

# The Secret to Harnessing the Power of Tribal Knowledge to Accelerate Operational Excellence

An SBTI White Paper

## SUMMARY

All organizations are constantly seeking ways to drive continuous improvement. The speed and magnitude of these improvements can be increased if we can tap into the reservoir of creativity that exists within your organization and harness the best practices that are sporadically scattered. This paper discusses the concept of tribal knowledge—what it is, how it manifests itself and if properly tapped can transform your operational excellence programs.

## DEFINITIONS

So what is tribal knowledge and why would we want to harness it?

Let's begin unoriginally, yet helpfully, with some definitions:

A tribe—corporate, social, racial et al.—is a reservoir of both written and unwritten information. It is a living energy center around which kindred minds gather and exchange ideas, traditions, protocols, inspirations, experiences, lessons learned, technology—all magnetized to a core of shared interests -- Wikipedia knowledge |'nālij | noun facts, information, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject.

### ***Oxford American Dictionary***

Tribal knowledge is any unwritten information that is not commonly known by others within a company -- Wikipedia

Tribal knowledge is the amalgam of knowledge and meaning; an often elusive elixir—artfully used it can inspire groups and organizations to higher levels of collective performance and reward. Tribal knowledge should not be confused with best practice—this is the method by which organizations look at their work processes and map variation. Once variation is understood input variables can be monitored and controlled to more frequently replicate

the most productive performance patterns i.e. best practice can be institutionalized. This has significant value in of itself but it can never create breakthroughs in performance. Data analysis is, by necessity, backward-looking; you can only analyze what has happened in the past, not what you can imagine happening in the future. In fact, there is no room for imagination, for serendipitous connections to be made, for learning new things that go beyond the data.

Mr. Albert Einstein had a special reverence for the creative process:

***Imagination is more powerful than knowledge***

Tribal knowledge then, couples the power of collected data with the creative imagination of the tribe. According to Seth Godin in his book, Tribes:

***A crowd is a tribe without a leader***

***A crowd is a tribe without communication***

***A tribe that communicates more quickly with alacrity and emotion is a tribe that thrives.***

This knowledge, meaning and connection once was communicated through storytelling around the campfire.

Our thesis is all organizations are not performing to the collective potential represented by its employees. By collecting and sharing tribal knowledge they can be inspired to higher performance. Here are some real examples:

## THE CAMEMBERT CHEESE MYSTERY



How can anyone govern a nation that has two hundred and forty-six different kinds of cheese?

[Charles de Gaulle](#)

Yes, the French take their cheese very seriously. A few years ago a local company in Normandy was famous for its Camembert creations. Reputedly this company had learned the art of making this venerable fromage from a priest who came from Brie in the 18<sup>th</sup> century and his secret had been passed down though a family of cheesemakers.

One of the most critical steps in cheesemaking is known as “affinage” or the aging process. Approximately 50% of the flavors you taste in a great cheese can be attributed to the affinage. This company had made its reputation over decades because their affineur always managed to pick the cheese and send it to the local stores at precisely the right moment when its flavors peaked.

The company owner was concerned that his chief affineur of 50 years was about to reach his 80<sup>th</sup> birthday and needed to pass on his unique tribal knowledge to a younger protégé selected by the owner (Quel surprise, the owner’s son!)

The son shadowed the affineur to understand the cheese making art—he watched the old man shuffle through damp and aromatic aging cellars to inspect the ripening cheeses. Within these dank tombs were piles upon piles of cheeses.

He placed his finger on the top of a cheese, tapped it a couple of times and said “Non!” The apprentice tapped the cheese and felt its texture while the old affineur tapped the next one and declared “Bon! The apprentice could discern no difference! This ritual went on for several weeks and the apprentice became completely bewildered. Finally the owner called the affineur in to see why he was being “tres difficile”. It transpired that the affineur had no idea how he was making the determination—it happened at a completely unconscious level.

The owner called the local university who sent along one of their top physicists. His hypothesis was the old man was feeling the softness of the cheese to determine its readiness. He arranged a contraption that dropped a steel ball bearing onto the surface of the cheese and measured the depth to which it penetrated. Frustratingly there was little correlation between depth and ideal ripeness.

