Improving the way organizations run through participative planning and management.
Raytheon Six Sigma

Author

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Introduction

Raytheon Six Sigma is a broad-based approach to solving problems and delivering value to our customers. We call it Raytheon Six Sigma as opposed to “Six Sigma®” because we see it as a way of life at Raytheon, a broad-based philosophy, a way to strive for perfection—clearly more than a set of tools.

In any organization the people who are in the best position to define the current state against whatever process we’re evaluating are those who actually do the work. Our strategy, therefore, is to train the rank-and-file, to get them engaged. We want them to be able to define the current state and to make the leap to envisioning perfection.

This is a leap, a different way of thinking. By definition, it creates impatience with small, incremental improvements. Once you’ve envisioned perfection, how can you not strive for it? We use facts and data to define the current state, and a vision of value as defined by our customers.

How did we go about defining Raytheon Six Sigma? It really wasn’t very glamorous; I hope it was pragmatic. I brought together some savvy people in the company and I simply asked them to name every possible tool of contemporary management that they could think of. As the list grew, I drew a big umbrella and tucked the growing list of tools under its canopy. I said: “That’s Raytheon Six Sigma. Let’s go.”

“A big umbrella”

It was a big umbrella. We didn’t get hung up on what concepts were “in” and what were “out.” We accommodated kaizen, nominal group technique, reality trees, the five S’s, the five why’s, design of experiments, critical chain program management, the theory of constraints, affinity diagrams, process re-engineering and so on—the whole nine yards. Why not? They’re all terrific so long as they’re clearly defined as a means to an end—the transformation of a company—and not an end in themselves.

If we got too religious about the tools themselves, we risked becoming internally focused. I wanted Raytheon Six Sigma to be externally focused—on our customers and shareholders. I wanted our people to be excited about doing things they never thought possible, not perfecting a process for its own intrinsic elegance. If the customer saw no benefit, all we’d be doing is making ourselves better bureaucrats; that was not the goal.

We wanted everybody under our Raytheon Six Sigma umbrella; we wanted to be all encompassing, embracing engineering, manufacturing, administration, human resources, legal, everybody.
A unifying force

We envisioned Raytheon Six Sigma as a unifying force throughout the company, across all organizations and functions—flexible enough to address a wide range of changing business challenges. Our desired end-state was to become the most admired aerospace and defense company in the world. We had a similar aspiration in my former company, and we did it. I believe it can be done again.

Getting started

That's basically where we were on the eve of implementing Raytheon Six Sigma. As we began the roll out, we focused on several critical success factors. None was more important than communication.

Communication

I think that in my first two years at Raytheon I never went more than a minute into a speech without talking about Raytheon Six Sigma. Today, I've loosened up on that: it's possible I'll go a minute and a half into a speech before I hit the subject. If you want something like this to take hold, the boss has got to be compulsive about it.

Awareness is high. It's true that we've trained only about 1,000 experts (we use the term "experts" rather than "Black Belts") at the moment out of an employee population of 77,500, but virtually all of the other 76,500 employees know about Raytheon Six Sigma—and a very large percentage of them can talk about what it is doing for them.

The role of consultants

We hired consultants to get us started. But we didn't say to the consultant, "Come in and just make us Six Sigma." I had a strong view of what we wanted to do. The CEO has got to be involved and feel passionate about it. If you are in an organization where your CEO doesn't feel a passion for Six Sigma principles, the change is not going to happen. You have to find a way for him or her to become passionate about this. Inertia can slow down the effort, unless there's a leader with passion pressing forward, joined by other key supporters in the organizations. We identified a number of in-house leaders who shared this passion, and we moved forward. We continue to benefit from that leadership today.

Training the leaders

When we planned our earliest training, we faced a basic decision: who do we train first? Do we first train a whole army of people who will know what they are talking about—and then set about training the leaders? Or do we train the leaders first? If you train all the leaders first, they may get excited but they won't have anybody to do the work. On the other hand, if you train all the others first, the bosses won't know how to deploy them. So we did a little bit of both.

But we did get our leaders trained very early. To date, we've educated thousands of our leaders. From my prior experience, until a leader becomes a source of demand for Six Sigma resources, it's a "push" system, and push doesn't work.

Middle management support

Middle management support is crucial. If the most brilliant Black Belt/expert in the world enters an environment where top management wants Six Sigma but the
Middle management support, continued

plant manager thinks it's a waste of time, then trying to implement it will be a waste of time. We wanted Raytheon Six Sigma to become a part of our DNA. So we sought to achieve broad management ownership and I think, generally speaking, we've been successful in doing that.

Training experts

Of the 1,000 people who have completed expert training, 300 have been certified as experts and 32 have been identified as "master experts." Becoming certified takes a lot of work. They must prove that they really know their stuff and can actually accomplish significant Raytheon Six Sigma projects.

Our expert training begins with five weeks of classroom time over five months, during which the experts are involved in ongoing Raytheon Six Sigma activities charted and endorsed by their line bosses; it has to be real stuff. After the first five months of training they're exposed to additional project work targeted at building their skills. On average, they achieve certification fifteen months after the training starts. Once certified, they help and teach others.

We've found that the experts continue to learn while teaching others. In fact their learning actually accelerates as they pass on their knowledge. After two-and-a-half years, our experts are expected to move into leadership positions in the business.

We made a conscious decision not to create Six Sigma professionals. We envisioned that Six Sigma experts would be on temporary assignment, a development assignment, building the skills necessary to be future leaders.

Driving strategic thinking

As we reach a critical mass of trained employees across the company, we've been encouraging our people to use Raytheon Six Sigma to drive strategic thinking. I was excited to see that our recent Expert Forum was modeled on strategically focused events in four areas: customer satisfaction, shareholder value, learning and innovation, and internal processes. Raytheon Six Sigma is part of the foundation that will allow us to be a company that works together to drive growth, with a common language.

Diversity in expert community

One challenge is the need to ensure diversity in our expert community. In the beginning, hardly anybody knew about Six Sigma outside of our legacy Texas Instruments Defense operations (which did have Design for Six Sigma experience in a large organization, and a lot of training). We didn't have too many people with a broad view of it in the rest of the company. Diversity helps problem solving. You get a wide variety of input.

Master experts

A few of our experts have become master experts. We expect the master experts to serve in a growth assignment for maybe three years, after which they should be uniquely positioned for leadership.

A master is quite an honor. Very few people have the ability to be a master. A master has to be a teacher. He or she has to be able to impart knowledge, to help...
Master experts, continued

train the next wave of experts. But we also require our masters to be agents for change: to get in people’s faces, to catalyze, embarrass, celebrate, whatever it takes.

A common sense approach

We never sought to build a Six Sigma organization per se, nor did we seek to make Raytheon Six Sigma something that could be used to solve only complex problems that require advanced training. We encourage our people to solve simple problems as well.

One of its most important strengths is its adaptability in solving a range of problems. Understandably, when we rolled out Raytheon Six Sigma three years ago, we began with the familiar “low hanging fruit.”

We started with “lean manufacturing” and drew upon people within the company who had lean/Six Sigma experience. Some of them were terrific. For example, our people reduced the AMRAAM (an air-to-air missile) terminal seeker final assembly cycle time by 58% and generated a 76% improvement in cycle time for Hawker Horizon aircraft engineering drawing changes.

After lean, we broadened Raytheon Six Sigma to target working capital. Debt reduction was a very high priority for us after our merger and acquisition activity. At its quarter-end high at the end of the first quarter of 1998, the company had $10.6 billion in net debt. We took several steps to reduce debt: we launched an equity offering, sold non-core businesses and attacked working capital. We used Raytheon Six Sigma to attack debt across the company. By the end of the second quarter of 2002, Raytheon’s net debt had been reduced to $6.2 billion.

Collaborative success

Raytheon Six Sigma thrives on collaboration, shared learning, and trust—all elements of one-company thinking. At our Leadership Forum one of our experts, who has become the manager of one of our large defense programs, told a story about how she used Raytheon Six Sigma to encourage cross-organizational collaboration to meet the needs of our customers.

As any of you who work in big companies know, the hardest form of collaboration is not between you and an outside teaming partner; it’s between you and a sister division. It’s true in every company that I’ve ever seen. We use Raytheon Six Sigma to help us knock down those barriers.

The manager I was referring to looked at the value stream and determined that by leveraging key program and product elements across a number of our business units, we could build a powerhouse team to create customer value. Then she included a customer on that team and created real value.

Six Sigma is about generating leaders. We’re starting to see leaders like our senior manager in charge of a metal fabrication operation. He has over 100 employees. He saw that we had 93% rolled throughput yield. That’s not bad—93% rolled throughput is pretty high. But he wondered where the other 7% was going. He brought in the rank-and-file employees to work on it, and that yield is now 99%.
Results

Looking at Raytheon Six Sigma’s success to date over the first three years, our employees generated gross benefits on the order of $1 billion. After being adjusted for several factors, including the nature of our contracts with our government customer, we realized approximately $275 million in net benefits over the three-year period.

The next step

What is the next step? I believe we can use Raytheon Six Sigma to partner with our customers and our suppliers. One of my frustrations is that so far, less than 10% of our Raytheon Six Sigma project teams include customers. I want to have it about 50%.

We also need to have our suppliers in the program. The number of suppliers involved is increasing, but it is still not enough. One of the things that we continue to debate is the obligation of the big companies in training their suppliers in the principles of Six Sigma. It’s hard. The challenge is to get them in and let them learn by doing. This type of partnering really is the logical extension of Six Sigma for us all.

Conclusion

Our journey has been a positive one. We had a good launch. We trained and developed a lot of great people; they are fanning out across the company in the more senior positions and doing a lot of good. We have had our challenges, but none of them really has been overwhelming. Why? Because we wouldn’t allow them to be.

We just wouldn’t put up with any blockers. We’ve said, “Look, there are a few things you are going to do if you want to work here. It’s real simple. You’re going to believe in our values—people; integrity; commitment to the customer, shareholders, and each other; and excellence. Human Resource processes are really important to us. We can debate about using one tool or another, but we’re not going to debate about the need for fully contemporary HR processes. We’re not going to debate Six Sigma; that is what we’re going to do here.”

People understand the rules and say, “Okay, great. If I figure out how to do it, I’m going to be a winner.” So we don’t have any more debates on it.

Now the greatest challenge is to keep the momentum going; to avoid complacency; to never become arrogant, and to build on this strong foundation.

Raytheon Six Sigma is a means and not an end. It’s a philosophy. It’s a flexible approach that can address a whole host of problems. It is at the center of all of our efforts to optimize value. It drives customer focus. It drives strategy. It drives competitive advantage. And it drives integrated thinking.

It leads us to an external bias so we’re always learning. It improves internal collaboration, which is always a challenge in a big organization. It helps us to embark on leading-edge knowledge sharing.

The journey for us is just beginning, and I truly believe that for Raytheon Six Sigma, the best is yet to come.

Author information

Daniel P. Burnham became chief executive officer of Raytheon in December 1998 and assumed the additional position of chairman in August 1999. He joined Raytheon...
Mr. Burnham came to Raytheon from AlliedSignal, where he most recently served as vice chairman and a member of the board of directors. He joined AlliedSignal in 1982 as vice president and controller. He then served two years as vice president and general manager of the Engineered Plastics Division. In 1986, he was named president of the Plastics and Performance Materials Group. Two years later he was named president of its Fibers Group. In 1990 he joined the aerospace sector and served as president of its AiResearch Group. From 1992 to 1997 he served as president of AlliedSignal Aerospace, the company’s largest business and the world’s largest supplier of equipment and subsystems to the aerospace industry.

Mr. Burnham is chairman of the National Minority Supplier Development Council, a member and past president of the President’s National Security Telecommunications Advisory Committee, a member and past chairman of the Aerospace Industries Association executive committee, and a member of The Business Council, the FleetBoston Financial Corporation board of directors, and the Board of the Congressional Medal of Honor Foundation.

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A Recovering Cost Accountant Reminiscences

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Introduction
As an accountant, I believed firmly in my early years that numbers shape reality and that quantitative abstractions explain what matters in the business world. Today, some forty years later, I see the world quite differently. I now believe that businesses cannot use financial data either to perceive or to achieve what really matters.

The story of how I came to reject accounting as a meaningful source of information for making business decisions sheds useful light, I think, on present-day concerns about the ability of accounting information to portray the economic health of a business. My reservations about the value of accounting information pertain especially to cost information.

I first expressed misgivings about cost and other management accounting information in Relevance Lost: The Rise and Fall of Management Accounting, a 1987 book I co-authored with Robert S. Kaplan (Harvard Business School) that was subsequently named by Harvard Business Review as one of the fourteen most influential business books of the twentieth century. The book's success derived largely from its coverage of a novel approach to cost accounting that became known as "activity-based costing," or ABC.

Cost accounting can create undesirable distortions
The chief concern of traditional cost accounting was to trace overhead costs (indirect costs) to products or other cost objects. For decades, accountants simply prorated or allocated overhead costs in proportion to each product's share of the direct labor or machine hours incurred each period. While sufficient to carry out bookkeeping tasks, the practice of prorating overhead costs over labor or machine hours tended to distort product cost and gross margin information because direct labor and machines, increasingly after the 1950s, caused proportionately less of the overhead costs each year. Over time, growing varieties and volumes of complex products and processes caused companies to expend work and resources on overhead activities required by increasingly complicated and prolonged material flows. The volume of these activities bore no necessary relationship to direct labor or machine hours.

ABC—a better answer to the wrong question
Activity-based costing was designed to assign each different product its proper share of costs from overhead activities caused by increasingly complex technologies, shorter product life cycles, and proliferating product varieties. To trace overhead costs to products, ABC uses data about the underlying activities that cause the consumption of specific overhead resources, not just the consumption of direct labor.
or machine resources. Thus, in addition to using direct labor and machine hour “drivers” to apportion overhead costs where that is appropriate, ABC systems also trace overhead costs among products using additional “drivers” such as number of inspections, dollars of inventory stored, distances material moves on the floor, number of machine setups, number of parts ordered (some products have large numbers of part numbers and some have only a few), and types of machines used (some products use automated equipment and others use manual equipment). The point is to charge each different product with the costs of resources actually consumed to make it, not with average costs incurred to make a wide variety of products, using widely different resources.

In retrospect, ABC probably did improve the accuracy of product cost information. But I now realize that more accurate costing was merely a better answer to the wrong question. ABC was simply an accounting solution to an accounting problem.

The real problem—the right question, from a management viewpoint—was how to avoid the ever-rising overhead costs that prompted accountants’ concerns about distorted product cost information in the first place. Because all my prior training and experience had emphasized accounting and economics, not operations, I did not fully appreciate the depth of that question when it was first posed to me in the late 1980s by Richard Schonberger and Robert Hall, two renowned manufacturing authorities, and W. Edwards Deming, the world-famous authority on quality management. They suggested to me that overhead costs and the need for ABC systems would largely evaporate if companies organized work to meet customer requirements and spent less time striving to cut costs. When I asked them to explain how a different way of organizing work would essentially eliminate manufacturing overhead costs, they said, “Study Toyota.”

It was a while before I grasped the full implications of what Schonberger, Hall, and Deming meant when they said that companies should strive less to cut costs and, instead, strive to eliminate overhead activities by organizing work to meet customer requirements. I understood better after I encountered the Toyota system face to face. In the meantime, I told people as early as 1987 that a more useful role for ABC information than better product and process costs might be to identify and eliminate the resources consumed by overhead activities. I coined the phrases “activity management” and “customer-focused activity management” to describe this concept. The nub of the idea was to find ways to eliminate or reduce the time spent on certain kinds of work such as changing over, inspecting, storage, parts handling, material transport, rework, new model introductions, and much more.

The cost management community, concerned at that time to implement the new ABC practices as widely as possible, transformed “activity management” into “activity-based management,” or ABM, a concept that quickly became identified.
How ABM got started, continued

with the “reengineering” movement. In that context ABM focused attention on eliminating “non-value activity,” a concept with which I grew increasingly disenchanted as I learned more about Toyota’s approach to organizing work.

Overhead cost and non-value-added cost are virtually synonymous

Shigeo Shingo, the legendary teacher of Toyota methods, when asked once what he would do to eliminate non-value activity in a company, supposedly said that the answer should come from those employees in the company who would identify themselves as performing non-value work. I have always thought that Shingo’s remark says all that needs to be said about ABM, reengineering, and all the other attempts to reduce overhead costs by eliminating non-value activity. Indeed, I would argue that overhead cost and non-value-adding cost are virtually synonymous. Efforts to reduce one by eliminating the other resemble a squirrel chasing its tail in a cage. A great deal of energy is expended, but to no avail.

Work flow should be the primary focus, not cost reduction

A more productive exercise would begin by recognizing that the fundamental problem is not “cost.” Rather, the problem is a failure to organize work so that everything needed to satisfy customer expectations is part of one continuous, self-organizing stream of activity. To the extent that it is necessary to perform activity outside of that stream, more resources are consumed, and costs are greater than would be the case if all work were integrated in a continuous flow. Experts in ABM, reengineering, and other modes of overhead-cost containment have never understood that work is the issue, not cost. That is what Schonberger, Hall, and Deming were telling me, and that is what Toyota teaches us. But it took me a few years to discover just what they meant.

