

Putting the Whole in Holistic: Improving SEM Delivery through Applied Psychology & Systems Thinking

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ABSTRACT

According to the Consortium for Energy Efficiency (CEE), Strategic Energy Management (SEM) is defined as “a holistic approach” that enables “management and staff to impact energy consumption through behavioral and operational change [to] continuously improve energy performance . . . over the long term.” Through a series of workshops, peer-to-peer learning, coaching, and on-site employee engagement events, SEM attempts to embed energy efficiency (EE) into the culture of an organization. Yet we often observe varying results as the complex interactions between our behavioral, technical, and organizational systems inhibit SEM from taking root as successfully as one might expect.

With backgrounds in systems science, organizational psychology, lean manufacturing, and behavior change-management, the authors explore insights and best practices for taking a “holistic approach” to improve program participation and drive increased energy savings. Key takeaways from this paper include:

- An introduction to Systems Thinking with Seven Guiding Principles for a holistic approach and its application to SEM
- How utilities, program administrators, and implementers can design and deliver impactful SEM programs and engagements
- The importance of, and how to develop, collaborative trusting professional relationships between coaches and participants to increase the program value of each engagement
- How to bake SEM and continuous improvement into the operational systems and culture of the organization
- The humility needed to apply systems thinking and behavior change to program design and client interactions in general.

Introduction

According to the Consortium for Energy Efficiency’s (CEE) Strategic Energy Management (SEM) Minimum Elements, SEM is defined as “a holistic approach” that enables “management and staff to impact energy consumption through behavioral and operational change [to] continuously improve energy performance . . . over the long term” (CEE 2014, 1).

As SEM coaches responsible for supporting facilities in successfully implementing SEM initiatives, we have carefully reflected on this definition to inform our work. The CEE definition of SEM introduces several phrases worthy of closer examination, including: “a holistic approach,” “behavioral and operational change,” and “continuously improve.” In this paper, we share key aspects of our understanding of the meaning of these phrases and the ideals of SEM, with a focus on their application to creating more effective SEM engagements.

This paper starts with an introduction to Systems Thinking, including outlining Seven Guiding Principles we’ve developed for what it means to take a holistic approach, with examples of how they relate to our experience as coaches on Energy Trust of Oregon’s Industrial and Agricultural Production Efficiency SEM program. SEM is rooted in lean manufacturing,¹ and like lean depends on people throughout an organization collaborating to gain a more holistic understanding of their production systems. We explore this idea more fully via the section, “SEM and Continuous Improvement.” From there we discuss the importance of baking SEM into the culture and end the paper with a thought experiment based on a real life example via the section, “An Exercise in Humility: Practicing Mindfulness & Empathy.” On the whole, this paper combines systems theory with observational and anecdotal data, and is intended to serve as a thought-paper from the perspective of an SEM provider.

Systems Thinking and its Application to SEM

We are both relatively new to the world of energy efficiency (EE) and SEM.² Prior to becoming SEM coaches we worked together in various capacities for over a decade and have found common ground in a systems view of the world. For us, a systems view is about seeing the world as a vast web of interdependencies, where feedback loops create complex dynamics and non-linear patterns of behavior that are hard to predict and control. In her book, *Thinking in Systems: A Primer*, Donella Meadows, a pioneer in systems thinking, reminds us that we “can't impose our will on a system. We can listen to what the system tells us, and discover how its properties and our values can work together to bring forth something much better than could ever be produced by our will alone.” (2008, 169) It’s a humbling view.

A central tenet of a systems view of the world is accepting and embracing complexity. While commonalities exist, all things, all people, all groups, all situations are unique. By accepting the complex reality of the world, we avoid cookie-cutter, formulaic approaches to our work. Instead, we find that guiding principles can strike a powerful balance between informative structure while maintaining flexibility.

¹ A form of systems thinking used in industry, that is focused on production efficiency whose goal it is to continuously reduce waste (of any kind) and thereby improve production throughput, yield, and quality.

² Kjell’s background is a serial entrepreneur, lean practitioner, and consultant, and Dave’s is as an educator, researcher, and consultant with training in Industrial/Organizational Psychology and Systems Science.

