

TITLE: Focused Leadership

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ABSTRACT:

Aerospace engineering and production management today is inundated with new ideas for bettering their business. Lean, TQM, 5S, and other quality initiatives assail leaders seeking to better their bottom line. Enhanced processes and procedures are proposed and training programs expanded to streamline business and to enhance growth. While many of these initiatives offer real potential for adding value to a company, each entails a shift of focus from the primary products or services that built and sustained it. This can become a distraction that can undermine or entirely counteract the benefit that may have otherwise been obtained from the initiative. This pitfall is often more pronounced in larger businesses where initiatives are initiated at upper echelons of leadership who become enamored with the potential benefits, but implemented by lower levels of management who may not understand the initiative nor agree with or its reported benefit. This paper examines this pitfall, and leverages insight from a 26 year aerospace career at McDonnell Douglas, Boeing and US Technical to provide insight for focused leadership, concluding that initiatives such as these should not be implemented carelessly, but must be carefully implemented, evaluated, and cultivated or eliminated to maintain peak success.

KEYWORDS: Management, Leadership, Engineering, Aerospace

INTRODUCTION

Successful businesses are led by focused leaders. Focused leaders know their business, and are keenly aware of the primary products that differentiate their company from that of competitors. The best leaders seek to improve their business bottom line, and ideas abound in the marketplace for how that can and should be done. Yet the volume of new improvement initiatives emerging from industry and academia can be overwhelming. Lean, TQM, and 5S are among the leading initiatives espoused by business leaders and industry mentors. Many promote enhancing processes and procedures as the key to reproducing business success, while some identify enhanced training as a key driver of results, and others suggest innovation is the primary differentiator.

While these initiatives can provide value to the company, each entails a shift of focus from an action or analysis directly related to the basic products or services of the company to something whose value is secondary, tertiary, or even non-existent. This shift of focus off of the prime drivers of a company's success can result in a total lockup of productivity as employees and leaders become distracted from the business elements that have the greatest influence on the bottom line. Large companies are especially susceptible to this pitfall, since the multiplicity of leaders with different ideas, focus, interest, and ability can introduce a complex and confusing array of strategies to be imposed on employees.

While many of these initiatives offer value to the company, success of implementation is not assured, and implementation can actually hinder the effectiveness of the organization. Therefore, leaders must take care not to implement a new initiative simply because it is popular, nor because it has worked for someone else, nor because someone else in the organization believes it has value. They must carefully evaluate which of these initiatives actually add value, assess how much value potential each has, consider how it will affect other initiatives in the organization, and if they find the initiative has sufficient merit to warrant implementation, they must then do so in a way that maximizes the outcome for the company while minimizing the level of distraction to employees and leaders alike.

Attempting to implement too much, or failure to implement well, or the naïve belief that any or all of these initiatives are universal in their benefit to the company, can initiate decline of the effectiveness of the organization, paving the way for a more focused competitor to take their place.

Leading Quality Initiatives

Lean, Total Quality Management, and 5S are three of the leading initiatives for improving productivity and quality. Each of these initiatives has been used successfully by companies to secure improved business results [9] [19] [12]. As these successes accumulate, new businesses join the ranks in implementing these initiatives, and many of the businesses already using the initiatives invest additional time, money, and effort to broadening implementation. Yet some [16] [3] [15] have questioned whether these initiatives offer universal benefits, or, more specifically, whether implementation of these initiatives has resulted in universal success. Leaders must evaluate this question. More importantly, before implementation, leaders should evaluate how each initiative under consideration affects their individual business bottom line. If it is determined that the initiative offers sufficient potential for improvement, leaders must resist the urge to implement a "canned" version of the initiative, and must instead carefully evaluate how the initiative should be implemented for their specific business, and whether all or some of the elements used by others should be used in their specific case. The following sections take a brief look at each of these initiatives and assess what might be going wrong.

Lean

Lean is the practice of maximizing customer value while minimizing waste. The word has been in use since possibly the beginning of the English language, but credit for initiating its use in reference to improved manufacturing and engineering practices is often attributed to Toyota in the post World War 2 era as they implemented, refined, and repackaged ideas from American manufacturing icon Henry Ford and statistical control guru Edward Demings.

