been at it for two years and I still have skeptics.
I made a decision a year ago to invest at least 4% of my budget in training, and we have an extensive training program to include giving on-duty time to civilians to pursue a Masters or their Ph.D.s. Across the board, all of my organization is in constant training somewhere, somehow. No longer mandatory training. I don’t have to force training. Their individual development plans are actually taxing our training system. But I’ve committed 4% of my total budget to training. That’s a lot of money.

You have to invest money in your people to allow them to manage the process. If you don’t do that, they can’t. Basically the old theory is that the reason the bosses keep employees ignorant about the processes and the internal influence, is to be able to control them—the moment you give them enough information to do the job without you, then you didn’t have the power. You have to reverse that process.

We charge for our services. About 60% of our organization is customer funded. That’s another dynamic that I got with the military. When they cut people they tried to base it on the money they give me. I said, “Look, you don’t understand. You don’t give me all the money I get. I sell services to a lot of people. About $100 million comes into our organization every year that is customer funded. Now, I’ve told my folks that someone else can take that money from us, so we better satisfy those customers. In fact, delight them. Make them so happy they’ll come back to you.

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Everybody’s assigned a home base. Nobody is permanently assigned to a team. I have all my engineers and scientists, about 1,000 of them, assigned to a home base, and I just let them recruit whomever they need, and put them on their team. Whenever the team’s done its work, they go back to home base. Home base is responsible for training and managing and mentoring them and taking care of them.

The team is responsible for getting their job done, and satisfying customers. But the home base has a support team and their customers are all their employees. Their job is to take care of them. It has changed the whole mentality of bosses.

Bosses’ jobs are now not to tell people what to do; they’re mentors to help people do the job that somebody else has figured out how to do. That’s how I got rid of the bosses. I gave them make-work. I gave them a job that they have now created that feels good—taking care of people. So they’re sitting in boxes on the TDA called home bases. But they don’t work there. It’s like the home room in school.

Major General George E. Friel, U.S. Army, is the Commanding General of the U.S. Army Chemical and Biological Defense Command, headquartered at the Edgewood Area of the Aberdeen Proving Ground, Maryland. He also serves as Deputy Chief of Staff for Chemical and Biological Matters of the Army Material Command, Alexandria, Virginia. General Friel holds a B.S. degree from the University of Nebraska and a Masters degree in business administration from Northwest Missouri State University. He recently served as Commanding General of the U.S. Army Chemical Research, Development and Engineering Center at Aberdeen Proving Ground. His previous assignment was as Commanding General of the 59th Ordnance Brigade, Primasens, Germany.
Total Quality Leadership

Author

Rear Admiral Kevin F. Delaney, Director, Shore Installations Management Division, Pentagon

Introduction

Total Quality Leadership (TQL) gives us a road map, a charter, a vision, a destination, and a means to get to that destination. TQL is really long overdue for the Armed Services and it’s doing good things for the Navy today.

I wish we were all speaking TQL, because I think that half of the folks are really practicing what I call TQLS, which is Total Quality Lip Service, because they’re really not walking the talk. They’re there because someone told them to be there, and they’re saying it because they think it’s the right thing to say. But it’s important to understand that in any large organization undergoing a lot of change it’s going to take time. It may take 8, 10, 12 years to institutionalize the quality movement. We need to start someplace and we need to win people over, one person at a time, until we get everybody on board and quality really is institutionalized within our organization. We need to start now.

Commanding a large naval installation is a big business. A lot of folks think of it as being similar to the mayor of a small town with 10-20,000 people, with police and fire departments, and public works. But it’s a lot more than that. For example, at the Naval Air Station in Jacksonville, Florida, there is a $55 million retail business on our Post Exchange. They do another $60 million worth of grocery business. We probably did about $6-7 million worth of restaurant business. There is a hotel business, with about 3,500 rooms a night. There’s a child development business, with a child development center that takes care of over 500 children. The base also has the busiest airport in northeast Florida, and the most played golf course—in short, a lot of different kinds of businesses that make us rely upon data to run a large, complex business.

We have customers, and it’s important that we remain customer focused. We need to know who our customers are. I use this slogan at Jacksonville quite a bit and I know you can spell TEAM, but I let it stand for Treat Everyone As Myself. I know that’s not the greatest English in the world, but it’s a philosophy to try to get across the concept of quality customer service.

I want them to put themselves in the position of their customer. If they prepare food in the galley, I want them to prepare food in a way that they would want to eat it. If they clean a room, it would be a room in which they would be willing to stay. If they repair a jet engine, that they would be willing to go on a test flight in that aircraft. If they are in the control tower, controlling aircraft in bad weather, that they will control that aircraft as if their family is on it. It is simply putting yourself in the position of the customer and asking yourself if the service you’re providing is one that would be acceptable to you.

1. See author information, page 35.
Our Chief of Naval Operations is clearly committed to Quality. That is really important for us. The Quality movement started under one leader and we made a transition with both a new Secretary of the Navy and a new Chief of Naval Operations. I think it was important for all of us to understand that we have new leaders who are still committed to Quality, who have already used it out in the fleet, and that we weren’t going to have some new kind of fad come along and that emphasis on TQL would go away.

That was a substantive, meaningful, institutional change in the United States Navy. A lot of folks talk about TQL and say, “You know, I’m not really sure this applies to a military organization. I can see how Motorola, Ford, or Xerox would be interested in Total Quality, but I’m not really sure you’re going to fight the next war using Total Quality.” Well, that’s not the issue. It’s not something that we’re necessarily going to fight the next war with, but it is something that we’re going to use to prepare for the next war, or hopefully to deter the next war. Total Quality helps us to prepare for war because it helps us to maximize limited resources in peacetime training.

I think it’s very hard for successful senior people to change in an organization, and that’s only human nature. If you’ve made it this far in the organization the old way, why would you want to change? And yet you are really doing a disservice to the next generation if you aren’t receptive to change. As a very traditional military organization, with pride in our service and traditions, we do have difficulty. I’d be less than honest with you if I told you it was an easy transition for some of our people to suddenly get involved with the Total Quality movement and to change some of those old paradigms and old territorial issues that have been around for a long time, and which have been very successful in the past. But we nevertheless need to change and continuously improve as a Navy.

The negative impact of fear and blame

Two elements, fear and blame, are the two single most important reasons why we have non-value-added steps in processes. When I look at processes throughout the Navy, there is barely a process that I can look at and not see steps that add no value; they are there because there is fear in the organization or because we want to have someone to blame when the process goes wrong. The focus belongs on fixing the process so it doesn’t go wrong.

One goal of the Total Quality movement, for me, is trying to remove both fear and blame from the workplace so that we do, in fact, get rid of non-value-added steps in our processes and improve the way we do business. We can’t afford to have our people thinking that they’re liable to be punished if they take chances, innovate, offer suggestions, and are forward thinking. We need to make sure that we encourage good thoughts and ideas from our people.

The Japanese get several hundred suggestions from the average employee over the course of a year; we get 2-3. When we, through evolution and example, drive fear out of the workplace, we will get better and more innovative ideas, and we will see a lot more teamwork.
Every person adds value

It’s important that every person feels that he or she is part of, not apart from, an organization. That means that every member of an organization adds value to that organization. There is no insignificant member of an organization. Each and every one of us, from the lowest recruit up to the most senior person in that organization, adds value.

Example: Jacksonville, Florida

Jacksonville was successful in recycling. In our first year over $250,000 was raised selling recyclable materials, and that money was used for quality of life projects for our sailors and families. Another $300,000 was realized through cost avoidance; that’s simply not having to pay to put tons and tons of garbage in the landfills.

However, despite the fact that we built a new child development center and took care of an additional 125 children at absolutely no cost to the taxpayer, we built a new physical fitness center that was open from 5 a.m. to 10 p.m. to take care of our sailors’ needs and give them some good, honest, wholesome things to do in their off-duty hours, and that we did an awful lot of other things with the money saved through recycling, I still found that when I’d go over to the barracks, the very people who were the biggest beneficiary of our efforts to recycle, were still throwing aluminum cans in the waste cans, and were not recycling plastic, glass, paper, and cardboard.

I needed to get through to them. I determined that I was going to start talking about recycling at all the indoctrination courses, and all other times when I had an opportunity to get everybody together.

Well, it wasn’t quite that easy. I’d give it my best shot, and I’d see all of these blank stares coming back at me from 17, 18, 19-year-old sailors. Being the father of three daughters I know it’s pretty dangerous to try to understand the minds of teenagers, but if I could listen-in to their minds, I’d probably hear something like this: “Skipper, this is a great program, and we sure appreciate the fact that you’re doing all this for us, all this recycling, but you’re talking tens and hundreds of thousands of dollars, while I don’t know if I have enough money in my pocket to afford two beers after work today. I don’t know how the heck I’m going to make it to next payday, and it just doesn’t register that I’m really an important part of this problem and solution here.” But they were an important part of the solution, and I needed them on board if we were going to be effective.

Frustrated, I went back to my office, did a little bit of arithmetic, and came up with a solution. If I could get every person on this base to recycle only three aluminum cans a day, through 260 work days, at about 2 cents apiece, that would add up to almost $300,000. What was the message? It was that every single person in our organization, by doing something as insignificant as recycling three aluminum cans a day, could collectively deliver an extra $300,000 to better the quality of life of their organization. I think there’s a message in that for all of us. It says we all need to be a part of, not apart from, that organization, and we all can make a difference collectively.

Example: process improvement

When I was Inspector General, a base was having a problem with sailors getting from the airport to their ships. If I just wrote, as Inspector General, something that said,
Example: process improvement personal relations and efficiency

“You know it can take about eight hours for a sailor to get from the airport to his ship,” most people would probably dismiss it thinking that sailor probably found his way to a bar, met a girl, played some pool, went to a movie, maybe got a tattoo, and finally showed up at the ship eight hours later. But that wasn’t the case. TQL enabled us to see a process that was breaking down, and that we can improve that process. What was happening is this: The sailor arrives at the airport and goes to the Navy counter; the Chief, who is normally manning the counter, is out taking a break; comes back about 15 minutes later, and they start the process of dialing the ship; can’t get through, busy, busy, busy. Finally they get through to the ship and the sailor on the quarterdeck says, “Hey Chief, it’s going to be awhile before we can send a car out there because the duty driver is off on a run; it’ll be a couple of hours, but we can reimburse the sailor on his travel orders for a cab if he wants to grab a cab.” Well, the sailor has money, so he jumps in a cab and gets to the front gate of the base; the base guard directs him to the personnel office; he gets out of the cab, takes his 80 pound seabag out, pays the cabdriver, and goes to the personnel office; it’s now five minutes after three, the doors are locked, they’re reconciling their records for the rest of the day and they are closed for business.

Now that young sailor has to grab that heavy seabag and walk about 3-4 miles back to the front gate; remember you only have one chance to make a first impression; he gets to the front gate, finds the right person, starts the process all over again: dialing the ship to find out what to do now. It takes hours to get through and do that; the sailor on the quarterdeck says, “Hey, you ain’t going to believe it but the duty truck’s off on another run. Why don’t you get a bite to eat and we’ll pick you up about quarter to eight.” At eight o’clock that night, that sailor finally shows up at the ship. It happened over and over again. A very simple process but a good example of how we can make a big difference in the way our sailors are greeted and the first impression they get on our bases. We’re all taxpayers and we all have to look at ourselves through our customers’ eyes. We have to ask ourselves, “Would we be willing to spend money for this?” If the answer is no, we ought to change the way we’re doing business. TQL allows us to look at predictable processes and improve them.

We may not have to spend more money to improve the quality of chow, but we do need to understand variation in a cycle and in a process. I mentioned earlier about getting people contributing information back to us. There was a young recruit scraping plates in the scullery where we wash the dishes, who, because there’s no fear in the workplace, felt comfortable to come up and say, “You know, Skipper, a funny thing, but I must have scraped 40 pounds of that succotash into the trash today.” Or the young man working the steam line who says, “Skipper, funny thing, but we ran out of corn on the cob the first 15 minutes. But those lima beans... I must have carried 80 pounds of those out to the dumpster today!” Is that data that I can use to enhance the quality of life for my sailors? You bet it is.

Inspector General visits

A military tradition is the IG inspection: compliance, black and white, checking the block YES or NO. The focus is on past and present, kind of like a final exam you
take in school. The old inspection process looked at a lot of things in a very shallow way. The focus was on individuals and functions and, of course, the operative word of the day was HIDE, you never volunteer information to an IG. You answer the questions YES or NO, hope he goes away, and throw a big party when he does.

But how about the Quality visit? We focus in on process improvement: How do we improve processes? We still look at compliance. It’s not a “touchy feely” kind of thing, but we do really focus in on process improvement. We look at fewer things but we look more in depth, and most importantly, we look at the future as well. Why do I say “most importantly?” Because I want you to think of what I said in my analogy with a final exam. How many of you can think back to your last final exam? Suppose I were to plunk that same exam in front of you right now. How many of us would do as well today as we did when we took that last exam? Is that in the spirit of continuous process improvement? No. That’s spiking for an exam, cramming, getting ready for it, and then slipping back into the old way of doing things, often forgetting some of the things we learned just to pass that exam. That’s how I look at the way we used to prepare for IG inspections.

Now what do we do? We try to look to the future. I care what organizations did in the past, and I care what they’re doing today. But I care most about how an organization is prepared for tomorrow and the next year, and the next century. I care that they have a Vision to move forward. Dr. Deming used the analogy of only using a rear view mirror to drive your car. Imagine trying to do that? So I try to change the focus to look forward and to see how that organization is prepared for the next challenges. I look more at teamwork and cross functionality.

It’s not important that I have the best maintenance department or the best operations department if they can’t communicate with one another, or if they can’t share good ideas and compliment each other’s strengths and weaknesses for the betterment of the organization. And of course we need to have openness if we’re really going to improve our processes and organizations. I had trouble with some of my inspectors, because they had a cookie cutter mentality—if it doesn’t fit the mold, it’s out of compliance. Well maybe. But maybe we ought to take a look at it before we dismiss it and see if someone has found a better way of doing things.

