

Manufacturing as a Competitive Advantage: Achieving Breakthrough Performance



Why Continuous Improvement Is Not the Total Solution

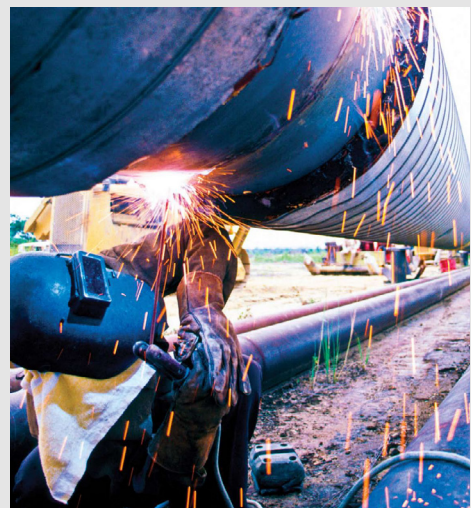
Manufacturing operations exist in an environment of constant change and challenge. Rising raw material costs, energy prices, demands of regulators and competitive threats from offshore manufacturers are just some of the challenges that drive the need to seek operational improvements. For many, this pursuit has led them on the path toward the creation of continuous improvement cultures and organizations. These companies have embraced and leveraged programs over the past three decades - from Duran's quality circles, Deming's TQM, and Toyota's TPM through the Lean and Six Sigma tools and philosophies that are in vogue with today's generation of managers and leaders.

Continuous Improvement (CI) remains a fundamental requirement for survival in today's manufacturing world. That said, it must be recognized that rarely, very rarely, does any CI program provide a source of competitive advantage. This is because 99% of organization's already have CI programs and, rather than

creating breakthrough performance CI is a requirement to keep up with inflation and not lose ground on the competition.

Relying solely on Continuous Improvement efforts in order to maintain manufacturing competitiveness poses a number of challenges:

- If not carefully managed, CI can result in initiative overload. — The programs of recent years –Six Sigma, Lean and their variants – have spawned huge numbers of project activities. Often they stipulate that projects require a “pass grade”. Trying to execute too many such projects in an unfocused manner is a sure way to kill the value that CI can bring to an organization.
- Taking a tactical view on localized issues — Sub-optimization by a lack of focus on less-strategic performance drivers, can often be claimed as a substantial victory, but yields little true, accountable, measureable value.
- Without a concerted effort to ensure sustainability, performance often regresses after a period of time as behaviors revert back to the previous norm. People, as a rule, are uncomfortable with change and, given the opportunity, will lean towards status quo.
- CI is an evolutionary process — often, extraordinary threats and opportunities require a revolutionary targeted response to the scenario that is presented.
- Efforts are typically resourced by employees who still have a full time operations role — Given the lean nature of today's organizations, most employees have little time beyond their daily operational priorities and view improvement efforts as extracurricular. This is often apparent in the scramble that takes place at and around project review meetings and milestones.
- CI improvements focus on incremental, not transformational progress — The local nature of the teams and initiatives does not lend itself well to transformational, enterprise-level changes. What is required in these situations is a “step” change.
- Tracking the value of CI efforts to the business is difficult — Most measures are those of compliance (did we do what we were supposed to?) and effectiveness (was it done the right way?) in tandem with traditional performance measures (time, cost, quality). In many situations, management has placed extraordinary pressure on the measurement of CI activities, in part, to justify the cost of these programs. This has led to some of the most creative project success reporting in decades showing millions of dollars saved in operational activities that never make the transition to the company P&L. It is rare that the improvements are tracked in terms of other value to the business. Also, a great deal of effort and oversight goes into creating measurement systems that do not always provide actionable information.



Situations where a traditional CI approach may not be optimal:

- Sudden and severe economic downturn
- Market demand increases, requiring rapid improved throughput/increased capacity

- Increased commoditization of products, requiring cost reductions to remain competitive
- Increased segment competition requiring higher quality products to maintain a competitive advantage
- Organizationally “self-induced” events (e.g., M&A, stretch goals resulting from strategic imperatives, strategy reformulations, etc.)