Next along came a bright student from the chemistry department who felt it must be related to the surface property of the crust. She took samples of the cheese and coated them with gold, placed them in an x-ray crystallography machine, bombarded the samples with radiation to examine the structure of the surface crust. Again, no correlation. “Sacre Bleu!” exclaimed the owner, concerned at the rising cost of these tests and the possible loss of their reputation for the best and ripest Camembert in all of Normandy.

The University Statistics Department Professor was up next—versed in every esoteric branch of his art, busied himself creating a sophisticated multi variable Design of Experiments methodology that he was confident would unravel the mystery.

This may have gone on for some months if it wasn’t for complete serendipity. A sommelier was visiting the factory to determine the best wine pairings (best suggestions are a Beaujolais or Red Bordeaux by the way). She had spent time with the kindly cheesemaker on several occasions and with her olfactory prowess noted when he tapped the cheese he moved a few molecules of the surface mold. These were unconsciously inhaled for him to make his gut assessment. Voilà! Mystery solved, reputation protected.

This is an example where knowledge is so deeply engrained it becomes part of the way things are done and it becomes an unconscious competence. This is all jolly fine if you are an individual athlete—Tiger Woods has spent years honing his swing so he does not need to think about it; a great basketball player does not think about his technique when making a free throw for the game winning point. It is not as practical if you are in a company and someone else has to learn a particular method or process. In these cases you need good tools to map key processes and concurrently create dialogue with those doing the work to uncover the art of their labor

## OVERCOMING THE ANTIBODIES OF RESISTENCE



A pharma manufacturer had a blockbuster vaccine but production output had been significantly curtailed due to quality control problems. To comply with a Federal Drug Administration directive, more stringent quality controls had been layered upon the existing environment. The result was an additional set of checkers checking the checkers monitoring daily activities.

This had unforeseen consequences. Front line supervisors were stripped from being problem solvers. Their job was to monitor compliance and report errors by “ticking the box”—their role was less critical as they knew there were two or three additional checkers overseeing their work.

Secondly, any manufacturing variances had to be recorded in a Manufacturing Incident Report or MIR. Each MIR triggered an investigation by the quality department. The paperwork involved was enormous. The elapsed manufacturing time for the production unit was 5 days yet time to release was 155 days. In essence the quality team were trying to go back to paper batch records over 150 days old to determine whether the batch in question was good to be released. These records had multiple signatures and embedded calculations and often the audit was incomplete creating great waste when expensive end product was flushed away.

It seemed prudent to examine what was happening at the point of production; the only resolution to this challenge was to reduce the incidence of MIR’s and the subsequent labyrinthine investigations. A Day In The Life Of Diagnostic was performed with the operator of the Fill Finish unit.

A few minutes into the shift the temperature rose outside the normal control limits and the operator duly recorded an MIR. The observer asked “do you know why that happened” to which the operator curiously replied “are you wearing a watch—because if you are I would venture it to be 8:07am.” The observer indeed noted the assertion to be true. “It always happens—the new shift starts at 8, the dials are changed to suit whoever starts the shift and the temp spikes.”

“When the investigation team come in do they ask you why it happens?” “No”, snorted the operator—I don’t think they want my opinion—I suspect they think I’m a bit of an idiot.”

“Are you?” probed the observer. “I don’t think so. I have been in this plant for 7 years and it takes 2 years to be fully accredited for this position.”

“What kind of training do your receive for accreditation?”

“Well, we get 2 weeks on how to record manufacturing variances.”

“Do you get any training on root cause analysis?”

“What’s that?”

In this situation intimate and valuable knowledge is housed at the point or production. However, the tribal element—a sense of meaning and shared communication was absent. This critical data was not being shared. More worryingly, and this is a situation we too often see, the culture of the tribe has become passive. Without organizational nourishment, employees seemingly retreat to the refrain they heard when they were little –children (employees) should be seen and not heard.