Seven Guiding Principles for a Holistic Approach

Returning to the CEE definition, it states SEM is “a holistic approach.” This phrase jumped out to us given our history working together exploring ideas about whole systems approaches. It also begs the question, “what does ‘a holistic approach’ mean?” This question was central to a course Dave taught in the Systems Science Program at Portland State University entitled, *Holistic Strategies to Problem Solving*. His coursework challenged students to develop their own criteria for what constitutes a “holistic strategy” or “systems approach.” No two students ever came to the same answer, suggesting this is not a straightforward question.

Over the years, Dave developed his own answer in the form of an interrelated set of guiding principles to serve as a framework for what it means to take a holistic approach. We have refined those principles to apply them in our work as SEM coaches. The seven principles are:

- Be Sensitive to Context
- Hold Long-Term Perspective
- Attend to Relationships among Elements
- Explore Multiple Perspectives
- Honor the Human Dimension
- Learn through Feedback & Adapt
- Empower to Self-Sustain

In the subsections that follow, we expand upon each of these principles and their application to SEM. Our coverage here is limited, so the reader is encouraged to think critically about the meaning of these principles, as well as how you see SEM programs, or *any* intervention effort, effectively embodying these principles and where there are opportunities to do better.

Be Sensitive to Context. Our lives are lived in context: in the context of our family, our immediate communities and local culture, regional ecology, broader culture, and of the planet as a whole. Context is profoundly informative of how systems develop and behave. Context is also highly variable, contributing to the great diversity of species, cultures and economic ways of life.

As individuals, we are intuitively good at reading context and self-regulating our behavior accordingly. For example, when in the office, few people will put on a swimsuit, grab a cocktail, and lay out on a lounge chair. But most people would welcome the opportunity to engage in precisely the same behavior when on vacation in a warm coastal setting,

Institutional programs can lose sight of the context variability of those they serve, especially as they mature and standardize delivery protocols. Practitioners who have success with a given strategy in one setting, often also fall into the trap of applying the same approach in other settings – with varying degrees of success. This principle, *Be Sensitive to Context*, reminds us to avoid “one-size-fits-all” strategies. Instead, it beckons us to follow the advice of Meadows,

who said, “get the beat of the system” (2008, 170) to learn and appreciate the rhythm and dynamics of a system's behavior. Once we’ve got the beat, we can tailor our own behavior and interventions to align with the unique, local realities we find ourselves within.

Application to SEM. Program administrators, whether at the utility level or a third-party provider like Energy Trust of Oregon (Energy Trust), work hard to standardize and regulate delivery of SEM programs as a way to reduce costs and provide consistency of service. When multiple program implementers/delivery contractors (PDCs) are delivering the same program to dozens of participants in a given region, it becomes ever more challenging and important to ensure consistent quality standards are upheld. However, it’s also important to be sensitive to the context of participants’ individual needs. Too much focus on standardization can restrict content delivery to the point of not allowing enough room to adapt to the unique realities of the individual or group of participants in question.

For example, SEM delivery for small organizations calls for adjusted expectations to allow for the limited labor pool from which small organizations can draw. Recognizing this, Energy Trust recently rolled out a “streamlined approach” to SEM aimed at smaller industrial³ organizations allowing for smaller energy teams and mixed roles (e.g., one person can be both an *energy champion* as well as a *data master*).⁴ Other streamlined approach methods include the ability to pivot to bottom-up calculations of energy saving projects quicker to ensure PDCs don’t spend too much time building complex top-down regression models for small sites with limited savings potential.

In general, program administrators can use the principle of *Be Sensitive to Context* to limit their program delivery standardization efforts to allow enough wiggle-room for PDCs to tailor their delivery of SEM to suit the unique needs of each participant.

Hold Long-Term Perspective. A holistic approach is one that prioritizes long-term outcomes over the short-term. This principle is embodied in the wisdom of indigenous cultures that evaluate decisions and actions with respect to the effect they have on seven generations (e.g., Lyons 1980). Opportunity and gain available in the short term should not compromise the conditions for ongoing opportunity over the long-term. Faced with problems and challenges, this principle encourages us to avoid quick fixes and symptomatic solutions, and rather to put forward the investment needed for fundamental solutions that get at root causes.

