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# Frameworks for Strategic Leadership

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# FRAMEWORKS FOR STRATEGIC LEADERSHIP

## WORKING PAPER

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**Doctor of Management in Strategic Leadership**

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# Introduction[1]

I suggest two frameworks that may improve understanding of strategic thinking, strategic decision making, and strategic leadership. The first I call the **Epistemology Framework**. The second which was described and continues to be promoted by David Snowdon and colleagues is the **Cynefin Framework**.

By **framework** I mean a basic structure underlying a system, concept or experience, and in this paper, I focus on those characteristics of organizational leadership. An earlier version of my description of the importance of frameworks can be found in Freedman (2013) which introduced the topic this way:

> When making … decisions, leaders are likely to apply their unrecognized biases, assumptions, and beliefs that overemphasize some variables and overlook or minimize others. Decision makers may also assume, simplistically, that this approach will enable them to discover a single cause of their system's challenges rather than having to deal with the greater probability that multiple factors create the challenge. This way, leaders may avoid dealing with complexity – at least in the early phases of planning and implementing systemic change – but it also generally results in faulty planning and disappointing results … an approach (which) corresponds to what Starr (2012) believes is the first of three interacting frames for knowing and understanding organizational systems (p. 406).

The premise of my argument is that personal actions and organizational performance are co-produced by how people **understand and think about** a challenge, i.e., problem or opportunity. Thinking is a mental activity that involves critical and creative aspects of the mind, both the use of reason and the generation of ideas. Thinking occurs when we seek information, knowledge, and understanding, and informs how a person formulates a problem, makes a choice, solves a problem, and pursues an opportunity. Indeed, most business results can be traced back to the "mode of thinking" or "thinking processes" that produce decisions, actions, and outcomes even if we are unaware of them. If we are to understand strategic leadership theories and practices, we must first appreciate how we think about leadership challenges. Frameworks contribute to these appreciations as noted by Bhardwaj, Crocker, Sims and Wang (2018):

> Without a framework, it is possible to fall into cognitive biases and miss important factors in articulating the problem frame.  Yet, how we frame a problem affects how we think, what we analyze, the kinds of solution possibilities we create, the choices we make, and thus the outcomes we attain (p. 25).

Frameworks are important for several reasons.  Without one, problem formulation may be subject to two kinds of errors.  One is referred to as the **Type 3 Error** (Mitroff & Featheringham, 1974) which is defined as solving the wrong problem.  As described by Mitroff and Silver (2010), "What we need are the right answers to the right problems, and not wasted effort on getting the right answers to the wrong problems."  As summarized by Barabba and Mitroff (2014),

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[1] The impetus for this paper came from activities and discussions at the University of Pennsylvania with Russell L. Ackoff (who died in 2009) and John Pourdehnad. John and I continue to discuss and debate strategic leadership topics since we both moved to Thomas Jefferson University in 2016. Contact: Larry M. Starr, PhD, +1-215-951-5332, Lawrence.Starr@Jefferson.edu.

The "righter" one does the wrong things, the wronger one becomes. If one makes a mistake doing the wrong thing and corrects it, then he/she becomes "wronger." However, correcting a mistake while doing the right thing makes things "righter." As Ackoff put it, "it is better to do the right things wrong than the wrong things right! In other words, why solve the wrong problems precisely? (p. 49).

A second version of this error has been called the **plunging-in bias** (Bhardwaj et al, 2018) and is defined as not understanding the problem and not thinking about how best to solve it before starting to solve it. The authors argue:

> Problem formulation is the single most underrated skill in all of management practice … which lends credence to research by Wedell-Wedellsborg (2017) that 85% of 106 C-suite executives from public and private sectors in 17 countries agreed or strongly agreed that people in their organization were bad at diagnosing problems and 87% felt that it imposed a significant cost on their organization. It is possible to solve the wrong problem or solve one badly due to poor formulation. The misallocated effort and resources that follow impose an opportunity cost along with financial and competitive costs (p. 4).

Another important reason to adopt a strategic leadership framework is to provide a common language. While leaders and leadership have been described since the earliest stories and records of kings and generals, the many and changing meanings, theories, and models of leadership have been fluid although there are recurring themes. A framework presents an underlying structure that helps to understand the varieties and changes in leadership meanings and approaches.

A fourth reason for a framework is because it provides a way to assess and monitor differences in leadership approaches that can improve organizational performance. For example, the McKinsey 7-S framework (Waterman, Peters & Phillips, 1980) is commonly used as an organization analysis tool to understand internal and external forces influencing an organization or a team within an organization.

In the following sections, two frameworks are presented. The details of each is described then the opportunity for an integration is suggested.


# Epistemology Framework

Epistemology refers to the theory of knowledge and describes how people separate belief, what they hold to be true, from opinion, their view or judgment not necessarily based on knowledge or fact. While 400 years ago, everyone "knew" the world was flat, now educated people[2] know this opinion is false. I posit an **epistemology framework** as a structure to explain how a person knows or understands a problematic situation or an experience in the current reality. The proposed framework includes the sources and scope of knowledge, and the criteria used for justification. The framework has three characteristics: mindset, method of thinking, and method of deciding.

Everyone has a **mindset**, also called a world view, from the German word, *Weltanschauung*. Dweck (2007) defines mindset as a mental attitude that determines how one will interpret and respond to situations. One's mindset/world view is metaphorically like glasses that one

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[2] https://www.boston.com/sports/boston-celtics/2017/08/23/heres-why-kyrie-irving-thinks-the-earth-is-flat

wears through which everything visually experienced, seen, and read is interpreted. But as not all experience is visual, it is also like wearing earphones through which everything heard is also interpreted. This means that two people present at the same event but holding differing mindsets may perceive and understand what is seen and heard differently. Mindset for an individual, team/group and organization is the fundamental cognitive orientation encompassing the whole of one's knowledge and point of view. A leader's mindset/world view can include not only current reality, but also anticipation and expectations of future and ideal states, normative values, emotions, and ethics. While the epistemology framework identifies three broad categories, there are many kinds and subsets of mindsets including but not limited to political (e.g., Democrat vs Republican), cultural/tribal (e.g., Sunni vs Shia), and ability (e.g., growth vs fixed).

The **method (or mode) of thinking** is a cognitive approach that follows from – is based on – one's mindset. It includes the methodology and tools that a person applies when perceiving and examining data, information, knowledge, and the methods/processes one uses to reach understanding. One's method of thinking informs problem formulation including metaphors and prototypes that are selected and applied, and that offer meaning about a problem or opportunity.

The **method of deciding** follows from the mode of thinking and is the process of decision-making, problem-solving, and problem-dissolving. The method of deciding involves how choices are selected and implemented when trying to reach desired outcomes.

Applying the epistemology framework, I suggest that people hold three broad kinds of mindsets – **authority/power**, **science/evidence**, and **systems** - each of which leads to different methods of thinking and different methods of deciding. One's framework, therefore, influences what, how, and why outcomes may be reached. I present these as separate categories in Table 1, but as people may hold multiple perspectives and shift between frameworks, I present overlapping concepts in Figure 1.

## Epistemology Framework
### How we think about leadership

| Mindset | Method of Thinking | Method of *Deciding* |
|---|---|---|
| Authority/Power | Heuristic Thinking *Rule of Thumb* | Policy, Rules, Trusted Books/Documents<br>Religious Sources, Intimate People |
| Science/Evidence | Analytic Thinking *Reductionism* | Research, Root Cause, Quantitative/Some Qualitative Methods, Strategic Planning |
| Systems | Systems Thinking *Expansionism* | Design, Qualitative & Quantitative Methods, Synthesis, Interactive Planning |

Table 1. Epistemology Framework as Independent Approaches
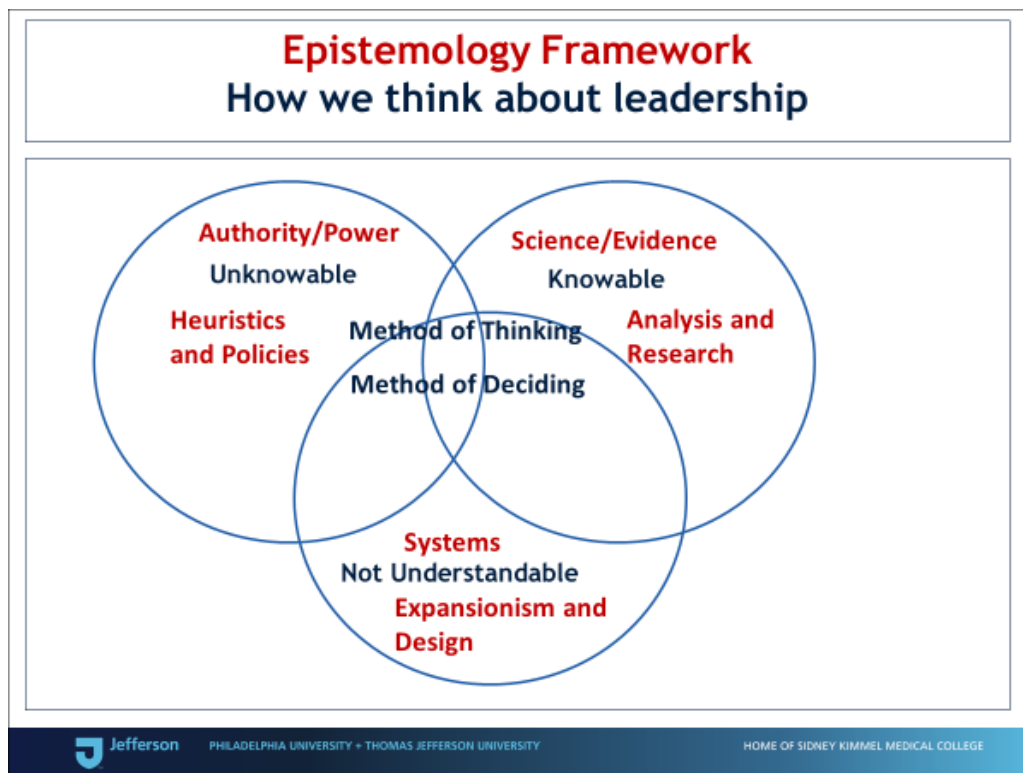
Figure 1. Epistemology Framework as Overlapping Concepts

Authority/Power Mindset, Thinking and Deciding

*Authority Mindset*

The premise of the authority/power mindset is that some aspects of the world and the current reality in which an individual and organization operate are believed to be uncontrollable, threatening, and largely unknowable. One who holds this world view believes he/she/one's organization are significantly under the influence of powerful forces and authority agents. Indeed, when authority/power is deeply part of one's world view, there is increased acceptance of decision making and outcomes controlled by others.

