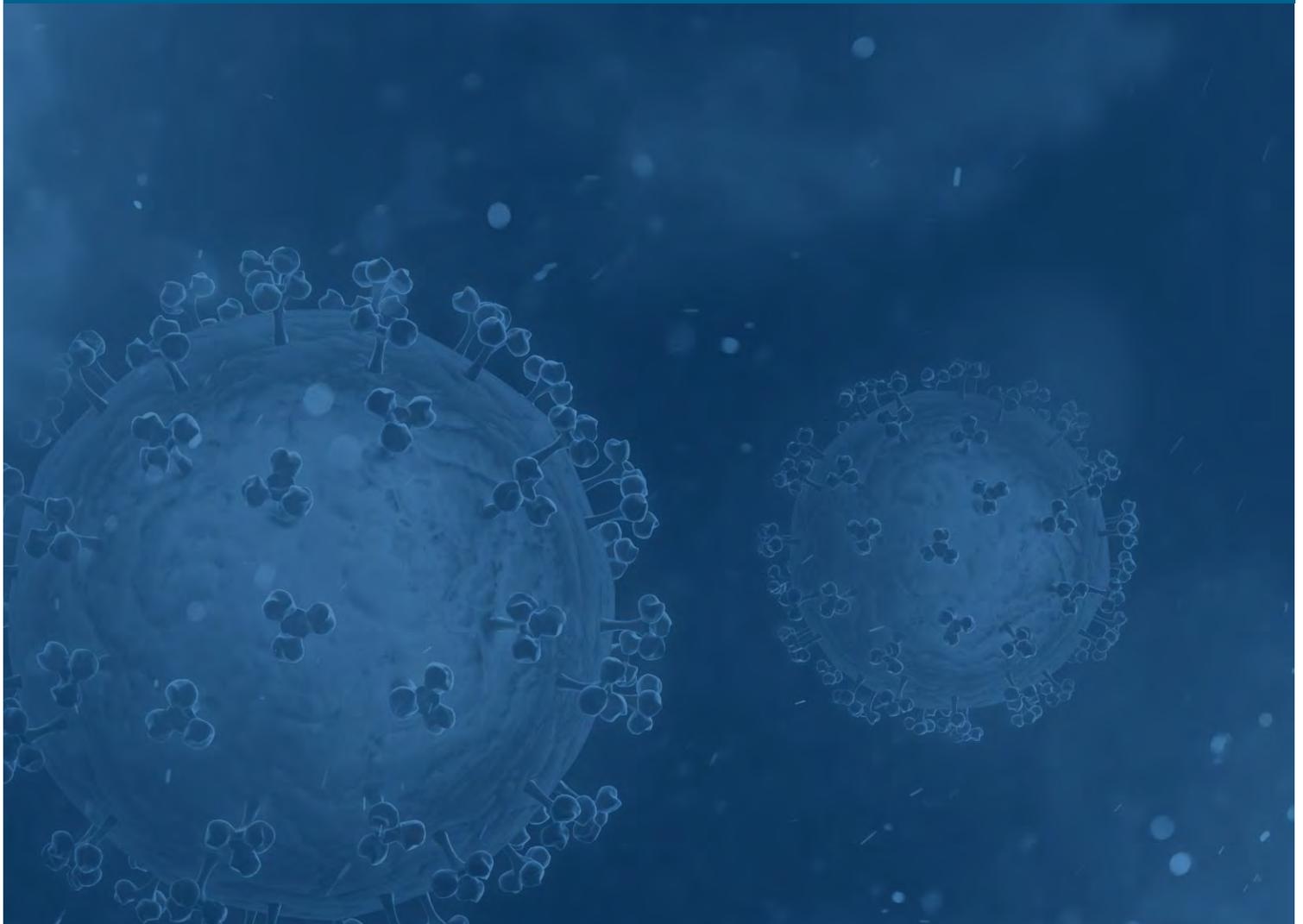


Resurrecting the White Swan Mindset





Resurrecting the White Swan Mindset

How much more can be forecast

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Resurrecting the White Swan Mindset

How much more can be forecast

1 EXECUTIVE SUMMARY:¹

The central argument of the monograph is that much more can be forecast using holistic approaches than is plausible using other methods like statistics, even about large-scale, large-impact and rare events/emergences (LSLIRE) that are often seen as being either unpredictable (Black Swans) or the most difficult kinds of events or emergences to forecast. The author guides the reader through four such emergence forecasting problems – the schema of building this globalization, this schema of uniting Europe, four comparative COVID-19 management schema, and the current United Nations recasting of who can be sovereign, with its large impacts on future uncertainty and risk involving country development, globalization and investments in the same.

These schema (an idea and its necessary actions to achieve it) are assessed as those with good hindsight conditions (prior unsuccessful efforts at globalization and uniting Europe), those with partial hindsight conditions (COVID-19 management by different societies) and those with a no hindsight condition (the present reconsideration of who can be a ‘sovereign’ in the sense of having legitimate control of lands, resources and peoples, and decisions about them. The hindsight-to-insight-to-foresight building issue is that one can only draw on valid analogy from conditions about which one has experience.

The monograph walks the reader through the hindsight, insight and foresight building process while discussing theoretical and practical issues supporting the building of valid forecasts with provenance for each of these schema examples. That is, the analyst can document the iterative ‘profiling change processes’ mindscape and landscape elements by which and through which the successful forecast is built. This kind of forecast construction ameliorates the ‘black box’ problem of generating pattern output without an understanding of the pattern’s creation or contextual meaning that is often seen when using other methods, particularly machine learning and artificial intelligence. This issue is discussed, referencing appropriate thought leaders.

This judgment with provenance result in large part possible because integrative holistic methods do not prejudge what information, variables or emerging patterns are relevant to making a valid judgment and forecast about this specific schema (this globalization effort, this uniting Europe effort, managing COVID-19 in differing societies), but rely on a passive and context-specific iterative folding-in and layering-up approach toward seen arising empirical data that is guided, when plausible, by experience.

The author introduces methods of integrative, or holistic, forecasting that can be used to better assess change within different kinds of complex adaptive human-involved systems. The monograph discusses the landscape and mindscape requirements for the analyst that are necessary for accomplishing ‘good enough’ forecasting within and among these differing complex, adaptive human-involved systems by using a socio-psychological grounding on the premise that many facts and conditions change, but how different groups and societies are arranged and how they think – custom, habit, tradition, laws, institutions and so forth – remains relatively stable, thus limiting and shaping how they act. This socio-psychological grounding can be more reliably forecast from and has the merit of being

¹ The primary author of this paper is Dr. Guntram Werther. Max Rudolph acts as an interpreter for actuaries and is the author of the sections at the end of each chapter titled *An Actuary’s View*. Within the paper, when Dr. Werther occasionally refers to the author’s experience he is referring to his lifetime of study of this subject.

context-specific to this society addressing this schema at this time – it is not general or statistically for-the-most-part-true kind of thinking for this specific societal context being forecast about.

Finally, the monograph addresses the issue of how to accurately judge and forecast about complex schema like globalization, uniting Europe or differently managing COVID-19 given the huge complexity of each schema and the impossibility of having or understanding all the relevant data. How can integrative holistic assessment be managed in such circumstances? The author provides an answer.

One benefit of this approach is that it allows the analyst to ‘see’ emergence much earlier than is possible with other methods. That is, the forecaster can beat the ‘herd’ and provide a traceable argument for the forecast: provenance. This mitigates the ‘its luck’ criticism often directed at persons who were correct early or otherwise beat the herd.

In sum, the monograph presents a way of building ‘good enough’ forecasts with provenance about different kinds of large-scale, large-impact and rare event/emergence changes.

1.1 AN ACTUARY’S VIEW:

Scenario planning does not involve making predictions, but previous experiences combined with thoughtful qualitative analysis can help identify when something is similar to a historical event and how it was responded to at that time. Dr. Werther’s COVID-19 example is a highlight for me because I have been working on pandemics for many years yet had not identified the consistent reaction.²

Each time in history is unique but there are similarities. By paying attention the actuary can identify discontinuities earlier than others, providing a competitive advantage. Some conditions cycle or mean revert, while others generate feedback loops and reach tipping points. Interactions between variables lead to higher order effects and unknown knowns, where historical data is not predictive.

Actuaries should seek out and teach skill sets with long time horizons and encourage those who seek out those with differing viewpoints and experience. By using foresight to proactively prepare we can provide value as we build resilience.

1.2 SETTING THE STAGE WITH SOME OPENING QUOTES:

“There are two kinds of forecasters: those who don’t know, and those who don’t know they don’t know.” (John Kenneth Galbraith quoted by Burton G. Malkiel and Atanu Saha).¹

“...Ticknor is very worried by the nature of public affairs in America. He thinks that during the administration of Buchanan, the breakup will be forestalled and the explosion suppressed, but that, with the election of 1860, the dikes will be breached and a deluge of blood will cover the North as well as the South.” (Adolphe de Circourt to Alexis de Tocqueville, letter of November 4, 1856).³

² Rudolph, Max J. *Influenza Pandemics: Are we ready for the next one? What actuaries can learn from 1918*. Risk Management. July 2004. Society of Actuaries. <https://www.soa.org/globalassets/assets/library/newsletters/risk-management-newsletter/2004/july/rm-2004-iss02-rudolph.pdf>

³ Craitu, Aurelian and Jeremy Jennings, Eds. *Tocqueville on America After 1840*. Cambridge: Cambridge University Press. 336-337.

“In Europe, people are beginning to believe that you are not far from the time when you (in the United States) will separate yourselves from one another.” (Alexis de Tocqueville to Theodore Sedgewick, letter of August 29, 1856).⁴

On experts and their predictions - Empty-suit problem – “Some professions have no differential abilities from the rest of the population, but for some reason, and against their empirical records, are believed to be experts” (Taleb, 2007).⁵

“More to the point, if teaching and executing effective forecasting of complex events and change were impossible, whether due to the difficult, ever-changing complexity of the world, due to an inherent lack of human capacity to predict complex events well or due to a philosophical and empirical claim that unpredictable Black Swans order the world, it would be difficult to explain why, for example, particular stock analysts, using the same tools and information broadly available to competitors, can achieve “Best on the Street” status six, seven or eight times each within a career and do so even in very unsettled times.”

“Throughout history, some people have been recognized as better analysts and forecasters of emerging human events than others. They show particular characteristics.” (Werther, G., with Thomas Herget. 2013. pp. 8).⁶

“Seer of evil: never yet have you told me a good thing...” Atreus, son of King Agamemnon to Kalchas (the Seer), who had just told him a future he did not like.⁷

⁴ Ibid. pp. 182.

⁵ Taleb, Nassim. 2007. *The Black Swan: The Impact of the Highly Improbable*. New York: Random House.

⁶ Werther, Guntram, with Thomas G. Herget. 2013. *Recognizing When Black Swans Aren't: Holistically Training Management to Better Recognize, Assess and Respond to Emerging Extreme Events*. Schaumburg, IL. Society of Actuaries, pp.8.

⁷ Homer. 1976. *The Iliad of Homer*. Richard Lattimore, trans. Chicago: The University of Chicago Press, p. 62.

2 INTRODUCTION:

2.1 FOR WHOM IS THIS MONOGRAPH WRITTEN?

For actuaries, risk managers, insurance and financial professionals who may be far better at their profession's necessary mathematical and technical skillsets than they are at equally necessary multi-disciplinary, integrative, historically and culturally informed, oft qualitative and context-specific aspects of foreseeing and forecasting normal to extreme (rare event) change within and among different complex adaptive human-involved systems (real groups, cultures, societies, countries and so forth).

The authors want this monograph to be useful.

For that reason, most conceptual and theoretical discussions are either merely referenced or placed in an appendix. Similarly, since you ought not listen to someone who cannot do what they are discussing, some examples, suggested by the Society of Actuaries (SOA) project oversight group, of prior author foresight-come-true are placed as support within appendices.⁸ The authors chose other within-text exemplar topics that are hopefully worthy of better foresight.

Although the main author, Guntram Werther, has addressed and advised each of the target practice communities by invitation for several years about doing better forecasting, plus many Fortune 100 technology and resource firms, major political, military, intelligence, police and other practice communities for over two decades prior, this author is not a member to any of them. For that reason, Max Rudolph, a credentialed actuary who has completed numerous research projects of his own, is a co-author whose first task is to bring Guntram Werther's writing style, use of terms, choice of topics, examples and narratives on assessment approaches closer to actuarial norms and ways of understanding. Max Rudolph's second main function is to act as an in-text critic and commentator, adding value via agreement, translation or disagreement to discussions via his own sections of text. The authors see the integrative methods discussed herein as an adjunct to, not a replacement for, the professional assessment practices and tools presently in use. If you can forecast emerging change effectively already by using them, you probably do not need this monograph.

This monograph uses a conversational tone, eschewing formal and specialty language. The authors want this conversation to be accessible across many communities of practice. Therefore, using the externally incomprehensible, and often impenetrable, terminology of any one discipline or profession is not desirable. Second, integrative assessment leading to valid foresight and forecasting is by its nature nonconforming to many of the norms of modern professional practice: it uses experiential accretion, iteration, folding-in, layering-up, synthesis, syncretism and more for its toolkit agenda, not more modeling, machine learning, artificial intelligence, big data, total information management or whatever.

Here is why. Almost two centuries ago, during a five-mile-per-hour information age that was overloaded with false and incomplete information, individuals correctly forecast the outbreak of the U. S. Civil War nearly to the day and as to its cause from five years prior (a good rarest of rare-events forecast, surely). Most moderns, having at their disposal all the advanced tools in the various information management and assessment toolkits across all professions, did not foresee a long-building backlash to globalization with its rising anti-immigration, anti-mainstream parties and nationalist sentiments. Most did not foresee BREXIT or the election of Mr. Trump and other nationalists, while aspects of these professions claimed that effective forecasting is impossible in our 'complex'

⁸ These are limited to documented comments in either publications or presentations to major corporations and governments.

world. We have a problem. Neither the former 1860's large-scale, large-impact rare event (LSLIRE)⁹ nor any of the present ones arose unseen.

2.2 WHY SHOULD YOU READ THIS MONOGRAPH?

The 'nobody could have seen that coming' excuse is wearing thin - especially because someone usually did - as more organizations and professions recast merit and compensation rules to reward people who can foresee change better than their peers and can act more effectively regarding that foreseen change. Serially failing with the herd is becoming passé.

Second, if, as an analyst, forecaster, or advisor, you cannot beat the ever-better machine or the market there is one less good reason to grant high status and high salary.

Foresight and forecasting have been prominent themes in the thoughts and writings of every human epoch and across all societies within those times that the author has investigated. Therefore, it seems strange that in our present time, when we have far more information, plus better technology for storing and assessing it, that the *human* skills of forecasting and making sense of complexity and change is so often dismissed, even deprecated. Nassim Taleb calls correct forecasters "empty suits" that are at best lucky.¹⁰ In his later book *Antifragile: Things That Gain from Disorder*, Taleb proposes rebuilding societies, "to modify our man-made systems to let the simple – and natural- take their course."¹¹ How, one might ask, did humanity, which is fundamentally a forecasting species, and its societies, that are differing solution sets for the problems of survival and goal attainment in particular conditions, go so far for so long on nothing but luck? More to the point, why have civilizations, cultures, rules, societal ways and people who assess their likely futures if the optimal condition is to "let the simple – and natural – take their [its] course"?

Burton Malkiel, in his 2007 *A Random Walk Down Wall Street: The Time-Tested Strategy for Successful Investing*, still writes that "short-run changes in stock prices cannot be predicted" (his famous Chimp throwing darts optic) and yet also terms himself "a lifelong investor and successful participant in the market. How successful I will not say...." with many follow-on comments about how to do more successful market-beating practices. Of the possibility of forecasting in a "random walk" type market Malkiel eventually writes that *his* "moderate long-range estimates...are the most reasonable ones that can be made for investment planning *decades into the twenty-first century* (emphasis added)."¹² "His view of these "most reasonable...Moderate to long-range estimates" sounds like a decidedly non-random forecast reaching far into the future to this author. This advisory judgment about success in what are presumed random-walk markets is a far cry too from the December 31, 2019 *Wall Street Journal* sentiment quoted above about the self-awareness of forecasters in general. Nate Silver offers a conceptually more consistent foresight position about "why so many predictions fail - but some don't."¹³ Some systems are better understood, thus easier to forecast about, and some people better understand the limits to knowing about each kind of system, points Aristotle made centuries ago with his comment on having a "trained mind".¹⁴

The segue from these few initial quotes to our topic of changing our mindset and training the mind to better foresee and forecast is offered both to 1) concisely show that we humans have been going about this forecasting effort for a long while as a species-level attribute that has worked well enough to get us to the present day and 2) that some

⁹ Note: In prior work the author used LSLIRE as an acronym ending in 'event' but spoke of their emergences dynamically. As is discussed later, a LSLIRE can be a discrete event but is usually better seen as an emergence.

¹⁰ Taleb, Nassim. 2007. *The Black Swan: The Impact of the Highly Improbable*. New York: Random house.

¹¹ Taleb, Nassim. 2012. *Antifragile: things that Gain From Disorder*. New York: Random house, p. 11.

¹² Malkiel, Burton. 2007. *A Random Walk Down Wall Street: The Time-Tested Strategy for Successful Investing*. New York: W. W. Norton & Company; Especially pages 328, 371-373. Note to the non-random tone of the subtitle: "the time-tested strategy for successful investing."

¹³ Silver, Nate. 2012. *The Signal and the Noise: why so many predictions fail – but some don't*. New York: The Penguin Press.

¹⁴ Aristotle. 1983. *The Ethics of Aristotle: The Nicomachean Ethics*. J. A. K. Thomson, trans. New York: Penguin Classics, p. 65.

people are always better at doing it than others. In an earlier work I termed this condition a “taught skill within a found talent.”¹⁵ How can an individual improve their skillset?

This monograph addresses what a White Swan (can do) mindset is about because this author thinks that an acceptance of the ‘it’s impossible’ forecasting stance is a too-convenient excuse for accepting failure that is empirically inconsistent with much human experience and is also a professional road to nowhere.

If our response to life and change were random, humans wouldn’t last a week. Daily life is successful ‘good enough’ forecasting. A White Swan thinking mindset is, as an opposite to a Black Swan mindset, the view that much can be forecast, and that humanity has been doing it ‘good enough’ for millennia.

Different societies create differing solutions to their problems of survival and patterns for the attainment of goals that are, as Peter Wells states it, “not random but reflect the fundamental character of societies.”¹⁶ The author will show, through some examples, how this non-random conditional patterning helps us better assess change and forecast even large-scale, large-impact rare events/emergences (LSLIRE). For example, the United States of America, Israel, Iceland and Japan are different countries enfolded differing values, customs, institutions and societal ways which the author shows manifests in their differing, and foreseeable, choices in how they choose to manage the COVID-19 crisis. This kind of non-random difference in chosen behavior is what Peter Wells is referencing and is what can be used to build better judgments, even of behavior during and after crisis emergences.

Max Rudolph will provide “*An Actuaries View*” commentary as the authors move along in this discussion.