Application to SEM. SEM is all about long-term savings gained through the persistence of low- and no-cost operational improvements leading to ever increasing efficiencies. We do this by slowly “baking” SEM into the everyday narrative of an organization's culture. It takes time to engage people and build the cultural SEM muscle that leads to persistent savings over multiple years, a concept further explored in the sections below. As such, it is important for program

³ Energy Trust defines industrial as a participant that produces or processes something on site, as opposed to going by a participants’ utility rate code

⁴ Energy Trust’s three main roles for an SEM site are Executive Sponsor, Energy Champion & Data Master.

administrators as well as PDCs to hold long-term perspective. This can be found in Energy Trust's Industrial SEM program in the form of multi-year engagements. SEM participants sign up for one year of SEM at a time, but as long as they are meeting the program requirements (from a savings and an engagement perspective) they are able to sign up for another year of SEM at the end of each year. This allows program implementers to develop their relationships and trust with participants to one where they have more leverage and influence to help the energy teams in baking SEM into the wider organizational culture.

It's worth noting here that for program administrators, this guiding principle can be at odds with the economic context of annual budgets and risk factors (e.g. it can be hard to justify another year's engagement when the previous year had zero savings). The reader is encouraged to remain mindful of additional possible points of tension between a given principle and other realities one faces. The next guiding principle helps to remind us to not let one single principle dictate our thinking and behavior.

Attend to Relationships among Elements. Central to a systems view of the world is the importance of attending to relationships among elements. This is an extension of seeing the world as an interdependent set of dynamic processes, continuously unfolding over time. But relationships can be hard to see – literally. What more readily meets the eye are objects and individual forms. We see these objects and forms clearly, and they command much of our attention. The invisible threads of connectivity among the forms are less obvious: the air that flows in and out and amongst us, the responsibilities and bonds we all carry – to our loved ones, employers, and broader social networks. Yet these relationships shape and drive us in fundamental ways. To paraphrase the systems theorist Gregory Bateson, we are best defined by our patterns of relationships (Bateson 1979).

This principle reminds us to attend to relationships and avoid the trappings of fixating on individual elements. Fixation on elements alone tends to lead to the over-optimization of subsystems at the expense of the larger system and other elements there within (e.g., see Satell 2016). A holistic approach accounts for the system's network of relationships and is conscientious of how changes in one place ripple through the network.

Application to SEM. As coaches, this principle informs our thinking in two primary ways. First, it is critical to be mindful of how energy projects interact with other aspects of a site's operations. This includes central connections like how production waste decreases EE, to less obvious connections like the interplay with water use (e.g., conserving water may reduce treatment, chilling or heating demands), to implications for employee wellbeing and safety, to possible improvements or disruptions in production, to meeting corporate environmental goals. The more we can help sites appreciate the interconnections between their energy use and the rest of their operations, the more we can garner a broader network of support for SEM throughout the facility and avoid backlash by pushing projects that have potential adverse impacts.

Second, it's vital for us to attend to the relationships among employees at a facility, our relationships with them, and their relationships within the broader context of their

responsibilities. SEM is as much about human relationships and collaboration as it is about energy saving projects. Investing a little extra time to cultivate a positive relationship with site contacts, working with the relational dynamics among a site, coaching our contacts to work strategically with their chains of command, all translate to more effective implementation of energy projects, and can make the experience more enjoyable for everyone!

Explore Multiple Perspectives. No single person knows everything. This statement rings especially true when you accept complexity as a fundamental feature of the world. This perspective reminds us to be humble, knowing our own limited perspective. It encourages active inclusion of the views and values of the broader set of stakeholders, as well as neutral third-party players who might bring knowledge that is otherwise absent among the stakeholders. Different sets of knowledge, skills, experience, technical tools, as well as different cultural backgrounds and value systems, contribute different insights into a phenomenon. Collectively, these perspectives give us a broader, deeper, and more nuanced understanding, empowering us to make better decisions. This principle is well captured in the oft-used phrase among systems thinkers, “get the whole system in the room” (e.g., Huzzard, Hellström and Lifvergren, 2018).

Further, when multiple perspectives are explored in a shared social space, all participants benefit by broadening their awareness and understanding of the whole. Insights are realized, and novel solutions frequently emerge that are less probable when inquiry is left to a solo actor. While pitfalls such as *groupthink* (see Janis 1982) and *polarization* (see Aronson 2010) are possible, facilitation that actively encourages diverging points of view help reduce these risks.

