



FROM MY PERSPECTIVE

A new methodology for anticipating STEEP surprises[☆]Oliver Markley^{*}

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ABSTRACT

In technological forecasting and futures research on social change, the term *wild card* (a.k.a. *disruptor* or *STEER surprise*), traditionally refers to a *plausible future event that is estimated to have low probability but high impact should it occur*.

This article introduces:

1. A *Type II Wild Card*, defined as having *high* probability and high impact as seen by experts if present trends continue, but *low credibility* for non-expert stakeholders of importance.
2. A four-level typology of wild cards, leading to a systematic methodology for monitoring the emerging awareness and credibility of high probability disruptors and for assessment of stakeholder-specific views about them.

An informal pilot test of the methodology both indicated that the approach has practical value, and highlighted the importance of highly plausible tipping points which could rapidly lead to massive disruption, either toward collapse or reformation in the complex adaptive systems (CAS) making up human civilization.

For reasons of historical continuity, wild card-related nomenclature is used throughout the majority of this article although the term STEER Surprise is advocated for further work. (STEER being a frequently used acronym denoting five conceptual sectors of importance.)

Suggestions for further work include:

- Research on how to diminish the discounting of Type II phenomena by institutional leaders
- Monitoring of transitions in the perceived credibility of critical Type II STEER Surprises by thought leaders
- A Snowball Survey of wisdom leaders having multidisciplinary expertise from all walks of life to identify specific Type II possibilities (especially positive ones), they see as having greatest importance
- A Cooperative Clearinghouse on STEER Surprises for sharing of intelligence on highly probable/highly disruptive events, together with plausible impacts and proactive policies.

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1. Introduction

In what has become a truism in social change work, the 18th century German philosopher, Arthur Schopenhauer, said, “Every truth passes through three stages before it is recognized. In the first, it is ridiculed. In the second, it is opposed. In the third, it is regarded as self-evident”. Whether or not one accepts the tongue in cheek precept known as *Dator’s Law*—that any useful

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statement about the future should at first seem ridiculous—it is certainly true that research on alternative futures *must* include plausible future possibilities that strain or exceed conventional understanding. Systematically assessing the credibility of fringe—but well-founded—ideas about the future is an essential way to help navigate the highly turbulent “white waters” of disruptive change involving complex, adaptive systems (CAS), that typify our time in history.

The purpose of this article is both to introduce a new methodology for improved intelligence on the emergence of highly disruptive surprises (“wild cards”), having initially low credibility for most observers, and to illustrate how this approach can be used regarding pressing challenges of the decade ahead. For reasons of historical continuity, the term wild cards will be used throughout this article, although due to feedback from a pilot test, it is proposed that STEEP surprises be used instead of “wild cards” for continuing work.

We begin with an introductory overview, after which the methodology is developed in detail, a pilot test is described, and implications are discussed, including suggestions for further work and a concluding summary. A substantively-oriented companion article to this more methodologically-oriented one is “Research and Action Toward the Upside of Down” (Markley, forthcoming [1]). Being drawn from the same research base, a few essential details are common to both articles, but otherwise both stand alone.

2. Type II Wild Cards and beyond: needed categories of foresight

In long-range forecasting and policy-oriented alternative futures research, professional futurists traditionally speak of *wild cards*—defined as possible events that are considered to have a low probability of occurrence, but a very high impact (often negative) if they were to occur. Arguably the definitive writing on wild cards, thus far, is *Out of the Blue: Wild Cards and Other Big Future Surprises: How to Anticipate and Respond to Profound Change* (1997), by John Petersen [2]. The thrust of Petersen's most recent (2008) book, *A Vision for 2012: Planning for Extraordinary Change* [3], strongly motivated the research reported here. A more recent (2009) article, “Risks and threats to civilization, humankind, and the earth”, by Joseph Coates [4], is also a definitive piece on this general topic, although it uses “catastrophe” as the preferred term.

For purposes of improved intelligence on potentially disruptive phenomena in highly turbulent environments, I believe it is critically important to now expand the definition to embrace four conceptually distinct types of wild cards that make feasible an intelligence methodology for tracking the emergence of “Type II Wild Cards” that have arguably *high* probability if present trends continue, but which, for various reasons, are not credible to most observers:

- Type I Wild Card: low probability, high impact, high credibility
- Type II Wild Card: high probability, high impact, low credibility
- Type III Wild Card: high probability, high impact, disputed credibility
- Type IV Wild Card: high probability, high impact, high credibility.

Another conceptual category—low probability/high impact/low credibility—of course, exists, but there is a sub-infinity of such possibilities. Thus, this category is judged by this author as having little practical value, while respecting the fact that others disagree. Further, it is interesting to note that the term *Black Swan*—which rightly or wrongly has been seen by some reviewers as applying to this situation—has become something of a cliché in certain intellectual circles [5].

We will first focus on the Type II phenomenon, and then move on to the general typology.

3. Under-estimation of global warming and its impacts as a climatological Type II Wild Card

As an historical example of a Type II Wild Card, consider the following story stemming from a rush research project to do a “Brief Assessment of the Very-Long Range Impacts of the CO₂ Effect” that I led at SRI International in 1976.

By doing a quick snowball survey, my team within the short space of two weeks had obtained most of the major findings on this topic—both published and not yet published—and many of the articles slated to be included in a major National Academy of Sciences monograph to be published within the year [6]. Using the modeling expertise of SRI ecologist, Buford Holt, we then expanded the models currently being used for climate dynamics simulation in ways consistent with futures-oriented general systems thinking. In so doing, we determined that there were a variety of causal “feedback loops” not being reflected in the models of leading climatologists, with more positive than negative ones, suggestive of “deviation amplifying” tendencies. Moreover, from a simple application of systems dynamics thinking, we determined that severe disruptions of customary weather cycles and patterns could be expected to occur as a function of the *rate of increase* in atmospheric CO₂, producing major impacts much earlier than effects associated with maximum CO₂ buildup, which is what the then extant climatology literature mostly focused on.

Recent findings [7], give credence to our forecast which was earlier published in this journal [8]. Thus, with the benefit of hindsight, our forecast, especially about the early onset of weather disruption, can be considered a valid Type II Wild Card (although global dimming is probably an even more robust cause of weather disruption than global warming).

Several other Type II climatological wild cards were discovered while doing the research for this paper. Although they have great importance for the whole “global warming debate”, since they aren’t directly relevant to the central thrust of this article, they must here be only noted in passing.¹

4. The four-level typology of wild cards

As the following example shows, it is also useful to distinguish a *Type III Wild Card*, defined as being a Type II Wild Card that has come into enough public awareness as to engender public dispute about its causal credibility (and derivatively, its assumed probability); and a *Type IV Wild Card*, defined as a Type III Wild Card that is widely known about by relevant, knowledgeable observers who, generally agree that the prophecy in question is credible.

The whole Global Warming hypothesis, is probably the most well known contemporary example of what (for scientific thinkers at least), was originally a Type I Wild Card (i.e., there was general acceptance of the science involved, just no notion that the probability of high levels of atmospheric CO₂ was so great, although this began to change when the Global Warming science began to gear up). It became a Type III Wild Card when various sources publicly attacked the credibility of the science behind forecasts of global warming. Now, for many informed observers, it has attained the legitimacy of a credible, but “wild” *forecast* (i.e., Type IV: high probability, high impact, and high credibility)—although the issue is far from resolved for many others, especially in light of recent disclosures of biased peer review behavior by certain pro-global warming research scientists.

5. Molitor's Curve and “trim Tab” thought leaders

This sequence closely resembles the “Issue Emergence” curve of policy legitimization—shown here as Fig. 1—first publicized in 1977 by the futurist, Graham T.T. Molitor. He observed that emerging issues and policy priorities often go through a more or less regular S curve/life cycle in which different types of media cover the issue as it emerges through various stages of public awareness and opinion [12], with increasing coverage and public knowledge until finally, media coverage of it peaks—usually coinciding with some decisive policy action, pro or con—after which it recedes from public awareness as an emerging issue, and is covered by archival media, or by other types of media covering the operational details of how it is now being handled.

Since Molitor's Curve closely parallels the four-level wild card typology, it appears exceptionally promising as a way to monitor and proactively influence shifts in the perceived credibility of specific wild cards, as well as to monitor the emergence of highly disruptive phenomena in general. It is also a good guide to the types of literature where new Type II Wild Cards can be identified.

The above four-level typology and the two figures below help make clear that these wild card “types” should be understood as labels reflecting changing perceptions by observers and not inherent characteristics of any given wild cards; thus, any given wild card can be differently rated by different observers, or by the same observer at different times. When attempting to monitor the status of specific wild cards as they evolve from Type II toward Type IV, it seems evident that a key elements to monitor are differential stakeholder perceptions of credibility, and how these change over time. Three categories of thought-leaders are proposed as being particularly critical in this regard, due to the ways in which each play a complementary version of what R. Buckminster Fuller (who loved to often use the term “comprehensive anticipatory design science”), called a “trim tab” role [13], in the governance of “Spaceship Earth” as it moves into the future:

- **Professional futurists** (particularly those who promulgate their views in ways that are highly visible and relatively credible to both establishment opinion leaders and citizen activists).
- **Forward-looking Citizen Activists** and their *opinion leaders* (leading activist authors, bloggers, etc.)
- **Establishment Opinion Leaders** (pundits, c-level media executives, etc.)

A protocol for assessing the views of such observers will be suggested later in this article.

