



A Leadership Cycle for Technical Excellence

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Abstract

In the pursuit of competitive sustainability amidst dynamic environments, individuals and organizations spend significant time monitoring and modifying behaviors to improve their overall performances. Furthermore, many organizations have identified the role of leadership in establishing, sustaining, and changing cultures in order to encourage optimal behaviors. Finally, many individuals have received formal leadership training designed to achieve and maintain high performance cultures. Despite all of the above, technical excellence remains a “Holy Grail” for some entities.

The author posits that technical excellence remains elusive for some entities due to a lack of focus on and understanding of the real drivers of excellence. The author asserts that technical excellence is not a value that individuals and organizations can espouse in a personal or corporate mission statement. Technical excellence is a condition and result of an individual’s or organization’s core, leadership model, culture, and behavior set. In order to achieve technical excellence, individuals and organizations must (1) nurture and safeguard their cores through “personal feedback loops”; (2) center and elevate their leadership mindsets; (3) serve and build caring and competitive cultures; and (4) demonstrate and inspire ethical and disciplined behaviors.

In this paper, the author details an effective leadership cycle for achieving technical excellence on personal and organizational levels. More specifically, the author provides (1) data supporting the leadership cycle; (2) guidelines for identifying, developing, and sustaining leaders; and (3) leadership metrics.

The target audience for this paper is anyone interested in pursuing technical, process safety, business, and personal excellence.

1. Background and Purpose

I have worked for or with technical managers my entire 17-year professional career. I have also managed technical teams, business units, consulting companies. As I continue my professional journey with my second technical consulting start-up, I believe the primary role of a technical manager is to lead his/her organization to achieve and sustain technical excellence. The problem with this statement lies in the definition of “technical excellence.” More specifically: (1) what is technical excellence?; (2) what are the specific components of its definition?; (3) how do you achieve technical excellence?; and (4) how do you measure technical excellence? The answers to these four questions are the deliverables of this paper.

During the Spring of 2012, my company, Cognascent Consulting Group, Inc., distributed a survey designed to gauge specific process safety leadership attributes. Upon analysis of the results, the following data and analysis surfaced:

1. 111 responses were received;
2. 40% of all respondents were technical managers or executives;
3. 32% of all respondents were process safety specialists;
4. 16% of all respondents were engineers;
5. The average age of all respondents was 47;
6. 59% of all respondents participate in a volunteer organization;
7. 93% of all respondents believe their friends and family would rate them as a safe driver;
8. 89% of all respondents were male;
9. 31% of all respondents had experience in the exploration and production industry, 25% in natural gas processing, 48% in refining, 62% in chemicals and petrochemicals, 41% in specialty chemicals;
10. 59% of all respondents identify themselves as conservative with respect to social philosophy, while 21% identify themselves as liberal;
11. Wisdom and Courage were considered the two most critical values for successful business leadership, while Temperance and Transcendence were considered the two least critical values for successful business leadership;
12. Wisdom and Courage were considered the two most critical values for successful process safety leadership, while Temperance and Transcendence were considered the two least critical values for successful process safety leadership;
13. 49% of all respondents felt business leaders are not held accountable for process safety performance the same way they are held accountable for business performance;
14. Random audits of a process safety management program are more effective than scheduled audits.

Specific survey data and results from the above list lend greater credibility to the content and proposals of this paper. More specifically, 40% of all respondents were technical managers or executives when the survey was administered. The average age of all respondents was 47 when the survey was administered, which represents the average age of the oil, gas, and chemicals industry given the ongoing Baby Boomer retirement effect. The pool of respondents had strong experience representation and diversity from across the oil, gas, and chemicals industries.

Although the survey was designed to derive greater insight into process safety leadership, the data and results coupled with additional research and self-study helped me better understand and define “technical excellence.” After walking you through my derivation and definition of technical excellence, I will present an effective leadership cycle for achieving technical excellence on personal and organizational levels.

2. What Is Technical Excellence?

As defined by Merriam-Webster, “technical” is an adjective used to describe an entity as “having special and usually practical knowledge especially of a mechanical or scientific subject.” Additionally, “excellence” is a noun meaning “a quality of being eminently good.” Hence, Merriam-Webster would have us define “technical excellence” as the “quality of being eminently good at a special and usually practical knowledge, especially of a mechanical or scientific subject.” When applied to the oil, gas, and chemical industries, this definition of “technical excellence” is fair and accurate, but incomplete. I have observed people who seemingly achieved the above definition of technical excellence. I too have seemingly achieved technical excellence according to Merriam-Webster. Before characterizing me as arrogant, let me further define “technical excellence.”