Minimizing unit costs does not produce the most cost-efficient system

I started on the road to discovering what they meant around 1988 when I began to gradually shift my attention from accounting and economics to the study of how companies organize work—“operations management,” if you will—with particular emphasis on the Toyota Production System. Along this road I learned that the main cause of overhead cost in most manufacturing companies is the belief that the total operating cost is kept to a minimum by minimizing the unit costs of output produced in every individual process. In other words, total cost is assumed to be the sum of individual costs in all the parts. Thus, the strategy for achieving minimum total cost is to produce as much output as fast as possible in each and every part of the organization. Minimizing the cost per unit of output from every individual operation presumably ensures the lowest total cost for the products assembled from that output.

Unintended consequence of a cost minimization strategy

An inevitable but usually overlooked consequence of this cost minimization strategy is that it requires a company to produce more output in every period. The usual rationalization for requiring more output to achieve lower unit costs is the concept of scale economies. As every MBA student trained since the 1950s has been taught, bigger scale and faster throughput are the sine qua non of low product costs.
Unfortunately, most American manufacturers who followed this approach to reducing costs in the 1960s and 1970s failed to connect their larger scale and higher throughput rates with deteriorating product quality and increasing lead times. Their customers, of course, complained about poor quality and missed delivery promises. However, companies tended to address these quality and lead-time problems by adding inspectors, training expeditors, and automating storage and delivery systems. They did not question the strategy of reducing overall costs by producing more output, faster.

The drive to lower costs by boosting output ultimately fails because of the usual means companies use to achieve increased output. With steady growth in the varieties and complexity of products turned out, companies after 1960 increased output by pushing material in larger and larger batches through increasingly separated and departmentalized processes. However, materials that flow in batches tend to lurch, bog down, and carve out redundant pathways, like the flow of blood through sclerotic arteries. The increased cost of handling these ever more complicated and round-about material flows might have impeded the growth of product variety and complexity had it not been for the emergence in the 1960s of computer-based scheduling and production control systems, most notably the MRP system that programmers at IBM developed. Computers made it seem possible to seamlessly coordinate demand forecasts, shop-floor schedules, and inventory controls. By making batch and departmental production systems seem feasible, the computer, with MRP, gave new life to the strategy of reducing unit costs by steadily increasing the output of growing varieties of ever more complex products.

There was, however, a downside to this strategy, even with computers: the time path of costs and returns grew increasingly unstable over successive waves of the business cycle. Pushing more output out the door seemed a surefire way to hold costs down when demand for product was booming, as in the upswing of a business cycle. But when demand cycles turned south, costs and returns moved even more dramatically in a negative direction. Answers to the increasing volatility of this cycle often turned on ways to improve MRP demand forecasts or inventory controls. Few people questioned the assumption that scale economies made it rational to control costs by boosting output. Most businesses remained committed, like addicts, to the quest for better computer programs and bigger batches. And like addicts, few dwelled on the damage to the total system caused by “one more fix” of increased output.

But a few people did question the scale-economy assumption and the use of computers to justify large-batch material flows. Of note were those who suggested in the late 1980s that I should examine how Toyota maintained low costs and produced increasing varieties of automotive products without pushing large batches of material through specialized departments. What I discovered, eventually, is that Toyota achieves low cost by designing a production system that motivates everyone in every department to contribute to cost reductions and product variety.
How Toyota achieves low cost, continued

One feature of Toyota’s system is the virtual absence of the overhead costs that so dominated the attention of American manufacturers since the 1950s, and provided livelihoods for armies of consultants and others who peddled ABC, ABM, reengineering, and the like. Indeed, it is not an exaggeration to say that Toyota Motor Corporation produces output with only the minimum resources needed to fill each order, one at a time, to customer expectations and on time. Even machinery and capital resources are scaled as much as possible to the amount needed to fill one order at a time, and no more. It is difficult to imagine how one could produce output at any lower cost.

Producing “just enough,” not “more” leads to lower cost at Toyota

The usual explanations of how Toyota delivers large varieties of high quality output in a short time, and at exceptionally low costs, tend to stress many unique practices at Toyota, such as kanban replenishment, automatic error detection systems, “five S” housekeeping practices, and kaizen training. None stress the point I make here; namely, that Toyota does not view low cost as a consequence of producing more, only as a consequence of consuming just enough to meet each customer’s expectations, and no more. In short, Toyota’s approach to cost minimization stresses “enough,” not “more,” and it focuses attention on resources consumed, not on output produced.

Toyota’s focus is on how resources are used

Perhaps it is because they do not use accounting cost information to motivate or to direct work that Toyota’s approach to controlling cost has always focused on how resources are consumed, and not on the amount of output produced. Instead of being asked to focus on cost targets, Toyota employees are expected to concentrate on how well their work satisfies the needs of downstream users. Moreover, the Toyota system organizes and connects all work so that it is easy for anyone to know and to react, at any moment, if something downstream is not just as it should be. Toyota’s system thereby embodies the notion that the purpose of the business is to enable people to serve people—specifically, to enable suppliers (employees et al.) to serve customers. In a sense, every step embodies the relationship between customer and supplier such as that portrayed in Figure 1.

The diagram illustrates a relationship and is just one segment of a continuous stream that may contain thousands of interconnected elements in an actual work setting. A key to understanding Toyota’s system is that every person’s work, in every step, reflects both sides of this relationship. In every step of the work, at any moment, each person is both a supplier to a downstream customer and a customer to an upstream supplier. The connections linking each supplier’s capabilities with customer...
Toyota’s focus is on how resources are used, continued

American companies rely on external information sources, quotas, and financial abstractions

In American companies, by contrast, workers and managers for many decades have relied on external information sources such as MRP schedules or standard cost performance budgets to direct and evaluate their work. The connection between customer and supplier shown in Figure 1 is not a primary feature of the American work scene. Instead, the primary focus of the American workers’ and managers’ attention is the quota or the target.

Not all observers of the American business scene have applauded that focus. Indeed, many years ago, Dr. Deming’s Fourteen Points and his list of Deadly Diseases inveighed against the use of quotas and targets to direct and motivate people’s work. However, the prevailing habit among American businesses has been to view the purpose of business through the lens of financial abstractions such as profitability, cost, return on investment, or share values.

Top management reward system is tied to financial abstractions, rather than customer service

Top executives, with their compensation usually tied in some way to those abstractions, focus everyone’s attention on quotas and targets, usually reached in one way or another by growth of output and revenue. This creates, of course, an addictive pattern that has inevitably adverse consequences no different than the consequences we associated above with companies’ efforts to chase lower costs by producing more and more output.

To manage well, focus on getting the means right

The solution to this dilemma that I perceive now, after observing and studying Toyota for many years, is what I call “management by means,” or MBM. The task of managers is to stop treating business results as a target one reaches by aiming better. Instead, business results are an outcome that emerges spontaneously from mastering practices that harmonize with the patterns inherent in the system itself. In other words, manage the means, not the results.

The purpose of the workplace

Work must provide everyone in an organization with a proper livelihood, in a healthy community, and a robust natural environment. The immediate means to that end, in the workplace, is to organize every step of the work so that it creates a connection between a customer and a supplier that is designed to enhance the supplier’s ability to meet downstream customers’ expectations, without consuming any more resources than necessary. Ideally, the downstream customer includes not only the downstream “internal customer” who is next to receive one’s work, but all subsequent “internal customers;” the final consumer who “pays the bills;” the community affected by the company’s work practices and its products, and the natural environment that ultimately sustains the company’s people and their community.

Journal of Innovative Management
While it is not customary for businesses to articulate the connections between “supplier and customer” this broadly, increasing social, political, and environmental pressures are making it necessary for them to do so. MBM — what I like to call “a next step beyond Toyota’s system” — offers a framework for articulating those connections in the broadest sense.

In businesses that move toward MBM, much less the Toyota system, management behavior will undoubtedly reflect a different worldview than the one that underlies traditional management practices observed in most organizations today. Traditional business behavior reflects the view that reality is reducible to quantitative abstractions, and management’s job is to achieve financial targets by manipulating presumably independent pieces of the business through, for example, acquisitions, divestitures, layoffs, outsourcing, downsizing, and so forth, in the belief that the whole is an additive sum of parts. In this context, cost is viewed as a quantitative measure on an absolute scale that attaches to each resource or activity as if it were an independent object in the universe. Hence, any cost accounting system, whether it is ABC or otherwise, will show an identical cost for a product made in two identically equipped plants, even though the plants are run by two different companies that connect those resources in entirely different ways. The point is that accounting systems are opaque to the relationship patterns that connect resources and activities in an organization. For accountants, and managers who think like accountants, any differences in cost are attributable wholly to differences in activities or resources, never to the way work connecting those activities and resources is organized.

Managers who espouse the worldview implicit in MBM or Toyota styles of thinking view reality as relationships, not collections of objects. From this perspective, management’s job is to help people in a business create and nurture patterns of relationships that connect human talents with human needs in a context that provides everyone a proper livelihood while pursuing activities that ensure a healthy community and a robust natural environment. In this context, cost (like any financial measure of business performance) is viewed as an emergent feature of human relationships. Cost is managed by designing and nurturing proper relationships, not by manipulating parts of the business as if they were pieces on a game board. And “proper relationships” is defined by the patterns we observe in the natural systems of the universe from which the human species and human social institutions, such as business, have evolved. Honor those patterns in human economic systems and the results, financial and otherwise, will take care of themselves. Indeed, one of the dominant traits in the sample of very long-lived corporations documented by Arie de Geus of Royal Dutch Shell in his path-breaking book The Living Company is that top managers focus little or no attention on achieving financial targets. They focus on what it takes for a natural system to “live well” and the financial results, evidenced by centuries of continuous operation, take care of themselves.
Author information

H. Thomas Johnson is a noted authority on economic history, management accounting, and quality management. His current research focuses on the intersection of systemic thinking, modern physics, and manufacturing system design theory. He is exploring the application of natural living system principles to the design of manufacturing systems that emulate and extend the scope of the Toyota Production System.

Professor Johnson is a past-President of The Academy of Accounting Historians and he has served on the editorial boards of over a dozen major professional journals, including Accounting Review, Business History Review, International Journal of Strategic Cost Management, Journal of Cost Management and Quality Management Journal. He was the Towne Lecturer to the American Society of Mechanical Engineers in 1993 and the Distinguished International Lecturer of the British Accounting Association in 1996.

He has served on several boards including the Oregon Quality Award Board of Overseers, the RIT/USA TODAY Quality Cup Judges Board, the Core Body of TQM Knowledge Working Council for the Procter & Gamble Quality Forum, the Visteon Production System Council of Visteon Corporation, and the Advisory Board of Maxager Technology, Inc. He is active in the Association for Manufacturing Excellence and the Society for Organizational Learning.

Author or co-author of seven books and over 100 articles and reviews on subjects in accounting, economic history, and management, Johnson has received many honors for his publications, including Harvard Business School's Newcomen Award in Business History, National Association of Accountants Lybrand Medal, and the American Accounting Association's Wildman Gold Medal. His co-authored book, Profit Beyond Measure: Extraordinary Results through Attention to Work and People (The Free Press, 2000), received the 2001 Shingo Prize for Excellence in Manufacturing Research. His bestselling Relevance Lost: The Rise and Fall of Management Accounting (Harvard Business School Press, 1987 and 1991), co-authored with Robert S. Kaplan, was named by Harvard Business Review in 1997 as one of the most influential management books published in the twentieth century. His controversial and internationally acclaimed sequel to that book, Relevance Regained: From Top-Down Control to Bottom-Up Empowerment (The Free Press, 1992), has appeared in four languages. In 1996 Johnson's colleagues at PSU selected him for the Branford Price Millar Award for Faculty Excellence, the university's highest honor for research, service, and teaching.

Since the mid-1980s Johnson has given hundreds of presentations and workshops to corporate, professional, and academic audiences around the world in scores of major organizations, including Alcoa, AICPA, APICS, Arthur Andersen & Co., the Association for Manufacturing Excellence, BDO Scan/Futura (Denmark), Boeing, British Petroleum, Chrysler, Consultique (South Africa), the Deming Institute, Ericsson Telefon, Ernst & Young, Ford Motor Company, the Institute of Industrial Engineers, the Institute of Management Accountants, Intel, the Japanese Production and Inventory Control Society, the National Bureau of Economic Research, the Ohio Productivity and Quality Forum, Pacific Bell, Scania (Sweden), Schneider Electric (France), Schlumberger (France), Scott Paper, Skandia (Sweden), the Society for Organizational Learning, Sprint, Studio Ambrosetti (Italy), TeleNord (Norway), Toyota Motor Manufacturing USA, Visteon Corporation, Volvo, and Weyerhaeuser.

He has an undergraduate degree in economics from Harvard, an MBA in public accounting from Rutgers, and a Ph.D. in economic history from the University of Wisconsin. Before entering an academic career, he was employed as a CPA by Arthur Andersen & Co.
Six Sigma in Health Care
A Road Less Traveled

Author
Joseph Calvaruso, President and Chief Executive Officer, Mount Carmel Health Systems, Columbus, Ohio

I shall be telling this with a sigh
Somewhere ages and ages hence:
Two roads diverged in a wood, and I—
I took the one less traveled by,
And that has made all the difference.
—Robert Frost, from The Road Not Taken.

Introduction
At the graduation ceremony for our first group of Six Sigma Guides, which you may call Black Belts, I read the entire poem, The Road Not Taken, by Robert Frost. I read it because I believe that a health care organization embarking on a Six Sigma journey is taking a road less traveled by, and we at Mount Carmel Health Systems have decided to take that road. We think Six Sigma already has made, and will continue to make a significant qualitative and quantitative difference in health care in our organization. I’m going to share with you our two-year infusion of Six Sigma into the life of Mount Carmel Health Systems.

Mount Carmel is a diverse healthcare system based in Columbus, Ohio. It has three acute care hospitals, an HMO, non-acute care services, such as home health, and a college of nursing. We’re a Catholic, religiously sponsored organization, and a member of Trinity Health, Novi, Michigan.

The crisis in health care
We all know there is a crisis in health care. It is multifaceted. There is a shortage of many healthcare workers; not just nurses, but also pharmacists, radiology technicians, surgical technicians, and so forth. As the population ages, we’re going to need more healthcare workers, but unfortunately we’re getting fewer. At the very least we need to improve things like throughput—reduce rework, duplication, and inefficiencies—so we can make better use of and have a higher productivity from the people that we now have, because we don’t have enough.

But there’s also another crisis in health care. One out of every five healthcare workers leave their organization every year. This doesn’t speak very well of our industry or our leadership. That tells us that something’s wrong with what we’re doing in health care. A lot of it is because people are feeling so stressed. There’s so much rework. Our caregivers are feeling that there’s not enough time to deliver quality care, because they’re doing so much. As such, we explored Six Sigma as a possible solution.

Anticipating a financial challenge
A few years ago we were also having a challenging time financially. Mount Carmel, fortunately, has never lost money, but the year prior to introducing Six
CASE STUDY

Six Sigma in Health Care: A Road Less Traveled

Anticipating a financial challenge, continued

Sigma we made only $500,000 profit from operations. In that year we encountered four straight months of losses, until we turned it around. And we realized that although we turned around our financial situation the lines were going to cross over into red ink eventually. Our revenues were flat or just slightly rising, but expenses were rising dramatically. We were asking people to do more and more with less. If we continued that pressure again in the next year, it would be more and more and more with less and less and less. Their reward for being able to spin five plates would be that we would give them a sixth plate to spin. So something had to change. We had to make a fundamental change in the way we do business.

But the industry also has a problem. The Institute of Medicine reported that as many as 98,000 deaths a year occur in health systems across the country because of mistakes made in hospitals. It’s the fifth leading cause of death, more than from highway accidents, breast cancer, or AIDS, and 7,000 more than deaths from workplace injuries. So we have a fundamental problem. We have processes that are flawed in health care and we need to improve those.

Traditional quality management methods don’t take us far enough

We had been using Continuous Quality Improvement (CQI) and Total Quality Management (TQM) techniques and were getting results but we felt that we needed something more. We were at a crossroads. Do we try to accelerate our TQM program or do we try something new? We concluded that what we were doing hadn’t prevented the situation we were in. We decided to do something different.

Considering Six Sigma

In early 2000 we started to investigate Six Sigma but weren’t able to find a hospital that was doing it. We assumed there must be a few but we didn’t find any. Then I read a statement from Jack Welch that Six Sigma was the most important initiative that GE had ever undertaken, that it is part of the genetic code of their future leadership. We thought, “Wow. This is a pretty successful company. This is the CEO of the century. Let’s try it. Let’s be one of the first in health care to do Six Sigma.” Then we thought, “That will take some courage.”

Sir Winston Churchill said, “Courage is the virtue that makes so many other virtues possible.” And certainly courage seemed necessary in our desire to improve the business and practice of health care. So we gathered our courage and began our Six Sigma journey in July 2000.

Getting started with Six Sigma

Our first step was to find a partner to deliver the needed training and infrastructure that was necessary to begin a Six Sigma initialization. We found a company that met our needs. They understood, had the experience, and had the right sensitivity to the type of leadership that we have at Mount Carmel. So we engaged them and developed a start-up plan. Figure 1, on the next page, is a schematic of our timeline.

The first year was Six Sigma Guide training. We trained twenty Guides in our first wave and twenty-four in our second wave. Our investment was $650,000 and
we had a $946,000 return.

In the second year we added Assistant Guide (Green Belt) training and, eleven months into the year, we had $4 million in savings. Some other savings are going to come in and we think we'll end the year around $6 million.

This year (the third) we have a stretch goal of $10 million. We think that is achievable. Our entitlement is probably in the $20 million range. (If you take forty-four Guides, five projects per year, and $100,000 per project, it works out to $22 million. And if you add some of the Assistant Guides, it's probably somewhere around $25 million.) So we think a $10 million goal is certainly achievable.