Toyota applied the word “muda” to describing waste as it applies to production or manufacturing processes. Muda is the Japanese word meaning futility, uselessness, or waste. Toyota identified seven wastes to be minimized; transportation, inventory, motion, waiting, over-processing, over-production, and defects. The ideas, actions and successes of Toyota led manufacturing leaders worldwide to focus more on the concept of lean, with the specific goal of improving processes to make them more efficient.

It is fairly obvious that eliminating waste is a worthy goal with strong potential for increased productivity, as evidenced by Toyota’s success. Yet some have questioned whether this focus on lean is having the desired effect for today’s manufacturing leaders [8] [13] [12] [18] [7]. As the philosophy of lean, eliminating waste, is evaluated, it is hard to conclude that the practice can do anything but add value. Yet if the initiative is not producing widespread benefit, then the reason for this shortfall must be identified and remedied. There may be many reasons for this shortfall. Yet a 26 year aerospace engineering career has led this author to conclude that the primary reason for the shortfall lies in implementation.

The Lean initiative starts by taking a bird’s eye view of the organization, processes, and procedures of a business and identifying and eliminating waste. This means that each action, activity, or motion is assessed to see if it provides the shortest path to the end result, and any detours or frivolous motions are eliminated. Once this is done, the idea is extended to educate, enlist, and empower employees to continue this process in their daily activities. This appears a great and productive way to implement lean, and has resulted in numerous benefits to business results.

The problem begins to emerge as leaders attempt to morph this initial lean success into a lifetime business strategy. During this process, LEAN often becomes a banner, with additional and increasing events and activities dedicated to furthering the practice. Metrics are set up and diligently updated to track the initiation, implementation, and results of each lean activity. Additional time is spent repackaging each idea, implementation, and result to ensure that credit for the lean effort is properly recognized. Awards are distributed and celebrations are held to revel in successes of increasingly small impact to the business bottom line. Focus of leaders and employees shift from actions of primary import to the business to that of supporting the new end product, LEAN. In short, the lean activity becomes non-lean, resulting in loss of productivity, waste of resources, and loss in market share.

In practice, this shortfall has been seen many times at one aerospace company, where LEAN has been a leading strategy for a decade or more. On the one hand, LEAN activities occur daily as a regular part of an employee’s work, providing cumulative increases in productivity in engineering or manufacturing. Yet these activities remain unidentified as LEAN, unrecognized by management (for the large part), and unsung by peers. On the other hand, major LEAN competitions are held, new LEAN efforts are conceived and promoted, and these efforts are packaged and repackaged for management review and recognition. Countless hours are logged to these LEAN activities, and the resultant effect of these recognized efforts on productivity is often miniscule or nonexistent.

This observation suggests that the most effective LEAN effort is the one that results from great leadership and employee initiative revolving around the primary functions of the business, not from a focused LEAN effort or initiative that is *separate* from the business function or activity.

Total Quality Management (TQM)

Total Quality Management (TQM) is a term used to describe the management practice of continuous improvement, specifically in products and processes. The shaping of this concept for business, and current usage, is attributed to Feigenbaum, Ishikawa, Deming and others, although evidence [9] suggests the title Total Quality Management (TQM) was not applied to their ideas until the mid '80s. The basic idea behind TQM is to include all stakeholders in the collective effort to improve the quality of goods and services. This starts with management, includes every employee, extends to each supplier, and includes all customers as well.

While TQM clearly offers strong ideas for management to improve products and processes, some have questioned whether the practice has become faddish and unfruitful [3], others suggest the version of TQM being implemented is a distortion or shadow of what was intended originally [9], and others cite examples of utter failure of its implementation [6] [2].

As with lean, it can hardly be argued that the philosophy of TQM, that of adopting an attitude of continual improvement, would provide anything but benefit to an engineering or manufacturing company. Yet if this is true, then why are challenges arising against the results of such a focus? Once again, one major facet of the problem appears to reside in implementation.

TQM implementation logically starts with senior leaders in a company adopting its philosophy of continuous improvement, then taking action on this philosophy by evaluating and assessing the goal against the products and services of the organization, then initiating changes as areas of opportunity appear. Its influence expands as this approach is communicated and cultivated throughout the organization in a top-down manner that ideally includes each and every employee of the firm.