2.3 LIMITATIONS:

The task is to foster a better mindset useful for good integrative foresight and forecasting, but one cannot integrate what one does not know. Because of author knowledge limitations, this monograph deals only with hindsight, insight, foresight and forecasting issues within and among different, and differently, complexly adaptive human-involved systems: groups, firms & organizations, societies and countries. It does not address change foresight and forecasting of natural systems: earthquakes, climate, etc. Some of the issues discussed herein may apply to the latter. This is outside the boundaries of competence of the author. Certainly, natural systems’ change can impact human action. The author simply has not studied natural systems’ forecasting deeply and so leaves addressing how to others.

The examples and foci are large-scale, large-impact and rare events/emergences. The reason is that these are presumed to be the most difficult to foresee and correctly forecast. The position is that if one can do well in this most-difficult realm then more routine forecasts are doable too.

2.4 WHY GOOD LSLIRE FORESIGHT IN AND AMONG COMPLEX HUMAN SYSTEMS IS POSSIBLE:

Foreseeing human systems’ change seems hard, yet most individuals and groups negotiate within their native or familiar systems-of-change daily, monthly, yearly in ways that are mostly ‘good enough.’¹⁷ More to the point, foreigners negotiate change within their familiar systems, but we probably do not do well within theirs or they in ours. Neither they nor we are likely to forecast or negotiate change well in systems that are unfamiliar. This observation draws attention to the value of having (or not) Daniel Kahneman’s chess metaphor reflecting long

¹⁵ Werther, Guntram. 2008. *Holistic Integrative Analysis of International Change: A Commentary on Teaching Emergent Futures*. Carlisle, PA: National Intelligence University, Office of the Director of National Intelligence and the U. S. Army War College Center For Strategic Leadership. Proteus Monograph Series Vol. 1, No. 3., p. 1.

¹⁶ Wells, Peter. 2012. *How Ancient Europeans Saw the World*. Princeton: Princeton University Press, p. 15.

¹⁷ Note – the concept of ‘good enough’ comes from the parenting literature where the observation is that no parent, like no forecast, is likely to be perfect but that is not necessary because most can be ‘good enough’ to raise a child to functional adulthood. Human judgment need not be perfect, just good enough. This is discussed more as it applies to forecasting, further on.

“experience of the board”,¹⁸ of possessing accumulated and context-specific learning, knowledge of the culture, traditions, habits, constraints and logics of different *ways* of being and doing things. If we want to foresee how two or more different systems might interact, we need to know their likely respective ways of going about their business, how they are embedded and entangled – little of which knowledge is random or unknowable.

If individuals and societies do manage foresight and change to a useful degree daily, and mostly well enough over longer periods within their life’s familiar areas, how is it that various professionals, even professions, can support a thesis which claims that change foresight is impossible? How could this view persist in the first place?

The author regards the ‘impossible to forecast’ view as a catastrophe of modern thought tied to three *choices* that are perhaps unique aspects to our modern time.

1. The first is a chosen overreliance on tools. Before we had great tools, we had to fit things together from among what experience and scant information was available and then puzzle the future out. Noticing, puzzling, integrating and story building seem like degraded skills in our increasingly tech-centered professional worlds. Philip Tetlock, studying individual forecast ability, found that specialized expertise, even with access to classified information, was negatively associated with forming good judgments and that those people with the broad skills of gatherers were the best event forecasters.¹⁹ This author has approached the judgment enterprise slightly differently. Gathering presumes getting, and getting presumes information about knowing what to get. That mindset is fine within Nate Silver’s well-understood systems, but not useful and more likely to lead one astray in the realms where large-scale, large impact events or emergencies are. Here, a more passive noticing (not getting) and iterative folding in, layering up and synthesizing judgment-building procedure is discussed.
2. The second choice was favoring very specialized professional education (which is necessary for work in and forecasting within isolated systems) for too many people. When applied to judging broad-spectrum, real world conditions, which are anything but single-field specialized or disciplinarily isolated, this is probably a poor career, and definitely a poor foresight building, choice. Here the author entirely agrees with Tetlock and with the many ancients who long ago made the same point.
3. The third choice was sidelining generalists, and in academics particularly, practical people and doers in favor of specialists and theory-builders. The point was previously introduced. This state of affairs seems to be changing somewhat with the rise of ‘translational’ research agendas in academia.

Generalist integrators, synthesizers and syncretic thinkers are favored in foresight, especially LSLIRE foresight. That view is different from Tetlock’s ‘gatherers’ for reasons to be discussed more fully.

The point is that if the world is complex, then to accomplish a goal by implementing an idea, one needs to be able to build a path, meaning any one specific path, necessary to success. As Immanuel Kant and others would say – find the thread that ties it together. This, for Kant, is the function of the judgment, which necessarily is what links an idea to the empirical information. This linking of an idea to the empirical is termed building “thread” or “string” or “way” by various thinkers and is critical to building both holistic foresight understanding with provenance and a valid forecast in complex conditions. The author will use the necessity of building at least one falsifiable ‘way’ or ‘path’ that plausibly links a specific idea being implemented to empirically assessable conditions needed for its realization to build a LSLIRE judgment.

¹⁸ Kahneman, Daniel. 2011. *Thinking Fast and Slow*. New York: Farrar, Straus and Giroux.

¹⁹ Op. Cit.. Silver. p. 54.

The author forecasts about specific large-scale, large-impact ideas being implemented, called schema, in this holistic way, not about some inchoate future. If one cannot falsify the schema and build a forecast with provenance, we are not doing the assessment. How to do both is the focus of this discussion.

The author thinks we hurt ourselves by making these above described societal choices. The solution seems fairly obvious.

2.5 AN EMERGING REACTION ACROSS MANY PROFESSIONS:

In the author's profession of academic business research, an evaluation noting that the average 'A' level academic journal article costs \$400,000 to produce, is read by virtually nobody and has, typically, no practical application to actual business is concentrating some minds. Two largely parallel and non-interacting universes of academic and business practice journals exist, the former managed, peer-reviewed, edited and read almost exclusively by academics. The other universe, being practical, writes mostly with and for practitioners and is therefore less well regarded in academic merit and promotion decisions. This situation has persisted, even hardened, for decades.²⁰

Fortunately here, money, as is common, still talks.

Some business school managements, noticing the prior decline in liberal arts and social science financial support and of graduate/practitioner job prospects tied to perceived product irrelevance, the near death of the MBA,²¹ and other ominous trends, recently decided that being more useful to practitioners is a good thing.

The main professional certifying organization for business academics, AACSB,²² is reordering certification metrics to be more inclusive of people with practical research impacts and more than a few schools are now fostering translational research with commensurate changes in faculty evaluation.²³ Translational is research that translates into value added for professional practitioners.²⁴ Doing this involves leaving academic stovepipes to provide real-world solutions just as many businesses are searching for new kinds of solutions after their stovepipes and procedures caused past foresight failures and business failures. This seems a welcome academic change, as previously mentioned, in a practical world where risk management already considers silo risk and ERM already considers interaction among silos.

The parallel to be drawn for the practice world is that being comfortable within one's specialty while not adding much value to real-world practice is wearing thin across multiple realms.

In response to oft-spectacular failures to foresee and act effectively to change, integrative and holistic assessment and practice is now a common implementation theme of C-level presentations and in changing organizational practice. Holistic and integrative were almost sideshow cult terms a decade or two ago, and during the long prior years when specialization, if not hyper-specialization, ruled. Results followed.

At a recent Harvard Law School event featuring board of director level attendance from the largest retirement funds, an Oxford professor showed that their highly compensated expert financial advisors added -0.5% to fund

²⁰ Byrne, John A. *Cost of An Academic Article: \$400K. Poets and Quants*, <https://poetsandquants.com/2014/07/16/the-shockingly-high-cost-of-an-academic-article-400k/>

²¹ Some major business schools cannot fill MBA programs for free. Gee, Kelsey. *A free M.B.A. Sometimes Isn't Enough to Lure Students*. Sept. 4, 2019; <https://www.wsj.com/articles/a-free-m-b-a-sometimes-isnt-enough-to-lure-students-11567598401>; Last Viewed May 26, 2021; By 2019 the degree was in trouble. Byrne, John. *It's Official – The M.B.A. Degree is In Crisis*, Forbes. August 20, 2019; <https://www.forbes.com/sites/poetsandquants/2019/08/20/its-official-the-mba-degree-is-in-crisis/?sh=8109ec652df7>; Last Uploaded May 26, 2021;

²² Association to Advance Collegiate Schools of Business

²³ Werther, G., 2019. *Achieving a Better Balance: Building the 'Translational' Business School and University*. Journal of Education Advancement and Marketing. Henry Stewart. ,Vol. 3, No. 4. 310-315. Spring 2019.

²⁴ In 2019 the author received The Fox School of Business School's first ever 'translational research excellence award' with four parallel merit pay awards.

value after fees when compared to overall market performance – they underperformed the market by half a percent after their fees were factored in. One could cast this as being merely the state of the discipline and let it be. The directors did not. Director talk of changing fees, evaluation procedures and expert retention followed.²⁵ This ongoing discussion about status, fees and performance is not an aberration limited to one discipline.

Similarly, in intelligence, risk management, finance and banking, insurance and actuarial science this author has noticed a recent trend toward shifting each area's practice to be more integrative and holistic with a particular effort toward getting better at generating useful foresight. Within intelligence, this effort increased after 9/11, including the creation of fusion centers.²⁶ In business, the financial crisis after 2008, the political backlashes fostering BREXIT, Euro-nationalism amid spreading populisms, left and right, and the election of President Trump all seem to have concentrated some business and professional minds as to the weaknesses of existing foresight and forecasting procedures and regarding the training of their practitioners. Likely COVID-19 related foresight and judgment failures have not added confidence.

The actuarial profession, especially the SOA and Casualty Actuarial Society (CAS), are moving to the forefront of this discussion, having in recent years facilitated many programs and some publications designed to make actuaries better at forecasting change in and among complex adaptive systems, especially improving large scale, large impact, rare event foresight. This is procedurally uncomfortable because training and certification agendas are full and change challenges existing expertise, reputation and accomplishment. Never-the-less, the author believes that the '*nobody could have seen that coming*' excuse is losing ground as a professionally acceptable statement and defense, or as a professional position for claiming high status, pay and other rewards.

It seems a fair conclusion that the move toward fostering more integrative and holistic practice, better foresight and concomitant changing reward arrangements for professional practice within and across many disciplines is broad and sustained. Similar shifts in values are happening broadly across government²⁷ and business.²⁸

The practical implication of all this for early career-to-experienced analysts and risk practitioners is that becoming better at these integrative, holistic and foresight/forecasting skills is an emerging career survival strategy. Markets reward the rare, useful and value-adding talent. Such talents are on the up elevator for pay and status. Those who cannot beat the market or the machine, who are common and thus more easily replaceable, are on the down elevator for pay and status.

The SOA sponsored this monograph as a way of helping actuaries and risk managers build these integrative and holistic skills within a doing better foresight theme as an adjunct to a professional's existing excellences. The monograph aims to be serially practical, helping readers build up their skills in stepwise fashion.

There are three major aspects of the thinking framework: hindsight, insight and foresight. With introduction, forecasting and conclusion, these make the six chapters of the document. As is the iterative and integrative nature of the synthetic thinking task the authors circle back as the discussion moves forward. The authors will look at the same exemplar themes in their hindsight, insight and foresight aspects and extract lessons that are useful to getting better at doing forecasting. As was said in the beginning, this effort in no way intends to replace existing tools and

²⁵ Werther, Guntram. Harvard Pensions Conference, Invited Expert: *Swan Song for Retirement Funds*, Harvard Law School: Boston, MA, May 9, 2014;

²⁶ Werther, G. 2013. *Fusion Centers and Beyond in Homeland Security and Intelligence*. Keith Logan, Ed. Santa Barbara, California: Praeger Security International. Pp: 204-215.

²⁷ In the intelligence community, as in the military, far more open and societally engaged research and practice arrangements are now the norm.

²⁸ See, for example, The Munger Program integrated housing at the University of Michigan. <https://housing.umich.edu/residence-hall/munger/>; Last Accessed May 26, 2021;

professional excellences. The hope is to add to the toolkit some of what was lost through modern educational and professional choices and practices.

2.6 AN ACTUARY'S VIEW:

To help “make this monograph useful,” I (Max Rudolph) will be providing ongoing commentary designed to focus the actuarial reader on ways the techniques described by Dr. Werther apply to our profession.

Actuaries have developed many valuable technical tools, including models and rule of thumb assumptions, that are being challenged by those who can create statistical models or predictive analytics. A skill set that includes how to make better decisions based on these tools will allow the profession to retain its high status and historically high levels of pay.

We must add value to earn this status, moving beyond the efficient market theory to show how and why current beliefs will not optimize results or provide resiliency.

This monograph will show how the technical acumen of actuaries provides a base that forecasting techniques can build on to broaden knowledge using mental models, a latticework of information often gained at least partially through experience. Some will see similarities with value investing or enterprise risk management that balance risks and rewards to develop a value tied to contingent future events, often considered to be the key skill set of the actuarial profession. By using holistic analysis and building confidence in making decisions and extending time horizons, better results can occur.

Forecasting is hard because it goes beyond silo results, including higher order interactions between risks and aggregating them. Many government policies and geopolitical realities tend to cycle, and emerging risks always lay just around the corner. Many assumptions mean revert, while others move far away from a steady state result, leading to what is called a Minsky Moment when bubbles are recognized and burst. Historical practices work, until they don't. This is reflected in Ernest Hemingway's famous line from *The Sun Also Rises*.²⁹ “How did you go bankrupt? Gradually, then suddenly.” The goal of this monograph is to provide foresight so you can proactively prepare and build resilience.

Developing a defensible process the actuary has confidence in will improve prospects for the profession and those individuals who practice it.

Peter Bernstein often said it best. *“The very idea that a forecaster can spin a bunch of outcomes whose probabilities add up to 100 percent is a kind of hubris. Risk means that more things can happen than will happen, which in turn means that the scenarios we spin will never add up to 100 percent of the future possibilities except as a matter of luck. Like it or not, the unimaginable outcomes are the ones that make the biggest spread between expected asset returns and the actual result.”*³⁰ I met Mr. Bernstein once, and asked him to sign a baseball. He wrote, *“Here's to home runs, the outliers.”* I cherish this keepsake because his comment clarified the importance of focusing on the tail of a distribution and find the assumptions and events that matter. That's what this monograph is trying to do!

²⁹ Hemingway, Ernest. *The Sun Also Rises*. 1926. Scribner's.

³⁰ Bernstein, Peter L. *Forecasting: Fables, Failures, and Futures – Continued*. Economics and Portfolio Strategy. November 15, 2002. Page 5.

3 INTRODUCING THE MINDSCAPE AND LANDSCAPE OF THE MONOGRAPH

3.1 NECESSARY MINDSCAPE AND LANDSCAPE PRELIMINARIES:

It is initially useful to discuss how holistic assessment, and forecasting judgment based upon it, is conceptually and operationally grounded. Part of this task is to show how holistic forecasting mindscape approaches are grounded differently from both mathematical (modeling, artificial intelligence, big data, and others) forecasting approaches and also from the usual expert opinion approaches, and why that matters for solving extant problems around producing valid forecasts within and among human systems.

The monograph primarily focuses upon the task of better foreseeing, and then forecasting, significant emerging rare events (in the author’s phrasing, large-scale, large impact rare events/emergences – LSLIRE’s).³¹ LSLIRE kinds of emergences are among the most difficult to judge well using current actuarial and risk assessment methods. This makes them excellent discussion topics for fostering improvement.

The monograph’s exemplars show that hard-to-foresee LSLIRE emergences can be better illuminated, then forecast about, by adding holistic approaches to the analyst’s toolkit. A derivative claim is that often non-rare and more routine emergences can be better forecast too using holistic approaches. Extant techniques often fail to forecast even routine kinds of emergences just when a ‘good enough’ forecast is needed most: when something foundational in the landscape has changed. Forecasting the outcomes of recent ‘routine’ elections poorly in the U.S. seems a good example of this kind of failure.

There is no claim that holistic approaches ought to replace anything: quite the opposite. Well-grounded holistic assessment is a useful adjunct to standard tools precisely because the various and varying outputs of many differing standard tools, and of non-standard judgments, are thereby incorporated into a broad holistic assessment as a matter of definition. Often, grounded holistic breadth better highlights quite early the emerging path that is missed by each individual standard technique, or by ungrounded combinations of them (taking an average of averages and similar coagulations). Once the emergence is noticed, standard tools can perhaps then be applied with more focus. Even so, continuing holistic assessment is useful.

The proof of the last two paragraphs lies in the too-frequent experience that individual experts, different modelers and other users of advanced machine-driven methods alike fail to foresee, hence do not forecast, LSLIRE type emergences even when this particular emergence pattern or outcome was percolating in plain sight for many years.³² It is a problem of recognition more than one of accuracy and precision. Standard risk and forecasting methods can be best at doing the latter in most circumstances while being simultaneously bad at recognition as change happens.

A retrospective conclusion is then sometimes wrongly reached that *this* LSLIRE could not have been foreseen (recognized). The impossibility claim is even made when retrospect analysis shows that someone did foresee the emergence and was ignored.

A common defensive charge from unsuccessful practitioners leveled against out-of-consensus successful practitioners is that of hindsight bias or luck. To counter that charge one needs to explain the logical and empirical

³¹ Note: Originally, in responding to Nassim Taleb’s book, the author retained the “event” wording even though the profiling change processes approach the author discussed is dynamically “emergence” based. In this monograph, the author retains the LSLIRE phrasing but means emergence more than event, a matter that is discussed in detail later.

³² Note: The experience of the 2008-2009 era U.S. financial collapse, where thousands of models and experts failed to forecast the LSLIRE that would start in that year while daily stories of a housing bubble appeared in many media, is one example.

development of the correct forecast. The forecast's provenance, introduced more within the Hindsight Chapter and carried forward in others, is central.

A comment about holistic recognition: holism iteratively synthesizes and reassesses a wide variety of information of differing accuracy and precision, so its conclusions tend toward the middle range of both. The biggest advantage is recognition, not accuracy (being on target) or precision (having a tight grouping of judgments). For example, this author, in assessing the likely success of this globalization schema across the many dynamics of coming change, talked very early about a variety of building backlashes, including the increased building of border walls. In the beginning, there were about seven countries with border walls. Now there are over 70, and more building. This partial contributory assessment would have been "good enough" had there been in the end 40, 50, 60, 100...instead of above 70 walls to be synthesized with the many other changes impacting this globalization schema. There are ways to tighten timing judgments and precision/accuracy items post recognition, but none the author knows of without achieving recognition.

If a person falls from an airplane traveling at unknown speed, direction and height on a very stormy day, one can come to 'good enough' recognition of that emerging outcome despite imprecision and inaccuracy about many contributory micro- and macro- factors.

While not determinative in such a basic physics-in-action way, when globalization and its subsidiary schema, uniting Europe, has been unsuccessfully tried several times across millennia under differing conditional 'weathers', doing holistic inquiry makes sense. There are schema requirements for success that interact with many visible changes and dynamics which together conditionally shape the 'good enough' forecast.