When I’d visit one of our bases and ask what some of the complaints were about the base, medical treatment came up quite frequently. Knee jerk mentality would probably lead many to say, “By gosh we have lousy doctors and lousy corpsmen and they’re giving lousy care.” We grouped the complaints and did a Pareto chart; it showed that accessing the system, i.e., long waiting lines and appointment delays were the biggest gripes, not the quality of care the people received. If we didn’t do a Pareto, if we didn’t really look at the data, we’d be off tackling the wrong problem.

In the Atlantic Fleet, prior to October 1st of 1993, we had 27 bases under 13 admirals and 27 base commanders. We didn’t have the foggiest idea who was the best at anything, like hazardous waste reduction, energy conservation, recycling, or worker’s
compensation reduction. So we decided to reorganize and put all the bases under one flag officer. I was fortunate to be this flag officer from October 1993 to July 1994. This streamlined chain of command allowed us to prioritize our special projects and repair projects in an order that made sense, to make sure we were getting the most value added from each dollar we spent, and also to benchmark across the fleet and see who was the best at various things. I didn’t have enough money to always give people what they needed to do the job, but often I was able to take a good process from one base and transplant it in another so they could save money and do the job better with fewer resources; we were able to build on each other’s successes. Benchmarking helps us to know what’s been achieved in different places, what is achievable, and to make sure we don’t penalize good initiatives or reward complacency and inefficiency. One word of caution, however, you must understand the theory behind the process you benchmark.

There are two things that I learned early on in my command: (1) I needed good data to run that big business of a shore installation; (2) I needed to make sure I focused on processes and that I didn’t treat symptoms. We needed to pay attention to those processes that were causing symptoms to recur and thus waste some very valuable resources.

What happens when we don’t have the data? We get into ready-fire-aim mentality. What’s aim? Aim to me is getting that data and putting those cross hairs on the target so I shoot one bullet and hit the target. When we go ready-fire-aim we do a lot of shooting from the hip, expend a lot of bullets, and we may or may not hit the target. But who gets shot at more than any other person? The junior people like that sailor who encountered all kinds of unintended obstacles getting from the airport to his ship. We can’t afford to be efficient at doing the wrong things. We need to be efficient at doing the right things.

It really bothers me when I go to places and they say, “Well, gang, we really have to do more with less.” What does that imply to me as a worker? It implies that I’m lazy or inefficient, and all you have to do is tighten the thumbscrews a couple more cranks and by gosh, I’ll perform. What we’re really talking about is doing the best with what we have. That’s doing the right things, and doing things right. We try to prioritize our day in such a way that we are doing the most value-added things for our organization. Not necessarily the things we most enjoy, nor the things that are the easiest. But the things that add the most to our organization’s effectiveness. If we can do that, and we can articulate those things that we can’t do, and what it would take to do them as well, we will do our leaders a great service by maximizing the resources that are available.

A lot of folks talk about empowerment. Empowerment can be a little bit dangerous because there are those who don’t want Total Quality to work, and there are those who want to lead in an authoritarian and a very autocratic way. You see them proclaim that they empower their people, and the people subsequently fail, fall on their
Empowerment, continued

sword, and then the supervisor will say, “See I told you. If you want it done right you do it yourself.” No! If you want it done right you train your people, you equip your people, and then you empower your people. That’s the difference.

To empower people to succeed in Total Quality we must train and equip them first, and then “empower” them. When we empower our people, they can do a lot of those day-to-day urgent things that are going to happen in any organization. What does that do? That frees us senior people to spend time looking to the future and focusing on the long term vital aspects of organizational management.

Good communications are essential

There’s no process so simple that bad communications can’t screw it up. We need to make sure we have good communications in our organizations, that all of our people know what we’re doing and what’s expected from them. I don’t know what the future is going to be, but I can tell you we’re going to have fewer people and less money as we go about taking it on. What’s in the big picture for the Navy? Our Secretary clearly is committed to Total Quality, and understands the value it has in a downsizing world, with constrained resources, to improve the way we do things.

Conclusion: educate and train for continuous improvement

Let me quickly mention our education process. No present commanding officer, and no man or woman enroute to command in the United States Navy today, can go there without having gone through our senior leaders’ Total Quality course. I’m confident that, over time, we’re going to reap big dividends from that. It’s a continuous journey. I tell our people if we can improve one tenth of one percent a day, that’s a phenomenal amount of improvement. When you think about it, one tenth of one percent improvement, substantive improvement, lasting improvement, times 260 days in the work year is a 26% improvement over the course of a year. If we can get our people to be one half of one tenth of one percent better each and every day that they come to work, you have an organization that’s 13% better. That’s what we have to focus on, those small day to day improvements that will make us great. Sure, we’ll do big things once in a while that will make us better, but the real substance is in that daily improvement. The bottom line is, as we downsize through all this fiscal austerity, going from 600,000 in the Navy to 400,000, wouldn’t it really be a shame if we only got smaller???

Author information

1. Rear Admiral Kevin F. Delaney, U.S. Navy, is Commander, Naval Base Jacksonville. At the time of this presentation he was Director of the Shore Installations Management Division for the Chief of Naval Operations at the Pentagon. He is a graduate of the U.S. Naval Academy, and has a Masters degree in Business from George Washington University. He later completed postgraduate work as a Senior Executive Fellow at MIT and served as a Federal Executive Fellow at the Brookings Institute. Admiral Delaney was a helicopter pilot and flew over 670 combat missions. He was CO of the Naval Air Station, Jacksonville, Florida where he won an award for the best base in the Navy. In 1991 he became the Inspector General for the U.S. Atlantic Command and the U.S. Atlantic Fleet.
Education, Industry, Community and the Spirit of Renewal

Fr. William T. Cunningham, Executive Director, Focus H O P E, Detroit, Michigan

Focus H O P E is a leading-edge industry and business. It is for-profit and not-for-profit. It has innovative management and innovative leadership. It is education from preschool through a master's degree in general manufacturing engineering. It demonstrates a systems understanding of economic, community, and human development. It involves the public and private sectors.

Focus H O P E was founded in 1968 as an interracial movement of volunteers who believed that “from mutual dedication to justice and respectful collaboration an integrated society is built.” It has evolved and grown to become a highly effective, respected and creative group of operations with a $78.7 million budget, 850 employees and 45,000 volunteers housed at its 30-acre complex on Detroit’s near west side.

They believe a Total Quality America vision is needed, and that it has to infect every citizen of this country. They also see benefits from diversity: “America's greatest resource is its diversity. When we bring those diversities together on any given challenge, the outcome is a miracle,” says Fr. Cunningham.

This article has two parts: A brief profile of Focus H O P E, and a presentation by Fr. Cunningham, founder and Executive Director of the organization.

Part One—Focus: H O P E at a glance

- Detroit, Michigan (1968)—Focus H O P E is started, following riots in the city.
- Food Prescription Program (1971)—For healthy birth and normal growth of body, brain and emotions, and for well-being and security in old age.
  - Commodity Supplemental Food Program
  - Food For Seniors
  - Food Distribution System
- Manufacturing Technology Education
  - FAST TRACK (1989)
  - Center for Advanced Technologies (1993)
- Love and learning in early childhood
  - Center for Children (1987)
  - Glazer School Partnership (1993)
- Employment opportunities at Focus H O P E for-profit companies
  - High Quality Manufacturing, Inc.
  - F & H M anufacturing Company
Focus: HOPE at a glance, continued

- TEC Machining, Inc.
- TEC Express, Inc.

- Art and culture to bring diverse cultures together
  - Community Arts Initiative

- Community awareness and education
  - Monthly newsletter, In Focus HOPE
  - Annual WALK for Justice
  - Journalism Olympics
  - Share with a Senior holiday giving
  - Family to Family holiday giving
  - Video documentaries and public service announcements

Focus: HOPE Programs—a Brief Description

Food programs

A Food Prescription Program supplies a nutritious selection of food to at-risk mothers, infants, preschool children and senior citizens. It is nearly the nation’s largest, with 359,987 mothers and children, and 357,646 senior citizens receiving food in 1995. It includes the following:

- **Commodity Supplemental Food Program**, started in 1969 as the nation’s first effort to use dietary supplementation to reduce and prevent the effects of malnutrition on the birth, growth, and lifelong potential of low-income children. Today there are 49 separate projects operating in 19 states. This national program is administered by the U.S. Department of Agriculture; state governments coordinate food shipments and administrative funding, and supervise local projects. Focus: HOPE manages the Detroit project.

- **Food For Seniors** reaches low-income seniors in 45 metropolitan Detroit communities. The average person is 75, lives alone, and has $542 a month income. Over 24 million pounds of food at a cost of $10,874,189 was distributed in 1995.

- **Food Distribution System**. USDA foods are received by rail and truck at the organization’s 147,000 square foot warehouse on Detroit’s east side, and shipped to the five neighborhood distribution centers. Low administrative costs, bar-coded inventory and accurate computerized record-keeping is a big reason the program has enjoyed unwavering governmental and community support.

Manufacturing Technology Education

Focus: HOPE offers a sequence of three technical education programs for minority youths and others:

- **FAST TRACK** is a seven-week program which upgrades the academic skills and discipline of high school graduates to industry levels. Students work eight hours daily, six days per week, each using a personal computer for self-paced instruction.
The course also includes group sessions in math concepts, computer literacy and communication skills. Students can improve math and communication skills by an average of two grade levels. FAST TRACK graduates who qualify may enter the Machinist Training Institute (MTI).

**The Machinist Training Institute** is a year-long program that teaches precision machining and metal working and introductory computerized manufacturing. The course includes instruction on conventional lathes, mills and grinders, and classes in applied and pre-engineering mathematics, manufacturing theory, blueprint reading and graphics, statistical process control and metrology, communications, geometric dimensioning and tolerancing, advanced quality methods, CNC/CAD/CAM lab, technical writing and operation of computer-integrated equipment. Since 1992 the demand for skilled machinists has far exceeded the actual number of MTI graduates. Many MTI graduates continue on to the Focus: HOPE Center For Advanced Technologies (CAT). Graduation from MTI is a prerequisite for acceptance into the CAT program.

**Center for Advanced Technologies** is a $130 million project, with a $60 million budget, that will model the content, resources, and methodology needed to educate advanced manufacturing engineer-technologists at world-class levels. Its curriculum development is being directed by Lloyd Reuss, retired president of General Motors.

A unique Renaissance Engineering curriculum is being developed by a coalition of six university partners under a National Science Foundation grant. The partners are University of Michigan, Lawrence Technological University, Wayne State University, University of Detroit-Mercy, Central State University, and Lehigh University. Five industry partners include: Detroit Diesel, Ford, General Motors, Chrysler, and Cincinnati Milacron.

The Renaissance Engineer represents a new paradigm. The Center For Advanced Technologies believes that in the modern world of customized mass production, having separate disciplines and syllabi in chemical engineering, electrical engineering, computer engineering and the like are relics of the transfer line process. The new paradigm requires an integration—a synthesized engineer-technologist capable of not just surviving the curve of obsolescence, but who can define and shape the future.

There are three stages of increasing skill level, with exit at three year, four and one-half year, and six year intervals. A master’s degree is awarded at the end of the six years, with associate’s and bachelor’s degrees at three and four and one-half year stages.

The schedule is intensive—ten hours a day with eight hours of paid work performing flexible machining contracts, and two hours of academic study, six days a week, 12 months a year. The center has a 220,000 sq. ft. building, with a 180,000 sq. ft. shop/laboratory with $50 million of start-of-art equipment, 13,000 sq. ft. electronic library, conference rooms and dining facilities. Since opening in 1993, CAT employment has grown to 283, of whom 111 are engineer-technologist candidates. Further growth to 200 candidates is projected by the end of the 1996-97 program year.
Love and learning in early childhood

- **Center for Children (CFC)** is a $2.7 million, 26,000 square foot, 180-child care and education facility located in the Focus: HOPE complex where many of the CFC parents are employed in new manufacturing companies or in training for skilled positions in industry. The CFC offers infant and toddler care, Montessori preschool and kindergarten education, and a before-after school program for elementary-aged children.

- **Glazer Elementary School Partnership** is designed to optimize each child’s physical, social, emotional, and intellectual development. Four system changes are being concentrated on:
  - Infusion of new learning technologies
  - Establishment of a 12-month continuous learning schedule
  - Maintenance of an on-site before and after school care program
  - Implementation of a community outreach component to increase parental and community support of education and to access parents to training and job opportunities.

For profit companies

- **High Quality Manufacturing, Inc.** supplies engine hoses to Detroit Diesel Corporation and emission control harnesses to Ford. (It won Ford’s Preferred Quality Award [Q1] in 1989.) Twenty-three people are employed there.

- **F&H Manufacturing, Inc.** is a small machining company which produces balance and camshaft thrust plates for Ford and machine castings for Detroit Diesel Corporation. It earned Ford’s “Q1” preferred quality award in 1989. It employs 12.

- **TEC Machining, Inc.** A production plant that is a tier-one supplier for Detroit Diesel, Ford Motor Company, General Motors, and Chrysler Corporation. It has 300 employees.

- **TEC Express, Inc.** services General Motors as a redistribution site for transmissions and converters, and fulfill just-in-time delivery needs for TEC Machining and other Industry Mall companies as part of an emerging process of synchronous manufacturing. It is located in two buildings, with 78,000 square feet on five acres of land. It has 34 employees.

Community awareness and education

To increase awareness a monthly newsletter, video documentaries, public service announcements, and other items are produced. Annual community programs and events include the Walk for Justice, Journalism Olympics, Share with a Senior and Family to Family holiday giving programs.

Art and culture to bring diverse cultures together

The Community Arts Initiative is part of a national project of the Ford Foundation. The program involves a wide range of projects in the visual arts and music aimed at nurturing interest in learning through the arts, communicating the importance of education, growing a sense of possibility and self-excellence among at-risk youth, and fostering integration in an increasingly segregated metropolitan community.
The beginning

Part Two—Education, Industry, Community, and the Spirit of Renewal

Father William T. Cunningham—

In 1967 I was a priest, seminary professor and literary critic in Detroit, caught up in the throes of riots of incredible intensity, with .50-caliber machine gun bullets raking down the sides of apartment buildings and ripping through houses, tanks crawling up and down the streets, and holding bodies in my arms. I still get caught-up in that emotion. Perhaps we all need to have emotional experiences of considerable thrust in order to realize the intensity our lives are capable of achieving.

