

Ergonomics Programs: Moving Forward

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Introduction

If you have been involved in the process of building an ergonomics program, you know that changing culture is not easy. Gone are the days when an ergonomic program is supported because “it’s the right thing to do.” An ergonomic program must exist because executive leadership believes that *it makes good business sense*. Does your ergonomics program demonstrate to leadership that it, as an initiative that depends on valuable company resources, makes good business sense? Put yourself in the shoes of your executive leadership. What is the essence or promise of what will be delivered or experienced by your ergonomics program? What *value* can you demonstrate? Are you simply a protector of workers, or a builder of systems? Are you a contributing force helping them achieve their business objectives, or are you a necessary expense? How your program is perceived within the organization and how well you can demonstrate value will ultimately determine if your program is sustainable.

Implementing an ergonomics program is a rewarding experience because, much like Lean and Six Sigma, ergonomics is an initiative that can have a transformational effect on your company. Consider the following definition of ergonomics by the International Ergonomics Association (IEA):

Ergonomics is concerned with the understanding of interactions among humans and other elements of a system, in order to optimize human well-being and overall system performance (IEA Council, 2000).

According to the above definition, the scope of ergonomics extends well beyond the traditional scope of health and safety, which is limited to illnesses, injuries, and workers’ compensation costs. Ergonomics has strategic importance because it supports the goals of all levels of an organization, operational and corporate. By optimizing the physical and cognitive fit between people and work, ergonomics can help companies improve key operational production measures such as throughput, efficiency, and quality. Strong ergonomics programs often support corporate goals such as innovation because the introduction of constraints leads to focused design thinking. Production flexibility, another corporate goal, is achieved through more effective training initiatives and job enlargement programs. Ergonomics can also help companies achieve social goals found in Human Resources (HR) such as improving employee well-being. How can a company claim a strong culture of wellness when employees are sustaining cumulative trauma injuries? With a solid ergonomics program embedded in the engineering function, HR’s goal of achieving a stronger culture of wellness is supported. Just as in the case of linking HR with engineering, similar cohesiveness between functional groups can be gained by using ergonomics to link medical and engineering, HR and

medical, Lean and engineering, and so on. Ergonomics programs enable the people performance side of the business because ergonomics is uniquely suited to optimize the interaction between people and systems, people and products, people and processes. Or to borrow a Toyota vision for safety (ergonomics is a key initiative of their safety program): “A workplace that is strong in safety will demonstrate its strength through quality and production.”

Having a compelling vision is an important first step. Before you can move forward, you must first determine how ergonomics is viewed within your organization. According to the book *Good to Great* by Jim Collins, it is important to confront the brutal facts of your current reality so that you can plan to achieve your objectives and realize your vision. As an ergonomics practitioner, you should take this advice and understand your organization’s culture, perceptions of ergonomics, and potential obstacles so that you can meet your company’s culture where it is. Confronting reality will give you a self awareness and understanding that will allow you to strategically plan so that your company can realize the kind of operational and corporate results that ergonomics programs are capable of as described in the IEA definition of ergonomics.

The Reality

There are many reasons why ergonomics programs are struggling to secure a strong foothold into company culture and gain the support from executive leadership to commit necessary resources for true success. The following are some obstacles and self-defeating practices done by ergonomics practitioners that undermine executive leadership support and are big reasons why leadership is hesitant to commit to ergonomics.

Making a Business Case

Over the last ten years, there has been relentless economic pressure on companies, due to rising fuel prices, rising raw material costs such as resin and steel, and *decreasing* consumer demand. To offset these economic pressures, companies responded with strategies targeted at cutting costs such as outsourcing, densification of people resources (more people in smaller spaces), and Lean Manufacturing. Within all the company change initiatives and decision-making apparatuses, there has been a resurgence of using the scientific method to make sound business decisions. In many companies, ergonomics practitioners are not held to the same standard as other functional groups, and are lagging behind with regard to rigorously documenting the value or benefits of their work. Practitioners think that others in the organization accept the value of ergonomics because it’s simply the *right thing to do*, and so practitioners do not always use a rigorous approach to justify improvements. In these hard economic times, any initiative that does not show measurable value is *optional*.

