THE IMPACT OF ORGANIZATIONAL EVOLUTION AND PROPENSITIES ON CONTINUAL IMPROVEMENT

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Abstract

The approach to continual improvement changes with the stage of evolution of an organization and the related aggregate propensities or preferred ways of reasoning and acting within the organization. The well-known PDCA (Plan-Do-Check-Act) cycle has proved extremely useful in many contexts; however, it is not generally appreciated that the nature of this cycle changes depending on the intent and stage of evolution of an organization. This paper explores these changes and their relevance to an organization's ability not only to identify requisite changes, but to sustain them after the implementation of continual improvement or transformational initiatives. Organizations that understand their stage of evolution, aggregate propensities, and their influence on organizational culture are better positioned to implement improvements that are within the capacity of the organization to absorb and sustain.

1. Introduction

Organizations are complex systems that are brought into existence and sustained by structured and coordinated human activities to achieve a specific purpose. Their complexity stems from the existence of nonlinear inter-relations and potentially conflicting goals between various parts (or subsystems) that need to be integrated to achieve desired outcomes.

Understanding the development of organizational systems is challenging because of their interdependency and co-evolvement within a complex web of networks. Systems constantly interact with their environment and tend to seek balance within it. Organizations respond and change in response to changes in their environment, and if they cannot do so, they struggle or even fail. This places a significant emphasis on organizational adaptability and invites the question of how organizations can become more effective and resilient.

Propensities are natural inclinations or tendencies in individuals or groups to behave in particular ways. Propensities are intrinsically connected with individual meaning systems and are the primary determinant of conscious and unconscious habitual ways of thinking and acting. Propensities make individuals, teams, and whole organizations more likely to pursue, and succeed at some activities than others.

Organizations behave differently based on the propensities dictated by the nature of their work. For example, engineering organizations tend to value thorough, detail-focused, critical

reasoning. These propensities naturally place more emphasis on solving technical problems than dealing with the emotional needs of employees or those with whom the organization interacts. In comparison, health care organizations tend to place relatively more value on improving the quality of life experience of individuals and communities. These activities naturally derive from the intuitive, empathetic, and aesthetic preferences of the workforce.

Aggregate propensities also shape the dominant leadership style of an organization. Whether an organization demonstrates a strong preference for task-focused leadership, people and relationship oriented leadership, thought and innovation oriented leadership or fully integrated systemic leadership that combines all three aspects, is determined by the diversity and distribution of propensities within its leadership structure.

Organizations behave differently at different levels of maturity: where maturity is defined as the system's capacity to perceive and respond to internal and external opportunities and risks. Mature organizations possess a greater capacity to recognize diverse risks and seek out opportunities than do less mature organizations. This expansion of an organization's adaptive capability depends upon the diversity of propensities within the system as well as the existence of defined work processes, social engagement processes, and collective meaning-making processes that support system coherence.

An organization's culture is significantly determined by the propensities of its entire workforce (individuals, teams, and leaders). By understanding its propensity profile, an organization can gain a deep understanding of its strengths and blind-spots. It can begin to understand its risk identification and adaptive capacity and implement improvements that are within the capacity of the organization to absorb and sustain. High risk-reliability organizations can improve their safety performance by moving beyond their base expertise and seeding the right propensities at every level of the organizational structure in order to expand their risk mitigation and organizational learning capacity.

2. Organizational Evolution Model

Organizations are complex systems that are brought into existence and sustained by structured and coordinated human activities to achieve a specific purpose. They evolve over time as they act to realize opportunities and mitigate risks. This evolutionary process can be viewed in terms of four evolutionary stages: *operating*, *managing*, *leading* and *uniting & integrating*, each shaped by the predominant propensities in the organization.

Stage 1 – Operating: At the core of every organization is a hard or soft technology that defines the nature of its business. In the early phases, organizations focus on operating and enhancing their technology. Expert knowledge is prized for its ability to solve technical problems. Leadership becomes synonymous with technical competence and such individuals typically rise to positions of power and influence. Outcomes are viewed in concrete product terms, and employees are used to react to technical issues. Risk management tends to focus on the consequences of technical failures. The overall emphasis is on keeping the technology functioning. At this stage, the leadership propensity profile reflects the primary occupational theme with relatively little diversity.

