Building a Vigorous Working Culture

From implementing change to growing change.

Robert W. Hall

A common definition of a work culture is "the way we do things around here." Change the way we do things, and we change our work culture by default, if not by intent.

If it changes how people basically work, a big IT system change is culture-wrenching. So are Lean Manufacturing and Six Sigma, whether blended together or not. As soon as implementation goes beyond an experiment in a corner, everyone in an organization, including its top management, has to learn how to work and behave differently. Desired is a cohesive culture using the system effectively, rather than sub-cultures at war, fighting for control, which is why the human side of this change takes the most attention.

The Purpose of Change

The first thing one learns about lean or the Toyota Production System(TPS), loud and clear, is that its purpose is elimination of waste. The whispered sub-clause is that the purpose is for *everyone* in the organization to learn how to eliminate waste. They learn that through regular practice until it becomes a habit. The techniques are a means to support that habit.

Well-known TPS tools, from 5S to heijunka, make waste visible to everyone so they can eliminate it. Burnishing the tools to see how sharp they look, or how quickly they can improve a process, neglects the important objective of coaching people how to use them to observe work processes, and hopefully, improve them as just part of the job. That's a sizeable culture change from most companies' norm.

Treating this as a culture-changing transformation saves a lot of stop-and-go traffic jams on the road to excellence. The desired work culture has been described various ways: a vigorous organization, a learning organization, a problem-solving organization, a flexible organization, an

In Brief

Webster Plastics and Toyota have very similar working cultures, although Toyota's is much bigger and more general. In both cases, to create them, process improvement techniques were not as challenging as leadership developing people, ending with a vigorous, total company working culture that autonomously runs the business and routinely improves processes.

innovative organization ... apt phrases all, which is why describing such a culture in words always comes up short. However, organizations that have it, even if creakily at times, like a Toyota, remain doggedly formidable. They can be "out-talented," and they can be out-marketed, but they are hard to shake.

Prior *Target* articles described a culture like this as B-Class, roughly defined across three dimensions of performance, not just process improvement. That framework is presented again in Figure 1. "Enduring" (A-Class) can only be confirmed by a company surviving a life-threatening cataclysm. "Vigorous" (B-Class), leaders can go for.

Spanning the Gap

If companies that begin "lean," or whatever they call their conversion, start building a culture for it from the beginning, they don't open the big gap between Proficient and Vigorous in Figure 1, but it is still no small task to engage everyone in making processes better. People at work, in any position, learn to do that on the job by practicing — and making mistakes.

The Working Culture Classification System

Abbreviated Version from a "lean" viewpoint:

A. Enduring: Capable of rapid, drastic changes in business model or technology.
B. Vigorous: The system embodies the means by which people learn and improve processes.
C. Proficient: System is "engineered" with worker participation; then operated.
D. Business-as-usual: Financially-directed project-by-project process change.

Organization Class	Process Improvement	Innovation	External Responsibility[1]
Enduring **Change Resilient**	Mastery of process improvement eliminates waste from all-new processes very quickly	Capable of transforming its industry; able to adopt new business models	Unifying social mission serves all stakeholders well; aggressively adapts to rapid changes
Vigorous **Habitually Learning**	Autonomous improvement and process learning embedded in working culture	Innovate by rigorously learning all base technology; everyone involved in NPD	"Outside-in;" focused on customer needs; very attentive to external environment; balances all stakeholders' needs.
Working Culture Gap			
Proficient **Structured Flow Operations**	Core operations integrated; improvement is directed; still coaching tools	New product or service development is project-structured; cross-functional collaboration on projects	Good basic service to customers; good cost-quality-delivery; good "corporate citizen"

1. External responsibility starts with customers, but includes performing well for all stakeholders, including the general public.

Figure 1.

There aren't many short cuts. Learning techniques may begin in a classroom, but on the job, where it counts, all processes and people are site-specific and somewhat unique. There, of necessity, learning is by self-discovery.