Technical excellence is indeed a quality. As mentioned above, qualities are used to describe things. Some qualities, like hardness, can be intrinsic. Other qualities, such as tolerance, can be acquired or developed. Humans measure qualities against standards, benchmarks, or their opposites. Some qualities change and/or cycle over time. By applying this additional understanding of “excellence”, I propose a second, modified definition of “technical excellence”: an intrinsic and/or developed quality for a given state of existence of being eminently good at a special and usually practical knowledge as measured against a standard.

The above definition is more fair and more accurate, but still incomplete. Why? Because there is a virtuous component to “excellence.” “Paideia” was the ancient Greek process of nurturing and developing young minds into the ideal standard of citizenship. Paideia was designed to achieve “arete”, which translates into “virtue,” but is intended to describe one’s greatest human potential...or excellence. It is important to note that human potential to the Greeks is not the same thing as individual potential. Human potential implies effectiveness beyond oneself. This brings us to my final proposed definition of “technical excellence:”

An ever-transcending quality of being eminently good at a special and usually practical knowledge as measured against a standard of effectiveness defined by the possessing entity’s community.

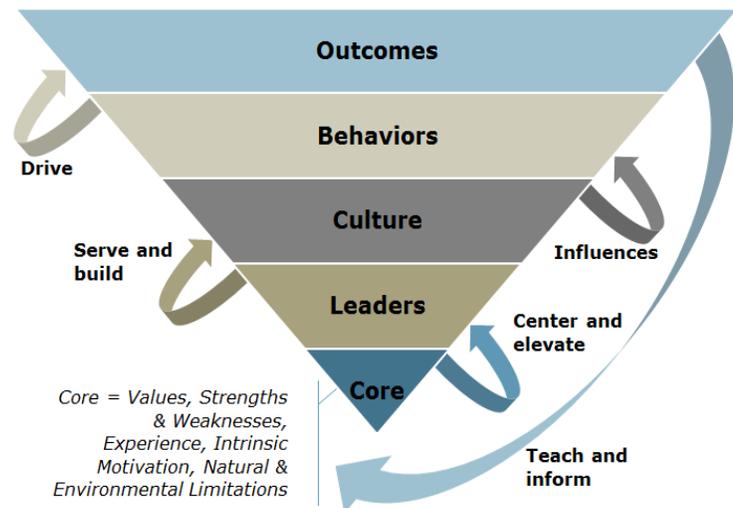
So, what does this all mean? Technical excellence is a quality, a state of existence, a virtuous condition, a measurable outcome. However, technical excellence is not achieved once. It is achieved over and over again. The standard of effectiveness against which excellence is measured is dynamic; hence, the quality of technical excellence is dynamic. The state of technical excellence is dynamic. The virtuous condition of technical excellence is dynamic. The measurable outcome of technical excellence is dynamic. This dynamicism of technical excellence is what drives our continuous transcendence from a lesser to a higher state of

technical performance. Achieving and sustaining technical excellence require constant evolution on our part (i.e. transcendence), which is difficult at times and often the reason for failure in pursuit of technical excellence. But why?

3. Organizational Leadership and Learning Model

One of the mantras of the ancient Greek paideia was “Know thyself.” These two words are easy to spell, easy to say, and easy to understand. But they are hard to do. According to the ancient Greeks, knowing oneself was critical to maximizing one’s human potential. Everything flows from your core. Your core centers and elevates you as a leader. As a leader, you serve and build your organization’s culture. Your organization’s culture influences the behaviors within your organization. Your organization’s behaviors drive your outcomes. Outcomes teach and inform your core. This last step in the organizational leadership and learning model is where we transcend as individuals...and as organizations. Outcomes and results teach and inform our cores through the wisdom of experience. As we get older, experience becomes the critical element to transcending our core values, strengths, weaknesses, intrinsic motivation, natural and environmental limitations. Experience becomes the critical element to transcending our leaders, cultures, behaviors, and outcomes. Hence, experience is the critical element in transcending from a lesser to a higher state of anything...including technical excellence.

