



Out of Our Gray Boxes

How to create a vigorous learning organization — and why.

Robert W. Hall

Vigorous learning organizations try to dispel as much gray goo from all processes and from everyone's thinking as possible. For example, "order fulfillment" means whatever a speaker has in mind; perhaps the trail of a sales order through the system; maybe all activity from distant suppliers to customer delivery. Before starting a value stream map of "order fulfillment," the speaker thus limits its boundary to his own semantic gray box. We all deal with our gray boxes — a few facts from which we can only guess the contents. Most customer operations are gray boxes; same with many supplier operations.

Unfortunately, all of us act daily based on gray box knowledge. Having no time to flow map or go to the gemba, we gamble on the gray and take our chances rather than seeking facts and using logic. If this is a lifelong habit, we're tempted to skip the investigations and risk going with the gut; worked well enough before. Perhaps it's fun too, as when taking a flyer buying a stock, or literally gambling at a casino.

Some of us take more risks than others. Each of us has a target risk zone, or risk comfort level. For example, given an improvement in automotive safety design, we soon "drive faster and brake later" right back into our target risk zone.¹ Likewise, when presented with quality fail-safe methods, we're tempted to assume a Titanic

mentality heading into the icebergs. Instinctive behavior affects performance because it's part of the process.

Behavior affects learning at work too; and conversely, work behavior is learned on the job. Work organizations learn collectively. In fact process improvement is sometimes called process learning, with results plotted on a "learning curve." A vigorous learning organization tries to learn as much as possible as fast as possible, opening up gray boxes to visibility and logic, and going with facts instead of the gut. But its nemesis is our normal behavior.

Fast, smooth workflow is only the opening wedge of lean thinking, not its end point. The ultimate purpose is to create a fast learning organization, which is why Toyota refers to TPS as a "Thinking Production System." A vigorous learning organization propagates learning systems throughout every part of an enterprise. These systems, based on facts and logic similar to Plan-Do-Check-Act (PDCA) and A3 papers, require constant nurturing. They are not native to the rocky soil of human nature — gray box risk taking.

Since work culture is the aggregate of all shared beliefs and common systems, changing it is no short-term miracle fix. For that reason, lean senseis "create" a learning system by developing people and their behavior along with the techniques. As people advance in skill improving processes and solv-

In Brief

Lean conversion often begins on shop floors. Too often it ends there. The next push in lean is to develop vigorous learning organizations that can deal with bigger challenges than removing waste from manufacturing processes. The article reviews the characteristics of such an organization and suggests how to move toward creating one. Our biggest impediment doing this is our own behavior.



ing problems, they also improve themselves. This is not a project with an ending point. Constant changes always require further transition.

Extension of collective thinking disciplines helps clarify the gray goo in customer processes, product design, customer field services, supplier processes, or even business model changes required to cope with environmental sustainability. Exact tools vary, but the end objective of lean is to be able to stay ahead of a fast-changing world. To do that our biggest challenge is escaping our own gray goo concept of what our own organization actually is and does, supported by systems that only reinforce our own misunderstanding.

Vigorous Learning Enterprises

Common threads among outstanding companies covered in prior *Target* articles suggest how to create vigorous learning enterprises.² These articles used diagrams similar to that in Figure 1, which numbers five different points to illustrate how leaders can create a vigorous learning enterprise through three levels of progression:

1. *Proficient*: Have obtained results from introducing lean and quality tools.
2. *Vigorous*: Have coached everyone to use the tools until they see and overcome problems autonomously, and have created a learning system that extends to an entire company and beyond to suppliers and partners (enterprise).
3. *Enduring*: The learning culture is self-reinforcing; therefore more likely to last, and the enterprise is capable of radical innovation with minimum risk — even changing its business model.

But how can leaders build a working culture that resembles Figure 1? Working on each of the numbered boxes in Figure 1 seems a good path. Just seeing Level 1 results from deploying tools is no small victory, and it is the beginning of cultural change, but if hanging on to early gains then

becomes the objective, it's self-defeating. An organization merely "hanging on" reverts toward what it was. Instead, build on that achievement to develop people and processes to become capable of much more.

This is a tremendous leadership challenge, but not an impossible dream. No concept in Figure 1 is a new, untested idea. Someone, somewhere has done it — and *Target* has covered it — sometime. Figure 1 is an amalgamation of the best seen.