The system and culture must also embody a discipline for process learning. Ongoing operations can't be disrupted by aimlessly trying ideas. To do this well, people must understand the business context and the technology of their processes, and that too is an aim of Vigorous culture. Make a change; hold the gain; make another; hold it; and so on.

Companies going for Proficient lean coach people on techniques using kaizen blitzes and quality tool exercises, but stop short. Those going for Vigorous coach operators to use the visibility system to spot problems and overcome them — any kind of problem, not just process flow hiccups. The same is true in offices and elsewhere.

Those who have developed Proficiency, but not the improvement culture of Vigorous have that gap to cross. Stimulate people to act on their curiosity, cutting them the slack to do it. For this, a little consulting goes a long way. Success depends almost exclusively on the behavior of leaders who know the people and the specific processes very well. It's also a total enterprise culture change — another reason why top level leadership is necessary. People cannot imaginatively exercise their ingenuity when others unreasonably restrain their initiative, even if unwittingly.

Two examples of doing this are Toyota (very big) and Webster Plastics (very small; 140 people). Their means of arriving at Vigorous were somewhat different. The people are certainly different. Webster is an all-American do-it-yourself working culture similar to Toyota. Fifty years ago, Toyota copied a few things creating TPS, but they baked a pie of their own recipe. Ever since, others have wanted to know the secret ingredient.

There is no secret ingredient. In every organization, the human ingredients are different. No two recipes for Vigorous culture are absolutely identical.

Toyota Motor Company Cultural Development

At least two work culture elements descended straight from founder Sakichi Toyota. One was fail-safe. He started the company to make and market a fail-safe loom, which stopped when a thread broke. He also disliked inventory; took too much space and money.

TPS descended from Taiichi Ohno stimulating people to think carefully and regularly about their work. Assigned as a young man to write work instructions, he decided to have the operators write them. He noticed that writing work instructions forced others to carefully observe work, just as it did him. They began to question why they did what they did. He spent the rest of his life pressing people to question their work processes.

In the 1950s, Toyota was way off the American mark in both quality and productivity. To survive, they wanted to develop all their people to help improve processes. The techniques now associated with the Toyota Production System — and lean manufacturing — developed to help people see problems in response to Ohno's goading: Observe carefully and think hard about work processes. Toyota veterans are apt to call TPS "Ohno's method." Basic process ideas like work flow, low inventory, and visible layout have been rediscovered many times over. The uniqueness of TPS was combining a set of methods that improved work processes while also stimulating people to think about them. Exactly the same set of methods to do this might not emerge a second time around.

Fifty years later, Toyota still "creates" TPS. It does not "install" or "implement" it. Techniques may be installed. Mentoring people to use them to see and solve problems, all kinds of problems, is created. No point implementing techniques if people can't deal with the problems they reveal. All employees using their heads, improving processes together is the cultural DNA of the system.

If they didn't understand that they were expected to see, learn, and improve on their

own, and as a team, Americans have quit in frustration. Explicit direction would be much clearer at first, but the Toyota way instills skill observing and questioning from day one.

After selection based on such factors as whether they will hold a standard method of work, people absorb the culture on the job, working the Toyota way, with no artificial rah, rah. The centerpiece of TPS, and the capability that takes longest for workers to learn, is standardized work, as Toyota defines it (see Figure 2).

Figure 2 suggests why standardized work takes some getting used to. The design and documentation of detailed work is done by the workforce, not the staff, manufacturing engineers, for instance, although they may help from time to time. Just as Ohno taught, work improvement always starts by carefully observing what is done now. It ends by trying out and documenting the new method. That built-in process discipline is learned only by practice.

