



Managing Risk: What's Different About Uncertainty?

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Many organizations are understandably concerned about their ability to effectively manage risks, respond to crisis situations and develop strategic risk frameworks that enable the effective long term viability of the organization. And yet for many, managing risk somehow feels different than it used to! This paper will present an overview of the different nature of risk and risk response based on conditions of relative stability or uncertainty.

Recent Risk Scenarios:

- Dr. Sheela Basrur, then Medical Director of the City of Toronto, indicated that at the time of the SARS crisis, all the existing frameworks within Toronto Public Health were based on the assumption that health problems could be clearly identified and quickly understood. SARS was neither. It was a novel virus that was not understood and there were no vaccines to rely on.ⁱ
- Standard predictions of stock market fluctuations, based on a normally distributed bell curve analysis indicate that extreme fluctuations of a 10% one-day drop should occur once every 500 years. In fact, they occur once every five years.ⁱⁱ
- The U.S. Federal Department of Justice conducted a \$2.5 million simulation to test counter-terrorist responses in the event of a dirty bomb detonating in a major urban center. The conclusion? Despite the presence of high technology and skilled advisors, there was still imperfect information.ⁱⁱⁱ
- The successful achievement of major change initiatives such as technology implementation, mergers and acquisitions or re-engineering is rarely more than 50%.

These scenarios all point to critically important questions and challenge some of our unexamined assumptions. How do we manage risk and adapt successfully in a world where our assumptions don't hold, where large disruptive events occur more frequently and with disproportionate impact than anticipated, where there is no such thing as complete information, and where our current ways of working don't seem to be working?

Complexity Theory

Much of the really interesting new work in the hard sciences, life sciences, mathematics, computer simulations, and network theory is loosely termed "Complexity Studies". Management academics and business leaders are now bringing these insights into our understanding of how organizations work. In particular, how can organizations thrive in a world of global interdependence, permeable institutional borders and a daily flood of new information? How do we understand organizations as living organisms that learn, grow, die and continuously adapt to and co-create an ever-changing landscape?

Many of our basic assumptions on life, organizations and risk or change management is based on the working of classical physics. How do these assumptions change when we understand organizations as Complex Adaptive Systems, ever adapting to ongoing change? We do know that when pushed by environmental challenges, Complex Adaptive Systems move far from equilibrium, and in these states, unexpected behaviours emerge. These behaviours are not pre-determined or hierarchically controlled.

This capacity for novelty is often termed “self-organization”. When successful, it leads it to the emergence of new levels of capability and adaptive response. Some of these novel behaviours will adapt well to the environment, some will not. A healthy organism will utilize those experimentations that work and cull those that don’t. It is not predictable in advance what those behaviours will be, nor which ones will work. In short, this is NOT the realm of traditional control. The following table outlines some key contrasts, with respect to our modes of thinking about organizations.^{iv}

Traditional Organizational Model	Complex Adaptive System Organizational Model
<ul style="list-style-type: none"> • The whole is equal to the sum of its parts. • Direction is determined by design and the formal authority structure. • Individual or system behaviour is knowable, predictable and controllable. • Causality is linear; effects can be traced to specific causes. • Efficiency and reliability are measures of value. • Decisions are based on facts and data. 	<ul style="list-style-type: none"> • The whole is different than the sum of its parts. • Direction is determined by emergence and the participation of many. • Individual or system behaviour is unknowable, unpredictable and uncontrollable. • Causality is mutual; every cause is also an effect, and effects are also causes. • Responsiveness to the environment is the measure of value. • Decisions are based on tensions and patterns.

Examples of complex adaptive systems in nature include:

- bacteria that mutate to overcome antibiotic drugs
- ant colonies that construct intelligent communities and complex structures
- immune systems that adapt to new challenges

The Zones of a Complex Adaptive System



A simple way to think about Complex Adaptive System is one exhibiting three broad zones. However, these are not distinct demarcations. These zones are continually in flux, moving and shifting from a tight stable core to moving fragments at the edge, always in response to changes in the environment.