There are several versions of this world view depending on context. A well-established and organized value-based culture tends to be more cohesive in its authority/power. One example is the US Military described Cunha and Curran (2013):

> As a civilian, a person's boss has authority over that person while they are at work, but in the military, a service member's boss (commander) has authority over almost all aspects of their life even when the service member has a "day off." Commanders in the military are responsible for their subordinates' conduct on and off duty. For example, a service member's commander may be notified if the service member gets drunk, bounces a check, has a fight with their spouse, if their children are going hungry, or if they get in trouble with the law … The military values philosophy is one of many factors that set members of the United States military apart from their civilian counterparts. These values define how the service members live their lives,

make decisions both on and off the battlefield, as well as overcome daily challenges and adversity.

Another example is within religious organizations and cultures. While individual devotional expression of a religious worldview may be diverse, holding an observant religious mindset, which is influenced by the context or environment in which one operates, influences all aspects of one's world as described by the Religious Literacy Project of Harvard Divinity School (2018):

> Just as religion cannot be understood in isolation from its cultural (including political) contexts, it is impossible to understand culture without considering its religious dimensions. For example, political theorists have recently highlighted the ways that different interpretations of secularism have been profoundly shaped by varied normative assumptions about Christianity… (such that individual behavior) is manifest in three intersecting formulations: direct, structural, and cultural and … are shaped by conscious and unconscious human agency where religious influences are always operative.

*Heuristic Thinking*

The method of thinking that follows from an authority/power mindset relies on heuristics (i.e., use of a "rules of thumb" or "mental shortcuts"), oral narratives, stories, policies, and rules promoted by the authority. The premise is that adhering to these norms leads to positive outcomes while failing to think or make choices in the proscribed manner leads to errors and outcomes.  These are believed to be detrimental to the individual, organization, and its mission including violation of the rights of others, and threats to order, predictability and control. In a military context, holding this mindset is presented as critical to saving lives. In a religious context it is presented as essential to maintain ethical principles and moral behavior codes in the community.  Among Human Resource professionals, for example, a similar argument is promulgated about the importance of following written policies as noted by the HR Council for the Nonprofit Sector (HR Council) in 2018:

> A policy is a formal statement of a principle or rule that members of an organization must follow. Each policy addresses an issue important to the organization's mission or operations.  Policies serve several important functions:
> - Communicate values and expectations for how things are done at your organization
> - Keep the organization in compliance with legislation and provide protection against employment claims
> - Document and implement best practices appropriate to the organization
> - Support consistent treatment of staff, fairness and transparency
> - Help management to make decisions that are consistent, uniform and predictable
> - Protect individuals and the organization from the pressures of expediency

*Policy Deciding*

The method of deciding that follows from this is to follow the communicated decisions directly from powerful leaders and/or the authority's designated agents and adhering to official policies and rules. When challenging situations emerge, rather than making choices based on individual reasoning, authority sources (and choices) should be followed. This promotes a high degree of dependency on an established power hierarchy, requires identifying leaders who are trusted experts accepted to be competent to decide for others, and relies on the importance of and access to authoritative policies and texts. It also

acknowledges that context, culture and mindset coproduce how one understands, what one believes, and how one decides about current and future reality.

In the current reality, appreciating the implications of holding an authority/power world view may help to understand some strategic leadership choices and performance. For example, those who believe that uncontrollable, undesirable, and powerful forces pose risks and threats are likely to seek and follow actions that offer prevention and protection. With increasing heterogeneity, reliance on technology, overwhelming and open sources of conflicting information, and rapid rates of change, leaders who offer to their confused and threatened followers a strategy containing simple policies, formal controls, and clear protection measures are preferred because they present the promise of mitigated stress and increased personal and organizational safety.

One may see the implications of the authority/power mindset in several of our doctoral courses (all DSL courses are here). For example, in DSL 700, we consider the premises and assumptions underlying humanistic and religious/value-based leadership. In DSL 703, we consider how mindset influences the juxtaposition of civilian and military leadership theories and practices.


## Science/Evidence Mindset, Thinking and Deciding

*Science Mindset*

The premise of the science/evidence mindset is that some aspects of the world and the current reality in which people operate are complicated but knowable.  Distinct from the authority/power world view which prevailed in European thinking until the Renaissance approximately 400 years ago (and remains active today), the science/evidence approach holds that the world generally and current reality specifically can be understood, predicted and (eventually) controlled primarily through human expertise and application of proper methodologies. This mindset is supported and justified by the history of scientific methodology described by Isaac Newton (1643-1727) and is sometimes referred to as Newtonian science.

This mindset holds that valid knowledge is derived from the use of the scientific method which involves systematic observation, measurement, experimentation, and the formulation, testing, and modification of hypotheses. The methodologies of science involve performing research that is quantitative (i.e., uses objective measurements and statistical, mathematical, or numerical analysis of data) and qualitative (i.e., examines the meanings, concepts, definitions, characteristics, metaphors, symbols, and description of things rather than their quantitative values).

*Analytic Thinking*

Following from the science/evidence world view is a method of inquiry/method of thinking called analysis, from the Greek word, *analusis*, which means to break into parts. Central to this is reductionism that posits that higher-level (difficult to understand) phenomena within a system are derivable from lower-level elementary parts. It also posits linear causality, the notion that the occurrence of any event or situation always has a preceding and discoverable cause. Through this lens and thinking, scientists and non-scientists try to understand reality by reducing and simplifying problems into component parts and studying the behavior of those parts.  A broad range of methods and tools have been created and can be employed to study reality from this perspective and as a meta-methodology, it has been wildly successful.  By

seeking root causes through reductionism an impressive range of discoveries, technologies, and improved understanding have resulted.

*Research Evidence Deciding*

There are several implications of analytic thinking that affect the method of deciding. One is that one size fits all, i.e., that any problem can be solved by deconstructing into simpler problems and for root causes.  Another is that each part of a problem or situation is independent and connects in a linear additive manner such that the whole problem is equal to the sum of its parts. Third is that the most common metaphor for this mode of thinking is a machine. For example, if confronted with the problem of a car steering wheel that fails to turn the car in the intended direction, the mindset, method of thinking and problem solving is to deconstruct the car in search of the "bad" part or parts involved in turning the wheels. This presumes that when the bad part is identified, repaired or replaced, the problem should be solved; the car should perform as intended.

For more than 400 years, the science/evidence mindset coupled with research-based analytic thinking have been the prevailing and normative approach for gaining knowledge and solving problems within and across most academic disciplines. It is presented as the optimal way to understand, control and predict variables including human behaviors and outcomes. In health care, for example, decision making relies on scientific research-and--evidence-based knowledge that can be applied to understand and treat individual patients. Sackett (1997) who was among the first to promote evidence-based medicine wrote,

> Evidence-based medicine, whose philosophical origins extend back to mid-19th century Paris and earlier, is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients (p.3).

Extending this to health policy, Baicker and Chandra (2017) wrote,

> Evidence-based health policy (EBHP) is a prerequisite for a rational approach to making policy choices, and it may even help focus the debate on the most promising approaches … EBHP requires evidence of the magnitude of the effects of the policy, and obtaining such evidence is an inherently empirical endeavor. Introspection and theory are terrible ways to evaluate policy ... What makes for "rigorous enough evidence"? Professional medical societies have developed gauges of the strength of evidence to support clinical guidelines, and we should demand nothing less for health policy.

All health- and health-related disciplines promote the science/evidence mindset, analytic thinking, and analytic decision making although practices continue to lag.  This absence is not restricted to healthcare; it occurs across a broad range of academic and scientific communities and organizations as described by Pfeffer and Sutton (2006) who argue for a need for evidence-based management:

> Yes, the research is out there—thousands of studies are conducted on medical practices and products every year. Unfortunately, physicians don't use much of it. Recent studies show that only about 15% of their decisions are evidence based. For the most part, here's what doctors rely on instead: obsolete knowledge gained in school, long-standing but never proven traditions, patterns gleaned from experience, the methods they believe in and are most skilled in applying, and information from hordes of vendors with products and services to sell.

The same behavior holds true for managers looking to cure their organizational ills. Yet we believe that managers (like doctors) can practice their craft more effectively if they are routinely guided by the best logic and evidence—and if they relentlessly seek new knowledge and insight, from both inside and outside their companies, to keep updating their assumptions, knowledge, and skills.

