

THE HUMAN ELEMENT

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Editor's Note

Do you have an article you'd like to have considered for The Human Element? To be considered for inclusion in the quarterly newsletter send your article on a topic in the HD&L BOK to Amanda at afoster@memberleader.asq.org. Articles for the Winter 2021 edition are due December 15, but please give advance notice if you intend to submit an article.



Letter from the Chair

Another three months have gone by and we're now staring at the end of 2021. In January, Richard Uphoff will be taking over as chair of the HD&L Division, so we worked together on the business plan and associated budget for next year. Our efforts for next year grew from our competency framework and include a workshop at WCQI, development of self-assessment tools, and curation of a collection knowledge pieces on best practices and new techniques. If you'd like to get involved with our efforts in 2022, please contact [Richard Uphoff](#) or [me](#).

We have made progress on the competency framework I mentioned in our last newsletter and are still on track to debut it before the end of the year. Additionally, we've begun tying information and data from ASQ's Insights on Excellence (IoE) research to our BOK and competency framework so that we can address both the needs of our individual members (through ASQ) and ASQ's organizational members. I encourage you to visit insightsonexcellence.org for more information.

I was asked by ASQ to present some of the highlights from the IoE technology and workforce categories (sourced from the 2020 IoE Category Report as well as the 2020 IoE Annual Report). It was a great opportunity to represent our division and highlight not only the great research ASQ has been doing over the last several years, but also so how ASQ technical communities, like HD&L, are beginning to utilize this research data.

Finally, I'd like to highlight some upcoming virtual events you may be interested in attending, as well as some save the dates for events in 2022 (click the links for more information):

- [Quality 4.0 Summit](#) (Virtual - October 25-27, 2021)
- [Unlocking the potential of teams through Social Performance Management](#) (Webinar Wednesday November 3, 2021)
- Another wonderful webinar in Arabic: [Culture Transformation by Design through Excellence Guiding Principles](#) (Webinar November 7, 2021)
- [Women in Quality Symposium](#) (Virtual - December 8, 2021)
- [Leadership Conference](#) (Virtual - March 21, 2022)
- [World Conference on Quality and Improvement](#) (In-Person at Anaheim, CA May 15-18, 2022)

As I wrap up my Fall 2021 edition of "Letter from the Chair," I hope that each of our members and their families are safe and healthy. I also hope that I see you virtually in our [online community!](#)

With Warmest Regards,





Nikola Tesla and His Relationship with the Concept of the Mathematical Brain

By Jesus Gilberto Concepcion Ph.D., Nominations Chair of HD&L Division and Emeritus Professor of Universidad Nacional Pedro Henriquez Urena

In July 2010, the then president of the United States of America, Barack Obama, in a speech at the School of International Services, American University in

Washington, mentioned Albert Einstein and Nikola Tesla as two of the immigrant scientists who contributed most to the development of the United States. Since then, many programs have been developed to inform and educate the population about the lives of these illustrious scientists because of the public interest in the subject. Our purpose is to comment on the brains of both. Fortunately, Einstein's brain was preserved at the time of his autopsy and much research has been published on the subject. Unfortunately, little is known about Tesla's brain. However, we do know that he was a fan of the number 3 and that he used the 3,6,9 series to stimulate creativity. We would like to demonstrate how this series can give us information to corroborate Tesla's creativity using the Mathematical Brain model.

We have used the electroencephalography technique employing Emotiv Insight that allows us to determine the relationship of six forms of behaviors, Focus, Commitment, Relaxation, Interest, Stress and Excitement. Additionally, we used several mathematical series including the 5,4,3,2,1 series, the Robbins series, the squared series 2,4,8,16,32, the cube series, 3,9,27,81, 243, the odd numbers, the Fibonacci series, doing different types of exercises, and music. From the results obtained, it was possible determine two behaviors with a higher incidence, commitment and interest, which we associated with the cerebral hemispheres. When doing exercises, it is shown that Interest, associated with creativity, increases with increase of intensity of the exercise. From all these results we defined the concept of the Mathematical Brain.

After publishing about Albert Einstein's brain, we began to wonder about Nikola Tesla's. We have no information about Tesla's brain but can speculate about his high level of creativity. He was passionate about the number three, mentioned how important the 3,6,9 series was to him, and that he used it to activate his creativity. Several runs, (20) were made using the Insight encephalograph. The data is compared in table 1. The value of Interest is the greatest and is associated with creativity. Like exercises, numerical series are associated with creativity. Tesla series fits the model of the mathematical brain.