¹ So-called “global dimming”—industrial particulates in the atmosphere providing a filter to sunlight—is a recently recognized, but poorly publicized phenomenon that may be considered a Type II Wild Card due to the surprisingly little play it has gotten in either science policy or public media, considering the magnitude of impacts already having apparently stemmed from this phenomenon. It has been scientifically described and validated as a credible phenomenon of major importance due to its counterbalancing effects on global warming and disastrous impacts on global weather patterns (believed to include the drying up of monsoon rains in the Sahel, among other ecological and social impacts). Documentation of global dimming is provided in Table 1, below. It should be noted, however, that Global Dimming itself appears to be lessening in intensity, even though its impacts live on. See, e.g., “Global ‘Sunscreen’ Has Likely Thinned, Report NASA Scientists” [9].

Also being largely ignored, but of immense importance in the ongoing debate about anthropogenic sources of global warming, is the impact of oscillating changes in the shape of Earth's orbit around the sun. As stated on Fig. 11 (p 16) of H. Leighton Steward's (2008) *Fire, Ice and Paradise* [10]: “There is approximately 100,000 years between Earth's most round and most elliptical orbit around the sun. This is about the same amount of time as there is between the glacial and interglacial climates on Earth for at least the last 800,000 years.” The difference in amounts of energy received from the sun drives differences in mean temperature; which in turn, apparently drive changes in atmospheric CO₂—rather than changes in level of CO₂ driving changes in temperature [which commonly believed to be the dominant relationship in global warming]—in magnitudes greater than those currently being produced by anthropogenic factors. (Adapted by Steward from “Climate & Atmospheric History of the Past 420,000 Years”, by J.R. Pettit, et al. [11].)

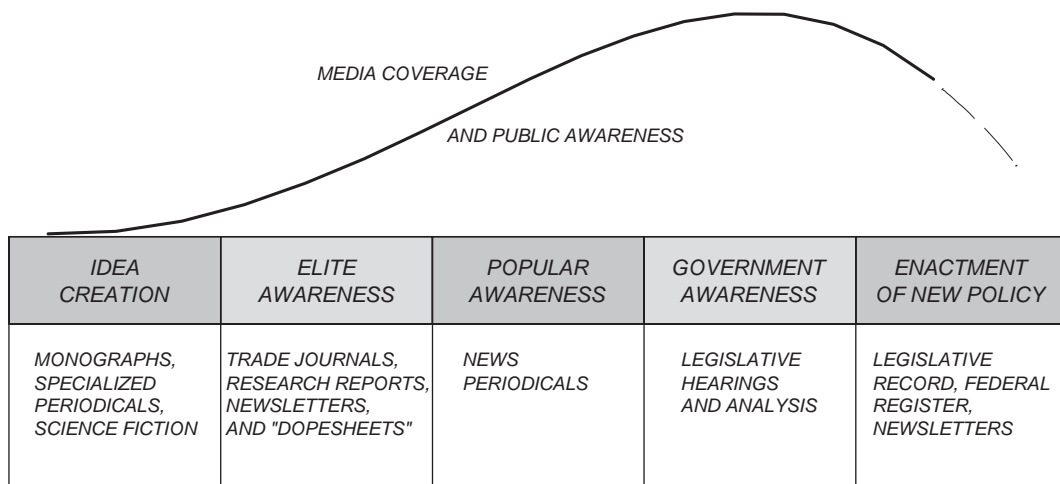


Fig. 1. Precursor Monitoring of Emerging Issues.

Source: *Information and the Future: A Handbook of Sources and Strategies*, by Alice Wygant and O.W. Markley (1988); based on Molitor (1977) [12].

6. A social change application

By way of illustrating how the above ideas could be applied to the task of inducing pro-social change, consider the Movement Action Plan (MAP) of the book *Doing Democracy: The MAP Model for Organizing Social Movements* (Moyer et al. [14]). As Fig. 2 displays, the model has eight stages whose sequence is essentially the same as that of the Molitor Curve. As shown by the three lines graphing public perception, the shift in percentages of the public holding various perceptions on the issue is very much like that codified into the four-level wild card typology. Stage Four—"Take-off!"—is where things shift from Type II to Type III in the wild card typology defined above, and where the monitoring of the above types of "thought leader" perceptions could be of great value.

Fig. 3 displays four key roles of social change movement in relation to the eight stages of social movements: reformers, rebels, citizens and change agents—each of which have specific definitions in the MAP model ([14] p. 22 ff). As stated there, "To play any of the four roles effectively, activists and their movements need to act in accordance with society's widely held democratic and human values. They must also behave in ways that are consistent with the long-term goals of the social movement and the vision of a good society".

7. Some methods for identifying Type II Wild Cards²

Obviously, Molitor's Curve offers some guidance as to the types of literature where the introduction of new "Type II" ideas can be found. Over the years, however, the approach I have found most useful for identifying for high payoff Type II ideas, is through a combination of the "outer" and the "inner" orientations. The Molitor Curve coupled with the "Snowball Survey" (outer) can be used to identify specific types of experts and expertise (both general and specific) in the external environment. What I call "Imaginal Visioning" (inner), for complementary types of information (remote viewing, intuition, etc.) is then useful in vetting "fringe" viewpoints that must be considered highly questionable. A brief summary of the steps for each is shown below.

7.1. Snowball survey³

The specific steps of this process are as follows:

1. Start with a coherent question [about "X"], and a reason for wanting to know that is sufficiently credible that it will motivate potential respondents to share both information that is as yet unpublished, and sensitive information that will never be published
 2. Identify a small sample of particularly knowledgeable people
 3. Ask of each:
 - a. What do you know about "X"?
 - b. Who else should I ask about "X"—in particular, really bright people at the fringes of or beyond the currently dominant paradigm?
- » Reiterate, refocusing inquiry as needed, based on what is learned.

² This section is adapted from the companion article, "Research and Action Toward the Upside of Down" [1].

³ Although I usually use the simple method as shown, a much more sophisticated protocol is: "Peer Esteem Snowballing: A methodology for expert surveys", by Dimitrios Christopoulos [15].

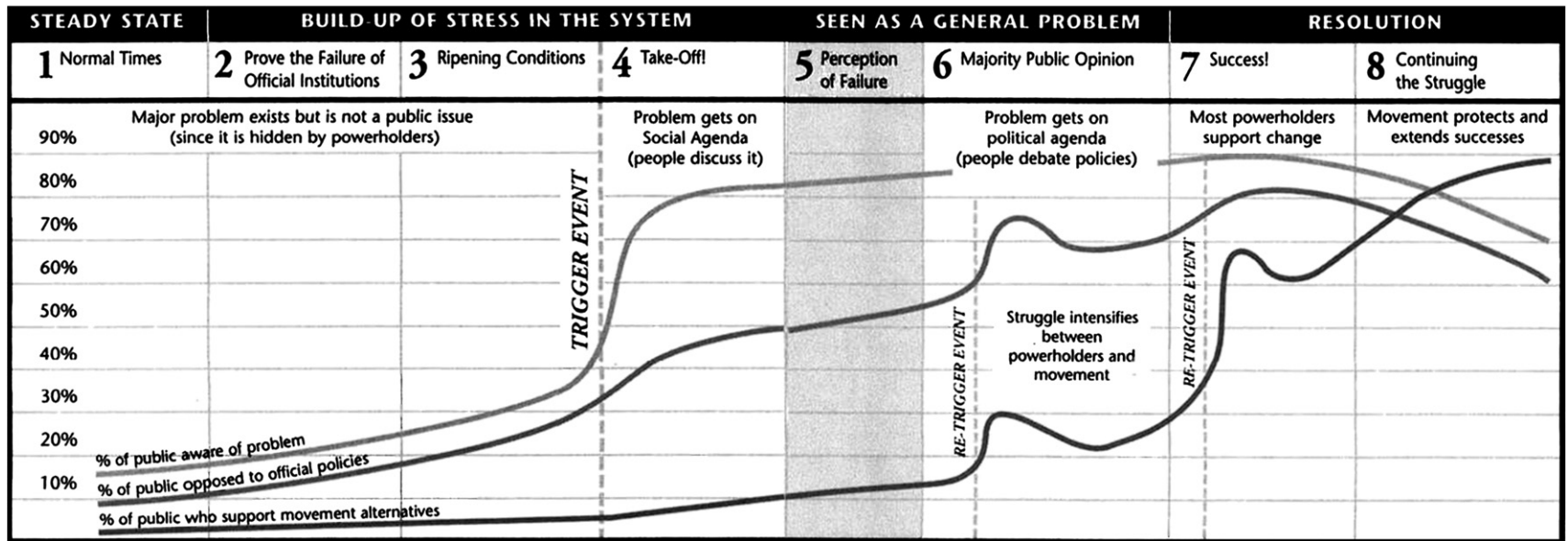


Fig. 2. Winning the Public Three Ways Across Eight Stages of Social Change.

Source: Fig. 2 in *Democracy Now: The MAP Model for Organizing Social Movements*, By Bill Moyer, et al. [14] (created by Tom Atlee).