Science/evidence is the prevailing mindset held by global organizations across all standard industrial classification (SIC) categories and codes. The implications of this mindset can be seen in organization charts and departments presented as independent hierarchical parts; linear chains of inputs predicting direct outcomes; linear strategic project planning and project management; and the continuously growing social science research involving reduction/analysis of leadership into traits and competencies that add together to form personality and which can be understood as independent causes that produce behavioral effects. Holding a science/evidence mindset informs the selection of metaphors such as the symptom and root cause relationships in Figures 2 and 3.
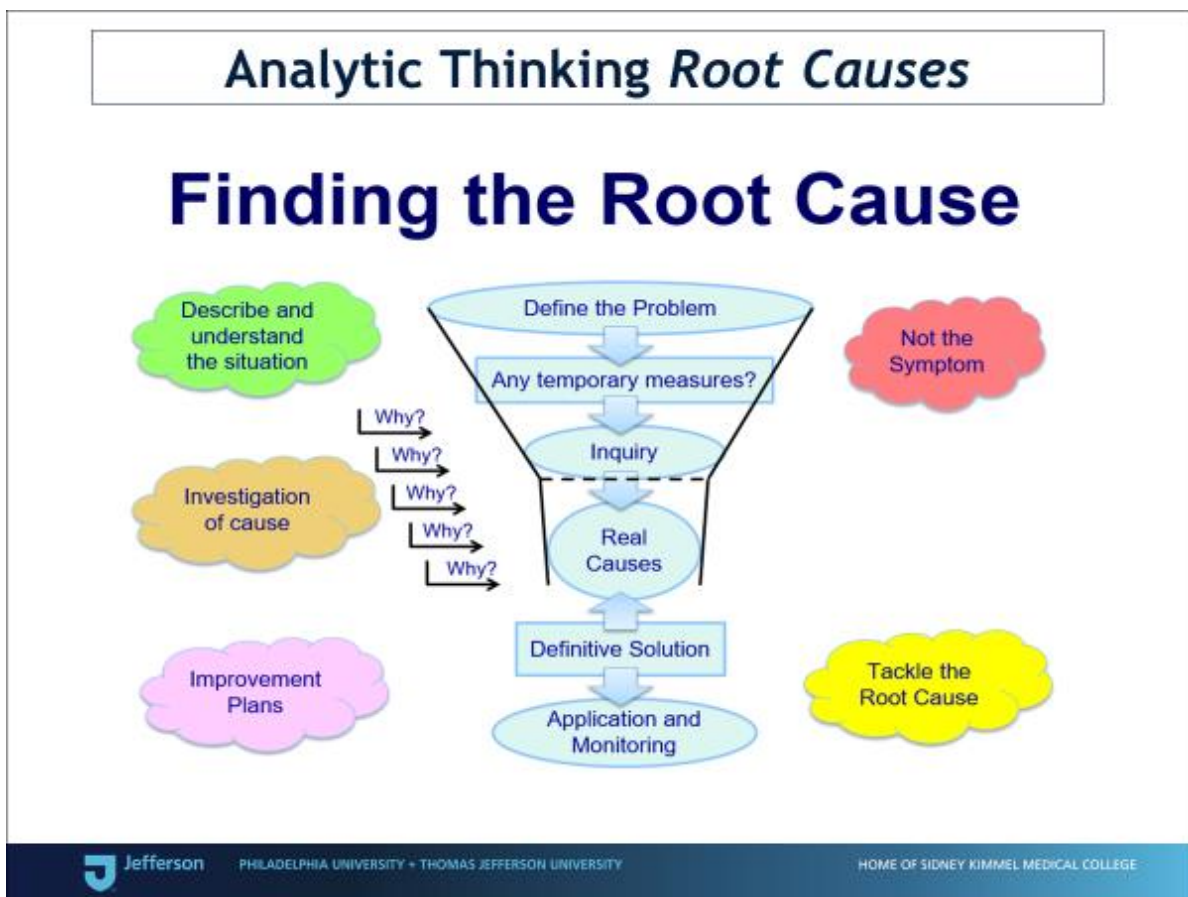


Figure 2.  Reductionist / Analytic Mindset Metaphor Implying Root Causes
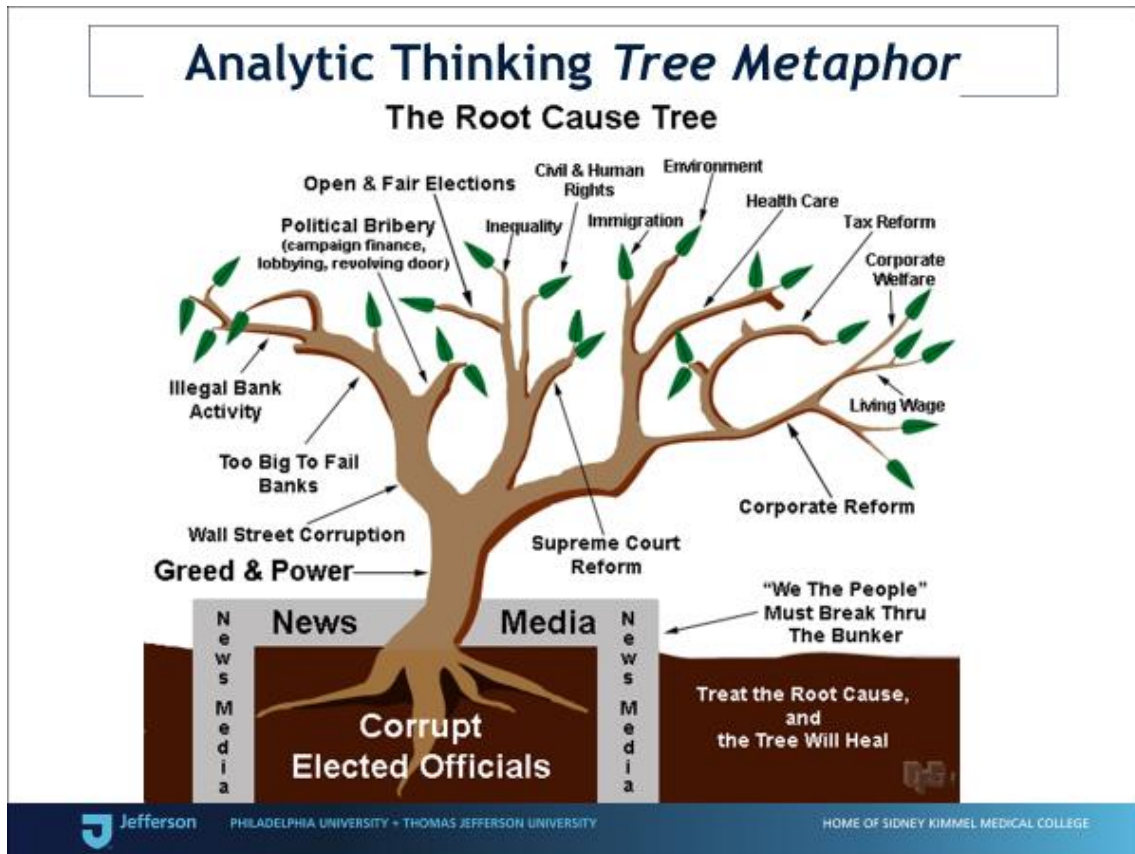
(From: https://bit.ly/2BqL2iH, Free Template)

Figure 3.  Reductionist / Analytic Mindset Metaphor Implying Root Causes

(From: http://www.cps-news.com/2013/11/01/attacking-root-cause-countrys-problems-news-media-bunker-builders/)

The study and understanding of leaders and leadership are replete with the science/evidence research-based mindset, thinking, and decision making.  As in other domains, this has produced a deep and wide collection of theories, models and explanations of practices. These continue to be adopted by organizations who wish to select and develop leaders to meet goals, and to improve and sustain productivity.

This world view is central to the idea that any individual may be understood by a reductionistic assessment for the presence of an additive set of traits. Whether one holds these traits to be inborn or socially learned, the implication is the belief and prediction that seeking and retaining leaders who possess certain traits will lead to preferred behaviors and outcomes.  A similar mindset, mode of thinking and deciding suggests that preferred leadership characteristics can be reduced into an additive set of competencies and that in a leadership development program these can be individually taught and will lead to improved leadership behaviors in others.

One may appreciate the science/evidence world view and implications in several of our doctoral courses (all DSL courses are here). In addition to trait, behavioral, and competency leadership models in DSL 700, both Applied Research Methods courses (DSL 702 and DSL 706) deeply hold this mindset. In these courses, you will learn that many problems are amenable to analysis and you will learn how to match analytic tools to inquiry approaches to generate valid and reliable understanding of information.

Systems Mindset, Thinking and Deciding

*Systems Mindset*

The premise of the systems mindset is that some aspects of the world and the current reality in which a person and organization operate consist of interacting systems which may not be understandable. The essence of this world view is that organizations and some challenges may be defined as a system which means they are a "whole entity" composed of a complex set of functionally interconnected components that cannot be reduced or divided into parts without losing meaning. While the science/evidence mindset posits that understanding a problem derives from reductionism because any problem is equal to the sum of its parts, the systems mindset posits that a system problem consists of the interaction and interdependence among its parts, and every system is part of a larger system.

The science/evidence world view emerged, in part, because the authority/power world view failed to adequately explain the nature of current reality. The systems approach emerged from a similar challenge. The premises of science/evidence and of analytic thinking are to control the context, treat the parts of a situation in isolation, and combine/add the understanding of each part to understand the whole problem.  Yet, there are limitations of this: in some problem and opportunity contexts, the parts of a situation are not independent, and linearity is not the only mode of thinking about cause and effect.