After the riots this professor said he could no longer teach Shakespeare and Composition 300 to seminary students. I resigned my job with the Archdiocese. The Cardinal Archbishop was most cordial in accepting my resignation, but then he said, “Now you’ve got to take a parish.” I answered: “We have to do something about this city, about this terrible violence, this malingering cancer of racism, which is also integrally a part of our church. All institutions are infected by it and the church is the most infected of all because it carries its cancer right to the moral core of our society.” I didn’t get anywhere with that rhetoric.

I called Eleanor Josaitis, secretary of a retreat/training program (now Associate Director of Focus HOPE). We had been educating couples, particularly young married couples, in the social justice principles following the Catholic Church’s Vatican II. I was trying to get people to see that the sacramental system of the Catholic church, all of its panoply and ritual, had to be converted to reality. Christ was a living human being, not a writer, and certainly not a theologian. I’ll never forget Eleanor’s suggestion to get all the priests in the Archdiocese to talk, over a series of Sundays, about the riots and about how the Catholic Church had to get behind racial justice.

I must say, if the movie The Sting is not my favorite movie, it’s the next to the favorite, because that’s the way we pulled it together. I invited 50 of the 950 priests in the Archdiocese of Detroit for a one-week planning session. We got some good cooks, set up a nice bar, and got some good speakers. We thought we had 50 of the brightest, most courageous, risk-taking priests—who were also very persuasive from the pulpit.

We also invited the most radical people from the City of Detroit to speak: representatives of the Nazi Party, and what we call “Skinheads” today (but far more vicious in those days); we got some “Black Nationalists” who wanted us to set aside five states to secede from the United States. Of course, as each spoke we had to make sure that we kept the other groups in another room.

At the end of the session, we assembled all the priests and gave them speech-writing assignments. We had educational psychologists and psychiatrists available as resources while these gentlemen wrote their sermons and speeches. During the same week we also trained 6,000 volunteers in the Kerner Commission Report about the riots, and these volunteers were to follow these priests through all their assignments. We then gave everyone their assignments. They were to speak in 175 parishes in the City of
Detroit and its immediate environs. They were to speak for the Cardinal Archbishop himself.

I have to tell you I have a friend who's an extremely good imitator of just about anybody, and we had him prepare to make a tape imitating our Cardinal calling the parishes to action. We prepared a letter on Archdiocese stationary to go to all the parishes letting the priests know they would be replaced, on sequential Sundays, with a priest speaking for the Archbishop on civil and human rights.

At about the midnight hour, before all of this was to happen (the training had been completed, the assignments given, and not a single one of these priests knew what we were up to—they all trusted seminary professors), I went to see the Cardinal. Before we dropped the tape and the letters in the mailbox, I thought maybe we ought to try the regular channel. He wasn't happy with my news. But he did collaborate, and in three days he called together all of the pastors of the Archdiocese of Detroit—a phenomenal move—and told them they would be replaced in the pulpit on sequential Sundays with a priest speaking for the Archbishop on civil and human rights. He told me to stay off the stage, this was his show, and he would repair the damage that I had done to the ship of the Church.

The third Sunday was transferred to a fourth Sunday because on the third Sunday Martin Luther King was murdered. These were different days—charged with the electricity of revolution and with fear and hate unprecedented since the beginning of this nation. Within a few days we had completed our operation. As a consequence, each Sunday afternoon after the presentation, 65,000 home meetings on race took place. People inundated the switchboard at the seminary with phone calls asking what they could do. We were on our way.

We developed within a few months a food program for mothers and babies, because we heard that there were 50,000 children in the City of Detroit under the age of six who had brain damage, who would be behaviorally unmotivatable because of benign anemia. Kids would be passive attentive in the classroom. Moreover, there were all kinds of other attendant medical problems because of the extraordinary amount of damage caused by malnutrition.

We began with 300 little babies. In a year we were feeding 18,000. In three years we were feeding 80,000. We met our commitment to see to it that every single baby in the City of Detroit had adequate food to grow up normal and become a productive member of society. Then we took on the elderly poor.

We also sued people. We gathered a legal team of young men and women in Levis and scuffy shoes whom federal judges accused of being carpetbaggers and asked if they had appropriate credentials. We took down some of the biggest companies in America for racially conspired removal from the City of Detroit to places where black people could not get to a job because there was no public transportation. We developed our own video laboratories, our own publications plant.
The beginning, continued

Before long we realized we’d lost the battle of industry leaving, so we started to buy the plants. Don’t ask me how. At this time I just have to say we were pulled by having to do the right thing without any resources. I can remember telling the Ex-Cello Corporation when the time came to close, after putting a deposit on one of their big plants of 500,000 sq. ft., that I didn’t have the money to go through with the purchase. So I spent eight hours with their officials convincing them that this could be one of the better contributions they could make to our community, and they gave me back the deposit check and gave us title to the building.

Then I went to see Navy Admiral Gene Grinsted, a marvelous man, head of Defense Logistics. I said, “You have millions and millions of dollars worth of machines underground. Give them to us so we can train kids, so we can make machinists out of youngsters.” There are good jobs, but black kids had never been allowed to be machinists in Detroit. In 1951 the Ex-Cello Corporation had to close its doors because the UAW Local 49 went on strike after they hired their first black machinist. That was the infrastructure of the manufacturing industry. The Admiral, God bless him, gave us all the machines we needed, covered with Cosmoline, and with obsolete wiring.

We took over the plant. We got a bunch of volunteers to put it all together, and we graduated our first class of 54 youngsters within nine months. They all had jobs when they graduated. Within one year we had integrated over 200 shops, the first female and the first black to work in any of those machine shops in the metropolitan area of Detroit.

Going deeper into the system

After a year or two, we found that we were running out of youngsters who had sufficient math preparation. Fifty percent of our youngsters in Detroit were dropping out of school, most of them by the end of the ninth grade. The 50 percent who graduated were averaging between seventh and eighth-grade math. Many were doing fourth-grade math. So they weren’t prepared to go into an industry that was demanding in math requirements. We didn’t know what to do, but we were unwilling to close down.

We were testing 5,000-6,000 youngsters a year to come up with 100-150 who cleared our drug screen, could pass the math and communication skills to prepare them for other training programs. So we started another program called FAST TRACK which takes about 1,500 kids a year. They have to have eighth-grade math and keep our discipline, which is inexorable. The manager of the program, Thomas Patrick Murphy, is a retired U.S. Army Command Sergeant Major. If you’re absent once, late twice, you’re out of the program. Our people have to be drug free, and there is drug screening.

Students work at learning eight hours a day, six days a week, on a computer; we have people learning, not being taught. We didn’t allow any school teachers in the program whatsoever. They were absolutely the problem. We wanted mentors and coaches, people who knew the content well and would stand behind the youngsters. These kids all go ahead at their own pace. We average three years growth in mathemat-
ics, and one year's growth in communications in seven weeks.

But more than that, those youngsters learn how to switch cultural gears. They learn how to talk to their grandma, their minister, their boss on Monday mornings, and their friends on Friday nights. They learn how to wear our colors and they do proudly. They shake hands, look you in the eye, introduce themselves, and if they don't catch your name on the first swing, they ask you to repeat it. They're down to business. We had enough candidates completing FAST TRACK to permit the growth of the Machinists Training Institute to where it is graduating about 250 a year now. We have 400 jobs waiting for our youngsters and we can not supply them fast enough. We have the largest machinist training program in the United States today. We train on the very best equipment available.

But we also knew this: Industry was growing with tidal wave capacity and risk. And you know what a tidal wave is. It starts out about 500 miles along the coast. The water rises about 2 to 3 inches. It's not threatening anybody. But suddenly that 500 mile surge arrives along the coast around two miles out and becomes a wave of enormous size and power. It's a terrible thing to see the effects of a tidal wave. The revolution we're going through in the U.S. today in technology is very much analogous to a tidal wave. It is, however, far more intense, far more devastating or hopeful than the Industrial Revolution.

We saw it coming. Lloyd E. Reuss, who retired as president of General Motors in 1992, works full-time at Focus HOPE, like me, for no pay. He's a very generous guy, and he brought a lot of people from industry to work with him; it certainly helps to support our 850 employees to have that kind of leadership. We decided that we had to do something far more radical than what we'd done before. So we conjured up this Center for Advanced Technologies. To make this thing fly, I had to have support from the universities.

I went to the National Science Foundation. I must admit they were extremely patronizing and kindly to me, recognizing the dimensions of my dementia. They finally gave me a second visit and decided, oh what the heck, let's give him a few million dollars, fifteen in this case, and let's see what happens. So we got six universities together, and we told them, “The goal is to educate. You're going to be in charge of credentials and certification, but you're not going to teach anybody. Nobody's ever going to come to your campus. There will be no classrooms. This will all be done through modular programs loaded into our computers, and electronic libraries. We're going to ask your universities, all of you together, to award these young people associates degrees, bachelor's degrees, and master's degrees in Renaissance Engineering.”

They asked, “What is Renaissance Engineering?” I said, “It's everything in your syllabus taught at once. We don't want separate electronic, electrical, mechanical,
A radical redefinition of engineer development, continued

design, or chemical engineers. The Renaissance Engineer will have to know all these things.” They said, “Impossible! They’ll be in our universities for 20 years.” I said, “They won’t be in your universities for 20 minutes. The way we’re going to do this is by working on extraordinary projects in our factory/school. They’re going to be building things that have never been built before.”

We’ve asked them to develop an integrated curriculum module that shares 20 to 30 different sciences, with a good infrastructure in math, and so on. This module is to be available to each student on their computer terminal. There will be draw down knowledge, no teaching, only learning. Everyone will learn at his own pace, and there won’t be any grading. Competency will be 100 percent because they’ll be doing real work. Well, after we got the universities over their cut-and-paste attitude toward developing a module, and assigning undergraduate students to take a little from this textbook and a little from that textbook, half of which was obsolete, we finally got the academics in place. In 1993 our first students began this new learning experience, and in May, 1996 we had our first associate degree graduates.

In addition to the technical information, students receive training as engineering gentlemen, renaissance gentlemen. The manners of the engineering community, which we regard as the finest gentle-persons in any profession, are coached along by having a four-star chef with them when they eat. They’re given plane tickets to travel around the U.S. to buy millions of dollars worth of equipment for us. They sit in on major negotiations with the Big Three and others as we developed contracts. They make their own reports and presentations.

Students who complete machinist training have to go out and work a year, to make sure they understand that industry well as skilled machinists, before coming back to us to begin the six-year trek to become a Renaissance Engineer, the expected salary of which is $150,000 a year. They’re also required to take Japanese and German languages.

In addition to the academics, there were some other things that we had to put in place and they all had to mesh perfectly. We had to have the most advanced machine tools. With special cooperation from the Pentagon, we bought America’s finest machine tools in consequence of having landed very good contracts in a competitive industry.

Because the requirements for every one of these young people working towards their master’s degree were that they produce products that were better than any others produced in Detroit, they had to be the very best. So we got contracts as “Tier-One Supplier” with Ford Motor Company, General Motors, Detroit Diesel, and Chrysler Corporation. We make 179 products for Detroit Diesel, for example, and we make them on call.

We’ve been able to cut setup time on flexible machines by 70 percent using an art-to-part formula so complicated that we made a separate computer-based module for it. When our university colleagues looked at the module for the part, they said “Anybody who completes this earns a master’s degree.”
The student body

Candidates are typically in the range between 20 to 27 years old, and a few are older. We’re really proud of all of them. They’re accomplished machinists, making $8–$13 an hour working for us. Their tuition is covered, and they have the benefit of on-the-job training. So in many ways it’s the best deal possible. Skills are being developed on state-of-the-art, 21st-century, equipment while their academic preparation is being assured at self-pace by the university.

We hope to have thousands of Renaissance Engineers and skilled machinists cross-trained and developed in a very special behavior. The behavior is: (1) constant improvement of yourself as an individual. (2) The ability to acquire knowledge and solutions for the task in front of you. (3) The positive attitude that everything we’re doing today has to be improved this afternoon, has to be done better.

Production

The product going out the door is interesting, too. Last fall we received a call from Ford that they had a wagon that sold 4,100 more than expected and they didn’t have enough intake manifolds to fulfill the orders. The company that made the intake manifolds went bankrupt. They asked if we could help them, saying, “We need 4,100 of these intake manifolds, 170 surfaces to be machined on each of these manifolds.” That was on Friday. On Monday morning, using the state-of-the-art machines we have, and the incredible capability of our students (they’re the only workforce we have, there’s nobody else doing manufacturing except our candidates who are also very acceptable machinists) we shipped 100 intake manifolds to Ford for their inspection, and by Friday we shipped all 4,100.

A week later, the U.S. Navy RAMP program contacted us: “Do you guys think you’re ready to do a digital drawing exchange with us and machine a part? And how fast?” We took the design through and one of our folks asked, “How long does it normally take you to get this kind of part?” He said, “Oh, about a year.” We gave it to him in two weeks. What we did, in effect, was tell the Navy they didn’t need to stockpile that stuff any more.

We have a contract to improve the HUMVEE. The army has 150,000 of these vehicles. As unbelievable as it may be, our organization has been asked to reengineer it, to make it more fuel efficient. It’s a $2 million grant and we’re going to save them hundreds of millions in fuel efficiencies. One thing we will do is put in a new-age piston made out of a new metal. The point I want to make is that the products we work on are always on the fringe, the outside edge of technological implementation— that’s the way their knowledge develops, and it’s also the way their behavior develops in the face of constant change. We don’t accept any contracts that other people are already doing. We only accept contracts that nobody has done before.

Broadening our systems approach in the community

We built a $3 million Center for Children, brand new, beautiful architecture, perfectly staffed center for the children of those who are in training or in our work.
force. We brought the best Montessori people we could find, and the best talent for languages and math. Those youngsters are on computers at age 2 1/2. The thing continues to grow because Total Quality cannot end at the boundaries of our plants or businesses.