The solution was to create some lean management elements—a daily shift huddle was established with visible boards. These boards morphed their management system indicators from a passive thermometer like reading to thermostats—the latter also recorded the situation but when there is variance they help create a clarion call for action. Now information was quickly shared, quality and operations were working together in situ. MIR’s were reduced by over 50% and production output tripled.

Interestingly, the rate of supervisory turnover fell as these front line leaders engaged in more intelligent and meaningful problem solving.

More indicative that the tribe had melded this knowledge with their culture, several of these supervisors got together to distil their knowledge and created an approach they rolled out across 78 laboratories within their production network.

## THE DEATH OF DREAMS AND THE BIRTH OF THE HERO

This tale exemplifies how great talent and ambition succumb to organizational atrophy or how we get lost in a faceless crowd. Let's start with this young boy in England who aspires to a great career in the railway business.



When do dreams form? When do they end? Are they fulfilled or do many of them simply die?

Even before the little boy could walk or talk, he remembered the bedtime stories his father would read to him. His favorites were the ones about Thomas the Tank Engine and The Little Engine That Could. He was motivated by the Little Engine saying "I think I can I think I can!" As he grew older he would look forward to his birthday and he would add a carriage or engine to his model railway set. How he would play for hours imagining what it was like at the birth of the Industrial Revolution and the Golden Age of Steam. He imagined he was one of the train drivers or engineers stoking the coals, being admired by all the other boys and girls who wanted such a magnificent job.

He aspired to be an engineer or train driver. He dreamt of such success. At weekends he would cycle to his local railway station to go "trainspotting." He would diligently enter the engine numbers of all the trains that went by. One day he thought "I'll be that train driver or I'll help build such a great feat of engineering."

He worked hard at school to get good grades. He had a morning newspaper round and saved his money to buy copies of "Model Engineer" to learn of the intricacies of these modern machines.

Eventually he was old enough to apply to British Rail as an engineering apprentice. He was accepted and was proud and excited that he was going to live his dream.....

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We fast forward forty years to see how this aspiring engineer with so much promise fared.

He is no longer full of youthful energy and enthusiasm. He is listless and cynical. He goes to work every day in a workshop at the end of a dark and dismal siding. The lights in the workshop are dim; the floor is dark with grease and metal shavings. His day consists of operating a lathe in order to repair and refurbish the wheels that sit under the locomotives. His lathe is old, battered, and unreliable. More often than not it is broken. No-one seems to care. There are thousands of people in the organization he works for yet he feels lonely and unconnected. He cannot say for sure where his dream went or when it disappeared. It just died in an insidious and creeping way, slowly being eroded one day at a time. That boyish enthusiasm and insatiable curiosity gave way to frustration. Years of frustration slowly evolved into indifference, an acceptance that that was the way things were around here. He began to feel disconnected, his ability to contribute lessened, his self esteem eroded. Organizational cutbacks and change made no sense to him, he began to feel cynicism and ultimately utter despair. The life cycle of his dream was complete or was it?

He certainly did not feel part of a tribe "magnetized to a core of shared interests"

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When British Rail was privatized, it spawned large operating companies whose charter was to run profitable enterprises for the long term. This represented a significant cultural shift from just spending the government subsidy to running a profitable business that could continue to invest in new rolling stock.

The newly formed Board of Directors of this railway company serving Greater London looked at the lack of profitability. Initially they took purely an income statement view and focused primarily on cost cutting. This was not well received by the larger organization and cutbacks and penny pinching became the norm. This stifled some key activities as we shall see later in our story yet this damage was invisible to the directors.

The Board realized they needed a more holistic approach and one that would enroll the entire organization. British Rail had once been a proud organization and surely they could tap into this legacy to drive needed improvements.

With this wider perspective they realized that there was the potential for a growth story. They saw that their assets were fully utilized in the morning rush hour and the returning rush home. However, during the day they were mostly empty. Quickly they recognized that off-peak revenues would be a key contributor to enhanced profitability. The question was, how to accomplish this?