Figure 1: Organizational Leadership and Learning Model



The above figure reveals how individuals within an organization impact the organization’s performance. It tells us that transcendence is highly dependent on learning from our experiences. Put another way, failure to transcend implies a failure to learn from our experiences. Could this be true? Let us revisit specific data and analysis from the previously mentioned process safety leadership survey:

1. 93% of all respondents believe their friends and family would rate them as a safe driver;
2. Wisdom and Courage were considered the two most critical values for successful business leadership, while Temperance and Transcendence were considered the two least critical values for successful business leadership;
3. Wisdom and Courage were considered the two most critical values for successful process safety leadership, while Temperance and Transcendence were considered the two least critical values for successful process safety leadership;

One of the reasons for asking respondents to indicate how friends and family would rate their driving skills is to determine, albeit fairly subjectively, how honest respondents are with themselves. The fact that 93% of all respondents believe their friends and family would say they are good drivers may indicate a lack, to some degree, of self-awareness (i.e. we may not know ourselves as well as we think).

In addition, we excel at what we practice and we practice what is important to us. Transcendence and temperance were rated below all other choices as critical to business and process safety leadership success. The data suggests individuals within organizations do not understand the importance and experience-based mechanism of transcendence to achieving and sustaining technical excellence. To achieve and sustain technical excellence, leaders need to design and implement their own leadership feedback loops. That's right, a leader must design and implement a leadership feedback loop...it does not just happen.

4. The GLASS Revolution for Excellence

4.1 GLASS: A Revolution for Excellence

Since elementary school, "Excellent" has been a mark of distinction...an elusive grade for many, but always the standard to measure against. Before doing anything, you should ask yourself, "What do you want to achieve?" Given the subject and content of this paper, I am going to set the goal as *technical excellence*. Hence, your challenge is to achieve and sustain technical excellence. To sustain your pursuit of excellence, you should employ a cycle of actions. As I developed our cycle for excellence, I re-acquainted myself with one of the great, and often overlooked, technological discoveries: glass!

MacFarlane and Martin point out in their book, *The Glass Bathyscape*, how glass has become so commonplace in our lives that we often forget how valuable it is. Try for a minute to imagine a world without glass...no microscopes, telescopes, thermometers, contact lenses, stained-glass wonders, light bulbs, or high-speed driving! When you stop and think about it, glass is an amazing substance of balance and evolution. It is hard, yet brittle. It is transparent, but also reflects. It is created by cooling molten substances; hence it is a liquid and a solid during its lifetime. Glass continues to evolve even today through technological advances – making it thinner, more flexible, stronger. It seemed natural and fitting for our final cycle of excellence to mirror the balanced and evolutionary nature of glass. Our GLASS Revolution for Excellence requires transparent leadership and reflective learning, strong discipline and flexible strategies, hard metrics and sensitive adjustments.

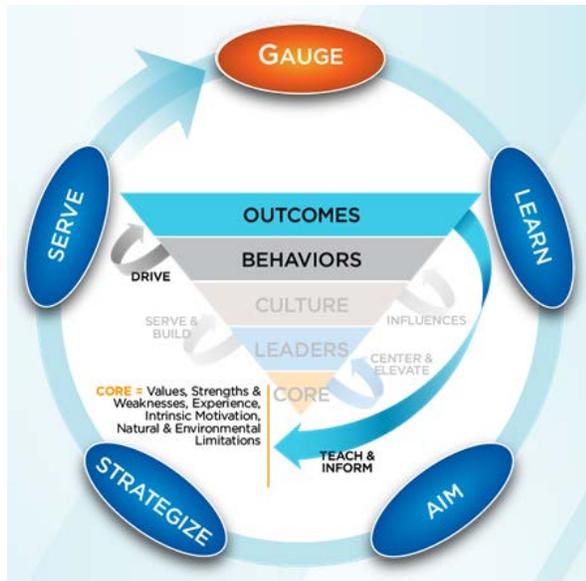
Figure 2: GLASS Revolution for Excellence



4.1.1 Gauge

The first action is to GAUGE. Before starting our journey to excellence, we must first figure out where we are and how we measure up against our personal expectations as well as external benchmarks and standards. This action is more than just measuring...it involves measuring against a standard of effectiveness. I propose benchmarking with caution as we do not want to