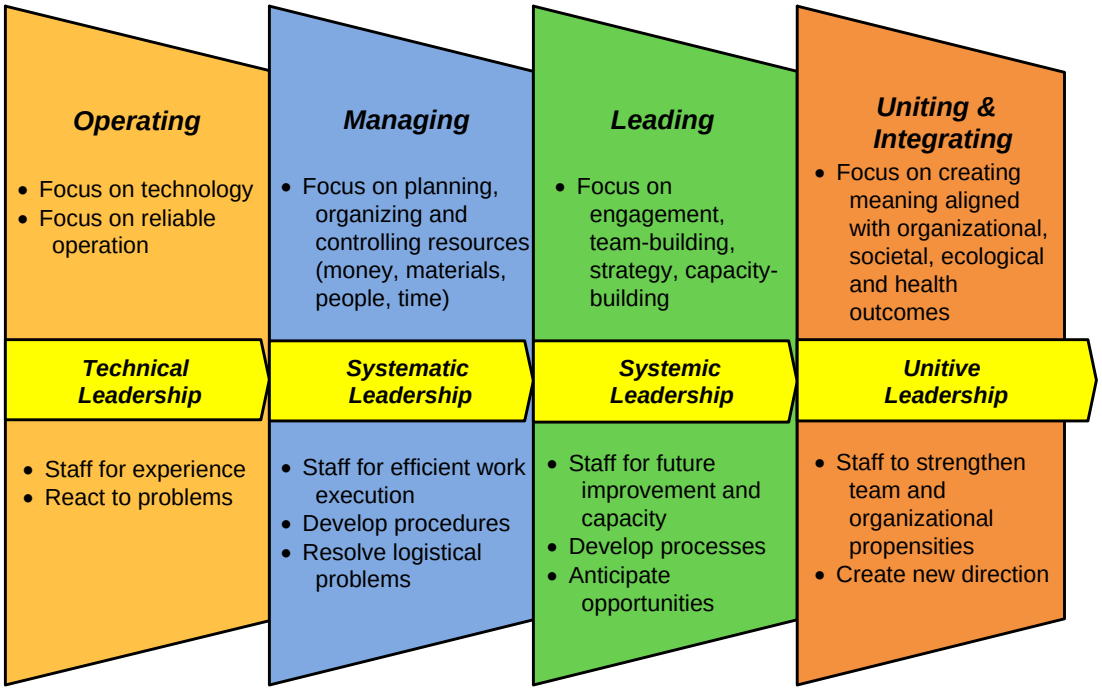

Figure 1: Organizational Evolution and Propensity Model

Stage 2 – Managing: As organizations grow, they begin to experience challenges in quality and productivity that require enhanced controls. Procedures, planning, and resource management become more formalized. Emphasis expands from technical aspects to logistical thinking aimed at improving resource utilization and work execution. Clear expectations for performance are used to improve productivity. Outcomes are viewed in financial and production terms, and employees are used to resolve operating challenges. Risk management expands to encompass financial concerns and assure minimal regulatory compliance. The overall emphasis is on achieving business results. At this stage, the leadership propensity profile emphasizes productivity in terms of organizational and human performance.

Stage 3 – Leading: Stricter management controls enhance viability; however, these eventually give rise to issues related to employee motivation, satisfaction, and even loyalty. In response, emphasis shifts to include leadership development, team building, empowerment and a myriad of other efforts to boost morale and discretionary effort. Vision, mission, values, organizational culture, and strategic planning become a focus for enhancing organizational effectiveness. Processes and procedures become integrated into formal management systems. Employees are perceived as the means by which the organization distinguishes itself from its competitors, and their willingness to actively promote the organization's interests becomes important. Risk management expands to include issues related to organizational capacity and sustainability. The overall emphasis is on capitalizing on new opportunities within and outside the organization. At this stage, the leadership propensity profile begins to value relatedness, consensus building, and human development. Leaders use socialization as the means to enhance cooperative effort.

