

Anticipatory Governance: Using Foresight Methods to Protect Democracy by Influencing Complexity and Skirting Chaos

Note to readers: Foresight studies are a discipline. Like any discipline, Foresight has its experts and its knowledgeable audience. Much of the foresight literature speaks in terms that are meaningful to them, but opaque to others--including experts in other fields. Readers will find a short list of terms and definitions, written in plain language, attached to this essay. These terms are not organized alphabetically but in the order in which readers of this essay will encounter them.

Abstract

Government is an official structure of laws and institutions. Governance is a meta system, comprising an amalgamation of government as a formal institution, and the customs and politically significant values of the population. Anticipatory Governance¹ is a system explicitly designed for the identification and management, via foresight methods, of longer-term issues of serious consequence. Anticipatory Governance can exist in both autocracies and democracies. This essay deals with anticipatory governance designed for democratic societies. In this form, it is defined as a complex, adaptive system held together by a political “commons” consisting of broadly shared, deeply held values, central to which is respect for civil discourse about public issues, ultimately to be codified, into law. These values are already under stress because of complex issues arising from revolutionary, highly interactive trends in science, technology, and demographics. In the coming decade, this stress can cause a transition from complex to chaotic, meaning uncontrollable behavior, with disastrous results. Public service can be used as a bulwark against this, but training of professionals for leadership and civic education of the lay public need to be strengthened. A methodology for this purpose has been developed and tested during the past 6 years. It is described in this essay.

Full Text:

Complexity: linearity vs. probability

Complexity emerged as a new branch of physics towards the latter part of the 19th century. Its foundational assertion was that the universe -- contrary to the promise of Newtonian physics -- was not completely predictable and that even relatively simple systems exhibited a potential for surprise, where changes of input could result in disproportionate changes of output.

Perhaps the most important contribution that complexity theory gave to humanity was that it appeared to apply to the study of human affairs in ways that resemble its influence on science: by liberating the human mind from the constraints of linearity. In exchange for a more truthful understanding of the universe, the illusion of total order had to be exchanged for an order based on probability. In return for this tradeoff, there is the consolation of knowing that although we

¹ Fuerth, Leon S. with Evan Faber, *Anticipatory Governance Practical Upgrades: Equipping the Executive Branch to cope with increasing speed and complexity of major challenges*, National Defense University, Washington, D.C, 2012.

cannot dictate the history of the future, we have the possibility of influencing it -- if we learned its ways, rather than our preferences.

Chaos: Complexity on steroids

The James Webb telescope appears to have upended the once reigning scientific view of creation -- the so-called “Big Bang.” Consequently, it does not seem outlandish to return to the biblical description of the universe before creation: “And the earth was without form, and void; and darkness was upon the face of the deep.”² As a creation “myth” that expression stands in comparison with the modern definition of, “chaos,” defined as “behavior so [unpredictable](#) as to appear random.”³ Chaos is a domain beyond the merely complex: one in which even probabilities cannot be estimated. In other words a region with no room for human agency, and therefore ungovernable.

Chaos Theory, on the other hand, seems to be saying that upon closer examination, even events that appear to be chaotic are the accumulated products of myriads of simple events repeated until pattern appears. This distinction is very hard to grasp in any language but mathematics, but the message seems to be this: more attention needs to be paid to the boundary line (or zone) between complexity and chaos – since, as will be argued here, we are approaching that region at an accelerating rate of speed, and therefore a subject that deserves to be included in discussions of policy formation.

Chaos is what happens when a system is pushed beyond its inherent capacity for homeostatic behavior which is the ability of certain kinds of systems to resume their normal processes, after having been disturbed. Once ignited, chaos will continue until some new equilibrium is reached. Indeed, chaos is part of the every-day world. It is, moreover, not just an abstract but a concrete reality.

At some point, the flow of air over a wing becomes random, whereupon lift disappears, and the pilot has seconds to maneuver before his aircraft drops like a rock. At some point, public confidence in the banking system vanishes, and the market goes into free-fall, unless pre-emptive measures can be put into place within hours. At some point, the climate needed for sustaining life disappears, after which entire species go extinct.