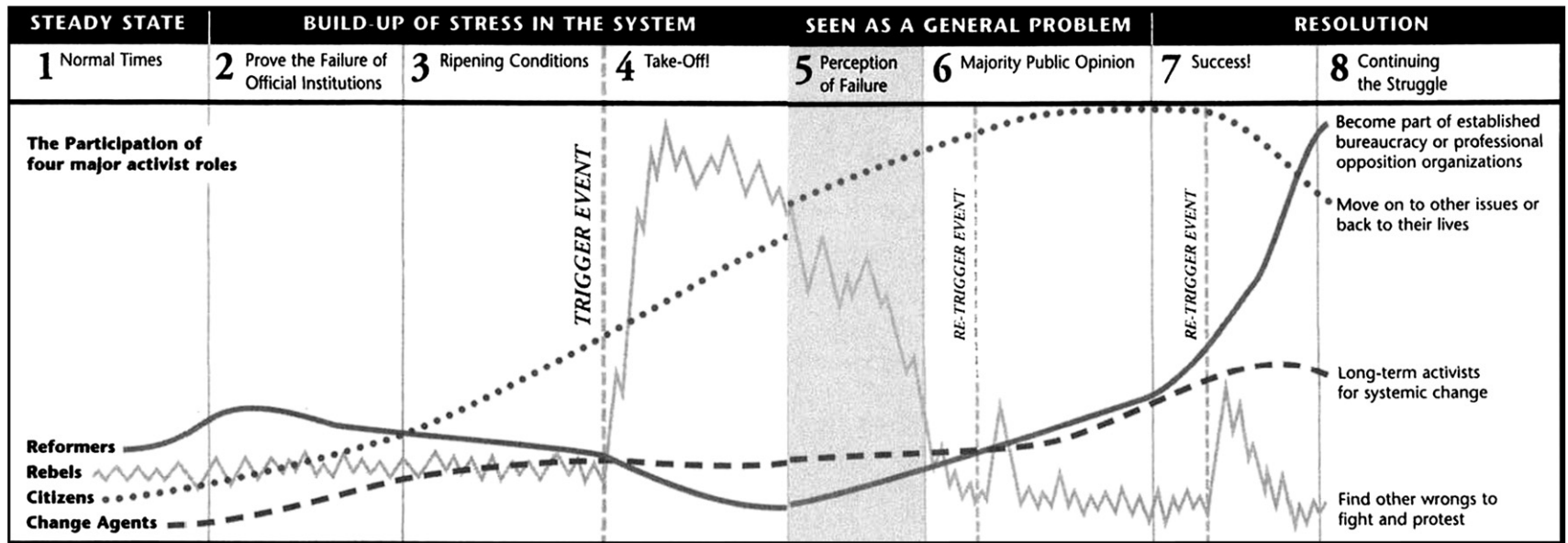


Fig. 3. The four roles in relation to the eight stages.

Source: Fig. 3 in *Democracy Now: The MAP Model for Organizing Social Movements*, By Bill Moyer, et al. [14] (created by Tom Atlee). Please note that the “citizen” curve should be continuous.

7.2. Imaginal time travel

This technique has six steps. Although the requisite steps may be clearly visualized from the following list unless you are an experienced practitioner in this type of art, you really need to read the full journal article (Markley, 2007 [16]) before expecting this process to work very successfully:

1. Choose focus of exploration (“X”), together with relevant contexts to frame the exploration
2. Relax and center entire being into a “non-local” level of consciousness
3. Assume (“take on”) specific context (e.g., a given strategy or decision) re: “X” to be explored
4. Using external guidance for navigation, imaginably explore the future of “X” assuming that specific context
5. Redo steps 4 and 5 with each context of interest
6. Review all that was experienced, and draw conclusions for decision and/or action.

There is a third and potentially even more important way to identify wild cards: invention. As famously attributed to Alan Kay, “The best way to predict the future is to invent it.” Silicon Valley entrepreneurs frequently use terms such as “killer app” or simply, “disruptor”, referring to new technology applications so successful that they have disruptive consequences for their competitors—often producing other types of social change (STEEP), as well. A new approach called “Hybrid Thinking,” published by Gartner Research [17], may hold considerable promise for stimulating the discovery and/or design of breakthrough solutions to what the authors call “wicked problems”—a synonym for a most important variety of wild cards.

7.3. Wild card credibility and its attribution

Credibility refers to the trustworthiness and/or believability of a source or message. It is, or should be, context-dependent, in that an expert in one situation may not be competent in another.

In general, the lack of credibility that characterizes a Type II Wild Card (high probability, high impact, low credibility), can stem from one or more of at least six sources:

- **Passive Disbelief** (a.k.a. “**Ignorance**”)—wherein a given wild card isn’t seen as credible more or less simply due to a lack of knowledge, rather than from some competing point of view.⁴
- **Discounting**—where the relevant knowledge is simply ignored.⁵
- **Active Disbelief**—where the occurrence of the given wild card is asserted to be impossible, due to it contradicting other beliefs held dear (which, in turn, can result from establishment positions that involve disinformation and/or censorship).
- **Disinformation**—where the relevant knowledge about the wild card has been convincingly camouflaged by propagandistic distortion.
- **Taboo**—where there is an “Elephant in the Living Room” that will severely undermine your legitimacy as a credible actor if you even talk publically about the given wild card being credible.
- **Censorship**—where the relevant knowledge is suppressed by prevailing authorities in power over public policy and/or the mass media.⁶
- **Disrepute**—where the dubious reputation of the “prophet” prevents a credible hearing.

8. A protocol for Type II Wild Card reporting

The following questions were designed to structure a protocol for reporting on Type II Wild Cards that have been identified and need to be monitored:

1. How would you describe this wild card in brief? Is there a name or phrase that aptly captures its meaning? Are there specific published or online references to it?
2. What is the nature of disruptive impact(s) it might cause, leading it to be considered a “wild card?”
3. Why do you believe it to be highly probable? (I.e., what is the cause-and-effect sequence that is likely to lead to its occurrence)?

⁴ Subcategories for *Passive Disbelief/Ignorance*, several of which can overlap with other categories such as disinformation, censorship and disrepute, include:

- *Lacunae*—where no thought or attention has been given, so there is no basis for believing something new and different.
- *Cultural Entrainment* (a.k.a. *Paradigm Blindness*)—wherein inherited world views and life styles do not permit investigation that would lead to consideration or acceptance of the given wild card.
- *Insufficient Dissemination*—while some in the culture have the knowledge required for informed acceptance of the wild card, it has not yet been disseminated widely enough for general acceptance.
- *Insufficient Cultural Knowledge Base*—the knowledge leading to given wild card credibility can be considered a “known unknown”, and this void has not [yet] been filled and disseminated in a convincing way.

⁵ Because the phenomenon of discounting has such great importance for futures research, this topic will be considered at greater length in *Sec. 9.4*, below.

⁶ A broad range of documented cases of media censorship of newsworthy events having arguably major importance is publicized by the nonprofit Project Censored (www.projectcensored.org). Their *Top 25 Censored Stories* annual compilation is itself a rich source of Type II Wild Cards having deep—but mostly ignored—policy significance.

Table 1

Type II Wild Cards Illustrating Different Causal Categories of Low Credibility: A Prototype Template for Displaying Collateral Information, For Wild Card-Specific Monitoring and Impact Assessment Activities, (Internet links last accessed on June 21, 2010).

Wild Card Title/Short Description	1. Additional Info & References	2. Plausible Disruptive Impacts if it Occurs	3. Rationale for Plausibility	4. Rationale for Low Credibility	5. Rationale for Plausible Emergence of High Credibility
Global Dimming as diminisher of global warming and a significant source of weather disruption, among other impacts An illustration of <i>Passive Disbelief/ignorance</i> (and virtual media Censorship?) as a cause of low credibility	Industrial era particulates are increasingly filtering sunlight. Three brief but comprehensive treatments of global dimming: 1) A well referenced summary: http://en.wikipedia.org/wiki/Global_dimming ; 2) A Jan. 15, 2005, BBC <i>Horizon</i> video documentary, "Global Dimming": posted online at http://www.brasschecktv.com/page/757.html ; 3) A concise textual summary of the BBC documentary: http://www.globalissues.org/article/529/global-dimming .	Already occurring, the disruptive impacts of global dimming are believed to include: <ul style="list-style-type: none"> • Significantly diminished temperature rise due to "global warming" • Weather disruption, including non-occurrence of monsoon rains in Sahel. • Reduced crop yields due to reduction of sunlight 	Confirmation of the phenomenon by a variety of highly credible multidisciplinary research results.	In spite of a credible British documentary, global dimming has gotten surprisingly little media play in the U.S.A., given the apparent magnitude of this phenomenon. An example of virtual media censorship?	Re-evaluation of global climatological research in light of recent disclosures of fraud by global warming scientists might bring global dimming into greater visibility.
Validation of New Theories Explaining Precognitive Remote Viewing and More An illustration of <i>Passive Disbelief / Ignorance / Cultural Entrainment</i> (a.k.a.Paradigm Blindness) as a cause of low credibility	In a new "Theory of Everything" (TOE), Dr. Katya Walter used a combination of visionary dreams, a reinterpretation of new physics concepts, and what she calls "Deep See Diving" to explore and develop a "meta-topological" model to explain the origin and structure of what we call "reality." She calls this a "Double Bubble Universe" theory, in which the "bubble" of reality we are familiar with is comprised of three dimensions of space and one of time. An opposing "mirror image" bubble is one of three dimensions of time (past, present and future), and one of space. The latter bubble, Walter asserts, is where our consciousness is focused when we sleep and dream; where intuition originates; and where the limitations of linear time can be transcended. A summary of the model is posted at http://doublebubbleuniverse.com/Double_Bubble.html . Last accessed August 1, 2010. Her book, <i>Double Bubble Universe</i> will soon be published by Kairos Center, Austin TX.	If validated, this model will emerge as a full-fledged "new paradigm" in physics, integrating most prior theory and handling a number of anomalies not currently explained. Thus it would lead to all manner of new technological inventions as well as overhauling the conceptual structure of our ideas about the reality we live in. But for futurists, the impact might be the emergence of precognitive research and forecasting methodologies.	Having read all four of Walter's books setting forth the theory, and having had her tutor me in the epistemological methodology her work is based on, this author has come to trust the probability that when properly vetted, this theory/model will, for the most part, hold water.	It has low credibility because few know about it, it lies almost totally outside the expertise of any one discipline or interdisciplinary paradigm, and its subjectivist epistemological methodology is almost a taboo for the currently dominant objectivist philosophy of science.	A second TOE book that also provides a theoretical justification for such things as temporal remote viewing is: Ervin Laszlo's <i>Science and the Akashic Field: An Integral Theory of Everything</i> (2004). These theories may become more credible as consciousness research matures and as more people know of them.
Epochal "STEEP" Disruptions Seen by Precognitive Remote Viewing—as well as other more conventional forecasts An illustration of <i>Active Disbelief</i> as a cause of low credibility	A variety of psychic visionaries report visions of epochal "STEEP" [Social/demographic/Technological/Economic/Ecological/Political] changes in the 2020 ± 10 year time frame, many of which center on 2015 ± 5 years. Three books recounting these that seem particularly suitable as an example of this type of Type II Wild Card are: <i>Robes: A Book of Coming Changes</i> , by Penny Kelly (1999)—Reviewed at: http://www.amazon .	The essence of these prophecies is much like the "Civilizational Tipping Point" toward collapse (described in Table 2 below), in that they involve a combination of a variety of wild card changes in each of the various STEEP sectors; and toward civilizational reformation as well (as portrayed in Fig. 2 below).	With the exception of certain geological changes (which Kelly's book in particular emphasizes), and certain epochal advances in consciousness (which Rachele's book emphasizes), most of the changes these sources foresee line up well with disruptive alternative future scenarios by futurists (e.g., John Petersen's <i>A Vision of 2012: Planning for Extraordinary Change</i> (2008); and Andrew Wynberg's list of "usual	Psychic forecasts have little credibility for many people, especially futurists for whom it is almost a badge of honor to disbelieve that such things are even possible.	The actual occurrence of these prophecies would not, for many observers, validate, their credibility, due to the fundamental belief that true psychic remote viewing in time and space is simply not possible. The validation of the Double Bubble Universe TOE (above), on the other hand, would definitely increase the credibility that such things are possible.