Stage 4 – Integrating-Uniting: Advanced organizations recognize that long term sustainability requires them to pay attention to building and sustaining their capacity to anticipate, innovate and initiate changes on a societal and global level. The focus is on long term strategies, citizenship, contribution to society, and integration across organizational, (inter)national, political, and social lines. Employees are perceived as active participants in shaping the fabric and direction of the organization. Emphasis is placed on developing conditions that enable the full creativity and intelligence of the human system to flourish. These leading edge organizations continually shape and transform the nature of society itself through their exploration of new thought systems and new technologies. To achieve this level of performance, these organizations align meaning, propensities, and systems to create new directions.

Although the model in Figure 1 identifies stages, organizational propensities are in fact distributed across the stages with individual members preferring to inhabit particular aspects of the total system. Technical organizations typically demonstrate strengths at Stages 1 and 2. Many organizations are working to increase capacity at Stage 3. Organizations having significant capacity at Stage 4 are rare. Figures 2A and 2B illustrate the general propensities for preferred styles of reasoning across stages.

Aggregate propensities shape an organization`s functionalities, which in turn drive its overall level of evolution and maturity. This fact is particularly important in terms of understanding the impact of propensities at the leadership levels of an organization. An ongoing body of research [1] clearly demonstrates how distinctly different aggregate propensities are required at different leadership levels for an organization to function effectively. In circumstances where requisite propensities are not in place, the leadership structure struggles to fulfill its functionalities and the organization under performs.