In short, we know more together than we do alone. Holistic approaches are ones that actively seek input from a wide range of perspectives and implement strategies that reflect that broadened awareness and understanding, subsequently garnering more widespread and enthusiastic buy-in.

Application to SEM. One great opportunity to apply this principle is during a *treasure hunt*. In the Energy Trust’s Industrial SEM program, treasure hunts are employee engagement events that all participants are expected to conduct (usually once a year). At these half- to multi-day events, a cross-functional team of staff (e.g. facilities, maintenance, Environment Health & Safety [EHS], front-line production operators, management, and admin) from a participating site join PDC staff and collaborate to find EE opportunities at the site. During a relatively short (4-8 hour) timeframe, the myriad perspectives brought to the table by this team of perhaps a dozen or more people will often allow them to find, prioritize, and document anywhere from 40 to 160 EE project opportunities – many of which are found by folks looking in places outside the normal scope of their work. In this case, exploring multiple perspectives is not just key to a site’s SEM success, it also sets the tone of the program as one that, at its core, utilizes and promotes the very idea of a collaborative culture engaging in continuous improvement efforts focused on EE.

Honor the Human Dimension. We are complex beings. Evolution endowed us with a brain that is frequently referred to as the most complex thing in the known universe (e.g., Koch, 2013).

Evolution also shaped us into a social species, dependent on one another to meet our basic needs. As such, we have an inherited fear of being rejected by the group; historically, our very survival would be at risk. This tension remains present in our social and organizational lives. Additionally, as a social species, people fundamentally crave connection with others, and want to be in service to something bigger than themselves. A holistic approach is one that is sensitive to these complexities of the human condition, designs interventions that are respectful of everyone's vulnerabilities, and leverages the human capacity and desire to work together.

Application to SEM. A successful SEM *treasure hunt* relies on good facilitation by a PDC. This kind of facilitation relies heavily on a PDC to *Honor the Human Dimension*. A positive tone can be set through simple actions like welcoming people as they arrive, learning their names, thanking them for taking the time to join, and as it relates to the focus of the hunt, using phrases like, "there are no bad ideas today," and that "today is about quantity, rather than quality." As we start to examine a facility, we want to be cognizant of how people have put their life energy into creating and operating these systems. For example, when talking about the HVAC systems and how they are not optimally programmed, a PDC would do well to tread carefully and facilitate the conversation in such a way as to ensure the attending HVAC tech in charge of this system does not feel attacked or threatened by the discovery of inefficiencies. This idea is best summarized by a recent SEM participant who reminded us that "no one likes it when you call their baby ugly." This quote has become somewhat of a mantra for the Energy 350 PDC SEM team as an easy way to remember to *Honor the Human Dimension*.

Learn through Feedback & Adapt. Given the complex and ever-changing nature of reality, evolution has endowed all living things with the ability to sense information from the environment and learn through experience. While this is innate, basic experiential learning has its limits. As humans, we can be intentional about what we learn by seeking targeted information from our environment. It is particularly important to develop intentional learning mechanisms in our organizations and institutional systems – they are only as sensitive as we design them to be. A holistic approach is one with mechanisms to obtain feedback on how a system is responding to an intervention (as well as other forces) and to then be able to modify its approach accordingly.

Application to SEM. Being open to feedback and adapting our strategy accordingly also helps PDCs (and program administrators) to develop meta-cognition (i.e. awareness of your awareness). Meta-cognition is an important aspect of emotional intelligence, whose skills can be used by a PDC to better serve the individuals at participating SEM sites. Participants offer subtle and not so subtle feedback through their actions and inactions. If we pay careful attention, and reflect upon our own response tendencies, we might be able to figure out *why* someone is resistant to our "help" and adapt our strategy as needed. Note our emphasis here is on ourselves. Change management theory leans heavily on the idea that we cannot change others, rather they have to change themselves. But we can motivate and influence. Doing this in a strategic, positive and ethical way requires cultivating skills and a will of character that are not part of our standard

educational system. Given its importance, we elaborate on this line of thought below in the section, “An exercise in Synthesis: Practicing Mindfulness & Empathy”.

Learn through Feedback & Adapt is also consistent with the Plan Do Check Act (PDCA) tools most often associated with continuous improvement and lean methodologies, and promoted in the Energy Trust’s Industrial SEM program as *The Lasting Change Process*, both of which are highlighted later in this paper. As for Energy Trust, they make a point to collect ongoing feedback from both participants and PDCs in order to drive future enhancements to their Industrial SEM program.