To successfully meet the challenges presented by such events, an organization requires a process-based approach that helps to identify and bridge performance gaps in a way that ensures performance will be sustained within a time scale that meets the needs of the business.

KT Targeted Performance Improvement



Kepner-Tregoe (KT) has developed both a philosophy and practical project model to enable organizations to address these situations that integrate with, and add another dimension to traditional CI models.

KT Targeted Performance is a robust model which guides an organization through the processes of accurately assessing the potential for improvement and selecting the optimal project mix and schedule that must be implemented to achieve improvement. Beyond implementation, making the changes required to operational practices, processes, procedures and performance expectations will allow for sustained improvement. Below we'll explain a three phase version of the model (Analyze — Implement — Sustain).

Analyze

Rather than instinctively initiate action in response to events, it is essential the organization first gather relevant information with which to make decisions regarding how best to respond. A thorough, yet expeditious gathering of information (with issue focused data collection) is crucial to guiding the decisions about alternative responses. While there is often information already available regarding where the problems or opportunities are, it is also likely that some of these issues have already been addressed. The intent of a best-in-class analysis is three-fold: prove what is already suspected, disprove what is already suspected, and uncover new information (or look at old information differently). Organizations that approach their responses with this in mind generally make smarter choices on the path they take.

One of the outputs of movements such as Six Sigma is that they have created a very strong capability in most organizations to gather volumes of data and “slice and dice” it to death. However, numerical performance data only tells a portion of the story. Often, causes of issues within an organization are just as strongly associated with how people behave in the business environment, as the business processes that surround them. Successfully understanding the reasons why performance is not providing a competitive advantage requires that influencers of the “people” performance (qualitative) side of the equation be explored just as robustly as the data (quantitative) side.

Focus on capitalizing on strategic value

First, it is important to understand where improving operations processes, practices, and performance fit within the strategic objectives of the manufacturing organization, vis-a-vie other advantage drivers. Is it more appropriate to focus on equipment and capital improvements? Is improving the safety of all workers a higher imperative? Are quality and compliance issues threatening to constrain the ability to operate? Is there simply a need to improve human capabilities broadly across the organization? Understanding where to focus attention at the strategic level is the first question that needs to be answered.

When focusing on operational processes, it is tempting to simply gather the “low-hanging fruit” or rely on technological solutions and capital investments to achieve organizational goals. However, Targeted Performance Improvement is much more comprehensive than just handling the “easy” or “quick” fixes. It clearly outlines crucial factors, including the organization's value system, and external market factors influencing the creation of projects that will either never be implemented, add zero-value, or create internal conflict and distraction. The analysis is structured to uncover the opportunities that will most contribute to successful resolution of the organizations' specific issues.



Evaluate all of the improvement efforts against the strategic objectives before launching initiatives

Once a clear understanding of all the opportunities has been gained, successful manufacturing organizations consider all potential alternative solutions (or combinations of solutions) that they might undertake and how, once implemented, each would contribute to their improvement objectives. While some of the instinctive reactions may have been the most appropriate response, it becomes important to evaluate the existing situation in a more measured manner, determine the objectives that need to be achieved, and ensure that all potential courses of action are considered. This is key to making sure that all actions being considered are what's best for the organization.

In order to ensure an intelligent use of limited resources, successful organizations engage in an analysis specifically tailored to uncover those opportunities most relevant to the desired improvements. KT's approach relies heavily on our proven rational thinking processes for setting priorities, identifying problems and their root causes, making rational decisions, and understanding human performance. The methodology is designed to quickly assess where opportunities reside, prioritize what's most important, and formulate a diagnostic approach.

Considering the opportunity landscape, a variety of diagnostic approaches are employed to uncover where improvement efforts are best focused. Often, this may include one or more of the following:

- **Business process flow analysis** — While a review of existing process flows and Standard Operating Procedures are helpful for understanding how work should be performed, our process flow analysis

requires that we understand how work actually is performed. Based on the seminal book *Improving Performance: How to Manage the White-Space on the Organization Chart*, which launched the process improvement revolution and was co-authored by Kepner-Tregoe alumnus Alan Brache, we employ a proven methodology for taking an in-depth look at the real day-to-day execution of work via observations and interviews. Reviews of actual work products often uncover undocumented sources of non-value added activity, quality issues, and hidden lost time. Understanding these disconnects – and where process design and execution opportunities reside – is critical to improving overall performance.