The circumstances for a chaotic breakdown at civilizational levels are in place. Existing systems of government are shortly going to experience simultaneous, potentially uncontrollable interactions between seemingly disparate disruptive trends, including artificial intelligence, artificial biology, climate change, means of social manipulation based on the destruction of privacy (“panopticon”), and revolutionary demographic trends involving both race and genetics.

Stock market “corrections” can explode into global panic. Genetic mutations, whether of natural or man-made origin, can become pandemics. Local conflicts can burst into nuclear war. Climate change becomes the fifth horseman of the apocalypse. Artificial intelligence can separate humanity from agency over its own future. And at some level, all these can interact and

² Genesis 1:2, The Bible.

³ Alcorn, Stacey, <https://www.linkedin.com/pulse/game-theory-stacey-alcorn>.

induce a chaotic breakdown. These trends are no longer distinct and sequential but are increasingly interactive. Moreover, artificial intelligence is having a catalytic impact on the process, accelerating the rate at which unprecedented events appear, seemingly without warning.

The general view among experts seems to be that the transition from complexity to chaos is abrupt, and that chaos is for all practical purposes irreversible once it has begun. Some new order of things will emerge out of the wreckage, but humanity will not be able to influence its shape. Humanity will then either live or die, depending on whether it has, and uses, the means to survive.

Strategic foresight is a discipline for studying alternative futures when used as an integral element of policy-making systems. The resulting fusion of systems constitutes “anticipatory governance”, a system of systems which – in theory – would substantially improve capacity to handle complex issues.

There is growing interest in the practical application of this concept on the part of major international organizations such as the European Union and the OECD, and by a number of individual governments including the United States, although we are not in the front ranks. It has taken years, however, for even this level of acceptance to develop.

Meanwhile, unfortunately, this process is about to be overtaken by what might be thought of as “Nextgen” challenges operating at the civilizational level: e.g. advanced forms of artificial intelligence; advanced levels of genetic manipulation; advanced levels of human-induced disorganization of the biosphere; and advanced levels of risks of war that are existential, including the uncontrolled use of nuclear weapons. These challenges are maturing very rapidly, and they are interactive, with the prospective effect of accelerating rates of societal change across the board. Moreover, Artificial Intelligence will act as an accelerant to this process, with the possibility that systems will rapidly descend from complex to chaotic, at which point they will become impossible to control. Beyond that point, all forms of government will fail, but along the way, democracies are likely to have morphed into autocracies. These, too, will fail. But that is of little comfort.

There are, however, precursors of chaos which, if identified and acted upon, might create chances for re-stabilization by means that are compatible with the survival of democracy. Managing this kind of system is possible, but only upon the condition that there exists an electorate educated for citizenship at a new level of awareness. If this requirement is not met, then the disintegration of our democracy is inescapable.

Education, therefore, is a defense against chaos. But here, too, there is a pre-condition: it is not enough for elites alone to study how to govern for the future: the general public is indispensable as part of what will need to be done. Anticipatory governance can help us deal with complexity. But complexity tends towards chaos. To avoid that, we must aim for the deeper goal of anticipatory governance suited for democracy. And that is a product depending as much on the “wisdom of the crowd” as upon the expertise of professionals. Without wise citizens there can be no wise leaders.

If it is necessary to train leaders of tomorrow in new modes of thinking, so, too, is it necessary to do likewise for tomorrow's citizens. And, insofar as colleges of public affairs are essential elements of the former, they are potentially basic components of the latter – generating new methods for organizing public training in civil discourse, with special emphasis on foresight methodology as a primary means to revive tolerance for, and the examination of, multiple paths into the future.

The United States has entered a stage of political instability of an intensity not experienced since the years leading to the Civil War. The solutions to this crisis require both high-level political strategy, but also long-range thinking and action to define and follow “pathways into the future.” Given that the timeline for that kind of preparation is on the order of a generation, we are going to be off to a very late start, even if we were to begin in earnest tomorrow. Today's problems are complex, but workable. Tomorrow's can be chaotic, and beyond control. The hour is very late.