We started to send our children to the local public school, because there’s no such thing as a neighborhood school today in America. I don’t know whether you’ve thought about it, but if the parent is working the neighborhood is the business. That’s where the parents are, so school ought to be near to where the parent works. And the school ought to be able to care for the children from the time the parents go to work in the morning until they get picked up at the end of the day.

Last year we had a 12-month school and little kids said to teachers, “We go to school full-time, and we’re proud of it.” The other little kids in the neighborhood and their principals would come to me and say, “That’s not fair. We ought to be full-time too.” I said, “Raise Hell!” This is the only industrial country in the world that stops for three months so kids can go out and plant seed and come back after the harvest.

A group of youngsters from the third grade decided they were up for a Math Pentathlon that was taking place “somewhere” in the suburbs. Somewhere turned out to be the wealthiest city in America, West Bloomfield, Michigan. Our children turned out to be the only black kids in the contest, from the only Detroit public school. I gave them a Knute Rockne talk and got volunteers from our Center for Advanced Technologies to agree to tutor the kids. I convinced the principal it was like a football team—she had to give them a half-day off so they could learn math. She said, “What about their regular studies?” I said, “the problems with these kids is their regular studies. What we’ve got to do is give them something that they can learn and grasp and become competent in.”

We got a big bus, a TV crew, and woke all the parents up at six in the morning to make sure all the parents were on the bus with the kids. Our kids won most of the medals. We helped the teachers to begin to learn and have better expectations. And we’re telling the kids: “You’re going to keep growing until you’re the best little grade school in America. You can do it. You’re bright enough. We just have to be sure to give you the ammunition so you can produce.”

In a short time the General Superintendent called: “Could you do at the big Central High School what you did at Glazer Elementary? I mean, to form a partnership whereby this school of 3,000 students could become a high-level engineering high school in Detroit?” This was in August. Tom Peters has a phrase that I just love: “Ready, Fire, Aim.”

In September 1995, after four weeks of preparation, we took the seniors from Central High School and began: four hours a day at Focus Hope in our Machinist Training Institute and four hours a day at Central; 12-month program. In September 1996 we will start with the freshmen. We’re predicting that the freshmen will complete high school as accomplished machinists with college credits towards their engineering degree.
We've got to expand beyond our businesses, our companies, expand beyond our kind of consulting firms and take a much larger look at what it will take to have a Total Quality America. The need to do this has to infect every citizen of this country. We have too many people living beneath the poverty level, too many children being wasted because they've never been given an opportunity to achieve excellence. America's greatest resource is its diversity. This is the one major distinction between this country and our European or Asian competition. Both of those societies are clearly homogeneous, the German or the Japanese.

In our area of America, we have 141 different languages spoken. That's great variety in any part of this country. That's our greatest blessing. When we bring those diversities together on any given challenge, the outcome is a miracle. We've got to include all our people in the challenge of Total Quality Excellence. When we do that, we're going to be absolutely overwhelmed at the competitive edge that we have.

Born in Detroit in 1930, William T. Cunningham graduated from St. John's Provincial Seminary, was ordained in 1955, served as a parish priest for five years, did graduate studies for a year, and joined the faculty of Sacred Heart Seminary as an English teacher in 1961. For eight years he was a columnist and book review editor of the Michigan Catholic. In 1968 he founded Focus: Hope, and was named pastor of the Church of the Madonna in 1969.

Fr. Cunningham serves as a member of the State of Michigan 2000 Committee to achieve the six national education goals. He was recently selected to be a panelist for the U.S. Congressional Office of Technology Assessment.

Awards include the 1987 Detroit News Michiganian of the Year Award, University of Michigan 1993 Business Leadership Award, National Governor's Association Award (twice), Marquette University Alumni Award, NAACP's Ira W. Jayne Memorial Medal, the Temple Israel Brotherhood Award, the Bishop Donnelly Alumni Award, the UCS Executive of the Year Award, and the Salvation Army's William Booth Award. In addition, he has received honorary doctorates from Marygrove College, the University of Detroit, Madonna University, and the University of Michigan.
Successful Companies-and Communities—Need the Discipline of Quality

Richard Newhauser, Chairman of the Board, Richard-Allan Medical Industries, Inc., Kalamazoo, Michigan; Vice Chairman, Kalamazoo Valley Quality Council

Richard-Allan Medical Industries, Inc., is a privately held business that develops, manufactures, and markets health care products in approximately 54 countries worldwide. We have two manufacturing locations: Richland, Michigan, and Redditch, England, with a total of 250 employees. Sales have grown at a rate of 30 percent per year to our current $30 million. We have targeted $100 million in sales by the year 2000! That’s what I call rocket ship growth, and we can see the rivets on the wings vibrate! I point out these statistics to demonstrate that managing for quality doesn’t necessarily have to lead to downsizing.

Purpose

The purposes of this article are twofold: (1) to share with you some of the leadership and management practices that we use at Richard-Allan, and (2) to express to you the importance of our region’s Community Quality Council to the future success of our company. I believe that Community Quality Councils will play an important role in the future, not only in individual company development but in community, state, and national development as well.

A caveat

We have many people tour our facility in Richland, Michigan, and comment on the effectiveness of our TQM implementation. Many think it has been a simple and easy journey for Richard-Allan, but it has not. To get to where we are today, it has taken a lot of work, a lot of blood, a lot of sweat, a lot of people’s involvement. Without the focus and discipline of TQM, without having the right processes in place, we couldn’t have done it. It doesn’t happen without a lot of desire either, and a lot of people standing behind it, pulling together, working together. I think that if this was easy, we all would have better communities to live in, this would be an even better country and a much better world.

Part 1. Richard-Allan Medical Industries

What would you do if you were the CEO of a company that held a 70 percent market share in eyed surgical needles and a 25 percent market share in skin staplers—knowing that the needle market was declining at a rate of 5 percent per year and staple
guns had become a commodity item in health care institutions? With a dedicated staff of employees and TQM in my back pocket, I went head to head in the billion dollar minimally invasive surgery market (MIS) with the corporate giants, Ethicon and United States Surgical. MIS allows a patient to enter the hospital on an outpatient basis, have their gall bladder removed and return to work within the same week; a process that used to take six weeks. In the last several years, we have been able to create a full range of products for these surgeries that are higher quality than our competition and are able to sell them at 30 to 40 percent less! We have leapfrogged our competitors and are introducing technology that they are unable to get to the market— an articulating endoscopic linear cutter. But let’s take a look at how we have been able to do this.

Ten years ago we began our quality journey with implementation of TQM. We formed product development teams and concurrent engineering teams around a number of products. We worked hard to reduce cycle time and standardize processes. We also utilize Quality Function Deployment (QFD) process on every product to ensure we are meeting our customer’s needs. The results are fourfold:

1. We can beat the competition relative to quality, cost, and delivery.
2. Product deployment cycles are shorter.
3. We have expanded our line of products.
4. Total Quality Management is helping us not only to survive, but to thrive and grow in a health care market that demands quality products at a low cost.

We can beat the competition relative to quality, cost, and delivery

Let’s look at one of our products, the skin stapler. On the quality side we have reduced customer complaints to 4 ppm and end of the line yields from 80 to 99.9 percent! On the cost side, ten years ago when we introduced this product, the customer purchased it for $18. Today, this same instrument sells for $6. We have been able to achieve this through a 300 percent improvement in the manufacturing cost of this instrument and passing this savings on to the customer! We deliver approximately 6000 skin staplers per day or 25 percent of the world market. We accomplish this through Just-In-Time inventories, never keeping more than 24 hours worth of raw material on the production floor. We didn’t achieve these quality, cost, and delivery improvements by using robots or sophisticated techniques. We did it by building teams around our products, standardizing processes to meet customer needs, and seeking continuous improvement. This has been an evolutionary process, not a revolutionary one.

Product deployment cycles are shorter

Many companies design new products and then “throw them over the wall” to production to find that the product is unmanufacturable. This sends the product back to be reengineered with hopes that manufacturing can “deal” with the changes. At Richard-Allan we have a design procedure that takes the product from concept to the customer’s hands. Through concurrent engineering, design engineers, manufacturing
surgical wound closure products, continued

engineers, marketing product managers, and assembly personnel work together to
design and manufacture an instrument that will be at a higher quality and considerably
lesser cost than the competition with same-day delivery.

we have expanded our line of products

Richard-Allan has developed a complete line of sterile disposable laparoscopic
products—safety shielded trocars, 5 mm laparoscopic scissors, endoscopic clip appliers,
5 mm electrosurgical instruments, articulating linear cutters, and procedure based kits.
We have been able to develop this line of products by taking the money that was saved
from current product process improvements and reinvesting it into new product
development. I want to emphasize this. Telling employees you're going to change to
TQM generates a lot of fear because employees think management is doing it to get rid
of people. TQM doesn't necessarily mean that you have to downsize or put people out
on the street as you become more efficient. When you take money saved from improving
processes and deploy those resources into new product areas and new technologies,
you can continue moving forward while keeping that same team spirit.

we're finding that the total quality management is helping us to thrive

Richard-Allan employs a flat organization structure (see Figure 1) with three
levels of management, including myself. Our purchasing and quality assurance "departments"
are led by one person. We can do that because the purchasing and quality functions are deployed throughout the company in product teams and production cells.
Each production cell has the people necessary to do what's needed to continually
improve the product. We form teams around the products to continually improve the
quality, cost and delivery. We feel this helps prevent disagreement regarding resource
allocation.

figure 1. richard-allan medical industries organization structure

<table>
<thead>
<tr>
<th>Management Team</th>
<th>Chairman of the Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin. Assistant</td>
<td></td>
</tr>
<tr>
<td>Stapler</td>
<td>5mm/Electrosurgical</td>
</tr>
<tr>
<td>Trocar</td>
<td>AEC</td>
</tr>
<tr>
<td>Clip</td>
<td>New Product Development</td>
</tr>
<tr>
<td>Needles/Kits</td>
<td>Corporate QA</td>
</tr>
<tr>
<td></td>
<td>Chief Financial Officer/Information Services</td>
</tr>
<tr>
<td></td>
<td>Human Resources</td>
</tr>
</tbody>
</table>
|                          | Marketing, Sales
Development, and
International Sales |
|                          | Sales and National
Health Systems |
CASE STUDY
Successful Companies—and Communities—Need the Discipline of Quality

Mission statement

Our mission statement is important to us and we put a lot of work into developing it. It’s the credo by which we drive Richard-Allan, and it is an integral part of our training program. Our mission embraces four elements: Customer Care, Employee Care, Supplier Care, and Shop Floor Management (Figure 2).

Suppliers

How suppliers are selected

Selection criteria for suppliers is weighted toward future responsiveness as well as present capabilities. We do not put all of our emphasis on the present quality, cost, or delivery. We look at willingness to continually improve.

Figure 2. Mission Statement, Richard-Allan Medical Industries

<table>
<thead>
<tr>
<th>Customer Care</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Meet Customers’ Needs Better Than the Competition</td>
<td></td>
</tr>
<tr>
<td>• Quality: High Quality, Zero Defects</td>
<td></td>
</tr>
<tr>
<td>• Cost: Elimination of Waste</td>
<td></td>
</tr>
<tr>
<td>• Delivery: On Time</td>
<td></td>
</tr>
<tr>
<td>• Continually Monitor and Improve Products/Services</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employee Care</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hire, Train, Promote Quality Employees</td>
<td></td>
</tr>
<tr>
<td>• Establish Clear Standards of Performance</td>
<td></td>
</tr>
<tr>
<td>• Provide High Quality Training</td>
<td></td>
</tr>
<tr>
<td>• Monitor Performance Objectively for Continual Improvement</td>
<td></td>
</tr>
<tr>
<td>• Compensate Competitively</td>
<td></td>
</tr>
<tr>
<td>• Provide a Pleasant and Safe Work Environment</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier Care</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Select Quality Suppliers</td>
<td></td>
</tr>
<tr>
<td>• Train Suppliers in Shop Floor Management</td>
<td></td>
</tr>
<tr>
<td>• Standardize Processes</td>
<td></td>
</tr>
<tr>
<td>• Monitor Performance Objectively for Continual Improvement</td>
<td></td>
</tr>
<tr>
<td>• Continually Eliminate Waste</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shop Floor Management</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Shop Floor Management Throughout Richard-Allan</td>
<td></td>
</tr>
<tr>
<td>• Standardize Processes (PSOS)</td>
<td></td>
</tr>
<tr>
<td>• Monitor Processes for Quality, Cost, and Delivery</td>
<td></td>
</tr>
<tr>
<td>• Customer Driven</td>
<td></td>
</tr>
<tr>
<td>• Improve Processes Using Plan-Do-Check-Act (PDCA)</td>
<td></td>
</tr>
<tr>
<td>• Employee Involvement</td>
<td></td>
</tr>
<tr>
<td>• Continually Eliminate Waste</td>
<td></td>
</tr>
</tbody>
</table>

Suppliers are included in training

We train our suppliers in our philosophies. We’re a small company, but we’ve trained over 200 engineers and support people from other companies in our management philosophies, so that we can partner with them and work together. Our objective is to help our suppliers standardize processes so we receive consistently reliable input into our processes. That way, as we continually improve quality, cost and delivery outcomes to our customers, we’re confident that we’re working from a stable base.
Looking for a unified management system, not a “program”

Suppliers are evaluated

We monitor suppliers’ performance objectively. We have quarterly meetings with most of our key suppliers, and meet annually with all suppliers. We alternate meeting sites, as we also alternate people on the team. Again, what we’re really after is continual elimination of waste.

My first vision of TQM was not a “program,” but a better way to run a business. I didn’t want quality to be an additive program to an already busy schedule filled with daily work. I wanted a management system that would be applicable throughout Richard-Allan, not just on the manufacturing floor.

“Shop Floor Management” throughout Richard-Allan is what we developed and implemented. It’s our management philosophy, the essence of what makes it all happen. It’s a holistic way of running a company, based on some simple ideas. I think it’s important to keep them simple. I’ve been through some programs on systems thinking where you have arrows and circles going all over the place, and it gets really complicated. I don’t think you can do that to people on the floor, the production line, in a small business today. You have to simplify it and keep it simple.