Functionally illiterate people can't do standardized work. A high turnover workforce isn't stable enough. Learning starts slowly and builds up. Mentoring and careful observation require company "lifers," the opposite of a fast-food company, with tasks engineered for anyone to learn with-

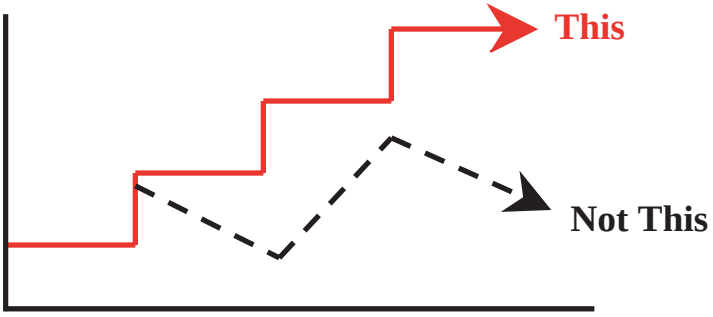
Overview of Toyota Standardized Work

Quick Definition: Periodic “mini-kaizen” by everyone, usually in teams. Work methods are set up within a visibility system, so deviations should be immediately noticed.

Criteria for Designing Work: Most efficient method considering, in priority order: safety, quality, cost (value added), and developm ent by everyone, so that all operators understand it, can do it, and everyone's work fits together.

Objective: Continuous improvement.

Always make the next state of the work process better than the last.



How To:

1. Observe the current state (method) carefully; document it, not assuming that it actually is what it was intended to be, or originally documented to be.
2. Gather ideas for improvement; ask 5 whys, do PDCA, etc.
3. Devise the proposed method; check it by doing; document it.

When: Whenever takt time changes, or other changes are made (like an engineering change), or when urgency of improvement mandates it.

Figure 2.

in hours; days at the most. Transferring a Toyota process is like transplanting root-stock from a mother plant.

Toyota's system depends on implicit learning. Attempts to describe this in words always fall short, and are sometimes misleading, like the label "standardized work," which does not suggest what it really is. Toyota senseis give up trying to find words. They show. They live it. Others learn by observing, improving processes, and behaving in a similar manner. TPS, like lean, is typically defined as a list of techniques. Understood as Vigorous culture building, TPS is more than techniques. Despite the caveats, Figure 3 attempts to explain some key differences between Proficient and Vigorous.

Without people constantly helping other people, backing them up, or mentoring, this system bogs down. Oversized egos can't cope; there's no way for them to be rewarded. In addition, True North (zero dissatisfied customers) is the goal, not monetary rewards per se, so temptations to exult or to become complacent don't last long.

Projection of the Toyota Work Culture

Because of the workforce development, TPS is less likely to stagnate or fade than "Proficient" Lean. Physical process flows can be torn apart, but like riding a bicycle, once people learn they don't completely forget. The big improvements celebrated when implementation goes from initial state to "one-piece flow" are one-time achievements — unless it regresses and has to start over. Then what?

TPS culture is a quality culture. Toyota vehicles built 25 years ago were simple compared with those of today, but quality performance is, if anything, better. The objective of getting more stuff out the door

Rough Comparison of Proficient and Vigorous Conversion

"Proficient" Lean Conversion	"Vigorous" TPS Creation
More explicit training; staff-directed	More tacit learning; see, do, absorb
Implement the techniques	Use the techniques to develop people
Start with a Value Stream Map; guide changes with a dashboard of metrics	Minimal mapping; start developing capabilities of the workforce immediately
Develop a work culture to use techniques	Mentor people developing themselves; they use the techniques to improve processes
Sporadic process improvement, more as projects by empowered people	Regular improvement through standardized work as a part of work; no big deal
Staff writes work instructions	Work teams document work instructions as part of standardized work
Develop the process using the techniques	Develop people to see and overcome problems using the system

Figure 3.

using the same space and people is not necessarily sustained. "Zero dissatisfied customers" means getting better stuff out the door using processes having waste scrubbed to the nubs.

Operational flexibility and fast response are also important competitive advantages. Toyota can launch a new vehicle platform design, start-to-showroom, as fast anyone. Because of standardized work, an assembly plant with flexible equipment that has become adept at it can vary line speed and model mix frequently, month to month if necessary. (Competitors can't do this, and Toyota transplants aren't as adept at it.)