Empower to Self-Sustain. Sometimes a system lacks the internal capacity necessary to address a challenge it faces. Support from the outside may be necessary – or at least justified to help expedite an effective response. But reliance on outside intervention can create dependence on the intervener while weakening internal capacity over the long term. Peter Senge (1990) outlines this common pattern, which he calls, “Shifting the burden to the intervener.”

This principle steers us away from the trappings of shifting the burden to the intervener. It challenges us to ask how we can empower participants to carry on their efforts independently once we walk away. It is consistent with the adage, “Give a person a fish and they eat for a day. Teach them to fish and they eat for life.” A holistic approach intentionally cultivates internal capacity so that the system expands its capacity to address future challenges.

Application to SEM. It can be all too easy for a PDC to play the “expert” role, and thereby rob the SEM participants of the opportunity to develop their own SEM muscle (i.e. learn how to fish). There is no doubt that most PDCs are able to quickly and efficiently highlight some of the largest EE opportunities and provide the accompanying solutions to SEM participants – they are after all, EE experts. However, doing so enables participants to rely on the expertise of the PDC as a consultant, and undermines their own potential to identify EE opportunities for themselves. Teaching participants to fish, or empowering to self-sustain, takes more time and patience. For example, rather than tell a participant, a PDC can ask probing questions, such as why they have certain setpoints and whether they could do it differently. Energy Trust’s Industrial SEM program helps PDCs empower participants by educating them on the *7 Quick Wins* (see Figure 2) to give a new lens through which to look at their operations from the perspective of EE.

The whole is greater than the sum of the parts. The seven guiding principles outlined here are an interconnected set, and the whole is greater than the sum of the parts. For example, honoring the human dimension helps us be more respectful when listening to multiple perspectives, which may help us be more sensitive to an aspect of the cultural context we missed before. This heightened sensitivity to context might help us focus on critical information in the environment and more quickly detect important feedback and adapt our approach... and so forth.

In our practice as SEM coaches, we use these principles as a filter through which we ask ourselves: How do our SEM efforts embody a holistic approach, and how can we be better? In

that spirit, we move now to SEM’s intimate connection with continuous improvement.

SEM and Continuous Improvement

Returning to the CEE definition, it states that SEM encourages a participating site to “continuously improve energy performance . . . over the long term.” The term “continuous improvement” itself is often synonymous with a handful of other improvement, operational, and management methodologies including lean, PDCA, and Six Sigma. But most of these can be traced back and largely attributed to the work done in post-World War II Japan by two key individuals: Taiichi Ohno and Dr. W. Edwards Deming. Deming, an American engineer, management consultant, and author, is best known for the statistical process control work that led to the Plan Do Check Act (PDCA) cycle. His work was so influential in Japan that in 1951 the Union of Japanese Scientists and Engineers (JUSE) created the Deming Application Prize, an annual award given to organizations who have "exerted an immeasurable influence directly and indirectly on the development of quality control/management" (JUSE 2015). Ohno, a Japanese industrial engineer and author is best known as the father of lean. It was under his guidance that Toyota won the 1965 Deming Application Prize with its production management system. Ohno’s 1978 book, *Toyota Production System*, outlined and introduced this system to the world. By the late 1980s, the term “lean” was coined by a research team from the Massachusetts Institute of Technology (MIT), as detailed in the 1991 book, *The Machine That Changed the World* (Jones, Womack & Roos 2007).

Lean is arguably a form of systems thinking that strives to encourage people to collaborate to eliminate what Ohno referred to as the “Seven Wastes” and utilizes Deming’s PDCA cycle to support these ongoing improvement efforts (Plan the change, Do it, Check the results, Act or Adjust accordingly). Ohno started to develop what became lean just after World War II. Japan’s industrial sector was extremely cash poor, so they could not rely on capital investments or economies of scale to reduce costs. Like SEM, lean empowers people to collaborate on reducing costs over the long term by relying on the aggregation of marginal gains (i.e. an upward spiral of ever increasing low- and no-cost operational and maintenance savings measures) that over time add up to huge savings. Another example of SEM’s roots in lean can be seen in the similarities between Deming’s PDCA cycle and Ohno's Seven Wastes being reflected in Energy Trust’s Lasting Change Process© (2019) and 7 Quick Wins© (2019), respectively (see Figures 1 and 2).