We begin by “putting a stake in the ground,” to standardize our current processes. There’s a great tendency to want to wait to do that. People want to improve the process first, then put the stake in the ground. I think it’s important to begin by documenting current practices and processes. Then you use that data to decide what needs to be improved. We capture all of this information on a form that we call PSOS, Pre-Standard Operating Sheet. This is a highly detailed documentation of every process that we have.

Standardize current processes before improving them

Education and training

We educate and train our people in a number of different methodologies and tools that appear to be useful in our business. This becomes our management toolbox. We want the teams to think things through, using their knowledge and understanding of the customers’ wants, needs, expectations, and problems. Our Design & Engineering Department, to cite an example of learning and deploying a tool, has been successfully using QFD (Quality Function Deployment), and we are now deploying it into each product team. We want them to work with it and understand customer needs.

Teams self-direct

We begin by “putting a stake in the ground,” to standardize our current processes. There’s a great tendency to want to wait to do that. People want to improve the process first, then put the stake in the ground. I think it’s important to begin by documenting current practices and processes. Then you use that data to decide what needs to be improved. We capture all of this information on a form that we call PSOS, Pre-Standard Operating Sheet. This is a highly detailed documentation of every process that we have.

We educate and train our people in a number of different methodologies and tools that appear to be useful in our business. This becomes our management toolbox. We want the teams to think things through, using their knowledge and understanding of the customers’ wants, needs, expectations, and problems. Our Design & Engineering Department, to cite an example of learning and deploying a tool, has been successfully using QFD (Quality Function Deployment), and we are now deploying it into each product team. We want them to work with it and understand customer needs.

When a team completes the PSOS on a current process, they ask: What can we do to improve the process? What programs or tools do we want to use to help us? The teams select the tools they want to use to make their process work. In this way, management isn’t pushing them— the workers are pulling the programs through. In summary then, the individual teams:

• Standardize the process
• Meet as a team every morning, for 15 minutes, to review quality, cost and delivery
Teams self-direct, continued

- Monitor the work for quality, cost and delivery
- Continuously improve to eliminate waste and meet targets.

World Class Team status

We created a “World Class Team” standing, where each team can earn gold, silver or bronze status. It turns out that this has made my life a lot easier, because instead of management trying to push people, the system has them pulling training off the shelf. Achieving World Class Team status, incidentally, is not based entirely on objective, quantifiable data. There’s 800 points for process and 200 points for the output of the process. The scoring is as shown in Figure 3.

Figure 3. World Class Team Scoring Criteria

<table>
<thead>
<tr>
<th>Mission Statement Audit (processes)</th>
<th>800 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Care</td>
<td>250 points</td>
</tr>
<tr>
<td>Employee Care</td>
<td>200 points</td>
</tr>
<tr>
<td>Supplier Care</td>
<td>150 points</td>
</tr>
<tr>
<td>Shop Floor Management</td>
<td>200 points</td>
</tr>
<tr>
<td>Departmental Data/Charts (output)</td>
<td>200 points</td>
</tr>
<tr>
<td>Total</td>
<td>1,000 points</td>
</tr>
</tbody>
</table>

Financial reviews

We hold monthly financial review meetings. At first these meetings would take 12-16 hours, but we worked to improve that. Now some of them take a half-day. Again, it’s all about standardizing the process, monitoring it and improving it.

Standardize communication flow with our suppliers

We audit suppliers regularly and hold quarterly meetings with them. We also have a supplier scoreboard, where we can monitor vital items visually. We fax orders on a daily basis, using a “kanban” inventory/order card that serves as our purchase order. We also fax back notice of any defects that we receive on a daily basis, and we ship them back weekly.

Tours

As part of our “communications with the community” commitment we provide tours of Richard-Allan twice a month. Over 600 leaders from the community have visited our headquarters facility. These leaders come from not only the manufacturing sectors but education, government and the military. This is a significant endeavor for a small business like ours, but we do get images of a future benefit. I hear teachers and administrators say they’re going to change the Kalamazoo Public Schools, not just because of what Richard-Allan has accomplished, but because they have a vision of what they want to achieve. These tours have also drawn community leaders to join the Kalamazoo Quality Council and be involved in the quality movement.
**Results**

Here are some of the results we’ve achieved:

- **Reduced labor costs:** Since 1985 we have achieved a 15% reduction in direct labor hours per year, with no new capital spending—a nice return on investment.
- **Reduced raw material inventory cost:** We used to keep 75 days supply (similar to the staple line mentioned earlier); we’re now down to 10 days. We should be turning this daily within the next year, which is unheard of in the health care marketplace. Our improvement in this area saved us a lot of money, and we invested much of it in new product development.
- **Finished goods:** 10 days supply. We have quarantine and sterilization processes that we have to go through; otherwise we’d be down to two or three days.
- **On time delivery:** 99 percent of orders are shipped the same day.
- **Reduction in receivables:** In 1985 it was 54 days. Average receivables in the U.S. health care marketplace was about 52 days. We standardized the process, continually improved it, and got it down to 49 days in 1995. This was another area where we saved a lot of money and used much of it to develop new products and grow the business.
- **Suggestions:** We average 1.25 suggestions per person per month, with 82 percent of them being implemented. A lot of teams are going higher than this right now and we would like to get one idea, per employee, per week, with about a 75-85 percent implementation rate.
- **Training:** We’re providing 2,075 hours of training per month.
- **World Class Team Status:** We’ve had improvement in every single team in every single category. All our teams are at least at bronze. We have several teams at silver, and one team missed gold by two points.

**Conclusion to Part 1**

For Richard-Allan to continue to be competitive and profitable we need:

1. To have capable employees committed to doing today’s work and tomorrow’s.
2. To be customer driven.
3. To continually eliminate any waste in the system.

To achieve this we brought employees into the process of developing our mission, invested in their education and training, organized into product teams, and then empowered the teams to create their work processes. Having done that, they own it, and they are expected to improve it wherever possible. It’s a very structured system but there’s a lot of freedom because we’ve empowered the people, through education, training, communication and trust, to change their processes.

**Part 2. Kalamazoo Valley Quality Council**

An **education supplier**

Several years ago we discovered that the biggest defect coming into Richard-Allan is employees, relative to their knowledge base. We started testing job applicants...
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The community is a supplier, continued

for math, reading, and verbalization skills. Unfortunately, we found that 70% could not do high school math, yet they all had high school diplomas.

A health care supplier

We’re also concerned about the high costs of health care. That shows up on the bottom line a little bit more, it’s a little bit more tangible. If we’re going to provide health care products in the future, we have to figure out how to deliver health care products differently than we’re presently doing it.

A government supplier

Government is another area of concern. The actions of local, state, national, or international governments have an impact on our business. If we’re going to have good, affordable government, then we have to do the same kind of thing with people in government.

We’ve all probably complained about education, health care costs, government and other “outside” issues, and even planned our business around them, thinking we couldn’t afford the time and energy it would take to improve things. That’s what I thought a few years ago, too. Then I learned about a few places where community quality councils were formed to promote quality management in all sectors of the community. I thought about our successes with total quality management, and speculated that quality could become the catalyst for improvement in a whole community.

We began with a few leaders from Upjohn, Creating Economic Opportunity Council, Chamber of Commerce, and Richard-Allan. We approached key government, education, health care and other business leaders to evaluate the desirability of forming the Kalamazoo Valley Quality Council. We asked for and received a commitment from them to invest several days in listening, learning and discussing the issues, and then decide if they personally would want to be involved in this on an ongoing basis.

There’s no magic to the way we structured this initial organization. We just wanted to make it inclusive of the community as much as possible. That meant having seven “sector” councils: education, manufacturing, government, service, nonprofit, retail and health care. Figure 4 diagrams the initial organization structure.

A chairperson for each sector council was identified and they, in turn, recruited their peers to form a council. We formed a decision-making steering committee that consisted of the seven council chairpersons, plus three others: a representative of the area’s Chamber of Commerce, the county economic development corporation, and Richard-Allan.

Together we created a six month research and dialogue process. This included getting information on what some other community quality councils were doing. We
Creating a initial structure, continued

We were fortunate also to receive excellent cooperation from the Upjohn Company’s foundation. We asked their chief economist to work-up an economic profile of Kalamazoo County to provide baseline information on current conditions and trends. A presentation of this information was given at all of the sector council meetings and this proved to be an important aid in our process. Many people were surprised that trend line projections were relatively flat, predicting a slow economic growth for the future. That view provided a motivational influence. Council members wanted to work on creating employment opportunities and producing more real wealth.

Figure 4. Quality Council Organization

Purpose

We began our exploration process by setting a clear purpose for what we would be trying to do, writing it down as a mission. That mission is shown in Figure 5.

Development process

We created a rather comprehensive process to study and evaluate the desirability of creating a community quality council:

Commitments

• Chairpersons would commit to being on the steering committee and recruiting peers to be on his or her council

• Council members would commit to one full-day and one half-day meeting, and discussing the issues with others as necessary and desirable.

Contracted with GOAL/QPC for Larry Smith and others to play an advisor/facilitator role and work through the process with us. That helped us get to where we needed to go.
Development process, continued

Figure 5. Mission and Objectives of the Quality Council

<table>
<thead>
<tr>
<th>Mission</th>
</tr>
</thead>
<tbody>
<tr>
<td>To create an environment which will allow Kalamazoo Valley organizations to achieve world-class performance.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To enhance and strengthen organizations in their ability to continually improve in an increasingly complex environment</td>
</tr>
<tr>
<td>• To provide a forum for CEOs and senior managers of area organizations to share information on issues that affect their competitiveness in today’s global market</td>
</tr>
<tr>
<td>• To identify needs to achieve world class status and provide the necessary resources to achieve the mission</td>
</tr>
<tr>
<td>• To facilitate the sharing of resources</td>
</tr>
<tr>
<td>• To provide a range of program opportunities that have a positive impact on the community.</td>
</tr>
</tbody>
</table>

Council Meetings— one full-day and one half-day session

The first meeting of each council was a full day session. The agenda included:

Morning

• Plant tour of Richard-Allan Medical Industries
• Economic Profile of Kalamazoo County presentation by the chief economist of the Upjohn Institute
• Community Quality Council presentation by GOAL/QPC.

Afternoon

• Brainstorm and creation of an Affinity Diagram on the question: What would have to be done to deepen and expand quality (in your sector)?
• Prioritize, using nominal group technique
• Brainstorm initial measures of success, i.e., What would you measure to know that quality had improved?

Evening

• Dinner, to get to know each other better
• During dinner, staff entered all the affinity diagram data, and initial measures of success data, into a computer. A chart and table was printed out and given to everyone at the end of dinner. People were asked to review the information and submit additional ideas or corrections to the chairman within a week. (See Figure 6 for a sample affinity diagram.)
Information is shared with everyone

Councils meet to brainstorm about how to accomplish goals
Successful Companies—and Communities—Need the Discipline of Quality

COUNCILS MEET TO BRAINSTORM ABOUT HOW TO ACCOMPLISH GOALS, CONTINUED

for an example of a tree diagram. The councils were thanked for their work, reminded that their commitment ended at this point, and asked: (1) Should the Quality Council continue? (2) Should their council continue? (3) Do you want to continue to be a member? (4) What suggestions do you have for additional members? There was unanimous agreement from all seven councils to continue.

**Figure 8. Manufacturing Council Tree Diagram on Education & Training**

<table>
<thead>
<tr>
<th>For job seekers</th>
<th>Basic competencies (See K-12 group)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic competencies (See K-12 group, on a remedial basis)</td>
</tr>
<tr>
<td></td>
<td>Leading and managing change skills</td>
</tr>
<tr>
<td></td>
<td>Principles and tools of quality management</td>
</tr>
<tr>
<td></td>
<td>Technology specific training</td>
</tr>
<tr>
<td></td>
<td>Government regulations and requirements</td>
</tr>
<tr>
<td>For current managers and employees</td>
<td>• Team training</td>
</tr>
<tr>
<td></td>
<td>• Facilitation skills</td>
</tr>
<tr>
<td></td>
<td>• Human interaction skills</td>
</tr>
<tr>
<td></td>
<td>• Train-the-trainer</td>
</tr>
<tr>
<td></td>
<td>• Empowerment</td>
</tr>
<tr>
<td></td>
<td>• Communications</td>
</tr>
<tr>
<td></td>
<td>• TQM tools</td>
</tr>
<tr>
<td>K-12</td>
<td>• Ethics</td>
</tr>
<tr>
<td></td>
<td>• Problem solving skills</td>
</tr>
<tr>
<td></td>
<td>• Personal goal setting skills</td>
</tr>
<tr>
<td></td>
<td>• Occupation selection skills</td>
</tr>
<tr>
<td></td>
<td>• Cooperative education</td>
</tr>
<tr>
<td></td>
<td>• &quot;3 Rs,&quot; including technical reading</td>
</tr>
<tr>
<td></td>
<td>• Reasoning (real-world)</td>
</tr>
<tr>
<td></td>
<td>• Economics</td>
</tr>
<tr>
<td></td>
<td>• Interpersonal skills</td>
</tr>
<tr>
<td></td>
<td>• Communication &amp; listening skills</td>
</tr>
<tr>
<td></td>
<td>• Statistical concepts</td>
</tr>
<tr>
<td></td>
<td>• Basic quality concepts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For in-school population</th>
<th>Trade school, apprentice programs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• K-12 knowledge &amp; skills, plus currently applicable skills acquired through internships or coop programs</td>
</tr>
<tr>
<td></td>
<td>• K-12 knowledge &amp; skills, plus:</td>
</tr>
<tr>
<td></td>
<td>• Systems thinking</td>
</tr>
<tr>
<td></td>
<td>• Real-world experience (internships, coop., etc.)</td>
</tr>
<tr>
<td></td>
<td>• Cross-functional thinking</td>
</tr>
<tr>
<td></td>
<td>• Presentation skills</td>
</tr>
<tr>
<td></td>
<td>• Negotiation skills</td>
</tr>
<tr>
<td></td>
<td>• Basic liberal arts</td>
</tr>
<tr>
<td></td>
<td>• Leadership skills</td>
</tr>
<tr>
<td></td>
<td>• Management skills</td>
</tr>
<tr>
<td></td>
<td>• Proficiency in major</td>
</tr>
</tbody>
</table>

**Steering committee synthesizes the new data**

The steering committee then met again for another half-day. They reached consensus on the top priority goals, which are “Provide education and training opportunities” and “Create a marketing plan to create awareness.”