The systems world view or lens through which one can look at the world holds that current reality consists of varying sets of interconnected parts that form patterns, some of which are dynamic and change, and through which one may navigate but may not predict or control. Schon (1983) noted:

> Professionals lost their credibility … when they acted as if the world was certain, simple, and susceptible to body of knowledge and tools. But problems are interconnected, environments are turbulent, and the future is indeterminate just in so far as managers can shape it by their actions. What is called for under these conditions, is not only the analytic techniques which have been traditional in operations research, but the active, synthetic skill of designing a desirable future and intervening in ways of bringing it about (p. 16).

*Systems Thinking*

Mattessich (1982) wrote that "systems thinking is first and foremost a point of view and a methodology arising out of this viewpoint." The method of thinking informed by the systems approach focuses on the whole system not only the parts or subsystem where the problem may be identified.  Appreciating a whole system may be improved from expansionism, i.e., seeking understanding by looking for influences and forces outside and beyond it (in its "containing system"). The systems world view is that some kinds of problematic situations cannot be reduced or simplified; more important, there is no value in thinking there is a benefit to deconstructing or simplifying a problem to a root cause or bad part. Indeed, efforts to improve ("optimize") one part of a system leads to failure ("sub optimizing") in another part because all parts are interdependent. It is the interdependencies and patterns of these interactions that are central in this mindset. As described by Pourdehnad, Wexler and Wilson (2011):

> Systems thinking replaces reductionism (the belief that everything can be reduced to individual parts), cause and effect (environment free theory of explanation), and determinism (fatalism) with expansionism (the system can always be a sub-system of some larger system), producer-product (environment-full theory of explanation) and

indeterminism (probabilistic thinking). Additionally, it replaces analysis (gain knowledge of the system by understanding its parts) with synthesis (explaining the role of the system in the larger system of which it is a part). Analysis is useful for revealing how a system works but synthesis reveals why a system works the way it does (p. 3).

One metaphor of systems thinking described by Kim (1996) is the iceberg model. While analytic thinking argues for root causes underlying an observable event, the systems thinking model (Figures 4 and 5) presents sub-systems and containing systems of an event or situation. This model suggests that to appreciate an experience as a system, one should search in the environment or "containing systems" for patterns and trends which are influenced by underlying structures (patterns of patterns) which are informed by mental models/mindsets.
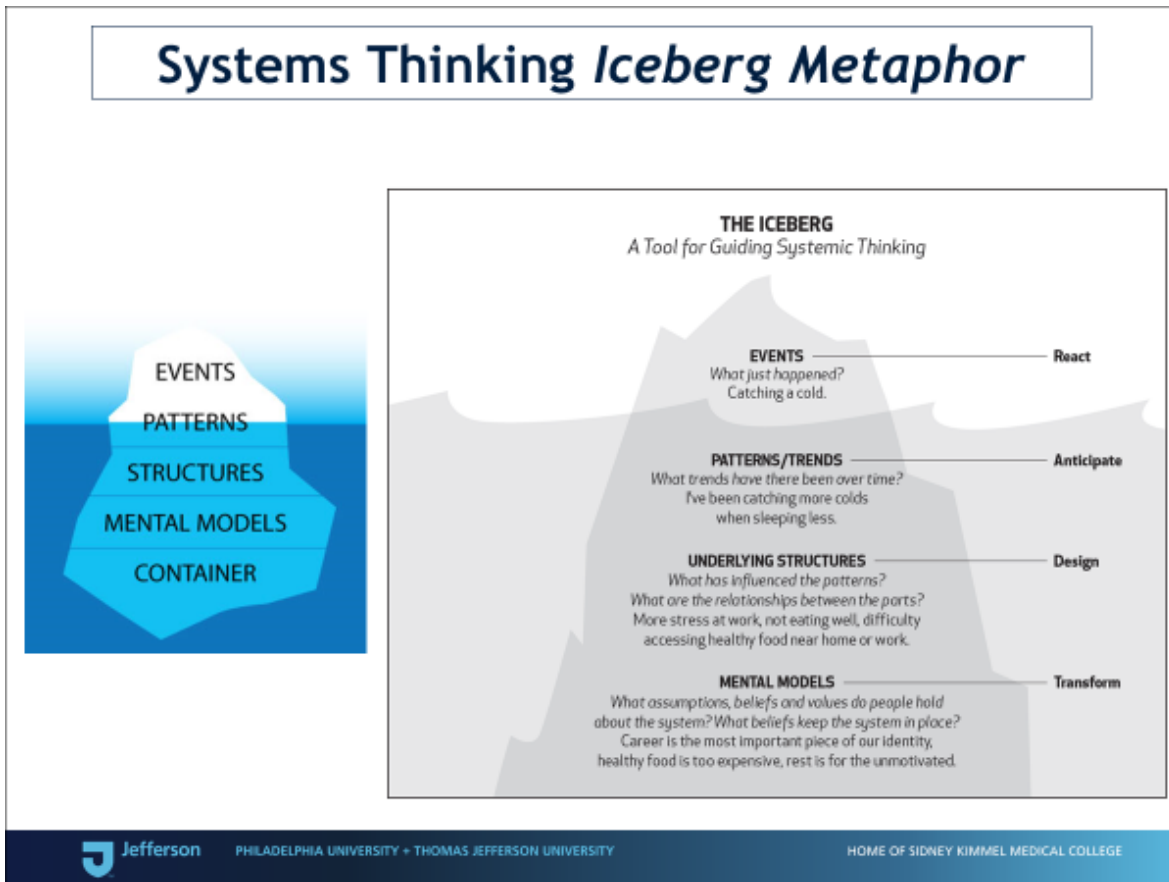


Figure 4. Systems Iceberg Model/Metaphor
(Kim, 1996)

**Systems Iceberg Metaphor (from the top)**

Events/Actions

Patterns/Trends: Relationship of events

Structures: Relationship of patterns

Mental Models: Beliefs, values, metaphors

Container/Mindset: Epistemology

Jefferson   PHILADELPHIA UNIVERSITY + THOMAS JEFFERSON UNIVERSITY              HOME OF SIDNEY KIMMEL MEDICAL COLLEGE
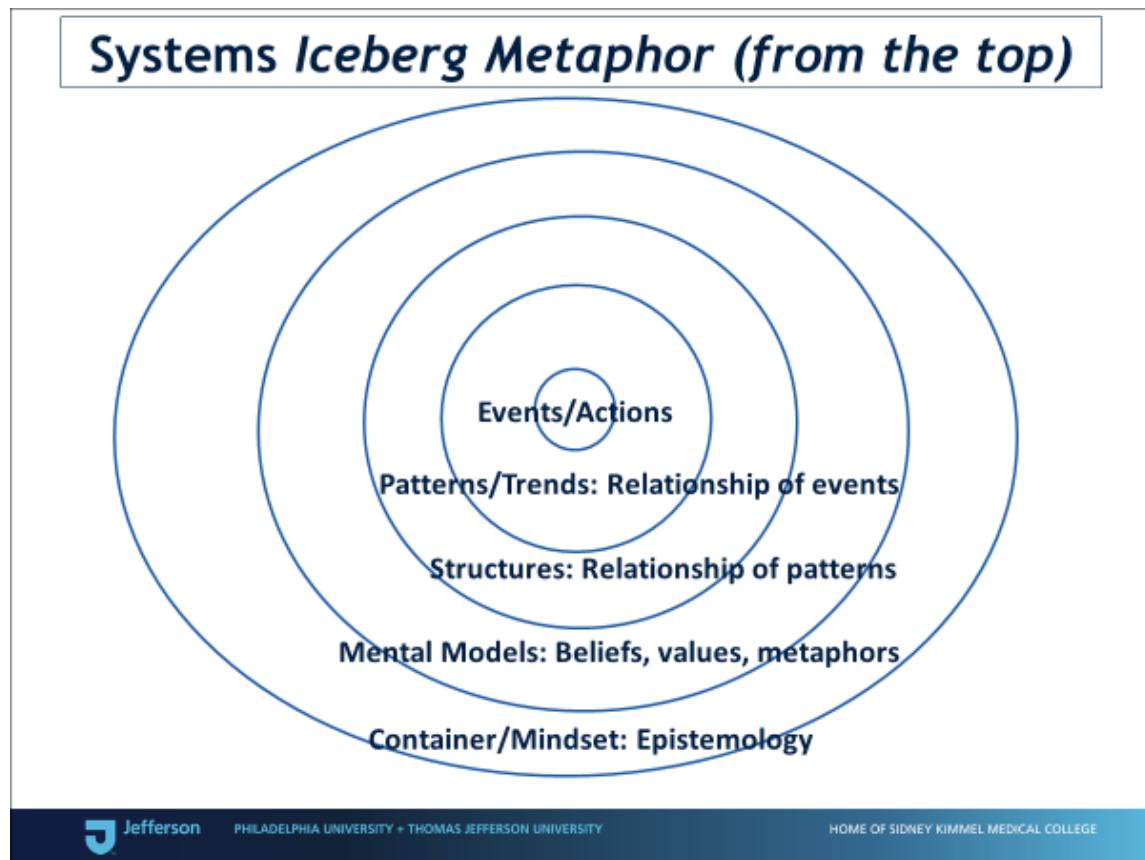
Figure 5. Systems Iceberg Model View from Above