Many people chose to drive their cars into London, through heavy traffic, pay for expensive parking and then make the same onerous route back rather than take the train. The main reason was trains were unreliable. Therefore the Board declared their goal was to increase off-peak revenues through a strategy of punctual trains; this was spelled out operationally as "95% of all trains will arrive within 5 minutes of the published time." This was shared in town meetings, employee briefings and on visible posters.

Three months later, the trains were still late. The Board lamented “why aren’t the employees doing their job, this is the number 1 priority!”

We asked, “what is it that you are measuring and do you have your employees engaged in this story?” “Why, the fact that the trains are arriving late and surely everyone understands this,” they replied. So we dragged them onto the platforms to see whether this metric could be translated into day-to-day story lived by the employees.

We asked the station manager to provide us with the daily schedule to see if the trains left on time. Surprise! Most of the trains that arrived late, left late....”Duh!”

“So Mr. Station Manager, there should be an engine and two carriages at Platform 2 for the 2:15 to Reading. We see lots of irate passengers but no train. Why is this?” “It’s not my job!” he replied. (He was completely disconnected from the story)

We go in search of the shunter (switchback person) and ask why she hasn’t fulfilled her task. She explains she did not have enough carriages in the yard so she put them on Platform 4. (There are fewer passengers on Platform 4; she confides she did this as this is “Bert’s” train and he is the shop steward. Everyone knows if you want to get the best overtime you need to stay on the right side of Bert. So we see in the absence of good compelling story, people create their own stories that have meaning for them.).

We go to the maintenance yard and we find a shortage of wheel sets. Ultimately we take a walk down the siding to the maintenance shed. It is a grubby building with few lights and we meet the Wheel Lathe Operator (depicted earlier in this tale) and spend a day in his life.



The Wheel Lathe Operator study shows there is 60% downtime on his lathe. He is unsurprised by this finding. “No-one cares about me or my lathe. They don’t even replace the faulty light bulbs. In fact you are the first people to talk to me in a long time!”

We asserted he was singularly responsible for the profitability of the company. "That has nothing to do with me, I don't drive the trains." We went on to explain his role in the story and instead of being a victim he could actively participate. We pointed out that if we could halve his machine downtime we could get more wheel sets out, there would be less carriages in maintenance, the shunter could get them to the right platforms, the trains would leave on time and voila, they arrive on time, ultimately more passengers ride the trains! The organization generates more profit and creates a sustainable business model.

The critical point here is we now have a congruent organization. The power of the story creates this engagement and connectivity. The strategic imperatives are linked to actions that are relevant to all levels of the organization. More importantly, the Wheel Lathe Operator now finds his work more meaningful. He takes greater pride in his work. He tells his friends he has an important job to do. His boyish enthusiasm is restored and his life has been changed. He has become a Hero in the bigger Story. The company is a whole lot more profitable and employees have gone from being predictable to being surprising.

The management system provided a way to share knowledge to effectively manage their resources across many level and functions. The human element was to create an aspirational mindset—instead of focusing on the negative concept of cost reduction, the wheel lathe operator focused on uptime. It allowed him to apply his talents to a positive outcome. Moreover the tribe was stirred by the call to action and many previously unconnected individuals acted as a unified enterprise.

## OBSERVATIONS

### **1. *Most improvement efforts are not making the best use of their human resources***

In each of these cases, and countless others we have seen, unique knowledge has accumulated in these companies and quietly, over time has been lost, buried, mislaid or quarantined in busy or distracted minds. Think of it as buried treasure or a lost elixir.

Without this knowledge organizations tend to sub optimize; they work on symptoms of a problem and not the root cause. Our railway company focuses on reducing expenditures as a way of improving profitability. This has the unwanted consequence of underinvesting in critical equipment like the lathe thereby exacerbating the problem of part availability. The pharma company spends millions on creating yet more reporting structures, adding complexity and amplifying the challenges. Elaborate measurement systems did not uncover the art of aging cheese.

### **2. *Tribes without meaning are crowds without order***

Gallup annually surveys organizational engagement. They found that only one third of employees are actively engaged. Two thirds then are, like our wheel lathe operator and our fill finish operator, disenchanting and disenfranchised to varying degrees. They have unique insights and are sitting on buried treasure yet there is no campfire around which to share their observations.