Ergonomics programs are under the same scrutiny by executive leadership as other functional groups with regards to being held accountable to bottom line results. As a profession, we are not clearly showing how we contribute to the bottom line. One study found that 57% of ergonomics programs are failing. The study’s definition of success was a return on investment (ROI) that is commensurate with the resources that are going into the program. The same study showed that only 30% of programs successfully show a positive ROI. Is a positive ROI really a measure of success? What if a continuous improvement initiative, such as Lean, reported to the CEO that their measure of success was a positive ROI? From a leadership standpoint, even if there is success in injury rates and workers’ compensation reduction, a positive ROI is not a compelling reason to keep an initiative. Even the top ergonomics programs are not doing a good job of demonstrating the kind of value that executive leadership is looking for: *proven significant* results towards all key measures.

Communication and Documentation

Generally speaking, there is a lack of good data to support ergonomics programs, and there is a lack of transparency, or *clear documented cause/effect evidence*, between ergonomic controls and initiatives on injury rates and workers' compensation rates, and so on. In your program, is there enough transparency to *easily* conclude that ergonomics is/is not a major contributor to claims? Is there transparency with key metrics to show that ergonomics initiatives are achieving the results they set out to do? Is there transparency to prove that ergonomics is a contributor to overall company objectives (generation of cash, innovation, or social responsibility)? Is there transparency that ergonomics is contributing to business key measures such as quality, efficiency, throughput, or turnover?

Let's look at the most common key measure for an ergonomics team: musculoskeletal disorder (MSD) incidence rate. Despite this rate being the foundational key measure which drives ergonomics programs, if company leadership challenges you to reduce the incidence rate by 25%, do you know with a certainty what specific initiatives will help you achieve this? In most cases, it's almost impossible to find conclusive evidence for injury rate causation because there are so few data points. In general, MSD data is not reflective of the current risk and symptoms of employees (in other words, employees are not reporting their symptoms or injuries). There are four main reasons for this:

1. A great deal of skill is required on the part of the supervisors to convince people to report their injuries, and so employees are generally not reporting them;
2. Cumulative trauma disorder (CTD) injuries are elusive to detect, because symptoms tend to come and go as people adjust to the discomfort, and as exposure is controlled;
3. Employees are de-motivated to report injuries due to social pressures or bonus incentives; and
4. It is human nature not to report symptoms that, by nature, go away the next day.

As a result of the lack of reporting, injury data is unreliable. Many companies futilely use lacking or suspect workers' compensation data and injury data to drive their program. They may experience significant reductions in these lagging key measures, but do not have clear evidence of how the key measures were actually improved. This undermines the program because executives do not understand the "big why" because they incorrectly conclude that a lack of injuries equates to a lack of hazards. In the end, executive leadership has no more than a nebulous understanding of how ergonomics efforts are directly contributing to these bottom-line results.

Identity

Ergonomics has an identity crisis; it finds itself difficult to define in terms of how it fits into an organization. Ergonomics has a chameleon-like persona, evolving to fit into organizations based on a perceived need. The backgrounds of ergonomics practitioners are as varied as the departments they find themselves in: physical and occupational therapists, doctors, industrial and manufacturing engineers, safety professionals, or other fields. In some organizations, ergonomics is managed through the medical group, and a nurse or doctor is the ergonomics expert. Sometimes, ergonomics practitioners report under engineering at facilities or advanced engineering with the product and process design groups. In other organizations, the practitioner works under the health, safety, and environmental (HSE) group. Yet in other companies ergonomics is viewed as a branch of Human Resources. Ergonomics can be also aligned with continuous improvement functions of a company such as Six Sigma or Lean (or equivalent). Most often, the ergonomics program is housed in the Health and Safety program and it *stays within the confines of that group*. That's the rub! It is fine to house ergonomics in any of these operational groups; however, if ergonomics is limited to the key

measures of each of these groups, the results of the ergonomics program become limited. As a result, managers don't see ergonomics as a way to achieve organizational effectiveness, but as a way of reducing musculoskeletal disorders, proactively if engineering, reactively if in HSE or medical.

Managerial Issues

Due largely in part to the reasons above, upper leadership does not clearly see how ergonomics helps achieve business objectives, and therefore, there is a lack of effective leadership and accountability.

Most ergonomics programs have a managing approach that can be described as *defect* management versus *process* management. In other words, the companies are managing lagging indicators (injuries) versus leading indicators (culture, systems) (see Figure 1). Imagine if your quality program managed only the quality defects and did not measure systems and the culture. Just as a quality program must have a culture and systems that produce quality parts, an ergonomics program must have a culture and systems that produce safe and high-performance behaviors and processes! The challenge is to identify the behaviors that will produce the desired results, and then find a way to measure those behaviors.