The five major points in Figure 1

1. Servant Leadership

The easiest way to summarize the attitude of a servant leader is:

- Mission (customers) first
- People (other employees) second
- Me third.

This attitude is inculcated at the military academies, so it is no pansy doctrine, but vital for people depending on each other for critical missions. That's why it is also fostered in professional schools with varying degrees of success. For example, as patients, all of us

Vigorous Learning Enterprise

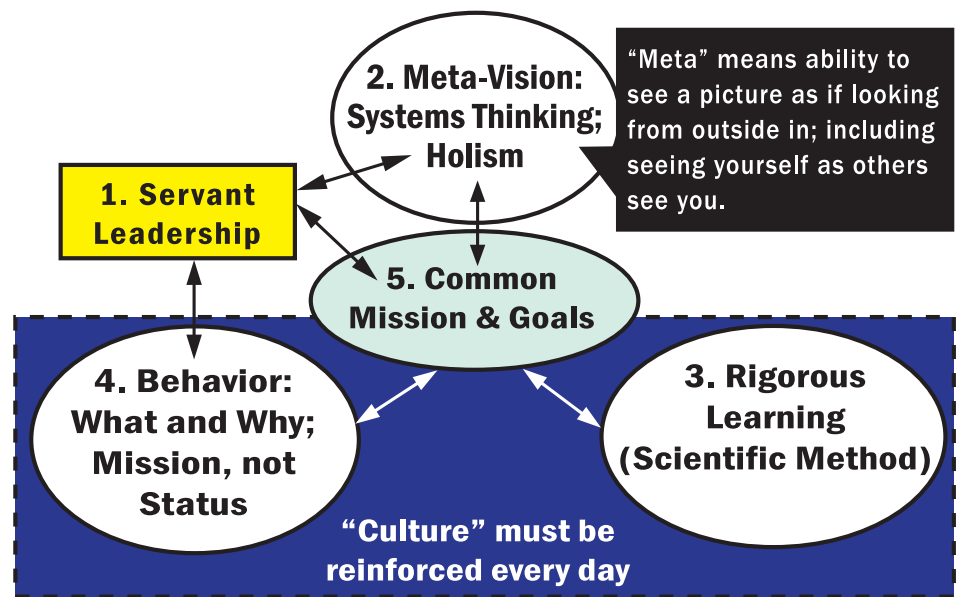


Figure 1.

all relate to each other. They are not numbered in any order of importance, nor do they suggest a sequence of "implementation." Every case is different; different leadership; different processes; different people. Some projects may help develop systems for it, but becoming a vigorous learning enterprise is an unending evolution in how we think and behave at work.

want doctors to regard our health as their top priority, and are upset if we think that it might not be — or that that their "system rules" don't serve that end.

It's that simple, and it is that difficult. Distractions like organizational status get in the way. For example, a few years ago I went through several American plants with "Jim" Nakane, my original sensei on Toyota thinking.



After observing a number of staff, managers, and supervisors, his comment was, “Can’t do it; too smart.”

Jim referred to the motivation set up by hierarchies and pay systems to “look good.” This makes it hard to admit not knowing something if your job title suggests that you should. Personal rivalries, one upsmanship, and put-downs of subordinates impede communicating about process issues.

Servant leadership is from Robert K. Greenleaf, the executive who wrote *Servant Leadership*.³ His term aptly labels a quality of leadership long observed in business and elsewhere. Scanlon Leader companies, most of which are deep into lean operations, promote servant leadership.⁴ William J. O’Brien, former CEO of Hanover Insurance, practiced similar leadership and also referred to “lean” operations long before it become popular.⁵ Toyota top executives exhibit this kind of leadership as “respect for people.” So many top leaders of companies at the time that they were operationally innovative have abided by this philosophy that the connection isn’t accidental; examples are Max DePree of Herman Miller, John Donnelly of Donnelly Mirrors, and Bob Galvin of Motorola. The current crop of CEO servant leaders is apt to keynote at AME conferences. More than servant leadership is needed to develop a vigorous learning enterprise, but it is bedrock for other changes.