Figure 1. Energy Trust's Lasting Change Process© and Deming's PDCA cycle (Unknown author 2020)

7 QUICK WINS

TO SAVE ENERGY EVERY DAY

- TURN IT OFF** (Icon: Plug)
- TUNE IT UP** (Icon: Wrench and screwdriver)
- FIX THE LEAKS** (Icon: Water tap with drop)
- MEET THE LOAD EFFICIENTLY** (Icon: Gauge)
- QUESTION ASSUMPTIONS** (Icon: Head with question mark)
- DO IT RIGHT THE FIRST TIME** (Icon: Hand with thumbs up)
- MAKE IT A HABIT** (Icon: Refresh arrow)

3. TURN IT OFF
A 4x HP motor running 4 extra hours per day will cost \$1000 a year.

4. MEET THE LOAD EFFICIENTLY
An inlet modulation air compressor, running at 10% capacity draws 94% power.

5. QUESTION ASSUMPTIONS
Just because you're "always done it that way" doesn't mean it's the most efficient way.

6. DO IT RIGHT THE FIRST TIME
Reducing scrap benefits productivity and increases efficiency.

7. MAKE IT A HABIT
Sustaining change is challenging. It's easy to fall back on old ways. SOPs and clear instructions can ensure you stay on track.

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The Seven Wastes

The goal of lean is to identify and eliminate non-essential and non-value steps in the business process in order to streamline operations, improve quality, and gain customer loyalty.

- Waiting** (Icon: Hourglass)
Wasted time waiting for the next step in a process
- Transportation** (Icon: Truck)
Unnecessary movements of products and materials
- Overproduction** (Icon: Factory)
Production that is more than needed or before it is needed
- Inventory** (Icon: Boxes)
Excess products and materials being processed
- Overprocessing** (Icon: Stars)
More work or higher quality than is required by the customer
- Motion** (Icon: Person walking)
Excessive movement by people within workspace
- Defects** (Icon: X mark)
Tasks that require rework due to mistakes and incorrect information

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Figure 2. Energy Trust of Oregon's 7 Quick Wins© and Ohno's Seven Wastes (TRILGIQ 2020)

SEM, like lean, also relies on data to provide feedback (the “C” or “Check” in the PDCA cycle) as to whether an experiment generated the desired result.⁵ We can see this need for data reflected in the CEE SEM Minimum Elements where they urge organizations to “monitor and report energy performance ... and regularly analyze actual consumption against estimated” through the use of regression models and/or bottom-up calculations for evaluating the success of the EE projects conducted by SEM participants.

Respect for humanity and collaboration. In his book *Toyota Production System*, Taiichi Ohno states that people “give their valuable energy and time to the company.” Ohno recognized that our time is the most valuable thing we can give. After all, we’re born, we have a finite amount of time, and then we die, so as far as he was concerned it’s literally our life we are giving. Ohno further summarized that if people are therefore not “given the opportunity to [work] effectively, there can be no joy [and] to deny that opportunity is to be against the principle of respect for humanity. People’s sense of value cannot be satisfied unless they know they are doing something worthwhile” (Ohno 2019, 13). In fact, long before it was coined as lean, Toyota’s production system was known internally as the “Respect for Humanity System.”

What Ohno realized is that the people who use any given process at a business are the best people to help us improve that process. The job of a manager, according to Ohno, is not to manage people, but to help people manage their processes better by guiding them to see how their efforts fit into the bigger picture of the overall operation, and by supporting them in being the most effective they can be. He also recognized that if you wanted to tackle complex processes you need to have the whole system in the room (i.e. a cross-functional team) in order for the people running that process to understand the upstream and downstream impacts of their changes. Ohno referred to this understanding as seeing the *value stream*, a concept directly aligned to what we refer to earlier in *Explore Multiple Perspectives* as broadening our awareness and understanding of the whole.

Ohno also highly encouraged factory workers to collaborate in finding solutions for both big problems, as well as small problems. The latter was often referred to as “one hundred-year problems” because they might only happen once every one-hundred years. The intention was to build the organization's collaborative problem-solving “muscle” as fast as they could, thereby taking the long view by assuming the ongoing operational cost savings would eventually outweigh the investments made in relentless collaborative problem solving.