<p>Fiscal downturn and systemic disruption due to collapse of speculative “bubbles” An illustration of Discounting as a cause of low credibility</p>	<p>com/Robes-Penny-Kelly/dp/0963293427; and <i>The Library Speaks: A History of the Future</i>, by Kathleen Bird (2005); and <i>Earth Changes and 2012</i>, by Sal Rachele (2008); website: http://www.earthchangesand2012.com/ last accessed, August 1, 2010.</p> <p>The phenomenon of escalating speculation rising like a soap bubble that pops with sudden collapse is well known. Advance warnings about the recent subprime loan melt down, such as <i>America’s Bubble Economy</i> (Wiedemer, et al., 2006) were ignored by most. As stated by former Fed Chairman, Alan Greenspan in a (2009) BBC documentary, <i>The Love of Money</i>, “I think that the banker’s knew ... at some point a correction would be made. I fear that too many of them thought they would be able to see the actual trigger point in time to get out...if it were not [the subprime crisis], something else would have triggered it”.</p> <p>Wiedemer’s new book, <i>Aftershock</i> (2010) warns of other fiscal bubbles, one of which is likely to collapse in 1–3 years.</p>	<p>Potential fiscal downturns are one of many Type II “elephants in the living room” that are warned about by experts, but discounted by institutional leaders, especially in the government, business and mass media. The eroding physical infrastructure of the U.S (pipelines, bridges, etc.) is but one example. The plausible disruptive impact is that of isolated cases of disintegration triggering widespread systemic collapse, such as came close to happening with the banking system, which had become frozen for some hours before being bailed out by government funds.</p>	<p>suspects” listed early in the Discussion of Results, below).</p>	<p>As Alan Greenspan said later in the BBC documentary, “Unless we can change human nature, there will be more [such] crises.”</p> <p>The positions of establishment leaders, as reported by most of the mass media, are taken at face value; hence “discounting” is not factored into the equation of current events and future prospects by many ordinary citizens.</p>	<p>High credibility to currently discounted fiscal (as well as other systemic) threats, could emerge if a continuation of isolated shocks to the complex adaptive system (CAS) that our civilization consists of was coupled with an upsurge in activist movements for social change toward sustainability and systemic resilience, many of whom propagate their views more by online social networking than through conventional media.</p>
<p>Significant increase in knowledge about ETs & UFOs An illustration of Disinformation as a cause of low credibility</p>	<p>The reporting of unidentified flying objects (UFOs) and purported contact by Extra-Terrestrial beings (ETs) has been going on from the beginnings of recorded history. They increased dramatically after the first atomic weapon was unleashed, as did Crop Circles—considered by some to be overt signaling of the presence of higher orders of life in the universe (cf. “SETI”).</p>	<p>Disclosure would forever alter the dominant image of humankind, and could lead to a new epoch of human relationships with other life in the universe (for good or ill), and could accelerate the pace and nature of technological development.</p>	<p>A number of “whistle blower” statements about government disinformation re: the existence and influence of extra-terrestrial (ET) life forms, technologies, etc., have recently been made by eminent leaders—many with personal knowledge—calling for full disclosure. See http://www.disclosureproject.org/ and http://www.wanttoknow.info/ufocover-up for more. Last accessed June 24, 2010.</p>	<p>Although a substantial fraction of the population professes to believe in these things (with belief increasing as a function of educational level), most have had no actual contact, and little seems to have come of sustained interest and work by activists.</p>	<p>Unless there is some type of tipping point event receiving wide coverage, it seems unlikely that this issue will receive high credibility, in spite of the fact that credible witnesses continue to report various types of UFO/ET phenomena. But widespread publication of new crop circle data, if not convincingly debunked, could provide a tipping point: See, e.g., “Decoding Crop Circles” http://www.youtube.com/watch?v=-4CYcp5wObs&NR=1; “Crop Circles 2010–1994 UK—the best evidence” http://www.youtube.com/watch?v=D3WVBDCaLd4. Both sites last accessed July 15, 2010.</p>
<p>Decriminalization &/or legalization of commonly used psychoactive drugs An illustration of <i>Taboo</i> as a cause of low credibility</p>	<p>The “war on drugs” is increasingly seen as a very costly failure, with selective decriminalization and/or legalization a rational option that many politicians, judges and other leaders in the U.S. privately see as necessary, but dare not even talk about publicly, even though Mexico and other Latin American countries are doing so. <i>Mother Jones</i>, an investigative journalist magazine recently devoted</p>	<p>Impacts that decriminalization &/or legalization (D/L) could create include:</p> <ul style="list-style-type: none"> • Significant increase in tax revenues. • Significant reduction in costs of incarceration (both financial and human suffering) • R&D on “designer drugs,” leading to discovery and validation of new approaches to therapy, creativity, and innovation 	<p>The tide toward decriminalization/ legalization appears to be turning:</p> <ul style="list-style-type: none"> • The governors of both Massachusetts and California, while stopping short of advocating D/L, have suggested that this could be a significant way to increase tax revenues. • Mexico has already made this move and other Latin American countries are considering it as well, with no complaint by the U.S. and the U.S. 	<p>Widespread D/L is seen as having little credibility because politicians and the mainstream media won’t (thus far) touch the issue in a balanced way. Back channel lobbying contributions by drug cartels and high-end money laundering factions is, from a systems perspective, an obvious factor—but this is even more a taboo topic than is D/L itself. A recent exception: coverage of “U.S. banks’ role in Mexican drug trade.” <i>San</i></p>	<p>Increasing citizen activism and media coverage to a “tipping point” on this issue by various types of researchers, authors and media could happen quite rapidly. E.g., In spite of uniform opposition to CA Prop.19 by virtually all politicians and the Police Chiefs Association, a group of 32 police officers, judges and prosecutors broke rank with a news conference before the election detailing why it should be passed. (http://</p>

(continued on next page)

Table 1 (continued)