### **3. *Employees lack the necessary tools to solve complex problems***



Complex problems span multiple departments, multiple functions. It is beyond the individual's reach to identify and remedy causality. The bright and forward thinking railcar shunter may see the challenge of equipment availability but needs the engagement of management senior to her and the chain of functions in the maintenance department; there is no mechanism to provide for this or even to create the time to think about it in a concerted way.

## EFFECTIVE ENGAGEMENT APPROACHES

The most effective improvement approaches combine engagement of the tribe with tools to extract and share critical knowledge. Here are several critical success factors we have identified:

- Begin by selecting a value chain or business process as wide as possible
- Be clear about the problem you are trying to solve
- Create an aspirational description of the outcome you seek (***aspiration drives virtually all fundamental learning – Peter Senge***)
- Train people in basic problem solving techniques that are fit for the current purpose (don't spend 6 months training someone to be a Black Belt when a 1 day 5S or Cause and Effect diagram may be most apt)
- Create a clarion call to action—engage emotionally and not just rationally

***“Emotions and beliefs are masters, reason their servant. Ignore emotion and reason slumbers; trigger emotion and reason comes rushing to help.”*** – Henry M Boettinger

- Use diagnostics that allow members of the tribe to share their point of view—it is critical they feel they are being heard and they can connect with the challenge such as
  - Process mapping and map fairs
  - Kaizen events
  - Brainstorming sessions
- Share the results and celebrate your achievements
- Daily metrics and performance boards to keep the tribe updated and engaged
- Go to the point at which the work is being done (smell the cheese!) – similar to the Toyota Production System technique of Genchi Gembutsu

## CONCLUSION

Most people reading this paper will be change agents. Every day you wrestle with the challenge of driving operational excellence and I'm sure often wish you had more people who see the light and welcomed your efforts. Once you have accomplished some success, your time is consumed on multiple fronts; you are invited to participate in many initiatives, programs, workshops and oh so many meetings. If only you had Hermione Granger's Time Turner ("the most talented witch of her age" in Harry Potter) to allow you to be in two places at once!

This frenetic stretching of your time and attention means the only way you can accomplish the ever increasing goals that are "gifted" to you is to leverage the power of the tribe. You must not only train them in the key problem solving tools but have them rallying to the clarion call to change.

The need for a self-sustaining tribe is exacerbated by a bottomless well of initiatives that continue to pop up. Last year it was six sigma. Today it is lean. Now overlay that ERP implementation. Oh and by the way we need to integrate the new acquisition and get the "synergy" benefits in the first 100 days. Don't forget the customer experience. And the pre-budget meeting to get ready for the budget meeting that feeds the quarterly review that feeds the annual target setting—oh wait, just when you thought you had finished with the endless budget revision it all starts again!

You get my drift. Engage your tribe. Give them the right tools. Inspire them with a call to action. Let them become leaders and create a self-learning system. And finally, don't forget to take some time off and shut down your e-mail at the weekend!

## ABOUT SBTI

Sigma Breakthrough Technologies, Inc. is a global management consulting firm specializing in helping executives solve their most complex business challenges with surgical precision.

Our tools were forged in the cauldron of invention when SBTI co-developed six sigma at Motorola, tempered when working with Larry Bossidy at Allied Signal and shaped in the first combination of lean and six sigma at Maytag.

SBTI has completed over 400 strategic change programs with companies in a variety of industries including healthcare, chemical manufacturing, assembly, transportation, power generation and distribution; companies like 3M, Cummins, Eastman Chemical, Fairchild Semiconductor, Boston Scientific, PPG and Tyco.

With over 19 years of deployment experience SBTI has developed a unique approach that not only solves the thorniest problems, but also leaves behind a legion of difference makers.

SBTI is headquartered in Central Texas, with offices in Europe, South America and China.

More on these tools and techniques can be found at: [www.sbtionline.com](http://www.sbtionline.com)