3.2 AVOIDING THE 'BLACK BOX' FORECAST:

Explaining the development of a forecast is a generic defect of mathematical approaches for two kinds of reasons. The first kind is simply that mathematics is not an empirically grounded science but rather a realm of non-empirically grounded reasoning that can sometimes be used in scientific – by definition, empirically grounded - inquiries.

A 2020 *RiskMinds* article states the second kind of mathematical - hence machine learning, artificial intelligence and modeler's - *explanation* problem thusly:

"One is that the most powerful models are too complicated for anyone to comprehend or explain. For instance, a deep neural network is highly flexible — it can learn very intricate patterns — but it is essentially a "black box" that no one can look inside of. Conversely, more transparent models, like linear regression, are typically too restrictive to be useful.

There is a trade-off between flexibility and explainability in conventional machine learning.

"A second big problem is that the more powerful learning algorithms, while amazingly successful in artificial environments like board games, often fail in real-world, dynamic, low signal-to-noise environments — such as financial markets or commercial sectors. This is because they "overfit" to past correlations, which may break down in the future."³³

³³ causaLens. *Truly Explainable AI: Putting the "Cause" in "Because."* RiskMinds. 06 October 2020; https://informaconnect.com/truly-explainable-ai-putting-the-cause-in-because/?utm_medium=email&utm_campaign=Content%2F%20QuantMinds%2F%20Oct%202020&utm_source=QuantMinds&user_id=900062984323&tr

Fifth, it must not over-fit patterns from hindsight. Whereas many mathematical and statistical methods pre-select variables and/or are black box in their calculating and ideational operations holistic assessment and forecasting does and is neither. Recall that the approach is passive as opposed to ‘getting’ with respect to variables of interest. If they do not naturally arise in the judgment building process, the holistic judge does not assume they should be there and add them.

The concept of holistic assessment and forecasting is context-specific and emergent. It is a natural way to think. Building up an explanatory thread and storyline over a considerable period of time about this change process requires iteratively folding-in, layering-up and always resynthesizing the impacts of new information and empirical data about the topic of interest as it arrives. There are grounding and process rules, but the main precept is mindscape openness, catholic landscape inclusion and an avoidance of ‘getting’ in preference to synthesizing what arises.

In *Superforecasting*, Gardner and Tetlock³⁸ rightly emphasize this self-critical endless updating of beliefs when judging evolving situations as an attribute of better forecasters, which is essentially the art and science of puzzling out. This is not a new idea. It is, in fact, as old as the conversation about prediction (forecasting) in human history.³⁹

Holistic thinking is the traditional way of understanding how mysteries⁴⁰ can become problems that are solved.⁴¹ For this discussion, holistic thinking is being applied to falsifiable large-scale, large-impact and rare event/emergence schema: ideas, like uniting Europe or building globalization, that are being put into action. In an increasingly mathematical practice universe, a conversation about what provenance applied to what holism can do seems useful.

3.3 NO BLAME:

The attentive reader will notice that the author has not disparaged any method. If it works, use it. Nor has the author claimed that holistic assessment and forecasting solves all problems. What was said is that holistic approaches can better address some serious known problems with extant mainstream methods as they are presently used when assessing change and doing forecasting.

A big advantage lies in the mere better early recognition of this LSLIRE emergence – foreseeing it relatively early on. Another lies in avoiding the ‘black box’ by explaining how this emergence’s assessment and forecast was developed while avoiding an over-complexity that defies explanation and also avoiding over-fitting through the pre-selection of variables and patterns that were perhaps once useful.

One beauty of holistic assessment and forecasting, then, is that it does not replace or disparage any method, whether expert opinion, modeling, artificial intelligence, big data, or whatever.

This discussion’s issue is about how to better foresee and forecast important changes involving complex, human-involved systems when this is not now well done – period.

³⁸ Gardner, Dan and Philip Tetlock. 2015. *Superforecasting: The Art and Science of Prediction*. New York: Broadway Books.

³⁹ Op. Cit. Werther, Guntram. 2008. *Holistic Integrative Analysis of International Change*. This work, beginning at page 5, integrates mindset and forecasting issues, and how they have changed over time, across multiple civilizations as part of its argument about presently teaching emergent futures.

⁴⁰ Merriam-Webster Dictionary. Mystery: something not understood or beyond understanding; <https://www.merriam-webster.com/dictionary/mystery>; Accessed October 31, 2020.

⁴¹ See Pääbo, Svante. 2014. *Neanderthal Man: In Search of the Lost Genomes*. New York: Basic Books. Of which Harvard’s Edward O. Wilson, author of *Consilience*, wrote: “It is a rare thing to read about an important development...written in the spirit and style in which the research unfolded...how science is really done...” The point is that iterative judgment happens as data from many sources arises. The focus is holistic assessment. (Emphasis added; This review comment is on the back cover of the book).

3.4 WHAT HOLISTIC ASSESSMENT AND FORECASTING IS NOT:

3.4.1 HOLISTIC ASSESSMENT AND FORECASTING IS NOT ENCYCLOPEDIAIC:

Holistic assessment, and the foresight and forecasting outputs with which this monograph is concerned, is not about gathering or gaining comprehensiveness of information. It is not about *gathering* at all. As to comprehensiveness, it is not Encyclopedism in the French Enlightenment’s sense of cataloguing all information and then using that to make decisions. Neither is it the modern spawn of this idea, which is called variously Total Information Management, Big Data, or Google-style information management.

The problem with these efforts is 1) that nobody knows how to make sense out of the huge volumes in either their inchoate, managed or catalogued information forms and 2) the unknowable process of cataloguing and management which always biases the outcome.

3.4.2 HOLISTIC ASSESSMENT DOES NOT PRE-FIND VARIABLES:

Holistic thinking is not like modeling, wherein one pre- finds what seems like a few useful variables, places them into a likely formula and then tests this model against reality or future reality. Traditional modeling must simplify complexity. Theory does this too (next item below). Simplification can work very well for well-understood behaviors, topics and systems.⁴² It also works well when nothing foundational or important to the system is changing much.

The obverse of the latter *condition* – when something foundational or important to the system is changing - is pretty much the definition of a large-scale, large-impact rare event’s emergence.

3.4.3 HOLISTIC ASSESSMENT AND FORECASTING IS NOT UNIVERSAL NOR SEEKS TO BE:

It is context specific. Particular. One builds it to judge this syndrome’s change as it impacts this schema.

For differing complex, adaptive, dynamic human-involved systems that are shaped, even defined, by their various specific customs, values, cognitive biases, historical, political, cultural and other interpretations of reality, etc. – in other words, much of human life in its variety - there are more model-based explanation problems than can be conveniently discussed. Necessary simplification of complex conditions and thus of their emergences is only one problem in modeling. Others include attendant problems of relevance, ordering, weighting, and otherwise configuring the model’s variables to forecast this particular – not some statistically general - circumstance. Measuring, let alone understanding, the impact of qualitative aspects within a condition or syndrome that is changing is difficult in modeling.

These are problems about specificity involving differing contexts and conditions.

These problems are why forecasts are usually better when nothing foundational or important is changing and far less good when something is changing. Better for familiar, well understood topics and circumstances and far less good under unfamiliar ones.

If, as Nate Silver has done, one thinks about this unfortunate aspect of present forecasting practice, the benefits of pursuing generalized, ungrounded forecasting solutions without a clear provenance recedes while the benefits of pursuing well-grounded, context-specific and emergent ones with provenance advances.

⁴² Op. Cit. Silver, 2012. *The Signal and the Noise*; Op. Cit. Kahneman, 2011. *Thinking, Fast and Slow*.

3.4.4 HOLISTIC ASSESSMENT AND FORECASTING IS EASY AT A GENERAL LEVEL, BUT BEING SPECIFIC IS HARD:

A shorthand way of saying what is needed is a skill at thinking within and among various systems of bias.⁴³ This is different from the goal of eliminating bias in a statistical or scientific process sense. This whole-fabric or preference view about bias system as a useful socio-psychological grounding for doing context-specific holistic assessment and forecasting is fundamental.

3.4.5 HOLISTIC ASSESSMENT AND FORECASTING DOES NOT SEE ALL BIASES AS A PROBLEM:

What is being said here is that the assessment process should seek to reduce procedural biases (pre-selecting variables, cognitive, mechanistic, etc.) while improving skills like interpreting and explaining acts from within the bias system of the target of inquiry. The socio-psychological emphasis is on using bias in the sense that it “influences understanding.” There is little reason to expect countries like the U.S., Israel, Iceland and Japan will see, interpret, or act similarly to even a ‘global’ effort like the post-Bretton Woods era globalization schema or to the more recent COVID-19 management issue.

Conditions are various and can change rapidly, but ‘ways’ of seeing and doing – mindsets, cultures, traditions, tendencies, etc. – change slowly, and when they change, do so quite visibly.

3.4.6 HOLISTIC ASSESSMENT AND FORECASTING IS NOT STATIC:

It deals with changing complex-adaptive, dynamic human-involved systems so its explanations must address these issues only in ‘good enough’ or better fashion for a target-specific condition or schema.

This syndrome/condition is undergoing change how/why? The syndrome’s change process, iteratively judged, supports this schema’s success or does not.

3.4.7 HOLISTIC ASSESSMENT IS NOT SINGLE-DISCIPLINARY OR MULTIDISCIPLINARY:

It must be dynamically synthetic, and as is argued in some cases, is also usefully syncretic.⁴⁴ This is the very opposite of any method that produces random pattern generation or has atomized facts (datum; variables) in methodological action. Syncretic thinking, and some approaches using it for understanding likely changes to specific conditions or syndromes, is discussed further in the Hindsight and Insight chapters.

3.4.8 HOLISTIC ASSESSMENT DOES NOT USE NOTIONS OF FREEDOM AND RANDOMNESS:

As a forecasting matter, all things (freedom) are not possible nor are the elements for integration operating at random. Information that supports a holistic judgment and forecast about this complex, adaptive human-involved system undergoing this change is seen as specifically embedded, entangled and emergent.

Similarly, changes among interacting human-involved systems are not without embedded and entangled features that shape possibilities. There are specific micro- as well as macro- aspects that shape action. Freedom and randomness are not useful concepts in holistic inquiry of human-involved systems.

⁴³ Bias defined– “a particular tendency, trend, inclination, feeling, or opinion, especially one that is preconceived or unreasoned”; “An oblique or diagonal line of direction, especially across a woven fabric.” Dictionary.com; <https://www.dictionary.com/browse/bias>; Accessed October 20, 2020; “A tendency (either known or unknown) to prefer one thing over another that prevents objectivity, that influences understanding or outcomes in some way.” Open Education Sociology Dictionary. <https://sociologydictionary.org/bias/>; Accessed October 20, 2020; Note: The point here is to highlight that ‘objective reality’ is neither objectively nor uniformly nor randomly assessed. Human affairs are in the above senses ‘systems of bias.’

⁴⁴ Definition of syncretism

1: the combination of different forms of belief or practice

2: the fusion of two or more originally different inflectional forms; Merriam-Webster Dictionary; <https://www.merriam-webster.com/dictionary/syncretism>; Accessed on October 20, 2020. Note: the forecasting use is that societies or other groupings of humans do not spring up whole cloth. Rather they merge and emerge. They have knowable features that derive from knowable circumstances.

3.4.9 HOLISTIC ASSESSMENT AND FORECASTING IS NOT DETERMINISTIC.

Change processes and actions are seen as contextually and conditionally shaped but they are not determined. Synthesizing information that is conditioned in some way leads to similarly conditioned judgments, as Aristotle long ago said of the trained mind. To consolidate this and the prior point, holistic assessments occupy a kind of middle ground that is neither deterministic nor free/random.

3.4.10 LASTLY, HOLISTIC ASSESSMENT IS NOT SUBJECT TO MANY OF THE EXPLANATORY IMPONDERABLES OF EVEN A CORRECT EXPERT'S JUDGMENT:

It is an open, iterative puzzling out process that through the provenance of its effort folds in and layers up evidence along the way toward a judgment solution.

One of author's favorite expert judgment vignettes, the source of which is long ago forgot, concerns Albert Einstein. Apparently, the U.S. government wanted to know how Einstein solved complex problems; so they assigned some people to watch him work. When stumped, as the story goes, Einstein would go to a quiet corner, smoke his pipe for some time...and then finish the problem element at issue: An expert black box.

The holistic forecasting effort is not that. There are procedures: All quite open.

3.5 WHAT HOLISTIC ASSESSMENT AND FORECASTING IS:

As Kahneman wrote in *Thinking Fast and Slow*, holistic assessment and forecasting judgments can be lightning fast by way of experiential recognition, as when a chess master recognizes an opponent's move and quickly sees its implications due to prior experience, or it can be deliberately slow, as when puzzling something unfamiliar out. LSLIRE judgments, like those for other emergences, come in both kinds.

We are mostly concerned with the latter condition, although experiential recognition can play a big part in setting up an inquiry, as when society tries again, for the fifth or so time, to do uniting Europe and do globalization, only to be apparently surprised by historically familiar backlashes.⁴⁵ This suggests a lack of recognition, if not ability.

Alternatively, a change condition with no precedent precludes experiential recognition.

The early 20th century claim that the modern state is the sole legitimate sovereign, thereby upsetting centuries of international and domestic law and practice, was followed about a century later by the 2007 unanimous United Nations General Assembly vote confirming that the modern state is not sole sovereign (an iterated status quo ante move with huge, largely unexamined implications across multiple realms of business and governance) is one such large-scale, large-impact rare emergence (LSLIRE) condition. For example, in the 1700's and 1800's the government of the United States, like many other countries, had ambassadors to and formal diplomatic relations, treaties and fought wars with various non-state entities. They formally recognized their rights to lands, resources and decisions about control. The Kingdom of Hawaii is one example for the USA. The British Empire had such relationships all over the world, including in Canada, India and the Middle East and Africa. After a roughly two-century recalibration of what being 'sovereign' meant to modern countries, they stopped doing that kind of formal sovereign-to-sovereign relationship management with non-state peoples. Now briefly think what it means as a risk and uncertainty matter if every peoples (indigenous tribe or band, 'first nation' and so forth) in Africa, the Middle East, Asia and the America's is equal in sovereignty (they legitimately control their traditional lands, resources and have decision authority) to the country they are in. Who controls decisions over land and resources – they or the country's government? The

⁴⁵ Werther, Guntram. *On better assessing the future outcomes of 'grand, world-changing schema': Seeing present EU and globalization backlashes as to-be-expected.* *Journal of Risk Management in Financial Institutions*. London: Henry Stewart Publications, Spring 2019: Vol. 12, No. 1, 1–10.

author will address the forecasting implications of that present and evolving condition later in the monograph. It is, in the author's opinion, one of the largest mostly unexamined changes wrought in the early 21st century.

In between, one can place the experientially unique condition of managing COVID-19 spread in a world that is not exactly lacking experience of other specific pandemics or crises. Partial experiential recognition is, at best, possible here. Managing COVID-19, like the other two realms of recognition potential, is however also not a Black Swan event. Good enough judgments are possible, as is later shown.

This work uses all three as LSLIRE exemplars threading through the hindsight, insight and foresight chapters as a way of highlighting different kinds of holistic assessment and forecasting problems and solutions.

3.5.1 HAVE A QUESTION:

Like much good science, good philosophy and good art, holistic assessment begins with a question. We are not throwing random information at a wall to see what sticks nor are we watching some circumstance or process change with nothing in mind.

This focused inquiry mode should be familiar to all actuaries and risk managers, who typically have a goal or problem to be solved in mind such as setting insurance rates or figuring out changing risk exposure for this project or firm. They, like the author, are concerned with specific complex⁴⁶ futures and change dynamics.

There are initial things that can be said which will be better demonstrated as the conversation moves along within the *Holistic Hindsight*, *Holistic Insight*, *Holistic Foresight* chapters and through the promised discussion of 1) hindsight-enabled schema change forecasting and 2) schema change, or emergence, forecasting where there is no past experiential analogy.

This initial discussion about good holistic practice will be broadly focused and conceptually based, with the applications for doing better practice to follow.

3.5.2 BE PASSIVE:

Around a specific schema goal, circumstance or process of interest, holistic assessment and forecasting is passive about getting information.

In fact, it does not in the classic sense go forth and get data or information that the analyst thinks are relevant because it does not prejudge what will be relevant to assessing or forecasting this emergence. It waits for it to arise (or not).

It regards plausibly relevant output judgments, whether good or ill, arising from experiential hindsight or analogy (if available), present schema requirements for success plus other kinds of arising information as the schema process unfolds, as grist for its iterative assessment mill. This iteratively accretive, reassessing and synthesizing mindset is change-process oriented and constructive for this specific emergence.

3.5.3 BE PATIENT:

Things reveal themselves. The thing, process or system/syndrome undergoing change has requirements AND enabling/limiting abilities – what can and cannot be. For a schema to succeed there are changes that must become

⁴⁶ The term 'complex' is used here in the sense of being *this particular complex*, which is an integrated interactive system, not in the sense of complex meaning complicated, which it probably is too, but not necessarily.

and others that must not become. When a schema has been tried before, there is hindsight experience and often there are useful analogies.

Watch this latest schema attempt at uniting Europe or this latest schema attempt at building globalization unfold and the arising backlash features, the positions of differing interests, schema successes, and so forth will mostly not be invisible.⁴⁷ Several will be familiar, permitting some insight from hindsight analogy.

If a LSLIRE is unique for which hindsight experience and analogy does not exist, as the present 21st century reconsideration of the modern state's claim to sole sovereignty is, there are new schema judging requirements amid iteratively observable change.

For partly unique LSLIRE's, as COVID-19 is claimed to be, the various and different societal responses to it will not be original. Different societies have their differing values, ways and capabilities before this LSLIRE and these differences did not disappear with the arrival of COVID-19.

Tentatively, as research in progress, it does not surprise this author that the U.S. COVID-19 response involves federally dispersed, and sometimes local and state-level conflicting, actions, liberally sprinkled with lawsuits. The U.S. typically solves issues in this way. Hindsight showing a management comparison to U.S. national, state and local responses to the Spanish Flu pandemic from a century ago raises many analogies.

As one further example, after the U.S. Supreme Court ordered school desegregation with all deliberate speed, decades of conflicted interpretation and lawsuits about the words "deliberate" and "speed" followed. The U.S. does not have the density of lawyers it has without purpose. In parallel, Israel and Iceland, for both of whom much is enveloped in the notion of national security, respectively tasked Shin Bet with civilian COVID-19 contact tracing while Iceland, which greatly trusts its police but not its politicians in the aftermath of the 2008 financial crisis, tasked the Icelandic National Police with contact tracing of infected civilians.⁴⁸ Neither solution – using the national domestic intelligence agency or the national police who have intelligence functions – with civilian contact tracing is plausibly predictable for the U.S.