Improving the focus

Around January or February of 2002 we decided to improve our focus. We wanted to move from a very diverse portfolio of projects to having focused themes. We asked our people, “What are the things that keep you up at night? What do you worry about? What are the major opportunities?” Following are seven themes that they came up with. This is what we're going to start to work on now and move ahead with:

1. Diagnostic throughput. Throughput is probably our most important theme. Operating rooms, for example, don't operate at 100% capacity. The target in healthcare is 70%. We're running at about 57%. We are turning away surgeries at all three of our campuses because we don't have the capacity, yet we are only running at 57%. Surgical procedures are being performed just a little over half the time that the operating rooms are available. That's not good. We also have a group of orthopedic surgeons who, because they can't get operating...
CASE STUDY

Six Sigma in Health Care: A Road Less Traveled

Improving the focus, continued

room time, are building an orthopedic hospital that's going to compete with us. If we could improve the throughput, not only would we have better patient satisfaction, better physician satisfaction, and greater revenues, we could also stop a potential competitor from doing something because they can't access our operating rooms. The same thing is happening in the CT scan, cardiac catheterization, and emergency departments. Mount Carmel has, in one of its hospitals, the busiest emergency department in the state of Ohio. We also have the biggest diversion rate, meaning we turn more squads away from coming to the emergency room. We need to improve our throughput. So we desperately want Six Sigma to help us with that.

2. Bad debt. In February 2002, when we started this, we had $24 million in bad debt, about 2.6% of our revenues. This is not charity care; these are people who can afford to pay and just choose not to. And we have inefficient processes and procedures. So we have developed a very interesting design of experiments to streamline the way we process bills and reduce bad debt.

3. Managed care denials. From July 2001 to February 2002 we had about $5 million in insurance denials. Sometimes it's paperwork we didn't process the right way. These people had good care in our facility. We just didn't get paid because we had flawed processes in the way we sent bills/forms to the insurance companies; a big opportunity for improvement exists here.

4. Improved charge accuracy. Our chief financial officer estimates that 10% to 20% of the services we provided are not charged for and, therefore, we are not getting paid for them. Add all of this up and there's about $100 million worth of entitlement sitting on the table. If Six Sigma helps us to get half or even a quarter of that, it is definitely worth it.

5. Administrative length of stay. Most of our reimbursement is fixed. If we can reduce the length of stay, it helps throughput and improves revenue.

6. Care continuum business projects. We have a home health business, a hospice program, and an ambulance company. There are improvement opportunities here that we are working on, too.

7. Recruit and retain. There are improvement opportunities in recruitment and retention of people, so that we reduce our turnover.

Terminology that fits our purpose and culture

Our logo features the $s^3$ symbol. That's for our three S's—Soulful Six Sigma. Caregivers aren't inspired by war-like terminology, so we embrace the soulful (honor every soul with loving service), not the fearful; we infuse rather than deploy; and we have Guides rather than Black Belts.

Quality of work life

There's a Dilbert cartoon that I like. The dialogue says: “This job has taken my dignity, my self-esteem, my creativity, and my precious time on this earth. You've taken all I have; there's nothing left to give.” And of course, the boss responds, “The blood drive is next week. This year it's mandatory and a three-pint minimum.” Our
Quality of work life, continued

people in health care feel like that; they feel that they're being bled. They feel that we keep asking for more and more and providing less and less. We have 8,000 employees and 1,200 physicians in our system. We need our people to be inspired. Using Six Sigma for process improvement is one part, but we also need processes that build and maintain a caring and cared-for workforce.

Looking at turnover

We surveyed our people, asking “Why do people stay or not stay at Mount Carmel?” We learned that it is the quality of relationships that are the drivers. The number one reason people stay at Mount Carmel is the quality of the relationship they have with their supervisor. The number two reason is the relationship they have with the people they work with. So if we're looking at retention and trying to reduce turnover, relationships are very important.

A refocus of leadership

What makes a great leader? The answers that some of us MBA types may give is: “You have to achieve market share. And you have to have a vision for the future, and articulate that vision.” And maybe we'll include all kinds of other “MBA language.”

We asked our people, “What do you want in a leader? What characteristics do you want in somebody you report to?” They wanted someone:

- who tells me the truth
- who keeps promises
- with integrity
- who I can trust
- with courage and who's authentic
- who doesn't hide behind their title or their office or their corporate mask.

We all have our corporate persona and our corporate face. Yet people like real people, authentic people, people who show love in the workplace. We all want more love in our lives, and given we spend a lot of time at work, we must get it there. Those are the kinds of people that our people said they want to work for. So we put those two together. This is what people want in a leader and having a great relationship with your leader is the number one reason you stay at Mount Carmel.

We are embarking on a very aggressive leadership development program called A Journey to Higher Ground. It is based on work by Lance Secretan, who is devoting his life to reawakening spirit and values in the workplace. One of the major aspects of this program is leadership development. We go away on week-long retreats where we reawaken those kinds of values I just talked about. It's a life-changing experience. We refresh those values that are already in people. We also are creating an environment within Mount Carmel so that when people come back, inspired, the way we're working has been changed so that our people can maintain their inspiration. And that includes Six Sigma, and changing our work processes.
Six Sigma results

I mentioned earlier that turnover in our industry is a little over 20%. In Columbus, it’s even a little higher than that because it is a very competitive market. You can get a job in any system. We’re all begging for people. And a lot of people jump from one system in Columbus to another just to get recruiting bonuses.

In Columbus, our turnover rate in July 2000 (annualized) was 24%. Because of some of the changes we’ve made, the next July it was down to 16%. And in June 2002, it was annualized at 13%. In the last four or five months, it’s been about 11%. So we more than cut in half the turnover rate in our organization.

It’s estimated by people in our industry that a turnover in health care costs about $50,000. This includes the cost of recruiting bonuses and human resource expenses, and the year or two it takes to train people and to get them used to the way the surgeons work at this place and learn their way around the organizations. So cutting turnover in half results in major savings.

We’ve had an 709% increase in net operating income ($23.1 million) and a 144% increase in net income ($35.1 million). We’ve had an 8.7% increase in patient revenues ($494 million).

We’re very proud of our ability to grow something we call our Community Benefit Ministry. We had a RV outfitted as a doctor’s office on wheels. It goes to the people, to thirty places—soup kitchens, shelters, senior citizen centers—where we provide free primary care to anyone who comes in. You often hear in healthcare management today, “If there’s no margin, there’s no mission.” Well, caring for people is our mission. By improving our processes, improving quality, and improving patient satisfaction, we will improve the bottom line and have more funds to do things like this. We increased Community Benefit Ministry funding from $33.6 million in FY 2001 to $41.8 million in FY 2002.

The reason for these improvements is Six Sigma and our leadership development. It includes improving the processes so that people enjoy the work they’re doing more, and caregivers can spend more time giving care, touching patients, and being with patients. That’s why they went into this line of work to begin with. That’s what they want to be and that’s what they want to do. Six Sigma is helping us to do this better.

Author information

Joseph Calvaruso is the president and chief executive officer for Mount Carmel Health System (www.mountcarmelhealth.com). M r. Calvaruso previously served as the president and CEO of the Mount Carmel Health Plan (H M O) and as the senior vice president, Managed Care Services, where he was responsible for managed care activities.

Prior to joining Mount Carmel in 1985 he was a senior consultant for Peat Marwick, St. Louis, M O, and a health planner for Health Systems Agency of Summit, Portage County, Ohio.

About this article

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6 Sigma at Caterpillar’s Global Purchasing Division

Author
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Introduction
The Global Purchasing Division was created at Caterpillar to streamline a process that had become unwieldy. Over the years we had accumulated more than thirty-five purchasing organizations throughout the world. With that many organizations reporting up the chain of command, and simultaneously trying to organize massive quality improvement, cost reduction, and business process simplification initiatives, we needed somebody in the organization to be the process owner. So late in 2001 we decided to create a Global Purchasing Division. It was also decided that it would be a 6 Sigma project, and that there would be a global process owner. I was put in charge. It’s been quite an experience.

Background
In the early 1990s Caterpillar found itself caught up in a business cycle that raised its breakeven point dramatically; we lost about $4 a share in 1991. Our solution involved reorganizing the company into product-based business units, which proved to be a successful strategy for turning the company around. For the last three or four years Caterpillar’s stock has delivered about $3 a share, with annual sales of about $20 billion.

Changing shareholder expectations
We’ve also seen a change in shareholder expectations as the “traditional” business world has moved into a new territory of having to compete for equity dollars with the “dot-coms.” We had already made a great turnaround but it wasn’t going to be enough. We knew that if we were going to continue to thrive, we had to do something much different. We had to change the way the company runs.

Senior managers review strategy
In 2000, Glen Barton, our CEO, commissioned a group of very capable managers to work on strategy. They asked themselves, “Where do we need to be going?” The answer they came up with was a strategy and a set of critical success factors—not goals or objectives—that the management team must make happen if we were going to thrive. Every member of the executive office adopted ownership of one of the critical success factors. The key enabler to make these critical success factors happen is 6 Sigma.

6 Sigma is the way we run the business
I believe we’re at a point where every manager understands that 6 Sigma is not a spectator sport. It’s not a series of special projects. It is the way we are going to run the company. As part of the process, we have a lot of metrics, and we keep track of everything that we do as a company.
How we deployed 6 Sigma

We started out with the DMAIC (Design, Measure, Analyze, Improve, and Control) process and spent the first six months focusing exclusively on making sure that we were dealing with given, known, existing processes (see Figure 1). Later in the year we started on the DMEDI (Define, Measure, Explore, Develop, and Implement) process, looking at the many types of new designs and new development processes. We have currently deployed 6 Sigma almost exclusively in our product design groups. We’re also starting to use it in some of our systems evaluations and systems development initiatives.

Process management is essential

I want to emphasize that the process management phase is the most important. If you do not create a process management system, and if there's not a clear or crisp view of who owns each and every process, you're going to have confusion and problems. In our material cost reduction processes, for example, everyone at Caterpillar knows who that process owner is—it's me.

From strategy to daily work

Figure 2 is a process flow diagram from the strategy level to daily work. The purpose is to make sure that what the people at the top are thinking and expecting is actually being implemented at the various levels of the organization. We help people look at and understand the strategies and what the critical success factors are to achieving them. We also show people how they fit into the company's strategic initiatives.

We start with the general managers and vice presidents, putting their critical success factors into what we call “project filters.” Project filters are the criteria we established to explain
From strategy to daily work, continued

what we are going to work on, how we will do the work, and what the priorities for working on those projects are going to be.

Establishing those criteria was painful and difficult work. The work we do in the Purchasing Division touches about 6 different critical success factors, so we had to fit those critical success factors into the project filter mechanism. Then we had to let the business units pick up those filters and use them on their individual projects.

The objective of all this is to achieve a functional and accurate flow between strategic intent and the day-to-day activities within the businesses, and to create a set of comprehensive, universal metrics so that we can effectively communicate with each other on an ongoing basis.

Deploying 6 Sigma

We were very focused on getting 6 Sigma started, ensuring that it became embedded in the organization’s culture, and making it happen in the first year. To speed up the process, we sought the best consultants in the world, brought them in, benchmarked a lot of different companies, and learned from everyone. And then—finally—we understood that we were going to be changing our culture.

The important dimension to this process is acting, not planning or deciding—it’s personally engaging in the planning, design, and decision-making processes, and then acting on those decisions. How did we do that? In 2001, we developed over 700 Black Belts worldwide, 50 Master Black Belts, 3,800 Green Belts, and 2,000 projects. We spent nearly $30 million deploying it, and we better than doubled that amount in results. It was a great investment—one of the best investments we’ve ever made. In 2002 we’ll double the number of Black Belts, Master Black Belts, Green Belts, and projects.

Some early results

We are starting to see that people understand how to have Black Belts take over parts of the business, that the management team understands that this is the way we are going to work, that this is how we’re going to run the business, and that these are the people that are going to make that happen.

Some of the interesting developments that have come out of our 6 Sigma projects have been cultural and emotional. People are excited; there’s probably more excitement than I’ve ever seen before, and we have no trouble finding people who want to be involved.

Moreover, as we watch the projects unfold and listen to what’s happening, we find that these projects are helping people “identify the obvious.” Of course the “obvious” wasn’t obvious before it was identified in this 6 Sigma process, but once it was identified we all saw that it was obvious.

For example, I’m responsible for our Cast Metal Division in Mappleton, Illinois. There’s a huge conveyor there that was always breaking down—it’s been breaking down for fifteen years. So we decided that it would be one of the projects we would get started with. Using the 6 Sigma methodology, we discovered that when it was installed fifteen years earlier it was put in backwards. And the people that knew that
Some early results, continued

it was put in backwards knew that management would never shut it down and spend the time and money needed to put it in right. But by sitting down and using the same tools that helped us discover the problem, we were able to find a way to shut it down, get it turned around, and get it running properly.

Do you know what the spin-off from that was? It provided some consistency, some certainty, and a tremendous amount of value to our process. It wasn't just quality improvement. It wasn't just productivity improvement. It was the added value of employee endorsement and enthusiasm. People like to know what's going to happen. We're starting to see a change to a wider acceptance of 6 Sigma.

Leadership cascades down the organization

Another thing that we have learned is the incredible need for leadership, and the need to have leaders “walk the talk.” I recently met with all of my project sponsors and process owners to impart to them the need that they not just talk about owning projects—they must live it, walk it, and demonstrate to people how important it is. That particular conversation had a career dimension to it also; I explained that this was going to be a condition of employment. They must visibly show, every day, that they're supporting it and that they are finding ways to run it. They must get involved in the excitement, show that they're excited, and show that they are part of the solution.

A Building Construction Products Division example

Another interesting project we had was in the Building Construction Products Division, where a lot of compact machines are made at different locations throughout the world. One of the problems was that with many different wiring harnesses purchased globally, we wanted to ensure we selected the best suppliers, who we could work with at the front end of new designs, while ensuring we would always obtain the best value pricing in the industry.

We decided to optimize the wiring harness purchasing process. To do that we systematically broke the harness process into finite elements, understood the industry strengths and weaknesses, then, through understanding cost variation within the industry, optimized the costs to obtain significant cost reductions. Through this process the suppliers benefit greatly from understanding their opportunities to reduce cost to become world class and increase overall profitability. We created a “should cost model,” applying best-in-class costs from which new designs are costed. By understanding cost and working with preferred partners, this design tool accurately predicts the cost of any harness to 99.7% accuracy, which is so accurate that the need for quotations with preferred partners is now in the process of being eliminated.

This has enabled the team to achieve a 30% cost reduction, and provide a mechanism for ongoing improvements. The knowledge has also enabled the team to create many replication projects to yield incremental results, just by adopting the same approach and knowledge within the harness category, as well as other categories worldwide. This achievement was even more exciting when the selected partners
were among the first to sign up for deploying 6 Sigma themselves.

An interesting thing about competition is that you're not competing against just a company; you're competing against their suppliers, their distributors, and their intellectual property. So if you're going to leverage your 6 Sigma projects, you should leverage them in partnership with your dealers and your suppliers.

Our goal is to transform companies. We want to help ourselves and our partners transform their organizations so that we all are part of an overall solution to our customers' needs. In our 2000 annual report we wrote, “6 Sigma will become our way of life, benefiting our customers, dealers, suppliers, employees, and shareholders.”

We've involved thirty-eight of our suppliers, so far, on a worldwide basis. By the end of 2002 we're going to have about 125 suppliers up and running.

We encourage them to use 6 Sigma and we measure them on quality, logistics, management, cost reduction, and other metrics. Our goal is to have strong, mutually rewarding business relationships with suppliers who can enhance the quality of our products and services.

We are certainly seeing tremendous improvements. Some suppliers resented the idea that we were going to talk to them about quality management. Some just said yes immediately. Some were puzzled and serious. Others were annoyed. But all of them, after they finished training and started working on projects, became excited about the results. The letters that we've received from the owners of each of these supply bases have been very refreshing and encouraging. They've been running into the same kinds of problems we had encountered—getting the management team to take ownership, getting the management team excited—but we're helping all of those groups get through that deployment issue.

In conclusion, we've worked very hard to make sure that we deliver results on these projects. We have a lot of people involved in the process. We are more than just deployed—we're excited about what we've done and we're excited about the results that have been achieved. I think that you will find that the only way you can take the excitement out of the Black Belts is if they sense that there is not total management commitment to the process.

I would say that our employee satisfaction results have been the biggest surprise to us. All of our people like helping the company to become better. They like knowing that they're working on strategic initiatives that are important to the business. And they like the empowerment gained from making a difference and changing the way the company runs.

Daniel M. Murphy is responsible for consolidating various purchasing and fabrication operations to achieve synergies in global cost reduction and supplier quality improvements. He joined Caterpillar in 1969, and held various manufacturing and engineering positions before being named an assistant division manager in Products Control in 1976.
In 1978 Mr. Murphy was named Products Control Supervisor for Caterpillar Overseas S.A., based in Geneva, Switzerland. He returned to Decatur, Illinois in 1980 as factory superintendent, later serving as superintendent in Facility Planning, and as a manager in Indirect Planning.

He became Corporate Assistant Director of Manufacturing in 1986, a position he held until 1990 when he was named Manufacturing Manager in Aurora, Illinois. After a corporate reorganization that year, he was named a product manager of excavators. In 1996 he was named general manager of the Mossville Engine Center, and was elected a vice president later that year.

