New Paradigm of Systems Thinking

B. Charles Henry
Adjunct Faculty, University College of the Caribbean, Kingston Jamaica
henryb2000@gmail.com

ABSTRACT

Accepting new paradigms are important to advancing scientific knowledge. Over the history of humanity, discoveries have been made because of the availability of new facts that would be either previously impossible or improbable for multiple reasons. However, whenever one contextualizes the importance of leadership within the contemporary period of existence, one would find it difficult to diminish its contribution. Leadership makes or breaks organizations. Therefore, every facets of leadership should be scrutinized carefully; styles, types, reasons, and rewards, so that effective leadership can be appropriately placed and applied. Such broad perspectives may require further assistance because of missing links or incomprehensible relationships. If such is the case, one may be required to broaden one's horizon by examining existing facts in new ways. The foregoing is a scrutiny of the broader perspectives of paradigms and situating leadership appropriately within that massive scientific discourse.

Keywords: *Philosophy, leadership, transformational leadership, paradigms, scientific revolution, contemporary leadership, systems thinking, leadership skills*

1. INTRODUCTION

The concept of *paradigm* introduced by Thomas S. Kuhn in his seminal work *the structure of scientific revolutions* [7] gave substantial meaning to changing and transitioning moments of scientific knowledge. Kuhn [7] posited that *normal science* tend to gather knowledge in particular schools of thoughts and often reject basic innovations because they may act contrary to proven or acceptable allegiance or loyalty. Kuhn [7] opined that such suppression of scientific discoveries cannot be sustained however because sooner than later the novelty will rise to the fore. Kuhn [7] proffered that this process of accepting new discoveries is a *scientific revolution* in creating new paradigms or ways of thinking and doing.

The context above is a framework for which I will endeavor to establish my new paradigm of systems thinking called *leadership paradigm* by transitioning through the process of scientific revolutions as knowledge advance from one paradigm to another. I therefore propose that leadership paradigm is a narrow focus taken from the broader perspectives of Kuhn's paradigm transitioning into contemporary paradigm then to transformational paradigm and finally, into leadership paradigm, with each of the paradigm having its own scientific revolution within its given domain.

2. SYSTEMS THINKING

Systems thinking in not a novel idea. The ancient Mayans, for example, used system thinking to establish their system of calendars [10]. Tun focused on the evolution of consciousness, Tzolkin addressed months, religious, and ceremonious occurrence, and Haab determine taxes [10]. The Mayans use system thinking hierarchically whereas modern philosophies of systems thinking recognize complex interconnectedness and interrelatedness [10]. The need for systems thinking is therefore more relevant in contemporary times than it was previously. System thinking is a preferred choice for fierce competitors, especially within the context of prevailing economic instability and flux [13]. The

systems thinking dynamics necessary to meet the existing challenges are thus imperative to modern organizational success. The path to business success is riddled with uncertainties and turbulence [13] and therefore, leaders have an obligation to seek ways that engender business intelligence that creates values beyond competitors that deliberately advance business performance. Systems thinking are not the first choice of individuals because humans want the easiest and quickest resolution. However, Systems thinking reduce uncertainties and establish clear performance indicators [13].

Whereas "a system is created when two or more components interact" [16, p. 271], a thinking is "a conscious mind, to some extent of reasoning, remembering experiences, [and] making rational decision[s]" [16. p. 272]. Systems thinking are therefore concerted efforts at understanding how parts by themselves are fundamentally worthless until they are interconnected and assembled for functionality. For example, the parts of a car are worthless as isolated pieces whereas when joined together they provide substantial functionality [16]. Systems thinking incorporate interrelated people and machine interacting in consistent and pre-determined ways [16].

3. SCIENTIFIC REVOLUTIONS

According to Kuhn [7], science advance by alternating between "normal" and "revolutionary" phases. The author opined that when a revolutionary phase occurs, it does not necessarily imply that there is radical and accelerated progress; instead it simply means a qualitative difference between itself and normal science. Whereas normal science accumulates over time, revolutionary science revise existing scientific ways of doing and believing [7]. Kuhn [7] noted that both normal and revolutionary science progress although not necessarily cumulatively. Therefore, the imperative for this paper, as Kuhn explains, is not so much about the distinction between contexts of discovery and

justification, instead it's about the divergence between the standard picture and the context of justification.