The Stable Zone

This is characterized by stability, tightly linked networks and a high degree of order, both in people and processes. Organizations here exhibit a coherent social system, aligned values and a well synchronized operating system. Six sigma operations are achieved, customers are reliably served and profits are realized. Individuals operate within their comfort zone, It seems like paradise of stability and the equilibrium of a well-oiled operating machine. There is only one trouble with this stable state. When living systems are in complete equilibrium, they are dead! In organizational terms, processes and cultures that are a perfect fit with their current environment are unlikely to adapt to new situations. People may be operating within their comfort zone, and they also tend to behave in tight conformity with others, not challenging any norms or 'sacred cows'. While this means avoidance of personal anxiety it also means the absence of major or transformative learning. This zone applies when futures and outcomes are knowable (usually applicable in the short term) and when current processes are a good fit to organizational challenges.

The Adaptive Zone

This is a natural state to which organisms move when provoked by challenge or uncertainty. It is a state of flux, of bounded instability characterized by tight and loose networks, many small and a few large events, where coherent patterns have not yet fully formed. It is known metaphorically as ‘the edge of chaos’! It is more conducive to learning and evolution than either stable equilibrium or explosive instability. It is the place where creative new order emerges unpredictably from spontaneous self-organization. In organizations, it may be found in situations of market pressures, of complex change such as mergers, major technology initiatives, of new product development or the launch of any complex project - in fact any situation where, if we admit it to ourselves, the future is not just unknown but truly unknowable. In many ways, it is not always a comfortable place to be. It is a zone of paradox where opposites abound, a place of ambiguity and uncertainty, of deep creativity, play, experimentation and failure. Our assumptions about what works are challenged.

Chaos

Beyond the border zone of adaptive space lies chaos – complete randomness or lack of order or pattern. It is the place of individual and organizational disintegration – physical, financial and psychological. It is the place we all rightly fear, and it is this fear of disintegration that keeps us from consciously advancing to its border territory of adaptive space.

Risk Management and Response

Managing risk takes on very different, often contradictory approaches in stable and adaptive space. Because most organizations naturally strive for consistent outputs and reliable performance, when some of our processes are under stress, our natural tendency is to do more of those things that usually work. This in fact may be counter-productive. If we are facing qualitatively new challenges, then we need to move toward the often counter-intuitive approaches of the Adaptive Zone.

Managing Organizational Risk in the Stable Zone

The basic control mechanism in Stable Space is a negative feedback loop. No, this does not mean constant criticism! Like a thermostat set for a constant temperature, we seek stability and achievement of our pre-determined goals by constant adjustment between where we are and where we want to be. Deviations are sought out and continually corrected. Think standard budget and variance reporting or basic planning processes! The goal is “no surprises”.

The inherent risk issue in Stable Space is one of diminishing return. Over time it costs more and more to sustain complex processes for diminishing returns. We become better and better at solving smaller and smaller problems. Indicators that this is occurring are not only the financial cost of controls, but also the human cost. Ongoing heroic efforts become a way of life rather than an emergency response. Workplace toxicity, burnout and stress become rampant. Watch where your best people are going. Like rats leaving a sinking ship, you will know when you are in trouble when your best and brightest leave, or otherwise become disengaged even while on the job!

Developing Risk Response Capability in the Adaptive Zone

Here, the basic control mechanism is the positive feedback loop, where small changes are amplified throughout the system. Small events can blow up into large consequences. Rumors and office politics are a good example of positive feedback loops in action. So are skunk works, pilot projects, learning labs, emergent strategy. Viral marketing tries to take advantage of this phenomenon. The purpose of positive feedback loops is to generate novelty and diversity with an amplification of what is working. The goal is “surprise me as much and as early as possible!”