As part of a reorganization of Caterpillar’s engine division in 1996, Mr. Murphy’s group was renamed the Performance Engine Products Division. There he assumed responsibility for the company’s diesel engine production facilities in Mossville, Illinois and Greenville, South Carolina, for the foundry operation in Mapleton, Illinois, and for administration of branded engine programs.

This article was developed from a highly rated presentation at the International Society of Six Sigma Professionals (ISSSP) Leadership Conference in June 2002. For more information on the association, you may visit their web site: www.isssp.com.
Driving Sustainable Change With Six Sigma

Constancy of Purpose and Continuous Acceleration

Author

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Introduction

Dow is one of the largest chemical companies in the world. We serve customers in 170 countries with more than 3,200 products. We have 50,000 employees and approximately $28 billion in annual sales.

Implementation of Six Sigma at Dow started in 1999, with full-scale global implementation beginning in 2000. We have set a target of $1.5 billion in cumulative financial impact by year-end 2003, and I am happy to say that we're ahead of schedule; in fact we're trying to achieve that goal a year early.

We look at Six Sigma implementation from a global perspective, knowing that we want sustained implementation that isn't a fad and won't go away in a year or two. We've learned that successful Six Sigma begins and ends with the attitudes of employees. It's all about mind-set. It involves (1) being able to effectively utilize the tools, (2) knowing what's important to the customer, (3) knowing what's important to the business unit, and (4) knowing what's important to the company.

Getting people involved

When we started Six Sigma we discovered that there were three categories of people: the excited few, the sock sorters, and the silent majority.

- Excited few. They're excited about getting started with Six Sigma. They've heard about it, they've read about it, and they want to be part of the implementation from the beginning.

- Sock sorters. The sock sorters in the organization are those who would rather be sorting socks in a drawer than committing to Six Sigma. When you first start, they are the ones in the back of the room with their arms crossed thinking, "This isn't going to work. It's just a fad. I've seen them come, I've seen them go—Why is this any different? Why should I get involved? If I keep my head down it's going to go away." What I've found about the "sock sorters" is that if you can convert one, you've got a strong ally and advocate.

- Silent majority. This constitutes most of the organization. They're trying to figure out which side of the fence to be on. Are they leaning toward the excited few? Are they leaning toward the sock sorters? They'll try to figure out which way the wind's blowing, what management is actually going to say and do. They want to know how it is going to happen within the organization and how it will affect them.

To address this mix of people you must talk a lot about Six Sigma. You want to get Six Sigma into the minds of people throughout the organization. As you do that, there will be different thought-patterns going on in people's minds as to what Six
CASE STUDY

Driving Sustainable Change With Six Sigma

Getting people involved, continued

Sigma is, and what Six Sigma isn’t. There are three things that we emphasize: (1) constancy of purpose, (2) continuous learning, and (3) accelerated implementation.

Constancy of purpose

We are what we repeatedly do. Excellence, therefore, is not an act but a habit. — Aristotle

I use the Aristotle quote to show that something doesn’t have to be new to be right. Constancy of purpose is ages old. It’s about repeating something over and over, and being consistent on the approach so the organization doesn’t see it as “the message for awhile” and then it goes away. There are four things that we did to promote constancy of purpose:

• Clearly articulate the future state
• Maintain a clear line of sight from the very top to the bottom of the organization
• Model the behavior that’s expected
• Give a consistent and persistent message across the organization.

A consistent strategy

Vision without action is a daydream; action without vision is a nightmare. — Japanese proverb

How many times has someone started the implementation of something, not clearly understanding where they’re going? Or how many times has someone had a clearly articulated vision of exactly what they wanted to do with no implementation strategy to support and back it up?

To integrate vision and action at Dow, we developed a consistent strategy, keeping constancy of purpose in mind. We published the strategy in an unusual format—a oversized, colorful triangle (see Figure 1) that unfolds to a large, poster-sized diamond. It doesn’t fit into a notebook. It doesn’t fit in a briefcase very well, either. People were saying, “Well it doesn’t fit in my folio and it’s sticking out!” Exactly. That’s the point. We did it to get attention, and people did pay attention to it. People read it. Some hung it on the wall.

The strategy includes five vision elements. The vision elements focus our implementation on areas that include: Business Self-Assessment (using an EFQM-type assessment instrument); leveraging to speed the pace of Six Sigma; customer loyalty; “breakthrough” methodology; and culture.

For each vision element we have three-to-five year objectives, and measurable annual objectives. For example, by 2005 all 50,000 employees, worldwide, will have been engaged in at least one successful Six Sigma project. Our annual objective for this vision is to have a given percentage of people engaged in Six Sigma projects by year-end 2002.
Our strategic blueprint (Figure 2) includes the four elements of our company strategy: productivity, value growth, culture, and setting the competitive standard.

We want to align our Six Sigma objectives to the strategic blueprint as the next generation of making Six Sigma part of the way we operate, again staying with the five-element vision and the consistent three-to-five-year objectives.

We view Six Sigma as a tool to change the way we operate. To do this effectively, we require all employees to have a clear and consistent mind-set about how we manage and plan at Dow. The mind-set we’re looking for includes six aspects:

• Adopting an intolerance for variation
• Measuring inputs, not just outputs
• Demanding measurement and accountability
• Requiring sustainable gains
• Delivering on customer satisfaction to build loyalty
• Leveraging for competitive advantage.

This mind-set will change the very way we do work. That’s what we are driving for with Six Sigma.

One of the things we carefully considered in planning the implementation of Six Sigma is how we develop and deploy it. Introducing something new of this magnitude involves learning and implementation over an extended period of time. To maintain organizational focus and momentum, leadership must deliver clear, concise messaging over the long term. We refer to this as constancy of purpose.

The Life Cycle Theory of Focus explains what can and often does happen when leadership messaging is out of sync with the day-to-day reality of the general population of employees (Figure 3).

Most major corporate commitments, such as mergers and acquisitions, or embracing Six Sigma,
Life Cycle Theory of Focus, continued

start at the very top of the organization. As leaders begin to work with the idea, the degree of focus the company's leadership devotes to the commitment has its own life cycle that when plotted graphically follows a “normal curve.” Following a period of adoption, leadership focus rises in intensity. At some point—after years, months, and sometimes weeks—it can peak and drop off as new issues and events take center stage.

At some point along the timeline, the rest of the organization becomes engaged in the implementation of the idea. It is not uncommon, especially in large, geographically dispersed organizations, to have people beginning their engagement just when the leadership's focus is beginning to wane.

In Figure 3, the intersect between the normal curve that represents leadership focus, and the normal curve that represents employee focus, occurs at a point when leadership focus is on the decline and employee focus is in a rapid acceleration phase. If this condition is allowed to occur, leadership is creating an area of communications dissonance that is fraught with danger. When leadership focus is diverted as employees are engaging and committing, mixed signals are often generated. Corporate body language may be communicating that what employees are working on is not as important as the next big idea. Implementation can falter, organizational energy can be wasted, and employee frustration can grow as morale declines. This dissonance gives rise to “flavor of the month” views of corporate initiatives and can easily lead to difficulty when rolling out the next corporate event or commitment.

Bold leadership commitment

The primary point being made here is that Six Sigma is much more than an initiative or a program. It is a commitment that must be maintained for the long term. For any organization to reap the full financial and cultural change benefits from Six Sigma, constancy of purpose must be clearly demonstrated from the leadership levels of the company.

Six Sigma enables our drive to excellence

Six Sigma is clearly positioned within Dow as a key enabler of our drive to business excellence. The results speak for themselves. Our average project is over $600,000, and we expect Six Sigma to elevate our company to an entirely new level of operation performance, delivering $1.5 billion in cumulative financial impact by year-end 2003 from the combined impact of revenue growth, cost reductions, and asset utilization. Cost avoidance, incidentally, doesn't count in this goal. We do have some cost avoidance projects but they are not part of our $1.5 billion target.

We also intend that 3% of our organization will be full-time Black Belts, which means we will have around 1,500 Black Belts, and 120 Master Black Belts. Our Black Belt population is currently at about 2.6%.

Leadership commitment

People often ask me how we get leadership buy-in. One of the things that has worked for us is a kind of show-and-tell that we call “gallery walks.” One of the many successful gallery walks was with our board of directors and corporate operating board. We arranged a large room at our Midland headquarters with storyboards
CASE STUDY  
Driving Sustainable Change With Six Sigma

Leadership commitment, continued

of thirty Six Sigma projects and brought in the board of directors, corporate operating board, and about 1,700 other people who filed through the room in 1.5 hours.

The excitement generated in that room was amazing for the individuals that were there to share and—just as important—for the board of directors and the corporate operating board. There was powerful eye-to-eye contact around vital business issues, such as: “This is our opportunity; here’s the data; here’s how we analyze it; here’s our improvement; and here’s the bottom-line impact.”

Constancy of purpose

Constancy of purpose continually comes back to clarity and simplicity of message, both verbal language and body language. As we all know, there are a lot of different approaches to organization management in the world today. We see TQM, reengineering, lean, Six Sigma, and other things with fancy new names; some of them may be working for people, some may not. What’s working for us is Six Sigma, and that’s how we communicate within Dow. And the most important piece of communication is that we’re consistent—constancy of purpose.

When you get constancy of purpose at the very top of the organization that is driving at expectations and it becomes part of the talk and the walk, then it becomes part of the fabric of the company.

People Strategy

We have a People Strategy that has a vision and five elements. The vision is, “Building a winning team.” The five elements are: (1) attract and retain, (2) continuous learning, (3) performance excellence, (4) embrace diversity and grow through inclusion, and (5) personal leadership. A key element of this People Strategy dictates that each and every Dow employee is to have a documented employee development plan focused on continuous learning and career development planning.

We want everyone, everywhere, contributing to Dow’s transformation through Six Sigma. We expect all of our functional specialists and functional leaders (managerial and professional-level employees) to be certified as a Green Belt and/or Black Belt by the end of 2005. Employees hired after January 1, 2001 will also be expected to certify as a Green Belt and/or Black Belt.

We’ve also expect everyone in the organization—all 50,000 people worldwide—to be on a successful project by year-end 2005. Right now we’re about 20% to 25% of the way there.

Training

We started our implementation with executive training from the Six Sigma Academy. They trained the top 300 leaders in our company. Then, working with Price-Waterhouse-Coopers, we developed our own internal training curriculum for Green Belts, Black Belts, Master Black Belts, and Champions. It includes classroom and computer-based interactive learning.

We train in waves, and have 150 to 200 Black Belts per wave. All of our training is regional/local except for Black Belt training. For Black Belt training we take everyone to Atlanta, Georgia. Gathering the Black Belt trainees together from
Training, continued

around the world has proven to be a beneficial cultural experience. Everyone learns the same methodology, they learn about Dow, and they learn about themselves.

Our Black Belt training includes things that some people call “hard” and “soft” skills. The hard skills include statistical tools and Six Sigma methodology. Soft skills include project management and conflict resolution. One of my favorite quotes about our training came from a Black Belt in our legal department who said, “This is the best training that I’ve had since law school. I’ve learned more about the Dow Chemical Company in the last thirty days than I have in my first twelve years in the company.” The point he made was that the training was powerful, and he’s learning more about Dow because of the curriculum, the networking that goes on in Atlanta, the broad exposure, the training delivery, and the diversity that was in the group—the diversity of thought, discipline, businesses, and functional background that is part of the Six Sigma training experience.

We also train on what we expect in our “leveraging” process (which I’ll cover later in “Differentiators”), and what building customer loyalty is all about. The “hard” skills are easy to teach and learn. The soft skills are much harder. They’re about driving change and changing people’s mind-sets and behaviors. That is not an easy thing to do.

Strategic focus

The basic strategic question each employee needs to be able to answer is: “Why do we do Six Sigma?” We expect the answer to focus on our need for accelerating the implementation of our business strategies, driving customer value, and sustaining the gains we’ve made (and making sure that we don’t give them back). Still, there is another reason why we do Six Sigma. That reason has to do with the amazing skill set that comes from the training and implementation of the methodology and the tool set of Six Sigma. Involvement in Six Sigma is literally changing the way people work and think for the better. Reliance on data-driven decision making is establishing a whole new way of addressing opportunities and creating fulfilling work. In addition to the value contribution, the personal and professional skills that accrue from Six Sigma provide powerful benefits.

DMAIC and Design for Six Sigma

Anyone doing Six Sigma will have the DMAIC methodology and some version of Design for Six Sigma. We want our people to ask themselves, “What is it that I’m trying to do in this organization that uses Six Sigma to drive it forward? How can I make a difference and do it better? What’s my differentiator?”

Differentiators

Dow’s implementation of Six Sigma is highlighted with two differentiators: Leveraging and Customer Loyalty. We have global businesses, global technology centers, global expertise centers, and a global IT platform. These capabilities allow us to communicate best practices instantly and implement change quickly—to the point where a successful project in one area of the world can be leveraged into other areas of the world very quickly. That happens through networking (the effective
Differentiators, continued

networking of what we currently have on the ground) and technology (the IT platform to facilitate communications).

Our second differentiator is Customer Loyalty. Let's face it, the chemical industry is not known as an outside-in focused organization, or an industry that historically drove customer loyalty. At Dow, we're trying to differentiate ourselves by driving towards customer loyalty, not just satisfaction.

Six Sigma organization

To keep the whole effort organized and to help maintain our constancy of purpose, we created a Six Sigma steering committee and an expertise center. The steering committee consists of sixteen people that mirror our corporate operating board. Those sixteen people are responsible for the implementation of Six Sigma across Dow. They are also expected to be catalysts within their organizations.

We also have an extended team that numbers about fifty, which we bring together about three times a year to make sure that we are communicating broadly and that we're all focused on common, aligned objectives.

Our expertise center helps to shape and guide our overall implementation of Six Sigma. This group is comprised of individuals who represent a variety of critical disciplines. We have individuals from finance, communications, experts in DMAIC and DFSS, information systems professionals, training experts, and so on, whose focus is on driving the implementation of Six Sigma.

What are some of our key learnings?

For one, we've learned that it's vital to pay attention to middle management. Those are the folks that will make or break the implementation. They can hear it from the top and they can hear it from the bottom—they're in-between and they're the ones who are setting the stage for successful implementation.

It's not an addition to our workload

We've also learned that it is important to get away from an “additive” mind-set, one that thinks, “We have to do all of the things that we do plus we have to do Six Sigma.” We want a mind-set that thinks, “Six Sigma is the way that we operate.”

Recognize and reward success

We've learned that it is critical to recognize and reward success. We reward Black Belts with deferred stock and Master Black Belts with stock options. We also let everyone in on the fun. In the last two years we've had part of our variable pay program tied to Six Sigma methods. When Six Sigma succeeds, everyone at Dow has an opportunity to be rewarded for that success. When our Six Sigma results are posted, you can count on the fact that Dow employees are interested. This year we have one that is tied to Six Sigma metrics and to merger synergies. (In the last twelve-to-eighteen months we've had a lot of mergers within Dow, and tying performance-based pay to Six Sigma results and merger synergies helps to focus alignment.)
Would we change anything if we had to do it again?

I'm often asked, “If you had to do it all over again, what would you have done differently? What would you not have done differently?” Now it's easy to be here two years later and say, “Well jezz, that made a lot of sense. I should have done that.” We traded-off a bit of accelerated implementation to get going versus wait, wait, wait. Of course, there's always a fine balance between going too quickly and waiting too long.

With the benefit of learning from our experience in the past two years, there are a few things I would do differently if I were to do it all over again:

• I would have the expertise center in place before implementation.
• I would do Champion training early— it's the pipeline.
  
  When we started training with champions, our focus was on deployment. Now we also train in project management— writing charters and driving project priorities aligned to business strategy. Many of the folks that came to the training at the very beginning were trying to figure out what Six Sigma was. They were more interested in deployment than what they were doing in developing the charter, even though it was in the training.
  
  The changes that we've made in Champion curriculum have it much more focused on how to write good charters, and how to look at an organization for opportunity. We focus training on how to use different tools and processes to spot gaps and opportunities.
• Have the financial organization ready for Six Sigma— When we started in 1999 we said, “Everyone go. Make it happen.” But we didn't have our financial organization (all of the jobs that we have in place today) in place before we hit the “go button.” So if I were to do it over again, I would have that up front.
• Institutionalize the value of problem identification, of really teaching, striving to find the root causes of problems. You can't say that enough. We did training in it, but in some cases it's one of those things that you just have to say over and over again— focus on problem identification, root cause, right at the very beginning.

What we wouldn't change

• We wouldn't change the way that we implemented Six Sigma. We wouldn't change having leadership set the tone with constancy of purpose. We wouldn't change the 3% resource commitment. As you can imagine, it takes a lot out of managers when we say we're going to take 3% of the organization and make them full-time Black Belts. The feedback you get from the individuals is, “We can't do that. We can't afford to give them. We can't afford... we can't, can't, can't.” We're now at 2.6%, and in many cases businesses are saying that's not enough.
• We wouldn't change the assignment of vice president of quality in business excellence: Six Sigma is much more than a quality program. As such, it requires constancy of purpose and continued emphasis from the leadership level. By the same token, this role holds a person accountable for results.
• We wouldn't change the assignment of business and functional champions. Those are the people who are there to help catalyze change in the organization. They're making it happen on a day-to-day basis within each of the businesses and functions.
• We also wouldn't change the rigor and the discipline of financial business rules,
What we wouldn’t change, continued

the focus on results and sustaining those gains, and making sure that everyone is involved.

