
**OCTOBER
2006**

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**Dinner Meeting for
Oct 12, 2006
at Hall's Guesthouse**

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**Be sure to visit our section
website:**

<http://www.asq0905.org>

Section 0905 Mission Statement

The mission of Section 0905 is to develop and provide a strong organization for exchanging knowledge and ideas necessary for the growth and development of quality professionals in a manner that benefits the membership, business, and the Northeast Indiana Community.

Mailing Address:

**American Society for Quality
Northeastern Indiana Section 0905
P.O. Box 11887
Fort Wayne, Indiana 46861-1887**

The Histogram

N e w s l e t t e r

October 12th
Hall's Guesthouse
1313 W Washington Center Road
Fort Wayne In 46825
Ft Wayne, IN

Social at 5:30
Dinner at 6:00
Presentation approx 6:30

Please RSVP by Monday, October 9th
Jim Smith, 260-434-5464, james.e.smith@baesystems.com

Dinner \$19.00 - If you can't make the meeting, please have the courtesy to notify Jim of the cancellation. We are charged for all reservations whether or not you show up.

Adhesives and Sealants

The right product, in the appropriate design application, with the proper installation process is the formula for success.

OVERVIEW

The Henkel Loctite seminar will be an overview of considerations when designing or producing product with adhesives. Subjects covered will be joint design, basic failure analysis of adhesives, considerations when using adhesives and brief overview of several adhesives chemistries (i.e. instant adhesives, structural acrylics, light/UV cure and anaerobics-threadlocking, sealing and retaining). Joint design, which is critical for the strength and durability of the part, will discuss what forces a joint will see and how adhesives will perform under these forces. Adhesive failure will cover how an adhesive can fail, possible reasons why and the nomenclature for the failure. Considerations when using an adhesive will cover chemical attach of substrates by adhesives, single or two part adhesives, exotherm considerations, cure/fixture considerations, contamination considerations and equipment needs. The brief overview of adhesive chemistries will provide information on how the adhesive cures, benefits and considerations of using the adhesive and dispense equipment involved. I will have some hands on demos, but promise not to glue anyone to their table. Literature and support resources will we available.

Please bring any assembly problems or parts that are being considered for bonding. I would be happy to discuss.

ABOUT THE SPEAKER

David Herrick is an Adhesive and Sealants Specialist for the Henkel Loctite Corporation. He has a background in chemical engineering from Purdue University, with a BS in Management. David has been in industrial sales for over twenty years, with experience in painting processes, fluid handling, fluid power and adhesives and sealants. As an OEM specialist in Indiana, he supports a select group of customers for production applications of adhesives working with numerous industries; medical, automotive second or third tier, pumps, electric motors, general industry, specialty vehicle, HVAC, etc. and is a certified instructor by IACET (International Association for Continuing Education and Training).

David has been with the Henkel Loctite Corporation for nearly six years. During that time he has been able to provide hundreds of thousands of dollars in cost savings by improving customer processes across numerous industries and applying what works for one customer industry to other industries.

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Where Are We Going?

‘Would you tell me, please, which way I ought to go from here?’
‘That depends a good deal on where you want to get to,’ said the Cat.
‘I don’t much care where —’ said Alice.
‘Then it doesn’t matter which way you go,’ said the Cat.
‘—so long as I get somewhere,’ Alice added as an explanation.
~ Lewis Carroll, *Alice’s Adventures in Wonderland*

For this month’s article, I thought I’d focus on something that should be important to each of us. Of course your company should be planning for the future. According to *Strategic Futures* most industries have moved from a quality improvement focus to one of process reengineering. Look at the structure of ISO 9001:2000.

But what about the most important thing in your life?...your life. If you don’t have a plan for where you’re going, how will you know when you get there? In our personal lives, what can we do today to help ensure our happiness and success tomorrow? In the big picture, no one is going to look after your career for you, but you. Do you have a personal mission statement? Where do you want to be in five years? What are the goals and strategies you are developing today that you can use to achieve your vision? According to Graeme Edwards, It’s not the plan that’s important, it’s the planning. In other words, once you have a plan it’s pretty easy to roll it out.

