



Beyond the science of rearranging atoms in metal, heat-treaters need to pay attention to the ever-changing variables affecting employee satisfaction and performance.

Transitions and transformations in the workplace

In the heat-treat world, metals are carefully ramped up to certain temperatures to allow for transformation of the microstructure. Temperature and time allow the atoms to energetically form more favorable energy states — atoms are “happy” and content where they are.

Job duties at a company can involve long hours working on a project, and the temperature of the room can sometimes rise with heated meetings over scrap or production efficiency. Time and this type of temperature can transform people as well. But the question is, what is that transformation? And are people really content with staying at a particular position or do they feel the need to “transform” and climb the corporate ladder to make them happy?

I have reflected on this while stepping from a process engineer to a managerial position. What, exactly, does it mean to transform? Does it truly mean to “climb the corporate ladder”? Or does it mean to fulfill one’s fullest potential, which might mean being the best process engineer one can be in their career?

With materials that are heat treated in furnaces, the cycle design intent is to optimize a certain range of the material’s properties for end use. Same, too, in an organization. Employees have certain talents and skills that, when optimized for a certain position, can result in improved results for the entire company. Not everyone needs to climb the corporate ladder to be a better employee. What people should think about is how they are growing in their current position. That growth isn’t always upward.

THE IMPACT OF TIME

The rat race. The mostly unspoken discussion of reaching retirement. We run ourselves on the treadmill of work every day toward the march of retirement when we can eventually kick back and work on our golf game. However, this is a sort of sad way to view someone’s life. Psychologist Erik Erikson broke down a human’s lifetime into stages, and even then these stages aren’t as defined as a working procedure with a statistical process control monitoring a person’s true capability at meeting AS9100 requirements.

Time needs to be viewed instead as the opportunity for someone to do meaningful work. Work that helps them grow as an employee and even as an individual. Work that engages them such that it might even become play. I have explored this concept in my previous articles, “The paradox of work and happiness,” “The ‘why’ in heat treating is important to operators,” and “Employers need to expand on carrot-stick philosophy.”

Therefore, when time is measured at work, it is not necessarily in the hours of work performed. Doing something eight times for eight years is different than doing something eight times a day for eight years. But very often we hear employees describing their work career as, “I’ve been doing this for 27 years.” Really, the statement should be, “I have been trying to be the best process engineer or heat-treat operator or manager for 27 years.” That is the true impact of time.

THE IMPACT OF TEMPERATURE

Heat treat doesn’t take away from the initial properties in as-cast material; Rather, it transforms it into something new. But the process takes energy. The process is also controlled (thanks to Nadcap and the famous AMS2750 pyrometry spec) such that it allows for the transformation to occur. Allowing for temperature regulation in the work environment is critical at a personal level and among the team.



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TRUE TRANSFORMATION

It is suggested in Maslow's Hierarchy of Needs, a psychological model for understanding human motivation, that every human being has the potential to be their fullest selves — to become self-actualized, similar to an acorn having the potential to become an oak tree. A planted seed can grow up in an environment that poses many threats to its growth such as hurricanes, loggers, wildlife, and so on. Constant upkeep is sometimes needed by way of trimming undergrowth or weeds or vines to protect the tree.

In the workplace, I have realized that the upkeep of myself and others is like a forest and the growth of the trees. I have to take care of my own growth as an individual, pruning bad habits and planting better ones in my schedule. As a manager now, I also have to look after the team. Their respective growth requires trimming the nuisance tasks from everyday work to do the work that counts. Peering above the tree line to see the direction the growth is actually going. Aligning the branches to grow toward the sun. Building the necessary walls to have the water flow around so the trees don't get washed away. Stepping up for the team in meetings and giving credit when credit is due.

As a manager, it's now about putting things in place so people don't quit and walk away from a company, to continually engage with them to make the work seem challenging and sometimes even fun so we can all grow together. 🌱

ABOUT THE AUTHOR

Tony Tenaglier is the quality control manager at Hitchiner Manufacturing. He earned both a B.S. in material science engineering and an M.A. in psychology. You can contact Tenaglier at tony_tenaglier@hitchiner.com.

Let's face it, each and every one of us has gotten angry over a mistake we have made, or a bad remark we received from our boss or even a customer. But there needs to be tolerances for acceptable behavior.

As in heat treating metals, there is a certain setpoint to when the metal simply melts. Hopefully, the workplace environment doesn't cause meltdowns among employees. Recognizing the internal temperature rising and falling was important to me as an engineer navigating the day-to-day of creating and developing the heat-treat process to meet aerospace requirements from the AS9100 and Nadcap requirements. Now, as a quality manager, it's about continual understanding of the temperatures in the team's rise and fall of energy in reaching their true "transformation."

Heat Treat
EQUIPMENT

**Ready to Deliver.
Ready for Production.**



Wisconsin Oven Gas-Fired Batch Oven Model EWN-820-8G • U-3788

Working Dim's	96" wide x 288" deep x 96" high
Power	480V / 3-Phase / 60Hz, 35 Amps
Max Temp	650°F
Heating	Natural gas, 1.0 MM BTU
Controls	Control panel mounted on oven
General	Front & Rear Doors (vertical rising)



Surface Comb Endothermic Gas Generator Model RX-2T-BES

Capacity	6,000 CFH
Fuel	Natural Gas, 520 CF per hour, 1000 BTU/CF
Power	480 Volts, 3-Phase, 60 Hz
Max Temp	1950°F
Flow Meters	Waukee
General	Control panel mounted to generator frame

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42056 Michigan Avenue • Canton, MI 48188
Phone: 734-331-3939 • Fax: 734-331-3915 • heattreatequip.com