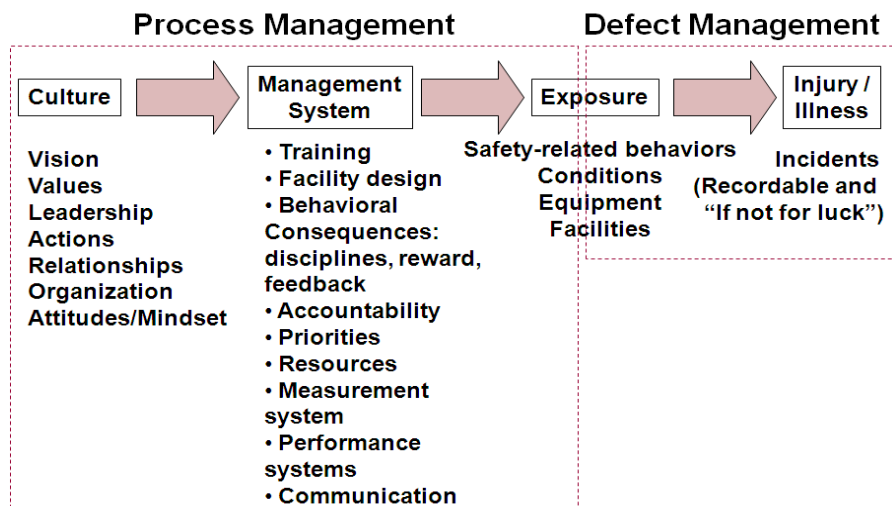


Figure 1. Management of an ergonomics program: defect management versus systems management. (Diagram adapted from the article "Safety and Quality: Two Sides of the Same Coin," *Occupation Hazards*, April 1993, by Dr. Thomas Krause).

Another common managerial issue is a lack of a long-term vision and alignment. Lack of vision produces reactionary goal-setting and an inconsistent focus. Poor alignment typically means that ergonomics is working in a bubble, and is separated from operations. Poor alignment produces a number of issues including limited stakeholder involvement and accountability, lack of coordination among internal company resources, such as engineering and medical and safety, and limited channels of communication with internal stakeholders and customers. Instead of being of participatory nature, company culture takes on an adversarial relationship towards ergonomics.

Let's face it; the field of ergonomics has challenges that prevent immediate and full buy-in from all parties. You must give your leadership a clear reason for supporting your ergonomics program and its efforts. Leadership simply wants results.

Plan for Change

As was mentioned previously, ergonomics programs largely fail because of: (1) A misunderstanding of how ergonomics should fit into overall business objectives; and (2) Poor planning and alignment of complimentary resources. Once a compelling vision has been created, a process for deploying a successful and sustainable ergonomics program can be developed (see Figure 2):

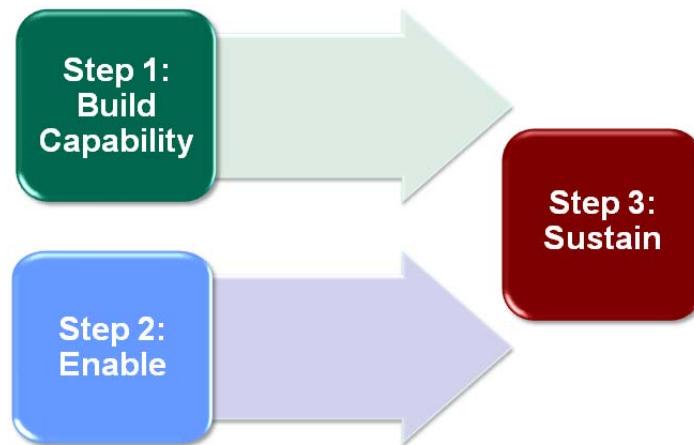


Figure 2. The three steps to successfully deploying an ergonomics program.

Step 1: Build Capability

Once a gap analysis has been done to determine where your program is in relation to where you want it to be, you will need to first build the capability of the ergonomics program. This essentially means setting up (or overhauling) the systems, infrastructure, education, and accountability structures to make sure your program is set up for success.

Leadership Commitment

Everything in business begins and ends with leadership commitment. This may be a cliché, but it is also a truth. Ergonomics programs are not driven by policies and procedures alone. See what some leaders have said about their safety program (which is certainly applicable to ergonomics):

If we can't take care of our own people, then how in the world could you trust us to take care of your investment? (Paul O'Neill, Secretary of Treasury)

A good ESH program is an indicator of a well-managed company with a long-term perspective on growth and profits... (Marc Brammer, Innovest, Inc.)