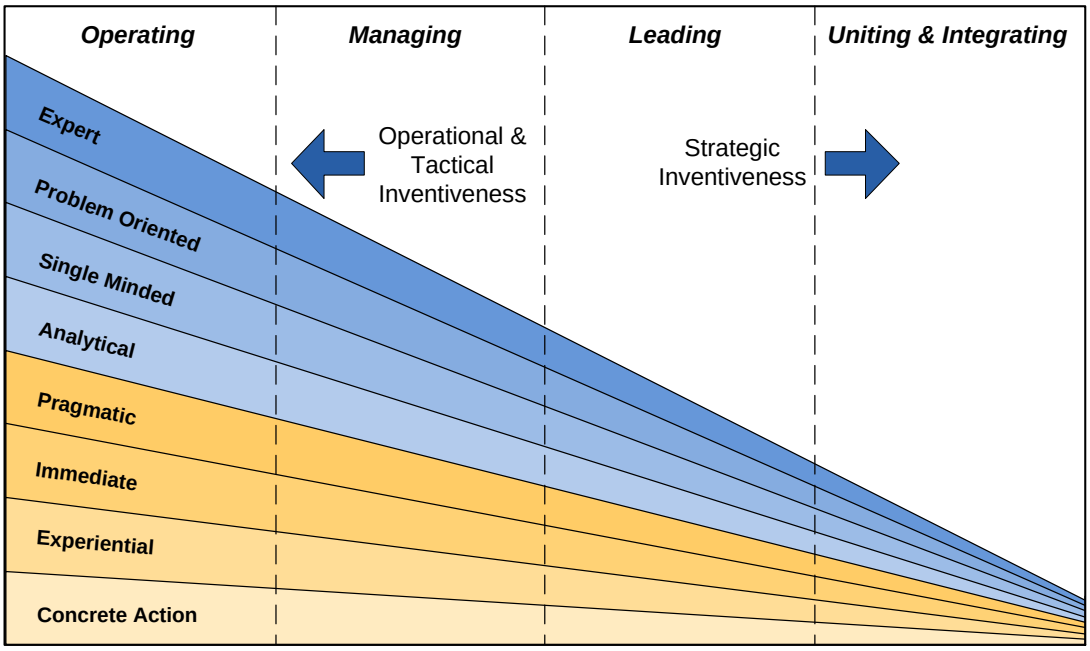

Figure 2A: Propensity Profiles Across Stages – Operating and Managing

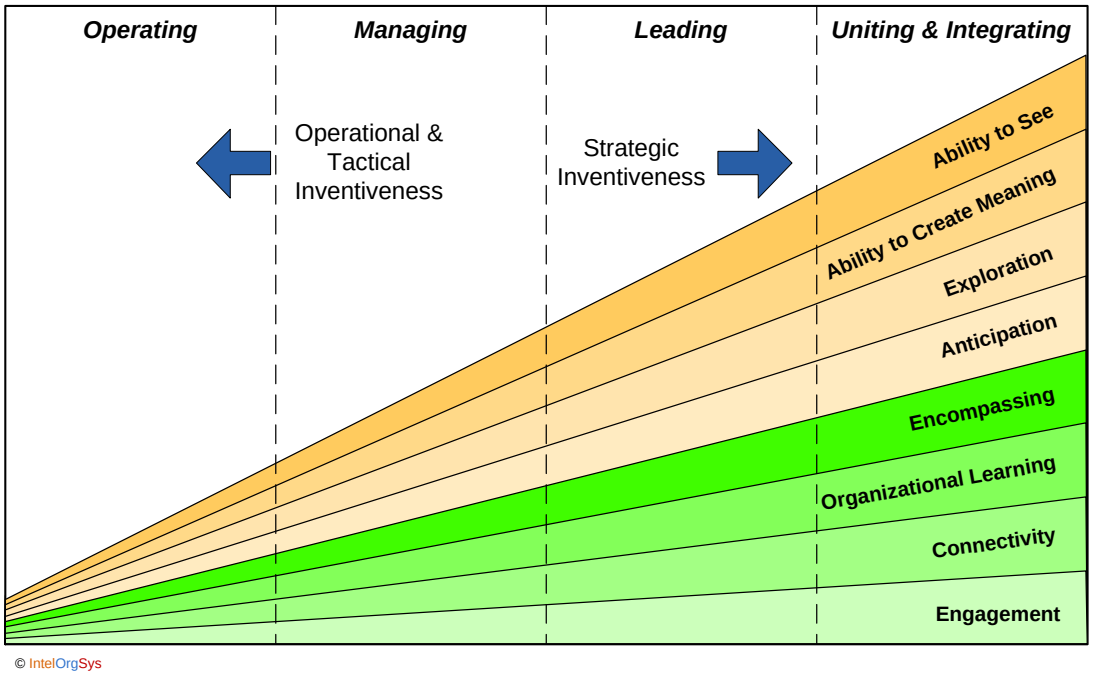

Figure 2B: Propensity Profiles Across Stages – Leading and Uniting

3. Organizational Functionalities, Propensities & Competencies

Propensities are important internal drivers that make each of us uniquely who we are. Research into propensities helps us to understand innate competencies: the talents we naturally possess that are constrained or unleashed through education, social conditioning, and life experiences. Currently, competencies are thought of as demonstrated behaviours relative to pre-established levels of effectiveness. In reality, competencies describe both innate dynamics of behaviour that reflect dominant propensities, and acquired behaviours. To give an example, an innate preference for theoretical and analytical thinking will manifest in critical reasoning. This capacity for critical reasoning will enable performance of jobs such as such as engineering, law, or finance that require this competency for successful performance. Propensities cannot be trained in, skilled in, or willed in through performance expectations.

Measures of the relative strength of propensities (innate competencies) enable verifiable predictions of probable behaviours in specific circumstances. These predictions can help individuals understand personal life patterns, thereby creating opportunities to increase self-efficacy. Similarly these predictions can help teams function more effectively if they integrate diverse talent sets effectively and augment propensities to address gaps that are important to fulfilling the team's functionality and mandate. At an aggregate level, propensity predictions can help organizations recognize the innate drivers that give form to the basic assumptions, values and attitudes that are the bedrock of organizational culture.

Figure 3 shows how organizational outcomes, such as safety, are achieved. The overall functionality of an organization, i.e., its effectiveness within its given socio-economic context is dependent on functionalities at every level of the structure. The design of the structure, the processes that drive its core work, and the propensities, competencies and behaviours that are demonstrated within the human system, all work together to shape the performance potential of the organization. Power dynamics and other cultural drivers mediate the organization's potential and determine its ultimate demonstrated capacity.

