



How Front Line Employees Can Take On a Leadership Role in Continuous Improvement



Continuous Improvement has moved to the front lines of production. This has been a logical transition; for years the front line or shop floor teams have been involved in Kaizen events run by Continuous Improvement (CI) departments.

Increasingly, the shop floor teams are stepping up to leadership roles. With CI departments helping to compile necessary documentation and offer some training, the front line is able to run events, document improvements and establish best practices. They are running events on 5S, efficiency, safety, and other relevant projects. By empowering front-line teams to lead improvements, CI departments are becoming smaller and are more focused on the most difficult issues.

It is a natural progression for front line teams to take on problems that affect their line and to troubleshoot root cause, rather than leave it up to CI or Quality people. These empowered front line or shop floor teams are often called High Performance Teams (HPTs). HPTs are responsible for assembling parts as

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well as ensuring safety, quality, cost, flow, delivery, and morale. While there will always be engineers responsible for the line, there has been a clear shift in responsibilities.

The shift of CI to the front lines officially grants control to HPTs and acknowledges their ability to better their line and satisfy customers. In our work with manufacturing organizations, we have seen a genuine willingness from HPTs to take ownership of these responsibilities, along with a desire for additional training to better meet the challenge.

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Moving Continuous Improvement to the front line requires a plan for structuring and training HPTs.

It is one thing to say the team is empowered, and another to actually empower them with tools and training that are necessary and valuable. Moving CI to the front line requires a plan for structuring and training HPTs. You simply can't provide weeks of training and then turn the HPTs loose. Training programs must include practice, relevant applications, and on-going encouragement and support.

We have been involved first-hand with helping these teams become better problem solvers. Many of these front-line people are highly experienced with a long tenure running the line. But most report that they never had problem-solving training and that they rely on skills acquired over time while addressing issues on the job. They have developed capabilities in providing suggestions for resolving issues when machines are running slow or breaking down, for running out of parts or packaging and other line stoppages, or for making too much of one product. But training them to find cause and solutions and address complex issues is a clear shift. Without proper training, they lack specific processes to solve problems and make decisions. Providing the HPTs with critical thinking-based problem-solving skills creates advanced expertise not tied to a specific process, machine or function. These are skills that provide ongoing value throughout their personal and professional lives.



Case Study: HPTs Apply Newly Acquired Troubleshooting Skills

Recently, a client selected Kepner-Tregoe Problem Solving and Decision Making (PSDM) training to provide HPTs with a shared troubleshooting process. We helped the teams improve their critical thinking and use questioning techniques to gather relevant data needed to solve problems efficiently and effectively. The HPTs received introductory training that focused on problem analysis. The teams learned how each step—from discovery to finding cause and from installing and validating the solution—plays an important role in customer quality assurance. Applications helped them work through the process on their own and to become comfortable using their new skills on the job. The value of the new skills was quickly evident following a call from a client...

Our Quality Engineer (QE) stated that a bent rail was found at one of our customers who is an OEM. The QE, following the proper procedure, posted a quality alert at the line that a bent rail was found at the customer's site. While the part was being returned from the customer for more investigation, the HPT initiated a short-term containment process to increase awareness and search for other bent rails, even though "bent" was not 100% understood. One of the first training lessons learned that the HPT put into practice was to clarify the issue: to determine what the rail "should" be (straight) and, based on the preliminary complaint, what the rail "should not" be (bent). The HPT installed an inspection containment area at the end of the line. This set a clean point and an agreed upon data point for the inspected rails going forward.

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Traditional problem solving would have had the QE handling the issue, filling out the paper work, and resolving the issue, but with HPT involvement, the team took on the challenge, anxious to learn more and to find root cause. A working meeting with the HPT and the QE was scheduled for when the part arrived from the customer and the team was on the lookout for more "bent" rails. Preliminary KT documentation to analyze the problem was begun by the HPT and would continue as the troubleshooting unfolded.

The part arrived the next day and, fortunately, another bent rail was found in the containment area inside the plant, clearly eliminating any discussion or opinions that the customer had caused the issue. The empowered HPT put the KT methodology that they recently learned into practice. Answers to their critical questions determined that it "is" the inner rail that was bent and "is not" the outer rail. It was interesting to the team that an assembly with two rails, outer and inner, would only have the defect on the inner. The preliminary data was recorded and the process continued. The simple question, "When you say 'bent', what do you mean and how do you quantify it?" yielded the insight that the bend was really a twist to a certain angle. So it "is" a twist and "is not" a bend, it "is" a seven degree twist and "is not" greater than or less than a seven degree twist.

This tenacious questioning exposed exactly what was needed. It may seem like a subtle difference, but a twist is different than a bend, and its measurement could easily have been overlooked. Now the team began looking for a "power" that could move and twist steel. Dropping a steel part probably would not twist a rail, much less two rails at exactly seven degrees. Looking for cause, the team asked: How

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could this steel rail get twisted on the manufacturing line? Few machines on the line were capable of "bending" steel.

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On the line, the team examined the machines with enough power to move steel: the rivet machine and swedge machine had the power, while the screwing machine did not. The team reviewed the motion of every machine with hydraulic power on the line and realized that one machine had movement close to the inner rail. With a little experimentation, the HPT found that if the inner rail is not seated properly into this swedge machine, when the machine closes to swedge, it contacts the inner rail off center and twists it, resulting in a permanent twist of seven degrees. The HPT had quickly found the root cause.



Following the KT disciplines, the team acknowledged that care must be taken to load the machine properly. The rails must be fully seated in the machine before it is cycled to swedge. The team informed all the operators and added clarifying operator instructions. Thinking "beyond the fix" they asked, "Can the machine be improved so that it won't operate if the rail is not completely seated?" This type of follow-on thinking and the rapid problem-solving results validated the team's High Performance name. The team was not just empowered; it was trained and ready to use analytic thinking to address quality situations and improve production.

It is said that quality is everyone's responsibility, but continuous improvement is everyone's responsibility as well. To make this a reality, it is necessary to take the next step and equip people with the proper tools. To expect high-performance, appropriate training is needed. A simple analogy is high-performance athletes: they are well trained; they practice the skill; and they are coached to help achieve high-performance. Similarly, HPTs require training along with practice and coaching; it cannot be left up to tenure on the front line alone. The "Bent Rail" case demonstrates how a newly empowered and equipped HPT can seize opportunities at the shop floor and bring efficiency and effectiveness to improving the company's performance.



Joel Beezhold

Joel is extremely passionate about continuous improvement and solving problems. Over his career in engineering, quality, and manufacturing, he has challenged his teams with the relentless pursuit of perfection. With his education in engineering and extensive experience over the last 25 years in the automotive industry, including Prince, Johnson Controls and recently the joint venture with Yanfeng, he has assisted teams and customers to become more capable in manufacturing. He is certified in Lean, Six Sigma, and Kepner-Tregoe and has won awards in those fields. Recently retired as Vice President of Operations at Yanfeng Automotive, he continues to connect with companies to assist them with their implementation of critical thinking skills.

Joel and his wife live near Holland, Michigan. He enjoys hiking, sailing and working in his wood shop in his spare time.

About KT

Kepner-Tregoe has empowered thousands of companies to solve millions of problems. KT provides a data-driven, consistent, scalable approach to clients in Operations, Manufacturing, IT Service Management, Technical Support, and Learning & Development. We empower you to solve problems. KT provides a unique combination of skill development and consulting services, designed specifically to reveal the root cause of problems and permanently address organizational challenges. Our approach to problem solving will deliver measurable results to any company looking to improve quality and effectiveness while reducing overall costs.