Problems begin to arise as people get involved in the process who either do not understand the philosophy, or do not sufficiently understand the basic products or services of the company being changed, or when people implementing the philosophy do so in an immature or ill-conceived manner, or when, as with Lean, TQM gets elevated above its original intent and becomes a banner for the company, effectively shifting the focus of an organization from those products, processes and services that are foundational to the company to the "philosophy" of leadership that was intended to bolster these products, processes and services.

One example of this shift was witnessed at McDonnell Douglas in the years following TQM implementation. In this case, one area identified as a potential area for "continuous improvement" was DFM, or Design for Manufacturing. Design for Manufacturing (DFM) focuses multi-disciplined teams on engineering or re-engineering products with the specific goal of simplifying manufacturing. This approach offers increased profits through shorter manufacture time, reduced defects, and reduced costs. Clearly, this concept should be a near-perfect candidate for TQM implementation. The problem at McDonnell Douglas occurred with the way in which implementation occurred. Large multi-disciplined teams were assembled across the company to gather and focus on specific individual parts or sets of parts. Many of these team members had no idea what DFM was, and many were not sold on the concept after being told what it could do. These teams were assembled anyway, and spent countless hours being educated in DFM and in evaluating their parts. Eventually, most of these teams made a change in the design of the parts with the reported benefit of increased manufacturability. Yet the disruption to daily business was enormous, and focus had shifted from the primary products of the

company to the goal of making some minute improvement in one aspect of one component of the design. If this company were alive and well today perhaps we could conclude that the shift in focus had the desired effect. However, within 6 years of this effort McDonnell Douglas announced an effective end to its competition in the commercial aircraft business when it announced the end of the MD-XX project, citing, among other things, that the investments in manufacturing and infrastructure was too large [17]. Apparently, the focus on DFM was not the critical focus the company needed in order to remain an effective leader in the commercial aircraft industry.

5S

5S is another term used as a banner for increased efficiency in the workplace. The term also arises from the post World War II Japanese effort to improve efficiency in the workplace, and the 5 Japanese words that spearheaded implementation were later converted to the 5 English words Sorting, Straightening, Systematic cleaning, Standardizing, and Sustaining. The basic idea behind 5S is to improve efficiency through enhanced organization. This concept was one of the initial ideas supporting “Just in Time” (JIT) manufacturing, and has numerous reported successes [5] [11].

Yet proponents of 5S later felt that if 5S was effective, 6S must be even better, and formulated 6S by adding Safety to the list of objective terms. Before long, Security and Satisfaction were also added to the list, resulting in a new “enhanced” goal of 8S! One can imagine that a clever individual could identify another 15 or 20 additional S-words that also describe some element or aspect of a productive company. Yet whether or not this new acronym would provide any additional value in increasing productivity of a company is anyone’s guess. Ironically, the more S’s added to the 5S acronym, the less 5S the acronym becomes.

Once again, the concept of 5S is sound, and has been effectively implemented in many companies. However, like Lean and TQM, 5S involves a shift of focus from the primary products and services of a company to one that merely has the “goal” of improving these products and services. As focus on 5S increases beyond a mere strategy or state of mind, it becomes merely a banner, or worse-yet, it gets elevated to figurehead status, resulting in a total shift of focus from the basic products or services of the company to something that actually detracts from the very concept it initially espoused.

Other Great Things that Distract Leadership and Employees

There are myriads of ideas in the marketplace for improving business results. Yet each additional philosophy or approach implemented in business has potential to distract leaders and employees from their prime focus on products and services.

Processes and Procedures

Nearly every product or service that a company offers can be described as a process or set of processes that result in the final product or service. Start-up companies often start without much thought or effort wasted in defining these processes, but as a company matures the need to document key processes or procedures increases, and regulatory agencies such as the Department of Defense (DoD) or the Federal Aviation Administration (FAA) may require documentation of many of these in order to ensure repeatability and/or quality of products or services. While many smaller companies only provide cursory documentation of their processes, larger companies often devote entire organizations to the task of defining and maintaining their processes and procedures documents.

Clear processes and procedures provide a company with a number of competitive advantages. Companies with clear processes and procedures can operate worldwide and still appear to move in a

concerted fashion. Processes and procedures also can be evaluated and improved and the change can be more readily disseminated over multiple sites. Processes and procedures can also be used to demonstrate compliance to regulatory agencies, or as defense of intended action in a court of law.

