Case Study

Tribal Knowledge

Capture Functional Knowledge, Customs, Language and Best Practices to Create Repeatable Processes Company-Wide.

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In manufacturing, repeatable, measurable process is prized while "winging it' is verboten. And for good reason: process equals discipline, safety and efficiency. It is also true, though, that the informal solutions plant personnel develop can often be highly valuable. "Tribe members", better known as operators, often find new and better ways to do things not conceived, proposed or supervised by plant engineers or other leaders.

However, those better ways are not typically formalized into benchmarks, recorded for future reference, nor presented to the group via training or a knowledge transfer process. Instead, the tribes' improvements are passed along verbally or through other informal means. This leads to inconsistent performance throughout the tribe or shift.

Introduction

A manufacturing plant with three, eight- hour shifts may have formed three different tribes: each with its own language, customs and traditions. This can lead to dramatic operating efficiency differences from one shift to the next, and can affect all levels of a plant's operation from production scheduling to staffing.

And, when tribal knowledge becomes so focused on the needs of the tribe or shift and not the overall business needs of the organization, changes are forcefully resisted, business objectives are rarely attained, training of new employees becomes more difficult, and the benefits of proven best practices are not shared throughout the organization.

So what happens when the rollout of a new product creates the need to transform operating culture of an entire plant? How do you address the tribal differences between shifts? What are the strategies leadership can employ when creating a fully integrated tribe across all shifts? What will leadership need to do to make it a sustaining endeavor?

This paper lays out the answers to these questions in the context of an actual case for the national rollout of a new product line for a large global beverage company. Additionally, it provides proven concepts of how to use tribal knowledge to encourage innovation

Forming A Tribe

Building A Culture

If you'd like to see a management team unnerved, tell them they need to change the culture of their organization. Why? Because we've all witnessed total failure under the banner of culture change. The reasons are easily seen:

- Long-term employees who have created their own way of thinking resist changes to the point of cultural sabotage
- Management's commitment to effecting real change often consists of tired slogans and uninspired incentives without real action.
- New team members with varied histories, levels of experience and undefined roles lack cohesion and the unit remains miles away from a functional culture.

This last example of new team members not fitting in is one of the major issues faced by this beverage company for its new rollout. Employee experience levels included recent high school graduates, individuals with limited computer knowledge, and those who worked in very dissimilar industries.

Build, Don't Change

The first step in effectively changing a culture is to replace the mindset of "culture change" to one of building a new culture.

Building a culture first requires: (a) identifying the type of organization leadership wants, and (b) defining the business objective this culture is to achieve. Only with this knowledge would you understand the context by which plans, conversations, and training should be measured.

In this case study, a series of interviews revealed that management wanted a highly flexible workforce capable of performing numerous complex tasks including unloading products, performing quality checks, batching ingredients, transferring products to storage, and performing CIP duties as required.

Additionally, management wanted the team to complete these duties while still being able to chart or compare their progress against the day's business objectives.

Therefore, the first step in forming the tribe was to ensure they were aware of their shared function/purpose and the positive and negative impacts their actions could have on the bottom line of the organization. This included reviewing the financial implications of production mistakes, the benefits of efficient operation, the importance of communicating on shift and between shifts, the vital importance of using updated documentation, and most importantly each person's role, individually, and the group's role, collectively, in making all this happen.

The remaining steps, detailed more in the following sections, was to create a training plan, related training exercises and reference materials to further support their need for a flexible workforce and garner the support of management to drive the positive results and innovations of tribal knowledge.

This assisted in creating a tribe whose communication reach stretched beyond their own shift; a tribe who understood their role as it relates to the overall business needs; a tribe who were willing to make suggestions regarding different ways of performing tasks since they understood those suggestions could have a positive impact for the organization.

The groundwork was being established for a flexible team of operators who understood and appreciated their role in the organization. This understanding greatly added to their willingness to contribute positively to the process and to be accountable to the organization because their importance was validated.

Creating the Tribe

People have always created images, events and customs to express who they are and what they believe. When those images, events and customs are found practical and efficient, they are repeated and become part of the tribe's traditions. This knowledge is grounded in their shared interactions and experiences and becomes a connecting point or a common point of reference for all members.

In the same way, operating shifts of a manufacturing facility can create their own tools, troubleshooting anecdotes, and operational procedures based on experiential data in relationship to each other and the machines they operate. These learnings, stories, and tools become the basis for the traditions and work behaviors of each shift…the root of tribal knowledge.