Again, the above argument is very tentative due to the late inclusion of COVID-19 management as a demonstration, but at this point it seems fruitful to focus on building a holistic forecasting assessment examining the differing national ways used to address a pandemic LSLIRE for which neither a condition of clear hindsight analogy nor a condition of pure uniqueness exists. This middle condition is assessed further in the hindsight, insight and foresight chapters.

3.5.4 FOCUS ON THIS CHANGE PROCESS:

One over-simple example this author use for students is that if your goal and its required change process is to drive by car today from point A to point B, then you have simultaneously a schema (idea in action; actionable goal or policy) that unfolds over time, has knowable requirements for its achievement or failure and a condition of arising new information as you proceed. More to our point, the holistic assessment and forecast's success/failure development is explainable, empirically supportable and specific along the way. Any and all plausibly relevant arising datum, good or ill, that can impact the schema change process and/or its overall success plus experiential judgments from hindsight are 1) to be initially considered and synthesized as 2) iterative judgments arising along the

⁴⁷ Op. Cit. Werther. *On better assessing the future outcomes of 'grand, world-changing schema'*.

⁴⁸ TOI Staff. *Cabinet approves near-total national shutdown to stem runaway infection rate* | *The Times of Israel*. 24 September 2020. <https://www.timesofisrael.com/cabinet-approves-near-total-national-shutdown-to-stem-runaway-infection-rate/>; Accessed September, 24 2020; Wall Street Journal, Apr 9, 2020 - *A Cop Skilled in Tracking Mobsters Is Now Focused on the Coronavirus. Icelandic police superintendent put gangster duty on hold to trace coronavirus.* <https://www.wsj.com/articles/a-cop-skilled-in-tracking-mobsters-is-now-focused-on-the-coronavirus-11586424602>; Accessed September 25, 2020;

way are integrated and then resynthesized as this change process unfolds. That judging process includes life changes needed to even make the trip. For example, if the student has a job, children, pets, coming exams, insufficient funds and so forth, a great number of conditional changes may need to succeed before the drive can even commence.

Apply this mode of assessment to the schema goal, actionable processes and other requirements of doing a successful present-day uniting Europe or globalization schema and one is unlikely to be surprised by various critical backlash issues that arose in plain sight and then expanded over many years.

3.5.5 THE OUTPUT FROM EVERY METHOD IS ONE DATA POINT:

In this holistic thinking mindscape, each disciplinary, methodological, expert or model's output judgment is merely one datum to be integrated with the many kinds of other information that will be synthesized.

3.5.6 BUILD CONSILIENCE FOR *THIS* EMERGENCE:

What makes holistic assessment different from machine-learning pattern emergence or the black box outputs is that the holistic assessment process iteratively documents the development of the forecast across a great many sources and methods. This building up toward consilience⁴⁹ of information is explainable.⁵⁰ If different method or disciplinary outputs disagree, this condition must be addressed to get at a defensible synthesis.

In plain English, one can make initial forecasts using outputs from many methods and disciplines that are tied empirically to all the later forecasts via an iterative process of convergent storyline development that is explainable. The outputs need to converge on the storyline to make it the basis of a valid, defensible forecast. There is no black box aspect or unhinged pattern.

3.5.7 BE GROUNDED IN *THIS* LANDSCAPE:

Holistic assessment is always grounded in *this* emergence within *this* specific circumstance and context at *this* time as it applies to this schema. Holistic foresight and holistic emergence forecasting is grounded as this way – It is not a general statement that hopefully applies to this circumstance or some general case.

This specific grounding aspect of the holistic forecast judgment is important because a big problem in analytics is that the origins of their seen output patterns, and thus their conclusions, are not explainable.

3.5.8 EMPIRICALLY GROUND THE FORECAST JUDGMENT:

Unlike mathematics, which is by definition a non-empirical, non-science system of pure logic that has many uses in science and other spheres of human endeavor⁵¹, and its spawn, statistics, which at its heart is 'average' thinking and thus "for-the-most-part-true" thinking when applied to any particular case, event or emergence, holistic thinking, like good driving, is in the here and now, and is not about some statistically general output that one hopes applies.

Embedded, entangled and emergent features that ground this holistic forecast's development throughout provide specific support of a valid forecast judgment.

⁴⁹ Macmillan Dictionary – consilience: "the principle of convergence of evidence from independent sources that could lead to strong conclusions". <https://www.macmillandictionary.com/us/dictionary/american/consilience>. Accessed November 27, 2020.

⁵⁰ Wilson, Edward O. 1998. *Consilience: The Unity of Knowledge*. New York: Alfred A. Knopf.

⁵¹ "In many ways, math is closely related to science. ... Mathematics is such a useful tool that science could make few advances without it. However, math and standard sciences, like biology, physics, and chemistry, are distinct in at least one way: how ideas are tested and accepted based on evidence." Quoted from *The science checklist applied: Mathematics*. <https://undsci.berkeley.edu/article/mathematics>. Accessed 3 October 2020.

3.6 WHY IS ‘GOOD ENOUGH’ FORECASTING GOOD ENOUGH?

Previously the author discussed why holistic assessment and forecasting usually yields middle range of accuracy and precision because of its endless iterative synthesis of output from many different methods or disciplines. This allows provenance and empirically grounded movement toward consilience in building a forecasting storyline. Judgment is neither black box nor over-specified. Holistic assessment’s biggest advantage is early recognition of both mundane and LSLIRE emergences just when other methods tend to fail: when foundational things are changing. The author also briefly introduced a number of ideas – embedded, entangled, emergence, bias systems – and useful thinking processes – folding in, layering up, iteration, synthesis, synchrony – that will later be applied to judging schema.

This sub-section deals with aspects of holistic mindscape and landscape thinking and expands upon a judgment about what forecasting really is to human society. Based on this discussion, the author will later state what the task of getting to better forecasting really involves.

3.6.1 ‘GOOD ENOUGH’ FORECASTING REQUIRES EXPERIENTIALLY FAMILIAR ENVIRONMENTS:

Persistent societal⁵² maintenance and life are possible because most of its members can anticipate emerging future internal conditions and the useful procedures by which they can negotiate them in a ‘good enough’ fashion. This is a species-level competence that is not and cannot be rare. Societies must facilitate useful regular decision-making and relatively harmonious interaction.

People and their societies need, and thus build and maintain, an operational and ideational normality and the supporting shaped ways of normally doing things in that society; and also shaped ways to deal with abnormality like unexpected events and crises. These ways can guide foresight inquiries because they persist. Events happen and conditions change, but societal ways are both definitive and relatively stable even in crisis. Think of ways as societal toolkits and conditional experiential training for dealing with life.

Normalized action is what a culture, tradition, custom and habit and its more formal societal aspects like religion, philosophy, bureaucracy, law, policing and regulation, are meant to build and maintain for that specific societal system. The second point about established shaped ways of dealing with abnormality is critical to forecasting each different system’s behavior in rare event or crisis situations.

Previously the author briefly introduced the idea of foreseeable system specificity in COVID-19 response.

Recall, as their respective chosen and society-specific means of COVID-19 management, national-security conscious Israel used its internal security service Shin Bet and the Israeli Defense Force (IDF) for doing citizen contact tracing. But the national security focus is much deeper with the National Security Council setting the crisis operating rules for all Israeli government agencies, while The Defense Ministry decides which specific businesses are essential and may stay open.⁵³ In Iceland, recall, where governmental institutions and politicians are held in low regard due to their prior gross mismanagement of the 2008-09 financial crisis, the highly respected national police service (+96% approval) is tasked with civilian contact tracing.⁵⁴ But again, a deeper understanding reveals that Iceland too takes a

⁵² Society is defined as: “an enduring and cooperating social group whose members have developed organized patterns of relationships through interaction with one another

b: a community, nation, or broad grouping of people having common traditions, institutions, and collective activities and interests

4a: a part of a community that is a unit distinguishable by particular aims or standards of living or conduct: a social circle or a group of social circles having a clearly marked identity”, Merriam-Webster Dictionary, <https://www.merriam-webster.com/dictionary/society>. Accessed 15 September 2020.

⁵³ Op. Cit. TOI Staff. *Cabinet approves near-total national shutdown to stem runaway infection rate*; Altshuler, Tehila Shwartz and Rachel Aridor Hershkowitz. *How Israel’s COVID-19 mass surveillance operation works*. Tech Stream. Brookings Institution. July 6, 2020. Accessed September 25, 2020; <https://www.brookings.edu/techstream/how-israels-covid-19-mass-surveillance-operation-works/>;

⁵⁴ Op. Cit. Wall Street Journal Apr 9, 2020 - *A Cop Skilled in Tracking Mobsters Is Now Focused on the Coronavirus*; Vilhelmsdottir, S. *Political Trust in Iceland: Determinants and Trends 1983-2018*, Ph.D. Thesis, University of Iceland, Faculty of Political Science. ISBN: 978-9935-9477-5-8.

very broad view of national security. This view shapes its responses. In the United States, with its power dispersing federal system, split partisan environment and exceptionally high number of and traditional usage of lawyers, it is no forecasting surprise that COVID-19 management and operations decisions were very different across states and local governments overlaid with an expanding number of lawsuits at this writing. Japan attempted to manage the COVID-19 crisis using consensual existing authorities and established power management ways.⁵⁵

Each of these societies had the same array of intelligence, national police and civilian bureaucracies and civilian institutions like lawyers, but uses them in operationally distinct ways. The Japanese emphasis on obeying rules and rulers is distinctly different from the U.S. habit of challenging both through civil disobedience and lawsuits. The Israeli and Icelandic traditional use of its intelligence, national police and military organizations for crisis management has no parallel in the other societies mentioned.

As we will see, modern times seem little different from prior ones in this regard. This observation, which is developed further on in the hindsight, insight and foresight chapters, has an important observational basis.

After the French Revolution, Alexis de Tocqueville termed its revolutionary outcome the same water in new banks. After the French revolution most of the same people were still running things of daily societal importance using long-familiar familiar methods.⁵⁶ Embedded-ness is the relevant concept.

Thomas Jefferson too, near the end of his life, bemoaned what he wrote was ‘the wasted effort’ of what he termed the ‘generation of 1776’ given that America’s main controlling trading partner before and after the revolution was still Great Britain, which had not suffered economic or prestige loss after the American Revolution.⁵⁷ Indeed, Americans were busy adopting British ways far too rapidly for Jefferson’s taste, especially in the consolidation of power.⁵⁸ Entanglement is the relevant concept.

Entanglement persists. The Anglo-American special relationship, culturally, economically and politically, is not dead even three centuries later. It is easy to oversubscribe the forecasting impacts of established ways, but they are not inconsequential to building string and grounded foresight.

3.6.2 THE DRAW OF EXPERIENTIAL FAMILIARITY IS STRONG:

Today the second most populous region of Italy is around Naples, built close upon Pompeii and in the shadow of still-active Vesuvius. Japan’s 2011 Sendai Tsunami destroyed towns and a nuclear power plant located below ancient stella warning the Japanese people not to build below this point because of the great tsunamis.⁵⁹ One can see modern versions of this kind of traditional choice along the northern California and Oregon coasts that are dotted with similar blue and white tsunami warning signs on the hills above the many cities and towns.

When a hurricane strikes, we rebuild mostly in the same way and place. When a crisis strikes, such as COVID-19, different societies rely predictably upon their existing institutions and established ways.

⁵⁵ Hamaguchi, Ryoko, Kay Negishi, Masaya Higuchi, Masafumi Funato, June-Ho Kim, Asaf Bitton. *A Regionalized Public Health Model To Combat COVID-19 Lessons From Japan*. Health Affairs. July 22, 2020, <https://www.healthaffairs.org/doi/10.1377/hblog20200721.404992/full/>;

⁵⁶ Tocqueville, Alexis de. 2008. *The Ancient Regime and The Revolution*, trans. Gerald Bevan. London and New York: Penguin Books. 9-10; discussed in Op. Cit. Werther and Herget, 2013. pp. 16; “The Ancient Regime disappeared suddenly in 1789 only to resurface a few years later, just as certain rivers plunge underground only to re-emerge a little further on showing us the same water but between new banks.”

⁵⁷ Kennedy, Roger. 2003. *Mr. Jefferson’s Lost Cause*. Oxford: Oxford University Press. Pp. 29, 83, 86, 112-113.

⁵⁸ Crawford, Alan. 2008. *Twilight at Monticello – The Final Years at Monticello*. New York: Random House. Pp. 195.

⁵⁹ Lewis, Danny. These Century-Old Stone “Tsunami Stones” Dot Japan’s Coastline - “Remember The Calamity Of The Great Tsunamis. Do Not Build Any Homes Below This Point.” Smithsonian Magazine, August 31, 2015. [HTTPS://WWW.SMITHSONIANMAG.COM/SMART-NEWS/CENTURY-OLD-WARNINGS-AGAINST-TSUNAMIS-DOT-JAPANS-COASTLINE-180956448/](https://www.smithsonianmag.com/smart-news/century-old-warnings-against-tsunamis-dot-japans-coastline-180956448/); Last accessed May 27, 2021;

3.6.3 WHITE SWAN THINKING IS STRONGLY SHAPING:

Watch different societies respond to various disasters and the randomness notion goes away to be replaced mostly by ‘white swan’ – this is how we do it – thinking. Watch different societies operate in normal times and one is struck by how well most people negotiate their experientially familiar operational landscapes and mindscapes.

This reality destroys the strong version of the ‘Black Swan’ argument that effective forecasting is impossible or is at best luck⁶⁰ and focuses attention on more useful questions about 1) when, how and why ‘good enough’ forecasts are usually obtained, 2) when, how and why more less valid ones often occur and 3) when, how and why most people are bad at achieving ‘good enough’ forecasts about this emergence but some are not.⁶¹ In large part then, improving analyst judgment is about increasing the range and scope of their experience. Such a White Swan mindset in this experience-building sense is the better path forward to understanding a schema change and its emerging future than many alternative approaches.

3.6.4 THE LARGER FORECASTING POINT:

A major purpose of the various, but often uniquely different and defining societal constructions is to reduce randomness and uncertainty within that societal system. Society’s members can build useful tactics and strategies for living therein precisely because enough about how things happen and how change occurs is foreseeable by them.⁶² Once one leaves experientially familiar landscapes and mindscapes, such individual foresight and strategy building becomes more difficult, if not impossible.

The larger point is that there is nothing strange about being a ‘good enough’ forecaster in landscapes and mindscapes that one is intimately familiar with. The interesting question, as previously introduced, involves knowing the mindscape and landscape aspects of where, why and how are we better or worse forecasters?

When you, the author and future readers of this monograph daily awake, we will all rely upon and use a lot of embedded assumptions about our world and our expected experience in it for that moment, day, week, month and year that turn out to be mostly good enough. In short, we routinely forecast in ways ‘good enough’ to survive, often to prosper. Comparative anthropological, archeological and sociological evidence supports this point by showing how different people and societies adapt to and routinely interact with their landscapes.

For example, neither an ancient, nor a present, hunter builds an ambush site for migrating game if s/he does not experientially forecast that targeted migrating game to be just there in that position at some ‘good enough’ knowable future time within a prey’s migratory range of perhaps millions of acres. The requirements of foresight accuracy are measured in yards within those millions of acres and days in terms of time. It was so then and remains so now. Similarly, the author’s day/month/year planning, like your day/month/year planning, relies on building ‘good enough’ foresights whose reliability is often valid enough within each of our differing but experientially familiar contexts.

When we face a rare event, crisis or emergency, again our responses show societally shaped features that are reasonably knowable, hence foreseeable as distinct ways. This was Peter Wells’ point.⁶³

Why is ‘good enough’ foresight possible yet limited in this way and what does it mean for building up better forecasting ability over a larger range of differing contexts and conditions?

⁶⁰ Op. Cit. Werther, G. with R. Thomas Herget. 2013. *Recognizing When Black Swans*.

⁶¹ Tetlock, Philip E. 2005. *Expert Political Judgment: How Good Is It? How Can We Know?* Princeton: Princeton University Press; Ibid, Werther, Guntram with R. Thomas Herget..

⁶² Gaddis, John Lewis. 2018. *On Grand Strategy*. U.S.A.: Penguin Books, Pp. 13, 16-21.

⁶³ Op. Cit. Wells.

3.6.5 IMPROVEMENT IS ABOUT EXPERIENTIAL EXTENSION:

The author posits that the problem to be solved around doing ‘good enough’ or better forecasting (predicting) is largely one of experiential extension. No mathematical approach will achieve this result.

Because differing societal systems are unique regularities, ‘good enough’ forecasts are uniquely experiential socio-psychological constructions and judgments.

Each different societal system uniquely and variously frames, shapes and constrains the participant’s expectations and ways of, including ability to, respond to change issues. Participants are embedded in and entangled with these existing conditions.

Fostering ‘good enough’ forecasting is much of what makes societally unique habits, customs, traditions, values, religions and philosophies, regulations and laws, indeed the whole physical, behavioral and mental architecture of societal experience in this (your familiar) system, useful. Each socio-psychological, ideational and operational space – this landscape and this mindscape - allows forecasting (‘prediction’) within and about that system.

3.6.6 VALID JUDGMENTS ARE NOT EASILY TRANSFERABLE:

Such ‘good enough’ judgment is not transferable to differing bias systems and their contexts, at least not without some entangled aspects that are discussed later.

Of course, these biased solution systems differ across human landscapes in our time as in prior ones,⁶⁴ which is what makes, and has always made, doing ‘good enough’ forecasting more difficult the further one goes from personally familiar societal mindscapes and landscapes. These personally familiar mindscapes and landscapes are experientially but also ideationally familiar, while different, unfamiliar ones are experientially and ideationally strange.

What these considerations imply is not that useful forecasting is impossible – the strong form of the ‘Black Swan’ thesis – but that doing ‘good enough’ forecasting is bound up in experience.

3.6.7 WELCOME TO WHITE SWAN TERRITORY - STUFF DOES NOT JUST DROP FROM THE HEAVENS:

Recapping, the really interesting question is not whether people can forecast well – they necessarily can – but under what circumstances they forecast better, worse or really badly. Because there is no way to function effectively in any society without making mostly “good enough” judgments about what is coming based upon some combination of one’s individual experience, seen as a kind of intellectual capital and social intelligence which is always embedded in and entangled with that specific societal group’s accumulated experience, as seen in its habits, customs, traditions and other extant real-time shaping functions for useful behavior such as laws, regulations, values, philosophies and religions, etc., knowing the de jure and de facto ‘ways’ by which and through which that society operates is essential.

Doing better ‘good enough’ forecasting is not a problem about possibility or impossibility but one of having appropriate-to-task experience and learning. That was why Aristotle refused to teach politics to the young, why Confucius did not continue the lesson if, when shown one corner, the student could not come back with the other three and why Moses Maimonides’ *Guide for the Perplexed*⁶⁵ begins with a requirement about seeing connected order after long study.

⁶⁴ Ibid. Wells.

⁶⁵ Maimonides, Moses. 1956. *The Guide for the Perplexed*. M. Friedländer, Trans., New York: Dover Publications, Note: “my object was that the truth should present itself in connected order, and that you should not hit upon it by mere chance”, P. 1.

Expanding forecasting success is mostly white swan territory.