Systems thinking frames a situation or problem as a sub-system functioning within larger containing systems, and focuses on the interactions, interdependencies, patterns, and other system characteristics.  Systems thinking holds that the whole problem is equal to the interaction of many parts and forces and that from these interactions emerge properties, characteristics and outcomes that may not observable or predictable from any of the parts examined individually. Pourdehnad and Starr (2014) posit that proficient leadership is an example of a dynamic property that emerges from the interaction of personality attributes, relevant skills, experience, knowledge and understanding, and practical wisdom (Figure 6).  In this conception, there is no root cause or set of additive competencies; rather, there are co-produced elements that operate within complex situations and challenges.
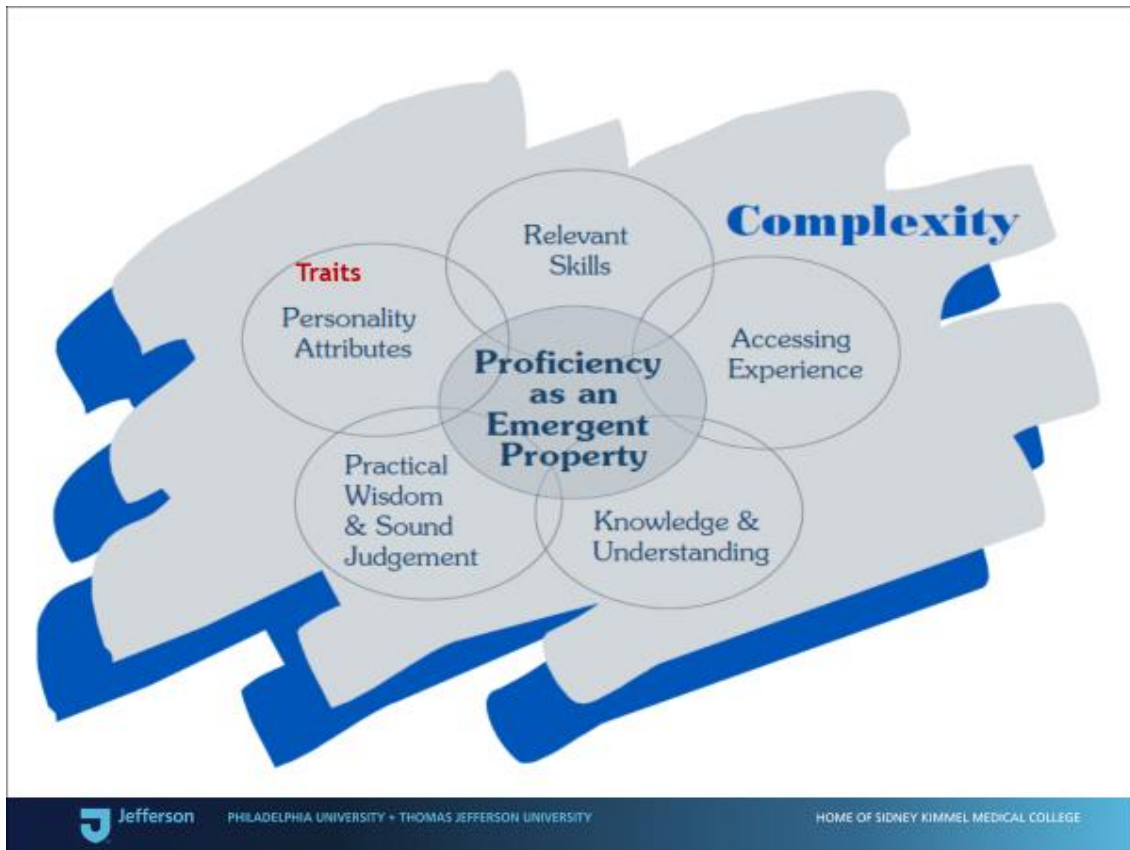
Figure 6. Systems Framework for Leadership
(Pourdehnad & Starr, 2014)

From a systems world view are many systems approaches, theories, models, methods, and tools.  Ramage and Ship (2009), for example, describe 30 profound systems thinkers who have produced theories in 7 groupings.  The authors noted there were many more they could have included, but for lack of space.

*Design Deciding*

The decision processes derived from systems thinking do not aim to solve a problem by optimizing or improving a broken or weak part or by selecting the best option by evaluating important criteria. Instead, they apply design-based methodologies, an alternative to analytic problem solving, which aims to dissolve a problem, i.e., create a system change in which the problematic situation cannot exist. This shifts the focus from optimizing a part to optimizing the whole system.

While the world's oldest pyramids in Brazil and Egypt had architects and designers, the application of design thinking methods to management and to organizational challenges is recent. Just as there are several systems approaches, there are also several design approaches and methods. Furthermore, design methods do not require adopting a systems mindset, but when the two are combined, innovation and outcomes are improved (Pourdehnad, Wexler & Wilson, 2011).

While the influence of the authority/power mindset remains, most people derive their understanding of the world and have their thinking and decision informed by the prevailing mindset of science/evidence and application of analytic thinking.  It is only to a lesser extent that the systems approach is applied. Some have argued that this is because acquiring a systems mindset and engaging in systems thinking are not easy, and while some may believe

they are systems thinkers, Valerdi and Rouse (2010) present data that systems thinking is not natural for many:

> Competence in systems thinking is implicitly assumed among the population of engineers and managers; in fact, most technical people will self-identify as systems thinkers. But systems thinking competencies are not as prevalent as these assertions might lead one to assume. Controlled experiments show that systems thinking performance, even among highly educated people, is poor.

Atwater, Kannan and Stephens (2008) found support for this in business school education. They received responses from a survey sent to 3141 faculty members in the top 63 graduate schools of management asking: (1) Do faculty understand what systemic thinking is? (2) Do faculty believe systemic thinking has a place in graduate management education? (3) Is systemic thinking being taught in graduate management programs, and if so, how?

The responses indicated that while many academic and practice books and journal articles have promoted the value and importance of the systems mindset and systems thinking, and while 74% of those surveyed agreed or strongly agreed that "systemic thinking is an essential part of graduate management education," the majority of respondents (60.3%) did not know or could not define systems thinking. Almost 6% reported they had never heard of systemic thinking or suggested, "It sounds like just another empty management research buzzword."

Yet, leaders with a systems mindset exist as described by Senge, Hamilton and Kania (2015),

> Though they differ widely in personality and style, genuine system leaders have a remarkably similar impact. Over time, their profound commitment to the health of the whole radiates to nurture similar commitment in others. Their ability to see reality through the eyes of people very different from themselves encourages others to be more open as well. They build relationships based on deep listening, and networks of trust and collaboration start to flourish. They are so convinced that something can be done that they do not wait for a fully developed plan, thereby freeing others to step ahead and to learn by doing. Indeed, one of their greatest contributions can come from the strength of their ignorance, which gives them permission to ask obvious questions and to embody an openness and commitment to their own ongoing learning and growth that eventually infuse large change efforts (p. 28).

The challenge of the strategic leader is to be competent to think in multiple ways and to shift and blend mindsets when the situation requires it. Strategic leaders who appreciate the authority/power mindset and who hold and balance both the science/evidence and systems mindset can address more kinds of problems and have access to more kinds of methodologies and tools derived from each world view. Table 2 offers a comparison of the thinking that follows the science/evidence and systems mindsets.

## Comparing Mindsets

| Analytic Thinking | Systems Thinking |
|---|---|
| **Analysis** An explanation of the whole derived from explanation of its parts. | **Synthesis** An explanation of the whole derived from explaining the role of the system in the larger system of which it is a part. |
| **Reductionism** The belief that everything can be reduced. | **Expansionism** The system is always a sub-system of some larger system. |
| **Cause and Effect** Environmental free theory of explanation, a cause needs to both necessary and sufficient in order to have the corresponding effect. | **Producer-Product** Environmental full theory of explanation as opposed to cause and effect where the importance of the environment is stressed. |
| **Determinism** Fatalism. | **Indeterminism** Probabilistic, observe and discover. |
| **Research** The embodiment of the above to arrive at instructions based on theory. | **Design** The embodiment of the above to facilitate learning. Designing the whole systems means creating a system configuration that is optimum. |

Table 2. Comparing mindsets

One may see the implications and applications of the systems mindset in our doctoral program's definition of strategic leadership as an emergent property of an organizational system.  The systems approach threads through many of our courses (all DSL courses are here). DSL 701 provides an overview of prominent systems approaches applied to organizational challenges. DSL 800 and DSL 712 are systems thinking project classes in which you will consult with organizational leaders while working on challenges brought to the program and faculty by organizations seeking assistance.


# Cynefin Framework

The Cynefin framework was conceived and developed by David Snowdon in 1999 when he was at IBM Global Services; he extended it in 2002 when he founded and directed the IBM Cynefin Centre for Organizational Complexity. He has continued to promote it through his consulting company, Cognitive Edge, as have many across the world.  The framework holds the premise that problems exist in differing contexts and to effectively solve a problem requires applying the mindset, method of thinking, and method of problem solving that match the context. The framework gained significant impact after a 2007 *Harvard Business Review* paper in which Snowdon and co-author Mary Boone wrote,

> There is a fundamental assumption of organizational theory and practice: that a certain level of predictability and order exists in the world. This assumption, grounded in the Newtonian science that underlies scientific management, encourages simplifications that are useful in ordered circumstances. Circumstances change, however, and as they become more complex, the simplifications can fail. Good leadership is not a one-size-fits-all proposition … We believe the time has come to broaden the traditional approach to leadership and decision making and form a new

16

perspective based on complexity science … **Using the Cynefin framework** can help executives sense which context they are in so that they can not only make better decisions but also avoid the problems that arise when their preferred management style causes them to make mistakes.