Yet too much process or procedure diagramming, documenting, or focus can distract leadership and employees from their primary product or service. Furthermore, poorly written processes or procedures can also inhibit or undermine their effectiveness. Most importantly, each process or procedure added to the collective mix reduces the effectiveness of each and every other process and procedure of that organization.

Once again, the pivotal consideration is focus. People can only focus on so many things at once. As the number of processes and procedures increase, the amount of attention any of them will receive from employees or managers decreases. Worse, as attention increases on the processes and procedures of the company, attention to the primary products and services of the organization diminishes. This results in decreased effectiveness of the organization rather than the increased effectiveness sought.

This decreased effectiveness due to over-“processization” has been seen at one large aerospace company, where policies, processes, and procedures may number over one-thousand. While many of these add significant value by being documented, the vast majority of them provide no added value through documentation, and a number are poorly written or extremely difficult to understand. The net effect is that the effectiveness of all is diminished.

Training

Training can be an effective tool in educating a workforce to expectations, to new or improved methods or processes, or to new business horizons. It can educate employees and managers on a wide range of subjects including export control, business courtesies, and discrimination. It is also used by some great companies to provide employees with personal training on a variety of subjects, including emergency preparedness at home, the use of simple hand tools, or care in using a ladder.

Yet training can also be distracting if it shifts focus from the prime products and services of a company to something else. As such, it can be counter-productive to empower organizations with the sole objective of providing training, if doing so floods employees with training that must be taken so frequently that focus shifts from the prime products and services driving company success.

This distraction has been witnessed in industry at one of the leading aerospace companies in the United States. This company pays for the higher education of many of its employees, and provides monthly and weekly training, as well as additional sponsored training events throughout the year. Perhaps a quarter of this training is not related to work, and simply attempts to educate employees on a variety of subjects. In many ways, this company is a leader in training its workforce, and a model for business worldwide. Yet in the last decade training has increased even further, and metrics on training completions have increased dramatically, so much so that many employees are frustrated and disillusioned with the entire training activity. What a tragedy to turn this competitive advantage to a competitive disadvantage by simply over-emphasizing the initiative.

“Improved” Methods

Most great engineering companies exhibit a strong drive to innovate, or to improve products and services. In fact, this is a prime characteristic of TQM discussed above. This commitment to innovate can be a defining differentiator that elevates one company above a competitor. Successful innovation can keep a company ahead of the competition, and can result in small changes that accumulate

towards improved efficiency and results. Improved methods are also a keystone element of increasing safety and reliability of a product, and this can also have a positive effect on a company's products, its reputation, and its profits.

Yet improved methods can also inhibit progress, especially when an improvement is implemented before it is fully understood, or when the improvement takes the company beyond requirements. In either case, the result is a distraction, a shift of focus from the prime objective of the baseline products or services of the company, to the technology itself or the innovation sought.

This author has witnessed both successes and shortfalls in innovation and improved methods in aerospace over the last 26 years. Often the differentiating factor for whether an innovation increases productivity or profit is not driven so much by the innovation or improvement itself, but by the decision regarding when it *must* be included in an analysis or design and by subsequent decisions that the innovation or improved method *must* be used in subsequent design or analysis. All too often profits are lost and programs are late due to rigid application of methods that are good but not required, or due to innovations that have merit but are not needed.

Once again, active leadership is the key to keeping a company focused on its primary products and services by holding all other innovations and improvements subservient to that prime goal.

Conclusion

We have seen that Lean, TQM, and 5S are initiatives that truly offer benefits to a company's bottom line. We have also seen that processes and procedures, training, and innovation or improved methods can be used for the betterment of a company. Yet we have also seen that the success of these initiatives and methods is neither universal nor guaranteed, and that these can actually have a detrimental result on the effectiveness of a company if not implemented well. We have seen that each of these initiatives and ideas causes a shift of focus from the primary products and services of the company, distracting leaders and employees alike.

It can be concluded that leaders must keep their attention focused on the primary products and services of their organizations, and they must help employees maintain the same focus. While they should continually envision, evaluate, implement, and cultivate initiatives that can improve the effectiveness of their organizations, they should do so without allowing undue focus to shift from the primary products and services. They should also monitor implementation and results of these initiatives and continually reassess whether the resultant actions underway within their company are still returning value sufficient to the original goal of increasing efficiency or effectiveness of the baseline products or services. In this way they can maximize the effectiveness of their organizations, moving their company toward the forefront of their field, and potentially sustaining it there.

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