3.7 AN ACTUARY'S VIEW:

Actuaries love data! When the future is predicted by historical information our job is pretty straightforward. Unfortunately, this is where the profession is at risk from data tools using artificial intelligence. A machine can do this type of work better than we can. We are better at holistic analysis, thinking about interactions between risks and how different risks aggregate, or about how feedback loops and emerging risks replace linear projections with higher order results. While some focus on Black Swans and Gray Rhinos,⁶⁶ I prefer to think about unknown knowns,⁶⁷ where historical data is not predictive, and the past is not prologue.

Recency bias, where we think an event that has occurred in the recent past is now more likely to occur again in the future, is hard to overcome but important to recognize. Stability tends to be a contrarian indicator. Higher order interactions need to be considered, and deterministic scenarios considered before it is too late to implement solutions.

This is where Dr. Werther's experiential extensions are useful, taking historical data and massaging it based on what the analyst has lived through or read about to develop scenarios.

This is the future life of an actuary. Experience studies provide a first step, but not the destination. Financial markets are not efficient as we were taught, especially when large government subsidies are present. Some patterns cycle in repeatable ways; other historical similarities rhyme, as Mark Twain noted. Analysis in the future will consider how an event will be interpreted in this culture so a future path can be identified. The best forecasters add qualitative analysis to their quantitative skillset.

COVID-19 experience shows many similarities with the influenza pandemic of 1918; parts of the population fight social distancing and mask mandates while many who start with no historical knowledge flock to follow every shred of news on the topic and become "experts." For impactful topics like this it is not necessary, or even encouraged, to optimize results. Getting a "good enough" forecast that allows a narrative to be built is sufficient. Flexibility allows you to build social safety nets in case you are wrong, and if you are right it leads to competitive advantage.

While no one is working today who was alive in 1918, young actuaries would do well to visit with those near retirement to learn about a time when interest rates were increasing, mortality wasn't always expected to be lower next year among insurers, and when oil prices spiked. One topic to think about today is climate change and how it interacts with risks like permafrost, ocean acidity and freshwater access.

Other topics that may benefit from this type of analysis include immigration policy and various forms of inequality, whether it be economic or racial. Past tendencies influence but do not limit the potential outcomes. Learning about the past in a transparent sharing of knowledge can provide leadership to those tasked with dealing with today's threats and opportunities.

Actuaries have the building blocks to be the profession that sees risks and opportunities coming before others do, not mocking those with long time horizons and a plethora of mental models using mosaic theory to improve forecasts. Those who accept this challenge will be the leaders of tomorrow.

⁶⁶ Wucker, Michele. *The Gray Rhino*. 2016. St. Martin's Press.

⁶⁷ An example of an unknown known is the California wildfires and property insurance, where exposure has grown for many years as brush accumulated and drought worsened with limited impact on actual claims so premiums were not increased. The recent fires have suddenly created a discontinuity and the insurance commissioner is hesitant to approve premium increases of a level that allows profitability of the policies. The historical data (claims) was not predictive.

4 USING HINDSIGHT TO BUILD FORESIGHT WITH PROVENANCE:

4.1 THE TASK:

In 2020, a senior advisor to Joe Biden stated, “I would not call myself a globalist anymore.... The word itself is so damaged. We are definitely chastened.”⁶⁸ The issue under expert discussion was the now broad-based recognition, even by strong advocates of globalization, of its significant downside elements and that these harms were not adequately foreseen or managed to maintain necessary support for the present era’s iterated globalization-by-expert-management schema. This ‘chastening’ refers to 2016 era recognitions.

The author has been lecturing Fortune 10-to-100 firms and major governments about many of these downside aspects of globalization as they were building, along with some desired ‘good’ being achieved, since 1993. Others did too. They were, for a long-time, vessels of oft unwelcome minority views at the party.

The twin tasks of using hindsight well is to 1) support such a now-valid insight long before the expert herd achieves it, and 2) do so early with defensible provenance. This kind of comparative advantage comes of building defensible holistic forecasts.

In short, the task is to be correct early and have the forecast provenance thread to defend oneself.

4.1.1 HINDSIGHT IS RECOGNITION:

A reason generalists and holistic thinkers have the advantage here is that their mindscape experience covers a broader recognition landscape. For the schema example above, as with others, it is not necessary initially to see this schema’s big-picture story, just to recognize early on certain kinds of arising schema elements: both the lack of necessary congruities and arising destructive incongruities.⁶⁹

Iterative early recognitions are the goal. Remember: Each schema has requirements.

For example, Carmen Reinhart and Kenneth Rogoff’s book about serious financial crises that occurred across eight centuries in different societal contexts, *This Time is Different: Eight Centuries of Financial Folly*,⁷⁰ offers insight from hindsight in just this way. When certain incongruent human behavior patterns are seen, they presage a need for concern about future financial stability in this time as in prior times.

Rising incongruent behavior patterns, or a lack of arising necessary congruent ones, by themselves don’t justify a final holistic forecast judgment, but they do beg one to pay attention and iteratively reassess what is happening. Arising familiars involving globalization or uniting Europe schema backlash should not be ignored. Similarly, some early varieties in COVID-19 management policy among countries may have predictive value. Being new to the topic and still within this LSLIRE, it is too early for this author to say, although the discussion presented later suggests a promising society-specific crisis management foresight potential. Achieving congruent and incongruent pattern recognition is a major hindsight function.

There are big problems here. One cannot recognize (re-cognate a cognition) anything about which one has never had a prior cognition. Whether this is an empirical or ideational recognition reflecting prior personal or transmitted

⁶⁸ Hilsenrath, J. and N. Timiraos. *Biden’s Economic Team Seeks Global Reset: President-elect’s advisory picks are circumspect about the pitfalls Trump highlighted*. *The Wall Street Journal*: December 2, 2020, A1 & A-10. Note: On the parallel schema of uniting Europe as a part of the globalization schema, see, as one recent example, Mead, W. *Germany Won’t Take Portugal’s EU Split*. *The Wall Street Journal*: December 1, 2020, A-17. There are numerous works addressing the benefits and difficulties of this schema.

⁶⁹ Note: The easiest way to document author work in this area of schema congruity and growing incongruity over two decades is to list Fortune 100 corporate, major government and other presentations and papers in the appendix.

⁷⁰ Reinhart, C. and K. Rogoff. 2009. *This Time is Different: Eight Centuries of Financial Folly*. Princeton: Princeton University Press.

societal experiential knowledge is unimportant. The point is this behavior pattern seen in this change process looks familiar to you and that can only happen if you have seen it before.

The ability to apply recognition usefully also varies with the familial nature of the emerging condition being considered. Is this condition embedded, entangled or related as a most-similar system in some familiar way? Is it topically relatable?

For example, seeing rapid border wall construction between hostile countries is not of itself relatable as a plausible anti-immigration or anti-globalization change process. Recognizing a recurrence of greater border wall building and anti-unwanted immigration enforcement among friendly trading countries that are again pursuing globalization is much more relatable and important. Noticing that Japan now strictly limits immigration is not relatable to a growing anti-globalization judgment because Japan's prior national purity values and associated behaviors that limit outsider settlement already exist. Given an early recognition, one still needs to build up contextual consilience among the data from many qualitative and quantitative realms.

A hindsight element may be wrong by way of false analogy or improper contextual recognition. That is a problem holistic forecast building iteratively tests during its construction.

The point here is that recognition focuses the mind early; often way before the herd sees.

4.1.2 BUILDING CONSILIENCE REQUIRES DOING SUNK COST BEHAVIOR:

The author tells busy students (aren't we all) that they can manage to read two or three articles weekly in some disciplines that plausibly impact their area of primary concern, but which are not in it. For example, when building a future ability to do integrative recognitions affecting the discipline of finance, one could read psychology, regulatory law, public policy and technology. Or one could choose other areas, as seems useful. You have the time, or you can save some recognition learning time and choose to miss the next LSLIRE. It is a choice.

Once, after some years of broadening learning and when you have recognition level knowledge of each area, add three or so more disciplines. Then add another three. Sunk cost.

4.1.3 ENDLESS SUNK COST BEHAVIOR:

This folding-in and layering-up of recognition-level knowledge from among plausibly impactful disciplines to yours never ends. It is the sunk-cost integrative learning task of a lifetime.

4.1.4 A TAUGHT SKILL WITHIN A FOUND TALENT:

Most people will not do this.

There is nothing wrong, and much admirable, about being an expert in one field of knowledge or endeavor – it is just not adequate to doing integrative applications, holistic thinking or 'good enough' forecasting within and among complex adaptive human-involved systems. The areas to be integrated through recognition are not yet one's familiar landscape. Achieving the latter is a taught skill within a found talent. Few people will bother to do the needed sunk cost learning; thus, organizations need to find those few who do bother and place them into advantageous organizational positions.⁷¹

⁷¹ Werther, Guntram. 2010. *Fusion Centers and Beyond: The Future of Analysis*. In Logan, Keith Ed. *Homeland Security and Intelligence*, Santa Barbara: ABC-CLIO. Pp. 204-215.

4.1.5 ON BUILDING STRING:

The small 'c' conservative change assessment and forecasting position is that if an idea and policy, together with its attendant needed actions (its schema), is to build globalization (or unite Europe), then one must be able to explain how necessary conditions for that purpose will be achieved and destructive ones avoided.

The onus is on the proponent of any schema, especially those with large-scale change agendas, to explain how this change is to be achieved. Ideas in action can be empirically assessed. Inchoate hopes cannot.

As another example, if your schema is to achieve 'X' condition, explain specifically how? What needs to conditionally happen? How do you plan to achieve that? The author formalizes this condition issue later.

Each idea, plan and its necessary actions requires a dynamic change process thread (or string) of condition changes, with multiple steps leading to achievement. These are condition changes against which to assess hindsight recognitions in the context of this schema's evolving (non) attainments.

Condition facts will vary because this time IS different, but if incongruent patterns emerge that were destructive for past iterations of this schema, or if necessary congruent conditions fail to emerge sufficiently, these kinds of insight from hindsight can be used to build a present-to-future multi-disciplinary, integrative and context-specific forecast with a provenance of empirically integrative support. One seeks to build a storyline that is useful to projecting forward the emerging change process of this iterated schema.

The value of hindsight varies conditionally according to the comparative history of the schema. In short, how good enough are the analogies available from hindsight?

4.1.6 DIFFERENT KINDS OF HINDSIGHT CONDITIONS:

4.1.6.1 *Hindsight for Schema with Strong Historical Analogy Conditions:*

All previous iterations of the globalization-is-good schema were tried using operational premises other than that is modern, science-supported expert's doing the desired change management. War, diplomacy and dynastic intermarriage, trans-national empire building, and free trade were tried: Each collapsed. So had all prior companion attempts at uniting Europe.⁷²

After World-War II, decision-makers representing the major powers decided on international institution building and expert management as the action plan for the twin schema. That is the genesis of the current iteration of the ancient globalization is good and a united Europe is good schema. These are examples of two current schema efforts with very strong hindsight supports.

If schema proponents were incompetent to achieve their goals in all prior iterations, what, in the present iteration of these twin schema, differs enough to convince an analyst and forecaster that this schema's big picture outcome will be different?

Remember, the onus is on the schema proponent. Recall too, that rather than pre-building a model using elements the analyst thinks are useful for a forecast, then testing, a holistic approach passively watches for which empirical patterns arise as the schema goal is pursued. Throughout, the analyst iteratively folds in multi-disciplinary information with the benefit of strong hindsight recognition conditions.

⁷² There is a huge literature on these efforts individually and as a topic. I summed the foresight and forecasting aspects that are relevant to this work in: See Op. Cit. Werther, Guntram. *On better assessing the future outcomes of 'grand, world-changing schema'*;

Constructing a united Europe and globalization regime cannot be a random effort. Certain interim conditions must be achieved, and others avoided. Doing this takes time and the interim patterns – syncretic syndrome changes - in the overall sought change process are visible even if the planner’s minute, often secretive, efforts en route are not visible. One cannot act at this scale without leaving signs. Also, discussion by proponents and opponents about these interim syndrome changes is often robust.

When, in the early-stage process of watching this schema unfold, familiar hindsight congruities and incongruities arise, they are worth assessing and evaluating as to their foresight value.

Again, the foresight focus is not on particular facts but rather on emerging patterns of congruities and incongruities viz. this schema’s requirements. The mindset terms syndrome change and syncretism are better perspectives than many alternatives.

Proponents work to change the existing syndrome, or manner of things, into a goal-defined outcome condition called globalization and European Union. Syncretism, changing inflectional forms, is often how that happens, if it does happen. Not a big bang, but an inflectional walk over time in the planned direction: or not. That is the iterative realm for building a foresight judgment.

Of efforts to build globalization and unite Europe this author once remarked that both schema are very attractive ideas that recur over millennia but which either were never achieved or did not persist even in the short term. Backlash features scuttled them. Both ideas are now like intellectually promising 2,000-year-old prospects on a baseball team who never, in the prior 1,999 years, made the final cut.

This could be their time. Or not. There is a lot of useful analogy to consider here.

The forecasting output judgment for this iteration involves integrating particular, empirical aspects of actual syndrome changes while using hindsight recognition to form ever better big-picture judgments about this LSLIRE’s emergence early on.

4.1.6.2 Hindsight for Schema with Partial Analogy Conditions:

What was said in the prior section is only partially useful in this condition.

Pandemics per se are not unusual in human experience. The COVID-19 pandemic is neither an unusual event nor a Black Swan. It surely has unique disease features, a high official perceived seriousness, almost universal government management attention and in those efforts shows differing societal responses for its management. These societally differing management efforts show interesting hindsight analogy elements.

Attempts at managing other more or less serious pandemics have knowable histories, thus some analogy from hindsight is possible. However, few pandemics in the modern era have generated so broad a government response. Few modern pandemics are highly conditionally relatable. This suggests looking at other very serious crises that generated similarly broad government response for useful hindsight analogy.

As previously discussed, because different societies have differing values, ways of addressing crises within differing laws, institutions and societal capabilities, it is unlikely that they will not show those values, ways and capabilities (or limits) when addressing this LSLIRE. A uniform management path is not likely to occur.

An interesting recognition so far, as a very early tentative observation, is that indeed different societies are using their institutions and societal ways reflective of their differing values, habits, and traditions. It will surprise no one that serious crisis or no, lawsuits, serious variations in response and conflicts among levels and regions of government again abound within the U.S. context. The Japanese, Icelandic, Israeli and others’ responses show predictive analogies reflective of their prior serious crises’ management behavior. This suggests, again tentatively,

that building a holistic forecast judgment about how each government and society will act in a future serious crisis is plausible.

4.1.6.3 *Hindsight for Schema under Non-Analogy Conditions:*

What was said in the previous two sections cannot apply in this section.

The point in this section is not to teach or expect expertise of the readers within a 'rare' discipline but rather to build in them a capacity for judging the risk implications of a huge paradigm shift of global scale and scope that they probably never considered. Many billions of dollars have so far been lost. More will be.

Rarely, a schema arises which nobody has tried before. In such a condition, there can be no recognition in hindsight. One needs to build a forecast without benefit of prior event hindsight or analogy from hindsight.

The 20th century construction of a solely state-sovereignty regime (idea) to build a modern world order of member sovereign states housed in the United Nations and supported by other newly formed international institutions is one such idea in policy action (schema).

Nobody had ever tried that before.

Previously all manner of groups and peoples had legitimate land tenure, trading, treaty and war making authority. That is why the U.S, for example, signed treaties with the Kingdom of Hawaii and hundreds of tribes. Before there was a country called 'India', Great Britain had government-to-government relations with all manner of polities there, as they did elsewhere. All that, and more, was legitimate Western statecraft for centuries.

This new world-changing schema construction de facto and de jure delegitimized all non-state peoples as sovereigns in the international sense of the concept. Many non-state peoples had, in the just-prior centuries, signed treaties as sovereign peoples with modern national states. There are thousands of such cases. Then, at the beginning of the 20th century, the modern states changed the rules.

Much of 20th century conflict thereafter centered around who is, is not, can be and cannot be, a sovereign national state within this new world order. It was a messy process: Turks, yes; Kurds, no; some Somali's yes; others, no, Tuareg, no; + 40 new sub-Saharan African states, yes; about 1,000 African peoples living therein, no; China, yes; Uighur, no; United States, yes; for the +500 First Nations⁷³ living in the U.S.; sort of; ditto 'sort of' for Canada. By 'sort of' the author means only that these peoples early achieved limited self-determination within their enfolding country. That range and scope of self-determination has been expanding toward greater control of lands, resources and decisions about them. In the U.S. parlance, they are domestic dependent nations – 'sort of' sovereign.

This early to mid- 20th century rethinking at the highest levels of who can be and cannot be sovereign peoples internationally involved almost all of the world's countries. The change process was that big.

Who controls lands, resources, an entity's members and who makes decisions about them was and is the issue. The risk and uncertainty inherent in any foundational change of this 'new' 20th Century arrangement has not been well addressed. Then the big schema change process grew, and then happened.

⁷³ Note – First Nation is the preferred term for indigenous peoples' entities (tribe, band, etc.) in the U.S., Canada and increasingly globally.

The late 20th and early 21st century iterated return to the status quo ante is without recognition analogy. Some types of non-state entities (non-state peoples making a certain kind of status claim) are now unanimously admitted being equally sovereign to modern states and have a recognized status enforceable against the modern state.

Naturally, a status change this big comes with growing conflict and imperfect actualization. It also comes with ever more wins against firms and countries (national states) that have so far cost the latter many billions of dollars and seriously impacted or halted a wide variety of planned business ventures and government agendas. The country-by-country operational part of this unanimous admission has not been worked out at this writing.⁷⁴

Hardly anyone has addressed the risk and uncertainty management implications of this status return. The emergent impacts and foresight aspects of this non-analogous LSLIRE condition are even more thinly evaluated.

For those readers unfamiliar with the topic, consider the implication if each modern nation state (U. N. member country) IS NOT legitimately the sole sovereign over many of its internal lands and the management of domestic affairs on them? Consider that for some internal peoples and their claimed lands and resources, the modern state cannot alone make legitimate decisions involving either?

What happens to predictability and risk judgments involving investments, contracts, various development and change agendas, etc.? How do you plan? What if this condition is so worldwide?

Welcome to the topic of 21st century reconsideration of sovereignty. The world's lawyers and policy entrepreneurs are engaged. The author argues that foreseeable schema futures follow, but without hindsight analogy support in making the forecast judgment.

The assessment point to be made here is that no lessons from hindsight are useable since nobody has ever done or analyzed this LSLIRE before. Its change processes will likely be as messy as was the initial move by modern states to become sole sovereigns.

Such forecasting conditions are rare and present special problems for building up a valid, empirically supported forecast. In brief, the schema alone, along with its requirements and emergent actions take front and center in storyline construction and forecasting. This time is unique. Such conditional analogies as can exist come only from earlier within the timeline of this schema's emergence.

In plain English, because one is unable to consider how prior similar crises – there are none - were resolved there is no recognition from hindsight. One can only see how earlier conflicts within this emerging LSLIRE crisis are being or were resolved.