- **Operational data analysis** — All organizations measure operational effectiveness on a regular basis. These measures typically encompass metrics such as waste/yield, efficiency/delays, quality, and other standard operational indicators. Our approach to analyzing operational data additionally leverages KT's renowned Problem Analysis process to look at the data in ways that organizations may not typically undertake. For example, we often take raw data and search for distinctions that lead to identifying causes of poor performance. Does one shift perform better than another? Does one "identical" machine or process typically outperform the others? Are there cyclical patterns to good or bad performance? Our rational root cause analysis process often helps uncover possible causes of poor performance that have been overlooked by traditional performance measurement systems.
- **Human performance analysis** — The best engineered processes, ISO-certified SOPs, and intelligent use of automation all require humans to execute effectively. Our approach to analyzing the "human" side of operational performance relies on observing and understanding why people do what they do in the context of the environment in which they work. Are there issues regarding performance expectations, unclear priorities, unsuitable work environment, or other "situational" issues that influence how people perform? Do people have the proper tools, equipment, skills, and capabilities to do what is expected? Do the consequences of performing as expected encourage that performance, or are people "bucking the system" to do what is best? How well does feedback regarding their performance help them adjust and continually improve? Our approach to understanding human performance – using our proprietary Human Performance System model as our road map – helps identify what things need to be modified at the "performer" level to improve overall operational effectiveness.
- **Asset performance analysis** — Operational data only tells what is entered by operators or captured by process monitoring systems. To understand the "true" performance of a machine or manufacturing process often requires that it be observed during actual operation. Machine utilization studies, time-and-motion studies, maintenance activity observation, set-up/ changeover observations, value-stream mapping, and other "on the floor" data collection are all integral to fully understanding all the opportunities for improvement.



An agreed upon approach would combine the use of appropriate operational analysis tools and techniques with structured thinking processes to uncover hidden opportunities and quantitatively prove or disprove where those opportunities are suspected to exist. Used in a targeted way, these methodologies will identify the magnitude and location of the opportunities.

If you examine a manufacturing organization long enough, it is difficult not to find dozens if not hundreds of improvement opportunities and devise ways in which to address them. Obviously, leveraging all of the opportunities discovered is the ideal. However the truth of the matter is that not many organizations have the resources to tackle such monumental tasks, even with outside assistance.

Implement

Kepner-Tregoe, relying heavily upon its Decision Analysis (DA) process and experience in managing large portfolios of potential projects, works with organizations to define alternative initiatives to address opportunities and, perhaps more importantly, facilitate a rational process for selecting the right initiatives needed to achieve the desired improvement objectives.



Our approach to evaluating initiatives within the context of all other “project” work occurring within an organization is one of our core competencies. DA is a powerful tool that helps make sure that the work undertaken is the “right” work, is resourced appropriately with the right mix of people, and is evaluated against the overall ability of the organization to fund and resource. Grand visions of step-change leaps in performance often go unrealized because organizations fail to consider that their people have “day jobs” and are often working on other “hidden” initiatives to which management may not have visibility. Our approach to creating an Optimal Project Portfolio, against which any proposed improvement initiatives are objectively evaluated, helps avoid the pitfall of resource drain.

Once an ideal set of initiatives has been selected, Kepner-Tregoe employs its robust, PMI-certified Project Portfolio Management processes to define, plan, and ultimately manage to completion the work necessary to realize the desired results. It works hand-in-hand with appropriate stakeholders and project team members to ensure that the improvements are implemented effectively. Before launching any work, we make sure that the organization understands its commitment (and ours), the results that can be expected, as well as how long the work will take so that intelligent and informed decisions can be made.