2. Meta-Vision

“Meta” is a two-dollar descriptor meaning from the outside in, a big-picture version of workplace visibility that lets people see problems quickly and work together almost autonomously. Meta-vision is the incessant pursuit of curiosity about what customers really need, what work processes really do, and how processes may affect the environment outside the company. “Meta-visioners” rarely direct other people, but persist asking why questions, and as leaders, never stop asking why questions of others. And meta-vision-

ers sense how other people see them, nearly impossible for oversized egos.

Meta-vision is an attribute to cultivate in everyone, but essential for leaders that synthesize the mission, vision, and goals to which everyone is expected to align. In a participative organization, everyone may have input in setting direction, especially in how subparts can contribute to the whole (hoshin kanri), but the top leaders have to take everyone in the same direction, and when necessary, lead them in a different direction.

Meta-vision aids everyone’s judgment about whether they are “doing the right thing in the best way at the right time,” not just following procedures. In a complex world with more and more external considerations, meta-vision will become more necessary.

3. Rigorous Learning Methods

Used rigorously, lean tools should expose as many problems as people can handle. For example, keep inventory levels low enough to reveal new, unseen problems to fix, but without becoming chaotic. Give everyone something to think about. Likewise most problem solving tools only help pin-

a process improvement schedule is needed. No matter how busy, set aside this time. This is tough to do for the same reason that students falter keeping a regular study schedule: other things seem more urgent.

Staff schedules kaizen events when people are free to engage in them. This sporadic improvement should transition into autonomous sessions on a regular schedule, but to do this, people must learn to conduct process improvement on their own. Eventually this becomes embedded in everyone’s job.

Gains slip because of ineffective standardization, notably from no follow up to assure that all systems of a company support a change instead of working against it, and from lack of retraining (Training Within Industries helps with this). Set up visibility markers to indicate when work is going out of standard (an extension of poka-yoke), for example a line or boundary to indicate when a worker is moving out of a zone. Regard new standard methods as the base from which to make further improvement. Don’t kaizen an observed process without first checking for a prior standard and

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point causes of problems. They don’t fix them. Actual fixes range from simple layout changes to new biochemical formulations, or maybe even rethinking what customers need or revising a business model.

To constantly give people practice seeing and fixing problems, cutting through waste as fast as possible, setting up a rhythm of problem solving —

whether it may have slipped — and why. This requires an effective system of process documentation in practice — a learning system organized to be easy for everyone to use — contributing to it as well as to learning from it.

Lean implementation usually starts with shop floor processes, but when most of us think of organizational learning — innovation — R&D, NP



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(New Product Development), and marketing, not production, come to mind. The same lean tools may not apply, but the pattern of thinking does, just as with the shop floor. The key to progress is an “A3 record system” incorporated into work practices. Projects begin by checking what others have learned. They are not finished until whatever was found or done (and why) is reported back into the system. That is, a learning system is a living system, not a dead archive.⁶

It helps to think of the core operations of a company as learning laboratories to constantly clarify gray boxes. If systems, processes, and recognition promote this, or at least don't inhibit it, great results are apt to just happen. And once the learning system is regarded as the key to an organization's progress, it's no longer novel, but essential; just as important as accounting and financial systems.

As is well known, lean logic and fact-based quality reasoning collide with accounting models that have great difficulty clarifying gray boxes. Elevating the status of a learning system in all parts of an organization is a paradigm change that creates a new common language easing one of its big bugaboos — communication.

4. Behavior

Organizational “culture” implies collective behavior. Since everything influences culture, top leadership has to lead the transition — by example. Give people new stories to tell about behavioral role models, but without expecting fast emulation. Leaders can build on the changes that have already occurred just to get to Level 1 proficiency. For example to

form cell teams first one must dispel flavor-of-the-month apathy; probably stimulate some cross training; then get through forming-storming-norming before teams can discuss work processes instead of casting blame.

However, at Level 1 proficiency, people in “areas not affected” may have changed very little. To get to Level 2 or 3, *everyone* must learn to “dialog about processes” instead of scoring points debating each other. This is crucial when an organization must discover a lot in a hurry to decide if a problem really exists — as whether field failures are of such consequence that a product should be recalled, or whether a chemical released in minute quantities is really an endocrine disruptor floating downstream. Such situations call for wasting no energy on denial routines and finger pointing.