Wild Card Title/Short Description	1. Additional Info & References	2. Plausible Disruptive Impacts if it Occurs	3. Rationale for Plausibility	4. Rationale for Low Credibility	5. Rationale for Plausible Emergence of High Credibility
	an entire issue to this problem (http://www.motherjones.com/special-reports/2009/07/totally-wasted)	<ul style="list-style-type: none"> • Seeking of new avenues for profit and power by rich and powerful drug cartels • New religious sects using psychoactive sacraments traditionally used by indigenous peoples. • Increase in problems associated with addiction and need for Addiction Recovery therapists. [A recent book by Bruce Alexander, <i>The Globalisation of Addiction</i> (2008) may be noteworthy for futurists and therapists. It is reviewed at http://www.erowid.org/library/review/review.php?p=289 .]	Justice Department has gone on record as advocating no federal interference with medical marijuana laws by individual states. <ul style="list-style-type: none"> • Proposition 19, the citizen initiated ballot measure in California to legalize, tax and regulate marijuana, is a plan that advocates said could raise \$1.4 billion and save precious law enforcement and prison resources. Although not approved by the voters, it is widely seen as a bellweather event. 	<i>Francisco Chronicle</i> /Bloomberg News, 6/30/2010, http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/06/29/BUZL1E6LV.2.DTL . Last accessed July 4, 2010.	stophedrugwar.org/trenches/2010/sep/13/california_law_enforcers_endorse).
Tipping Point Toward Civilizational Reformation—Explosive growth of citizen activist groups becomes a “critical mass/tipping point” toward STEEP Cultural Reformation and transition to sustainability An illustration of Passive Disbelief/Ignorance and virtual Censorship as a cause of low credibility	This is the essential forecast of Paul Hawken’s book, <i>Blessed Unrest: How the Largest Movement in the World Came into Being and Why No One Saw It Coming</i> (2007), the Save the Earth Foundation (www.WiserEarth.org), and an extraordinary six minute speech by Hawken posted at http://www.youtube.com/watch?v=N1fiubmOqH4 .	If the rapidly growing network of citizen activists for things like sustainable ecology, indigenous rights, fair trade, peace and justice reaches a critical mass as Hawken forecasts, it would bring a sea change transformation to empire-oriented capitalism, and open up all manner of “STEEP” (social/demographic, technological, economic, ecological and political), innovations for sustainable well-being.	The main driver of this trend is a combination of growing threats, increasing ineffectiveness of public policies, and activist movement growth that is largely unreported by the establishment media but deeply “networked” in mutually supportive ways.	The lack of accurate reporting by the “establishment” of the phenomena that Hawken reports—thereby leaving most people unaware of it—is suggestive of virtual <i>censorship</i> as a cause of low credibility in this instance.	Hawken’s Wiser Earth Foundation is working to extend this phenomenon in a variety of grass roots, “bottom up” ways.

4. Why do you see it as having low credibility at this time?
5. How might it attain high credibility? Is there a reasonably coherent progression from one type of wild card to the next type that you see as plausible, or even likely to happen in the foreseeable future?

Table 1 demonstrates a first use of this protocol with illustrative examples for the first five of the six different categories of cause for low credibility.⁷ Topics for these examples were chosen by the author to have important implications for future civilizational well-being, but low current credibility within the “dominant paradigm” of society—a choice that ignored many important technological possibilities, e.g., cancer cure, quantum level computers, or massive breakthroughs (e.g. a “singularity”), in artificial intelligence.

9. A pilot test of the methodology⁸

To assess the practicability of the methodology developed above, I conducted an informal pilot experiment during the last half of 2009 with members of the Association of Professional Futurists (APF), in which the following question was asked:

What significant wild cards—but especially of Types II and/or Type III—do you see in the 2015 ± 5 year time horizon—*especially as regards Wild Cards that point to an as yet unrecognized “new paradigm” of sustainable well-being for humankind?*

Participants were also asked to accompany their nominated wild cards with answers to the five queries listed at the beginning of this section that are also reflected in Table 1.

9.1. Feedback from professional colleagues and discussion of results

By and large, the methodology met with approval from the APF members who chose to respond [18]. Following are some specific suggestions for the improvement of the theory, and then discussion of a significant research result about a chain of probable precursor events leading to a Type II “tipping point” of overarching importance.

9.2. Improvements to the methodology

Four specific contributions improved the wild card typology and theory as put forth here.

1. Ruben Nelson suggested the distinction between passive and active disbelief, and contributed the additional distinctions shown in Footnote Two.
2. Harold Linstone reminded me of the importance of discounting, which although not exactly a source of low credibility, has the same operational result, which is why I added it to the list of sources shown above. Because of its importance, however, this topic will also be discussed below with some suggestions as to how it might be minimized.
3. As regards the use of “wild card” as a term of reference, Katya Walter suggested that the term “wild card” carries such a negative image that a term such as “mild card” might be useful to use as a complementary term. This will be discussed further below.

However, it is also worth noting that Jim Dator commented that the term wild card “perpetuates the myth that there is some ‘normal’ future from which wild cards are deviations. ... [and even] the term ‘disruptor’ still implies there is something normal to disrupt.” For these and other reasons, such as the importance of “boundary crossing” research (Nelson, 2010 [19]), and because the Shaping Tomorrow platform uses the term “surprise” as a catch-all term for such things, the term *STEEP Surprise* seems a good alternative. (STEEP here is used as a standard acronym for environmental scanning: Social/demographic, Technological, Economic, Ecological and Political; an image that also connotes the steepness in the wave of a tsunami—long a favorite metaphor for U. of Hawaii Professor Dator—for how rapidly unexpected change can sweep through.) However, for reasons of historical continuity, the term “wild card” will continue to be used for the rest of this article.

4. In response to a suggestion in the APF report of the pilot test for a Cooperative Clearinghouse of intelligence information on shifting perceptions of wild cards and collateral information, e.g., on citizen activist agenda and outcomes, Michael Jackson offered to make the online platform at www.shapingtomorrow.com available for this purpose. This also will be discussed below.

9.3. A chain of probable events leading to a “civilizational tipping point” Type II Wild Card

The APF pilot experiment generated a long list of interesting wild card ideas, some of which were accompanied by documentation answering the five questions. Although the whole list of APF responses is too long to reproduce here, it is instructive to show two subsets of them.

⁷ It is generally bad form in professional writing to make *ad hominem* criticism of specific individuals. Thus, no specific example is given of low credibility due to bad reputation of the “prophet” although several may come to the mind of the reader.

⁸ It is recognized that the subgroup of the Association of Professional Futurists who volunteered to take part in this pilot test is in no way representative of establishment decision makers or the general public. They are, however, qualified to participate in, and to provide critical feedback on a pilot test of a novel futures research methodology, and it is their business to be aware of both plausible and probable disruptive surprises coming over the event horizon. When originally conceiving this project, I envisioned getting funding for a snowball survey of a substantively more representative sample of experts on the fringes of various communities of practice in various sectors of society. Such funding was not found, so the APF pilot test seemed a prudent “Plan B” for proceeding.

Table 2

APF-Generated Type II Wild Cards Relating to a Tipping Point Toward Civilizational Collapse, (Internet links last accessed on June 21, 2010).

Wild Card Title/Short Description	More Description/Justification/Reference Citations (answers to the following numbered questions as were contributed)
<p>Civilizational Tipping Point—The emergence of an inability to govern and manage the body politic effectively</p> <p>Submitted by Oliver Markley on 9/25/09, but first proposed on 8/12/09 by Lester R. Brown and colleagues at the Earth Policy Institute</p>	<p>1. How would you describe this wild card in brief? Is there a name or phrase that aptly captures its meaning? Are there specific published or online references to it?</p> <p>2. What is the nature of disruptive impact(s) it might cause, leading it to be considered a “wild card?”</p> <p>3. Why do you believe it to be highly probable? (I.e., what is the cause-and-effect sequence that is likely to lead to its emergence?)</p> <p>4. Why do you see it as having low credibility at this time?</p> <p>5. How might it attain high credibility? Is there a reasonably coherent progression from one type of wild card to the next type that you see as plausible, or even likely to happen in the foreseeable future?</p> <p>1. A “Pandora’s Box” of interactively intensifying problems involving population growth, deforestation, desertification, pollution, resource depletion, hunger, armed conflict, immigration, etc. literally overwhelm the sustainability of effective governance. Described at http://www.earthpolicy.org/index.php?/book_bytes/2009/pb3ch01_ss5.</p> <p>2. The disruptive impact of this event would be so deep and extensive that it could be considered a “Mega-Wild Card, made up of other highly disruptive STEEP (social/demographic, technological, economic, ecological, political), changes leading to the inability of the body politic to govern and manage effectively, with all manner of derivative wild cards”.</p> <p>3. Decades long scanning and STEEP system interaction trends appear to be making this increasingly probable.</p> <p>4. Doomsayers have always been with us. Just as forecasts of global warming were rejected for so many years, so too the interactively combined impact of separate Type Two Wild Cards is apt to be ignored, minimized or rejected.</p> <p>5. Humorously, it is tempting to suggest something like Lester Brown partnering with Al Gore in creating a traveling media event billed as <i>An Even More Inconvenient Truth</i>. More seriously, it is likely that individual futurists and institutional leaders will gradually realize that this critical danger is nearing. In John Keane’s latest book, http://www.thelifeanddeathofdemocracy.org/ <i>The Life and Death of Democracy</i>, he proposes that democracy did not emerge as an historical inevitability. It was an invention at a certain time and place, not a natural state of human power-sharing. And its survival as a system of government in the twenty-first century is far from secure. http://www.johnkeane.net John Keane is Professor of Politics at the University of Westminster and the Wissenschaftszentrum in Berlin. He took part in a debate, “Does Democracy Have a Future?”, at the 2009 Melbourne Writer’s Festival. Stream or download the audio at http://inside.org.au/wp-content/audio/keane.mp3 (34 min 37 sec).</p>
<p>The End of Democracy?</p> <p>Submitted by Kate Delaney, 9/17/09</p>	<p>1. Oliver, your find from L. Brown’s website has an analogous parallel for the US as a nation.</p> <p>2. An array of systemically interconnected problems and trends involving climate/ecology, economics, politics, fundamental physical infrastructural demise (sanitation & sewage systems nation wide, roadways, public schools), demographics and wealth distribution are now confronting the US, although proactively recognizable by specific centers of interest, are being insufficiently responded to due to fragmentation of leadership, the diversion of public attention toward bogus issues & trite infringements, impoverishment of spirit/willingness to sacrifice for the public good and culminating bifurcation of demographics (age + wealth + political power, youth + underinvestment + disinterest).</p> <p>3. Economic growth is the source of a nation’s prosperity. For growth to occur, a steady source of investment must be made to prepare tomorrow’s resource base (labor and capital and technology), otherwise, disinvestment occurs compromising long-term economic sustainability.</p>
<p>Implosion of U.S. Economy Fiscal Meltdown of U.S. Government Balance Sheet (revenue, expenditure, debt)</p> <p>Submitted by Kay Strong, 9/25/09</p>	<p>The federal budget has been overstretched with priorities bleeding the economic growth engine dry for the major part of the past two decades. The first billion dollar federal budget passed Congress in 1990, the two billion dollar budget in 2000, while fiscal year 2008–09 is notable for the first one billion dollar federal deficit (expenditures > revenue) (http://www.gpoaccess.gov/eop/tables09.html). The national debt [http://www.brillig.com/debt_clock/] at \$12 trillion (a million dollars every 20 s http://zfacts.com/p/461.html) grows daily by \$3.81 billion, while the National Priorities Project (http://www.nationalpriorities.org/) clocks the cost of war in excess of \$925 billion.</p> <p>Meanwhile the nation’s engine of economic growth falls further behind: the health and well-being of workers declines, tomorrow’s workers/today’s children suffer neglect and increased impoverishment, the national tab for repair/replacement of long neglected sanitation systems, water supply network, transportation network, and the nation’s school buildings rises daily (http://www.asce.org/reportcard/2005/page.cfm?id=203) and planned investment by government and business falters.</p> <p>4. Factual evidence and the reasoned voice of knowledgeable officials have been stymied as the nation’s attention has been riveted on an invisible enemy. Individually, the virtue of sacrifice for a better future has been supplanted with me-ism’s marriage to “nowism.”</p> <p>5. The emergence of an alternative “safe and stable” international currency will define the turning point for the US. Debts will come due both externally and internally.</p>
<p>“Empire of Illusion”—A culture increasingly out of touch with reality-oriented values and policies is heading toward disaster.</p> <p>Submitted by Oliver Markley, 11/1/09</p>	<p>The recent book: <i>Empire of Illusion</i> (2009) by Chris Hedges, and an 8/30/09 interview with Hedges on the <i>Media Matters</i> radio show, comprise a compelling statement of how the emerging culture in the U.S. A. could help trigger phenomena such as Implosion of the U.S. Economy, materials on which were submitted by Kay Strong and the Civilizational Tipping Point envisioned by Lester Brown.</p> <p>Here is a brief series of quotes from the interview:</p> <p>“The purpose of the book was to describe ... the ways we cut ourselves off from facing reality around us. There is a kind of ethic in American society that runs across the political spectrum ... that we as Americans can have everything we want if we just dig deep enough within ourselves, if we find those inner resources and strengths, if we acknowledge that we are truly exceptional, reality will never be an impediment to our desires”.</p>