Below is a template suggested by Erin Malone, Director of Design for the Platforms Product Group at Yahoo! If you do this exercise over time you will become aware of how important this was for you to do. Looking and assessing where you are at this time, really thinking about what you want to be doing in the future, will give you the tools to make the right decisions to make things happen. I recommend that you also make sure your goals include life and personal goals as well as career goals. The older I get the more I realize that these are intertwined and success in one space brings success to others. Work/Life balance matters.

The Template

1. Your Name

2. Today’s Date

This is important as you reflect back on this document. This will become a touchstone for your growth and a reminder of who you were as you look back at what was important to you in this point in time.

3. 3–6 Months

- 1 Start small
- 2 Think about short-term goals that are easily achieved but will also help move you towards the longer-term goals
- 3 Include some tangible goals (i.e., work on a project with an ASQ board member to develop a skill).

4. 6–12 Months

- 1 What new skills do you want to learn?
- 2 What new ideas do you want to share with others?
- 3 What changes do you want to make? Put them down here along with the steps needed to take to make them happen.

5. Beyond 12 Months

- 1 **Capture specific plans** that you know may take more than a year to get to or accomplish.
- 2 **Be realistic but not afraid to reach.** Visualize success in areas you may have little control over. Don’t be afraid to write down a desired goal that may be a stretch.

6. Longer-term Goals

- 1 This is the area to think out for the next 3–5 years, including life beyond the company or situation you are currently in.

NOTE: If you decide at a later time, that you don’t really want to do this, you should remove it off the plan. Make the plan a living document.

7. Opportunities to Explore at Your Company

- 1 List all the training and coaching opportunities relevant and currently available at your company.
- 2 Note relationships that need to be cultivated at your company in order to meet success.

8. Skills to Develop

- 1 Project what skills you need to develop to reach the goals you listed in the first part of this exercise.
- 2 What other skills do you need, besides the ones you have now, to attain your goal? Think about starting slow and building on your successes.

9. What I Care About in a Work Environment

- 1 This may seem frivolous or not important to the task at hand, but it serves to remind you of the values you need to share with the company you work for. As you grow or the company changes this can help guide you when you need to make a change.

10. Personal Goals

- 1 Don’t forget the personal goals that you need to weave into your life. It never hurts to write these down as a reminder of work/life balance and of the things that are really important to you as a person.

The plan should help you shape a vision towards reaching a future destination and remind you that success does not happen by chance. Remember that important career skills can be learned by joining in the ASQ section activities.

To summarize, here is a quote from Benjamin Mays an educator who delivered Martin Luther King’s eulogy:

“The tragedy in life doesn’t lie in not reaching your goal.
The tragedy lies in having no goal to reach.”

The Impending Talent Crisis ... Six Sigma and Lean to the Rescue

By Tim Noble

“Talent Wars” and “Brain Drain” are not the latest must see horror movies from this summer, but U.S. business leaders might want to sit-up and take notice of an emerging crisis that could play-out frightening results for their organizations in the coming decade.

As 77 million U.S. Baby Boomers begin to retire over the next decade, there are only 46 million Gen-X’ers available to backfill the Boomers’ retiring ranks. Even with a modest two percent economic growth rate over the next 15 years, demand for critical talent could increase by as much as a third, creating a “war” for critical talent. For some companies the crisis may be even more immediate. One recent study of the nation’s 500 largest companies reported that they expect to lose half of their senior management over the next five years. Additional studies suggest that up to 85 percent of major companies surveyed have no formal program or process in place to deal with this impending crisis.

In the past few years companies have been so transfixed on downsizing to contain costs that they have largely neglected this looming threat to their competitiveness. There is no doubt that over the next decade or so, demand for talent will ebb and flow with the economy, however there is no denying this demographic shift and the potential impact it will have on U.S businesses. Some companies may be in for a rude awakening when they are unable to achieve even the most modest of business goals due to drastic staffing and talent shortfalls.

A less visible but no less dangerous problem is the loss of knowledge, or “brain drain,” resulting from senior workers departing the organization without passing on their expertise to others. This lack of knowledge management will place many companies in a position to repeat prior mistakes and expose businesses to additional financial and operational risks. Worse yet, if no action is taken, some organizations could be headed for a point of no return with the complete loss of process knowledge in a few years.