If left unchecked, this tribal knowledge can lead to some of the aforementioned challenges of inconsistent performance, unproven/unsafe procedures, etc. However, if harnessed, nurtured, and validated appropriately, this tribal knowledge can lead to innovation that reaches throughout the organization.

In the case of creating a new collaborative tribe for the rollout, care was taken in ensuring trainees from all shifts were taught together…simultaneously. This was done for two reasons: (1) to ensure all had the same base knowledge, and (2) to begin building the bonds and common language found to be vitally important for a successful tribe.

Once classes were scheduled, activities were developed to support not only effective knowledge transfer but also to support active participant/team engagement. The latter is required to create common bonds and language.

Strategies such as creating hands on activities to ensure interaction, having sub-teams create troubleshooting scenarios for their peers, and requiring each team member to train certain sections of the course were effective in creating the needed unity, common language, and most importantly the common experiences that began their process of creating their own tribal knowledge.

Moreover, to ensure effective knowledge transfer was occurring, these strategies were based on theories of adult learning that allowed students to connect the subject matter to their own experiences as well as provide them with active tasks to promote learning.

Recording Tribal Knowledge

There is a level of recorded history for all past tribes. Be it a record on parchment, walls, books, tapes, or electronically, there is some evidence left behind to ensure the rituals that were found to be beneficial were preserved and those that were deemed detrimental were not repeated.

Unfortunately, in most manufacturing environments, tribal knowledge is verbal with minimal written references. This means the dissemination of knowledge oftentimes relies on the effective verbal communication skills of those with the knowledge, which translates to some detrimental activities being repeated more often than they should. Therefore, steps must be taken to encourage knowledge sharing, recording, and dissemination of tribal knowledge if it is to be harnessed for the organization. However, this recorded history has to be current, accurate, valued, and owned by those who are in need.

In the case of the new product rollout, this was accomplished by engaging the employees in the documentation development process. Specifically, the team drove the development of the job aids. They decided which processes required documentation based on system complexity, or the trainer decided which critical processes or operations required documenting. Either way, notes were taken during training to identify specific opportunity areas for the group, and the team (trainer and trainees) would sketch out a job aid or reference document detailing each operational step. Each step was then formally recorded in the language used during training and was ordered in the way that made most sense to the readers…the tribe. Finally, the text was validated to ensure accuracy.

These steps to ensure trainee involvement reinforced ownership in the material, which increased the likelihood of the team making future updates…thus making this a more sustaining endeavor.

As months passed, the materials were not referenced as much as they were before; however, the documentation still serves the purpose of assisting in assimilating and grounding new employees as they are introduced to the factory.

Encouraging Innovation

Typically the charge of elders, tribal knowledge transfer occurs from the top down: father to son, mother to daughter, older sibling to younger sibling, etc. This top down approach oftentimes stifles knowledge growth of a tribe, as it may not take into account the new perspectives "bottom-up" communication might provide.

In the same way, the manufacturing world typically transfers knowledge in the same direction: top-down. However, to truly gain from the richness that can be found in existing tribal knowledge and varied experiences of the organization, there has to be a means by which information can travel from the employees up to management. Furthermore, management has to have the support structure and environment that encourages these suggestions. It is with this upward flow of information innovation is found.

Remember, tribal knowledge is when operators or technicians find a way to perform their job more efficiently and easily. As long as it has been validated as a safe procedure, management should be more than willing to accept the change. These suggestions typically reduce effort hours, increase the morale of the employee, and have a direct impact on the OEE of the line.

Again, the environment management creates has a direct influence on what is or is not shared. If working in a highly competitive environment, innovations, i.e., tribal knowledge, might not be shared by teammates. If all shifts are not being driven to attain a common goal, learnings, i.e., tribal knowledge, might not be presented from one shift to the next. If working in an organization where management does not encourage "out- of-the-box" thinking, originality, i.e., tribal knowledge, might not be passed along to the rest of the organization. In each case, the organization has missed out on a tremendous opportunity to grow.

Luckily, in the case of the new product rollout, management understood the benefits of harnessing the knowledge of their employees. They respected the ideas each were willing to bring forth, and they allowed those ideas to be captured in the training and reference materials developed for their team. This made a marked difference in how the team interacted with one another, further supported the overall goal of seamless knowledge transfer throughout the organization, and harnessed the power of their new tribe's knowledge for now and the future.

The Results

The ultimate objective of building a culture, are results. In the case of a national rollout of a new product where new employees were introduced to and learned how to operate a new complex batching system, the operators were able to produce quality product during their first batch. This is a true testament to the importance of supporting them in attaining a common goal, and jointly developing training plans and validated materials for future use and reference.

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