A final introductory point - Just because we are familiar with a condition (syndrome), does not make it natural. A fish may think the water it swims in is natural if it doesn't recognize a condition other than the fishbowl it is in. There was and is nothing natural about the early 20th century's construction of the now familiar world order of nearly 200 sovereign states and thousands of non-state peoples.

⁷⁴ *United Nations Declaration on the Rights of Indigenous Peoples*: United Nations General Assembly. 2007, A/61/L.67: 2); United Nations (GA/10612). September 13, 2007. *General Assembly Adopts Declaration on Rights of Indigenous Peoples*. New York: Department of Public Information, News and Media Division. <http://www.un.org/News/Press/docs/2007/ga10612.doc.htm>; See also Werther, Guntram and Mohammad Yasin Khosti. 2013. *Indigenous Peoples: Reshaping the International Security Environment; Implications for international security practitioners*. Military Intelligence Professionals Bulletin. U.S. Army Intelligence Center of Excellence: January-March Special Edition 2013.39 (1) 8. <https://ckc.army.mil>. As well as a huge legal and other literature on these rights conflicts.

4.1.7 CONSTRUCTING THE FORESIGHT STORYLINE:

Not connecting the provenance⁷⁵ for a foresight judgment that is derived from the realm of hindsight and is then linked to an insight is probably the biggest reason for failing to build a valid and defensible argument when forecasting.

If one cannot trace where the forecast came from, how it was built and why this particular pattern, syndrome and attending storyline is defensible, then one is right back in the black box world of machine learning, artificial intelligence and such.

Provenance is required in good enough rare event or emergence (LSLIRE), as in more mundane non-crisis, holistic forecasting. Recapping, one of the biggest problems in trusting, let alone understanding, artificial intelligence, machine-learning, big data and other forms of “brute force computation” outputs is that one has no idea where the output came from, how it was developed or what it means.⁷⁶

Lacking developmental provenance also makes one susceptible to the claim of fraud, hindsight bias and luck for the resulting forecast. Worse, lack of provenance can make the outcome seem to be a Black Swan when it is not. It is therefore necessary to defensibly connect the ideational, conceptual and empirical arguments as you are iteratively building up the holistic forecast from hindsight and insight judgments.

More to the point, what is most valuably gleaned from hindsight are not particular facts, key variables or even information about the prior outcome, but rather lessons from the idea in action (schema), its processes, dynamics of change and iterative syndrome changes that become evident from hindsight study.⁷⁷ This non-variable finding point of focus is important on many levels.

To the holistic judge any fact or pattern out of its context is an almost useless thing.

A fact, variable or pattern is likely to mean different things within different contexts or conditions therefore the focus of analysis is on the shifting context or condition (syndrome), its change process, enabling or disabling circumstances and so forth. This is a mindset shift adapted from some system’s-level thinking points made by others, to which we now briefly turn.

For doing cross national assessment Przeworski and Teune’s classic *The Logic of Comparative Social Inquiry* begins with the observation that “...not a single item of data was the same in all four countries...” studied because “social phenomena are not only diverse but always occur in mutually interdependent and interacting structures...” Thus Przeworski and Teune recommend the use of what they term “general variables” where “specific observations must be interpreted within the context of specific systems.” This is, by way of comparison, no different from Aristotle’s

⁷⁵ Merriam-Webster Dictionary – Provenance Definition. The author uses the concept mostly in the second sense – a history of the ownership of the object. In this case, the object is the holistic forecast throughout the building process.

1: Origin, Source

2: the history of ownership of a valued object or work of art or literature. <https://www.merriam-webster.com/dictionary/provenance>. Last downloaded on November 22, 2020.

⁷⁶ Jordan, Michael. *Current Trends in AI: Learning, Decisions and Markets*. Presented at the Temple University/Wells Fargo Equity Finance Conference (online) on November 19, 2020. Philadelphia: Temple University. Jordan considers AI, machine learning and big data an “engineering field” about “brute force computation” rather than a scientific one, which has made “pattern recognition” with zero understanding into “a commodity.” He is “not impressed” by outcomes. Provenance and relevance are not present in the outcomes. Jordan therefore argues for developing “markets” for this output. See also Ibid. David Donoho of Stanford University. *Deep Learning and AI: Has the Revolution Happened Yet?* Paraphrasing, Donoho said that ‘there are no deep ideas behind this. It is driven by endless data but you have no idea why at outcome emerges; then you make it up afterward.’

⁷⁷ Note: In the author’s view, one of the benefits of a classical, or Age of Enlightenment education when that was well done, is the focus on how and why things work as they do in human affairs. This kind of deep learning can be lost, or glossed over, in a fact-based curriculum that covers core subjects. Slow consideration matters, even as one builds range. See Fitzpatrick, Sean. *The Academic Abuse of Quantity Over Quality*. The Epoch Times, May 19, 2021, B 4-5.

point about the use of conditioned judgment within and among different contexts being the sign of a trained mind. From this recommendation, Przeworski and Teune introduce the idea of tactically using most-similar-system and most-different-system⁷⁸ frameworks to illuminate important contextual factors. Among and within these complex systems, all inferences are seen as conditioned by relevant system-specific 1) “diffusion patterns” (behavioral norms resulting from joined historical learning; e.g. British legal, political, social and other influences upon now independent former colonies), 2) “settings” (“...characteristics to which all individuals within a system are, at least potentially, exposed”; these include historical experiences, institutional settings, etc.) and 3) “contexts” (aggregates of individual characteristics for that social system such as “pre-dispositional or behavioral” characteristics).⁷⁹

Again, there is not much new here as seen from integrative or holistic sociological, archeological, historical or anthropological thinking perspective wherein all things are contextualized to illuminate their system-specific meaning. For example, of the historian Jacob Burckhardt, who was famous for his long-term predictions it is written that - “the general outlines of his twentieth century landscape were blocked out as early as 1848” – using as a technique which “projected the existing tendencies as he saw them into the unknown with the constant aid of analogies from history...”⁸⁰ These tendencies were ideational as well as about recognizing the empirical pattern aspects of the whole situation. In achieving such a landscape view, the 18th and 19th century Germanic scholars and their imitators were, in general, better judges than scholars following the more atomistic and arithmetic British-French traditions of the time.

What Przeworski and Teune were tasked to do was address the demands of doing good comparative work at a time much nearer the beginning of our age of increasingly mathematizing assessment techniques than we are at today. By 1982, they came to the above summed conclusions.

From a holistic LSLIRE foresight perspective much about this future viewing landscape set of approaches remains valid.

4.1.8 CLOSING HINDSIGHT COMMENTS - LESSONS FROM SOME ‘BLACK SWANS’ THAT AREN’T:

In Werther and Herget (2013), Nassim Taleb’s *demonstrative claim* that an early 20th century collapse of Lebanon’s stability was a Black Swan “coming out of nowhere” was rebuffed by showing prior decades-long reporting and a broad understanding about Lebanon’s growing instability: the provenance of the event.⁸¹ Whole governments, as well as various domestic Lebanese governments, intervened in the growing unrest to try and keep the artificial modern entity called Lebanon together. The authors showed that Taleb’s argument is oversold: much more can be forecast.

Similarly, the fine forecast by Ticknor found in de Tocqueville’s collected letters where the former correctly places and correctly times the start of the U.S. Civil War to the election of 1860 is still a very good LSLIRE forecast. The author placed his quote near the front-piece of the book to hammer home a context point now.

Ticknor’s forecast is less miraculous when one considers the long and complex provenance in American political discourse, dating almost from its national founding, of the idea of dissolving the Union. Lots of people, Thomas Jefferson among them, came to the conclusion that the Union would not, could not, last and that the issue of

⁷⁸ Please see the Glossary for a brief explanation of most-similar and most-different systems use.

⁷⁹ Przeworski, Adam and Henry Teune. 1982. *The Logic of Comparative Social Inquiry*. Malabar, Florida: Robert E. Krieger Publishing Company. Especially ix, 8-12, 32-39, 51-57.

⁸⁰ Burckhardt, Jacob. 1943. *Force and Freedom – Reflections on History*. Ed. James Nichols. New York: Pantheon Books. Pp.30-31.

⁸¹ Op. Cit, Taleb, page 20.

slavery, or more fully stated, the growing lifestyle and ideational separation of the northern from the southern states exemplified by the Missouri Compromise, would doom the system.⁸²

In short, Ticknor’s forecast of a Civil War starting in 1860 taken in isolation is miraculous. When taken in context it is merely very good, but by no means a Black Swan event miraculously forecast.

Attention to hindsight conditions therefore folds in the many interim disputes and actions that presaged the 1860 U.S. Civil War. They included passing the Kansas-Nebraska Act (1854), the changing logics favoring at first the earlier Missouri Compromise (1820) and then the *Dred Scott v. Sandford* (1857) Supreme Court decision that overturned it. The impact of the founding of the anti-slavery Republican Party (1854), acting in opposition to southern Democrats’ positions, just like the acts of hammering out of the compromise Presidency of Buchanan (1856), were known to Ticknor: and to a great many others. Ticknor simply built a correct forecast that was argued out in de Tocqueville’s circle of well-educated and experienced friends.

The 18th and 19th century United States, like early 20th century Lebanon, was a very fragile construction – and was broadly known to be so. Given iterative ideational and change dynamics focused provenance supporting a forecasted hindsight to insight to foresight construction, there is nothing suggesting a Black Swan emergence about either event, or nothing undoable about correctly forecasting it.

In a holistic landscape assessment and forecasting mindscape, events do not just come out of nowhere. It may be the case that the analyst missed the event’s emergence, but one rarely accepts that the event could not have been forecast.

4.1.9 THE ACT OF LEVERAGING HINDSIGHT WITH PROVENANCE CREATION:

To move forward, there are a number of holistic thinking perspectives that must be learned. It is tedious to repeat them here.

Discussion of some needed ideas like *Layering Up* (15-18), *Folding In* (19-22), *Seeing Societies as Solution Sets* (23-24), *Reasons for Middle-Ground Focus* (24-27), *Most-Similar & Most-Different Systems Comparison* (27-34), *Interpenetrated Developmental Dynamics* (40-46), *Embedded-ness, Emergence and Dynamic Path Formation* (46-57) were briefly conceptually introduced in Werther (2008).⁸³

These, along with other considerations, are covered again in a more operationally focused way within Werther and Herget’s (2013) SOA work *On Cognitive, Philosophical, Methodological And Best-Practice Grounding Issues* (5-7), in Section Three on *Moving Toward Solutions That Better Forecast Large-Scale, Large-Impact Rare Events* (24-38) and in Section Four on *The Better Recognition and Timing of an Emerging LSLIRE* (39-48). There follows a *Glossary of Terms*, (49-52).⁸⁴

The major takeaway points from this hindsight discussion are that:

- 1) Hindsight IS recognition.
- 2) You cannot re-cognize that about which you have had no prior cognition.
- 3) Facts, variables and patterns out of context are not useful to holistic foresight.
- 4) These dynamic, contextually unique complexes exist as syndromes.
- 5) These syndromes are what is changing, but not in a ‘free’ way.

⁸² Crawford, Alan. 2008. *Twilight at Monticello – The Final Years of Thomas Jefferson*. New York: Random House, Pp. 195.

⁸³ Op. Cit., Werther, *Holistic Integrative Analysis of International Change*, Proteus Monograph Series, Office of the Director of National Intelligence.

⁸⁴ Op. Cit., Werther & Herget. SOA Monograph, *When Black Swans Aren’t*.

- 6) They are specifically embedded, entangled and emergent; hence are bias systems.
- 7) Recognizing a LSLIRE emergence before the herd is middle-range thinking.
- 8) The defensible Hindsight to Insight to Foresight judgment requires a documented storyline construction termed its provenance.
- 9) Holistic forecasting technique does not GET. It iteratively folds in, layers up, assesses and synthesizes relevant information across multiple disciplines.
- 10) Holistic forecasting is this-context specific. It is not applied analogy, statistically general or mathematically non-empirical. It iteratively tests, retests and focuses on building consilience across empirical and ideational realms of arising information.
- 11) Holism mostly rejects 'Black Swan' thinking – nothing comes “out of nowhere.”
- 12) Complex, adaptive human-involved systems are NOT 'free' and don't change randomly. Often change is syncretic and seen as inflectional forms changing.
- 13) This allows 'good enough' forecasting about unplanned LSLIRE emergence and aftermath change dynamics. Human systems are bias systems that iteratively adapt.
- 14) For planned LSLIRE operationalized ideas-in-action, called schema, these can be variously evaluated depending on their experiential features.
- 15) In evaluating schema futures, hindsight is only conditionally useful.

The following Insight and Foresight chapters apply these and other considerations to the exemplars introduced. In that process, this work hopes to illuminate the 'what can and cannot be' aspects of differing conditions and syndromes that so many systems-level holistic thinkers have remarked about. Unlike in artificial intelligence, big data and other 'black box' mathematical outputs, the provenance of the forecast storyline judgment is developed.

4.2 AN ACTUARY'S VIEW:

Recent studies have shown that, despite a desire to highlight young entrepreneurs as examples in the media, businesses are more likely to succeed if founded by someone with experience.⁸⁵ Some historical data is entirely predictive of the future. True value is added when historical data is available, while analysis reveals that a regime shift is forthcoming. This is the unknown known category, where historical data is not predictive and black box techniques generate results that lead to poor decisions.

Hindsight shows that experience allows a latticework of mental models to better pick up evolutionary changes based on past behavior and anticipate the future. Those who recognized that slowing economic growth and lower nominal interest rates were not just part of a short cycle were able to adjust products and investments earlier than others. Those who recognized that a pandemic was inevitable were able to build mitigations through product design and other hedges. This same process will allow scenarios to qualitatively consider tipping points, feedback loops and higher order interactions for the impact of varying levels of high government debt, populism and climate change.

A real-world example is to consider how these issues will impact immigration and regional conflict over long time horizons as some areas near the equator become inhospitable living zones. The experienced practitioner is more likely to identify that a regime shift is coming, while big data provides information but no context to recognize when the distribution has changed. The two methods work best in concert with each other.

Reading this monograph hopefully will stimulate the reader's interest in the subject but is not sufficient. Experience is built up over time while seeking out emerging risks and opportunities.

⁸⁵ Epstein, David. *Range: Why Generalists Triumph in a Specialized World*. Riverhead Books. 2019.

People with this skillset are rare and often state conclusions that challenge the status quo. An organization's culture must encourage them, even if they are not absolutely accurate on every idea. They will often be early. This must be differentiated from being wrong. A supportive mentor who is willing and able to protect an employee with a long time horizon adds value for generations after retirement. At the same time, the employee must develop rapport throughout the organization and learn how to make suggestions without implying that others are not capable of success. This is a difficult balancing act, made easier by playing in company sports leagues and participating in corporate volunteer activities like Habitat for Humanity.

5 BUILDING INSIGHT WITH PROVENANCE:

5.1 YOU CANNOT HAVE AN INSIGHT FROM SOMETHING ABOUT WHICH YOU HAVE NO KNOWLEDGE:

This clear, simple and often anciently recognized fact seems to be new news.

Reviewed by Daniel Pink as “this groundbreaking book”,⁸⁶ David Epstein’s 2019 admittedly interesting book *Range: Why Generalists Triumph in a Specialized World* was predated in its core finding by Aristotle who, in *The Nichomachean Ethics*, wrote “The good critic in general is the man with a general education [who is]...versed in the practical business of life.”⁸⁷ Many of the world’s various ‘Classical’ thinking traditions and certainly much of the Western Renaissance’s learning focus equated being educated with being broadly so.⁸⁸ Similarly, Tetlock’s best *super forecasters* are non-expert generalist integrators with broad experience in life.⁸⁹ About this, Epstein concurs.⁹⁰

It may be helpful to today’s specialized practitioners, when illustrating this point, to recall that Adam Smith, called founder of economics, was Professor/Chair of Moral Philosophy and Doctor of Laws at Glasgow University where he taught multiple subjects. Besides his now famous *An Inquiry into the Nature and Causes of the Wealth of Nations*, he was best known during his life for the now rarely read *Theory of Moral Sentiments* in which he argued that society is not moved by individual self-interest, but rather by mutual sympathy, or something akin to our modern notion of societal regard, approbation, or standing.⁹¹ Smith was much more than an economist.

Many such thinkers have minds that are broadly conversant with multiple realms of human affairs.⁹² They and their peers understand human affairs at quite deep levels.

Also, they knew and used lessons from historical experience to foresee big changes.

5.1.1 GENERAL CONSIDERATIONS

5.1.1.1 *The ‘Necessary Statistics’ versus ‘Good Enough’ Insight-to-Foresight Positions:*

In Tetlock and Gardner’s famous 2015 book *Super-Forecasting*, the authors wrote near the end that, “What matters is the big question that can’t be scored. The little question doesn’t matter but can be scored, so the IARPA tournament went with it. You could say we were so hell-bent on looking scientific that we counted what doesn’t count.”⁹³

This is a wonderfully honest admission for which both authors deserve the highest honor, respect and thanks. Often, what gets funded, published and thereafter quoted has to *look* scientific. Therefore, to get Intelligence Advanced Research Projects Activity funding, one had to be able to score forecasts because that is what IARPA wants, which led to asking mostly little questions that could be scored with answers submitted daily at 9AM from September 2011 to June 2015. Typical forecasting problems were of the form of judging whether this or that event would happen within this-to-that arbitrary time slot. The winners were labeled super forecasters.⁹⁴

⁸⁶ Pink, Daniel H. Review of David Epstein’s *Range: Why Generalists Triumph in a Specialized World*. <https://daveepstein.com/the-range/>; Uploaded January 6, 2021.

⁸⁷ Op. Cit. Aristotle. 1983., P. 65.

⁸⁸ Op. Cit. Note: Werther, 2008, *Holistic Integrative Analysis of International Change*, among many other works surely, summed the matter as “Many men esteemed for their wisdom...have emphasized this happy nexus of talents leading to insight.” (p. 5); See the discussion in pages 1-18 especially.

⁸⁹ Op. Cit. Tetlock, Philip and Ted Gardner. 2015. *Superforecasting*

⁹⁰ Epstein, David. 2019. *Range – Why Generalists Triumph in a Specialized World*. New York: Riverhead Books.

⁹¹ Smith, Adam. 1982. Raphael and Macfie, Editors. *The Theory of Moral Sentiments*. Indianapolis: Liberty Press.

⁹² See, for example, the writing of Lord Acton, Burckhardt, Goethe, Weber, Tolstoy, Hume, Hutcheson, Franklin, Jefferson, Tocqueville, Hayek, Marx, and others left, center and right.

⁹³ Op. Cit. Tetlock and Gardner, *SuperForecasting*, P. 262.

⁹⁴ Ibid. Pp. 17-18, particularly.

Problem solved, except that this approach does not and cannot work for the kinds of large-scale, large-impact rare events and emergences that are the subject of this inquiry into ‘good enough’ hindsight to insight to foresight development with provenance about schemas. The requirement here is change process assessment within a holistic syndrome change context where there is no endpoint ‘event’ seen as finality. What is being judged is syndrome change, often of a syncretic kind, which continues to change.