The mind set of TPS permeates Toyota. In product development, the work is different, but the same mind set is at work. Develop technology; test it thoroughly; get it down pat; document it in useable form; then design for customer needs using the best proven combination for the purpose. Design is where attention to explicit cost is most rigorous; costs left there tend to stick there. In operations, if waste is constantly eliminated, costs will not get out of hand, so there's no point getting worked up about budget variances. Toyota is, in a full sense, a learning organization, not always cutting edge, but not trailing edge, and less prone to big blunders than most. A few key differences between Toyota and financially-directed companies are summarized in Figure 4.

For decades, Toyota imprinted the DNA of the company in managers, engineers — everyone — by a stint working in production. With growth, that's become more difficult, and a problem to the company. Toyota growth is organic, limited by the rate its DNA can be created in people.

Webster Plastics' Vigorous Working Culture

Webster, now part of Parker-Hannifin's Chomerics Division, is a small, specialty plastic molder in Fairport, NY, just outside Rochester. They design and mold filled parts that often replace metals in application: 750 part numbers from 350 resins; quantities range from 50 to thousands daily. Some resins are uncommon; some are corrosive, so while small, Webster's operations require skill and experience. As described in *Target* in the fourth issue, 2003, Webster's performance measures up against any molder anywhere.

A Few Unique Characteristics of Toyota Business Culture

Financially-Directed Company Mind Set	Toyota: Quality-Directed Mind Set
Controlled by budgets	Controlled by process discipline
Invest in assets: brands, patents, software, hardware, etc. — and people are assets	The company is its people; everything else is what they work with
If profits and forecasts are good, we're good	Never become complacent; high profit can make you lose your concentration
No bad news is good news	Pay attention to all negative feedback first

Figure 4.

When Vern DeWitt became Webster's president in 1990, he intended to develop a great molding organization. They've won design awards. They've won a lean award, but don't use the term lean internally, explaining it as "lean" only to visitors. Some operational procedures must conform to industry standard. For instance, design processes for auto parts follows industry standard APQP. But Webster's attitude toward techniques and standards is to fulfill the intent without getting bent out of shape by procedural conformity, which detoxes a lot of waste before it starts. For instance, they aim to make the automotive lean TS 16949 standard "work for them." That is, Webster safeguards the integrity of their system.

Developing people to think consistently about their work is the key. At Webster, that's what adapting a technique or standard "to work for them" means. Webster only had one classic "kaizen blitz." Vern led it. Told the supervisors to just start learning to do the same and keep plugging. They did. They have no industrial engineering position and no lean leader. Different lead people are change agents promoting various promising improvement initiatives. Improvement involves everybody. Everybody is expected to participate in spontaneous improvement on the job. All leaders have projects. Much of the planning for this is in Tuesday afternoon Corrective Action and Continuous Improvement meetings. First they tend to customer or quality issues; then they review current improvement projects and bat around new ideas that might be tried.

The formal framework for this is a Key Result Area chart, with a few primary performance measures, much like many lean companies use. Except for the project list, it hasn't changed much since 1998. That's when this culture blossomed after Webster had been sold by Bunzl, a financially controlling owner, queasy with anything not financially predicted, blocked out in budgets and variances. To their mind set, anything like people taking charge of processes and improving them was an "out of control" situation.