Only when behavior to abide by fact-based decisions trumps egos can an organization transition into something like a network of problem-solving professionals. Significantly, Toyota never did away with shop floor supervisors. Instead they became mentors and aides for problem solving. Other companies like Webster Plastics have done the same.

Toyota refers to all employees as professionals, expecting them to have a public service attitude (or at least a customer service attitude), always developing themselves and others to the max. This follows from a servant leader mentality. No one fully lives up to this, but without this intent, very few people can break from politics as usual.

This kind of behavior so contradicts human nature that the culture

has to build in daily reminders of behavior at work. For example, Autoliv, Ventana, and a few other companies covered in prior *Target* articles all developed a set of principles or a code of behavior, following up with customs to remind everyone almost daily how to behave in whatever mess might befall them that day.

When employee development includes behavior, mentoring is essential. No leader can be expert in everything done in a complex company, but each one can be an exemplar of the behavior expected. If top leaders don't do that, behavior won't change.

Sekisui Housing Division is an example of mentoring for a Level 2 culture. Senior managers meet weekly to exchange tips on how to mentor better. In addition, every new Sekisui employee is immediately immersed in learning two core systems of the company: the drawing system and the problem solving (and process improvement) system. Learning both allows everyone to communicate in “Sekisui language” while eliminating the need for a great deal of detailed instruction. That is, expecting every employee to become professional sets the stage for mentoring. Over time, all of them are expected to learn everything about creating a unique house for every customer. Not all of them want a lifetime of this; the drop out rate is about 10 percent.⁷

This is not low-energy leadership, but it creates a much more capable learning organization than low-energy directives from a distant office. Every leader striving to be an excellent mentor must themselves stay current in every phase of the business and all issues that affect it. And company systems are designed to serve everyone, not just roll up data into decision packages for a few people.

5. Common Mission and Goals

If their heart is in them, people will unify around a common mission and achievement goals. They squabble over monetary incentives. Just as piece rate pay is incompatible with cellular work-



flow, individual incentives are incompatible with professional collaboration, fraught with unanticipated consequences, and fail to point everyone in the same direction. Unless desperate for every dime, pay is not why people come to work every day. "Business sense" is that top performers deserve high pay, but a group of all-stars may not jell as a team when their joint mission to win a game is obvious.

A vigorous learning organization needs a mission statement binding everyone in a common cause, understood by all. Well-crafted, it implies what the organization exists to do, and by exclusion, what it does not do. It suggests obligations to customers, and maybe "humanity," while leaving room for judgment calls. For it to be effective, people have to mull it over themselves, not treat it as wallpaper.

Every corner dry cleaner may not need a mission statement, but any organization pursuing innovative excellence does. Then professionals must jell to push back gray areas and learn to do things no one else can do. For example, the inspiration of Ventana's near-term goal is hard to top: "Find Cancer Faster."

If the leaders of a vigorous learning organization orchestrate the creation of a unifying and inspiring mission and goals — real, not P.R. — creating the other elements of a vigorous learning organization becomes a little easier.

Stumbling Out of the Gray

We'd like to believe that learning is more efficient than fumbling around until we find what "works." Reality is that we mostly rediscover things long known to others, but that they can't tell us — a phenomenon familiar to parents of teenagers — and why schools have labs. Worse, if we're happy with what "works" for now, we stop learning.

One of the easier ways to think of a vigorous learning organization is that every work area is also a learning laboratory. Besides being set up to do work, it's also set up to help us discover how to do it better, whether it needs to be done at all, or even whether it is more harmful to the world than helpful. But if we're happy with what works now, we stop learning and anticipating what might come next.

Problems mounting in manufacturing today are potentially more serious than learning how to produce the same thing with higher quality and less waste. It isn't enough to "make it, sell it, and forget it." We have to know exactly what customers do with products, exactly what is in them and where it came from, and what happens to them at end-of-life. Our historical systems, never intended to cope with all this, let us live in ignorant bliss. Relying on them is to be victims of our own gray box imaginings.

That's why we need to get out of our funk and extend our thinking systems to deal with a broader range of challenges. Even what we believe to be efficiency and success may not be.

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3. The book, written in 1977, is available from The Greenleaf Center, Indianapolis, IN, and online.
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