These are excellent statements from leaders of great safety programs. Part of commitment is communicating vision. However, true leadership commitment backs up statements like "safety first" with adequate human resources, defined roles and responsibilities, and people accountability. Is performance to ergonomic initiatives part of your company's evaluations? If so, what is the quality of those evaluations? Is the plant manager or operations manager held accountable for their plant's performance in the ergonomics program? Are there program metrics, and are they a part of the key performance indicators (KPIs)?

Metrics: Measure What Counts

According to Deming, “Numbers are numbers, numbers are not knowledge.” Do your program metrics give you the information you need to manage your program effectively? If your program is the norm, your metrics consist of lagging indicators that tell you very little. The ISO safety management standard (OHSAS 18001/18002) is an excellent foundational program because it requires that management continually measure the suitability, adequacy, and effectiveness of the health and safety program. How do you know if your program is effective and you are achieving your objectives? There is no single measure of health and safety performance. There should be a group of key measures that provide information about performance to management systems, performance to achieving company goals, and even short-term action item goals. Your metrics should provide reliable information about the state of your business, so that it is clear what needs to be done to improve them.

Alignment and Integration

In an ideal world, the CEO wants every single person in the company to help them achieve their overall company objectives. The reality is that the further away people are from the CEO, the less the departmental strategic goals are in alignment with overall company goals. In the book *Do You Matter? How Great Design Will Make People Love Your Company*, by Brunner and Emery, the authors promote the importance of permeating design thinking throughout the organization, integrating design thinking into strategic planning, followed by process and product development, and trickling down to the operations level. Only by integrating design thinking into the culture and organization will your program succeed. An ergonomics program cannot be a bolt-on solution, such as tacking brainstorming sessions onto an existing product development process, or by bolting on other functional groups’ initiatives and current processes. “Ergonomics thinking” must be permeated into the culture of the organization, deployed with the same level of support as other initiatives of the organization, and ultimately considered to be a critical part to the overall success of the organization. Quick fixes and bolt-on solutions will fail in the long term and will never be taken seriously.

Integration is an important part of an alignment strategy because it creates leverage for your program and it is a way to enable stakeholders. Strong ergonomics programs are integrated into existing company systems, and are not dependent on any one person or position to keep the process moving or functioning. If your company embraces the concepts of lean manufacturing, then join the Lean group! Ergonomics concepts go hand-in-hand with the principles of lean manufacturing. One of the goals of lean manufacturing is reducing waste in a system. People touch each of the seven types of waste, or muda, that lean manufacturing highlights: processing, correction, overproduction, motion, material movement, waiting, and inventory. When wasted motion is addressed and the resulting change reduces an operator’s reach distance and brings the work closer to them, both lean and ergonomics benefit. Educate yourself on the concepts of lean manufacturing and work with lean teams to add a component of ergonomics to their processes, including Kaizen (or continuous improvement) events. You can also take the lean concepts and processes and integrate them into your ergonomics program. The more work you give people, the more friction you are likely to create and the less likely your program will succeed.

Educate and Engage Experts

You must have a group of experts who can guide the organization through the ergonomics maturity process. Depending on the company’s needs, the “experts” may be the ergonomics teams at your organization, which includes the corporate team, the advanced development team, and the site level ergonomics committees. Provide the experts with a systematic approach for prioritizing issues and mitigating risk. Use the data you have as a starting point to get out of the reactive, fire-fighting mode.

Review injury trends, conduct baseline ergonomic screenings of key areas, and use the data to prioritize areas of focus in existing systems. Why is prioritizing important? It shows employees and management you have a logical methodology when deciding which job or area needs attention.

Step 2: Enable

Employee involvement is the key to success for any initiative.

Educate and Engage Employees

Educate employees at all levels with the appropriate information on ergonomics, so they become their own initial resource. Train employees on the floor about safe work methods, and how ergonomics concepts can help them. Talk numbers with engineers and designers, and show them how to apply the tools and concepts of ergonomics to their work. Teach management how to lead ergonomics. As training expert Chris Lytle says, “Education, without action, is entertainment.” Give employees the tools they need to apply ergonomics to their jobs, and enable them in the process. Consider the philosophy of Taiichi Ohno, who said “Why not make the work easier and more interesting so that people do not have to sweat? The Toyota system is not to create results by working hard. It is a system that says there is no limit to people’s creativity. People do not go to Toyota to ‘work,’ they go to think.”

Change Management

The most effective way to prevent new risk from being introduced into your process is to set up a system of checks and balances. Introduce a sign-off review process into existing process checkpoints. Require that the ergonomics team sign off on change management documentation during events such as layout changes, continuous improvement events, equipment changes, product changes, and so forth. Hold change managers accountable to ensure that changes are made for the good of the organization.