Figure 3: GLASS Revolution - Gauge

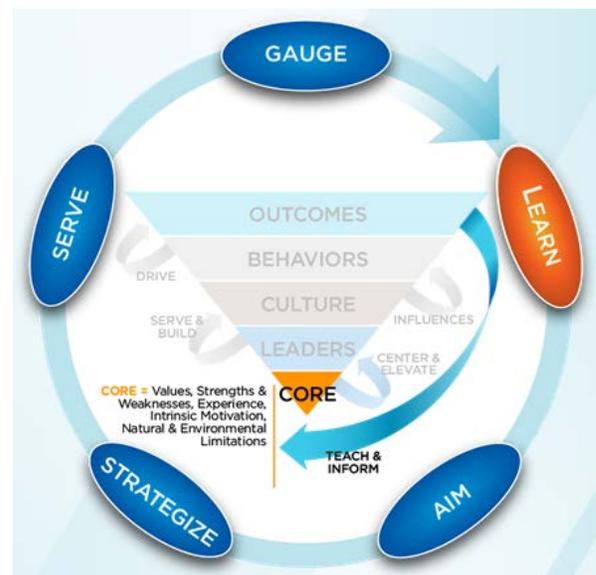


chase the pack in pursuit of mediocrity. In order to gauge, we must first gather baseline information to help you identify what needs to be done for immediate and sustained excellence. The first step of gathering baseline information is where most people start deviating from the path to excellence. Gathering information is not what most people want to do when they are ready to take action. What do most people want to do when they are ready to take action? Anything...as long as they think it might help them achieve what they think they should be achieving. Only after gathering and analyzing information can we move to the second action of our revolution. According to the survey results, random audits are preferred to scheduled audits. I also recommend unscheduled on-demand competency checks for an objective measure of your organizations' competency level.

4.1.2 Learn

As previously mentioned, learning is the critical element to transcendence from a lesser to a higher state of excellence. Without establishing effective feedback loops for continuous "fine-tuning" of our cores, we as individuals will fail to evolve. I recommend developing personal feedback loops where outcomes and experiences are brought back to the core(s) of the leader(s) of your organization(s). Oftentimes, we design feedback loops where the outcomes and experiences are fed back directly to the Behavior layer of an organization. This is done by modifying a procedure or work process. This type of resolution does not drive individual, leadership, and cultural change. Outcomes and experiences need to be personally related to the leaders and expectations and clear lines of accountability need

Figure 4: GLASS Revolution - Learn

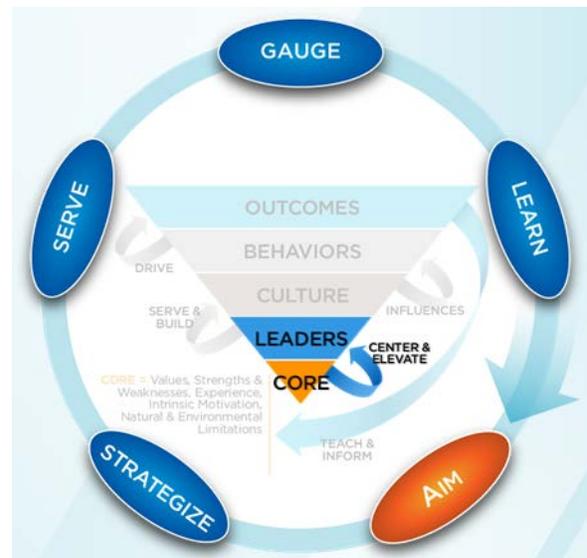


to be clarified. Leaders should be asked to personally re-state in his/her own words the lesson learned along with what he/she is going to do to practice and improve individual performance regarding the lesson learned. Identifying key performance metrics is best done at this stage of the cycle. Good questions to ask at this point in the process are (1) “how reliable is the measured outcome?” and (2) “is anything affecting the integrity of the measurement?” I have learned good leaders already have effective personal feedback loops in place. The most effective way to identify leadership talent is to look for individuals with effective personal feedback loops. These are individuals who are very self-aware and have already identifies their weaknesses and, more importantly, have already safeguarded their blind spots. Evaluation and survey of an organization’s performance along with subjective feedback on the leadership in place can be effective. A behavior many organizations need to change is the practice of fast-tracking high-achievers with promotion after promotion. High-achievers or individual all-stars are often “pegged” as having high leadership potential; however, few are left in a leadership position long enough to learn and develop effective personal feedback loops to achieve and sustain technical excellence.