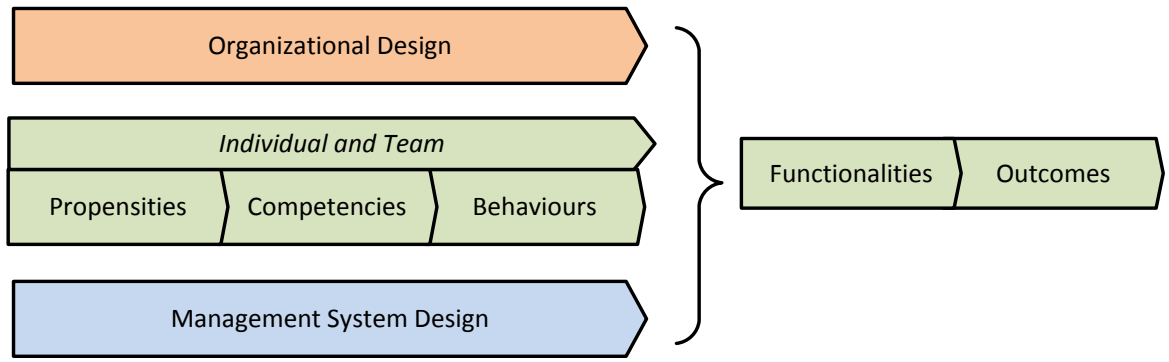

Figure 3: Integrated Contributors to Outcomes

Improvement efforts that do not take into consideration an organization's propensity profile, stage of evolution, relative maturity of its management system, and demonstrated capacity will not be sustainable. Research into the drivers of optimal performance recognizes the importance of a balance between the competencies of a performer and the challenges s/he is required to overcome [2]. A match contributes to positive performance as well as engagement and satisfaction. In contrast, excess challenge creates anxiety and burnout, while insufficient challenge results in boredom and depression. Either sub-optimal outcome poses a risk to effectiveness. This pattern holds true for organizations as much as for individuals and teams. Innate competencies (propensities) act as thresholds, limits, fall-back patterns, as well as potential.

Looking across the four stages of evolution, a variety of psycho-social changes in the fabric of an organization become evident:

- Shifts in the patterns of responsibility and authority reflect broader-based accountability;
- Safety and performance are progressively perceived as products of human awareness, connectivity and conscience as well as process and technology;
- Organizational needs are actively and willingly put ahead of self-needs by individuals rather than driven and enforced by management;
- Innovation is seen to support continual improvement, i.e., perceptions of how risk is minimized changes from "nothing moves, nothing goes wrong" to something that sees situations as not only dynamic, but changing at increasing rates of speed, and safety behaviors as including initiative and knowledgeable creativity to ensure safe outcomes.

These changes shape and reshape organizational functionalities and with them the potential to both identify requisite changes and to sustain them after the implementation of continual improvement or transformational initiatives.

4. Improvement Cycle

Table 1 shows the change in approach to continual improvement across the stages of evolution of an organization. The capitalization and bolding indicates the degree of attention paid to each element. Risk and opportunity identification, strategic management, change management, and competency management all look substantially different across the stages and as such represent significantly different capacities for an organization to recognize, absorb and sustain improvement.

At stage 1 (Operating), the classic Plan-Do-Check-Act cycle is used to react to problems. People are expected to respond as part of their roles. Improvement is largely defined as returning systems to their intended state of functioning through corrective actions. This reactive stance is typically effective at dealing with problems that are inherently solvable through discipline-specific technical expertise, and where robustness of the hard or soft technology is sufficient to mitigate risks.

Table 1: Organizational Evolution and Improvement Cycle

Operating	Managing	Leading	Uniting & Integrating
React to problems	Resolve problems	Anticipate problems	Create new opportunities
Expected to do it	Assign people	Engage people	Inspire people
plan **Do** Check act	**Plan** **Do** **Check** adjust/correct	look ahead create Design **Plan** **Organize** **Implement** **Monitor** **Adjust**	**Envision** **Create** **Design** Plan organize implement **Oversee** **Redirect**

At stage 2 (Managing), there is more effort to resolve problems through front-end planning and adjusting the outcomes based on the results. The approach shifts to Plan-Do-Check-Adjust. Work is prioritized, resources are secured, and people are assigned to perform tasks in a rigorously sequential fashion. This stage conceives improvement as an increase in systematic productivity and closely adheres to the slogan "plan the work and work the plan". This responsive stance is typically effective at dealing with near-term organizational problems that are solvable through prioritization, coordination, proceduralization, and management control.