Companies that rely solely on a strategy of outsourcing as a potential solution may be in for a shock as well, as existing sources of talent from offshore labor pools, such as India, Mexico and China, dry up as these countries recognize their own needs and provide incentives to retain talent in order to support their own local economic business objectives.

Given this looming demographic shift, the time for corporate leaders to act is now; however, companies must resist the urge to rush ahead without a well-balanced and deliberate approach to managing and leveraging their human capital. Part of the solution may lie with such tools as Six Sigma and Lean. With their focus on process discipline, variation reduction and waste elimination, these tools are well-suited to help companies address this impending crisis.

Six Sigma has long been utilized by organizations to transform manufacturing and transactional processes from art to science by defining and validating key process variables to gain process control and eliminate variation. A key part of this methodology is the capture, transfer and validation of knowledge from process owners, thus making Six Sigma an essential part of any action plan to deal with the dangers of organizational “brain drain.” Companies need to not only view Six Sigma as a tool to drive productivity and service, but also as an essential methodology for critical knowledge management within their organizations. Six Sigma has a built-in tool set that lends itself very nicely to capturing and validating critical process knowledge that may otherwise be lost when key talent departs an organization.

The Lean tool kit can also play an important role in aiding organizations as they deal with this imminent crisis. Lean has a built-in methodology with such tools as “value-stream-mapping” and “standardized work” that can help organizations identify and eliminate non-value-added processes that waste human capital. Lean, with its focus on waste elimination, is ideal for helping organizations to free up human capital for redeployment. However, Lean will need to move beyond its stereotype as a tool set for only manufacturing and be accepted and applied to transactional processes in order to be an effective tool to mitigate the effects of this impending crisis.

Six Sigma and Lean are only part of the potential solution, providing a proven set of tools that can be part of a broader business talent management strategy. Business leaders will first need to recognize that the short-term solutions of the past will not work and accept that the landscape for talent management will dramatically change, requiring a more balanced and comprehensive solution in order to remain competitive in the coming decades.

About the Author:

Tim Noble is an executive recruiter and managing principal of The Avery Point Group, a leading national executive search firm providing functional expertise and executive search focus in the areas of Six Sigma, Lean, plant management, operations management, supply chain management and finance. www.AveryPointGroup.com

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Section 0905
Dinner Meeting Review
September 14, 2006

The dinner meeting was at Halls Guesthouse. Twenty nine people were in attendance. The speaker was Steve Shoda, past Chair of our section.

Steve works as a Principal Quality Assurance Engineer at BAE Systems, Inc. in Fort Wayne. He is a Lieutenant Colonel in the Indiana Air National Guard. Steve is also an adjunct professor at IPFW. He holds a Bachelor of Science in Chemical Engineering from Purdue University and a Masters in Business Administration from IPFW. He has CQE and SSBB certifications from the ASQ. Steve is our Outreach Chair this year and is heading up the Economic Case For Quality in Section 0905. His talk was interesting and informative. The relationship between quality and profits was discussed. The presentation provided an overview on how quality gurus define quality, and how quality, costs, and organizational success are related. Also, business case studies depicting the impact on the bottom line from both quality successes and lessons were presented. An understanding about how quality affects the bottom line was developed.

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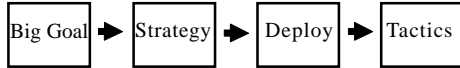
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QUALITY PROCESS UPDATE

OCTOBER 2006

QUALITY POLICY DEPLOYMENT PROCESS



TACTICS

NEWSFLASH!

Stable processes and perfect parts will not necessarily result in perfect assemblies!

Quality gurus have drilled into professionals that Quality means meeting the specifications and minimizing variation around a nominal dimension. All of the customers demand a CpK of 1.33 or greater on every CTQ. But, does all of this effort produce a better product or process?

A recent study looked at the functional builds of 14 different vehicles and some of their components: from domestic, foreign, and transplant factories. The result indicated that of the 500 component dimensions measured during the work up, almost 50% failed to have a CpK of 1.33 or higher. However, fully 90% of those failed parts did not cause a problem during assembly. The other 10% did. That's 22 parts. Forty of the assemblies had build problems. These 40 had passed cleanly through the CpK screen!