The inherent risk issue is the ability to ‘stay the course’; to sustain the creative tension and personal ambiguity through uncharted territory, to let go of old modes of personal comfort and competence. The organization needs to have sufficient slack and small redundancies to be able to see new patterns emerge. Successful experimentation needs to be rewarded and unsuccessful ones culled. Resources need to be managed knowing that early efforts will likely be failures. Don’t blow the entire budget on the first round of efforts with nothing left to sustain the final successful learnings!

Integral Leadership

We have always had an appreciation for selecting individual leaders that we knew to be temperamentally better suited to efficient, stable operation or novel pilot project situations. With an escalating pace of change, we no longer have the luxury of an either-or approach to leadership. Most of us need to develop some competency in both zones. Experimentation and learning must at some point yield results, and no stable operation remains stable for very long.

Leadership Guidance in the Stable Zone

This is the domain of leadership that most of us are familiar with and that is necessary much of the time. Here the basic leadership role is to set context and provide guidance toward goals. These objectives are based on prior shared intention, determined either by executive authority and formal power, or by majority vote or consensus. To provide guidance in reaching goals, the leader must have some broad understanding of what the goal is and how to achieve it. Knowing the answers and providing guidance to others in solving problems is a good thing. An action is judged to be of high quality if there is some prior knowledge of how it will likely impact in reaching the goal. This prior knowledge is often obtained from

some centralized point to which information has been fed, analyzed and subsequently fed back to those who must use it. Teams are guided to synchronize their actions in meeting objectives.

Leadership Resonance In the Adaptive Zone

The leadership roles in this zone may be unfamiliar and are often counter-intuitive. The basic role is not guidance toward a goal, but setting context, posing the critical questions and creating and sustaining an environment conducive to generating adaptive responses. In time, resolutions toward these questions may result in goals, but at this point, goal setting is premature. Here, quality actions are based on their inherent ethics, on keeping options open [i.e. the organization stays in the game and does not yield to competitive pressures] and on allowing early and frequent detection of errors. Knowledge is obtained by experimentation, trial and error, and a blend of competition and collaboration. Authority is grounded in competence to do the task, together with the constraints imposed by inherently ethical behavior and the need to sustain the support of others.

Tools for Managing Risk in the Stable Zone

In conditions of relative stability, the goals are smooth operations and no surprises. Two fundamental approaches for achieving that are ensuring that the right people are doing the right level of work in your organization, and creating a 'no fear' environment for surfacing the inevitable nasty (and positive) surprises.

Finding and Integrating Talent

It is estimated that in the next decade, there will be over one million employment vacancies in Canada.^v In the Fortune 100 companies, over 500,000 managers changed jobs or roles and the average duration in the role is between 2 to 3 years. Finding the right talent and effectively integrating people into the organization is a critical task now that will only become more important in the future.

How often have you experienced a project coming in late or over budget because the leader did not have the capability to foresee problems or integrate simultaneous actions until it was too late? Understanding the level of complexity of work that needs to be accomplished, attracting people with the appropriate capabilities to do this work and developing an organizational structure where those capabilities can be utilized and grown is essential to effective and efficient operations.

While there are multiple facets to accomplishing this, a key starting point is understanding the level of complexity of work in the organization. How complex are the problems involved? How many variables are there, how rapidly do they change, and how much ambiguity is involved? What is the ratio of known to unknown variables and problems? Each level of an organization should be able to set context, outline the nature of the goals and strategies, integrate the various work functions for which they are accountable, and add value to the layer below. A simple example outlines the concept:

Sample of Work complexity	Typical Roles	Level
Construct complex systems	CEO multi-national	7
Oversee complex systems	EVP	6
Develop business model	BU President, COO	5
Develop new products, markets	VP, GM	4
Develop, integrate processes	Director	3
Manage, improve processes	Manager	2
Deliver quality within variances	CSR	1

A No-Fear Basis for Accountability and Trust

If the goal in the Stable Zone is no surprises, then people have to feel comfortable in acknowledging and surfacing the inevitable problems and unexpected developments that occur. Fear of doing so is a major and often invisible risk factor. If an individual feels that their career will inevitably suffer, or that “they’ll make their boss look bad”, then many problems that start small can escalate to the point where they become serious issues. So how do you systematically create a ‘no fear’ environment that encompasses both accountability and trust in such a way that does not rely solely on benevolent individuals?