At stage 3 (Leading), more thought is given to anticipating challenges and engaging people in problem-solving. The cycle expands to Look Ahead-Strategize-Design-Plan-Organize-Implement-Monitor-Adjust. Emphasis is still on planning through to adjusting, but attention is given to looking ahead to avoid problems. In this stage, improvement becomes a shared accountability between leaders and staff. It is a product of the creative problem solving capacity within the organization to recognize and address a broader range of issues. This engaging stance is typically effective at dealing with organizational problems that are socio-political in nature (e.g. employee performance, motivation, boundary management issues) and are solvable through communication, influencing, and process integration.

At stage 4 (Integrating and Uniting), there is a marked shift towards creating new opportunities and inspiring people to contribute. The cycle becomes Envision-Create-Design-Plan-Organize-Implement-Oversee-Redirect. Oversight is used to confirm the intent is being met, and to redirect strategy as needed. In this stage improvement becomes proactive. Organizational members look beyond the assumptions and constraints of existing systems and approaches to create transformative solutions that reach beyond traditional boundaries. This integrative stance is typically effective at dealing with organizational problems that are endemic to a group, region,

industry, discipline or market, and that are solvable through the synthesis of the thinking and practice of disparate disciplines, groups and systems.

5. Organizational Propensities and Continual Improvement

High risk-reliability industries require a full range of risk identification and mitigation capabilities. The simple (Stage 1) Plan-Do-Check-Act cycle is suitable for addressing risks where the nature of the problem and the solution are readily understandable and actionable. However, it is insufficient to many other types of safety challenges such as those related to culture. For continual improvement methods common to the nuclear industry, Figure 4 provides a profile of their application and effectiveness by stage.