Again, to their credit, Tetlock and Gardner begin their book with the long known and very correct statement that “We are all forecasters.”⁹⁵ Gaddis discusses the same notion in his book on grand strategy.⁹⁶

The point is obvious. Aristotle, Confucius, Maimonides, Montesquieu and many others have made it, as did others who also make the parallel points that some people are naturally better judges – a proof the first three anciently required for entry into advanced teaching. Tetlock and Gardner also claimed that doing better forecasting can be taught to most people up to a point and finally, that for big events we turn to experts. This last point is neither obvious nor correct using Tetlock and Gardner’s own data. A better view is Aristotle’s, that for specialized questions you need specialists and for general ones’ generalists, with differing degrees of precision attainable among them due to the nature of the subject.

Tetlock and Gardner’s argument summed up is that some people think differently and thus are naturally better forecasters, and that thinking differently can be taught. This author covered each point in a 2008 Office of the Director of National Intelligence funded work, which began at sentence one with the observation that good forecasting is a “taught skill within a found talent.” The other points were covered therein and in a series of prior articles.⁹⁷ Tetlock and Gardner’s requirement of a need to set clear goals in order for a forecast to be a forecast is differently framed herein for LSLIRE judgment with provenance, although a LSLIRE judgment is not time limited nor does it require statistical confidence intervals, just as most human judgment throughout history did not require stats and time-slotted judgment.

The idea that early foreseeing and then tracing specifics leading to a correct forecast about a LSLIRE outcome like the ‘Big Short’ default on housing bonds, ‘This Time is Different’ market crashes, a failure of stable integration of Europe or of globalization does not count as a useful forecast because one is off by a week, month or more and because the judgment process lacks statistical confidence intervals is a case of the tail wagging the dog. The idea here is to forecast correctly with provenance, not hamstringing the effort with requirements that were not used, and could not have been used, for most of human history.

⁹⁵ Ibid. P. 1;

⁹⁶ Op. cit. Gaddis, Pp. 14-19.

⁹⁷ Op. Cit. Werther 2008, *Holistic Integrative Analysis of International Change: A Commentary of Teaching Emergent Futures*, The Proteus Monograph Series, Vol. 1, Issue 3; Office of the Director of National Intelligence, National Intelligence University and U.S. Army War College, Center for Strategic Leadership, which begins with the comment that “To accomplish – properly, correctly and regularly – an holistically integrative assessment of international change dynamics, and forecasting therewith international change (futures), is to demonstrate a taught skill within a found talent.” Page, 1, See pages 1-22; for the other points see for example, Werther, Guntram. 2006. *Integrated Learning as a Necessary Ground of Integrated Security Solutions*. Proceedings: The Canadian IUS Conference on “Integrated Security”, Ottawa, Canada: October 2006; Werther, Guntram. *Integrated Analysis as Foundation for Integrated Security: Why the House Cannot Stand*. Proceedings: The Canadian IUS Conference on “Integrated Security”, Ottawa, Canada: October 2006; Werther, Guntram. *Building an Analysis Age for Business Intelligence in the 21st Century*. *The Competitive Intelligence Review*: Vol. 12, No. 1, (Spring 2001), pp. 41-47; Werther, Guntram. *Beyond the Blocking Tree: Improving Performance in Future-Oriented Analysis*. *Competitive Intelligence Magazine*: Vol. 3, No. 4, (October-December 2000), pp. 40-44; Werther, Guntram. *Profiling ‘Change Processes’ as a Strategic Analysis Tool*. *Competitive Intelligence Magazine*: Vol. 3, No. 1. (January-March 2000), pp. 19-22; Werther, Guntram. *The Crisis in Business Intelligence: The need for training reform*. *Thunderbird International Business Review*, Vol. 41(3) (May-June 1999), pp. 287-290; Werther, Guntram. *The Problem with Precision: three tendencies to avoid if your aim is effective strategic analysis*. *Competitive Intelligence Magazine*: Vol. 1, No. 2. (July-September 1998), pp. 24-26;

“The big question... can’t be scored”⁹⁸ ... at least not the way *Super Forecasting* sees the task.

5.1.1.2 *Our Society’s Self-Inflicted Wounds:*

The ‘generalist’ broad knowledge tradition never died.

Presently, for example, the world-famous investor John C. Bogle quotes Cervantes (Don Quixote) as the intellectual foundation for the Vanguard investing strategy: Don’t look for the needle in the haystack - buy the haystack.⁹⁹ Others, like Harvard’s Gardner, have pointed out the broad “synthesizing” aspect of insight competence.¹⁰⁰

The just-previous italics were purposeful: gain insights from the study of process not cases. The focus herein involves profiling change processes not fact learning from prior cases.

A point previously discussed is that the expansion of operational competence from very familiar environments, where a ‘good enough’ forecasting aspect is almost unconscious for people, toward increasingly unfamiliar realms is the expansion of experience of those realms through learning. One cannot draw useful analogies and insights from realms about which one has no knowledge and using analogies from realms about which one has poor knowledge is a very risky thing.

Gain knowledge of what? - About how things work in the analogous systems. The idea here is that gaining useful range is tied to proper learning about how things work in other realms. This is different than having acquired merely passing awareness or case knowledge.

Getting to propriety of understanding about other realms of knowledge is what specialization curtails.¹⁰¹ If having a little knowledge is a dangerous thing, then using shaky insights from history, cases, from other fields or about other things seems plausibly similarly dangerous. For example, biological analogies and metaphors are presently all the rage in complex human system forecasting so that we now have a menagerie of critters – swans, dragons, mules, horses, foxes, hedgehogs – about which something is purportedly useful for understanding complex adaptive human societies, their changes and future. May one simply doubt, for now, that this is so?

Conceptual misuse of such in-vogue analogies and its implications is discussed within the closing comments of Chapter 5.

A final point that needs to be made here is that while statistics and mathematics are wonderful situational tools, they ought not be judgment straitjackets for scoring since almost none of the people in the ‘we are all forecasters’ community of broader humanity that Tetlock and Gardner notices used statistics or advanced mathematics in their ‘good enough’ daily judgments. For most of history they could not have used these modern inventions (tools).

What average human judges, for example, that this morning there is a 97.5% chance (with a stated confidence interval) that there will be a traffic jam on I-40 so s/he will use Pine Street instead? - Few to none. Are we going to eliminate every good judgment in history because they didn’t use our favored tool?

Similarly, is it true that “Obviously, a forecast without a time frame is absurd”?¹⁰² *The Big Short* actor’s forecast that there was a housing bubble ready to sink the U.S. economy was worth billions without such a tight time frame

⁹⁸ Op. Cit. Tetlock and Gardner.

⁹⁹ Bogle, John. 2001. *John Bogle on Investing: The First 50 Years*. New York: McGraw-Hill, Pp. 2.

¹⁰⁰ Gardner, Howard. 2006. *Five Minds for the Future*. Boston: Harvard Business School Press.

¹⁰¹ Note: Two professors on the author’s doctoral committee commented that he had “gotten on top of” several fields of knowledge, meaning that an appropriate functional understanding, if not mastery, of them had been attained. Use “propriety” is that sense.

¹⁰² Op. Cit. Tetlock and Gardner, *SuperForecasting*, pp. 52.

attached to the forecast. So is an early judgment of backlash to globalization arising valid without stating, years earlier, the exact time frame when this blockage of a globalization schema matures.

The Tetlock and Gardner use of “will...” questions within an arbitrary time slot and with a statistical probability judgment attached is neither historically, conditionally nor presently operationally useful.

As they wrote, this scoring requirement keeps analysts from assessing the big questions that count and forces thinking toward making judgments that don’t count.

That said, tools for judging forecast and forecaster accuracy can be developed without the constraining ‘event’ scoring mindset and timeslot framing activity.

The answer lies in remembering what science is: hypothesis testing. Simply, one replaces ‘will’ this event happen by this time questions with other hypothesis formulations that are more useful to change process illuminations and holistic insight-foresight evaluations.

5.1.1.3 A Broad Learning Tradition Continued – sparingly – into the Present Era:

For a long period during our ‘modern’ times it merely became less highly regarded within the mainstream scientific, social science and other professional disciplines. Past mentors steered graduate students away from generality into specialization.¹⁰³

When the author was a graduate student in the 1980s, to be called a generalist was a ‘put down’ that was often linked to the accompanying transmitted assumption that you were perhaps not good enough to be a specialist. It was thus a block to hiring, building a career and to academic regard.

That present situation is perhaps what the Epstein title segment “...in a Specialized World” refers to. The *world* was never specialized – far from it – but our approach to understanding it increasingly became so. Few people were lucky enough to find mentors who did not see understanding the world that way.

5.1.1.4 Healing the Self-Inflicted Wounds:

The problem remains that specialized experts, even teams of them, too often fail to see the play.¹⁰⁴

Epstein’s recent observation that top scientists are broadly learned is also old news.

For example, we know Einstein “was willing with equal gusto, to play the violin or discuss Hume and Kant.” He was an avid student of history, philosophy, physics and a serious reader of biographies. Asked late in life what the schools should teach, Einstein advised, “In teaching history, there should be extensive discussion of personalities who benefitted mankind through independence of character and judgment.”¹⁰⁵

More recently, in his *Conclusion* chapter, Thomas Piketty writes ‘The new methods often lead to a neglect of history and of the fact that historical experience (emphasis added) remains our principal source of knowledge.’ Apparently,

¹⁰³ Loeb, Avi. *Advice to Young Scientists: Be a Generalist*. Scientific American Blog Network, March 16, 2020. <https://blogs.scientificamerican.com/observations/advice-for-young-scientists-be-a-generalist/>.

¹⁰⁴ This critique has become common. See, for example, Swaim, Barton. *Trump and the Failure of the Expert Class*. Opinion. The Wall Street Journal. Saturday/Sunday, January 23-24, 2021, A11; It is shared in both Epstein’s *Range* and Tetlock and Gardner’s *Superforecasting*.

¹⁰⁵ Isaacson, Walter. 2007. *Einstein – His Life and Universe*. New York: Simon and Schuster, pp. 2-6; p. 166.

there is presently also a neglect of historical memory about what constitutes a person most capable of judging the world's events. Piketty advises working across the disciplines if the goal is "to be useful."¹⁰⁶

This necessary synthetic thinking skill is an individual ability.¹⁰⁷

If the goal is teamwork in assessment, as with intelligence fusion centers, then the individuals placed therein each need to be synthetic thinkers.¹⁰⁸

Useful insight for building synthetic judgment with provenance arises thereby, as does the more difficult ability to wield syncretic insights about whole-system change and its future. This chapter goes beyond static concepts of having generality, range and so forth to a dynamic operations focused approach for having useful insights.

5.1.1.5 *The 'Modern' Insight for Better Forecasting Problem Summed:*

That being broadly knowledgeable and experienced in many things is an advantage for living and judging in a complex world, which the world always has been, is now seen as a new finding derived from our research is the best demonstration of the modern forecasting problem that this author can find. The discussion thus far should have convinced the reader that both attributes were anciently known.

This realization's modern resurrection comes after the post-World War 2 specialization trend within teaching and professional orientations for understanding human conditions, actions and change. The mathematizing of many disciplines accompanied this change.¹⁰⁹

Seen in this way, the modern problem of doing better forecasting involved unlearning harmful choices, relearning useful lessons from history's good judges and leveraging modern tools in appropriate ways.

To this discussion, we now turn.

5.1.2 PHILOSOPHICAL ASPECTS

5.1.2.1 *Complexity is Our Friend in Holistic Forecasting:*

Complexity is not, per se, a problem in holistic forecasting. It is the way the world is. We use it.

For example, once one knows an ocean liner's heading, one knows in 'good enough' fashion where it can go within the short to medium term. It is not free as to near future course changes. It is complexly embedded and entangled in past arrangements and acts. One can turn a kayak with one stroke, but not an ocean liner. Directed change is even harder for complex, adaptive, interpenetrated human-involved systems than it is for an ocean liner captain. Ask any societal reformer, CEO or politician how easy or hard it is to direct a large complex's change and this point is made. Complex adaptive human-involved systems are recursively resilient. That insight goes back millennia in several thinking traditions.

The advantage for building insight-to-foresight about the exemplar schema of uniting Europe, fostering globalization, managing COVID -19 and building a differently sovereign world system will be discussed.

¹⁰⁶ Piketty, Thomas. 2014. *Capital in the Twenty-first Century*. Arthur Goldhammer, Trans. Cambridge, MA: The Belknap Press of Harvard University Press, p. 575. See also Gardner, Howard. 2006. *Five Minds for the Future*. Boston: Harvard Business School Press.

¹⁰⁷ Op. Cit. Werther. 2008. *Holistic Integrative Analysis of International Change: A Commentary of Teaching Emergent Futures*. p. 1.

¹⁰⁸ Op. Cit. Werther, Guntram. 2010. *Fusion Centers and Beyond*.

¹⁰⁹ Op. Cit. Werther quoting senior intelligence sources who place the genesis of trends toward specialization and mathematical shifts in intelligence analysis to the Sputnik event and, especially, the Cuban Missile Crisis era. The same emergence is evident in many civilian professions and disciplines after WWII.

For now, know that extant syndromes resist change – period.

5.1.2.2 Using Hindsight for Forming Insight When Forecasting Schema Change:

Recapping, the default judgment position asks ‘specifically show how this schema can be actualized?’ What needs to happen? What cannot?¹¹⁰ The onus is on the schema proponent. This schema forecasting idea can be applied broadly. For example, during a presentation on offering car insurance in China, the presenter’s risk, operations and pricing issue was ‘what can and cannot be’ in the program for them to make money insuring drivers/vehicles in China? In essence, ‘what should their operational plan (schema) be to unfold how the Chinese regulate, own and use cars?’ Future success and failure can be forecast from this schema, and they successfully achieved that.

Any schema operational plan or change effort can be forecast about. The insight position involves iteratively using experiential hindsight plus real-time judgments about that schema’s embedded, entangled and now emergent aspects from which foresight judgments with provenance are later derived.

In short, is the syndrome condition necessary for the schema to succeed arising or not? To make this empirically supported judgment possible with provenance, applying a version of John Mackie’s discussion of an INUS condition is useful.¹¹¹ This usage will be highlighted much more as the discussion proceeds and is summed in the Glossary.

5.1.2.3 Enter the Tapestry or Mosaic Anywhere When Building Insight:

Earlier, when discussing hindsight experience, the ideas of syndrome change and syncretism involving a syndrome’s plausible inflectional changes was introduced.

The guiding thought was that the insight judgment is specifically tied to this syndrome’s particular embedded, entangled conditions and therefore is limited as to its shaped future emergence aspects. A syndrome cannot become just any thing. Random change is out. Any future syndrome of a specific complex is not ‘free’ to be in the sense of a future autonomous atomic arrangement of its constituent elements where anything can happen via a ‘free’ rearrangement of its ‘atoms’ or constituent aspects. Rather syncretism – context-specific shaped inflectional forms - arise from this syndrome.

Other shaped inflectional forms can arise from another complex’s legacy syndrome.

¹¹⁰ If one wants to construct a formal ‘causal’ assessment, Mackie’s INUS condition applies. Mackie, John. *The Cement of the Universe. A Study of Causation*. Oxford: The Clarendon Press.

¹¹¹ Werther, Guntram. *Assessing ‘Idea’ Risk for ‘World-Changing Schema’: On Assessing Risk When Grand Transformative Hopes, and Often Hype, Becomes Policy*. Invited article - *Knect365 Finance* (Editor’s Thought Leadership selection), Knect365.com. April 17, 2019. <https://informaconnect.com/assessing-idea-risk-for-world-changing-schema/>; Last Accessed on January 24, 2021; The relevant section reads: “To provide a *proof* for plausible transformation, Mackie’s idea of an INUS condition can be adapted to explicate a stream of non-redundant elements (N) that are sufficient (S) for *a*, or *any*, reasoned demonstration that the world-changing schema can possibly occur (S). Such a proof must also deal with restraining blockages impeding a successful schema outcome; the conditions that if present make the schema’s achievement impossible or very implausible. Think of it this way: for any schema’s successful path all the sufficient factors must be present while all the blockages cannot be.

Mackie was concerned with proving formal causation. Thus, his unnecessary (U) and sufficient (S) elements refer to each *one path* among the many possible paths to an outcome. Formally, Mackie sees it this way. Because there are many ways to an outcome, each single factor of a (any) successful proof is related to the effect as individually insufficient (I) to produce it but as a non-redundant (N) factor linked to other non-redundant factors of an unnecessary (U) (there are other paths) but sufficient (S) condition. A lit match plus oxygen plus proper fuel produces a fire, but so does having an electrical short plus oxygen plus proper fuel, and many other such successful and sufficient combinations. None of that happens if, for example, it is raining.

The author is using the INUS condition requirement to show merely that *any* path is provable as being possible.

The overall logic is that absent plausible support for *some* stated specific and realistic pathway at syndrome-change level that *contains* the minimally sufficient factors to produce the desired outcome condition and *avoids* the blockages for the world-changing schema’s realization, ‘success’ will not likely occur. In short, the default risk judgment favors failure. With a stated pathway that avoids blockages, the sufficient factors can be individually and integrally assessed for risk.”

A good, though very simplified, visual is to consider this tapestry of interwoven threads or this mosaic of the patterned embedded stones that define it and hold it together as constituting a unity which we call this specific syndrome in time.

The syndrome will change, but as this whole syndrome changing. It is not general.

Short of conditions rending the tapestry or shattering the mosaic, judging emergent change of a syndrome is viewed as the process of foreseeing plausible newly arising inflectional arrangements: syncretism. The syndrome can morph, amoeba-like, but cannot become a whole new thing. The USA with a COVID-19 management schema is just the inflected prior USA syndrome in action – but now with COVID-19 to manage. We can assess the schema and its future from that perspective.

Japan’s syndrome inflects to become Japan with COVID-19 to manage. Neither is something entirely new. By far the most of each syndrome, (its arrangements and actions) remains: but newly inflected.

Japan $t=0$ iterates as Japan $t=1$, while the USA $t=0$ iterates as USA $t=1$, and so forth.

The mostly painful history about efforts to reconstruct whole societies, or ‘develop’ them in some desired way, is instructive about the power of societal latency and its resilience aspects at work.

This is important. If the usual U.S. way of changing things was and still is argumentative, conflicted, legalistic, power dispersed and localized, why would its COVID-19 management response be different? This is a country where, as was previously mentioned, the relatively clear words “all deliberate speed” applied by the Supreme Court to the task of school desegregation were argued over for a couple of decades. Americans argue and sue about almost every important, and some unimportant, issue. Again, why would COVID-19 management be done otherwise? What is true of the U.S. is not true about Japan, Israel and Iceland.

Profiling the differing management change processes of the U.S., Japan, Israel, and Iceland offers quite useful insights into their future outcomes precisely because each country shows latency and resilience.

5.1.2.4 Even When A System is Broken, What is Rebuilt?

Even when torn or shattered, there is a strong experiential argument that post-crisis people in their society seek (plan) to iteratively rebuild what they are familiar with.