Table 2 (continued)

Wild Card Title/Short Description	More Description/Justification/Reference Citations (answers to the following numbered questions as were contributed)
<p>“Empire of Illusion”—A culture increasingly out of touch with reality-oriented values and policies is heading toward disaster. Submitted by Oliver Markley, 11/1/09</p>	<p>“And that’s exceedingly dangerous, especially at a moment when that illusion is matched with a reality of horrific economic decline, and the very destruction of the ecosystem that sustains the human species. It allows huge segments, I would probably argue the majority of Americans, to remain essentially removed from the reality that is happening around us...”</p> <p>“We once had distinct cultures, regional cultures, cultures of immigrants, with their own aesthetic, their own history, their own sense of self-identity—which were destroyed in the early part of the twentieth century, and replaced with a commercial, or commodity culture...”</p> <p>“Commercial culture, or consumer culture, sought, quite effectively, to impose within American society consumption as an inner-compulsion, which is why seventy percent of our economy is driven on consumption.”</p> <p>“Well, in order to create this new kind of ethic or value system, we had to destroy an old value system, once based around communitarianism, around thrift, around self-sacrifice.”</p> <p>An audio recording and text transcript of the entire interview are posted at http://will.illinois.edu/mediamatters/show/Sunday-August-30-2009/.</p>
<p>Failed Geo-Engineering Submitted by Walter Kehl, 9/26/09</p>	<p>Disruptive impact: Geoengineering is becoming more and more discussed as an answer to climate change. The financial dimensions are such that single countries or even very rich private persons could start such an endeavour. As the global climate is very complex and not well enough understood, this could lead to catastrophic consequences, if the wrong feedback loops (e.g. in the atmosphere) get activated.</p> <p>Probability: Increases with the pressure through climate change. Low credibility: Again, not enough thinking in systems progression to high credibility: if politicians are tempted to show off with “actions” to react to climate change, they could be tempted to engage in risky geo-engineering measures.</p>
<p>Systemic breakdown of supply chains/infrastructure. Submitted by Walter Kehl, 9/26/09</p>	<p>Typical examples are energy brownouts or blackouts, which can spread rapidly, and which might not always be contained quickly. Also in the area of food supplies there is the “Nine meals from Anarchy” topic.</p> <p>Disruptive impact: Once one the major industrial supply chains is disturbed, it will have an impact on every other, with material/production shortages in many areas and lots of cross impacts.</p> <p>High probability: All our major infrastructures and industrial supply chains are interlinked and highly optimized (Just-in-Time production, reduction of inventories), thereby taking resilience (“buffers”) out of the system. Such a scenario could be started through an interruption which is in itself not catastrophic (local infrastructure breakdown, strikes, local pandemics), but which have critical systemic effects through infrastructure dependencies.</p> <p>Low credibility: Because nobody really thinks of systemic and global consequences. Progression to high credibility: could happen through local breakdowns of this kind, or through plausible simulations.</p>
<p>“De-globalization”—Breakdown of the global trade system/global supply chains. Submitted by Andy Hines, 9/11/09</p>	<p>Given [our] definitions, I’d say de-globalization is a Type I Wild Card (low-probability, high-impact, high-credibility), which means I think it’s low probability, but I think most experts would see such an event as very credible.</p> <p>Note: This item was included because it is a probable first-order impact of the “Civilizational Tipping Point.”-om</p>

The first subset, shown in Table 2 below, begins with what Lester Brown [20] has termed a “Civilizational Tipping Point,” which, if it were to occur, would unleash a “perfect storm” of STEEP (social/demographic, technological, economic, ecological, political) disruptions in all sectors and levels of society, schematically portrayed in Fig. 4.⁹ The remaining entries in Table 2 display other Type II Wild Cards that the pilot experiment yielded, that, taken together, illustrate how such a tipping point could be reached.

The thrust of Fig. 4 and the entries of Table 2 can be seen as illustrative elements of a hopefully “self-denying”¹⁰ alternative *future history* forecast, one that is envisioned as unfolding in the 2020 ± 10 year time frame.¹¹ In Table 3, the second subset generated by the pilot experiment, by way of contrast, displays possibilities for with radical cultural transformation seen by its adherents as positive and benign.

9.4. “Discounting” of critical future challenges

It is a well-clichéd truism that “Where you stand depends on where you sit.” Or, more bluntly, “It is hard to fully accept problems whose solution might end your job”.

⁹ In honor of methodological transparency, it should be noted that the dip portrayed in Figure Two was envisioned in 1995 using the type of precognitive remote viewing methodology I customarily for intuitive futures exploration—described in my paper noted above, “Mental Time Travel: A practical business and personal research tool for looking ahead” [16]. This pattern is more deeply explored in the companion paper, [1], where a variety of published sources in alignment with it are reviewed, and details about past and current levels of “ecological load” are discussed.

¹⁰ A self-denying forecast, like a prophecy of doom, is made so as to change behavior in ways that would keep it from coming true. A self-confirming forecast, on the other hand, comes true *because* it was made. Both lie at the heart of the mission of futures research, which is not to predict the future, but to influence the making of wiser, more proactive choices in the present.

¹¹ Because the thrust of this article is methodological, substantive considerations relating to the “Civilizational Tipping Point” possibility will not be discussed further. For more on this important Type II wild card, please see the companion article [1].

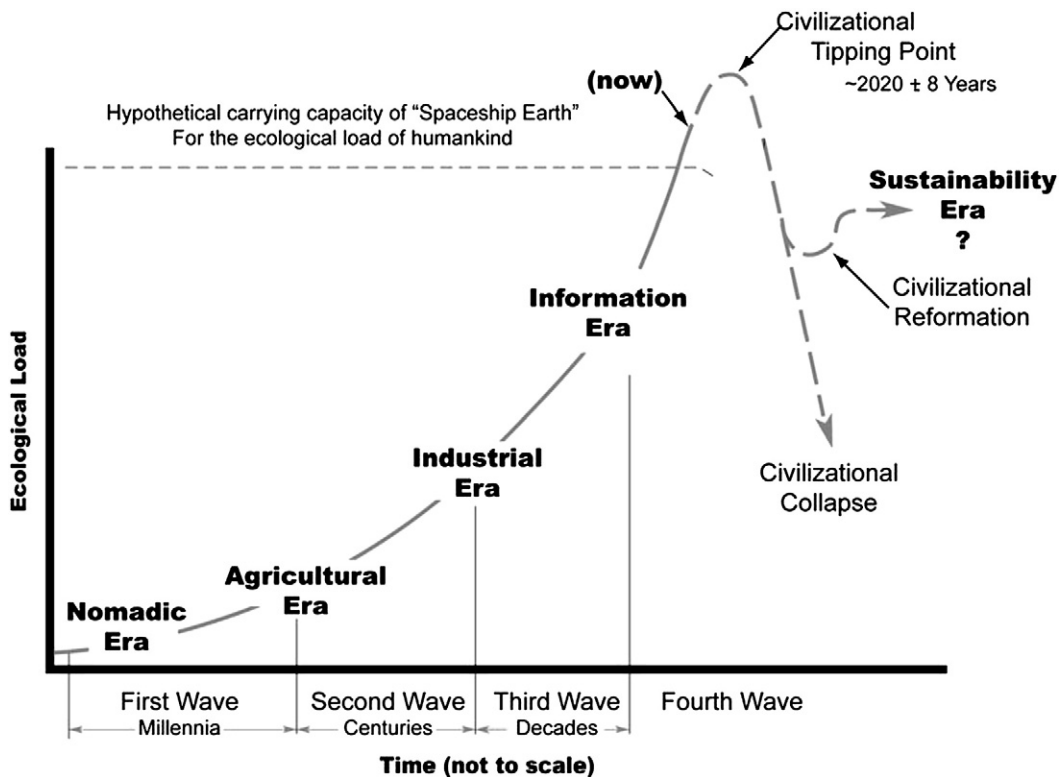


Fig. 4. Two Idealized Alternative Futures After a “Civilizational Tipping Point”.