Major Influences Developing Webster's Vigorous Culture

1. While Webster has budgets and cost responsibilities, most activity is guided by the logic of designing parts and processing resin for the customer. For instance, to get precision parts, they look for injection machines with the best repeatability. No financial analysis trying to stretch the life of an investment; if a machine can't be sustained molding abrasive, corrosive stuff, dump it, and turn attention to something more promising.
2. Introducing computerized process molding control was a big boost. Webster began shunting parts into a reject bin if a parameter drifted out of bounds — fail-safe molding. More importantly, resin processing inside the equipment suddenly became much more visible. Everyone, including all shop personnel, shifted from "twiddling knobs" (black art) to analyzing what resins, molds, and machines are actually doing (scientific molding). Far fewer improvement ideas are guesswork. Advisories, like the "top ten molding problems" point up symptoms of trouble and clues to corrective action. Technicians soon learned to "think like" the resin, the machine, the mold. They could really contribute, not just tend machines.
3. The "tip of the day" stimulates people to think. Every day, one of two "engineering advisors" writes up an improvement finding and posts it. They look for people who have solved a problem, and document it, or help them work out problems that need attention. Improvements may shave a fraction of a second off a mold cycle, improve preventive maintenance, stabilize process parameters, or dial them in. (Some of Webster's resins are tough for suppliers to polymerize with consistent characteristics, batch to batch, so Webster has to "dial in" fast.)
4. After each improvement, whether spontaneously from operations, or by projects, the people involved must document what was done. Regular

audits check whether actual procedures are following standard. At the end of each quarter, they summarize the changes of the quarter into a new base line of standards, holding the gains. About half of each quarter's gains are from projects; the other half from spontaneous floor improvements. These accumulate enough to please customers on price and still pay every one a nice annual bonus.

5. Webster's HR system rewards people for comprehensively learning molding work — becoming a "Webster expert." With experience, people can work a variety of positions. Leads are instructors, capable of coaching almost anyone on any job in the place. Webster has no supervisors in the traditional sense, with reporting and "nose wipe" duties. Instead, technicians have knowledgeable back up and support in almost any situation, sort of a human "web of Webster."

Webster Plastics Organizational Values

Respect & Integrity
- Apply the platinum rule
- Promote open & honest communication

Trust & Teamwork
- Walk the talk/follow through on commitments
- Drive collaboration with diverse teams

Continuous Improvement
- Improvement as everyone's responsibility
- Take risks to learn, grow, develop
- Recognize achievements at all levels
- Look for positives/celebrate success.

Figure 5.

Webster Work Culture in Action

Many companies have values statements like those in Figure 5. Webster's became more explicit over time, as they wrote down what they did, or how they tried to behave. More than at most companies, functional silos don't inhibit a one-Webster team. The spirit of the place is that any problem is also my problem.

For example, Webster's one and only HR person's office is next to the employees' entrance, a convenient stop. She's on the floor a lot too. If machine operators have a problem, a sick kid for instance, she fills in for them. If she is backlogged with paperwork, some of the floor technicians with spare time help work it off. Might even hang around after their shifts.

The HR person keeps the career matrix for everyone, showing what they are qualified to do. Almost everyone starts as a temp operator; watching, learning molding. When demand surges, Webster calls in temps on short notice from a list of people who have passed the first two modules of a CD molding course administered at their agency (advanced modules are administered by Webster). To be selected to work full time, you'd best be interested, willing to help with the problems. Process visibility is so high that disinterest or faking is soon obvious. You won't make the cut.

To work here full time, one must be willing to propose specific ideas that make sense and follow through. Standard workplace survival behavior won't work.

Many people are cross-trained, more by on-the-job mentoring than by class work. An instructor/mentor certifies when a person has demonstrated competence in a new position. If that qualifies for higher pay, but they only work it as a back-up, not regularly, they get half the step increase of someone who does. Simple.

All machines in the plant are fed from a central material control area, which limits plant size, aiding process visibility. Proper mix, regrind, filtering out contamination, and drying are critical to quality, so material control is the highest skill area to work. Webster can expand a little by "pushing out the walls,"

but major expansion would require another building with similar layout. On a bigger scale, resin feed timing, visibility, and process support would start to erode. Like Toyota, the hard part would be re-potting the human system.

Since 1998, employee turnover has been about eight percent a year at Webster. Many of the staff and key leaders were home-grown the Webster way. Anyone who regularly solves technical problems is an engineer. Some started as machine technicians finishing a formal education on the side. Many staff could fill in on the floor if needed.