It all lies in how you define accountability. Being *accountable to* a manager is not relevant: the key is what you are *accountable for*. Individuals are provided the resources they need to do their jobs - anything from physical equipment to decision making authority. They are accountable for their best efforts in all their actions **and** for informing their manager of problems as they occur. A people manager is accountable (among other things) for the outputs of their direct reports. This simple notion in effect creates a shift in mindset and power relations. It is in any manager’s best interests to ensure their team succeeds and to create an environment of clear communication and personal striving. Accountability and trust become complementary, not opposing factors.

Creating a Risk Container in the Adaptive Zone

Risk approaches in the Adaptive Zone shift from control over actions to reach certain outcomes to creating the conditions for healthy emergence, learning and exploration. Below, we outline briefly approaches to this under ongoing conditions and in response to crises.

Shaping the conditions for emergence

Emergence takes place on a continual basis and often in subtle ways. For instance, strategic planning and organizational assessment – where are we going and do we have what it takes to get there – are not *initially* concerned with deciding goals and strategies. They are concerned with understanding their broader environmental context and internal tensions, with shaping the conditions for transformational learning, for stumbling across breakthroughs, and for finding out how to respond to intractable problems or unexpected competitor actions. While outcomes in adaptive space cannot be planned, one can consciously help to create the conditions where adaptive responses can emerge. This shaping of conditions occurs in three domains: within yourself – your intentions, awareness and actual behaviours, in your relationships and dialog with others, and with whatever latitude you have in shaping organizational systems, structure and processes.

A practical and robust approach can be grouped as follows. ^{vi}:

- **Container** – From a systems perspective, the container sets the semi-permeable boundary or scope of the self that organizes. It may be a physical location, an organizational department, or a concept – purpose or procedures. From a personal and inter-personal perspective, the ability to personally tolerate anxiety, ambiguity and not knowing the answers, and assist others in containing their anxiety doing so, is perhaps the biggest determining factor in people's ability to be productive in Adaptive Space.
- **Differences** – From a systems perspective, differences determine the primary patterns that emerge. Examples of significant differences include power, skill, gender and personal background. A caring and insightful use of leadership power – appropriate structure and direction together with the freedom to express opinions and risk creative activity - is a key ingredient in creating the conditions for adaptation. From a personal perspective, the degree of differences with others that we embrace, be that professional, personality style, gender or background can act like a strange attractor, pulling others into a magnet of acceptance. Finding the difference that makes a difference is a key to encouraging the novel.
- **Exchanges** – From a systems perspective, these are the connections between the semi-autonomous agents in a Complex Adaptive System. These agents can include customers, suppliers, community stakeholders. The connections can be in the form of money, resources, information, energy, and personal or virtual communications. Patterns of individual change lead ultimately to adaptability of the system as a whole. From a personal perspective, the depth of honest, personal communication, your integrity and personal ethics have enormous influence in how exchanges are treated and amplified by others.

This model can provide a diagnostic framework for assessing where on the stable/ adaptive continuum organization your organization lies now.