Author information

Tom Gurd joined Dow in 1983, and has been in numerous positions—reasoning, logistics, field manager. He was a product group manager in epoxies and polyurethanes, and Global Supply team director for polystyrenes as well. In 1999, Gurd was given additional responsibility as the Global Six Sigma Champion.

He was recently promoted to Vice President, Quality and Business Excellence, to oversee Six Sigma implementation at Dow.

About this article

This article was developed from a highly rated presentation at the International Society of Six Sigma Professionals (ISSSP) leadership conference in June 2002. For more information on the association, you may visit their web site at: www.isssp.com.
Chugach School District
2001 Malcolm Baldrige National Quality Award

Organizational Overview

Richard DeLorenzo—The Chugach School District (CSD) is very small in numbers and very large in geographic scope. Chugach is a 22,000 square mile rural district south of Anchorage, Alaska. The district’s demographics are 50% Alaskan Natives, 220 students, 30 employees, 52.3% unemployment, and a 75.7% poverty level; and access to most locations is only by small airplane.

Beginning with an honest self assessment and community assessment

The comprehensive reform that we initiated at Chugach centers on our three stakeholders—school, community, and business. I think the heart of our operation is to bring schools, communities, and businesses together to work out plans.

In 1994, at the beginning of our focus on quality, we brought the district communities and Alaskan businesses together so we could ask them a few questions: How do you think our students are doing in terms of education? Where do those students go when they leave school? What do those students do when they leave school? What do you think students in the twenty-first century need to know to lead successful lives?

We also looked at our own data in 1994 and asked ourselves how, according to current test scores, our students were doing. We found that:

- Ninety percent of our students could not read at their grade level, as measured by the Woodcock Reading Test.
- On the California Achievement Tests, our students were scoring at the lowest quartile in reading, language, and math.
- Only one of our students had ever graduated from college.

Being honest about those facts enabled us to pave a path of excellence for ourselves. We knew we had many obstacles to high achievement, but at least we knew what those obstacles were. To get started, our staff members identified nine barriers to excellence that we needed to deal with:

- Unhealthy family/community
- Student apathy
- Lack of parental involvement
- Lack of meaningful curriculum
- Specific needs of students
- Funding
- No school-to-life transition plan
- No site plan
- Poor professional development
- Teacher burnout.
Teacher burnout was actually a large barrier. The reality of our school district is that we have to fly our teachers into many remote sites where they teach. The teachers can't own property out there because a lot of the land is Native land, so we have to provide teacher housing, which can be very difficult to obtain. These issues can lead to burnout. Before 1994, when we began our Alaska Onward to Excellence work, our annual teacher turnover rate was 50%.

Involving the community in the planning and decision making

We went into our communities and conducted town meetings, using a process called the Alaska Onward to Excellence (AOTE) program. That process is a bottom-up approach that involved the entire community, including parents, students, teachers, and community members. The focus was improving student achievement. Because of the critical honesty that I mentioned earlier, we were able to locate our position and determine a course of action. We were, in general, looking for systemic change and not a one-shot, quick-fix approach.

The systemic process of change itself, interestingly, had its own kind of rhythm to it, once we got it in motion. We began by setting directions. This helped us develop action plans. Then we were able to measure and evaluate progress.

We had the community members lead these town meetings and that proved to be very important later on. They became the leaders for their communities. We empowered them to take educational ownership for their children and we followed their direction. We also invited all the Alaskan businesses in the communities to our meetings and included them in our reform processes and action plans.

Seeing weaknesses

Our stakeholders (community, school, and business partners) showed us a number of weaknesses. We thought that we'd get entirely different answers from different stakeholders about educational needs and vision. But we found that the answers given were pretty much the same across stakeholder lines. (Also, regardless of where I go in America, I hear stakeholder answers that are interestingly similar.)

1. The stakeholders concluded that individual student needs weren't being met. Students have to feel like they are important and we just hadn't been addressing that to the extent that we could.
2. We were told to focus more on the personal and social development of the students, along with their character development, goal setting, and work ethic. Basically, we realized that we had to develop better ways for students to create pathways for their futures, and we had to help them walk those paths through transition skills, to take them from school to life-after-school.
3. We were asked to include more technology and basic skill courses.
4. Businesses, in particular, brought up issues of accountability. They said that students weren't being held responsible or accountable for their actions. They also said that teachers, administrators, and parents had to be held more accountable. So we came to see that we had to build a better system of general accountability.
5. Our reporting was disconnected, too. When we examined our report cards from elementary through high school we noticed that there were no connecting points among them, so we had to construct a more continuous reporting model.
Changes

By accepting and working honestly with all that input, we have been able to make dramatic changes in who we are and how we operate (see Figure 1). Originally our high school used a “credit” system. When a student earned twenty-one credits he or she was given a diploma.

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<th>Original Chugach</th>
<th>Twenty-first Century Chugach</th>
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<tr>
<td>• Credit or “Seat Time”</td>
<td>• Performance-Based System</td>
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<tr>
<td>• Graded System</td>
<td>• Developmental Levels</td>
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<td>• Disconnected Reporting</td>
<td>• P-14 Report Card (DRC)</td>
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<tr>
<td>• Text Book Curriculum</td>
<td>• Standards-Based Resources</td>
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<td>• No School-to-Life Plan</td>
<td>• Comprehensive School-to-Life</td>
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<tr>
<td>• Individual Needs Not Met</td>
<td>• Individual Learning Plans</td>
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<td>• Institutionally Centered</td>
<td>• Student Centered</td>
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The criteria for excellence, however, varied from school to school and teacher to teacher. So we changed to a performance system that clearly described what students had to know and demonstrate both in the classroom and outside the classroom. We also went from a graded system to a nongraded system. We wanted students to work for developmental and ability levels and not for grade levels. We wanted them to move forward when they were ready to move forward, not because they were required to arbitrarily move from one grade to the next at the end of the year. Another part of this change included changing from a textbook-based curriculum to standards-based resources. We created a continuous developmental report card (DRC) that provided a clear road map of skills and knowledge for all content areas and all levels, from preschool through the fourteenth grade (P-14).

When we started, we had no student transition plan. Now we have a comprehensive one, and the individual needs of our students are being met because every student has an individual learning plan to help him or her succeed. Finally, we went from being institutionally driven by the bureaucratic state to being student-centered, so the heart of the schools can beat more from the life impulse of the community.

Some results

Let’s take a look at some of our results (Figure 2, on the next page). The first two districts to the right of Chugach are high socioeconomic districts. The last two districts on the right are demographically similar to Chugach. The chart shows that we not only surpassed the districts with similar demographics but also ones with less unemployment and lower poverty levels. So even with less funding, we have substantially increased student performance.

Where we go next

We want to continue to reinvent our model. We know that we can impact big systems even though our own district is small—25% of the school districts in Alaska are now replicating what we’ve been doing and we want to continue to promote success for all students. We would love to impact a thousand school districts and a million kids in America. That is our goal and our dream. And we, furthermore, want to have an impact on policies. We want to do the right things for students and help...
Some results, continued

Some results continued on page 47.

Where we go next, continued

Where we go next continued on page 47.

A final thought

A final thought continued on page 47.

Figure 2. High School Graduation Qualifying Exam 2000. Chugach versus Comparable School Districts.

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<th>Chugach</th>
<th>Wrangell</th>
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<tbody>
<tr>
<td>Reading</td>
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<td>Sophomores Who Passed</td>
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Some results, continued

them be successful in their futures. And finally, the private sector wants to invest in what we do, and we want to strengthen our relationships with the business community. It’s a $600 billion industry and we want to partner with them. In essence, we want to continue our success story.

A final thought

We have to work to create school systems where students feel connected and feel like they are a part of something. They need to feel important. It’s not enough that students “think” they are connected and important. We have to create school systems where students feel they have a purpose and that the purpose is relevant to their lives. The best systems help develop the talents and passion kids have, and work to bring out those potentials in them. This is what we have been working to do at Chugach. It’s been paying dividends for us. The rest of the country can do similar things if people choose to make it real. That would pay dividends for the whole country.

Strategic Planning

From the heart

Strategic Planning continued on page 47.

From the heart continued on page 47.

Where we began

Where we began continued on page 47.

From the heart

Bob Crumley and Roger Sampson— When managers talk about their systems, they often do so in parts. Those parts may be great, but when seen without a larger context, they may make little sense. Pieces only make sense when they’re connected to a whole. And so we want to give you a brief but deep overview of our story—from the heart. Then you can understand things holistically. At the same time, we’ll still focus on strategic planning, and show its relation to the whole.

From the heart

Where we began

In 1994 we arrived in the Chugach School District and began to survey our communities. We have some communities that are 100% Alaskan Native and others that are almost 100% Caucasian. And we have other communities that are equally mixed. But regardless of the demographics, we unfortunately saw communities that were massively dysfunctional. They had seven times the national average in incest, domestic violence, and drug and alcohol abuse.

Even with these problems, many board, staff, and community members thought that things were “normal.” The students were performing at the twenty-

Where we began

Where we began continued on page 47.

From the heart

Figure 2. High School Graduation Qualifying Exam 2000. Chugach versus Comparable School Districts.
Where we began, continued

seventh percentile rank on nationally standardized tests as a whole, but still, “things were fine.” These were students (K-12) and not just a designated benchmark group for certain grades. So we knew we had nonperforming students. A few were leaving the system, and once they left they weren’t really “going anywhere.” Moreover, we had high staff turnover rates, and to make matters more complicated the trust levels between the communities and schools weren’t high.

The Alaska Onward to Excellence program

We understood that productive change would take consistent, serious work over a long period of time. From that understanding we found what we and the Northwest Regional Labs in Portland, Oregon, called the “Onward to Excellence” program (OTE). And Northwest Labs also created a branch of that called the “Alaska Onward to Excellence Program,” (AOTE) to deal with rural Alaskan settings and situations.

That process involved bringing together all stakeholders—it wasn’t going to help the community to leave anybody out. We tried to bring everybody together, but immediately, “red flags” went up.

Red flag examples

In one of our predominantly Caucasian communities a new principal was appointed to work in a small community of 300 people and maybe forty-five students, K-12. When he arrived, the community right off said, “We heard that you’re bringing change. We don’t want that. We’re going to railroad you right out of town before the snow flies.” And “railroad you out of town” was the literal truth because there weren’t any roads out of the place. The train was the only way out. So the principal was kind of hoping that he could escape on the railroad—and soon, because it didn’t look like much good could come from that community response.

Then more flags went up. One influential community member said, “Do not have these community meetings. There’s going to be violence, there’s going to be yelling, there’s going to be finger-pointing, there’s going to be griping. Don’t do it. You’re setting yourself up for failure.”

So the principal had been told to get out of town. He’d also been told to drop the community meetings. It was suggested that he was going to fail. And he’d been threatened with violence. Yes, he had asked himself, “Why did I say I’d take this job?” At that point, the principal decided, in spite of it all, to just move forward. The general outcome will be described later. But eventually he came to recognize the value of his risk.

Additionally, a number of the Native communities absolutely felt like the schools were territories to be avoided. And that wasn’t entirely their fault. For years the school district had told them to stay out of school issues. So initially we didn’t always have much hope about bringing the communities together.

We started asking for business involvement as well, and we went for the big players like the CEOs of Alaska Airlines, National Bank of Alaska, ARCO, and BP.

But after we went through ten layers of classified staff, we’d finally get the CEOs on the phone and they’d say, “You’re a school district? What do you want? We don’t have any money to give away.” But we earnestly replied, “We don’t want your
Involving the business community

money. We want your expertise.” They responded with, “We’ve been to school meetings before and met you guys. We’ve heard all this rhetoric before. Nothing ever happens. Nothing ever gets changed.” At that point we did something substantial. We put our necks on the line. We said, “Look, we need your expertise. That is why we are calling you. We promise you that we will respond to what you tell us. We will be accountable.” This made the crucial impact we needed. The CEO’s at least became willing to hear us out.

Before we met with the communities and schools, we brought twenty-two of the largest business CEO’s together in a conference room. We told them that we wanted three things from them: “Tell us what you think is working in public education. Tell us what’s not working. Tell us what we need to do to improve.”

As the meeting progressed, we wondered if we had taken the wrong jobs. We filled an entire blackboard with “what isn’t working” in the school system. For “what is working,” we had one piece of paper with two notes written on it.

When the meeting ended, we told the CEO’s that we would respond to their feedback. And then, we went back to our office—in isolation. But we worked, despite the isolation. We developed a response to every item on the “to do” list created by the CEO’s. We addressed every issue. At that point we started to generate some credibility, and the CEO’s said, “Okay, we’ll come to the table with you. What do you want us to do?” That’s when we took the OTE plan out and brought the schools, communities, and businesses together. We had community meetings, and included everyone.

The community meetings

The road to improvement remained bumpy. Even after the CEO meeting, we still had to rely on a connection to the governor’s office to inspire some business attendance. The office called certain CEO’s and asked them to attend on behalf of the governor.

And we had other concerns. We weren’t sure if the meetings would be safe, let alone productive. We weren’t sure if other people would show up. We had difficulty getting parents and other adults to come to the schools in many cases, especially in the Native villages, so why would they show up to these meetings?

We were also concerned about the general kind of input we might get. We had told people that we would hold ourselves accountable to their feedback. We were just hoping that their feedback was reasonable and pertinent. We didn’t want to respond to irrelevant kinds of information. So we were concerned about all these different groups—the businesses, the communities, cultural and religious issues, and so on, and what they were going to demand from us.

Before we held the meetings, we agreed upon one ground rule—that the discussions had to center around improving student performance. Then we launched into the meetings.

Eventually, we held many such meetings. We had, in some communities, a series of meetings, often one a month for a period of twelve to eighteen months. And we got a lot of valuable feedback. They were actually a success.
Our mission

We gathered all this input from CEOs, community elders, parents, staff, and others. With it, we developed a mission statement that included our stakeholders' values and beliefs. Our mission statement was unlike many others, which are often vague, blase pronouncements that seem to hold little meaning. Ours was very meaningful to us. At first read, some might say it looks similar to other statements, but for us it has deep relevant meaning.

**Mission**
The Chugach School District is committed to developing and supporting a partnership with parents, community, and business, which equally shares the responsibility of preparing students to meet the challenges of the ever changing world in which they live.

**Values and beliefs**

A list of the values and beliefs was developed by stakeholders:

1. All students should master reading, writing, and mathematics. They are the foundational skills necessary for all other learning and are required for students to reach their full potential.
2. All students should have respect for self and others, including elders, teachers, parents, students, and other community members.
3. Students should act in a manner that reflects honesty, integrity, and a “never give up” attitude.
4. A low pupil-teacher ratio is important to address the specific needs of all students.
5. It is essential that the pupils, parents, and communities accept joint responsibility for the educational process.
6. To foster student potential, instruction must be meaningful and motivating.
7. All cultures, languages, and religions should be recognized and respected.
8. Transition skills are necessary to prepare students to meet the challenge of an ever-changing society.

It took a year to get everyone involved to produce this list of values. Our hearts, blood, and sweat went into it. But with its completion, we knew that we had really gotten ourselves deeply committed to change because the time had come to get on the track. It was now “race time” and we were at the starting line.

**Ownership versus buy-in**

We forged ahead with all the collected input and created a system truly owned by the community itself. We didn’t want a system where “authorities” just dictated everything. We didn’t want everybody else just responding with, “Okay. If that’s what you say...” Sure, you might still have community buy-in then, but three months later, when everybody feels some bump in the road, they’re going to bail out of the system. In that case, there wouldn’t be any community ownership of the schools. You couldn’t really expect people impersonally involved with the system to really stick with it when things got bumpy.

We wanted a system where the community was personally involved and invested in education. We wanted the community to create the parts of the system, so they would “own” the system. Then, when we hit a bump, the community would defend the system because it was theirs. And because it was theirs, they would find their own solutions to smooth out those bumpy spots.
Changing the constant from time to learning

We knew we had to make some major structural changes to meet our mission statement. Accomplishing such lofty goals meant changing what we teach, how we teach, how we measure performance, how we report performance, and how we document progress.

One of our first innovations concerned accountability. We got rid of the "credit" system, the idea that education has to be based on time—that time is the constant and learning is the variable. For instance, you are in fourth grade for nine months (time) and you learn (variable) what you can within that period.

In the end all high school diplomas look the same, but that doesn't mean that all students have acquired the same amount of learning. We wanted learning to be the constant and time to be the variable, and each student should progress at a pace that fits his or her learning style. Students would meet the performance standards developed by the stakeholders. They had to progress through continuums to reach graduation, but with a lot of help and at a pace that fit their needs.

To accomplish this we developed ten content areas and focused our curriculum on them. Reading, writing, and math were included, of course. But less traditional content areas were included as well. We added cultural awareness, personal and social skills, and service learning. We had to add these because the stakeholders themselves expressed very deep concern over them. To graduate, students had to move through levels in all ten content areas: mathematics, technology, social science, reading, writing, cultural awareness/experience, personal/social/health, career development, service learning, and science.

Skills desired by Fortune 500 Companies

Incidentally, we gained some interesting information from various commission reports. In order of priority, the top skills that Fortune 500 Companies want their employees to bring with them to work are: teamwork, problem solving, interpersonal skills, oral communication, listening, personal/career development, creative thinking, leadership, goal setting, writing, organizational effectiveness, computation, and reading. We were surprised to see math, reading, and writing—the big three that schools, media, and politicians focus on—show up lower on the priority list. Well, this definitely reaffirmed for us that the nontraditional skills we had included in our content areas were more than appropriate for our educational task. Furthermore, we saw that it wasn't only our communities that thought such nontraditional skills were important. So did some of the top minds in the business fields.