Working with the 13 completed tree diagrams, the steering committee did two things: First, they decided to continue with development of the Kalamazoo Quality Council. Second, they developed a set of one-year goals that included 12 items, for
which a member of the steering committee volunteered to take responsibility for accomplishing every one of the goals (Figure 9).

After this, the GOAL/QPC facilitator assembled all of the documentation—all of the charts, affinity diagrams, tree diagrams, and matrices—and bound them into a 61-page booklet that was distributed to everyone involved.

**Figure 9. Steering Committee Goals and Responsibility Matrix**

<table>
<thead>
<tr>
<th>First Year Priorities and Leadership Matrix</th>
<th>Quality Council - Steering Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Responsibility</td>
<td>Bob Seely</td>
</tr>
<tr>
<td>Secondary Responsibility</td>
<td>Rick Newhauser</td>
</tr>
<tr>
<td>Should be kept informed</td>
<td>Helen McCauslin</td>
</tr>
<tr>
<td></td>
<td>Patrick White</td>
</tr>
<tr>
<td></td>
<td>Larry Wilson</td>
</tr>
<tr>
<td></td>
<td>Jeff Hoffman</td>
</tr>
<tr>
<td></td>
<td>David Kirby</td>
</tr>
<tr>
<td></td>
<td>John Jones</td>
</tr>
<tr>
<td></td>
<td>Judy Moore</td>
</tr>
<tr>
<td></td>
<td>John Hanlesi</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Develop Awareness, Consensus &amp; Commitment</th>
<th>Publish Quality brochure (CEO Council)</th>
<th>Quality Council - Steering Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Include section on Quality in Chamber’s “Enterprise”</td>
<td>Bob Seely</td>
</tr>
<tr>
<td></td>
<td>Publish a Quality Council newsletter</td>
<td>Rick Newhauser</td>
</tr>
<tr>
<td></td>
<td>Hold a Quality “Event”</td>
<td>Helen McCauslin</td>
</tr>
<tr>
<td></td>
<td>Create video, slide show, and Speakers’ Bureau on Quality</td>
<td>Patrick White</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provide Education and Training Opportunities</th>
<th>Develop a directory of available Quality training</th>
<th>Quality Council - Steering Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a directory of available Quality training</td>
<td>Publish calendar of events about Quality in the area</td>
<td>Larry Wilson</td>
</tr>
<tr>
<td>Publish calendar of events about Quality in the area</td>
<td>Identify a Resource Center (or create one)</td>
<td>Jeff Hoffman</td>
</tr>
<tr>
<td>Identify a Resource Center (or create one)</td>
<td>Confer with education about desired competencies</td>
<td>David Kirby</td>
</tr>
<tr>
<td>Confer with education about desired competencies</td>
<td>Identify unfilled Quality training needs</td>
<td>John Jones</td>
</tr>
<tr>
<td>Identify unfilled Quality training needs</td>
<td>Continue the seven industry sector Councils</td>
<td>Judy Moore</td>
</tr>
<tr>
<td>Continue the seven industry sector Councils</td>
<td>Design a value-added resource network</td>
<td>John Hanlesi</td>
</tr>
</tbody>
</table>

**Some results**

We’re pleased with the early successes of the Quality Council, which we attribute to the up-front process we used to get as many of the “right people” involved in the planning, and actually let them make decisions and develop objectives and goals. Here are some of the accomplishments:
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Some results, continued

• 75 leaders from seven sectors of the community identified and agreed upon what was necessary to achieve world-class performance.
• Started to build a vision of what we want our community to be.
• Regular monthly meetings are held: These are two-hour sessions with specific topics or plant tours, with 25-50 people attending.
• Quarterly meetings of the steering committee are held.
• Quarterly community-wide quality meetings are held. These are four-hour sessions, typically with 150 people.
• Monthly training sessions for continuous improvement teams are held. These are four-hour sessions. Our plan is to train 21 teams in the first year, three from each sector. Hopefully we'll grow to training 200 teams in subsequent years.
• A monthly quality section is published in the Kalamazoo Chamber of Commerce tabloid, Quality Enterprise.
• Annual awards banquet featuring continuous improvement team results, not only the teams that we're training, but other continuous improvement teams, to get the message out.

Conclusion

I want to conclude with a quote from the introduction in a 1992 special bonus issue of Business Week, on Reinventing America:

Reinventing America. It can be done. It demands strength, resources, and will, but the task of reinventing America is not an impossible one. Nor is it overly ambitious. It has happened before, and it can happen again. America, after all, is an invention—created by a handful of men in religious and political exile, imposed on a harsh yet bountiful land, constructed with energy and abandon.

Reinventing America must happen. It can happen. And we can make it happen.

Author information

Richard R. Newhauser, aside from being Chairman of the Board of Richard-Allan Medical Industries, Inc., is also Vice Chairman and one of the founders of the Kalamazoo Valley Quality Council. Richard-Allan Medical Industries, a $35 million company with 200 employees, manufactures and distributes sterile, disposable surgical products. Mr. Newhauser led the 43-year old company into Total Quality in 1985 after being exposed to Japanese Total Quality philosophy.
The Challenge of Complexity: Redesigning Organizations

Lawrence M. Miller, Miller Howard Consulting Group, Atlanta, Georgia

Editor’s Note

Lawrence Miller has been helping to improve the culture and performance of organizations for over 20 years. His principles are based on the notion that there is no one way to redesign an organization, and he is able to offer many different approaches and insights into culture, behavior, competitiveness and continuous improvement. Since Mr. Miller’s approach to this article refers to some of his experiences in the field, a brief history of his major work is depicted below:

- **1970**: Redesigned a prison so that inmates had to earn everything, pay rent and taxes, and received rewards for productive performance.
- **1973**: Began working in textile mills, training supervisors in the use of positive reinforcement and feedback systems to transform the environment from negative to positive.
- **1978**: Pioneered the development of total team systems, involving all managers and employees in continuous improvement.
- **1984**: Team system evolved into a total redesign of organizations, eliminating unnecessary activities, levels and costs, and at the same time increasing quality, cycle time and creativity.
- **1993-1996**: Process evolving into a total strategy for organization capability. Organizations are realizing that the critical strategy which will distinguish them from their competitors is the development of human and technical capabilities for the future.

Introduction

The most important component of an organization today is the performance of its people. If an organization is to gain a competitive advantage, it must understand how people think, feel and act within that organization, and then utilize that understanding to increase human performance. This article will focus on some of the major facets of human behavior within the context of a work environment that one must optimize if they want to improve performance: Locus of control; Learning organizations; System architecture vs. system engineering; Culture’s impact on continuous improvement; Linear vs. non-linear thinking; The evolution of work systems; Swarm systems. I’ll start with a story about how I began to understand how people think, feel and act.
Similar Attitudes at Two Very Different Organizations

Example #1: A Prison

Early in my career, I was employed by the North Carolina prison system as a counselor. In one prison of 150 inmates, 33 had been convicted of murder. This was where the more serious offenders like rapists and kidnappers were sent—armed robbery was the most popular.

I would interview each one of them. The first question I asked was, “What are you doing here?” The collective response was that none of them belonged there. They all had a reason why they were in prison that somehow had nothing to do with themselves. One guy would say that he was there because he looked just like his brother: “They tried to send my brother up. The minute I walked in the courtroom, it was all over.” I looked at him and I said, “Damn. Bad luck!” The next guy would tell me about the attorneys: “I was poor, so I got these court appointed attorneys. They didn’t want to do any work; they just told me to cop a plea. If they’d wanted to do some work, I wouldn’t be here.” I said, “Damn. Bad luck!”

Most of them would tell me about how the other guy got him into this mess. It was always something like “I had a curfew, I was sitting in a bar, minding my own business, and I was getting ready to go home. The guys I used to hang out with came in, they said, ‘We’ve got some beer in the car, let’s go,’ and I said, ‘Hey man, I’m staying straight.’ They kind of grabbed me and I didn’t want to start a fight or anything, so I had to go with them. The guy driving says, ‘Let’s rob that gas station.’ I said, ‘Drop me off,’ but they drove into that gas station, knocked the guy in the head, took his money, threw it in the car, ran into the woods, took the keys with them, and left me sitting in the car. The cops pulled up, and here I am.” I said, “Damn. Bad luck!”

Example #2: A Corporation

Eventually I got frustrated at the prison, so I joined a consulting firm in Atlanta. I thought it would be easier. My very first client was a textile firm. I remember in 1973 driving up to South Carolina to meet with the plant manager. I asked, “Why do you feel there’s a Quality problem?” He told me about this vendor who put the equipment in who never did set it up right, and he couldn’t get him to come back and fix it. I looked at him and I said, “Damn. Bad luck!” Then I talked to the department managers. They told me if the corporate staff would get off their backs they could get some work done, and that they can’t get good help any more. Hourly employees said, “They don’t give us the right tools. Other guys are taking over this place.” I said, “Damn. Bad luck!”

Conclusion: Locus of Control is the Common Ingredient

What was going on here? It’s something called locus of control. We all have a tendency to place responsibility for events in our life inside or outside—internally or
externally. People who are losers in life (the prison system is a good place to find a highly reliable sample) tend to be highly external. They’re always blaming things on “the other guys.” People who are winners and the cultures that produce them tend to be internal. They believe in their ability to control their destiny, and because of this, they do things—they act, and therefore they learn.

**Individual learning is important**

It is necessary for people to know how to learn and process feedback. One of the things I found among the inmates, and this is also true of many employees of struggling companies, is that they’re not great learners. When you ask them why things happen, they say “well it’s because of the other guys.” If that is true, then what is there to be learned?

**All Organizations are Learning Organizations**

**Example**

I attempted to change things at the prison with a platoon of 150 guys working in a printing shop. The situation was that when they did a really good job, they got more work. If they really screwed up, they got fired and sat in the living area and watched TV. In a learning organization, and all organizations are learning organizations, what we learn is based on what happens around us, including the consequences of our behavior. Therefore, the question to ask is who’s doing the teaching and what is being learned? In the prison, other inmates were doing the teaching, and they were very good at delivering consequences for the behavior they wanted to reinforce. The problem was that it was exactly the wrong behavior from what we wanted, so we had to get control of things.

As part of my solution, I set up the first free economy behind prison walls. It wasn’t a completely free economy, but none of them are. We evaluated the jobs from high skilled to low skilled in the printing operation. We had plate makers for more high skilled jobs and cleanup people for lower skilled jobs. And we paid them in points, once a week. We also set up a bank. But for this to work, the workers had to be able to spend the points, so we tried to make it like the outside world.

The Corrections Department wouldn’t let us make them pay for food, but we did make them pay for everything else—movies, using the canteen to buy cigarettes and things, and rent. We were the only prison in the country to charge rent. We set up a luxury dorm, a quality dorm, a standard dorm, and an efficiency dorm. The luxury dorms had a color TV in it and other extras. The efficiency dorm was scaled down, just gray walls. Obviously we charged more or less rent depending on the scale of things, so that it would pay off for the guys doing the best jobs.

As we all know, when designing a new system we don’t always figure out
everything right the first time. A few weeks into our new economy, two inmates got fired from their jobs. It obviously wasn’t working for them, but we hadn’t prepared for this possibility. We couldn’t kick them out on the street. If we did, it might have caught on. Also, you can’t have homeless people in prison.

The efficiency dorm was the bottom dorm, had nothing extra in it, and the rent was 43 points. We had to give these guys checks for 43 points so they could pay the rent. We were trying to make this like the outside world, and in that world those who work give to those who don’t, in the form of unemployment taxes, Social Security, welfare tax. So the next time all the inmates got their paychecks, there was a line item on the paychecks, minus two points unemployment tax.

You had to be there to really understand what happened next. I can laugh about it now, but as I was leaving my office about 6 o’clock that night there were about 15 of these guys waiting for me. If your average guy says, “I’m going to rip your heart out,” you wouldn’t give it a serious thought, but this was different. These guys had demonstrated competence. I said, “Look, I’m sorry to tell you this, but it’s the real world, somebody pays for everything.” I think they got it but they didn’t like it. You’ve all heard the expression, attitudes can’t change overnight? Well it’s not really true, because the next morning those guys who didn’t want to work seemed to have a different attitude. In fact, they were knocking on our door, and seemed to have a very sincere work ethic; they wanted their jobs back. They went back to work, and never lost their jobs again— it was decision-making at the lowest possible level. Since then I’ve always been impressed with the power of the system, and that’s sort of the moral of the story, to segue into the substance of what I want to present.

Designing the System: Architecture vs. Engineering

Deming said that 95 percent of an organization’s quality problems are in the system. We need to think about this in depth, because we are the engineers, the designers of our system. I have some thoughts about designing the system and reengineering. The research on reengineering suggests that 75-80 percent of it doesn’t produce business results, and it doesn’t really change the culture of the organization. Most processes that get reengineered are the product of the culture, and often don’t result in a change in culture. I am suggesting that it is not enough to be engineers of the system; we also need to be architects.

What’s the difference between architecture and engineering? As an example, we can take a look at two homes in a neighborhood. Suppose the first house is a small log cabin with a narrow dirt driveway. However, the second house has big stone pillars at the front of the driveway, and a wrought iron gate that automatically opens to an antebellum mansion with white columns. Now I haven’t stated anything about the folks
that live there, but a visitor will probably think, feel, act, and communicate differently with the people in each house, just as a function of the architecture. Physical architecture has a lot to do with how people behave, and that’s a metaphor for the structure of our organizations. It’s also more than just the physical structure, and it’s not just information flow.

Engineering or reengineering is not a bad thing, but it has to be taken to the next level because it only deals with half the problem. In addition to the work process and the physical structure, there’s also a human system, a social system, and a culture in the organization. An architect doesn’t only think about engineering the mechanical things. They think about how they want people to think, feel, and act, and then design a whole system accordingly.