4.1.3 Aim

The third action is to aim. Aiming is different than strategy. Aiming is more about developing the vision of where to take yourself and the organization. With respect to technical excellence, aiming requires you to define what type of organization you want to be. Aiming also points out and identifies critical barriers to success. When you aim, you are not thinking at the 10 foot level of activity – you are thinking at the 10,000 foot altitude. Like a controller of a process control feedback loop, aiming calculates the difference between a measured parameter and a desired “setpoint” (this difference is called the “error value”). Once you know how far off you are from where you want to be along with which direction you need to go, you can move on to the next step of strategy.

Figure 5: GLASS Revolution - Aim

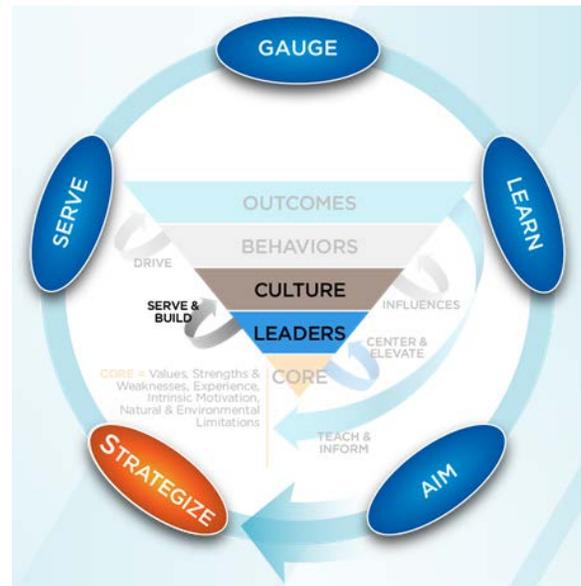


4.1.4 Strategize

The word “strategy” is of military origin and derives from the Greek words for army (stratos) and leader (agos). Strategy was first used to develop a plan of action to achieve victory on the field of battle. In the business world, the weapons are different and the battlefield is replaced by the marketplace, but strategy is still used by the “army’s” leaders to plan for victory. Strategy is one responsibility never to be delegated by a leader. Leaders build and serve the cultures of their organizations by ensuring the strategy is cascaded throughout the organization using the following eight elements of an effective strategy:

1. Cascadeable – Each technical function must be addressed in the strategy. Each technical function should be able to take the strategy and apply it to their operations.
2. Adaptable – An ever-changing marketplace requires a dynamic and fluid technical and technology strategy.
3. Sustainable – A strategy must provide for sustainability through innovation, growth, and value relevance.
4. Competitive – A strategy must capitalize on existing competitive advantages or create new competitive advantages.
5. Achievable – A leader must balance the scope of the strategy with the depth of the organization’s technical capability and capacity. A strategy must address retention and/or acquisition of resources and capabilities necessary for optimal execution.
6. Defensible – A leader must be able to defend all parts of the strategy with hard and current data. Risk assessments (identification and plans for elimination or mitigation) are must-haves for any strategy.
7. Evaluable – A leader must be able to monitor and measure the performance of the strategy against practical indicators.
8. Significant – A strategy must be relevant to the current company make-up (except for the rare conglomerates).

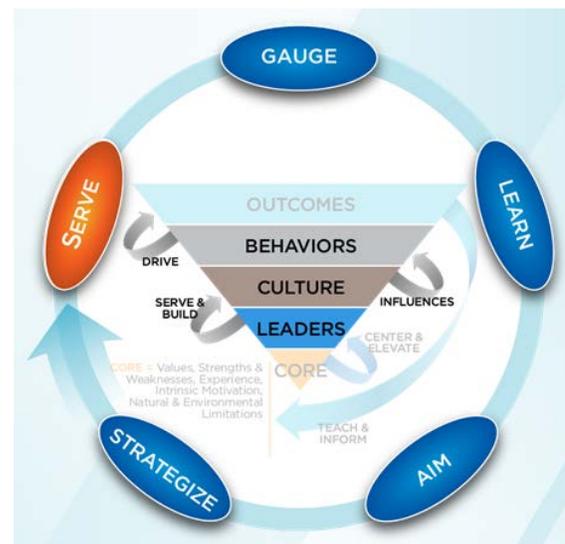
Figure 6: GLASS Revolution - Strategize



4.1.5 Serve

The fifth and last action is to serve. “Serve” describes how we should act once action is required. The organizational leadership and learning model is an inverted pyramid to demonstrate (1) the number of relationships and deliverables for each layer and (2) the hierarchy of service from bottom-up. Your core serves your leadership potential and performance. As a leader, you serve and build the culture of your organization. An organization’s culture serves (influences) its communities and individuals by establishing behavioral norms, work processes, systems, and procedures. Lastly, organizational behaviors serve (drive) performance outcomes. A servant mindset and attitude allow us to maintain a sense of vulnerability as we humbly help others. A servant places others first and is always thinking