Developing our own customized training

But back to our story. It's a significant undertaking to add ten content areas to an educational system. We knew that we had to add an enormous amount of staff development and training to accomplish. But first, our teachers had to create the training. They wrote standards, based on community input. They wrote assessments that included traditional, analytical, and contextual elements. They developed an instructional delivery mode. Finally, they took ownership of the system based on research, best practices, and what was best for the students.
Developing our own reporting system

We also had to redo our reporting system because we were no longer giving A’s, B’s, and C’s. We were no longer placing our students in “first grade,” “second grade,” or “third grade,” because time was no longer the constant for us. Well, that meant that we had to make up a new kind of report card. The teachers created that in staff development, and took ownership of that, too. Now, when we need to make changes or revisions, the teachers come up with the ideas to make it better.

The need to teach “nontraditional” skills full time

At this point we were able to say we had definitely made a major curriculum and staff development change. After that, it took two weeks of phasing it in before we said, “This just isn’t going to work!” The educational community doesn’t train public educators to explicitly teach, measure, and report on personal and social development, career education, and service learning. Sure, we implicitly educate in these areas all the time, but we’ve never made pronounced instruction and assessments for those. Why would we? They’ve never been prerequisites to graduation. So we needed to explicitly teach kids these important nontraditional skills; but how? That was the question.

Our teachers told us something else important. They were making good progress with the students each day. But then the kids were going home every night to some pretty dysfunctional situations. It was like we were taking two steps forward each day and one step back every night. Because of this, we felt that we needed to do something dramatic. We needed to teach those nontraditional skills full time. We also realized that we needed to expose the kids to a strong transition program from school to life-beyond-school. Many students weren’t getting that kind of exposure at home, and we didn’t want to let the students graduate, and just let them sink or swim. We wanted to set them up for success, so we created the Anchorage House.

Anchorage House

We started bringing students, beginning at age nine, to a residential home we set up. We flew them in, from distances of 200 miles, in a single-engine Cessna aircraft, over some of the most wild terrain in Alaska. We created a second home for the children, twenty-four hours a day, seven days a week. We fed them. We taught them. We took care of their social and personal needs. We did it all. But do you know what we really did with that substantial block of time? We modeled appropriate and functional behavior. We taught the children in those nontraditional areas. They were then able to consistently apply those basic personal and social skills to real-life situations. It was a wonderful opportunity for the students.

Now, you might reasonably ask, “Why would parents actually agree to this? Why would they let their children leave home for so long?” Those are good questions. But the answer is pretty straightforward. Much of it came from the ownership I mentioned earlier. The parents felt that they had built the overall program, and that ownership carried over to this individual program. In fact, the parents were very clear about this at the community meetings. They clearly told us that we had to teach their kids character development, career development, and personal and social
Anchorage House, continued

skills. But as educators, we've never really done that in the classroom before. We didn't have tests for that. And so our program was a serious answer to their needs, and parents understood that. They understood that we needed such a program and so they agreed to it. They realized that it would really help their kids.

The parents may also have been influenced by another factor. Had we not shown some very positive results after the first year, we may have had a more difficult time getting them to accept the Anchorage House program. But we were able to dramatically improve student performance during that year. Perhaps they realized that we really will help their kids. When we proved our commitment and ability to them, they may have become more trusting.

Policy and fiscal challenges appeared quickly

Something happened immediately after we brought the initial group of students to the Anchorage House. We were told, “This violates board policy! We can't take students who are eight and nine years old out of their villages for seven days! They're only allowed to travel two days a year!” It wasn't enough to reform our curriculum and greatly increase staff development. We also had to follow up with board policy revisions. We fortunately had a board willing to go with us; they had been part of the process from the beginning.

We started to revise board policy as quickly as possible and align it with the curriculum changes. And immediately something else showed up. We realized that we neither had the finances to fly these students back and forth nor to fund other similar projects. At that time, during our first year, we did not have grants or foundation support. We had state dollars only. So we had to make a huge reallocation with our existing finances. We had to strictly channel all our resources together to make this happen in our first year. Finally, we were able to take the students into our Anchorage House program from three days to three months.

But there were still other issues. This activity increased our liability. Some people said, “Why would you do that? You're putting yourself at risk. It's a lot of liability— the travel, the ‘24/7’ supervision, some risky students coming from situations with few-to-zero positive role models.” And these critics had a point. We did need to have insurance to protect ourselves in terms of liability.

A system of relationships

So, by this time, we had revised the curriculum, our staff development, our board policy, our budget, and our liability! But that's the whole picture with change. You have to work at all of the parts because they're all spokes on the wheel. When your wheel is new, all your spokes have to be new as well. And again, this brings home my earlier point. Each piece of a system only makes sense when you see it with regard to the whole because every part of the system is interrelated and interdependent. When one part changes, so do the other parts.

Changing the standards

We kept discovering more things as we went along. The next thing we learned came during our first reporting period. We had a semblance of a report card, but we
Changing the standards, continued

wanted to create a high quality alternate reporting system. We didn’t have grade levels anymore. We didn’t have credits. We weren’t even sure how to deal with students nearing graduation. Furthermore, we weren’t recognized any longer by the state credit system.

This prompted us to go to the state board of education and ask for a waiver. We said, “Look, we don’t want to use Carnegie units any longer. We want to use a system based on student performance. Here’s specifically what we have in mind....” We spent about three hours with the state board in a very formal setting. We had our own students make presentations that illustrated many of our points. Thankfully, the state gave us a waiver for four years. They wanted a report back from us in six months and then annually after that, provided the six-month review went well.

Conclusion: we can build better systems when they help people get better

Our story is not about kids coming from some beautiful Alaskan setting, with sophisticated parents saying, “Oh, we would love to be involved in our children’s educational planning. Let’s sit down together and design this whole thing.” It wasn’t about that. We, like other rural Alaskan communities, reflect a higher incidence of social concerns—dysfunctional families, many coming from low socioeconomic levels, some poverty-stricken, and with all kinds of domestic issues. The students did anything but come to school ready to learn. The parents did anything but actively seek out positive change. But we changed positively nevertheless. We changed the whole system for the better. Our goal is to give everybody reading this a “ray of hope.” Do you want or need to change your own systems? Well, you can do it! How do we know? From experience. We did it. So can you.

Process Management

Wendy Battino and Ronald Gleason—We’re going to share with you our design and delivery methodology, which is a major process for everything we do at Chugach. The power of this process largely stems from its student focus.

If you take a class of fourth graders, how likely is it that they’ll all be at the same instructional level in any area? And if they aren’t, how do you teach those diverse kids at different instructional levels? If your teaching isn’t at their level, then it’s going to either frustrate or bore them. So why not create a system that serves students at the appropriate level, and in a manner that conforms to the way in which they process information? This kind of thinking makes obvious common sense. With that in place, we can then take our courage and use it sensibly to move in innovative directions.

Does this work? Here are three results that we’re proud of:

1. When we started our system redesign, our students were in the bottom quartile of the California Achievement Tests. Five years later, we’ve been able to bring them up to the top quartile. Our students are scoring in the 70% to 75% rank in basic skills.

2. In the twenty years of the school district’s existence, prior to our current
Design the process to serve each individual student, continued

Baldrige work, only one student ever graduated from college. Moreover, many students just weren’t succeeding after high school. Now, however, there’s been a huge change. Although many of our students choose options other than college, 92% are actually becoming successful in at least one of our five outcomes. So we know that our students, with or without college, are taking the steps necessary to lead successful lives.

3. When we started, no students were taking the SAT exams. Now 70% of our high school students are taking them.

A student placement example

Let me use a specific example related to student instructional levels to explain how we developmentally place students. To place students, we first have to figure out their learning levels. We also have to determine the number of staff involved. You can’t forget to take the school program into account either: is the school a K-12 program, an elementary program within a larger system, or what?

Based on these variables, we then decide how many student levels a teacher will have to prepare for. The goal: the fewer the better—always. We then structure reading and writing at the same time, school-wide. We schedule math at the same time. In these ways we are placing students developmentally and establishing fluidity within the system itself.

Now, students don’t move at the end of a semester or quarter. They move as soon as they’ve demonstrated proficiency. So it was critical for us to establish a system that allowed for fluid mobility.

Process, values, goals, and vision come before structure

Emphasize process before structure (see Figure 3 on the next page for our design and delivery process). Don’t change your system before your process is in place. Create your value base first. Decide what it is that you want to do. That naturally governs your structure. Once your values and goals are in place, you can then let your teachers dictate their own schedules. The initial conclusion stimulates your processes. Those, in turn, generate a suitable structure.

You will run into problems if you impose a structure on your system that isn’t highly related to your vision. For example, at the secondary level, many schools are moving to block scheduling. But there’s no intrinsic value in such scheduling. Sure, it can be valuable if it’s suited to what you’re trying to accomplish. But by itself, block scheduling is neither good nor bad. Arbitrarily forcing a system into place may not produce healthy results. It’s important to keep this mind. Agree upon the vision, your goal, your achievements, and then create from there.

Instruction

Instruction should be developmentally appropriate and project-based. We have instruction at the developmental, skill-based level, of course. But we also have instruction at a project-based level. Teachers know that integrative projects require time and they plan for it. At the secondary level, in particular, we again empower teachers to determine their schedules. They plan for both traditional and project-based activities.
A part of our vision is to have our practices be relevant to everyone. We can't stress this enough. We want our schools, our community members, and our business partners to inform our practices. We all cooperatively created our shared vision so that our vision statement wouldn't be superfluous. You can ask almost anyone in any community about the part they played in making the shared vision and they'll be able to tell you about it. Because they know the vision and were involved in bringing that vision to life, they can talk about the vision.

In creating a shared vision, make sure that students are included. We do consulting work and it's unsettling to find how many systems excluded their students from this process. Often school authorities just tell students what their goals will be. We advocate an opposite move. Engage students in developing the vision and goals. They'll feel like they own their education. They will own it.

The improvement process has to be continuous. We revisit our vision annually with everybody. We garner more input. The process grows. It isn't static. We keep ourselves accountable as well. We show our stakeholders what we've done, and the community really supports us because we take their input and act effectively on it.

Our instructional model has four elements: (1) Drill and practice—traditional teaching, knowledge bits, and skill-based instruction. (2) Practical application—how will the student use this? (3) Interactive learning—simulation of an event. (4) Real-life connection—outside the walls of the classroom, doing the real thing.

This model is the heart of our instructional work. We don't just practice traditional teaching. Rather, our students always practically apply the understanding they've gained. They practice and drill first. Then we bring them to a simulation—a created event—and apply their learning to that. And then, the students are given
experiences with learning. We make sure that they use their skills in the real world, so the last two components, combined to make the “application phase” of instruction, involve interaction and real life. We want students to apply previously learned skills and knowledge in new and unpredictable situations. This usually involves projects or thematic units. One project is simulated while the other is from the real world. We want one-half of student skill development to be in the application phase. And we have a lot of components to support these procedural aspects.

The developmental levels

We use several screening tests and writing samples to determine actual placement. We also use multiple assessments and teacher recommendations to determine student proficiency. With the latter, it is uncanny how many times teacher recommendations are aligned with test data. The two very often corroborate each other.

Developmental levels are an important component of our work. When educators hear “developmental levels,” many think of “tracking.” That has appeal for some people but it’s never been demonstrated to be wholly effective. In our schools, students are placed at their developmentally appropriate levels in terms of reading, writing, and math. And then they receive instruction in drill and practice and in applications. But the levels aren’t rigidly set. Students know that they can advance at their own pace. For students to progress from one level to the next, they must demonstrate proficiency in drill and practice, a practical application, and a performance task. Once students demonstrate proficiency, they shift immediately to the next higher level of instruction.

Students do receive feedback on assessments. To advance instructionally, students have to be “proficient” in all their skills. If they get a rating of “developing,” it’s not a bad thing. It means that they’re just about at the level. You can compare a “no effort” to an “F” or a “D,” a “developing” to a “C,” a “proficient” to a “B,” and an “advanced” to an “A.” The scorings are largely different, but you can make comparisons to get a basic understanding. So students do have to complete tasks and projects. They have to finish three different assessments to pass through a level. They have to prove that they are proficient. And until they do that, they remain at the level where they started.

A critical question arises here. Some ask, “Do students have to master ‘drill and practice’ before they work on applications?” The answer is no; students will often lose interest in schoolwork because they say it isn’t relevant to their lives. So we try to make their schoolwork relevant, in all classes, with all teachers, in all content areas. This builds success. When the students understand that instruction is relevant to life, they often become active in school. They work with their skills. But skills themselves are often developed through practice in meaningful endeavors, and not just through drill. We don’t care how the students master the skills as long as they do. A music analogy might help here. Sometimes a student best learns the violin by playing it. So you let her play, with some rudimentary knowledge, and find out later that she’s playing her scales better than she was previously. Her application promoted her drill fluency.
Applications: simulation and real

Here’s one possible simulation. You could have young students develop a city unit. In the unit, the kids could create an urban business. To run the business the kids might need to use math. You could have them simulate a bank and make calculations with play money. In this way the students could practice and master basic math skills and relate those directly to their lives outside of school.

A real-life project with kids could involve restoration work. For example, an old dilapidated building in one of our towns clearly needed to be restored. I had various students renovate the building as a project. High school students and I reworked the electricity and plumbing. We redid other things. You could involve kindergarten kids if you wanted. They could paint. You could do all sorts of things! And when we were finished, the community had that building for actual use once again. That’s a real-life project that helped the community.

Here are two more examples. As a simulation, we had high school students research landmark Supreme Court cases. They developed their own conclusions and presented those to a panel of student judges. Afterwards, the students had to defend the positions they articulated. To stimulate student learning we also brought in real judges, state Supreme Court justices, and lawyers, who provided information on real law and cases. The learning that took place was super. And keep in mind, we’re way out in Alaska! Just think of what could be tapped into, say, in big metropolitan areas.

Here’s another real-life example. At the secondary level, one practice involves the use of “essential questions.” One essential question concerns how decisions are made in a democratic society. We present that question and then students find the answer to it. Then we’ll tie that understanding to real life. So, after understanding the democratic process, students might then find out why their own school isn’t being repaired. They’ll have to figure out who’s making the decisions, why school board elections are structured as they are, and so forth. That is a real project.

It is absolutely essential that you the reader really understand all three modes of instruction and assessment that determine student proficiency: drill and practice, application performance task, and project-based learning, whether interactive and simulated or real. Ultimately, it’s all aimed at getting to real life.

If you are an educator, think of your school and classroom. If you’re not an educator, think of your child’s classroom and school. If you’re not a parent, think of your own experiences at the classroom and school level. Okay, now look at the pyramid in Figure 4, on the next page. To what extent are the activities listed within the pyramid occurring at a classroom and school-wide level? Are those activities being implemented regularly? And remember, “regularly” does not mean once a year. Unfortunately, many times these methods are not regularly utilized.

Many primary grades do spend time with instruction that incorporates the entire pyramid, some on a regular basis. But are such activities in every classroom, every school, consistently? When they are, that’s very good, but it’s often not the case. Intermediate and middle schools often focus instruction on only the upper
sections of the pyramid. Secondary schools often seem to think that there's no bottom to the pyramid at all. Now, we aren't demeaning any section of the pyramid at all. However, we know that it is a much more challenging task to work “up and down” the pyramid. And that is exactly what we're advocating—work up and down the pyramid all the time. Include all the sections without ceasing. It, by far, promotes learning at the highest level.

We are trying to emphasize our work ethic here. In our system, every teacher, at every level, in every content area, is using instruction that addresses the entire pyramid, up and down, on a regular basis. It makes for strong education.

**Information and Analysis**

Ronald Gleason and Wendy Battino—When dealing with “information and analysis,” it's important to examine the ways in which educators gather and interpret data. But it’s equally important to examine a school district's mission statement because that determines the particular focus you have to begin with. You read it and get a sense of the district's purpose. The purpose in itself determines the kind of information that is even relevant to a system in the first place. So our purpose determines what is collected and analyzed. That is something then that needs to be examined closely.

A critical component of our system is open communication. If we are going to collect and analyze data, it's essential to make stakeholders aware of our mission and of the type of information pertinent to it. And of course, we need to communicate, not just at the district level, but in schools and classrooms, to ensure that students are clear about their own focus. Clear communication is challenging, but it’s crucial.
Data collection and assessments

We monitor organizational performance and operations. We also use data to improve our transition programs and contextual activities outside the classroom. For example, we have “traveling schools” where students go to Europe, Hawaii, or Montana, and enroll in classes there. We also have a career development program where students join the work force, and professionals mentor them. We document these activities as well. Or maybe students are involved with a village or apartment renovation project, working under the guidance of professionals. These activities are all gathered as a component of instructional data.

We align instruction with assessments. The first category of data involves direct instruction. That’s when we assess learning through normal paper-and-pencil tests. The second category of assessment is through performance tasks, or mini-tasks, typically done in a single content area within a limited scope of time (e.g., one to three class periods). The third involves multiple content areas over an extended period of time with either a simulation or real-world project. Such evaluations use a scoring rubric accompanied by something else, like a student journal or skills checklist. In general, the rubrics go beyond simple checklists because students are being asked for detailed demonstrations of proficiency.