Conditions	Totally constrained	Self-Organizing	Totally Unconstrained
Container	Strong, small, tight	Permeable boundaries	Weak, large
Significant Differences	Few, hidden, not acknowledged	Differences that bind and challenge	Many, all differences equally acknowledged
Transforming Exchanges	Many, top down only	Meaningful contacts	Few, trivial

In addition to incorporating this “C-D-E” framework into daily management, there are a number of systemic approaches for involving groups of people in responding to challenges and creating changes in their workplaces. You may have heard of some: Open Space Technology, Appreciative Inquiry, Conversation Café, Future Search. The better ones are tested over a wide variety of situations, take a systemic view, focus on future possibilities, work with the inherent complexities of the whole situation, and increase understanding of the entire picture among all participants. No matter what method is used, when well applied, people consistently achieve astonishing results. They report that the intent or themes were clear and important, everyone pulled together to respond, natural leaders emerged, people did the work they felt best able to perform, and willingly took risks.^{vii} The choice of methods will be based on where on the stable/ adaptive continuum the organizational challenge – or leadership courage - lies.

Responding to Crisis

When you are in a crisis situation, you know that you are very rapidly approaching the edge of chaos! These are sometimes referred to as ‘black swan’ events – large impact and hard to predict.^{viii} While indeed a scary place, at no other time does the ‘danger/ opportunity’ paradox so aptly apply. Indeed, from studies in evolutionary biology, we know that life evolves through long periods of relative quiescence, and then bursts of instability and change. Punctuated equilibrium is how organisms adapt! With the increasing inter-connections of globalization, we can expect more inter-dependence risk than ever before. In these situations, we know we cannot control the outcomes, but we can focus on containing and influencing the impacts. Those who have successfully steered their way through crisis situations report that the only predictable elements will be a need for:

- coordinated effort among many people
- concurrent information sharing, as close to real time as possible
- relying on front line judgment
- trusting, effective working relationships

Summary

It is perhaps unsurprising that the very elements that underpin crisis response are also keys to effective management of risk in stable and adaptive zones. However, in crisis mode, there is no time to develop and carefully nurture them. What you have is what you get! Like any healthy organism, a well functioning immune system is a necessary pre-requisite to surviving viral onslaught! Effective talent, healthy relationships that include challenge and dissent and open communication lines are not only the glue in normal times; they become the basis on which an organization can survive crisis. An organization which has familiarity and competence in consciously shifting along the stable - adaptive continuum has the most chance of effectively surviving short term crises and longer term adaptive challenges. Like a regular vaccination, risk is viewed as a necessary ingredient to overcoming complacency and inertia, and to building flexible adaptive response to ever changing demands.

ⁱ Focus on Strategy, January 2004, SLF Newsletter

ⁱⁱ Mark Buchanan, Power Laws and the New Science of Complexity Management; Strategy and Business, Spring 2004

ⁱⁱⁱ "Complexity in Crisis", Plexus Institute, January-February 2004,

^{iv} E. E. Olson and G. H. Eoyang, Facilitating Organizational Change, (Jossey-Bass Pfeiffer 2001_

^v Virginia Galt, The Generational Divide" per n-gen People Performance Inc. data. (Globe and Mail March 31, 2004)

^{vi} Ibid

^{vii} Holman and Devane The Change Handbook, (Berrett Koehler 1999)

^{viii} Nassim Taleb is an essayist and mathematical trader, and an "Edge

Activist-a member of the literary and empirical community of

scientists-philosophers". He is interested in the

epistemology of randomness and the multidisciplinary problems of

uncertainty and knowledge, particularly in the large-impact

hard-to-predict rare events ("Black Swans"). "Much of what happens in history", he notes, "comes from 'Black Swan

dynamics', very large, sudden, and totally unpredictable 'outliers', while much of what we usually talk about is

almost pure noise. Our

track record in predicting those events is dismal; yet by some mechanism

called the hindsight bias we think that we understand them. We have a

bad habit of finding 'laws' in history (by fitting stories to events and

detecting false patterns); we are drivers looking through the rear view

mirror while convinced we are looking ahead." "Why are we so bad at understanding this type of uncertainty? It is

now the scientific consensus that our risk-avoidance mechanism is not mediated by the cognitive modules of our

brain, but rather by the

emotional ones. This may have made us fit for the Pleistocene era. Our risk machinery

is designed to run away from tigers; it is not designed for the information-laden modern world."