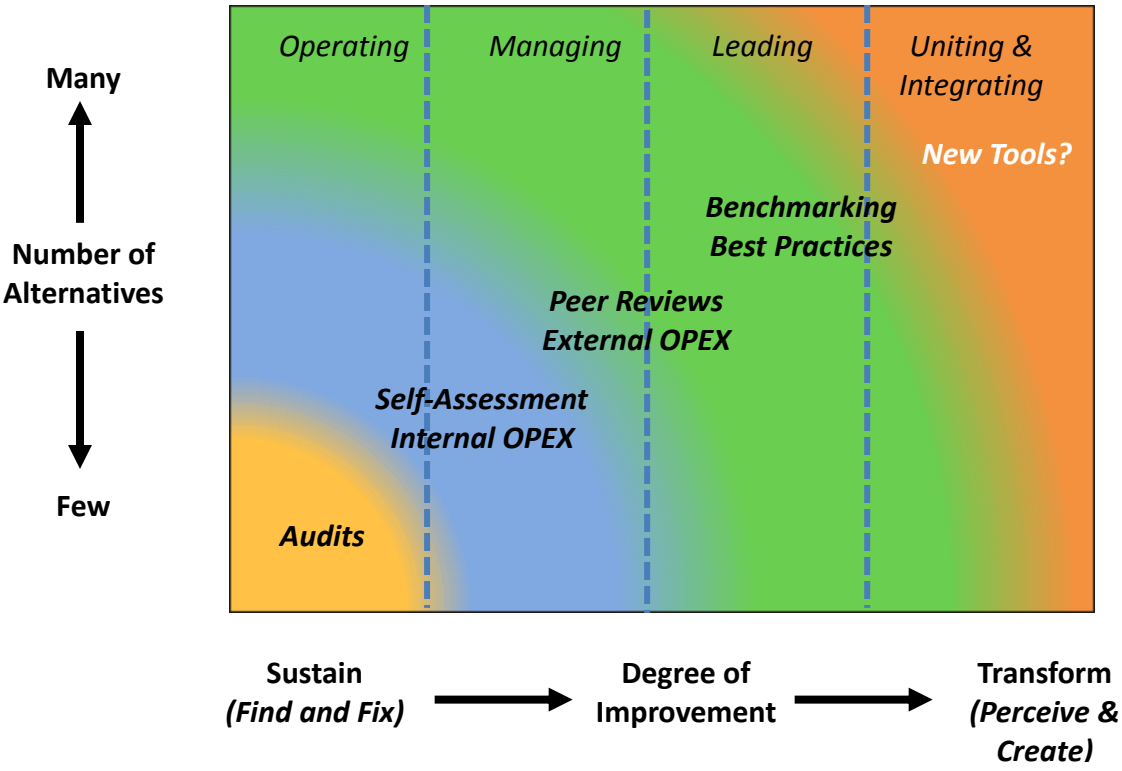

Figure 4: Improvement Methods Across Stages

A more responsive improvement approach that involves planning and incremental adjustment (Stage 2) can help to mitigate risks that are largely predictable and require sequencing, coordination, and incremental refinements to known approaches, to improve safety.

Beyond Stages 1 and 2, the find-and-fix approach characteristic of corrective action and operating experience programs, and even best practice benchmarking is no longer sufficient to address latent, systemic or contingency issues that have been shown to compromise safety. These types of problems require a more open-ended and anticipatory improvement approach (Stage 3) that can work with ambiguities, probabilities, and long lead times to evolve tailored solutions to mitigate risks.

Finally risks to safety that are long-standing, multi-system, cross-boundary and cultural, cannot be fully anticipated or resolved by any of the preceding approaches. These types of risks require an improvement approach that seeks to understand and substantively transform the organization`s capacities on multiple levels simultaneously.

To date, advances in technology, development of safety management systems, and implementation of safety culture programmes have dominated industry efforts to improve safety. The latter have been introduced because of the recognition that organizational goals, beliefs, norms, and strategies, as well as the deeper understandings of reality held by members, give rise to the systems, behaviours and other visible manifestations in any organization. The deeper, more immutable layers of culture are assumed to stem from various sources, e.g., human nature, intra-group problem solving, and the history of the organization. Core or basic assumptions such as the nature of reality and truth, the nature of human activity and relationships, and the nature of time and space are seen to drive organizational culture, behavior and outcomes.

Experience has demonstrated that culture cannot be changed easily or rapidly. Vision, mission and values statements combined with executive exhortations have proven ineffective in bringing about deep and enduring changes. This realization has resulted in the view that it is more constructive to focus on what can be done to facilitate positive safety performance within an existing culture than to try to change deeply rooted values and beliefs. Currently, systematic long-term application of social engagement and behavior modification methods are typically advocated as the means to facilitate improvement in safety consciousness and safety behaviours. Propensities provide a new window on how to understand an organization's innate capacities, including its ability and willingness to recognize and resolve safety challenges.

By analyzing an organization's aggregate propensity distribution and giving consideration to what level of improvement capacity an organization requires to perform within its operating context, it becomes possible to augment and empower diverse talents that will help cultivate new understanding within their sphere of influence. A diversified base not only evolves new ideas and new behaviours, but rapidly broadens a system's capacity for recognizing, understanding and resolving diverse challenges. Organizations that understand their propensity distribution can begin to proactively manage their innate capacity and strategically shape their future development.

6. Summary

Interactions between individuals, and individuals and their environments, foster new ideas and new ways of doing things. Organizations with highly homogeneous propensities at an aggregate level have less capacity to learn and adapt than organizations with heterogeneous propensity profiles. Technical organizations, and in particular, high risk-reliability organizations are particularly prone to this limitation on organizational learning and improvement capacity due to their strong emphasis on technical competence in hiring and advancement decisions.

As diversity grows the need for cohering processes emerges, i.e., work processes, social engagement processes, and meaning-making (new understanding) processes that support system coherence. Management and leadership propensities need to diversify alongside workforce diversities in order to sustain each of these cohering processes.

In the context of high risk-reliability industries, propensities provide a needed perspective on the deep drivers of culture. By assessing and strategically diversifying propensities to increase critical functionalities, organizations can significantly improve the likelihood of their technical, management and human systems functioning effectively and in mutually reinforcing ways. Organizations that understand their stage of evolution, aggregate propensities, and their influence on organizational culture are better positioned to enhance systemic capability as a precursor to implementing improvements that are within the capacity of the organization to absorb and sustain.

7. References

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