Acceleration Seven years ago, when Dr. Sheila Ronis and I began to collaborate on the subject of foresight and policy, we identified a set of trends and events that we believed would be extremely disruptive, and which, if we hoped to keep our democracy intact, would require significant innovations in governance.

That list was mainly derived from science and technology – AAI synthetic biology: climate change; and “panopticon” (a term coined in the 18th century by Jeremy Bentham as the name for an imaginary prison architecture that would make the jailer all-seeing, which we thought useful as a way to describe the use of modern technologies to destroy privacy in the service of tyranny). From the science of demography, we added as part of our list of disruptors the ongoing transition of the United States from a white dominated polity to a nation of minorities.

All these disruptors were fast-moving, but we believed when we settled upon them, that there was sufficient time for preparatory adaptation. That opportunity, however, has passed sooner than we expected. In each of these areas, we either have - or will soon have crossed - thresholds beyond which democratic methods for influencing the course of events may cease to be effective, unless they can be refreshed.

- **Synthetic Biology - the Race to Replace Evolution.** The capacity to modify evolution through ever more profound genetic intervention is now in our hands, but not under our control. Not only is there no domestic US policy, but there is no governing international policy – not to speak of any legal constraint – on the use of technologies (such as CRISPR) for genetic modification, and neither China nor Russia is likely to accept one. On the contrary, not only are these two states competing with us, but there is also a class of billionaires who are personally financing efforts focused on radical extension of life spans, essentially for their personal benefit but obviously something that would be commercially exploited, with immense social impact.
- **Climate Change-- the Race to Save the Biosphere.** Concepts for dealing with increasingly severe manifestations of climate change are now problematic. Climate change is likely to be an extinction event for countless species, and potentially to humans-- whether through its impact on food chains with eventual impact on our species, but through the direct consequences of lethal changes in temperature for large parts of the

planet. The next few years appear to be the last chance to get a handle on climate change before irreversible damage to the biosphere as a system will take place.

- **Super-surveillance - the Race to Save Independence of the Spirit.** Increasingly powerful methods of surveillance and mass psychological influence are already being installed at every level (China comes to mind, but there are 7,371,903 surveillance cameras in the United Kingdom) and technologies for facial recognition have become a current political issue. Human privacy no longer exists in light of the huge quantities of data that are being collected and exploited for commercial and political purposes.
- **The Demographic Revolution -- the Race to Preserve E Pluribus Unum.** Political power will be manageable only through a shifting alliance of racial arriving /ethnic groups – assuming that it is possible to establish an overall system that is stable enough to sustain collective social action for the population as a whole. To be honest about it, one of our two major parties has become a redoubt for white nationalism, with a paralyzing effect on the conduct of government. Support for the Constitution has been damaged by a growing sense that it has become politically unworkable for reasons that are politically unchangeable.
- **Nuclear War -- the Race Towards End-Game.** Out of sight has led to fear of nuclear weapons becoming out of mind for much of the public. But the threat is growing in terms of nuclear weapons states, near- nuclear weapons states, hypersonic delivery systems, and the proliferation of points of confrontation that could trigger a nuclear war, which even in so-called “limited” form could trigger a nuclear winter – and end-game for much of life on earth.
- **AAI - the Race for Sentient Machines.** Artificial Intelligence has burst upon the scene and is developing and expanding at a rate now far beyond any method of social control. Some of the leading exponents of AAI have begun to warn the public that the very technology they have championed is heading for a level of consciousness and autonomy that threaten humanity's presumption that it is in charge of its own destiny. Here again, not only is there no national means of control – but the odds are that there will be no international legal regime, given the current reality that there is an international race for dominance in this field. Sentience, moreover, does not equal conscience – and beyond a certain point, machines will no longer do what they are instructed to do, but what they **decide** to do.

Collision Each of the subjects identified above has been recognized as a major potential disruptor, and as such they all are the subjects of close scholarly and political attention. What has not yet been widely recognized is that these challenges are not peaking independently of each other, but rather appear to be reaching a critical stage within the next decade, at the latest. This is partly a matter of happenstance, and certainly not one of design, but the collision of such critical issues suggests some kind of commonality. One candidate is that we are seeing the effects of a tremendous burst of human creativity of the sort that powered episodes such as the golden age of Athens, the Renaissance, and the Enlightenment – except that what is now revealed is the dark underside of these periods, including our own, recently termed the “Anthropocene.” Every nation, every ideology, every form of social organization is involved: not just in some vague “ultimately,” decades out, but right now. The **concurrent** arrival of and interaction between these events suggests that the situation we face is not well enough expressed by the word “complexity,” and better captured by the word “chaos.”