Figure 7: GLASS Revolution - Serve



about their human potential in terms of impacting others, positively or negatively. Upon completion of one revolution on the GLASS cycle, we start a second revolution. At the onset of the second revolution, the Gauge stage is used to measure the outcomes of the first revolution and define the new standard of effectiveness to measure our technical excellence against.

7. Conclusion

The stated deliverables of this paper were to answer the following four questions:

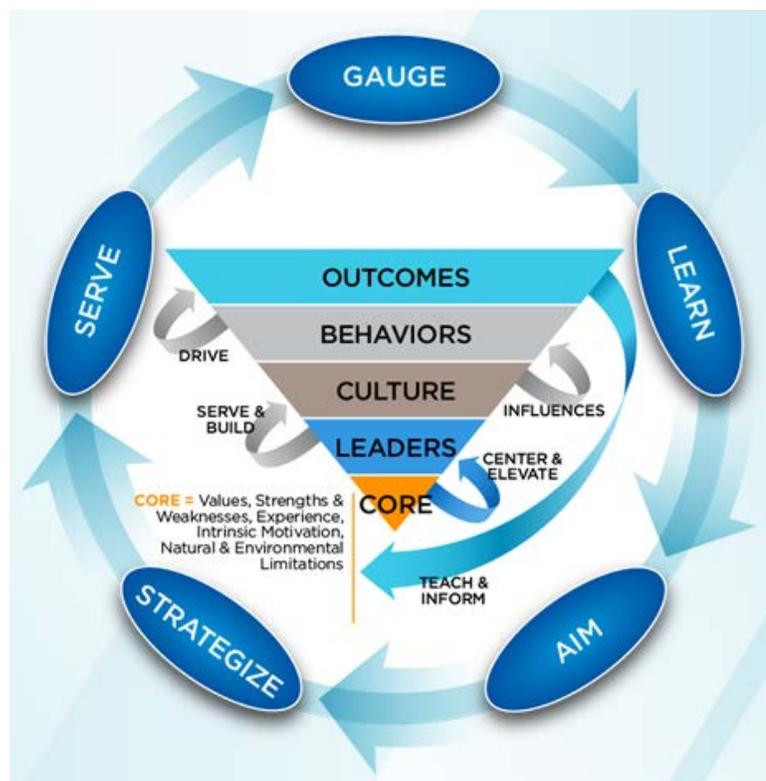
1. What is technical excellence?
2. What are the specific components of its definition?
3. How do you achieve technical excellence?
4. How do you measure technical excellence?

Based on survey results, independent research, and self-study, I have proposed the following definition for “technical excellence:”

An ever-transcending quality of being eminently good at a special and usually practical knowledge as measured against a standard of effectiveness defined by the possessing entity’s community.

I further posit technical excellence is a quality, a state of existence, a virtuous condition, a measurable outcome. Additionally, the standard of effectiveness against which excellence is measured is dynamic; hence, the quality of technical excellence is dynamic. This dynamicism of technical excellence is what drives our continuous transcendence from a lesser to a higher state of technical performance. Achieving and sustaining technical excellence require constant evolution on our part (i.e. transcendence), which is difficult at times and often the reason for failure in pursuit of technical excellence. Transcendence is difficult because it is highly dependent on learning from our experiences, which is not easily accomplished without the use of personal feedback loops.

Figure 8: GLASS Revolution Integrated with Organizational Leadership and Learning Model



I fully acknowledge the need for further research to gather more information and more support for the positions and arguments I have made in this paper. Nonetheless, results from my initial survey suggest individuals within organizations do not understand the importance and experience-based mechanism of transcendence to achieving and sustaining technical excellence. Until more information and insight are obtained, I offer the GLASS Revolution for Excellence along with the Organizational Leadership and Learning Model to help individuals and organizations better identify, develop, and sustain leadership for technical excellence.

7. References

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