Individual learning plan

Every student in Chugach has an individual learning plan (ILP). ILPs are a useful method to assess students at a volitional and cognitive level. We use them to identify talents, skills, and potentials. With these, the kids set goals for themselves and determine the level they want to achieve in any given quarter. The plans have objectives. ILPs include “bullets” that tell students what is needed to complete an instructional level. The ILPs also include evaluations—the assessments administered at various levels, i.e., the papers that have to be turned in, the projects, etc.

The students, their parents, and their teachers together utilize all relevant data to develop an academic plan fitting the students’ learning style, their inspired goals, and the community vision. The ultimate goal is consistent with our stated mission—student learning and growth. The power of our ILPs resides in the fact that they are student driven, not teacher driven. Students create and follow through with their whole goal-setting process.

Support services

We also collect data through our support services. For example, we record data from our flight program. We’re very proud of our safety record; we’ve logged over 1,000 hours of airtime between 1995 and today. We have a 100% safety record, which is excellent. All other human service programs provide data as well.

Faculty and Staff Focus

Richard DeLorenzo and Wendy Battino—Each system has unique problems and situations. For example, a bear came into one of our schools. How do you get it out? At another school, a wolf grabbed and dragged a student into the woods. The
Barriers to student achievement and high performance, continued

Now, think of your own organization. What are some of the real barriers to high performance and student achievement? Maybe obstacles exist like apathy, time constraints, lack of unified vision, existing systems resistant to change, and inflexible attitudes. We had to confront a number of barriers ourselves back in 1994. Our obstacles to high achievement included the following:

- Dysfunctional family/community
- Student apathy
- Lack of meaningful curriculum
- Specific needs of students
- No school-to-life transition plan
- Funding.

Geographic isolation and turnover rates were real challenges for us, so we tried to make our reform relevant to those issues. Our reform was comprehensive. We took our stakeholders through a transformation. And we really worked. We didn't sit in meetings for two hours; sometimes we worked through meetings that lasted three days! But with that kind of commitment you know that something good is going to happen. Our results signify that we were able to make positive changes.

Chugach work system

Figure 5 shows the CSD work systems process. The teacher assessment model is a pretty involved and comprehensive model that outlines a continuum for teacher improvement. The performance-based pay model isn't tied to student performance; it's tied to teacher performance. The models support our shared vision. We have an annual orientation and thirty days of staff development. And we have an evaluation refinement procedure. All these policies promote our work system.

A professional environment

Teachers are pardoned ten days for negotiation agreements. We have a three year signed contract. We are unionized. Twenty days of staff development are voluntary but teachers show up for it. If you let it happen, if you empower teachers, if you make them part of the shared vision, if you give them opportunity to design their own training, they'll come to development. We bring the teachers together and we make it fun. But we give them an honorarium, too. We give teachers about $140 a day. So it's the power of their system, and it's good because we strive for excellence all the way. That's one of our core values, and this is one way to promote that.
In June, we begin our thirty days of staff development with work on our leadership and training systems. In August, staff development continues with work on teacher orientation and supervisor development. The specific nature of the work depends on our evaluations. In the fall, we evaluate the progress of action plans and refine organizational performance goals. In November, we hold our most powerful in-service at which time we score our own work. The entire teaching staff for the district meets for this. We have reading, writing, and math samples from all our students. Using a score guide we grade every student in our district. Then we look at the results and evaluate the degree of our success.

Then the most powerful part comes. Teachers describe how they got their students to do so convincingly well. “What did you do to get problem solving so high?” we’ll ask. It’s the most powerful in-service we’ve modeled. When we try this with other school districts, they all say that this is really the place where the rubber hits the road.

And then, during the winter and spring, we refine our action plans. We also refine operational performance goals and provide technology training. In April (and this is kind of innovative) we create our year’s thematic planning. We purchase all the materials the teachers need for the following year and give them the supplies by May, so teachers are prepared very early. This is different from what many educators normally experience. In many cases teachers come back to school in September and find that many of their supplies aren’t even in yet. They don’t have what they need. So this planning helps teachers. They receive all their supplies ahead of time.

We encourage teachers to develop collegiality. Collegiality is a continuum (Figure 6). The far right represents high-level collegiality, where educators truly collaborate. The far left reflects low-level collegiality, a place where educators sabotage one another (in a number of schools, low-level collegiality prevails). Our goal is for everyone to be far to the right on the continuum.

You can see the progression. In “scanning and storytelling,” teachers simply look at best practices. They don’t really share a lot; they just observe others. In “aiding and assisting,” teachers begin having conversations with one another. “True sharing” is where teachers actually start to give-and-take amongst themselves; mutuality is springing up; teachers aren’t just giving someone else their own great unit; they’re also absorbing information.

“Working jointly” occurs when educators begin to work together toward common values and goals. That’s a most important place to get to; people can still disagree on things but remain united in work and focus. As we collaborate with
**Collegiality, continued**

other districts, we keep this open communication and high collegiality at the heart of our activity. We have that “wired” into our system.

There are at least two things that we try to avoid here. First, we try not to act like an ostrich sticking its head in the sand. We try to face situations as they arise. Second, we try to avoid non-collegiality. This involves saboteurs. We call it the “crab-pot” syndrome. When you set a crab pot in Alaska, and one crab tries to climb out, the other crabs pull the one trying to get out back down. We work to avoid that. We work for the opposite. We want to help others get out of whatever “pot” they’re in. We don’t want them to have to stay in any hot water.

**The “trickle charge” team**

As educators or anyone in the work force knows, people can get burned out. Our teachers can get burned out, too. We work hard and we work a lot. In Alaska, some of our sites have additional challenges. There’s the remoteness of many locations. The mail plane makes it in once a week, and when the weather’s bad, the plane only makes it in once a month. You don’t always have abundant supplies. And the conditions are rugged. So to keep our staff energized, happy, and healthy, we have a “trickle charge” team that goes out and relieves teachers so that they can come in for professional development and a break. Or maybe teachers have asked for some modeling or training at their sites. In this case, the trickle charge team goes to their site to provide that as well. This team provides teachers with the extra support they need during trying circumstances. It helps teachers replenish their vitality and prevents them from reaching burnout.

**Teacher housing and flexible work conditions**

Taking a job in rural Alaska is something like joining the Peace Corps. Many houses have no water or sewage systems. In our district the housing was, generally speaking, very poor when we arrived. But we’re very creative and we worked with the Native associations and local communities to get brand new housing for our teachers because that was the biggest concern our teachers had.

We also allow very flexible working conditions. For example, one teacher built her dream log cabin, does a great deal of work from it, and remains involved with a very exciting district. The flexibility also allows teachers to job share, to switch out, and to move from one place to another. We’ve been rotating teachers around to keep them fresh. This openness keeps teachers happy and motivated. It’s also a caring and intelligent approach to staff support.

**Other support for teachers**

We try to figure out other ways to encourage our great staff. For instance, we’ve included technology. We now have more access to it, and have provided a laptop and a desktop computer for every teacher. Technology became a priority after we took care of the basic skills of students. Our web site is focused on current technological trends. We can identify our students and look up their portfolios. Going the extra mile with things like this helps teachers feel supported. We are really trying to help our teachers be extraordinary leaders.
Performance incentives

We have an incentive program for teachers involving performance pay. There are six levels for every continuum we have. The further a teacher moves along a continuum, the more performance pay she or he receives. The maximum we give a teacher in performance pay, now that they have a regular contract, is $9,000. So our teachers need to be goal setters. At level one, the pay correlates to how well a teacher set goals that agree with district standards. The incentives go on from there.

As teachers move through the continuums, their progression becomes more aligned to our conception of excellence. So teachers begin to do a better job. They become more skillful in selecting program goals, and they share strategies more with colleagues, both formally and informally. The continuum also recognizes high levels of teacher collaboration. We want teachers to assist colleagues in skillfully crafting goals for Chugach programs. This tool serves as a model for an excellent teacher. The teachers actually decided to have each individual score averaged together in order for all certified staff to receive the same amount of performance pay each year.

Now there are positive teachers in every system, but to get a whole district of teachers who are all positive is incredible. We also think that many of the teachers are happy here. And the system is such that you can be a successful teacher and see successful changes in the students. You can be positive, happy, and effective.

Foundational concepts

All of our actions revolve around four ideas:

1. Standards that are meaningful.
2. Instruction that’s effective.
3. Multiple assessments need to be involved in all evaluations and aligned to standards.
4. Meaningful reporting.

We look at each year, with our teachers. We reinvent whatever has become outdated. It’s a huge amount of work, so we pay our teachers $1,000 for every standard they work on. They usually work in teams, and we ask them to benchmark on the four areas mentioned above. Teachers love to do this during the summer because they can work with others, and on their own schedule.

Thinking about reform

I think that education is in such a crisis right now, and that mandating more regulations and testing is going the wrong way. I think we have to redesign the system based on what’s best for the students, the teachers, and their communities. I think we’re creating that system here.

What’s powerful to me is when visiting teachers come to our schools. Their comments are like, “Wow. That blew me away. Those kids own the system. They know where they’re going.” That’s significant and shows where you can take reform. I think some of our teacher and student motivation stems from this reform, from the fact that the system works. It’s exciting to see students who are enthused about being in school. And so we, in turn, get motivated, too. It’s a reinforcing cycle.

We figured out that what we were doing before wasn’t working. But we also
Thinking about reform, continued
realized that any answer we came up with wouldn't be a final one. We knew that we'd have to take continuous feedback, evaluate it, and then move forward from there. And we've done that. We've changed our report cards, our standards, our practices, our incentives, and now we are continuing to refine those as we progress.

Teacher payment
Our teachers are on a negotiated agreement. Teachers in Alaska are on one of the lower paying scales because we have not increased the steps. So we put a good deal of money into the performance pay we discussed earlier. Our goal is to have performance pay be $50,000 to $60,000 while keeping the steps. So all teachers would start in our district making $30,000, whether they have no experience or twenty-five years of experience, but with the potential to make up to $90,000. That's what we'd like to do. It would have to follow a restructuring of allocated resources.

Costs and attitudes
We've become dramatically more efficient as an organization in financial terms. When we started this Baldrige journey, we were spending 49% of our state-allocated dollars on operation and administration costs. In 2001 we spent 12% on that, so our spending on instruction and related expenditures has increased to 80%, which is incredible for a rural district with high operation costs.

We pay for important things by becoming dramatically efficient. There are all kinds of ways to make things happen, but it begins and ends with our attitude. We have to believe it before we're going to see it. One thing that I have a hard time with, a barrier I often have to confront, is changing the attitudes of people in a community. We're so easily stuck in old paradigms. Over the years we went out of our way to go the extra mile. We did a lot of things that we didn't have to do. Why? Because we wanted a chance to challenge the mind-sets of people—about grades, honor rolls, and college acceptance. We wanted to challenge the way people think about all of those things. We knew we could build a great system. But the change in attitude had to come first. And we had to work to bring that change about.

Look at relationships and the whole child
As a system, we approach children as individuals. Part of our concept about life transition includes impacting the incidence of student violence occurring within the schools themselves. We want to teach students that strong emotions can be dealt with in ways that are peaceful.

In the past, there had been cases of violence in our schools, and we knew that children could be taught to be nonviolent. When we started, there was terrible vandalism in our schools, too. But now our schools are clean, and vandalism is nonexistent.

They're clean because of our current approach. We try to do three things. We try to make kids feel connected to their peers, their teachers, and to other adults. We try to give them a purpose they find meaningful, both in their lives and in their education. And then we try to develop their passion. If those three ideas can become your mantra, you'll be successful. Kids are desperate, in desperate need right now.
That’s part of the reason why there is gang violence and many other extreme things happening in our world. To remedy much of this, we have to get back and look at the whole child. Our concern is that many school systems are moving too much into “accountability.” The accountability is very myopic as a perspective, and often leaves out the bigger picture—the children.

You’ve got to set up a system that teaches kids how to succeed, and not just what to “know.” And that has to go back to your shared vision. That process will give you the goals, the vision, and how to get there. If you don’t have the power and capacity to get there with your present organization, then you have to go somewhere else and find that. I think that at Chugach we’ve been able to inspire other people to see that real transformation can happen.

Still, we are facing barriers. For instance, we’ve had a lot of success and our schools have become sanctuaries in some very dysfunctional communities. The residents have actually started to recruit their nephews and nieces, bringing them to our school district. These parents say to their relatives, “It did wonders for my child, Jim. Bring the kids up, and the school will do wonders with your kids too.” Then we take the forty-five students already in the school and add five new students who all have violent records. And we have to deal with the violence all over again.

But we deal with it. It still all goes back to creating a system that looks at the whole child. You want to help children feel connected and loved, and create ways for them to be successful and develop their passions in a positive manner. That is what we try to do. And we’ll try to do this with the new students coming in too.

That kind of system and respect echoes into our communities. Not all of our communities are as healthy as they would like to be. And so bringing students through this process focuses their parents and the rest of the community members on caring and success and relationships. That’s really powerful. The effects expand outward from the school and have positive influences on the larger community.

We’ve already told you about Anchorage House, where students are exposed to many different kinds of positive life experiences. Parents receive positive experiences through the program as well.

Remember, in our past, we had only one college graduate educated in our district. So to expect our students, even valedictorians, to go to college and be successful is a little bit ridiculous. That’s just not going to happen by itself. So we practice successful transitioning with the kids through the Anchorage House program. We prepare them for later success.

But if a child is having a problem there, who do you think the parents blame, the student or the system? Well, they usually blame the system. When that happens we actually bring the parents to the Anchorage House because we don’t want them to sabotage what we do. And it’s often life-transforming for them. They see how positive and encouraging it is for their kids there. Afterwards, they many times
Parent and student support, continued

become our strongest advocates. The parents will often take on leadership responsibilities. In their villages and communities they often become the hosts to orientations and town meetings, along with the students. It's very cool.

The teaching approach

Our schools look like most schools. It's our approach that sets us apart. The difference is apparent during morning classes as we divide students into ability groupings for basic skills.

Suppose I have a class with students at many different levels of reading and writing. How do I set up instruction for such diversity? Let’s say that the theme for the class is Alaskan explorers, so everybody gets to pick an explorer of their choice, whether or not they can read or write. Now think about it. If I’m a teacher, what kind of writing project should I give to beginning writers? What would their papers look like? Well, maybe I’d have them write very simple sentences. If the students have a middle level of ability, perhaps I’d have them write paragraphs. Advanced students could engage with research papers. The students might be at different ability levels, but they’d all be involved in the same thematic project. Now, let’s think about reading. What kind of books would work for beginning readers? They’d read simple-sentence books, but books on Alaskan explorers nevertheless. What would middle and advanced students read? Again, increasingly difficult books on the same thematic topic. So all the kids would work with the same theme, on similar projects, but at individual levels. That customized instruction makes our schools different.

But what most impresses teachers when they begin work in our system is the knowledge the students have of the system itself. They can even use the same terminology that teachers and administrators use. It’s important.

Students know where they are and what they have to do to reach the next level of instruction. This is how the model works. Our entire curriculum, which is about twenty-two pages in length, explains everything students do, K-12. You can go to our web site [www.chugachschools.com] and see samples of this. You can even purchase this material on our web site.

Basically, we’re very clear about what we want students to know and do with our targets, standards, and benchmarks. The curriculum makes that clear. To support that, we make use of several assessment types. We use skills and application-based assessments, scoring guides, writing samples, and contextual assessments, which evaluate kids on real-life projects. It isn’t enough for young people to just know about skills. They’ve got to be able to use them, and to apply them. Otherwise, what good could such skills come to? Many educators recognize this but very few really do something about it. And the best thing is that the students apply their skills in their communities, often in unpredictable situations.

We also involve employers, state agents, and/or parents in scoring the students on a project. That’s another way to involve all stakeholders. It partially explains why we have such great relationships with our businesses.
I travel a lot and I listen to people talk. Some people always have excuses for why things can't be done. Here are a few of the best excuses that I've heard; they're all guarantees for mediocrity: "We've tried that before. Our district is so different. You don't understand our situation. We don't have the time. We don't have the money. Our system is too small/too big. We don't have the authority to make those decisions. We don't have the right people." What I'm saying is this: Skip the mediocrity and find ways to generate excellence.

**Student, Stakeholder, and Market Focus**

Bob Crumley and Roger Sampson—The membership of our Alaska Onward to Excellence process included all stakeholders, i.e., school members, students, community members, businesses, and business partners. We knew we had to get these people together for meaningful town meetings, but a couple of barriers stood in the way. First, it was difficult to get many people to show up at all. And second, we were nervous about what would happen when they did show up. We were completely new at this. We had never overseen town meetings before. We weren't exactly sure how to bring groups together, get input from them, and find commonalities among them. So we had a few fears going into this whole thing.

We held a series of such town meetings for about a year and a half. It was difficult to get people to show up. Once they showed up, it was difficult to get them to engage in dialogue, so we got people to the open discussions first. We got their input. It was difficult, but the elders, students, parents, and CEOs gave us great input. And that gave us the information we needed to form a vision and a mission.

Again, we had put ourselves on the line and promised a concerted response to the community's needs. After one year and dozens of meetings with these partners, they finally became committed to the vision. They had stated their needs, and they had become willing to support themselves. Then all of a sudden this became a little frightening to us. We had never expected to see a number of the ideas that the stakeholders brought forward. Sure, we did expect to see, and wanted to see, our kids reading, writing, and learning about history. But we never thought we'd see the nontraditional goals, like personal and social development, career learning, and service learning. Those were a shock to us. But there they were. And we had to do something about them.