Ensure that key organizational resources are used effectively and ongoing operations are not negatively impacted during implementation

Rapid implementation of dramatic changes usually comes at a cost. There is no greater cost in most organizational improvement efforts than the human one. Assessing where opportunities lie, objectively prioritizing which are most important to capture, structuring a logical approach to making high-priority improvements, managing the design and implementation of those improvements... all take time and

effort. Successful manufacturing organizations recognize that not all activity needs to be conducted by their own resources, especially if committing those key resources jeopardizes the day to-day operations. Those organizations most successful at maintaining their competitive advantage leverage interim expertise, when possible, in order to reduce the strain on their organization's most precious resource... its people.

Rely on proven methodologies and best practices when possible rather than reinventing the wheel

While every organization is unique, the fact remains that issues and opportunities have striking similarities across geographies and industries. While not providing turnkey solutions, proven methods and approaches can be applied to specific issues thereby saving much time, money, and frustration during implementation. Successful manufacturing organizations understand that others may have discovered effective means of resolving similar issues and sought out those best practices and methodologies, then adapted them to meet their needs.



Engaging resources who have experienced a wide variety of issues adds value, perspective, and expertise to the implementation effort and allows for improvements to yield results much more rapidly than reinventing the wheel.

Initiatives that are launched as a result of the analysis typically balance physical, process-based changes with activities designed to ensure that the human side of change is accommodated as well. They ensure employee on-the-job coaching with timely feedback. The processes and tools used to support the changes are based, when applicable, on proven best practices, incorporating both practical experience and sound, logical designs. Given the kind of issues we have seen in organizations faced with the need for dramatic rapid improvement, KT brings to the table a number of frameworks for dealing with some of the more typical needs. These include:

- **Business Process Improvement** focuses on changing the actual design of processes employed by the organization to remove non-value added activities, remove redundancies, reduce unnecessary handoffs, and improve cycle time or throughput of key operational processes. Our approach leverages the thinking codified in Improving Performance to ensure that process changes accomplish the goals of the improvement effort and often result in dramatic, systemic performance improvements.
- Our **Issue Escalation and Resolution Process** ensures that issues are recognized as quickly as possible, that they are escalated to the person or function best qualified to deal with the issue and are resolved as quickly and effectively as possible on a regular basis. This type of intervention leverages the best practice KT Problem Solving and Decision Making processes and embeds those practices within the organization's existing business processes to ensure that all issues are handled as expeditiously and appropriately as possible.
- **One Best Way**—When internal "best practices" exist, it is valuable to ensure that they are communicated and standardized across the whole organization. This methodology is especially effective at ensuring

that proven means of successfully accomplishing process goals are institutionalized and out-of-control process performance is brought under control in a structured manner.

- **Lean-KT Initiatives** — For those organizations just beginning or struggling on their “lean journey”, KT’s approach to applying Lean Manufacturing tools ensures that internal improvement teams (and operational personnel responsible for employing 5S, SMED/Quick Changeover, Poka Yoke, Visual Factory, etc.) are equipped and empowered to put them to use on high-priority issues. Combining the proven capabilities of Lean Manufacturing with the power of KT rational thinking skills makes the concepts and theories of Lean operational and easily applicable throughout the improvement engagement.
- **Daily Management** — Organizes the daily information, activities, and communication, provides floor supervision with the skills, tools, and processes for managing the hour-to-hour, day-to-day operations effectively. This, in conjunction with an effective issue resolution skill set (founded in KT rational thinking) ensures that the most important issues are dealt with correctly and expeditiously across the organization.
- **Perfect Day/Shift** — Focused on ensuring that issues, potential problems, and communications that can and should occur before problems arise are dealt with in a proactive manner. Using KT’s Potential Problem Analysis and Situation Appraisal ensures that everything that can be done to prevent problems throughout the day or shift is thought through and acted upon to prevent problems from occurring.

These processes are designed to work within their environment and owned by the client. An appropriate amount of time and resources are devoted to developing the skills and capabilities necessary to successfully execute the change process and utilize new tools and job aids.