Chaos: There appear to be two distinct definitions of this word. One is a classic definition of chaos as a featureless confusion, much like the description of the primal state of the Earth presented – for example – in the Book of Genesis. The other definition, suggested by scholars working in the field of contemporary “chaos theory” describes chaos as having an identifiable logic or structure of its own: for example, the finding that repetition of simple structures can create an overarching, complex whole. Many of these concepts and terms are blurred in current usage among specialists, and there is considerable disagreement at that level of expertise.

After much discussion, we have concluded that complexity and chaos differ in two fundamental ways: (1) complex systems can easily disintegrate into chaos; but complex systems cannot be re-established out of chaos except at great cost, if at all and (2) complex systems have numerous possible future states, to which probability can be assigned, but under chaos, probabilities cannot be assigned – anything at all might happen.

Complex systems contain the seeds of their own breakdown into chaos. Economic systems are complex and there are many possible alternative outcomes if variables are changed. For example, once the complex Soviet economic system began to break down, the entire Russian economy disintegrated into “free fall” – a chaos from which it could not be rescued. Once this collapse began there was no way of stopping it, and no way to predict what would be the resulting end-state, if and when one emerged. In the early 1990s, there were hopes – even expectations – that a law-based, market economy would emerge. What ensued was instead a chaotic kleptocracy.

“Pre-chaotic” Signals

Chaos is what happens when a system is pushed beyond its inherent capacity for self-regulating behavior. Once chaos has established itself, restoring control is highly problematic, requiring great expenditures of energy. Some theoreticians believe that the transition from complex to chaotic behavior is sharply delineated. In our opinion, however, there is a preliminary or “pre-chaotic” stage which, if identified and acted upon, presents opportunities to moderate or even forestall the onset of full chaos. Some theoreticians hold that chaos manifests itself abruptly – even instantaneously. We believe that “pre-chaotic signals” can be recognized when previously well understood methods of control over processes become increasingly irregular, beginning with small deviations from norms, but progressing thereafter to the point where the norms themselves break down. These patterns are ambiguous, but they are warnings that provide opportunities for anticipatory behavior. They are reminders that there is no escape from entropy – but that it is possible through human agency to “slow-walk” it. Entropy is a measure of the rate at which order is lost to chaos.

By definition, chaos means the loss of the ability of systems to self-stabilize, whether these systems be in the physical world or in the world of human affairs. Once ignited, chaos will continue until some new equilibrium is reached. What that equilibrium ultimately looks like is in the realm of the unknowable, and hence, the ungovernable. In the realm of human affairs, the potential now exists for those costs to reach the level of an extinction event (e.g. nuclear war; catastrophic levels of climate change; nuclear war triggered by climate change; Nuclear Winter resulting from nuclear war, etc..) It is, however, possible to improve the odds for what might be termed a “soft-landing,” by developing systems of governance that are anticipatory, on the basis

of which it is possible to make changes in how we do things that can delay the onset of chaos, and perhaps even dampen its effects by shortening its intensity and duration, and by improving societal resilience.

Entropy and how to slow it down.

Entropy, like death and taxes, is the inescapable fate of all systems. Existing systems will ultimately perish no matter what we do, but the rate and the consequences of their decline can be influenced. Entropy creates space for new forms. Humans can shape these new forms. They can influence the rate at which declining systems can be succeeded by new forms, and they can have agency in the nature of these new forms. Guiding, facilitating, and providing for these transitions is a crucial responsibility of governance. And within these responsibilities, the education of succeeding generations is key to the possibility of change by means of liberal debate and supported by the general consent of the governed. In other words, we must learn somehow to skirt chaos, if we want to sustain democracy -- given that the alternative is subjugation to authoritarian rule.