Ohno replaced the top-down “do as I say” management style with a more human-centered and holistic “how can management help” approach. As a commitment to this way of thinking, Toyota is well known for giving front-line factory workers the ability to stop the line if they see a problem. Meanwhile, stopping the line at other manufacturers for anything short of

⁵ This need for data analysis is why Six Sigma (developed by American engineer Bill Smith while working at Motorola in the 1980’s) was adopted by lean practitioners, leading to the popular “Lean Six Sigma” accreditation.

safety was (and often still is) a fireable offense. Instead, Ohno saw the wisdom in creating psychological safety⁶ that encouraged people towards collaborative problem solving.

All these relatively simple ideas were immensely powerful and get to the very heart of what it means to take a holistic approach by embodying the principles we outlined above. We also see reference to this more human-centered and holistic approach in SEM in CEE's SEM Minimum Elements call to, "Develop and implement a plan to educate employees about the energy impacts of their activities, empower individuals to take energy improvement actions within their work areas, and encourage ideas for solutions beyond their own work areas" (2014).

Lost in translation. Unfortunately, when lean came to the U.S., some things were lost in translation. Many lean implementation efforts in the U.S. merely use lean to reduce labor costs. The problem is that when you ask people to collaborate on reducing costs and then lay off some of those same people, it's a one-time deal. We may save money in the short term (i.e. this quarter or this year) but we are very much missing the point. The reasons behind this misinterpretation of lean can be attributed to the fact that the translations of Taichi Ohno's books were not sensitive to the context of the culture it was coming from (i.e. Japanese) and the culture it was being applied to (i.e. American). The books did not expand upon the fact that Japan had a long-established, lifetime-employment policy which meant laying people off was simply not part of their thinking as a culture. When lean was implemented in the U.S. by top-down methods focused primarily on labor cost reductions, they failed to honor the human dimension and overall holistic approach that lean is rooted in.

This same misinterpretation of lean also plays itself out at some of the sites we engage with in SEM. Sites implementing a truly holistic approach like lean (or something close to it) tend to implement SEM more successfully than sites that are merely using lean as a cost reduction measure because the former tend to have cultures that are more open to change. And to bake SEM into the culture, being open to change makes things easier for everyone involved.

Baking SEM into the Operational Systems and Culture of the Organization

We have talked about how SEM is about long-term savings gained through the persistence of lots of low- and no-cost operational improvements. While pressure from shareholders for quarterly and annual profits is still the norm, that narrative is changing. For example, in his 2018 annual *Letter to CEOs*, Larry Fink, Chairman and CEO of the world's largest investment firm Black Rock, told CEOs of the world that "companies have been too focused on quarterly results" and that "if engagement is to be meaningful and productive ... then engagement needs to be a year-round conversation about improving long-term value" (Fink, 2018). What Fink refers to as a year-round conversation is what we mean when we say we need

⁶ An organizational climate where members feel respected and accepted by the group and they feel safe to take interpersonal risks (see Edmondson 1999).

to bake it into the culture. It means that whatever the conversation is about, it's no longer a "project" anymore; it's now part of how we do business. This applies to anything we focus our improvement efforts on, be it cost reductions, safety, or SEM. We certainly can (and do) claim EE savings without baking it into the culture, but if we want to change the paradigm of our energy future to one where EE is the norm, we believe taking a whole systems approach is essential.

To quote the CEE SEM Minimum Elements again, SEM is about reducing energy consumption "through behavioral and operational change [to] continuously improve energy performance . . . over the long term" (CEE 2014, 1). The operating words here are "behavioral and operational change," and in the case of a holistic approach, behavior change represents the foundation upon which we build operational change. And when it comes to behavior, we all know that it takes two to tango. While we can certainly have influence, our own personal behavior is the only (and easiest) thing we can truly control. So maybe we start there first?

An Exercise in Humility: Practicing Mindfulness & Empathy

As noted above: 1) we are complex social beings who crave a connection with others and want to be in service to something bigger than ourselves; and, 2) we cannot change others, only ourselves, but we can strategically influence others with our own actions. When trying to influence others by developing trusting professional relationships between coaches and participants as a way to increase the program value of each interaction, we can use people's craving for meaningful connections to our advantage and leverage the human capacity and desire to work together. Doing so requires us to understand the big picture and then turn that back on ourselves and strategically adjust our own behaviour accordingly. This requires us to regulate our own (re)actions first.