Cynefin, (pronounced Kun-Ev-In) is a Welsh word meaning *habitat* that describes five differing contexts (Figure 7). The Cynefin framework offers a "sense of place" from which to understand a problem and to decide how to act.
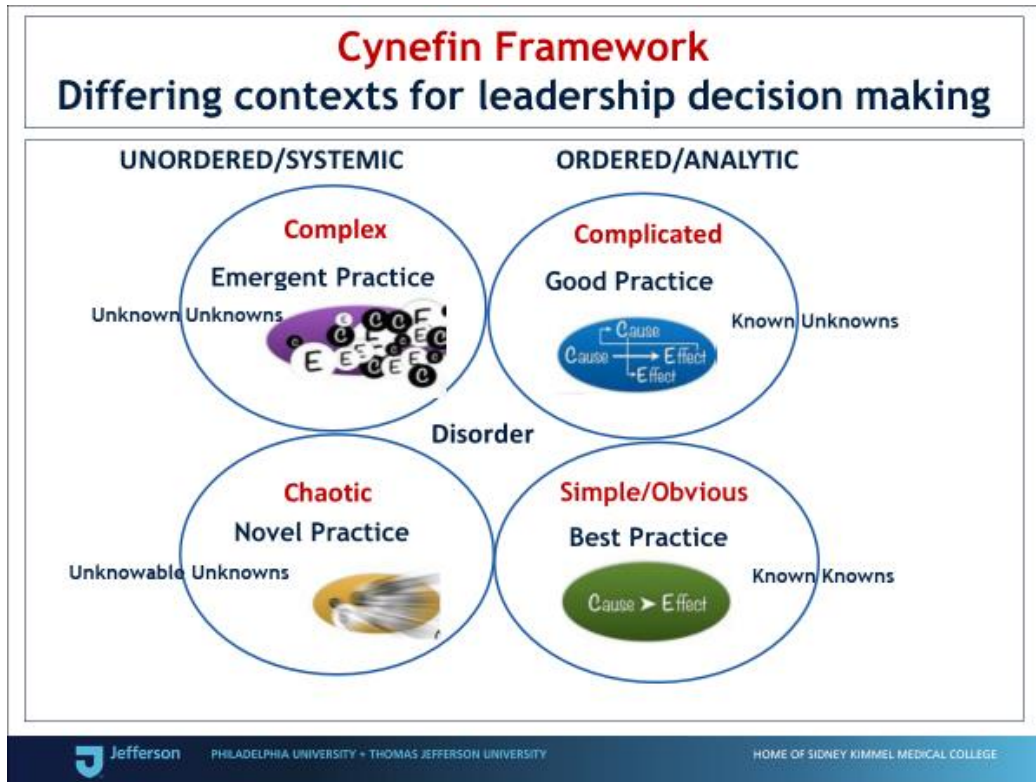


Figure 7. Cynefin Decisional Contexts

This framework presents four contexts or "domains": **simple/obvious**, **complicated**, **complex**, and **chaotic**. A fifth domain of **disorder** exists as a default when there is no clarity about which domain applies. The framework suggests that a situation, problem or opportunity must first be understood through this framework which then informs one how to make choices. While some situations may present themselves within a single domain, others move around, and others may have characteristics of several domains within a single challenge. The Cynefin framework has been applied to a wide variety of problems including policy-making, product development, branding and customer relations, supply chain management, impact of religion on policymaking, emergency management, management of food-chain risks, agile software development, health-care research including to examine the complexity of care in the British National Health Service, the nature of knowledge in health care, and in the fight against HIV/AIDs in South Africa. This working paper by Sean Snyder (2013), a former student, offers a good introductory summary and set of applications.

## Simple/Obvious Context

**Simple/obvious** context problems and problematic situations are those that contain or may be characterized as having "known knowns" which means there are known rules in place for which best practices apply. It also means the situation is stable and there is an orderly and linear relationship between cause and effect that is clear to everyone involved: if you do X, expect Y. For example, if there are repeated or repeating or predictable events, such as how to seek a business loan or to respond to certain problems in a sales call center, there are established processes that can manage these.

The simple context has a mantra of advice referred to as "sense–categorize–respond" which means first establish the facts ("sense"), then categorize, then respond by following the rule or applying a best practice.  Snowden and Boone (2007) offer the example of loan-payment processing. An employee identifies the problem (for example, a borrower has paid less than required), categorizes it (reviews the loan documents), and responds (follows the terms of the loan). In a medical center emergency department, if a patient walks in with a finger injury, the assessment, categorization, and treatment/response are obvious to manage because anatomy and pathology are well defined.

Problems in this domain commonly have an established best answer, policy or rule, and may have a broad range of authorities who can help identify the facts, and who provide valid advice about how to implement and monitor.  These simple situations are commonly descriptive of, for example, many rules of law, finance, HR, first aid, and so are labelled standard operating procedures.

Of course, judgment is subjective, and one may believe a context is simple when it is not. For this reason, leaders should be careful about how quickly or automatically they or others sense, categorize and respond.  A situation which resembles another may be different. Indeed, over-simplifying, engaging in "entrained thinking" (being blind to new ways of thinking) or becoming complacent and thinking that best practice is, by definition, (always) past practice can lead to errors.  Nevertheless, for a simple/obvious problem or a situation in a simple/obvious context, application of linear analytic thinking and decisions based on best practice are appropriate, according to the Cynefin framework.

## Complicated Context

A problem or situation in a **complicated** context is characterized as having "unknown unknowns" which means a leader may not personally understand it or know what to do but believes that a person or group can be identified who can apply analytic techniques to produce understanding and good practice (rather than best practice) to solve it. Complicated problems are different than obvious problems because the relationship between cause and effect is difficult to discern (there is a "one-to-many" relationship between cause and effect) and because there may be several "correct" solutions.  For example, a leader may perceive several symptoms of a situation but may not know the preferred way to intervene or fix it. Or may discuss a situation with colleagues who have different suggestions but do not know the preferred/best approach.

Problems in this context vary along a complicated continuum.  An example at one end occurs if while you are driving your car with sufficient gasoline, the engine suddenly stops, and you make your way to the side of the road. You have a complicated problem, but you expect it can be solved by many auto mechanics who apply the proper tools and parts. At the other end, if a Boeing 777 experiences engine failure that brings the airplane to the ground with its parts spread across the runway, this is a very complicated problem requiring not only very specialized experts but also those from the National Transportation Safety Board (NTSB) who will perform a forensic science evaluation.

The Cynefin framework recommends a "sense-analyze-respond" approach to complicated problems.  This means one should diagnose (sense) the facts then engage in rational analytic decision making, then apply the appropriate good practice (response) based on the results of the analysis. With very complicated problems, special expertise is required so depending on the problems, leaders seek an engineer, physician, lawyer, or management consultant who possesses the required level of competency (and experience).

Obvious and complicated context problems are considered ordered/analytic (refer to Figure 7) because the approach to understanding and to solving is based on traditional analytic thinking, methods and tools. This means that problems in this context are appropriately tackled via the prevailing approach of analytic reductionism but that sophisticated, quantitative research and evaluation techniques may be needed to determine root causes and to solve problems.

As described by Snowdon and Boone (2007), understanding in this context is the domain of experts, but this does not mean all experts will agree.  When disagreement occurs, there can be "analysis paralysis" defined as inability to select a preferred option because of conflict between experts based on each holding a distinctive perspective (i.e., mindset and ego) about the situation.  The second difficulty may be "entrained thinking,"

> …but it is the experts (rather than the leaders) who are prone to it, and they tend to dominate the domain. When this problem occurs, innovative suggestions by nonexperts may be overlooked or dismissed, resulting in lost opportunities. The experts have, after all, invested in building their knowledge, and they are unlikely to tolerate controversial ideas.

## Complex Context

Regarding differing contexts, Snowdon and Boone (2007) noted,

> Reaching decisions in the complicated domain can often take a lot of time, and there is always a trade-off between finding the right answer and simply making a decision. When the right answer is elusive, however, and you must base your decision on incomplete data, your situation is probably complex rather than complicated.
>
> In a complicated context, at least one right answer exists. In a complex context, however, right answers can't be ferreted out. It's like the difference between, say, a Ferrari and the Brazilian rainforest. Ferraris are complicated machines, but an expert mechanic can take one apart and reassemble it without changing a thing. The car is static, and the whole is the sum of its parts. The rainforest, on the other hand, is in constant flux—a species becomes extinct, weather patterns change, an agricultural project reroutes a water source—and the whole is far more than the sum of its parts. This is the realm of "unknown unknowns," and it is the domain to which much of contemporary business has shifted.

When a situation, opportunity or problem is **complex** it exists in a domain with "unknown unknowns" with causes and effects that are non-linear and non-proportional. This means that causes and effects do not have predictive relationships: small changes can have large, unanticipated effects, and large stimuli can produce minimal effects.  In a complex context and in a complex problem, cause and effect may only be understood in retrospect – not in advance - and there are no known right answers or experts.  Instead of analysis and reductionism which focus on the parts of a problem, complex problems require evaluation of

patterns and structures that interact to produce emergent outcomes and solutions that cannot be predicted from any of the parts alone.