Contemporary paradigm for example, is a transitioning of paradigms from classical to neo-classical to contemporary. Docherty, Surles, and Donovan [6] argued that the classical model with its machine metaphor focused on mass production and therefore its hierarchy of authority is centered at the top because individuals were never a focus under such paradigm. Docherty et al., [6] noted that there is a narrow span of control with this paradigm.

Transitioning continued with an attempt to refine contemporary paradigm or to correct its flaws that were inconsistent with modern organizations but are inherent to the paradigm. Neo-classical paradigm was the response. Asopa and Beye [2] noted that neo-classical theory is informal, recognizing individuals' uniqueness and group synergies. Individuals became the center of focus under neo-classical theory [6].

The culminating contemporary theory is the most revolutionary along the transitioning line [6] of organizational theory and practice. Docherty et al., [6] opined that in comparison to the foregoing two paradigms, contemporary paradigm examines a number of issues that have arisen in the previous paradigms such as *division of labor*, *human factors*, and the effect of *information and communications technology* (ICT) on organizational theory.

Scott and Davis [12] approximate the arguments of the previous writers by advancing their rational, natural, and open systems perspectives. The authors reasoned that individuals and groups might influence organizations in different ways. Scott and Davis [12] opined that the organization is subjected to the influence of power and statues and therefore personality and performance may be affected. The authors posited that this sociological impingement weighs heavily on communication, decision-making, and socialization. An understanding of their combined effect upon organizational practice is therefore essential to the contemporary manager. However, other conditionality and circumstances affect contemporary management and decision-making such as the leadership skills required to match organizational theories within a given situatedness of people, machines, and the prevailing environment. I will address some of these issues in the proceeding paragraphs.

4. MERGING SYSTEMS THINKING & SCIENTIFIC REVOLUTIONS

Although by themselves, both systems thinking and Kuhn's scientific revolution is well established, not much attempt has been made to view the benefits of both approaches strictly from an evolutionary process through the various stages of development that may culminate in an effective and pragmatic leadership perspective. Gilbert and Davis [9] for example, examined the relationship between systems thinking and paradigms pertinent to professional development. The authors reasoned that while one may advance systems theory to comprehend the contemporary changes occurring in organizations, one must also recognize that such transformation, modification, or transition has an interconnected relationship within an historical context and what prevails presently. Gilbert and Davis [9] proffered that individuals advancing their professional development may want to consider the interrelationship between systems thinking and paradigms to understand and appreciate the changes occurring so that they can pursue appropriate responses.

Likewise, Yolles [18] posited that the link between systems thinking and paradigms should equip individuals for effective coordination because in understanding the relationship they bear, efficient methodologies can be adapted for successful, productive, and adequate response. To this end, Yolles [18] noted that the process used to model our concept or idea must be viewed within the perspective of paradigms. However, Yolles [18] opined that the process is best served when done with order. In conducting his research for his PhD, Sterling [15] reasoned that systems thinking is an ideal platform for understanding and executing paradigm change in education. He argued that when one appreciates the relationship between the two, sustainability is more likely to materialize. Sterling [15] stated that such relationship creates a positive difference that may often be transformational. Note however, that none of these or other research examines the issue under scrutiny within the context presented. This author could find no research that critically considers the arguments advanced herein for their linear connection to creating a perspective that strengthens and encourages a new approach to leadership.

5. LEADERSHIP SKILLS

Having a grasp of the organizational climate in which one is operating, the next step is to appropriately match the knowledge and skill-sets necessary to run a successful business. It is therefore incumbent upon leaders to have an understanding of their leadership roles and responsibilities. Leadership is itself a scientific revolution evolving from *born leaders* according to the *great man theory* to *transformational leaders* [17] and a plethora of styles in between. Leadership transitioned from born leaders to leaders having special characteristics called *traits*. Traits are unique and distinguishing features that are lacking in followers [17]. The evolution continued with the recognition that certain environmental factors are important to leaders when making decisions. These *Situational* factors "pays special attention to contextual factors: the nature of the work performed by the leader's unit, the individual characteristics of the followers, or the nature of the external environment" [5].