We needed the staff to build the system so that they too owned it. In the beginning, staff development was focused on developing standards from the input received. The staff wrote standards that were relevant to the community voices. After writing them, we had to be able to measure student achievement, so the staff wrote assessments. They didn't stop at traditional assessments, like paper-and-pencil tests. They wrote analytical scoring guides, analytical performance task assessments, and contextual real-life assessments. Now we had multiple ways of assessing students' capacity to apply the knowledge and skills they'd learned.
The staff also changed report cards to reflect the new reporting system. Finally, the staff came up with a new instructional model with four tiers. It begins with direct instruction, goes to practical application, then to interactive simulation, and finally to real-life connection and application. And so the staff developed all that and had ownership in it, and actually continues to revise it all to this day. It's impressive.

The staff was comfortable with developing standards in the traditional areas of reading, writing, mathematics, social studies, and science. The other standards were new to us. We weren't used to concentrating on interpersonal skills, personal and social development, career education, and service learning. Yes, we educated in those directions as we went along, but we never had to overtly measure any of it. We never had to report on that. And, in fact, we never expected to develop student proficiency in those areas or incorporate those as a graduation requirement. We weren't sure how to best teach and assess those top community values. Students had few role models for social skills because they often came from dysfunctional homes.

We got through it by taking some risks. We've implemented the entire functioning program—staff development, curriculum, budget, and policy. And for those of you who have been involved in frustrating systems, it's probably because all of those components were never designed to work together. But, as you can see, there are strategies that help unify things. We've now made a comprehensive reform that has helped our students and communities.

We are following the wishes of the stakeholders, using a process that gave them ownership of the system. The people involved are the ones who created the system in the first place. They really own the system. So when the system hits a bump, the people will defend it because they created it; they put their heart and sweat into it. We needed ownership in our communities. We need trust and partnership. We asked for it. We planned for it. We worked for it. We got it.

Our communities wanted their students to have certain internal capacities by the time of graduation. We call these our five outcomes. Should students have the internal resources to pursue college after graduation, for example? Well, we knew from past knowledge that only one district student, in the last twenty years, had actually made it through college. We didn't have a good track record in that department. But perhaps current students would want to strive for that goal. One of the five outcomes identified by our stakeholders was just that—post-secondary education. They wanted the kids to have the capacity to pursue that goal if they so chose. The second was vocational education. The third outcome concerned service-learning occupations. The fourth focused on full-time employment. The last outcome involved students with entrepreneurial endeavors. Those were (and are) the transitional areas we began to focus on with our students.
University admissions with a nontraditional model

How do universities know that our students are ready for college when they are working in a nontraditional high school? Certainly, if there is a question of credibility, that needs to be taken care. This actually was one of the largest hurdles that we had to jump in the transition to a performance-based system.

Here’s what happened. We called college registration and admissions offices, and explained our model to them. We asked if they’d admit our students into their schools. Their reception was very interesting. This is a paraphrase of the general response we received: “We would love to see information that gives us a more accurate indication of a student’s strengths and weaknesses. That would actually help us better determine a student’s potential on our campus. Currently, high school transcripts don’t do that. A 3.5 GPA from one high school may have absolutely no connection to a 3.5 from another one. So please, if you have indicators that state what students can really do and what they know, and they can demonstrate that, we’ll absolutely look that over; don’t even send us a transcript.”

Summary

Let’s recap. We had dysfunctional communities, low performing students, businesses, all coming together as partners and forming a shared vision and system that ended up being much, much more than we ever dreamed it would be. We thought they would tell us to focus on basic skills. But basic skills ended up being only one piece of the system, while a heavy emphasis fell to developing personal and social qualities. To address those latter elements, we had to change. We had to change assessments because our businesses said, “I don’t care what the grade card says, or what students are doing in the classroom. They’re not demonstrating it when they come to our places of employment. The kids have to be able to perform and demonstrate those skills.” So we had to change instruction, assessments, and our reporting methods. And in doing that we had to revise budgets, board policy, and staff development. So it was a whole-picture rearrangement.

Some results

How has the community been affected by these changes? The students have gained ownership of their classrooms, and the discipline problems have diminished tremendously both in the schools and communities. The schools have become sanctuaries and safe havens, and community members want this protected and supported. The community members are really very proud of their schools today, whereas before they felt adversarial toward them.

In the beginning, we had this platform “burning” out from under us. We knew that changes were essential. We asked ourselves questions, we got a set of answers, and then went about making changes. The results, after four years, are interesting to see. They show that the program works. There have been some positive results.

In 1994, on standardized tests, our students, district-wide, were passing at a 32% range. But by 1998, the same students had moved up to 71.5%. In reading they shot up from 16% to 55%; in math, 41% to 78%, in the core tier; in language arts there has been a 25% increase.
Some results, continued

As students have progressed through personal and social developments, in many cases, they have become role models in their families. They have often taught parents how to deal with and solve problems. Parents haven’t always quit drinking or using drugs, but they have learned that they’re always welcome in the school as long as they aren’t intoxicated in any way. When intoxicated, parents have just been politely asked to leave. And the community respects that; it’s worked well. So there have been good consequences in the community.

Student focus

The staff also created continuums, or standards, for our students. We added a developmental report card, not based on credits or time, but on performance. The report card is tied to the ten content areas upon which students are evaluated.

Each content area has a number of levels. For example, in reading, we have twelve levels to that standard. A “level two,” at the low end, in comprehension would be: “The student is able to develop short-term memory, recall local and identified facts, and repeat those back after listening to them.” Now let’s take comprehension at a level five: “The student states the author’s purpose. The student can present a critique of that purpose and discuss its impact on the text’s message.” Here’s a “level nine” comprehension summary: “The reader determines the figurative idiomatic and technical meaning of terms throughout the content of the literature.”

So for each content area, the level of complexity increases dramatically as students progress in learning. Every level is detailed and many are embedded in each content area. We have ten content areas that inform our curriculum so teachers know what they’re supposed to teach. Simultaneously, students know the level at which they are performing and what they must do to advance. Students also know by what assessments they’ll be evaluated. This has been a huge shift for us.

As students advance through the levels of any content area, they move away from drill and practice because they begin using much higher-order thinking skills. At that point they begin applying their skills to simulations and real events. We don’t mandate that every standard be taken to the level of real-life instruction. It’s difficult to do that with every standard all the time; we do include it where possible.

Funding and special needs

Students are not funded by the state unless they’re classified as handicapped. And we’ve almost done away with our special education program because of the way in which we focus on each student and meet his or her individual needs. So we now fund those ourselves. We also have a student scholarship program. All students, all graduates, can apply for a $1,000 scholarship as long as they are actively in pursuit of one of the five outcomes.

Individual learning plans

All students in our district have an individual learning plan written mostly by them, although not completely at all age levels. The younger students need some assistance with that. But the goals are at least set by the students with parent and teacher input.
Individual learning plans, continued

We test students in terms of cognitive, volitional, and emotional levels. Standardized tests help us generate student learning profiles. With the help of such tests, students come to understand their particular strengths, weaknesses, and learning styles. Of course, the parents and teachers come to know these as well. Incidentally, the teachers have all taken similar tests, so they know their own strengths, weaknesses, and so forth. It's kind of interesting, as a teacher, to take such tests. It's a very powerful tool. When you're a teacher equipped with that knowledge, you can work more with your strengths. You can consciously put your best foot forward.

Transition programs

The Youth Area Watch Program really allows students to apply their skills to real-life situations. It was funded when the Exxon-Valdez oil spill occurred, two miles from one of our villages. It impacted those communities immensely. A great deal of funded research has evaluated the damage done there and it's still going forward today. Our students have been able to work there, side by side with some of the most renowned scientists and specialists in the world, and to apply their skills. The kids are out on the sound, they're staying on beaches, they're living on research vessels, working and using the skills they've learned. So this program is an application of their higher-order thinking skills.

Wireless laptop program

Our schools are equipped with wireless ports. When students achieve level four in all content areas, they're given a wireless laptop computer to use until they graduate. It becomes their electronic portfolio to use in one of the five outcomes.

Measuring progress

One of our strengths is the way that we measure student progress. We've been doing assessments in education for years, but only classroom teachers usually do it. It was up to the community to trust that students were being involved with deep learning at school. We now have three different forms of assessment. Each form must be passed before a student can move to the next level in any content area. For example, if a student cannot apply learning to a real-life setting, then she or he may not be proficient in that content area. A student can't graduate until she or he has reached that kind of proficiency.

Most of our students have graduated within a traditional twelve-year time frame. Some have had the option to graduate earlier, but have decided to stay with us because of the support we give them with experiences like the Anchorage House and the Youth Area Watch Program. Others have decided to stay longer and are graduating in maybe thirteen or fourteen years. And we follow the students after graduation, making sure that personal and social difficulties aren't causing problems.

Journey to Excellence

Richard DeLorenzo—The Baldrige process is complex and simplification was key for our success. We created the “PDER Process,” named after our board president Peter...
Simplify, continued

Selanof. PD ER stands for Plan-Do-Evaluate-Refine. We placed that over our focus areas and used it to inform every level of instruction— for the district, schools, teachers, and students. Our five focus areas concentrate our efforts: (1) Basic skills, (2) Individual student needs, (3) Character development, (4) Technology, and (5) Transitional skills. These simplifying steps were partially responsible for our success.

Alignment

Chugach originally had a set of district beliefs, values, focal points, and a model of continuous improvement, prior to 1994. But the Baldrige system had a somewhat different value system in place. When we applied for the award, we took the two and merged them together (see Figure 7). This created a powerful educational model that has served our needs well.

We took the Chugach values and aligned those with the core values of the Baldrige blueprint. We also took our five focus areas and joined them to the Baldrige categories. Finally, we created the Plan-Do-Evaluate-Refine Process to reflect our continuous improvement practice. This is also oriented toward the basic conceptual framework of the Baldrige model.

We applied for the award in 2001. It was our first submission. While we went through the whole process in less than a year, we were really working at this whole thing for eight years beforehand, but were just calling our process something else.

Accountability

We have paid a great deal of attention and time to accountability. We knew that we would continue to rely on certain external assessments like the California Achievement Tests scores, state benchmark test scores, and others. But we wanted other ways to uphold accountability in our system.

We understood that students learn standards through required schoolwork, so we changed that work to reflect our standards. Then we added accountability by inserting projects and contextual learning portfolios as systemic reporting tools.

Finally, we supplemented accountability in a most critical way. We did what research says we ought to do, but is very difficult to do. We redesigned all aspects of our system to meet the individual needs of every student. We refer to this as “reinvention versus tinkering.” When we completed all of that, we had basically created a new paradigm for ourselves. Everything had to change to reflect that shift. We had created for ourselves a higher vision.
Advantages and disadvantages

Reinvention has many advantages and disadvantages. Here are a few advantages. First, educational research strongly supports the changes we made. Research says that the best educational systems meet individual student needs. It also suggested that real examples of this are hard to find. So our reinvention was a move toward an ideal school paradigm. Also, the redesign met the criteria of stakeholders as well—they too wanted a system that met individual student needs. Moreover, the new structure is highly accountable. Everyone knows what is expected. It also supports multiple ways for kids to reach standards.

There are a few disadvantages to reinvention. First, it’s a massive paradigm shift for education—scheduling, reporting, new instructions, innovative assessments, different resource allocations, and more policy. All of those have to be redesigned to fit the new paradigm and it’s a lot of work. Also, the big disadvantage: Advil, Maalox, and Rogaine become your best friends. The work can lead to headaches, stomach upsets, and hair loss. You’ve got to find ways to keep yourself relaxed.

The heart of what we are about

Let’s talk about the heart of our district—what we’re about. When I travel to other states’ school districts, many educators talk about their “standards.” I will then say, “Okay, but are your standards relevant to your kids? Besides the basic skills, do your standards affect character development? Do they deal with twenty-first century life skills?” Most often educators say that their standards don’t.

When I look at assessments I ask, “Do the assessments mirror best practices?” And again the answer is often, “No.” I also ask about recording documents. I find out if those are aligned to their standards. Often enough, the answer again is negative. The documents are often not in alignment with the standards. So, this kind of non-alignment can definitely cause problems for school systems, for teachers, and, most importantly, for students.

The change model

Finally, we have an effective change model. It is comprised of five elements. If you want to change a system, you need to have:

• A shared vision—Input from all stakeholders.
• Skills development—Thirty days of in-service training.
• Incentives—Performance pay, scholarships, laptop computers, leadership opportunities.
• Resources—Competitive grants, foundations, and private sector funding.
• An action plan—PD ER plans at district, school, and individual levels.

Let’s take a look at each. We have created a shared vision that includes input from all of our stakeholders—everybody. We consistently revisit that with our stakeholders. We talk about what needs to be changed, how to do it, and how to adjust our practice to meet changing needs and concerns.

To promote “skills,” we do thirty days of in-service training with our teachers every year. That is what it takes to stay on the ball in our system and to make it work for every student and teacher. Everybody benefits from the training, but it is serious work nonetheless.
The change model, continued

We do have incentives, although we know that Dr. Deming says you don’t need them. He stated that work should be intrinsically valuable; work should serve as its own reward. It makes a lot of sense but we still find that incentives accelerate the growth of teachers and the organization. Perks can help, too, so we have performance pay for our teachers, we pay them for the extra work that they do. We have teacher scholarships where each teacher gets a laptop computer. We create a lot of leadership opportunities for teachers as well. In fact, one of the dangers of receiving the Baldrige award is that 44% of our teachers now are consultants, and I have a hard time keeping them on board.

With regard to “resources,” we are very, very entrepreneurial in our approach. We go aggressively after funding because we not only want to make our district better and a leading edge of innovation, but because we want to support other districts as well. To help other districts, we give $2.8 million away annually. That kind of action shows who we are and what we’re about.

And finally, we have an action plan. We put the PD ER plan into everything we do, at every level. Everybody on our team knows about it and they can do it well.

Performance excellence

I’ve already shared one external benchmarking result (the external comparison between the Chugach students with other districts). Let’s now take a look at an internal benchmarking example: a group of students first in 1995, when they were in the fourth grade, and again in 1999 when in the eighth grade (Figure 8). The scores are from the California Achievement Tests. These results demonstrate that we are helping kids progress.

I want to emphasize that we don’t focus on or “teach to” tests. We focus on our students and on making our educational system great. As a by-product of that work, students just naturally begin to excel, as they should. We know that all students have strengths and weaknesses, learn at different rates, and are at different levels of content mastery, so we honor this in our processes. We know that we have to identify the individuality of the students. It allows us to customize instruction and meet their unique needs. It’s how we help kids reach their full potential. We tap into their strengths, interests, and talents. This just revels itself in increased test scores.

I believe that excellence, in many fields, can be achieved if you can just do the following: Care more than others think is wise. Risk more than others think is safe. Dream more than others think is practical. Expect more than others think is possible.

<table>
<thead>
<tr>
<th>1994-95 (Fourth Grade)</th>
<th>1998-99 (Eighth Grade)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading</strong></td>
<td><strong>Reading</strong></td>
</tr>
<tr>
<td>16.6% in top quartile</td>
<td>55.6% in top quartile</td>
</tr>
<tr>
<td>16.6% in bottom quartile</td>
<td>0.0% in bottom quartile</td>
</tr>
<tr>
<td><strong>Math</strong></td>
<td><strong>Math</strong></td>
</tr>
<tr>
<td>41.5% in top quartile</td>
<td>77.8% in top quartile</td>
</tr>
<tr>
<td>8.3% in bottom quartile</td>
<td>0.0% in bottom quartile</td>
</tr>
<tr>
<td><strong>Language Arts</strong></td>
<td><strong>Language Arts</strong></td>
</tr>
<tr>
<td>25.0% in top quartile</td>
<td>33.3% in top quartile</td>
</tr>
<tr>
<td>41.6% in bottom quartile</td>
<td>11.1% in bottom quartile</td>
</tr>
</tbody>
</table>
Richard DeLorenzo has the unique ability to involve others in his dream for advancing the educational system, and making changes thought to be impossible a reality. Mr. DeLorenzo has more than twenty-three years of experience working with students of all ages in a wide variety of settings. Since 1994, he has been instrumental in the comprehensive transformation that has yielded phenomenal results in student academic achievement and school-to-life transition skills.

Bob Crumley joined the CSD as principal/teacher in 1995. After four years of being responsible for teaching all aspects of the high school curriculum, along with administrative duties, Mr. Crumley joined the district office as Executive Director of Instruction and Assessment. This includes supervision of the district's varied school programs, facilities, staff, and student performance. Mr. Crumley plays an integral role in the research, development, and implementation of CSD's "Reinventing Schools Model."

Roger Sampson was superintendent of the CSD from 1994 to 1999 when the major reform of the district began. He was directly involved in the implementation of student performance standards, teacher performance-based compensation, and the waiver from the Alaska Board of Education to replace the traditional Carnegie unit system with performance standards. He was awarded the National Rural Superintendent of the Year award in 1997.

Wendy Battino has been part of the CSD for eight years as a teacher, principal, and consultant. She continues her educational consultant work with Chugach and several districts around the nation—focusing on reinventing schools based on the Chugach model. She has an extensive background in school improvement planning, Baldrige process, and standards-based instruction and assessment. Ms. Battino often conducts work from the rustic log cabin she built.

Ronald Gleason brings thirty years of instructional and administrative experience to complement his enthusiasm and commitment to educational leadership. His experience includes teaching math, K-12, and administrative positions in rural and urban Alaskan settings. He was a principal in Angoon for twelve years, a principal at Juneau-Douglas High School for eight years, and was an associate professor at the University of Alaska in the Educational Leadership Program.

Editorial assistance for this article was provided by Erik Lars Smith and Laurence Smith.