A second finding showed that the assembly function is very important to quality. However, assembled product quality DOES NOT CORRELATE WELL to individual part quality.

How does this come about? In searching for root causes, the researchers found the following:

Methods: Most parts are not truly rigid. Therefore, one of two issues arise, either inspection finds it difficult to identify "perfect parts" and adds more measurement points to assure that all aspects of a component are measured. Inspection then constrains the parts when they finds that this improves measurement repeatability. By changing the numbers and locations of the clamps and their collective force, the non-rigid part comes closer to nominal values. Adding measurement points also increases the probability of not meeting specifications and, in general, further delays program launch dates.

Manpower: Meanwhile, under pressure to improve the quality, designers tighten tolerances on individual components. On the solid math model, the vehicle's gaps tighten up beautifully.

Machines: Toolmakers and stampers experience extreme pressure to make perfect tools. The researchers found that approximately 20% of tooling costs are related to trying to achieve the last microns of perfection; the perfection requirement just added by the designers and their models.

Ah!, but the ends justify the costs! Wrong. In the study, the "poorest" CpK parts yielded vehicle components which all rated in the top half of the vehicles with "the fewest number of customer complaints, almost none from gaps or water leakage." Conversely, some of the parts with CpK as high as 2.4, and all above 1.33, were associated with the defects found in the 50% of vehicles that had the most number of customer complaints, primarily wind noise.

What to do? Baron and Gerth at the Center for Automotive Research recommend? FUNCTIONAL BUILD methods are their choice. They describe functional build as a strategic approach to assembly in which the resultant product is a functionally acceptable product despite possibly having parts that are out of specification in regards to specific dimensions. Functional Build is based in a technique called "screw and scribe," where manufacturers screw components together to form subassemblies used to check for interferences. Based on that variability, they set specification tolerances. The subassembly modules are considered to be rigid, and more traditional quality methods become the rule as the modules are incorporated together into assemblies. Baron and Gerth confirm that certain PRODUCT LEVEL METRICS often correlate better with CUSTOMER SATISFACTION than individual module/subassembly quality. An example of product level metrics in the case of Baron and Gerth are gap and flushness measurements between a component (ex. a car door) and its mating part (ex. body side panel). In this case, the assembly process is the CTQ characteristic!

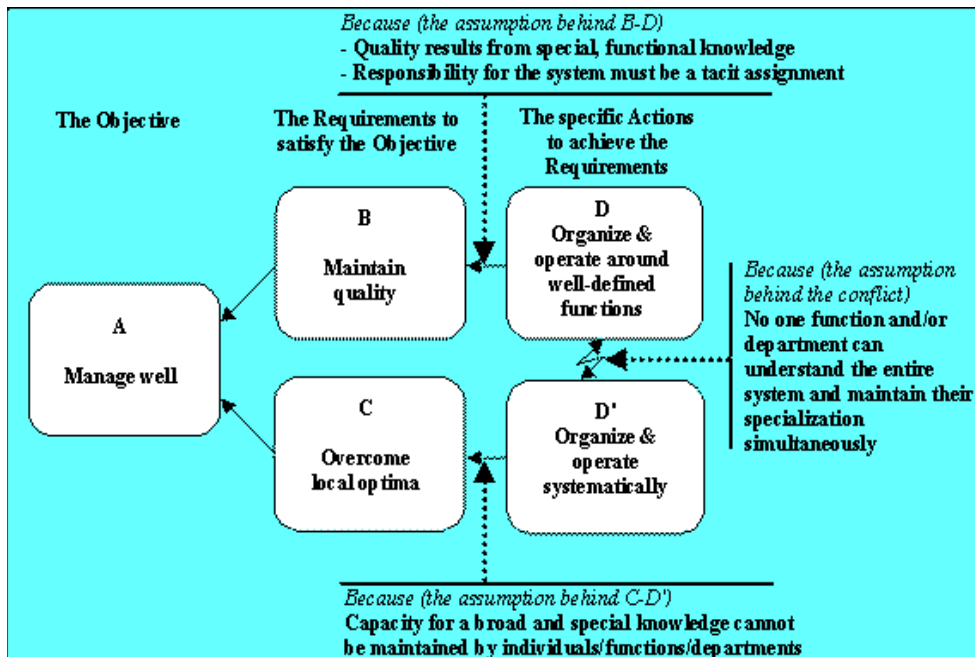
Functional build methods are part of a larger class of quality philosophies called SYSTEMS QUALITY. In Systems Quality, quality is viewed more wholistically. Examples include new concepts in simulation of many parameters to determine a good product and or process versus a "reductionist" philosophy which says that you can measure it finely enough to get good parts. Reductionism is like the effort to write laws tightly enough (to a CpK >1.33), and then having people find loopholes to exploit.