Anticipatory governance. and the response to chaos

Authoritarian and democratic systems will strive to respond to the possibility of chaos, each in its own characteristic way: authoritarians by decree, and democracies by consensus. In both cases, ways must be found to achieve public compliance: authoritarians by controlling information and enforcing compliance by means up to and including violence; democracies by informing, educating, and persuading. The authoritarian response requires a one-way, top-down communication between leaders and the led in which resistance from the latter can be settled by imprisonment or worse. The democratic response requires two-way communication between leaders and the led, in which lack of responsiveness on the part of the former can be settled in court or in the voting booth.

In either case – whether authoritarian or democratic – these measures involve an enhanced capacity for the generation of systemic foresight, and – critically – for the application of that foresight as an integral element of policy, by way of systems designed for converting policy into action. One term of art for this category of approach is “anticipatory governance.” Anticipatory governance has two dimensions: organizational, at the level of institutions, and human – to encompass not only the training of personnel, but of artificially intelligent computers, with which a form of symbiosis seems to be emerging. Anticipatory governance can have many forms, but there is one central characteristic: Anticipatory governance not only learns from experience, but learns before experience, by systematically considering the merits of alternative futures, and by seeking to move events towards those outcomes deemed most desirable.

The critical difference between democratic and authoritarian systems is that in the former, true representative systems interpret the public will; and in authoritarian systems, dictators conflate their personal will on the public, and then use the power of the state to suppress anyone who dares to disagree.

As to which form of governance has the advantage, our automatic response might be “democracy.” But not so fast. American democracy is a two and half-century old experiment with freedom; but China is the product of a five-thousand-year long history of practice with submission. Republics based on a free citizenry are few and notably short lived - on the order of two or three centuries of vigor, before the spark dies out. Empires are always with us in one form or another. Dictatorships are the “black holes” into which political systems – such as our own – that are based on inherent freedoms have a tendency to gravitate.

Democracies are perhaps only anomalies in the normal pattern of history – mere intermissions between tyrannies. Who can say which system has a greater adaptability to learn from experience? Not only must one say that the “jury is out,” but in the case of American democracy, the jury is always out because our democracy is always challenged.

The “Political Commons” of Democracies, and how to preserve them.

In 2009, Eleanor Ostrom, an American political economist, received the “Nobel Memorial Prize in Economics” for her work – drawing on theory but based on extensive data – which established that “small communities around the world were capable of developing collective, self-governing institutions that would prevent over-exploitation of communal resources.”⁴ Her findings overturned the prevailing view of her time that such entities were invariably doomed to succumb to what was called “The Tragedy of the Commons” which was deemed to be the inevitable triumph of individual greed in any contest with the greater social good. The key to survival, she concluded, was a managed triangular relationship between capital, government, and the public interest. Where this balance existed, the commons could survive and thrive.

There are indications from Ostrom’s late writings that she recognized that her conclusions about the long term viability of communal farms, and the underlying conditions for their survival, were applicable to vastly greater problem of sustaining democratic governance. If so, then her findings would amount to a defense of democracy itself, as the outline of a solution to the management of forces that would otherwise destroy it. Our democracy protects debate but depends upon the existence of a strong set of values shared by the public at large, and even by contenders in our national disputes. In effect, those shared values are the Political Commons of the United States. They are the “strong force” that makes E Pluribus Unum workable. It is certainly the case that this Political Commons is under heavy stress, with more to follow if we keep drifting towards a state of chaos. The question then is, what can be done to strengthen the Political Commons in the presence of an exotic and potentially dangerous combination of disruptive forces?

It must be emphasized that this is not the first time in America’s history when the political commons were endangered. There was, of course, the Civil War, when the Commons ceased to exist. Until now, there has never been a time when humankind had the means and the will to secede from nature itself: to a creation of our own making – a world with truly intelligent and possibly autonomous machines; a world where plants and animals are what we make them; a world where we begin to redesign ourselves; a world profoundly hostile to life including our own, as the product of our own behavior; a world of godlike capabilities, but a world still

⁴ National Academy of Sciences, <https://www.nasonline.org/member-directory/deceased-members/45787.html>.

lacking in compassion and wisdom, in which only the unimaginably wealthy share the benefits, while the masses drift, ever more superfluous. The conditions needed for a chaotic breakdown are in place. And yet, it may be possible to improve the odds for what might be termed a “soft-landing,” by improving systems of governance in ways designed to delay the onset of chaos, and perhaps even dampen its effects by shortening their intensity and duration, and by bolstering societal resilience. Democracy can survive complexity... perhaps. But can it survive the chaos of everything all at once?