The Cynefin mantra for this context is "probe–sense–respond" which means first one must scan the environment internally and externally by expansion (probe) to discover emergent properties that reveal themselves (sense), then respond. Complex situations have many elements that are non-observable, latent or which emerge due to interactions. This is fundamentally different from obvious or complicated contexts where a certain level of understanding must precede action. Examples of where probing and sensing are essential include financial markets and financial systems, education systems, health care systems, and corporate cultures. This is because these and other complex systems are "impervious to a reductionist, take-it-apart-and-see-how-it-works approach, because your very actions change the situation in unpredictable ways" (Stewart, 2002).

The Cynefin framework argues that complicated and complex are not merely different, they are qualitatively separate because complexity exists in an unordered environment. Operating in this context requires a systems mindset, mode of thinking, and decision making. An increasing number of organizations are realizing this approach and are promoting the importance and value of applying systems thinking to the complex contexts and complex systems in which they operation. For example, the World Health Organization (2009) noted:

> To understand and appreciate the relationships within systems, several recent projects have adopted systems thinking to tackle complex health problems and risk factors – in tobacco control, obesity and tuberculosis. On a broader level, however, systems thinking has huge and untapped potential, first in deciphering the complexity of an entire health system, and then in applying this understanding to design and evaluate interventions that improve health and health equity. Systems thinking can provide a way forward for operating more successfully and effectively in complex, real-world settings. It can open powerful pathways to identifying and resolving health system challenges, and as such is a crucial ingredient for any health system strengthening effort (p. 19).

The challenge of operating in complex contexts has been taken up by the World Economic Forum. In reviewing the nature of organizational work and requirements of workers in 2015 and anticipated for 2020, they have argued that the rapid escalation of complexity and complex problem solving have emerged as the primary challenges (Figure 8), and that the world has entered a Fourth Industrial Revolution (Figure 9).
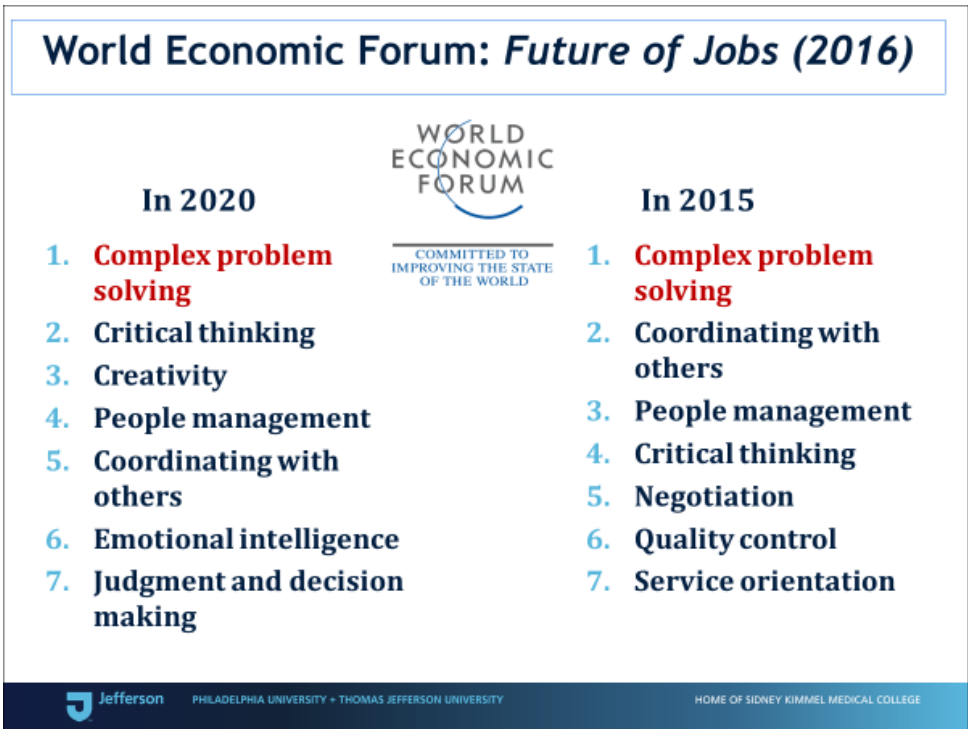
Figure 8. Worker requirements in 2015 and 2020 (World Economic Forum, 2016)
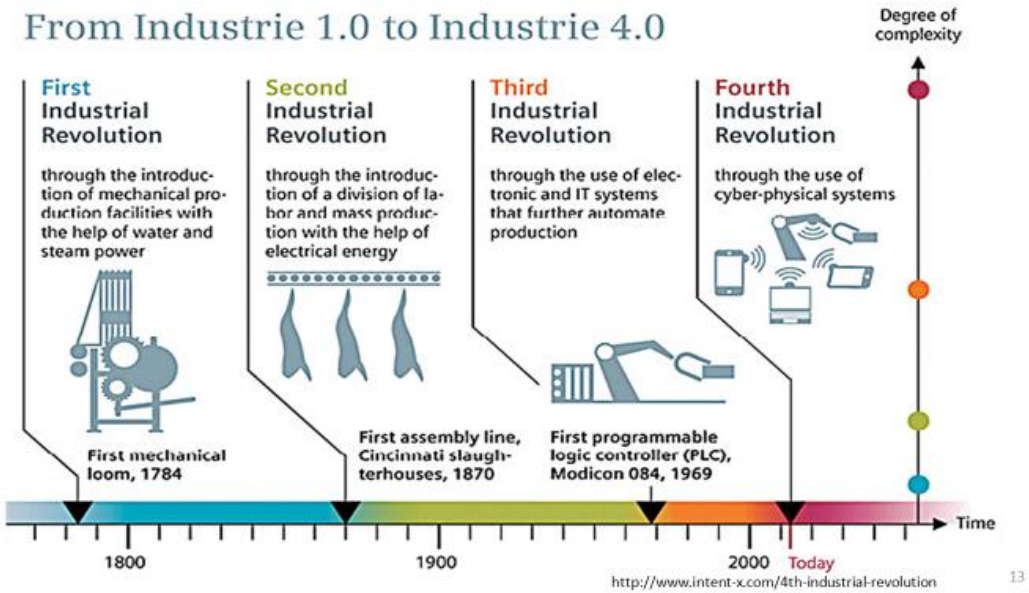


Figure 9. Fourth Industrial Revolution (World Economic Forum, 2016)

Regarding responses to these changing conditions, the World Economic Forum (2016) argued for a significant rethinking of education systems:

Most existing education systems at all levels provide highly siloed training and continue a number of 20th century practices that are hindering progress on today's

21

talent and labour market issues. Two such legacy issues burdening formal education systems worldwide are the dichotomy between Humanities and Sciences and applied and pure training, on the one hand, and the prestige premium attached to tertiary-certified forms of education—rather than the actual content of learning— on the other hand. Businesses should work closely with governments, education providers and others to imagine what a true 21st century curriculum might look like. (http://www3.weforum.org/docs/WEF_FOJ_Executive_Summary_Jobs.pdf)

Pourdehnad and Starr (2013) had earlier argued for rethinking executive education due to the increasing complexity of the contexts in which leadership needed to function.  Moreover, they suggested that most university graduate management programs and executive education leadership programs are

> … inadequate for the present business environment which is characterized by increasingly dynamic complexity characterized by increasing rates of change, widespread connectivity, globalization, and innovation. Sudden disruptions occur despite well-formulated planning and without obvious anomalies in key performance indicators. The result is that leading or managing as usual is no longer effective (p. 5).

## Chaotic Context

In August 2011, Greg Boustead published a Guest Blog in *Scientific American* magazine that included the following:

> When the first plane hit, I was literally shaken out of the shower. What was *that?*  It was suddenly clear that this wasn't some terrible accident. Chaos and phone calls to loved ones followed. Most of the other tenants spilled onto the roof (a mix of the emerging freelance class, people with jobs that didn't require them to be in the office before 10 or so, and a handful of Hispanic families not yet forced out by the turn-of-millennia gentrification going on in the area at that time). With a crippled cell phone network and overwhelmed Internet, we all huddled around a handheld radio a neighbor had brought up. The president told us, in a shaky, metered voice, "America... is under attack." (https://blogs.scientificamerican.com/guest-blog/how-the-brain-remembers-911/)

The attacks on September 11 were an example of operating in a context of **chaos**.  Regarding thinking and deciding in this domain, Stewart and Reinhart (2002) noted, "People were afraid. ... Decision-making was paralyzed. ... You've got to be quick and decisive—make little steps you know will succeed, so you can begin to tell a story that makes sense."

In a chaotic context, the relationships between cause and effect are impossible to determine because they shift constantly, and no manageable patterns exist. The best strategy for handling problems in a chaotic context is to act fast hoping to change the situation by stabilizing the events and relations that generate them. There is not much space or time for analysis as this context requires immediate action, but the consequences are hardly predictable, and those engaged in this kind of situation can be seriously compromised if a negative outcome is produced.

Fragouli (2016) argues that chaos and crisis should not be thought of occurring only within war-like situations or environmental catastrophes such as floods.  Rather, this context for organizations is increasing:

Chaos is an inescapable part of modern day reality in business organizations across the world. In the midst of globalization, business leaders are constantly confronted with chaos due to various political, economic and social issues. Chaos introduces uncertainty, unpredictability, irregularity and randomness in organizations; and it challenges the conventional leadership theories, models and philosophies … (and too often) … complexities and uncertainty associated with chaos are often ignored when business models, practices, strategies and policies are formulated in most organizations, and as a result it becomes challenging for business leaders to deal with chaos when it arises (p. 73).