Creating a Culture of Continuous Improvement

It is important to figure out how to create a culture of continuous improvement to have competitive success today. There are two kinds of human behavior—intentional behavior and habitual behavior. Intentional behavior is having to see something on your “to do” list for it to get done, because it’s not a part of your routine, it’s not automatic. Managers make lists, workers read them, and pretend to follow them. You probably do some other things in your life that’s not on the list, because you don’t have to think about them. That’s habitual behavior. The world’s best companies have less management. They get more work productivity, more quality, for less cost by figuring out how to cause the continuous improvement behavior to become habit patterns, automatic things. It is useful to recognize that what causes things to become automatic is in the nature of the system that people to live in.

Example

Let’s say, for example, that you are waiting for a flight out of Atlanta. It’s four hours late, and nothing is happening, nobody seems to be doing anything about it. You will probably get up and find a person with the red supervisor’s jacket on. The supervisor will probably give some sort of explanation and maybe try to help you out. Suppose, however, that you were in Moscow, and your flight was four hours late. If you got up to find the person who works for the airline to complain, you’d get a “So what?! reaction, and nothing would happen. Same situation, same job, but a totally opposite reaction.

The difference is in the nature of their learning, the nature of the system that the people grew up in, and the culture. Remember, every organization is a learning organization, every organization creates a culture, and part of it has to do with the nature of that system. The airport people in Moscow believe they cannot make an impact on their system. They’re very external, not internal. They’ve learned that they cannot change the system. But from our system we’ve learned something different; that we can
influence change. We've developed different cultural habit patterns. Incidentally, there are
different kinds of habit patterns. Overt behavior is the kind we focus on because our
culture just tends to be that way. At best overt behavior is a third of what makes up the
culture. What's more significant than overt behavior is how we think and how we feel.

Linear vs. Non-Linear Thinking

Example: The Lakota Sioux and American History

A friend of mine is a Lakota Sioux from the upper Midwest plains, and he once
told me that the Lakota Sioux first called white people, the Europeans, square people.
Their houses were built square with right angles and straight lines. They looked through
square windows. They had square pictures hanging on the wall. They all sat on square
chairs. When they had a lot of houses, they made blocks—big squares. In the Lakota
Sioux world, houses were round. When they had a lot of houses they arranged them in
circles. They sat in circles, they danced in circles. This represents an important thought
in the Lakota Sioux mind. The idea of the circle is a philosophy, a connectedness
between things, unity, and oneness. We didn’t understand the connection between
things. They didn’t understand separation quite the way we do.

Looking at our nation’s history, we went from shore to shore dividing the
countryside up into squares so we would know whose property everything was. Then we
got our organizations squared up, too. But maybe we've hit the other shore with the
linear model, the linear thought process. We tend to think of organizations as linear, but
they’re actually not linear at all. The problem is that many executives are probably very
square people, and maybe they need to be a little more round.

Most of reengineering is done with squares, straight lines, and that’s thinking in
a linear fashion. But is that reality? Is reality really that linear? Is reality really that
square? Maybe it’s a little more complex. Maybe it’s a little more round and chaotic. I
believe it is possible to get beyond the old model.

Reality is not Two-Dimensional

I was at a seminar last year, and during a break a person came up and wanted to
describe how they had organized the Total Quality effort at their company. He went up
to the flip chart and began to draw the organizational chart. Of course, when people are
trying to show how something is organized, the natural tendency is to draw squares and
straight lines, and if someone has any power at all in the organization, they draw some
more. He was the head of TQM, so he had four squares representing four groups of
people: Employee Involvement, Process Improvement, Customer Focus, and Continuous
Improvement (I’m still not sure what that was). When he was done, he looked up
and smiled. He felt satisfied. It’s nice to know where your squares are. Is that reality, or
is that really the cultural predisposition to cut out, hang on the wall, in a form with
which we are comfortable? I think that we just don’t know how to draw.

One of the first things we do is help our clients redesign the organization. Why do we think we have to draw reality on a flat sheet of paper? Draw the organization with the different colored, different shaped, round tinker toys. It’s much more like reality. Reality is not flat. Reality is not two dimensional. It’s not square, it’s not straight lines, and it’s not top to bottom. It’s not any of that. That’s just the way we learned to think about organizations. It’s all habit. And now we’ve got to get beyond the boxed system to recognize the nonlinear.

What I’ve tried to do in Whole System Architecture is create an integration, not a new thing necessarily. In our culture we have a cultural learning deficiency, and it has to do with our square heads. We tend to go from fad to fad, from guru to guru. What happened? Did we wake up one day and something was stupid suddenly? People don’t say in second grade, “Everything we learned in first grade was wrong. Forget about it.” We go to higher levels of learning, bringing with us all we learned before. With Whole System Architecture I’ve tried to combine all these things.

**The Evolution of Modern Work Systems**

**Work Systems in the Past**

Human beings have been on this planet for 800 lifetimes, assuming an average life of 62 years. Of those 800 lifetimes, 650 were spent in a cave, and the family was the work system for the overwhelming majority of the lifetimes on our planet. Work was done around a castle in little craft shops. Not until the Industrial Revolution did the family farm craft shop model change. This was a real change in the fundamentals and in the architecture of organizations.

In the craft shop and the family farm, people were customer-focused because they didn’t do any work until they talked to the customer directly. People were economically connected to the workplace, so there was no need for consultants to help employees care. They always cared, because if the corn wasn’t growing out in the fields, they weren’t going to eat that fall.

Another difference is that people made whole things in the family farm or craft shop. They planted the seed, grew it, harvested it, and took it to market. If you made a chair at home, you’d derive some satisfaction from that. You might give it to your wife or your kid, which would be a transaction between the customer and supplier. But it’s a psychological transaction, not a monetary transaction. It’s the feeling of pride and satisfaction you get from making the whole thing and giving it to someone special. That’s the real customer focus link.
Work Systems Today

However, in the last 75 years, we have designed our factories to have a leg department, a seat department, a back department and an assembly department. Our work systems are leg making. This isn’t just on the shop floor; it goes all the way up the hierarchy. We have VPs of legs. We could use statistical process control and quality circles in the leg departments from now until the cows come home, and we’ll still have leg makers. That’s the architecture. The design of the system and the design of the organization is around the thought of people making legs rather than people making chairs. Part of how people think, feel, and act in organizations now has to do with the fact that they’re leg makers and not chair makers.

It’s not just in the factories. It’s everywhere. We divided the work up and we said “Just do your own work. Keep your eyes on your own paper. I want these desks in a straight line. O.K., we’re going to lunch. Everybody line up in a straight line and no talking.” Where did that come from? It came from Henry Ford’s factory. In old classrooms before the mass production model, there was one room of young kids, old kids, who worked together, played together. It was a little sloppy, a little messy, but somehow we learned, somehow it happened, somehow it got done. And now we’ve got the kids organized into the dumb first grade, the almost dumb first grade, the average first grade. We spend 12 years telling them, “Do your own work.” Then they go to college where they have an honor code that says, “I swear every test I take, paper I hand in, is entirely my own work. I did not receive help from any other individual.” They’d get kicked out; it’s dishonorable. They’ve been hearing it for sixteen years.

When they go to work in a large American corporation, they suddenly have so many problems working together. Why? Because they’ve been in a learning organization, and they’ve learned to fit into little square desks, write on square pieces of paper and do their own work. That’s what happened in mass production in Henry Ford’s factory—it did increase economic efficiency, but it destroyed intimacy.

Work Systems in the Future

The good news is that we can have both efficiency and intimacy; in fact we’ve learned how to exceed Henry Ford’s productivity by going to an organization that optimizes both intimacy and economic efficiency. In the craft shop or the family farm, there was high intimacy but low economic efficiency. The people who worked were all poor. Then we increased economic efficiency and wealth through the method of Henry Ford’s factory, so we cannot abandon the idea of efficiency. It’s a good idea. But we’ve learned that we can optimize economic efficiency to even a higher level if we can create an organization that incorporates the family farm, the craft shop, where people are connected to, and intimate with the work. People are more intimate with a chair than the leg. They might sign a chair; nobody signs a leg.
One Reason for Changing: More Knowledge Based, Value-Added Work

One reason that we are now moving towards these high performance organizations, going beyond Henry Ford’s factory, is because of the nature of the real work that gets done. About 70% of the value added work done in America is knowledge work. It’s working the mind, and the key input into that knowledge work is quality. Can you just map out the quality of thinking as a simple, linear, straight line process? No, it doesn’t work like that. It’s the process of thinking and the process of productivity and quality of a complex system.

We have to now design architecture for complex systems, what I would call a swarm system, as opposed to work being done in a straight line. The problem with Henry Ford’s factory is that to a certain extent, it was right. They could really could line the process up in a straight line and they could see each step. They could take a stopwatch and really measure how many seconds it took in each step. But is that the work that makes an organization profitable today? Some of it may be. If the majority of the work is making a thing, repetitively, there should be a linear process in the organization. They can apply reengineering, process management, map out all the steps, measure time, cost of each step, and look where quality problems occur. In a linear work system, about 80% of the value added is in that linear process. However, in a knowledge work organization it may be reversed; it may be that only 20% of the real value added can actually be seen, because it’s a swarm. Even with the most linear process in the world, there’s a swarm that goes on around that process. There’s an apparent process that’s written down, and there’s a transparent process that just swarms around it.

Swarming: The Part of the Process That Can’t be Charted

Beehives are great metaphors for big corporations—30,000 bees in a hive. What a discipline. It’s a matriarchy. The drones only last about a day and they drop dead. They’re very disciplined. They know their roles and responsibilities. They do it on time. And the key decision made in the hive is to swarm. Literally, “to swarm” means to leave one hive and go form a new hive. It’s like everybody in a company deciding to move to California from Boston. On one day, at the right hour, everybody just moves and the next day they’re back at work. What a feat of management! They must give orders, they must have policy manuals, they must have very clear objectives and reward systems. Someone must have thought this thing through really well, right? Wrong!

How do they make the decision to swarm? First a dozen bees go out and scout the territory. When the scouts come back, they dance on the hive. The more theatrical their dance, the better the place they’ve found. If it’s a really great dance, other bees see that and they say, “I’d better go check that out.” They come back, do a dance, and more bees go and check out the new place. It’s sort of a consensus process. Once there’s a consensus reached, they all flee the hive in a swarm. It defies our notion of how decisions
get made and how discipline is created in an organization. It's a discipline of chaos, in a way; a hive is a very complex system. I could attempt to map that process out, but in fact it's a simultaneous process, where things are going on in a complex and chaotic fashion. We have to learn to manage complex systems, and recognize the swarm that's really going on, because in any organization, even in the factories, they're not as linear as you think. Today's factory is a knowledge work organization. Much of the value added process is swarm behavior.

**Developing Architecture by Looking at the Swarm**

If we have to develop architecture for a swarm organization, for complex systems, we have to define a swarm system. The following are some unique characteristics of swarm systems that I think are worth noting:

- **Absence of centralized control.** Believe it or not, the queen bee doesn't have centralized control. Swarm systems have absence of central control, with autonomous work units working in parallel. That's the information flow of the future, parallel distributed systems, a web system.

- **Productivity** improvements and quality breakthroughs in a swarm system are often small inputs. If you study history, small inputs make incredible differences. One central component of chaos theory is the “butterfly effect,” which was developed by Edward Lorenz, a meteorologist trying to find a way to predict weather. Essentially, it says that weather is a complex system and although a butterfly flapping its wings in Hong Kong is a small input in the system, it leads to rain over Chicago 12 months later. In a complex environment that kind of stuff happens. You have to look for the small inputs, not necessarily the big inputs. Sometimes small inputs lead to huge dramatic changes.

- **Self organization** is a natural property of a complex system. This is very important in terms of creating architecture for knowledge based organizations of complex systems. People tend to self organize, they'll tend to choose to meet afterwards to go for pizza together, to share information and generate ideas. Does our organization encourage self organization or inhibit self organization? An organization has to allow people to promote self organization, and there will be a great benefit from that.

- **Saltation** is a term that comes from the Latin root “saltare,” and it means leaps, jumps. There's a whole study of natural selection called Neo-Darwinism that questions Darwin's original theory. Darwin talked about his theory of gradual selection and gradual evolution, and asked if the human eye, which is such a complex organ with so many parts that must all work perfectly, just gradually, genetically through gradual mutations, could have evolved? Neo-Darwinism says “no, it couldn’t have.” It actually was a significant nature change. They studied fossils, and there's really no gradual evolution. We tend to take major leaps, major evolutionary leaps, like when water heats up and then it boils, or when popcorn pops. How does change occur in a cultured organization? We may do some things that are steady continuous improvement, but in a real life organization there are also the major leaps. There are periods
where there's not much change, and then BOOM, perhaps due to the personal computer, the chip, or some other factor, there's a major change in terms of how we think about organization. That's saltationism.

**Concluding Comments**

We're moving towards wisdom by bringing things together. Left side, right side, linear, nonlinear. This is not a boring age. For thousands of years we've been split between the material and the spiritual. Today those things that result in high performance, profit, and the enhancement of human spirit, are not in opposition. They used to be viewed as being mutually exclusive, but now we recognize that what enhances the human spirit is also what enhances the profitability of the firm. We just haven't been thinking about it because we're so square. But now we're bringing those things together.

**About the Author**


Mr. Miller is the author of *American Spirit: Visions of a New Corporate Culture*, *Barbarians to Bureaucrats: Corporate Life Cycle Strategies*, *Whole System Architecture* and *Team Management*. He has appeared on *The Today Show*, *CNN*, *FNN*, and *CNBC*, and has been the subject of a feature story in *Industry Week* magazine.
NIST Study Finds That “Quality” Stocks Yield Big Payoffs

If a company does TQM well, does the stock price go up? NIST demonstrated that it does, as Malcolm Baldrige National Quality Award winners showed impressive returns on investment, outperforming the S&P 500 by as much as a 5–1 ratio.