Building upon situational leadership, Fred Fielder posited that although it is important to note the situational circumstances a leader faced, those situations

are highly influenced by the state of being or prevailing facts, the degree or accuracy of advanced knowledge, and the power or influence the leader brings to the situation [17]. These new acknowledgements gave rise to *contingency* leadership.

Burns, more concerned with distinguishing leaders from managers proposed that leaders and followers achieve their objectives when there is mutual respect and cooperation between them [4] in his seminal work on the *transforming* leader. In adjusting the term "transforming" to *transactional*, and by extension, slightly changing its meaning, Laohavichien, Fredendall, and Cantrell [8] noted that transactional leader "produce incremental change" [8, p. 8].

These leadership paradigms however reached their pinnacle when Baas introduced the concept of the *transformational* leader. Laohavichien et al., [8] opined that the transformational leader is essential for creating "radical change" [8, p. 8]. The transformational leader is a requirement for contemporary management because such a leader produces "entrepreneurial champions, organizational champions, and champions of radical military innovations" [17]. Transformational leadership is therefore a necessary tool to engage followers in analyzing, interpreting, deciding, and taking actions in these modern and post-modern times.

6. LEADERSHIP PARADIGM

The preceding paragraphs clearly identify and outline the necessity for contemporary leaders to understand the multiple paradigms of contemporary times and to fuse the knowledge and skill-sets gleaned from these multiple perspectives if leadership is to be successful within an environment of constant change. A leader understanding the concept of paradigms as proffered by Kuhn, meandering through and extracting the necessary characteristics of scientific revolutions that occurred in organizational theories, and comprehending the historical and contextual contributions of modern and post-modern management principles will equip himself or herself to approach leadership in a comprehensive way that will render success in decisions and actions. My leadership paradigm model is illustrated below.
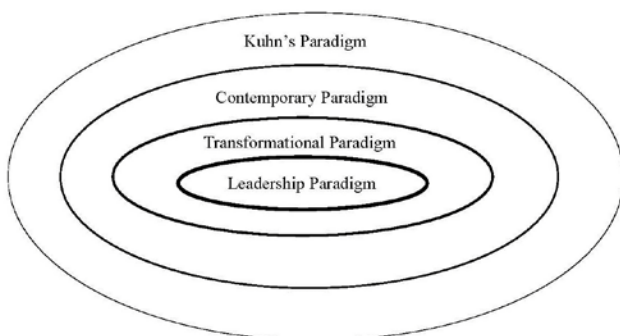
Fig 1: Leadership Systems Thinking Paradigm Model

7. LEADERSHIP SYSTEMS THINKING PARADIGN MODEL

As Figure 1 above shows, the broadest perspective of understanding scientific revolutions is Kuhn's paradigm theory. This level of the model "Kuhn's Paradigm" has the dullest line because environmental factors are not as limiting for transitioning forward and for adhering to a specific scientific paradigm. At this level of thinking, the objective is to recognize "normal" and "revolutionary" in the context of scientific transformation. Here, general systems thinking predominate. General systems thinking or GST is an attempt at understanding cross-disciplinary functionality. However, GST is limiting in its abilities to discern the complexities of either concepts or methodologies within the prevailing heterogeneous, multifarious, and elaborate realities of modern business operations [19]. GST focuses too extensively on internal relations [16]. Therefore, there exists a need to shift focus to applied systems thinking, for example, system engineering or operation research.

The next level "Contemporary Paradigm" brings Kuhn's theory of paradigms into focus, limiting the area of discovery to a specific field or discipline. One would therefore notice an increase in the sharpness of the line over the level at Kuhn's Paradigm. At this second level, decisions are specific to a particular discipline but broad enough to encourage and appreciate divergent perspectives within the domain of focus. At this second rung of the hypothetical elliptical ladder, applied systems thinking emerge from GST. Although applied systems thinking address the complexities of engineering and technology within the contemporary sphere, it remains primarily hard systems thinking or HST [19]. It is miraculous in its mission, such as putting humans on the moon. However, it lacks the ability to address diverse issues and activities as they occur, "especially the difference and conflicts of worldviews and values within human organization" [19, p. 142].