*Table 1: Values in percent obtained from the electroencephalogram of the Nikola Tesla series and previous mathematical series**

Behavior	Relaxation	5,4,3,2,1	5-4=3	2,4,8,16,32	3,9,27,81,23	3,7,11,13,19	Nikola Tesla§
Focus	39 ± 4	37 ± 5	40 ± 2	40 ± 5	35 ± 4	31 ± 4	42 ± 11
Commitment	45 ± 9	49 ± 5	51 ± 4	45 ± 6	41 ± 8	43 ± 4	52 ± 6
Relaxation	49 ± 1	47 ± 3	37 ± 2	30 ± 7	31 ± 4	30 ± 2	48 ± 9
Interest	53 ± 2	54 ± 1	56 ± 1	55 ± 2	56 ± 1	52 ± 2	62 ± 6
Stress	43 ± 7	42 ± 2	37 ± 5	36 ± 1	38 ± 2	33 ± 2	44 ± 6
Excitement	39 ± 9	43 ± 9	35 ± 8	26 ± 11	36 ± 4	29 ± 6	39 ± 11
Mean Value	44 ± 5	45 ± 5	43 ± 8	40 ± 8	40 ± 8	36 ± 8	48 ± 8

*The Values of Behavior of Nikola Tesla are from this research. The other mathematical series values are from previous publications.

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We might infer that creativity is something innate in people. Knowledge can be acquired; can creativity also be acquired? We must consider developing creativity in children because when we do not strive at this point, we could be decreasing the chances of success in people.

It is possible that both Albert Einstein's and Nikola Tesla's brains had similarities. Their successes are associated with creativity, knowledge, commitment, and interest. The data we have presented are indicative of



some similarity. Tesla lived to be 86 years old with a brilliant brain. He produced inventions his entire life. We could conclude that he was the first promoter of the concept of the mathematical brain.

In figure 1, flowers of my country showing the Tesla series with their petals. Nature speaks for itself.

Figure 1: Flowers of my country showing the Tesla Series with Their Petals. Nature Speaks for Itself

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Do You Want to Build a Team?

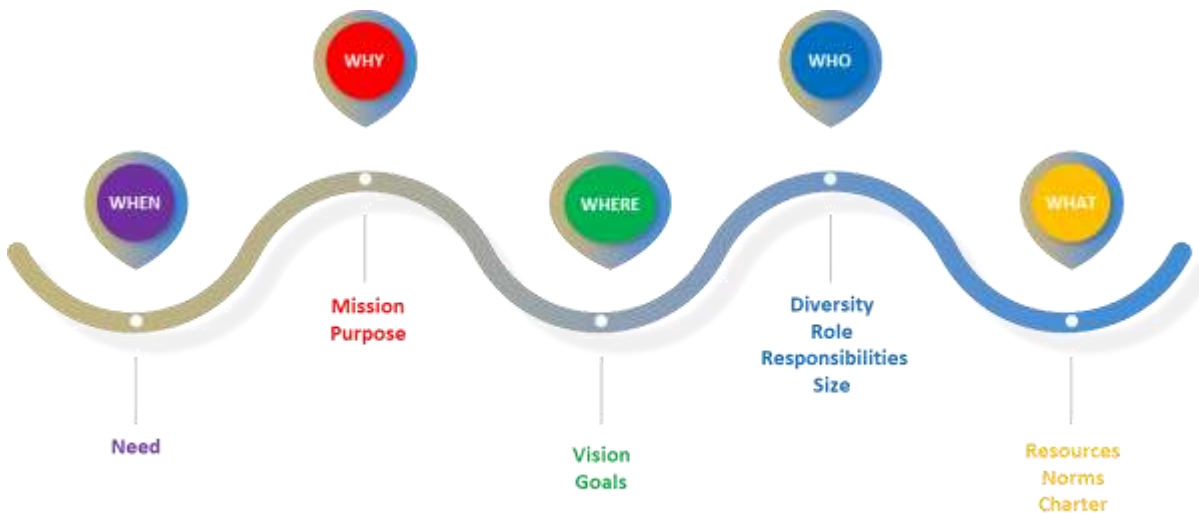
Think When, Why, Where, Who, and What



By Daniel Henri Lathro A strong advocate for building a quality and leadership culture within organizations. He holds a doctorate in pharmacy with specializations in clinical biology, quality and leadership. He has over 5 years of experience as a quality executive. Find out more on www.linkedin.com/in/HenriDanielLathro

The value of building a team to carry out a project or a mission is no longer in question. Whether it was obtaining civil rights for African Americans or building the Statue of Liberty, a great vision was needed. Behind this vision, it took a great leader, and behind this leader, a great team. What is a team? How do you build it to perform well?

Bringing people together in a group is not enough to make it a team, let alone a successful one. A team is a group of interdependent people working toward a common goal. In other words, when members of a group depend on each other to perform tasks necessary to achieve a common goal, they are a team. However, when people work together, several factors will undermine their performance and the performance of the team. In order to identify and control these detrimental factors, leaders can use the 5Ws tool: when, why, where, who, and what.



Building a team: Think the 5 Ws

When?

That's the easy question. I'd like to say when it's necessary. When a person has a project, a mission or a dream, depending on the scope, the need for a team will arise. As John Maxwell says: "one is too small a number to achieve greatness". If a person thinks he or she can do a project alone, then that project is not big enough to have an impact.

Why?

Simon Sinek wrote an entire book called "starting with why". That's how important knowing the why is to the success of any business. What is the team's mission and purpose? A team's mission is an intrinsic motivator. It gives team members a reason other than money to work together.