In this context, the decisional mantra is "act, sense, respond": first *act* to establish or re-establish order; second, *sense* where stability lies; then *respond* to turn the chaotic into the complex. The challenge is that when operating in unstructured contexts, one must be competent to shift between systemic and analytic thinking. Snowden and Boone (2008) noted:

In the chaotic domain, a leader's immediate job is not to discover patterns but to staunch the bleeding. A leader must first act to establish order, then sense where stability is present and from where it is absent, and then respond by working to transform the situation from chaos to complexity, where the identification of emerging patterns can both help prevent future crises and discern new opportunities. Communication of the most direct top-down or broadcast kind is imperative; there's simply no time to ask for input.

Snowdon and Boone (2008) also suggest that one pathway through chaos is via innovation and novel practice:

Yet the chaotic domain is nearly always the best place for leaders to impel innovation. People are more open to novelty and directive leadership in these situations than they would be in other contexts. One excellent technique is to manage chaos and innovation in parallel: The minute you encounter a crisis, appoint a reliable manager or crisis management team to resolve the issue. At the same time, pick out a separate team and focus its members on the opportunities for doing things differently. If you wait until the crisis is over, the chance will be gone.

## Disorder/Confusion Context

When a leader cannot discern clarity about which of the four domains apply, Snowdon and Boone (2008) suggest that the domain is **disorder**: "Here, multiple perspectives jostle for prominence, factional leaders argue with one another, and cacophony rules." Earlier, in their book, *The Logic of Organizational Disorder*, Warglien and Masuch (1996) had suggested organizational conditions that might lead to disorder:

Preferences are unclear and ambiguous; goals are badly specified and incomplete at the individual and organizational level. People do not know exactly what they want, what they wanted is subject to reinterpretation, and what they will want has yet to be learned. If ends are confused, means are in no better shape … Ways to carry out action are vague and misunderstood. There is little comprehension of what cause will lead to what effect.  Moreover, even the direction of the consequential arrow may sometimes be inverted.  Actions may generate ex post their motivations, solutions may look for some kind of problem.  Finally, people participate erratically in choice processes. They tend to wander in and out of decision arenas, following conflicting claims on their time and attention … Despite their seeming irrationality, something reasonable

often happens … albeit different from the logic of rational thinking … a kind of alternative logic (pp. 2-3).

## Integrating the Epistemology and Cynefin Frameworks

I propose that the two frameworks may be integrated in terms of sequence and consistency of premises.  The Epistemology framework argues that mindset/world view is the fundamental cognitive orientation encompassing the whole of one's knowledge and point of view.  Therefore, I suggest that one's perception and understanding of a problem or opportunity is first framed by one's mindset. Then holding this perspective, one's method of thinking and assessment of situation context become relevant informers of decision making (Figure 10).
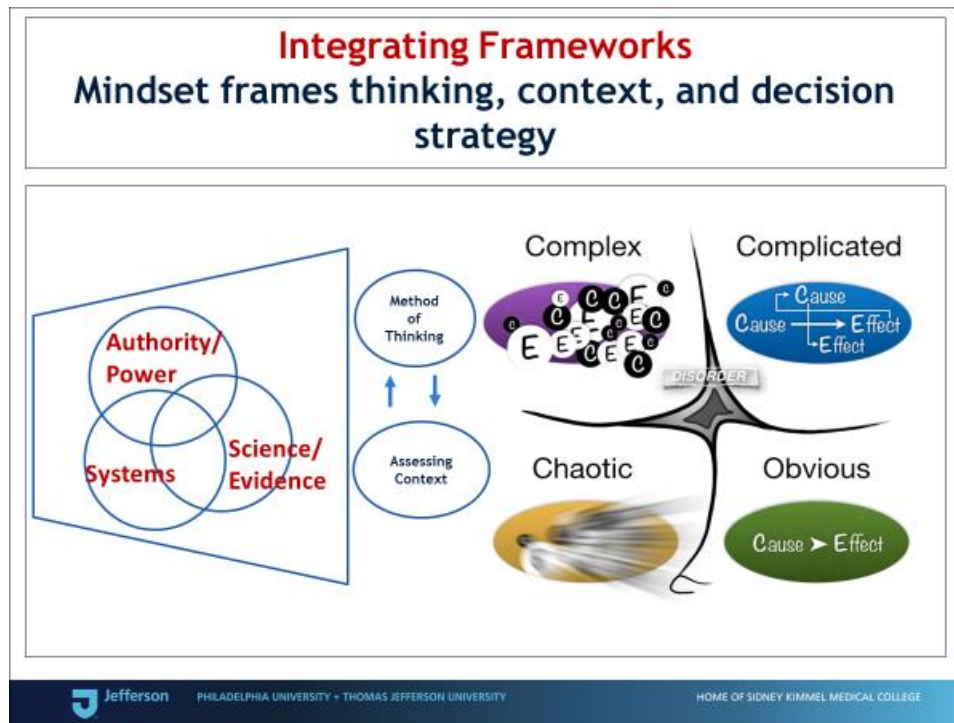


Figure 10. Integration of frameworks

Regarding an **Authority/Power** world view, Halee Gray Scott wrote on the *Christianity Today* website (www.christianitytoday.com) about the characteristics of leaders needed most following the terrorist attacks of 911:

> Frank Rich of the New York Times aptly summarized the national ethos: "On a day when countless children in America lost their fathers, the rest of us started searching for a father, too. When a nation is under siege, it wants someone to tell us what to do, to protect us from bullies, to tell us that everything's O.K. and that it's safe to go home now."
>
> The church, for better or worse, is a microcosm of America's shifting leadership preferences. While there are still "command and control" type pastors in some pockets of the United States, for the most part we've been looking for leadership that is more like stewardship or servanthood. We're looking for leaders who say what they mean

and mean what they say, who listen to differing views, make decisions on their core beliefs, and act in ways consistent with their beliefs. (https://www.christianitytoday.com/women-leaders/2012/april/titanic-need-for-authentic-leaders.html)

**Consider the following integration**: What is anticipated to be the mindset of those who write for and are published by *Christianity Today*? How does holding this world view promote a mode of thinking that understands the nature of the environmental context post 911? How and why does this notion of the kind of context in which Americans (now) operate support a "stewardship or servanthood" leadership style?

Regarding the **Science/Evidence** world view, in 2017, the *Union of Concerned Scientists* published an opinion by Josh Goldman, a policy and legal analyst entitled, "Why immigrants are vital to science in the US" that argued:

> Aside from cancer research, the scientists and engineers making the largest impacts in their fields frequently come from immigrants. A study published in *Science* found that the individuals making exceptional contributions to science and engineering in the U.S. are "disproportionately drawn from the foreign-born."

> Analysis by George Mason University found that 42 percent of all Nobel Prizes awarded between 1901 and 2015 went to individuals working in the U.S., and that *31 percent of all U.S. Nobel laureates were born outside the U.S.* — a figure that's more than double the highest proportion of immigrants in the general population during those years.

> Data suggests that over half of the foreign-born recipients of doctorate degrees in the U.S. remain in the U.S. workforce to pursue their careers, becoming part of the multicultural milieu that has made, and will continue to make, America great. (https://blog.ucsusa.org/josh-goldman/why-immigrants-are-vital-to-science-in-the-u-s)

**Consider the following integration**: What is anticipated to be the mindset of those who write for and are published by *Union of Concerned Scientists*? How does holding this world view promote a mode of thinking that understands the nature of the environmental context concerning American immigrants and immigration? How and why does this notion of the kind of context in which Americans (now) operate support leaders who should be "organizing marches, preparing to run for office, and joining watchdog teams to monitor and respond to activity"?

Regarding the systems world view, the website for Democracy Fund a foundation established by eBay founder and philanthropist Pierre Omidyar promotes that:

> Our democracy is a complex political system made up of an intricate web of institutions, interest groups, individual leaders, and citizens — all connected in countless ways. Every attempt to influence and improve some aspect of this multifaceted system produces a ripple of other reactions. While some of these reactions may be predictable, many are not. This reality makes it difficult to anticipate what will happen when we try to help U.S. democracy work better. We need to embrace the complexity of the problems we are facing, which requires that we experiment, learn, and iterate. Progress must be made through multi-pronged strategies that reinforce one another, are sustained over time, and reflect a

comprehensive understanding of the major forces driving and constraining change. (https://www.democracyfund.org/systems)

In addition, Király, Köves and Balázs (2017) wrote, "Contradictions between political leadership and systems thinking" in which they argued:

> …the failure to implement sustainable policies is not merely due to the fact that successful political leaders lack systems intelligence or foresight but that their ambitions – one of which is their motivation to politically survive – strongly influence their judgements. On the one hand, it is undeniably crucial to understand how leaders acquire and process information and how their systems thinking perspectives guide their cognitive procedures when turning pieces of information into policy interventions. On the other hand, it is also important to highlight that leaders are embedded both in institutional and political contexts that also deeply affect their political decisions and practices.
> (https://www.sciencedirect.com/science/article/pii/S0959652615007106)

**Consider the following integration**: What is anticipated to be the mindset of those who write for and are published by *Democracy Fund*?  How does holding this world view promote a mode of thinking that understands the nature of the environmental context concerning American politics and to organizational politics?  What of the argument by Király, Köves and Balázs (2017) that it is "crucial to understand how leaders acquire and process information and how their systems thinking perspectives guide their cognitive procedures when turning pieces of information into policy interventions"? How and why does this notion of the kind of context in which Americans (now) operate support progress "through multi-pronged strategies that reinforce one another, are sustained over time, and reflect a comprehensive understanding of the major forces driving and constraining change"?

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