The third level of the model takes into account that having understood organizational theory from the second level there is a need to match organizational theory with an appropriate leadership model. One can observe this strengthening of the model toward strong leadership as one notice the increased boldness of the line as one proceed toward the center of the model. At this level "Transformational Paradigm," management principles become essential to decisions and actions as both the internal and external environment increase in focus. At the transformational paradigm level, decision-making is hinged on the organization's strategic fit and purpose for organizational existence and performance. The transformational paradigm level shifts from HST to soft systems thinking or SST. At this stage within the elliptic, the subjective epistemological concepts emerge subjectively from stakeholders instead of from objective world entities [19]. It regards the inquiry nature of the contemporary world for establishing and exercising objectives and outcome.

The model culminates at the center where the "Leadership Paradigm" takes over to lead, manage, and control decisions, performance, and output that meet organizations expectations. Here, leaders assume their responsibilities to manage contemporary enterprises in a changing world influenced by the strong presence of technology coexisting with humans and co-constituting the means and ends to productive endeavors. The line signifying organizational boundaries is strongest and most pronounced at this level. Although SST advances from the applied to the social, the relationship along the totem pole is somewhat limiting. HST is akin to functionalism because of its positivist influence and SST is consanguineous to phenomenology because of its interpretative perspective [19]. At the "leadership paradigm" stage, advancement is necessary for effectiveness. A two-paired system therefore prevails at this level. The human active system and the learning system predominate at this stage. Whereas the human active system focuses on issues of the real world, the learning system recognizes that experiences of the real world contribute considerably to knowledge acquisition and manipulation [19]. Self-consciousness is thus pertinent to legitimating actions at this level of the model [19].

8. ETHICAL IMPLICATIONS

According to Argandona [1], a leader's action should incorporate three fundamental criteria (1) competence, (2) necessity, and (3) coherency and reliability. These characteristics are important to making effective ethical decisions. Lacking abilities in any of these three areas can prove devastating to organizations. Nekoranec [11] opined that it was because of deficiencies in ethical principles that the recent financial crisis occurred. "Ethics is not a management tool, but a criterion for evaluating reality" [1, p. 439]. Therefore, if leaders were more ethical in their actions and behavior, the financial crisis may have been averted. Transformational leaders are suitably qualified for such transition because of their honesty, frankness, and timeliness in bringing stakeholders together and for their outlook in advancing organizations.

9. PARADIGM PERSPECTIVE

Baltzan and Phillips [3] proffered that contemporary organizations need bold radical and disruptive decisions to achieve their strategic objectives. Such examples can be seen in Amazon.com and eBay's approach to fusing technology and personnel for achieving competitive advantage in the marketplace. The approaches of these organizations have changed the very nature of businesses within the book industry and the auctioning industry respectively. A similar understanding aided by the diagram above engenders the phenomenological consequence, especially of information and communications technology and its relationship on contemporary business demands and practices. This perspective is therefore relevant to modern organizations operating in a climate of constant change and to the leaders of such enterprises for effective management and control. To this end, a systems thinking methodology engages leaders and managers to combine skill-sets and understanding of a complex and unpredictable environment [14]. Systems thinking paradigm is competency based and need alignment with leadership paradigm for effective performance within the prevailing situatedness of business flux and instability.

10.   CONCLUSION

As the model above portrays, an understanding of the broad perspectives of multiple disciplines will equip leaders to make more relevant and timely decision suitable for the prevailing circumstances within the given situatedness of leaders, managers, workers, and other stakeholders. Leaders who grasped the respective organizational theories and who equally comprehend the various leadership paradigms and management roles will likely make appropriate decisions that will allow their organizations to operate as successful going concerns.

Equally, businesses operating successfully will contribute to their environment, will build the life of their employees, owners, and stakeholders, and will help to develop their local and global economies. A full comprehension of both organizational and leadership paradigms are therefore essential for contemporary leaders as they face the challenges of an ever changing environment and as they grapple with the need to survive.

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AUTHOR PROFILE

X. B. Charles Henry received his Masters degree in Management Information Systems from the University of the West Indies in 2003. He is currently pursuing his doctoral studies with University of Phoenix in Organizational Leadership with specialization in Information Systems and Technology. He is dedicated to conducting research and have many publications in multiple international peer reviewed journals. He is the information technology manager for a large law firm in Kingston and lectures as an adjunct professor with the University College of the Caribbean, Kingston.