Foresight and its differential utility.

Foresight methods can be used to promote improved governmental performance in both autocracies and democracies, but the objectives are profoundly different and as a result the specifics of overall system design are also very distinct and essentially incompatible with each other.

China, for example, is a top-down economy with a social system designed to match the ideological preferences of the Communist Party as defined by Xi. Ours is a bottom-up, consumer-driven economy, that has run into trouble sustaining the financial and political costs of its role as a global super-power, while finding the means to prevent the nation's social contract from becoming a dead letter. China can handle its problems by using tools of oppression that are natural components of governance throughout its long history. It can make and carry out long-range plans based on strategic objectives.

The United States, on the other hand, has experience with only one operating system: democracy. If we were to let go of it the result would surely approximate chaos. Our approach to democratic governance leaves the United States typically unable to plan for the longer term, and even when it does plan, highly uncertain as to its ability to finish what it starts. In the extreme, China pursues its goals obsessively, sometimes well past the point of doing damage to its own interests. On the other hand, the United States appears to have a bad case of Attention Deficit Disorder. The question is not whether this condition can be cured, but at least whether it can be ameliorated.

Education for Citizenship⁵

Democratic governance can help itself by adapting methods for infusing foresight into policy, and for bringing together all aspects of national power in a single, integrated approach.⁶ But government cannot hope to do that unless something is done to heal the deep fissures that divide the nation as a polity. This requires finding ways to refurbish our system. We need:

- A system in which debate among citizens is conducted as a mutual search for the truth, as opposed to trial by combat to the death; and

⁵ The Ohio State University, Motto, Columbus, Ohio. <https://u.osu.edu/uofye/2014/04/03/university-motto-education-for-citizenship/comment-page-1/>

⁶ Fuerth, Leon S., in Ronis, Sheila R. Ronis, editor, *Project on National Security Reform Vision Working Group Report and Scenarios*, “Précis” U.S. Army War College Press, Carlisle, PA, 2010.

- A system in which discourse takes place between experts on the one hand and lay persons on the other, in such a way as to eliminate each group's characteristic blind spots where the other is concerned.

The potential for this exists, but unfortunately, not in the formal political system, which now operates in the mode of tribes in permanent conflict. It exists in the body politic itself, where there are political independents in numbers sufficiently large to turn the outcome of elections: voters who are characteristically knowledgeable, disenchanted with the way the political system is operating, but nevertheless aware of problems in their own conceptions, well aware that "shorttermism" is ruining the country, and hungry for a new approach to discourse that could satisfy their desire for convergence and action rather than division and paralysis. Dr. Ronis and I have been working on such a system, which we call the Round Table Method.

The Round Table Method

The Round Table Method is a sequence of steps designed to forestall ideological polarization in discussion groups, to encourage awareness of the complex nature of almost all real-world issues, and to establish a common framework for discussion, based on foresight analysis which encourages the widening of concepts about the future as opposed to the narrowing that is typical of most discussions. The early stages are: discussion of complexity, discussion of foresight methods. Later stages were discussion of values; impact of values and policies on each other and substantive presentations of information about emerging issues; application of these methods by members of the group; and consolidation of views. Trial runs of the method have been run in a wide variety of circumstances: at high school level in the public education system of Philadelphia; over a one-semester period; with a discussion groups from various parts of the United States that are parts of the World Affairs Council network: with college-age students ranging from first year to doctoral graduate students; and in a number of one-day training exercises organized within the Federal Government.