Audit Process

Use your audit system to provide eyes and ears for your ergonomics program. Implement peer reviews to give feedback on how conditions are on the ground. Track corrective actions to closure in a timely fashion, and hold managers accountable through performance reviews. Establish tailored checklists to monitor conditions and behaviors more effectively. Ensure that your program audit considers quality of performance, not just compliance.

Step 3: Sustain

A true participatory program is sustainable because it does not rely on the expert or group of experts to drive the program.

Accountability

Sometimes, in order to get middle management to pay attention, they have to be held accountable for results in their areas. And why shouldn’t they? Just as management is responsible for their subordinates’ performance towards key measures (productivity, quality, and on), management should be held accountable to the metrics that measure the progress of the ergonomics program. Be cautious of tying performance (or bonus) metrics to the wrong indicators (e.g., lagging injury metrics) because this could promote the wrong behavior (such as not reporting). Another powerful way to ensure accountability is to add performance metrics to employees’ annual evaluations. A pre-requisite for adding ergonomics content to the annual performance review is to define roles and responsibilities for stakeholders and to identify a SMART (specific, measurable, attainable, realistic, and timely) goal to which the employee can be held accountable. This could be as simple as a requirement of hourly employees to submit an ergonomics suggestion, or for a supervisor to successfully (timely, good root

cause analysis, good follow-up) manage accident reviews, and for engineers to close out issues assigned to them in a timely manner. The key point is to have accountability structures in place to ensure that expectations of people are defined, and that people are performing.

Institutionalize Learning

Develop curricula for your employees that will give them the capabilities and tools to support your ergonomics program. Training and development should be systematized in such a way that should educate all areas of the business that ergonomics is not a separate entity, but something to be considered and used in their jobs daily. Give office employees tips on working at their desk in the proper postures. Train employees on the plant floor in safer work methods and how ergonomics concepts can help them. If you have an Ergonomics Team, teach them not only the basics about ergonomics, but also analysis, problem-solving and cost justification methods so they can back their work with data. Talk numbers with engineers and designers, and show them how to apply the tools and concepts of ergonomics to their work. And with management, speak in terms of key measures: costs, efficiency, quality, safety, and profit.

Auditing, Validating, and Communicating Successes

Verifying the results of your efforts is important; however, this key step is often skipped. How do you know the affect that you are having if you fail to track issues and follow-up to make sure the results you expected happen? How can you make improvements to your process if you don't know where the improvements need to be made? More importantly, how can you prove, with data, the positive influence your ergonomics program is having on the business? Documenting your results gives you proof of the positive impact you are having on the business. Auditing yourself also shows that you are in the Kaizen mindset, and looking for ways to continuously improve your process.

Communication with both employees and management is also critical. If the ergonomics program operates in a bubble, others will not be aware of the success stories and therefore, less likely to view it as a value-added activity. During a project, involve employees and communicate progress to all parties involved. Lessons learned from unsuccessful implementations should also be shared so others understand when a control is delayed or must go through the revision process. As projects are completed, document the results and cost savings. Be sure to include pictures of the problem areas before and after changes, as well as input from personnel affected by the changes. Report that information to upper management, and the visibility of the program will increase in a positive light. Let them know how you are making a positive difference to the bottom line.

Conclusion

In these difficult economic times, ergonomics needs to assert itself as a field that can produce transformational results for a company. Executive leadership must be given a reason to support ergonomics. Ergonomics practitioners need to recognize that ergonomics has great strategic value that can help companies achieve goals at all levels of the organization, operational and corporate. A strong ergonomics programs creates a workplace that is full of vitality, energized employees, and improved production outputs. It also has the potential to help companies achieve their broader goals of social responsibility and sustainability through the benefits that ergonomics brings to the wellness of its employees and the innovation of its products and processes. A great shift must take place in the company culture. One aspect that must change is how the ergonomics program is managed, from a traditional narrow focus on injury prevention and risk management to a focus on performance to overall company goals. The second aspect that must change is the level of involvement: programs must evolve from an expert-based model to a participation-based model, where ergonomics is permeated throughout the organization. To achieve this cultural shift, initiate a process that: (1)

builds the organization's program capability by creating executive leadership belief, aligning the ergonomics program's strategic objectives with overall company objectives, and engaging a team of experts; (2) *enables* employees to achieve a cohesiveness of complimentary organizational resources; and (3) *sustains* the program through a permeation of "ergonomics thinking" throughout the organization, strong accountability structures, and institutionalized learning.

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