QPU will explore Systems Quality over the next few issues.



CONFLICT RESOLUTION

By coincidence, the TOC (Theory of Constraints) Center had a good article on resolving conflicts. The example focused on reductionist versus systemic approaches. Lynne Hagan writes, "I think what many of us hit against is the 'If it ain't broke, don't fix it' syndrome. This seems to come in endless variations. My favorite of the moment is the assumption that the system should stick to its specialty." Using the Evaporating Cloud technique of conflict resolution she goes on to say, "The problem statement seems to be: In order to 'Manage well,' we must 'Maintain quality.' As a deeper cause this leads to "Organize and operate around well-defined functions." The conflict arises because as she says, "to manage well also means to "Operate profitably." To operate profitably we must also "Overcome local optima," which leads to having to "Organize and operate systemically."



Lynne Hagan's comments expressed through a conflict resolution diagram called the evaporating cloud

Key underlying assumptions she believes include: 1) Quality results from special, functional knowledge; 2) No one function and/or department understanding the entire system while remaining specialists; 3) Responsibility for the 'system' is rarely stated specifically until the executive ranks (pay issue?); and 4) The capacity for broad and special knowledge cannot be maintained by individuals, functions, or departments simultaneously. This last assumption seems to offer a great deal of promise. Knowledge management may provide a solution, as would performance metrics dually aligned with both functional and systemic excellence. In the example before, that would be gap and flushness measures.

HANDLING NON-NORMAL DATA

The gap and flushness measurements that we discussed will inherently not be normal or Gaussian. Why? The data have a cutoff on one side of the distribution when the one component crashes (interferes) with the other or when they are dead flush. In some cases that is a small enough error and "standard" statistics are not unreasonably biased. In many cases, the error is too great. QPU in this and following months will cover ways to handle the non-normality. The intent is to add tools to the kit, as many well trained people including many Black Belts have never seen these methods, and they aren't standard MINITAB stock.

RESAMPLING AKA "BOOTSTRAPPING"

The late Julian Simon developed the technique of resampling to make statistics accurate, simple and rapidly learned. For example, measure a component dimension on a number of parts from a sample batch versus a control. Is the batch likely to be out-of-specification or from a different population? In its simplest form, follow this procedure:

1. Write down each data point on a card: 0.012, 0.015, 0.012, 0.014, etc.
2. Shuffle and deal out a card. Record that number.
3. Put the card back in the deck.
4. Shuffle and deal. Record that number and stick it back in the deck.
5. Do it eight more times (reps) and call it group A.
6. Repeat 2-5 and call it group B. Do 50 groups.
7. Calculate the average of each group.
8. Do the same for the "control" group.

9. To get the Lower Control Limit (or the t-test significance limit), choose your desired "false alarm" rate (Type I error which for a 3-sigma (99.73%) situation it is an area under the curve of 0.0027) and calculate $0.0027/2$ (two-tailed) times the number of number of subgroups (50). That is 6.75%. So, arrange your **control** subgroups lowest to highest and make it so that 6.75% fall below the LCL and 6.75% fall above the UCL. In this case, the LCL is between the 3rd and 4th lowest ($0.0675 * 50 = 3.38$) subgroup average for the controls and the UCL is between 46 and 47th subgroup average for the controls.

Now see if any of the sample group fall outside of those limits. If so, the batch came from a different population.