The period of time for these events ranged from half-a day to a year. Funds were obtained from: the Rockefeller Brothers Fund; the MacArthur Foundation; the George Washington University's Elliot School of International Affairs; The Ohio State University's John Glenn College of Public Affairs; the National Defense University, and private donors. Staff support never exceeded two persons. All final reports were presented to invited panels of experts. Both traditional classroom techniques and synchronized on-line systems were used. Summary reports were prepared by investigators and are presently being compiled into a single website.

Experience from these experiments suggest a reality test for ideas that purport to address the fractured condition of democracy in America. They must:

- Deal with longer-term issues by applying foresight systems to policy formation.
- Be translatable from the abstract language of theory into everyday language.
- Address the concerns of the general citizenry, as opposed to those of the community of experts.
- Be attainable by means of adjustments to governance that do not require the complete reconstruction of existing systems and public attitudes.

- Be accessible through education at all levels from primary to university.
- Be transmissible by networks of groups at the civilian level.

The Round Table Method has evolved as the result of trial runs in a wide variety of settings, including:

- Discussion groups in various parts of the United States;
- At age levels from adolescence to young adult, to mature adults.
- A broad range of occupations, ranging from business people, military, government, retired.
- Engagement with participants from a range of ethnic and racial backgrounds.
- Taking advantage of virtual forms of communication.

Typical observed outcomes were:

- Delayed formation of opinion.
- Non-ideological final views
- Awareness and appreciation for alternative futures.
- Awareness of complexity as major factor to be accounted for in realistic planning.
- Resistance to single point analyses and solutions.
- discussion rather than debate.

Timelines into the Future⁷ -- differential rates

Time is the ultimate factor in the creation and execution of successful policy. Democracy is in crisis, now, not ten more years into the future. The outcome of our next election could be dispositive for the fate of democracy in America. If not, however, our democracy is by no means secured for the indefinite future. At best, there will be sufficient time to clarify its goals and how they are to be pursued. One of the most important of the goals is to restore civility in our political conduct, which requires a new focus on the common values that have previously expressed our hopes for the future.

There are now two timelines: first, urgent short-term work to deal with the threat to democracy arising from those who are clearly willing to destroy it, in the name of saving it; and second is the rehabilitation of our democratic system of government. The latter is the work of a generation, during which the nation, and in fact, the world will experience the full disruptive force of technologies created without accountability for consequences.

Reprise and a suggestion

Chaos is a real possibility in human affairs, with potentially devastating results in the form of

⁷ Ronis, Sheila R., *Timelines into the Future*, University Press of America, Lanham, Maryland, 2007.

levels of damage that can be existential threats to the survival for our species. Foresight can provide advance warnings of chaotic breakdown, and these warnings offer a chance to :(a) stop the process; (b) slow the process down; or (c) attempt to influence the outcome of the process. It is time to establish an international system dedicated to the scientific study of chaos as an existential threat.

Definition of terms

This essay uses a number of terms that will not be familiar to lay readers. Rather than present these in alphabetical order, they are presented in the sequence that readers will encounter them.

Systems: an arrangement of forces that are mutually interactive and interdependent.

Complexity: a set of characteristics of some systems which cannot be fully understood, but can be estimated in terms of probabilities, on the basis of which outcomes can be influenced.

Complex adaptive systems: complex systems that are capable of maintaining their integrity, by adapting when disturbed.

Chaos: a set of characteristics of some systems, the behavior of which is unpredictable.

Democracy: a complex adaptive system for self government by the people as sovereign.

Foresight: a capacity for imaging alternative futures, based on facts but reflecting the reality of chance.

Government /governance: a complex adaptive system-of-systems, in which formal institutions interact with customary or culturally determined forms of societal behavior.

Anticipatory governance: governance as a system, organized so as to couple foresight to action.

Feed-back: a system for using information about consequences of actions undertaken, to help shape actions yet to be undertaken.

Citizenship: moral, political, legal rights and responsibilities imposed upon citizens by government/governance or exercised by citizens as sovereign.

Political “commons”: value sets that establish the character of nations. (Inspired by the work of American scholar Elinor Ostrom **for her analysis of economic governance, especially the commons** for which she was awarded a Nobel Prize, in 2009).

Education for citizenship: the means by which political commons can be inculcated. Not the same for democracy or autocracy. (Inspired by the official motto of The Ohio State University).

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