Source: “Anticipating Disruptive Surprises with Futures Research”, a workshop for the annual meeting of the Society for Chaos Theory in Psychology and the Life Sciences, by Oliver Markley and Constance Porter, San Marcos TX, July 24, 2010.

Harold A. Linstone, Editor-in-Chief of this journal tackled this and related problems in his (1999) book, *Decision Making for Technology Executives: Using Multiple Perspectives to Improve Performance* [21]—reviewed by Joseph Coates [22], as being the type of significant methodological breakthrough in futures research, forecasting, planning, and policy analysis that are few and far between. The book lays out in considerable detail a cogent set of reasons why the prophetic warnings outlined above will almost certainly be functionally ignored by many of the very people we most need to not only grasp the significance of sudden systemic breakdowns that threaten societal stability, but also to take proactive actions to avert them.

One explanation why future threats are minimized is *discounting*—the tendency to devalue both threats and opportunities more greatly, the further they appear in either time or space: “Future problems are discounted in contrast to near-term problems; [i.e.,] short-range consequences for the organization and its actions are given priority” [21, p 39]. A short but cogent example is the May, 2010 *Science News* posting: ‘Discounting’ the Future Cost of Climate Change [23].

Linstone identifies three complementary perspectives, termed *Technical*, *Organizational* and *Personal*—each of which typically discounts future challenges to societal well-being very differently, leading to different planning horizons:

- Technical (T) with low discounting and a far-distant planning horizon typical
- Organizational (O), moderate discounting, intermediate planning horizon
- Personal (P), high discounting, short planning horizon for most.

Of the three perspectives, it is the O perspective that is of most concern as regards treatment of Type II Disruptive Surprises. As Linstone points out: “As regards the Organization perspective, “There is great concern whether a new policy will threaten the organization’s rights, standing or stability, whether it fits the current *standard operating procedures* (SOPs) and parochial priorities ([21], p.36)”. ... The O perspective also reflects the culture and myths that have helped mold and bind the organization group or society as a distinct entity in the eyes of its members” (p. 38). ... And finally, “future problems are discounted in contrast to near-term problems; that is, short-range consequences for the organization and its actions are given priority” (p. 39). Although research is perhaps needed to verify this, it seems likely that future issue discounting by executives holding the O perspective in politically oriented organizations is perhaps even more acute as regards *attribution of credibility* than about assignment of priority importance regarding potential disruptive surprises. Because, as is well-known in political circles, often the easiest way to avoid dealing with troublesome issues is to discredit their basis.

Several suggested approaches for reducing the level of discounting for especially critical Type II disruptive surprises will be presented below.

Table 3

APF-Generated Type II Wild Cards Dealing with Radical Cultural, Transformation Seen by Adherents as Positive and Benign.

Wild Card Title/Short Description	More Description/Justification/Reference Citations With such answers to the following numbered questions as were contributed:
Technological Singularity Submitted by Bob Hawkins, 9/16/09	<ol style="list-style-type: none"> 1. How would you describe this wild card in brief? Is there a name or phrase that aptly captures its meaning? Are there specific published or online references to it? 2. What is the nature of disruptive impact(s) it might cause, leading it to be considered a “wild card?” 3. Why do you believe it to be highly probable? (I.e., what is the cause-and-effect sequence that is likely to lead to its emergence?) 4. Why do you see it as having low credibility at this time? 5. How might it attain high credibility? Is there a reasonably coherent progression from one type of wild card to the next type that you see as plausible, or even likely to happen in the foreseeable future? <ol style="list-style-type: none"> 1. When machine intelligence surpasses and transcends human intelligence. The main reference is Ray Kurtzweil, <i>The Singularity is Near: When Humans Transcend Biology</i> (2005). 2. What makes this event so disruptive is that the transcendent nature of the change makes it impossible for humans to imagine what life beyond the change will be. Some scenarios include the possibility that humans will lose all control over technology and society. Ideas range from humans becoming obsolete, extinct, slaves or pets to every human need filled without work or effort, greatly extended lifetimes, and universal abundance. 3. Exponentially increasing rate of technological complexity and effectiveness. 4. Many feel that there is a unique property of human consciousness that will never be obtained by machine intelligence. Or, that technology is self-limiting—creating as many problems as solutions and thereby demanding as much from humans as it supplies. Technology does not create intelligence but only converts it. 5. It is hard to see indicators because believers see advances toward ‘better’ machines as evidence while doubters see same developments as steps toward collapse or asymptotic limits.
Awakening of Global Consciousness Submitted by Bob Hawkins, 9/16/09	<ol style="list-style-type: none"> 1. An Ascension of Life on Earth—Interconnection between human consciousnesses becomes evident and ethics shift from individual to collective well being. 2. Complete change in ethics, morality, economics and social institutions. 3. Many have experiential evidence. There are arguments based on evolutionary growth and intellectual enlightenment. 4. Low credibility because it is contrary to the strong individuality and isolation that many people feel in themselves. 5. The most positive way to gain credibility through experience. However, advocates believe that growing number of participants in the movement increase the credibility.
Emergence of one World Government Submitted by Bob Hawkins, 9/16/09	<ol style="list-style-type: none"> 1. Over-arching world legislative and legal institutions ensure world peace and free trade. 2. End war. Eliminate the threat of nuclear war. Free up bazillions of dollars in military spending for economic progress. 3. European Union seems to be having a positive impact. Free trade agreements have generally had positive impacts on all countries involved. World courts are growing in influence. 4. Low credibility arguments: EU took decades to realize and it still has many problems. UN has become impotent charity rather than effective dispute assembly. Individuals will never compromise their national identity. Some groups in the world will never cooperate and continue to terrorize everyone else. 5. Intermediate steps would include demonstrations where global compromises have led to solutions to previously intractable problems.

9.5. Suggestions for further work

Some ways to extend the usefulness of the wild card methodology are:

- a) *Precursor monitoring* of Type II Wild Cards of importance—but particularly those appearing to contribute to a tipping point toward collapse of complex, adaptive social systems—to detect transitions from Type II to Type IV.
- b) *Reduction of Stakeholder Discounting*—particularly involving the credibility of Type II disruptive surprises.
- c) *Identification of Type II possibilities for sustainability-oriented reform*, both to help prevent sudden movement toward civilizational collapse; or, if it cannot be prevented, to minimize negative impacts both during and after.
- d) *Establishment of a Cooperative Clearinghouse* for sharing of research results an intelligence on wild cards—especially the Type II variety.

9.6. Precursor monitoring with trigger points for contingent action

Although conventional strategic planning has been widely criticized as being a minimally useful management method [24], the use of precursor monitoring and trigger points as used in contingency planning continues to be an effective, although too infrequently used approach for the analysis and management of high-level risk [25].

In general, contingency planning involves the visualization of what to do if and when specific low probability/high impact events (i.e., wild cards) occur that have significance for the user. To provide early warning, key indicators expected to precede the event's actual emergence are monitored, and when these indicators reach a critical threshold, called a *trigger point*, two levels of response are called for [26]:

1. Higher-level monitoring
2. Action.

In thinking about the further development of a wild card monitoring methodology, it is suggested that this approach be applied, both to:

- a) Actual evidence that a civilizational tipping point toward collapse may be emerging (e.g., increases in the number of events indicating civil disorder and/or infrastructural collapse—to name but two);
- b) Measurement of the *perception* by informed people that this is the case (e.g., changes in how key types of opinion leaders interpret this evidence and the level of credibility they assign to it), leading to a reliable way to monitor transitions from one to another type of wild card in the taxonomy.

As regards the detection/tracking of specific wild cards as they emerge from Type II to Type IV, it seems evident that a key element to monitor is *differential stakeholder perceptions of credibility*, and how these change over time. As noted above, three categories of thought leaders are proposed as being particularly informative in this regard:

- **Professional Futurists** (particularly those who promulgate their views in ways that are highly visible and relatively credible to both establishment opinion leaders and citizen activists)
- **Forward-looking Citizen Activists** and their *opinion leaders* (leading activist authors, bloggers, etc.)
- **Establishment Opinion Leaders** (pundits, c-level media executives, etc.).