For the second year in a row, a study by the U.S. Commerce Department’s National Institute of Standards and Technology demonstrated higher earnings. NIST made a hypothetical purchase of common stock in the S&P 500 and in each of the 14 publicly traded companies who won the Baldrige Award. Since the 14 winners included five “whole companies” and nine “subsidiaries,” an additional study was made just using the five whole company winners. NIST “invested” $1,000 in each whole company on the first business day in April of the year they won the Baldrige Award (or the date when they began public trading, if it was later). For the subsidiaries the sum invested was $1,000 multiplied by the percent of the whole company’s employee base the subunit represents. The same dollar amount was invested in the S&P 500 on the same day. Adjustments were made for stock splits and/or dividends, and the group was tracked through August 1, 1995.

The group of 14 companies outperformed the S&P 500 by more than a 4–1 margin, earning a 248.7% return on initial investment versus the S&P 500 return of 58.5%. The five whole companies did even better with a 5–1 margin, earning a 279.8% return versus the S&P 500 return of 55.7%.

NIST also performed a similar study for all 41 publicly traded companies that received Baldrige Award site visits (including winners). That group outperformed the S&P 500 by a ratio greater than 2–1. NIST’s data is shown below.

1988–1994 publicly-traded winners (14)

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1988–1994 publicly-traded, whole company winners (5)

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1990-94 publicly-traded, site visited applicants, including winners (41)

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1990-94 publicly-traded, whole company site visited applicants, including winners (10)

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1990-94 publicly-traded, site visited applicants, not including winners

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<th>Invested Value 8/1/95</th>
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1990-94 publicly-traded, whole company site visited applicants, not including winners

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Life is messy. It seems wasteful and redundant. It has none of the machine efficiencies that you and I spend so much time perfecting.

When you put a bunch of people together around a clear vision, a clear purpose, and have a heartfelt discussion about what this work is all about, it feels like a very messy process. But people have a natural desire to want to be effective, and out of that messiness can come order.

There appears to be a dilemma here—we want to think in terms of organizational systems, teams and teamwork, but we also want very much to have leaders and heroes.

If we have a clear sense of organizational self—whether it's at the team, system, or national level—and we are really clear about it, then people will know what to do. The power of one, then, is not in a single person. The power of one is in one consistent purpose that all in a group share.

In the field of quality management, I think we've really gone wrong in thinking that quality is all about predetermined measurements, structures and procedures. The world has a natural desire to do quality work and to be in relationships. That's what quality is all about—having good relationships, both with your own self, the value of your work, and the value of the person that you call customer or vendor.

I envision the future of the quality movement as linking into the spirit, kindling people's desire to do quality. This will not be found in another training program, or in another measurement process. It's going to be found in trusting that people want to do quality, and trusting they can do quality work if they're well informed, well connected, and the organization provides the kind of internal coherence about what's important.

It is common today to talk about rekindling spirits. One way to invigorate our spirit is by creating a systems-seeking, affiliation-desiring kind of organization that most of us want.

If you're wondering if there are any human examples of self-organization, the answer is yes. We typically see this kind of emergent, networking behavior during a crisis or disaster. Right after the Oklahoma City bombing, I asked some people from Southwestern Bell, who had gone to help during the crisis, about what characterized the situation. They mentioned six things:

1. There was an instant sense of team and purpose.
2. There were no heroes.
3. There were no manuals.
4. Their jobs were new, different, strange.
5. Communication was wide open.
6. Leadership was distributed.

Many of us grew up in a business culture that believes in the survival of the fittest. This belief implies that the world doesn't want us here—we have to make our own way, we get no support from anybody, we are aliens on this planet; if you're lucky enough to come up with the right adaptation, you may survive, or at least you'll survive this round. That's incredible pressure. I don't think any other species on earth lives that way, because that's not what's going on in these systems. We need to realize that in a systems world, competition is not the dominant mode of selection. It's survival of the fit, not of the fittest.

Nature seems to suggest that a whole, complex, human system can emerge and be self-organizing if people at the local level do their work with enormous levels of freedom and clarity about what the work is. I don't want to diminish either of those elements. Freedom has to be combined with clarity about what we're in business for. This model is found everywhere in living systems.
Total Quality Leadership and the New Military

Dr. Linda M. Doherty, Director, TQL Office, Under Secretary of the Navy
Brigadier General William R. Hodges, U.S. Air Force
Major General Joseph D. Stewart, U.S. Marine Corps
Major General George E. Friel, U.S. Army
Rear Admiral Kevin F. Delaney, U.S. Navy

Their stories represent a sea change in the way we look at what we do as military organizations. Indeed, the level of reform, of reinvention within all of the Department of Defense over the past few years has been remarkable. In August 1995, Deputy Secretary of Defense John White took formal action to integrate the Department of Defense quality initiatives into permanent organization processes. Total Quality Management is no longer something separate: It is integral to all we do.

The stories that follow will inspire you. These four officers understood that for Total Quality to take hold, it had to be led top-down. The ultimate responsibility for its success could not be delegated.

Brigadier General William R. Hodges was Inspector General for the Air Combat Command headquartered at Langley Air Force Base in Virginia. He is now Director of Logistics for the United States Air Force in Europe. He explains how the Air Force reinvented itself and the steps it took to ensure that it would be combat-ready in spite of a reduced budget. He gave particular attention to the Air Force’s new assessment system that uses the Malcolm Baldrige National Quality Award criteria to measure improvement. Annual unit self-assessment has become the practice.

Major General Joseph D. Stewart, Commander of the Marine Corps Logistics Bases, is headquartered in Albany, Georgia. He tells about the value of having a strategic plan and how his organization had to rethink its own because the initial focus was misplaced: it was on issues, not processes. He reports on the importance of having a leadership philosophy, too. He invited people with leadership experience to the command to talk about their own personal philosophies—a true learning organization. He finishes with success stories. They are impressive from any perspective, whether it be employee involvement, process improvement, or bottom-line figures.

Major General George E. Friel is Commanding General of the Army Chemical and Biological Defense Command, Aberdeen Proving Ground, in Maryland. Under his leadership the command of 1,800 people began, three years ago, to look at its future strategically. He and his senior team turned the organization upside down, abolishing all jobs and then redefining them, ending up with an organization far less hierarchical and better able to respond to customers and operate more like a corporate entity. The new organization is based on decentralized teams, with teams managing teams—no boss, and no staff jobs; and what he calls a ZAPP system of communication. His goal is to go from four levels of organization to zero, to what he calls a team-directed work force. No one else could tell it like he does.

Rear Admiral Kevin F. Delaney was Director of the Shore Installations Management Division, at the Pentagon. He tells about Naval Air Station Jacksonville, where he had previously been Commanding Officer. He is now back at Jacksonville again, as Commander, Naval Base Jacksonville.

The station operates much like a small town, with some major employers and a residential population supported by a variety of services: police and fire departments, public works, and so forth. He introduced Total Quality wherever it made sense, at work and in the community. He discusses why people resist change and why we have wasted steps in much of what we do. He gives particular attention to the inspection process and how it changed under his guidance as Inspector General for the U.S. Atlantic Command and the U.S. Atlantic Fleet.
Fr. Cunningham likes to tell how Lloyd E. Reuss retired as president of General Motors in 1992 and went to work full-time at Focus HOPE, like him, for no pay. The outcome is the continued evolution and growth of Focus: HOPE into leading edge development of engineer technologists using state of the art equipment.

In the new world of customized mass production, the disciplines of chemical engineering, electrical engineering, civil engineering, computer engineering and the like—as separate syllabi in our four year and graduate R&D schools—are relics of the transfer line process. The new paradigm requires that we abandon these traditional segmentations in manufacturing education, and fully and completely integrate them into a synthesized engineer-technologist capable of not just surviving the curve of obsolescence, but who can define, shape and control the curve of obsolescence, who is challenged and eager to do so— the Renaissance Engineer.

At the Center for Advanced Technologies, candidates are admitted only after passing through Focus: HOPE’s rigorous one-year Machinist Training Institute. All candidates for the Center for Advanced Technologies must be young enough to justify the investment, proven in their capability with traditional and advanced machines and measurement systems.

They must have working knowledge in two foreign languages, personal discipline, and the courage to be the best. Each must be capable of academic excellence. Complete training at the Center for Advanced Technologies will require six years. The program allows candidates to earn up to a master’s degree in engineering. At the associate degree level each candidate is fully capable of performing design, programming, processing, tool room, systems maintenance, repair and upgrade modifications, as well as CMM and other laboratory assignments.

Operating under a grant from the National Science Foundation, the Coalition for New Manufacturing Education is developing this revolutionary new curriculum. The coalition includes Focus: HOPE, six university partners (the University of Michigan, Lawrence Technological University in Southfield, Michigan, Wayne State University in Detroit, University of Detroit Mercy, Central State University in Ohio and Lehigh University in Pennsylvania), five industry partners (Detroit Diesel, Ford Motor Company, General Motors, Chrysler Corporation and Cincinnati Milacron), and the Society of Manufacturing Engineers.

The Center for Advanced Technologies is not a research paper. It is a program unfolding today. A program embraced by the U.S. Secretaries of Defense, Commerce, Labor, and Education, as well as the U.S. Congress, as the direction in which this nation must move aggressively, if we are to build upon our excellent universities, a tradition of manufacturing superiority and, most importantly, our diversity of people and talent.

Focus: HOPE is even more than this. Founded in 1968 as an interracial movement of volunteers, it has evolved into a multiplicity of social, education, business and industrial endeavors. It has a $78.8 million operating budget, 850 employees and 45,000 volunteers, operating from a 30-acre complex on Detroit’s near northwest side.
Successful Companies—and Communities—Need the Discipline of Quality

Richard R. Newhauser, Chairman of the Board, Richard-Allan Medical Industries
Vice Chairman, Kalamazoo Valley Quality Council, Kalamazoo, Michigan

The purpose of this article is to share with you some of the leadership and management practices we use at Richard-Allan, and to express to you the importance of our community quality council to the future success of our company.

Richard-Allan has two major business areas: surgical wound closure products, and histology and cytology products. We’re a privately held business with 200 employees and $35 million in sales. We market in 54 countries, worldwide.

Our Total Quality Management journey started in 1985. We were not looking for a “program.” We wanted a better way to run a business. I didn't want quality to be an additive program to an already busy schedule filled with daily work. I wanted a management system that would be applicable throughout Richard-Allan, not just on the manufacturing floor.

For our company to continue to be competitive and profitable, we need to have capable employees committed to doing today's work and tomorrow’s, to be customer driven, and to continually eliminate any waste in the system. To achieve this we brought employees into the process of developing our mission, invested in their education and training, organized into product teams, and then empowered the teams to create their work processes. Having done that, they own it, and they're expected to improve it whenever possible. It's a very structured systems but there's a lot of freedom because we've empowered the people, through education, training, communication and trust, to change their processes.

We put a lot of work into developing the mission statement and it is important to us. It's the organizational system that we drive Richard-Allan with, and it is an integral part of our training program. The mission has four elements: customer care, employee care, supplier care, and shop floor management.

Richard-Allan is a very flat organization with three levels of management, including myself. Our purchasing and quality assurance departments are one person departments. We can do that because purchasing and quality are deployed throughout the company in product teams and production cells. Each production cell has the people necessary to do what's needed to continually improve the product.

We educate and train our people in a number of different methodologies and tools that appear to be useful in our business. This becomes our management tool box. We want teams to think things through, using their knowledge and understanding of customers' wants, needs, expectations, and problems. One result is that since 1985 we have achieved a 15 percent reduction in direct labor hours per year, with no new capital spending—a nice return on investment.

Several years ago we discovered that the biggest defect coming into Richard-Allan was employees, relative to their knowledge base. We started testing job applicants for math, reading, and verbalization skills. Unfortunately, we found that 70 percent could not do high school math, yet they all had high school diplomas.

We've all probably complained about education, health care costs, government and other “outside” issues, thinking we couldn't afford the time and energy it would take to improve things. Then I learned about a few places where community quality councils were formed to promote quality management in all sectors of the community. I thought about our successes with TQM and speculated that quality could become the catalyst for improvement in a whole community. We're pleased with the early successes, which we attribute to the up-front process we used to get as many of the “right people” involved as possible.
The Challenge of Complexity: Redesigning Organizations

Lawrence M. Miller, Miller Howard Consulting Group, Atlanta, Georgia

The most important component of an organization today is the performance of its people. If an organization is to gain a competitive advantage, it must understand how people think, feel and act within that organization, and then utilize that understanding to increase human performance. This article focuses on some of the major facets of human behavior, within the context of a work environment, that one must optimize to improve performance: locus of control, learning organizations, system architecture versus system engineering, culture's impact on continuous improvement, linear versus nonlinear thinking, the evolution of work systems, and swarm systems.

Dr. Deming said that 95 percent of an organization’s quality problems are in the system. We need to think about this in depth, because we are the engineers, the designers of our system. The research on reengineering suggests that 75-90 percent of it doesn’t produce business results, and it doesn’t really change the culture of the organization. Most processes that get reengineered are the product of the culture, and often don’t result in a change in culture. I am suggesting that it is not enough to be engineers of the system; we also need to be architects.

It is important to figure out how to create a culture of continuous improvement to have competitive success today. The world’s best companies have less management. They get more work productivity, more quality, for less by figuring out how to cause the continuous improvement behavior to become habit patterns, automatic things. It is useful to recognize that what causes things to become automatic is in the nature of the system that people live in.

We have to now design architecture for complex systems; what I would call a swarm system, as opposed to work done in a straight line. If the majority of the work is making a thing, repetitively, there should be a linear process in the organization. They can apply reengineering, process management, map out all the steps, measure time, cost of each step, and look where the quality problems occur. In a linear work system, about 80 percent of the value added is in that linear process. However, in a knowledge work organization it may be reversed; it may be that only 20 percent of the real value added can actually be seen, because it’s a swarm. There’s an apparent process that’s written down, and there’s a transparent process that just swarms around it.

We’re moving toward wisdom by bringing things together. Left side, right side, linear, nonlinear. This is not a boring age. For thousands of years we’ve been split between the material and the spiritual. Today those things that result in high performance, profit, and the enhancement of human spirit are not in opposition. They used to be viewed as mutually exclusive, but now we recognize that what enhances the human spirit is also what enhances the profitability of the firm.