Webster technicians know that they can try things within the quality parameters of an established injection molding process, and they have plenty of opportunity to venture into the unknown with riskier development projects without blowing schedule or quality. Honest mistakes are tolerated; can't learn without them. Careless mistakes aren't. Fellow workers speak up about those quickly.

The key is intrinsic interest in the work. When people have that, Webster celebrations aren't artificial. Yes, they have pizza parties, but people deeply involved in the process don't need a big bash to recognize the significance of an achievement.

Webster likes to pick customers they can work with and who appreciate their innovation, "where we can be on their design team." They do not try to compete in commodity molding. They prefer to do what other companies cannot do. A few core competencies, or advantages, as they see them are in Figure 6.

Webster and Toyota

Webster and Toyota put great effort into long-term development of their workforces to see and solve problems. Neither would be a fun place to work for everyone; only those with an intrinsic interest in the work, and "rising to the challenges." Both have some grubby work to be done, but in both, people are expected to show initiative.

Toyota is much bigger, with a more general system, but both have highly disciplined systems within which to exercise initiative, and paradoxically, that discipline gives people freedom to try ideas. Neither have big divides between experts and flunkies, and both depend on people being developed their way. To do that, they need to retain a core of human expertise long term.

Strategically, well-documented operations with easily learned tasks are easy to transfer, like to China. The strategy befitting a vigorous culture is unique core competen-

Webster Plastics Core Competencies That Make Them Unique

- Central material control (blending and handling for high quality)
- Repeatable tools & equipment
- Employee development (largely by mentoring)
- Real time measurement (fast response, scientific molding)
- First-ever applications engineering for customers
- Tight tolerances on engineering-grade polymer parts.

Figure 6.

cies not easy to transfer. As those who have tried a TPS-like system have found, expertise in process innovation and process improvement is not quickly developed.

Leadership for Vigorous Culture

A vigorous culture stimulates and develops people to engage to the max in process improvement, innovation, and responsibility to the outside world — almost everything. Its systems have built-in, disciplined learning, so no person or side system, like cost controls, need play big brother. Those get in the way when process visibility exposes "everything to everybody" so that they can take corrective action or make improvement.

Developing a vigorous culture is a leadership responsibility. There is no standard formula; techniques are merely tools for brewing a local mix. Developing people is personal. The leader has to understand the processes and the cast of characters working them, creating intrinsic interest in the work and clarifying the direction of the company. Once it is mature, leaders of a vigorous culture just keep pointing in a direction and stay out of the way.

Other people do not do what you would do; they develop at different rates, learning their way. That's why vigorous culture is grown (Webster) or created (Toyota). The leader-developer frequently has to do some jaw-clenching, like not yelling when your child fumbles learning a sport. As Vern DeWitt notes, "You have to put your ego in a drawer." Create the environment; let the people run the business.

Three skills seem important to this kind of leadership. First, leaders should understand what they are asking people to do, by gaining personal experience with the work — including process improvement. If an enterprise is big and complex, "being able to coach every process" is impossible, so corporate managers must cultivate local, direct-contact leaders to do it. Second, set a rolling strategic direction, seeing ahead of the game, conveying understanding to customers, suppliers, investors, auditors, and so on, and reinforcing a unifying direction to the people of the company at every opportunity.

Third and hardest: role-modeling the behavior of people in a vigorous working culture — if it doesn't come naturally. Learning to lead by asking process questions is not difficult, but adopting mannerisms that dispel fear may be. Those having an urge to control find it difficult to suppress; reverting to form is easy. Without realizing it, they can undermine their own initiatives. But if determined, change may be possible by working at it for months, paying attention to honest feedback from those who must live with their behavior. Personal rework is the hardest continuous improvement there is.

Robert W. Hall is editor-in-chief of Target *and a founding member of AME.* *The article was developed with great input from Al Gross, Vern DeWitt, John Woods, and Susan Skjei.*

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