A robust and efficient way to do this would be to do periodic surveys of these three stakeholder types on each of the following dimensions:

- a) Time Horizon (in which it is seen as likely to happen)
- b) Probability of Occurrence (your personal view, or your estimate of a truly knowledgeable expert's view)
- c) Likely Range of Impacts (High Magnitude is Assumed)
- d) Credibility of Forecast for You and/or other Futurists
- e) Estimated Credibility for Establishment Opinion Leaders
- f) Estimated Credibility for Forward-Looking Citizen Activists
- g) Causal Category Most Responsible for Low Credibility
- h) Importance of this wild card (for a balanced view of alternative futures).

For the convenience of *Technology Forecasting and Social Change* readers, a free online survey frame demonstrating this approach, done initially for the APF, has been left active. It can be inspected at: <http://www.surveymonkey.com/s/733WYCS>.¹²

This survey approach—either on general questions of overarching importance, or specifically oriented to a given area of organizational concern—can greatly extend the credibility and understanding of newly recognized Type II Wild Cards as yet generally unknown in society.

10. Reduction of stakeholder discounting

The pioneering work of deep ecology researcher and trainer of citizen activists for social change, Joanna Macy, may provide clues to a promising approach for reducing the problem of discounting especially critical Type II disruptors among stakeholders of importance—particularly individuals holding pivotal roles in organizations that deeply discount either the importance or the credibility of critical Type II Disruptive Surprises due to the impact that such an occurrence would have on the organization.

In her (1983) book, *Despair and Personal Power in the Nuclear Age* [27], Macy describes trying to mobilize a citizen activist movement to promote nuclear disarmament. When she began, Dr. Macy initially found that people were in such deep despair about the prospect of nuclear holocaust—thought to be a reasonably high probability at that time—that many had slipped into functional denial about the problem without really being aware of this. As such, they were effectively out of touch with any motivations for citizen activism toward nuclear disarmament. To counter this radically deep type of “discounting the future”, Macy developed a highly effective experiential workshop designed to help people get deeply in touch with such feelings, and to bring her workshop participants through “a turning” from *despair* to *personal power* for citizen activism.

Although despair is only one of many reasons for deeply discounting the importance of proactively responding to high probability future problems whose impacts would be catastrophic, Macy's work has considerable relevance for social change facilitation to reduce the level of discounting for specific Type II disruptive possibilities. Her (1998) book, *Coming Back to Life: Practices to Reconnect Our Lives, Our World* [28]; (2006) training DVD, *The Work That Reconnects* [29]; and personal/professional website [30], feature many books and training aids containing both theory and practical guidelines how such an approach could be effective at reducing what is here called “discounting” of ecological and related threats and opportunities. Much work is undoubtedly needed, however, on how to make such an approach “politically” acceptable to the prevailing leadership subcultures of our time.

¹² Please note that because the sample survey shown on this SurveyMonkey.com site was set up for futurists only, it asks for their estimated credibility for Forward-Looking Citizen Activists, etc. In other applications, it can be modified for two quite different purposes: 1. Surveying the actual views of different stakeholders; 2. Assessing the validity of futurist's views about other stakeholder's views.

A much more direct and confrontational approach is the approach recommended by the late citizen activist leader Bill Moyer and his colleagues in their (2002) *Doing Democracy: The MAP Model for Organizing Social Movements* [14], discussed above.

A third potentially useful approach could be that of “Motivational Interviewing”—said by the authors (Miller & Rollnick, 2002 [31]), to be an ideal way to “elicit client’s own arguments for change” Although originally developed for therapy with addictive disorders, further research might well successfully repurpose the approach for dealing with discounting behaviors that have strong short-term payoffs, but are very costly in the long-run—which behaviors certainly have many characteristics of addiction.

11. Identification of promising type II “mild cards” for sustainability-oriented reform

Dr. Katya Walter—the visionary researcher/author whose work is cited in Table 1—after reading an early draft report of this research, observed that:

“You need to balance your vision of a catastrophic wild-card path to a civilizational tipping point and beyond with a mild-card path to a soft landing from the epochal transformation that surely lies ahead, whatever the outcome may be. That way, your work as a futurist will more strongly lead to the good outcome than the bad. Otherwise, it may not”.

The path on Fig. 2 involving the best-case tipping point toward civilizational reformation and sustainability reflects this type of thinking, as did the pilot research question (posed to members of the Association of Professional Futurists), which explicitly emphasized “*Wild Cards that point to an as yet unrecognized “new paradigm” of sustainable well-being for humankind*”. About the only ones fitting this description were the four by APF member, Bob Hawkins, shown in Table 3.

By way of definitional comparison:

- Where *wild card* possibilities are expected to produce highly disruptive (and often negative) impacts if they occur;
- *Mild cards* would be about possibilities that are less disruptive and/or more benign, at least in the long run.

Considering historical examples such as the discovery of DDT for the eradication of malaria (mild card), also leading to the poisoning of the food chain (wild card); or the rise of the Internet for rapid and inexpensive communication (mild card), also leading to widespread computer viruses/malware/computerized financial theft (wild card), it is clear that mild cards can have wild cards as secondary impacts, which is what the whole futures research methodology called Technology Assessment was created to deal with [32].

In thinking about a practical and safe path to civilizational reformation in chaotic times, an important category of “Mild Card” is the emergence of wise, but quietly charismatic leaders, such as the fictional Malcolm Sean Essend, whose sage advice to leaders everywhere “saves” the Apocalyptic Transformation scenario in the classic alternative futures research study, *Seven Tomorrows: Toward a Voluntary History*, by Paul Hawken, Jay Ogilvy and Peter Schwartz [33].

Although a number of authors serve as contemporary examples of such “mild card” leadership, to attempt a review of them lies beyond the scope of this methodologically-oriented article. The documentation of such a list, however, is of great strategic value. An example is Paul Hawken’s work covered in Table 1. The book, *Blessed Unrest* [34], and the *WiserEarth Social Network for Sustainability* [35], he co-founded, are doing much to coordinate the emergence of numerous sustainability-oriented citizen activist groups of all types. The extraordinarily large number of these citizen activist initiatives is described by Hawken in an inspiring short speech now posted on *YouTube* [36].

It would also be of great value to have some type of Cooperative Clearing House—involving all sectors of futures work—academic, professional associations, consultancies, business, government and nonprofit organizations—to share intelligence on probable disruptive events, associated impacts and proactive policies that might be co-creatively envisioned and implemented.

12. A cooperative clearinghouse on STEEP surprises

As noted above, one of the results of the pilot test was the decision to mount a Cooperative Clearinghouse—hopefully involving all sectors of futures work: academic, professional associations, consultancies, business, government and nonprofit organizations—to share research results and news on STEEP drivers (trends, events, issues, and perceptual guiding images), especially as related to Type II phenomena, together with collateral information such as on impacts and proactive policies related thereto. As also discussed above, the name “wild card” is not ideal for this purpose; STEEP Surprises seeming to be far preferable. Thus, the proposed name: Cooperative Clearinghouse on STEEP Surprises.¹³

¹³ Michael Jackson, founding principal of Shaping Tomorrow suite of futures research and monitoring services, has volunteered to make his ShapingTomorrow.com platform [37], available for this purpose—free of charge to academic programs, faculty and students, and with customary fees for general nonprofit and commercial organizations. For more information on this initiative as it unfolds, and/or to become part of it, please inquire either to the author (oliver@owmarkley.org) or to Michael Jackson (shapingtomorrow@btopenworld.com).

12.1. Concluding summary

Although accurate forecasting of disruptive changes in complex social systems is usually not feasible, it is nevertheless both feasible and important to identify Type II STEEP surprises (a.k.a. wild cards, disruptive surprises, or disruptors), that knowledgeable experts see as having high probability of occurrence even though not generally believed—and to monitor changes in informed opinion about them, both as a risk management strategy and as the basis for cooperative development of citizen activist initiatives. But mere anticipation is insufficient if such prophetic warnings are ignored—which they frequently are [38].

In the analytic model proposed here, when a given Type II STEEP surprise (having high probability for knowledgeable experts but low credibility for most others), becomes sufficiently well known to be the basis for proposed policy changes, its credibility will probably be disputed, thereby signaling a transition to Type III. If a “critical mass” of acceptance emerges in the body politic (Type IV), the forecast attains the degree of legitimacy that demands some type of policy response. Thus, the periodic polling of “knowledgeable influentials”—such as selected futurists, citizen activists, and establishment leaders—regarding their perception of important Type II Wild Cards can be a significant path to improved intelligence on emerging disruptors of importance.

Two specific Type II STEEP surprises emerged in this research as having overarching importance for civilizational sustainability: one characterized as a worst-case alternative future possibility involving a tipping point toward collapse; and the other a best-case involving a tipping point toward reformation. It is recommended that a survey be made of multidisciplinary experts and citizen activists to uncover a wide range of “Mild Cards” (benign STEEP surprises), that could either help prevent significant civilizational deterioration approximating the worst case from happening, or help a “safe landing” emerge if it cannot be prevented.

Various reasons for low credibility of a Type II STEEP Surprises can exist. Of these, it seems apparent that lack of awareness (a.k.a. “passive disbelief”), is by far the most common. However, in this time of corporate dominated mass media, biased coverage of “news” dealing with civilizational sustainability (“virtual censorship”), is also quite common place, and is likely to prevent widespread knowledge of specific Type II Disruptive Surprises having enormous significance for the sustainability of civilization as we know it. For this reason if for no other, it is essential a cooperative clearing house be established to share intelligence on probable disruptive surprises and proactively responsive policies.

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