Emotions drive our actions, but there is a lag between the emotion and the action; a short amount of time where we can catch ourselves in the thought and act accordingly. How we choose to act can either help or hinder our engagement efforts. Being mindful of our thoughts and taking a moment to analyze the potential responses with regards to how they may be taken by the other person is what allows us to act with empathy. Acting with empathy often means not saying what we initially thought, but instead saying something that is more sensitive to their needs, or, as is often the case, just hearing the person and saying nothing at all. This builds a foundation for positive influence and change.

Let's conduct a thought experiment based on a real-life experience. We are an SEM Coach who has a standing monthly on-site energy team meeting with a relatively new customer. We drive an hour to the meeting location, only to find that the person leading the meeting is off-site. This is the second meeting they have missed in the three months we've been working with them. Plus, the one time we did meet, our interactions felt rushed and awkward at best (i.e. they seemed distracted and unengaged). It gave us a feeling that they did not respect our time. Maybe they did not care about their EE program at all? Given the history, we are understandably

frustrated and do what most of us would do: we act (even if only in our minds) out of frustration directed at those who triggered us to feel this way. And when we act on frustration, we are likely to lean toward blame. However, this time we also remember to breathe, think, and empathize.

Once the initial feelings of frustration have passed, we ask ourselves: What logical underlying reasons could be driving their behavior? What insights can we gain from these reasons? How do we turn those insights into concrete actions to influence better engagement?

Let's analyze the available data by starting with ourselves (again, we can only change our own behavior). Did we make a valid effort to contact them after the last failed meeting or just assume they would turn up to their next one? No. Could we have asked what we could do to help the energy team get to this meeting; would they like a reminder? Yes, we could. Have we figured out whether our key contacts respond better to emails, text messages, or phone calls? No, we have not. Did we consider that given the entire energy team is made up of maintenance staff, that maybe they are so busy with everyday maintenance tasks that they rarely look at their email or calendar? No. Could we encourage them to recruit someone from admin to join the team and help "herd the cats" to ensure they get to their meetings? Yes, we could. All of these ideas represent relatively easy concrete actions we control, can take right now, and are very likely to increase our chances for better engagement.

Positively influencing others is as simple as sending a few friendly text reminders to our site contact to help get them to the meeting, telling them that we'll be bringing coffee and donuts. When presented with this way of thinking, many of us tend to think, "why should it be my responsibility to ensure they turn up to their meetings?" The systems view would be that whether it's their responsibility, or whether it's fair for us to have to hand-hold them, is entirely moot if the goal is simply to increase engagement until such time that they are able to take on this responsibility for themselves. Empathy is merely asking us to look at the facts from the perspective of the other party, and act accordingly as a way to positively influence them toward the change we wish to see.

It's also worth recognizing that as an SEM Coach, we are paid to do this (i.e. we are extrinsically motivated to turn up to meetings with them). Recognizing this fact is important. It's no less than a form of empathy toward the energy team. It's easy to think that we are providing this service to them for free (i.e. the utility pays us to help them implement SEM), but the reality is that they are most likely not getting paid any extra to take time away from their existing responsibilities to work on SEM.

Ultimately, we all want to be in service to something bigger than ourselves, so given a little patience and understanding, people will often come around. Time and time again we've experienced today's begrudging antagonist becomes tomorrow's ally. We may just have to fan the flame for a little while before it catches fire. In the end, it's the systems view and an understanding that change is motivated through our strategic influence, born out of mindfulness and empathy that help us get there. We are called to swallow our pride and take the higher road, with the ultimate payoff most often more than making up for the few blows our egos take along the way.

Closing Thought

As we mentioned, while some communalities exist, all things, all people, all groups, all situations are unique. As such, the application of the guiding principles and lessons learned from lean presented in this paper are unique to each situation. You will need to think independently how the guiding principles and continuous improvement can be applied to your circumstances, and then act and adjust as needed. In short, none of this is black and white. It's not an equation, and it comes with its own challenges and limitations. But with practice and patience, it works and will lead to deeper learning around pathways to dramatically increase SEM program participation and their associated energy savings. Oh, and because all of this relies on your ability to continuously improve upon yourself, it can even make you a better friend and family member to boot. Bonus!

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