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The purpose of a team can be¹:

- Tactical. For example, to assemble a surgical team to perform operations with a known modus operandi or to form a soccer team.
- Solve a problem. Especially a problem that does not have a well-defined solution. For example, how to reduce the percentage of non-conformities?
- Creativity, innovation. For example, build a team to develop new products.

Mission and purpose give team members, a reason to work together. When they are missing, teammates may lack motivation.

Where?

It's about the vision and goals of the team. King Solomon of Israel, said, "Where there is no vision, the people perish." Every great achievement is preceded by a great vision. Vision and goals give team members direction. They are a great source of motivation. A team without a vision or goals, is disoriented, unmotivated. Team members will set personal (sometimes selfish) goals. When the objectives are not the same, the team's dynamism is lost, conflicts arise and the team's performance suffers.

Who?

Who should be on the team? What are the roles and responsibilities of the members? How big should the team be?

- Who should be on the team? This question deals with the diversity of a team. We can distinguish 2 levels of diversity: The surface-level diversity which is related to the observable characteristics of a person such as gender, age, race, nationality, education level and function. Deep-level diversity is related to non-observable characteristics such as competence, personality, values and motivations. Whatever the level, diversity within a team is desirable because it helps to be more creative. Without diversity, are created what Professor Keith Mernan calls "fault lines". This is the formation of distinct subgroups that form by similarity according to one or more attributes such as race, gender, function, competence, personality etc. For example, in a team there may be 2 subgroups. Subgroup 1: all marketers are men over 50 years old. Subgroup 2: all salespeople are women between 25 and 30 years old. These fault lines create oppositions between subgroups. If a teammate identifies with one subgroup, he or she does not consider himself or herself part of the other subgroup. The more similarities subgroups have on several attributes, the stronger the fault lines, the more team cohesion is reduced, with an increased risk of conflict and a decrease in team performance. To mitigate the negative effect of fault lines, leaders can communicate intensely about the team's common vision, goals and shared values (collaboration) among team members. This gives them a sense of belonging to one group, one team.
- What responsibilities? Who does what? Who is responsible for what? When responsibilities are well defined within a team, members are assured of the execution of tasks and know who to ask for help. Otherwise, either some members do nothing and the tasks are executed by the other members and always the same. This can generate conflicts. Or no one does anything and the mission or project does not progress.
- What roles? There are 9 key roles to which team members should be assigned². They are: the shaper, the implementer, the finisher, the coordinator, the team worker, the investigator, the plant, the monitor-evaluator, the specialist. For Belbin, these 9 roles must be found within a team, otherwise the team limits its possibility of achieving good performance.
- What size? Large or small? How many people should be included in a team? A large team has advantages such as more skills, more resources, more ideas. But it is more vulnerable to miscommunication and free riding. In a small team, these disadvantages are minor and the benefits are more cohesion between members, fast decision making and consensus, more effective individual

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contribution. Whether large or small, the size of a team has various benefits and drawbacks. So, what is the right size for a successful team? 3 rules are known. Jeff Bezos and his two-pizza rule: If you can't feed your team members with two pizzas. Your team is too big. There's also Harvard's single digit rule, teams of more than nine people are too big. And the bare minimum rule, choose the smallest number of people needed to accomplish the task. In addition, we note that the optimal team size is between five and ten people³. Beyond ten, teams begin to suffer from increased relational conflicts, decreased individual effort and increased process and coordination costs. What is the right size for a successful team? It is difficult to give an exact number. It depends on the structure of the tasks (simple or complicated, known or unknown), what is really needed by the team. But the above information can serve as a guide.

What?

What resources? What norms? What framework for the team?

- What resources? Without fuel, even a top-of-the-line car will go nowhere. Without resources, a team, no matter how talented, will not be able to accomplish the goals assigned to it. For a team to be successful, members must have the material resources (funding and technical assistance) needed to get the job done, an information system that provides access to the data needed to do the job, and an educational program that provides the appropriate training to achieve the goals. By making these resources available to team members, leaders can avoid dysfunctions that will undermine good performance.
- What norms? Imagine a company where work hours are not specified. Employees will come and go from work at the time they want. This would be counterproductive. Norms give team members the behaviors to be adopted to achieve the team's vision. In the absence of explicit norms, there will be tacit norms. That is to say, behaviors that will naturally take hold within the team. Very often, it is the behaviors of strong personality members that will influence the others. And when these people are not conscientious, they set norms that are detrimental to the team's performance. "If you don't set the norms for your team, the norms will set themselves. And chances are, they won't be good ones", said Daniel Lathro. Leaders can discuss with their teammates the norms for making decisions? holding meetings? communication procedures? etc.
- What framework? This is the role of the team charter. It is a document that will answer, but not limit, the 5Ws discussed in this article. It serves as a reference point for team members. When a team takes the time to invest in writing and respecting the team charter, it improves its performance even if the team's operational strategy is not optimal⁴.

The way a team is built determines its potential for success. When leaders build their teams, they can use the 5 W's as a guide to control the factors that affect team performance. When the team is assigned to them, they can also use this tool to assess the team's potential for success and possibly take corrective action to ensure good performance.

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