Sustain

Finally, and perhaps most importantly, successful manufacturing organizations focus on doing what is necessary to ensure that changes made are institutionalized. Sustainability, at its core, is making sure an organization keeps people “interested” and does not punish people for doing the right thing. Experience has shown that the work required to guarantee ongoing success is often the most overlooked. KT has developed structured approaches to sustainability, including:

- **Optimal Organization Structure** — With changing business processes and operating procedures, individuals will sometimes need to assume new roles and responsibilities. Evaluating the organizational structure and people’s roles and responsibilities to verify that they are optimally constructed is critical to ensure that the design of the organization is not punishing to the individual. Often, new roles and responsibilities identified during business process redesigns are not incorporated into job descriptions, nor is the performance of the individual formally measured based on achieving process targets. Our methodology ensures that process responsibilities are accounted for, performance is measured, and capability gaps are identified and closed to ensure sustainability.

- **Performance System Engineering** — Human performance is influenced by a variety of factors within an organization's control, but often overlooked. Ensuring that consequences of good or bad performance have an appropriate impact on the individual performer, instituting feedback mechanisms so that performers understand what is expected and how to improve, and making sure that systems that are in place to guarantee that people are rewarded, not punished, for good performance is critical to sustaining improvements.
- **Process Measurement and Management Design** — Establishing an effective system for measuring, monitoring, and managing the process that detects problems and issues in a timely manner. Our approach ensures that not only are compliance (were the steps of the process executed?) and quality (were the steps executed correctly?) measured as leading indicators, but also are tied to business value measurements to ensure that expected results are achieved. In addition, we ensure that things are not measured just because they CAN be measured by ensuring that the measurement system provides meaningful, actionable information to those responsible for process performance.
- **Process coaching and on-the-job application** — While skill development is critical to enabling people to work in new and improved ways, translating the knowledge acquired in a training environment often requires that those same people be supported and coached when they start using those new skills on the job. Our approach to coaching and feedback in the early stages of implementation provides an additional measure of assurance that the designed improvements remain in place permanently and that people are equipped to sustain (or improve) performance long after we are gone.
- **Implement measurement systems early that are tied to operational goals** — Traditionally, all manufacturing organizations are managed, rewarded, and sometimes punished within their existing measurement systems. It is key to dedicate adequate time and resources to developing and implementing effective measurement systems that do more than just monitor the traditional performance metrics. They must also ensure the process measurement (how well processes are executed), political measurements (those measures that increase stakeholders confidence that improvements are happening), promotional measurements (those measures that take into account the development of people outside the internal teams existing measurement system) as well as temporary measures designed to monitor the success of the implementation effort. We suggest to discard or modify temporary measures once the changes have taken root. In addition, leading and lagging indicator measures are balanced where possible to ensure that metric "slavery" is not created by validating a measure capable of telling them something which they can act upon.
- **Support tactical changes with corresponding efforts aimed at behavior and human performance** — While many of the solutions that are implemented in response to an organization's opportunities will be technical, tactical improvements, all will require that the people expected to execute using the new processes, tools, equipment, and information be capable of doing so. And, once capable, they need to be provided an environment and "performance system" that encourages the appropriate behaviors and performance. Realizing that an environment conducive to employees performing in the manner expected does not happen by accident. Successful manufacturing organizations have put forth the time, resources, and effort required to make that happen. They also ensure that the organization is properly equipped to manage new or changed processes effectively by understanding its performance, ensuring that process ownership is actively engaged in continuous improvement after implementation, and proactively responding when future issues and opportunities arise.

Conclusion

There is no argument that Continuous Improvement programs are vital to a manufacturing organization's ability to stay competitive on a day-to-day basis. But they are often limited in their ability to quickly and effectively respond to extraordinary events and challenges that organizations often face. In these situations, a more appropriate response is an event-based approach that provides a temporary influx of effort, focuses on high-priority opportunities that directly respond to what is happening, yet ensures that improvements that are achieved are not temporary and remain in place moving forward.

About Kepner-Tregoe

Kepner-Tregoe is the leader in problem-solving. For over six decades, Kepner-Tregoe has helped thousands of organizations worldwide solve millions of problems through more effective root cause analysis and decision-making skills. Kepner-Tregoe partners with organizations to significantly reduce cost and improve operational performance through problem-solving training, technology and consulting services.