The insight task therefore, whether in LSLIRE conditions and under conditions of normal change, is focused upon finding empirical and other support with provenance that hints at the emerging inflectional change around a specific INUS compliant schema syndrome. The author applies INUS compliance below. Recall that for a schema like uniting Europe to be INUS compliant, there must exist some specific path to achieving that outcome. Heinrich Fichtenau, in his insightful *The Carolingian Empire: The Age of Charlemagne*, does a masterful job of examining the long-growing internal and external tensions building around Charlemagne’s plan to unite Europe, and shows the Emperor’s failure to solve them.¹¹² The result is the dissolution of that schema for uniting Europe. Because they are more well known, we don’t really need to express the many tensions that arose around Napoleon’s and Hitler’s schema for uniting Europe on their way to uniting the globe. INUS (non) compliance asks whether the schema condition (syndrome) is arising or present.

Is it working as planned or not? If not; then how not?

¹¹² Fichtenau, Heinrich. 1964. *The Carolingian Empire – The Age of Charlemagne*. Peter Munz, Trans. New York: Harper Touchbooks.

For simple, constrained or well-defined and thus well-understood forecasting problems like projecting the useful life of an aircraft engine, or Silver's baseball player future success, the insight task is straightforward. That cannot be for large-scale, large-impact change assessment. A change of focus is needed.

5.1.2.5 *Invert the Complexity Causation Problem to Forecast the Schema's Future:*

Holistic *schema* forecasting involves a change of focus.¹¹³

If one looks at forecasting as a modeling problem, especially when assisted with big data, machine learning or learning agents, it is impossible to show causation among the plethora of potential explanatory patterns that arise. As MIT's Sandy Pentland pointed out, "The data is so big that any question you ask about it will usually have a statistically significant answer. This means, strangely, that the scientific method as we normally use it no longer works, because almost everything is significant!"¹¹⁴ Prior discussion herein termed machine learning/artificial intelligence a brute force engineering solution that creates patterns – too many usually - whose meaning is mysterious.

Thus building any solution with provenance remains a pure Mackie's INUS system thinking issue where there is more than one path to an outcome within a complex system.

Lots of combinations *can* start a fire. Lots of combinations can unite Europe. Lots of combinations can foster globalization, and so forth. "Can" is mere possibility and in machine learning outputs there are, as we have seen, too many 'cans' – too many patterns whose origin and meaning is unknowable.

But this author does not care. Invert the insight and foresight solution task. Solve the judgment problem.

5.1.2.6 *The 'Proof' Onus is on the Schema Actor:*

The schema insight-to-foresight forecasting problem is not some generic naval-gazing 'what is the world going to become' thing. It requires building a specific judgment about this schema, its claimed future and specifically how to achieve it.

If someone is proposing to unite Europe, can they show any one specific sufficient path to achieving that? Proposing to build globalization, show any one specific sufficient path to achieving that? Proposing to manage COVID-19 in country X, show any one specific sufficient path to achieving this in that society X? Proposing to change the judiciable definition of a 'sovereign' status in the whole world system, show the specific sufficient path to doing that? Proposing to insure cars in China at a profit? Do you propose to 'green' the world's energy system?¹¹⁵ State how. Building proof about how to do this is a schema proposer's problem.

It's your schema: Show any specific solution (idea plus a plan with sufficient non-redundant actions = its schema) leading to any one specific change process pathway that achieves the claimed goal. Deal with blocking elements that are experientially likely to arise along the way to the desired inflectional syndrome. As discussed, within a complex adaptive system there are many potential paths to an outcome. State one.

If we are kind, foresight judges might allow for well-defined alternatives along the way but...

¹¹³ Werther, Guntram. International Congress of Actuaries Quadrennial Meeting, Invited Plenary Speaker: "Improve Forecasting Through a Different Focus: 'Is it the fault of the paint and the brushes when we cannot paint like Rembrandt?'" Washington DC: (April 4, 2014).

¹¹⁴ Pentland, Alex (Sandy). *Reinventing Society in the Wake of Big Data*. Edge. https://www.edge.org/conversation/alex_sandy_pentland-reinventing-society-in-the-wake-of-big-data Printed on Sun January 24th 2021. Accessed January 24, 2021.

¹¹⁵ Eschenbach, Willis. *Bright Green Impossibilities*. *Watts Up With That?* January 27, 2021. <https://wattsupwiththat.com/2021/01/27/bright-green-impossibilities/>; Last accessed January 31, 2021.

5.1.2.7 *Reshaping Syndrome Complexity is the Proposer's Problem:*

As a holistic forecaster, what you are doing is assessing this schema's idea in action toward its proposed specific future INUS condition. What change is necessary for success? We use hindsight experience in ways that lead to insights that are useful for building valid foresight for assessing this schema's change process, and then build a 'good enough' forecast involving this necessary syndrome emergence.

The in/ability of the proposing actor to reshape the current syndrome by providing a non-redundant and sufficient route to schema success, while avoiding blocking conditions like rising border walls, growing anti-immigrant sentiment, nativism, growing populist leaderships and regulatory/behavioral changes that prevent sustainably uniting Europe or building globalization can be iteratively assessed with provenance. This schema's INUS solution path as it emerges, or not, is what is to be empirically assessed and judged.

Proposals, however enticing, that are mere ideas without specific accompanying plans and their enabling actions are speculations not worthy of the forecaster's time and effort.

The perceptive reader with notice that many 'wonderful' ideas come without any perceptible way for their realization. Given a schema linked to an INUS condition, one can holistically judge.

One cannot judge some inchoate 'future' unhinged from a schema and supporting INUS condition.

5.1.2.8 *Avoid 'Magic Thinking' Insight-to-Foresight Environments:*

Holistic forecasting needs to be contextually specific, empirical (though not necessarily arithmetic or statistical), rational and reasonable with provenance.

Evaluating fuzzy ideas of the 'if we had ham and bread, we could make a ham sandwich' kind led to unhinged guesses, vague hopes, magic thinking and an awful lot of wasted time, money and effort.

Speculation is fascinating but is not forecasting.

If a proponent merely claims that somehow, we shall do X or that the future X condition is better than the status quo, so we should somehow do it, walk on.

5.1.2.9 *Every Judge is Unique:*

This author like every other judge, can only have insights arising from the realm of one's specific experiential range, depth of hindsight learning and personal ability to form useful insights. That means that each judge will enter the tapestry or mosaic from a different knowledge position. The holistic trick is that the mosaic shifts as a whole syndrome, which was a main insight developed by Przeworski and Teune. What this suggests is that judges can forecast INUS condition failure from different perspectives. There are lots of ways to fail, just as there are lots of ways to succeed. All we have done is asked the schema proposer to specifically state one route (INUS compliant path and condition) to success so that it can be evaluated.

Synthesizing enough different insights regarding the proposed syndrome (condition) INUS *change process* compared to what actually arises is enough to make a 'good enough' judgment about its future. Again, different people can judge this uniquely and at different times yet come to commensurable conclusions.¹¹⁶

¹¹⁶ Murray, Alan. *GE's Immelt Signals End to & Decades of Globalization*. Fortune. May 20, 2016. <http://fortune.com/2016/05/20/ge-immelt-globalization/>; Last Accessed January 27, 2021; Immelt, Jeffrey (Interview by Edward Alden). *Adjusting to a New Reality: U.S. Business and the Future of Globalization: The Future of U.S. Trade Policy*. Foreign Affairs - CFR Events. September 28, 2016. <http://www.cfr.org/trade/adjusting-new-reality-us-business-future-globalization/p38345>; Last Accessed January 27, 2021.

Mindscales and landscapes wherein one has no cache, no threads of knowledge to build upon or valid analogy to grasp hold of, are out. Therefore, the author's judgment-building process is also unlikely to be identical to that of another, although the forecast conclusion may be similar.¹¹⁷ One can build forecasts about schema change issues from many different perspectives using different evidence.

5.1.2.10 Analogies are Both Useful and Dangerous Things:

A holistic judge needs to limit insight-to-foresight efforts to realms where relevant threads of change arise from experientially familiar terrain¹¹⁸ and from plausible analogy applications. Generally, these are human system to human system analogies.

Analogies from the physical sciences are fraught with danger. It is, for example, doubtful that individual atoms or groups of them plan or exact revenge after a destabilizing impact. Different cultures of humans often do. We doubt that atoms or groups of them plan ahead using their specific societal experience to avoid future harmful impacts, but different human cultures typically do.

Doubtful too is that the animals and plants of biologic analogies offer much useful insight about the emerging future of green energy development in Sweden versus China under conditions of global change.

The author is not arguing that such remote analogies are never useful, but rather that projections of this kind seem to have gotten out of hand in forecasting.

The author highly esteems Sir Isaiah Berlin, has for decades studied his writings and thus recognizes his very cautious and extremely conditional use of his now famous fox and hedgehog analogy as a way of framing Tolstoy's thinking as compared to other thinkers. However, it needs saying that the present human forecasting notion that hedgehogs know one big thing (are specialists) but foxes know many things (are generalists) is both wrong and at best entertaining in a tortoise versus hare or roadrunner versus coyote cartoon caricature kind of way.

As it happens, both hedgehogs and foxes are omnivorous, differentially sexually territorial and not at all 'free ranging' information-gatherers. They exhibit patterned behavior. That's how you catch them.

Hunters, trappers and biologists know things about the patterned lives of so-called 'free ranging' information gathering species that some forecasters apparently don't.

The implications of faulty analogy use from non-applicable knowledge realms for forecasting about context-specific entangled human system emergences are further addressed in the closing comments of Chapter 5. Here it is sufficient to say that there are just too many critter and plant, ecosystem, physical science and determinist-materialist analogies floating around in the forecasting literature.

5.1.2.11 Insights Don't Arise in a Convenient Order:

Insights come throughout the process of pondering. There is nothing neat and tidy about that process. Hence there is the need to fold in, layer up and iteratively resynthesize as the judgment building process matures to a forecast.

¹¹⁷ Op. Cit.. Immelt. Insights include worldwide rising protectionist pressures (p. 2), rising localization requirements (p. 2), "frayed trade deals" (p. 2), "things that aren't – its too idyllic" (p. 3), trade growing much more slowly than economies worldwide (p. 3), China as a disruptive factor (p. 4), trade is contentious in the United States (p. 4), citizen feelings about globalization (p. 4), not creating high value jobs, zero productivity growth (p. 5), broadly divided country (p. 7), etc.

¹¹⁸ Note: In the sole sovereignty schema example, which has no hindsight analogy, insight to foresight needs to be built up over a long time of observation. This special forecast judgment issue is explained later.

5.1.2.12 *Schema Insights Come Mixed:*

When considering large-scale, large-impact and rare schema as complicated as building globalization, uniting Europe, changing the global system of sovereignty rights or how different societies will try to manage COVID-19, a mix of insights from hindsight experience and useful analogy if those exist, plus insight from emerging change process data happens. These are traceable as to how one's judgment is being built.

Insights from the found work of others that challenges and/or supports one's tentative mosaic judgments also arise over time. The author earlier referenced GE's Jeffrey Immelt's judgment about globalization as one example.¹¹⁹ The trouble here is that one does not have the same, or sometimes any, provenance as to how other's judgments were built up. Recall, in that sense, that a problem with artificial intelligence and machine learning was that nobody has any idea how the output pattern was formed. It is brute engineering and black box. Outputs from expert judgments often have the same black box and provenance problem. Lacking provenance, one solution is to treat them as one data point to be integrated. Another is to interrogate the expert as to their judgment's provenance.

In any event, the whole point of iteratively judging for consilience of information arising around a specific schema INUS condition's emergence, or its non-emergence, is that insights come mixed. Judging is the judge's problem. Just as inappropriate analogies lead to inappropriate judgments, so does relying uncritically on expert's wrong judgments

5.1.2.13 *Insight is About a Specific Syndrome's Change Process Applied to a Schema:*

For this reason, the author's default approach is to use each such external judgment as one datum to be iteratively integrated. Also, the judgment focus is on conditions and their syndromes, syncretic change processes and other system-level information supporting, or not supporting, the emergence of one specific INUS compliant schema. Patterns are harder to fake than isolated facts.

Also, inverting the judgment process from forecasting the path to the future – there are always many possible paths and 'future' is an amorphous concept at best – to forecasting about one stated non-redundant INUS condition arising for a particular schema greatly simplifies insight generation.

Judgments are about how, or how can, in a dynamic INUS compliant change process sense, not will questions in a discrete event focused sense.

Almost any complex system change foresight task can be effectively judged in this way as a syncretic how or how can change process inquiry rather than as a dichotomous event judgment that will / will not happen within some pre-constrained in time slot.

5.1.2.14 *Some Schema Have Good, Others Intermediate & Some No Analogy Conditions:*

How to clearly present this using the example schema?

The author proposes a very simplified narrative format for the benefit of the majority of analysts who are not familiar with each exemplar topic. That is, the example topic does not lie within their familiar range.

Since each example is, as it must be, part of the author's personal evolving solution judgment the discussion will reference only the author's published or publicly presented work over time as a way of showing provenance of the maturing judgment. In the appendix, there is a list of major presentations and publications given over time as bona fides. Others, as is shown in Chapter 5, have arrived at similar judgments by their specific combination of judgments. This method of showing the author's judgment building and provenance does not rate or critique the approach of

¹¹⁹ Op. Cit. Immelt; Op. Cit. Murray.

others. It is merely a demonstration of how the author's judgment around each schema example was constructed and supported. This chapter concludes with a discussion of major insights and their development that this author had per schema.

Insights developing into foresight are what are tracked in the *Foresight with Provenance Chapter*, leading finally to a summary discussion of doing holistic forecasting with provenance in the next chapter. A brief section offers concluding remarks.

This form of presentation is admittedly a bit awkward. It must be.

If an analyst wanted to know whether Mr. Trump would be elected in November of 2016 or 2020, then the *Super Forecasting* approach, as would some others, seems plausible. If one wanted to know much earlier in time an answer to the big question of can, or how can, this INUS compliant globalization schema succeed within the enfolding environment of rising left/right populism, more border wall building, more anti-immigration agendas, that is a LSLIRE question. BREXIT and Mr. Trump's election are merely two late-emerging datum within a long INUS compliance change processes judging effort of that schema.

Will Greece leave the E.U. within these two specified weeks to be judged at this statistical confidence interval is a *Super Forecasting* question. Is this schema of stably uniting Europe in this INUS compliant way maturing or are non-INUS compliant conditions maturing is a can, how can, form of a LSLIRE question. The one focus is event (will/will not) oriented. The other is syndrome change process (can, how can) oriented. Recall Fichtenau's (section 5.1.2.4) examination of the change syndrome around Charlemagne's declining ability to hold his empire together.

Similarly, Alexis de Tocqueville's treatment of the French Revolution and its aftermath in *Tremblez Tyrans* deserves serious study. Wrote De Tocqueville, "On all sides I came across the roots of present-day society deeply implanted in this ancient soil. The more closely I drew near to 1789 the more distinctly could I make out the spirit which had caused its shaping, the birth and growth of the revolution...[and] the forecast of what it was finally to create. For the Revolution had two distinct phases: the first occurred when the French appeared to aim for the entire abolition of the past; the second when they attempted to recover a vestige of what had been abandoned. As a result, a large number of constitutional laws and customs from the Ancien Regime disappeared suddenly in 1789 *only to resurface a few years later, just as certain rivers plunge underground only to re-emerge a little further on, showing us the same water but between new banks.*"¹²⁰

Both of these efforts were ex post facto, unlike the correct date and cause forecast about the eruption of the U.S. Civil War made by de Tocqueville's circle by 1855 – five years before the Civil War erupted.

The forecasting goal herein is toward the latter ability, and for that Fichtenau's and de Tocqueville's systems change assessments have value.

5.2 INSIGHT FOR SCHEMA WITH NO HISTORICAL ANALOGY CONDITIONS:

There are things that have never happened before, which eliminates hindsight analogy as a useful tool for building insight, foresight and eventually a forecast. We are speaking here of a schema so different and unique that using even present-day analogy fails.

The schema described below, its recent change and its forecast changes enfolds one of the biggest world-system changes ever, with future risks to untold billions of dollars in investment, trade and development, as well as national

¹²⁰ Tocqueville, Alexis de. 1856 (2008). *Tremblez Tyrans – The Ancient Regime and the Revolution*. Gerald Bevan, Trans. London: Penguin Books, Pp. 9-10.

security and war fighting risks involving most countries in the world. It is a big LSLIRE forecasting problem.¹²¹ In 2007 the United Nations unanimously reversed the schema position briefly described below as to major features, with resulting ongoing and equally massive future impacts forecast.

Insight B1: Building the 20th Century world system of only U.N. member states that are each *sole sovereigns* is a 'big' impact schema. Insight B2: Earlier, for centuries, each peoples – the 's' is critical – whether they had a modern country or not were seen as self-determining or 'sovereign' entities with which it was possible and proper to negotiate, conduct warfare, sign treaties, trade and so forth as legal equals. Insight B3: In the Western experience, both the Pope and the secular rulers agreed on this idea and principle, which is why (Insight B4) kingdoms, empires and modern states had wars, signed treaties and did international agreements with non-state peoples that were seen as conceptually and legally valid entities. Insight B5: Some, like the United States, New Zealand, Canada and others, built this peoples relationship into their founding nation-state actions and even their constitutions.

Insight B6: As modern states gained more advantages in power and technology during the late 19th and early 20th centuries, especially war fighting technology, two bifurcations of this 'all peoples are de jure equal' idea occurred. The point was never that all peoples were equal in power, but equal in the status sense that they were regarded as legally competent to engage in international relations as a peoples.

The first change of view and management change unilaterally degraded non-state peoples status to a dependency (domestic dependent nation status, in U.S. parlance). The peoples were still 'sovereign' with an ability to make treaties, sever rights as a peoples and to retain some self-rule as an entity, but dependently so and in newly limited ways. Of course, style and degree of management varies among countries but as a broad statement of the mindset and landscape change, this summing is accurate.

The second bifurcation took the view that the purpose of the modern state was to guide and civilize non-state peoples by integrating them. Broadly again, the Spanish, French plus other colonial traditions took this integrationist view. In the French metropolitan view particularly, for example, these peoples became 'French' legally and thus a people (no 's') – that is, a mere minority with cultural but not international political/legal potency.

The Scandinavian and other colonial and state-building experiences are more complex, but writ large the equal 'sovereignty' view for non-state peoples was being extinguished worldwide. Australia took a terra nullius position (there were no peoples in Australia at European settlement) and a 'pillow smoother' policy to make them comfortable until extinction. The famous 1884-1885 Berlin Africa Conference and some later legal cases concluded that barbarous peoples had no sovereign rights against modern states. This period of changing views essentially extinguished equal peoples' status and ushered in the 20th century era of first, a League of Nations (meaning modern states only) and later the United Nations system as club on sole sovereign national states. No non-state peoples are members, although their interests are represented in a variety of sections and protocols. The important point is that under this reimagining of who and what is a legitimate sovereign in international affairs, the non-state peoples were removed.¹²²

Next is where insight becomes foresight critical.

Insight B7: Non-state peoples resisted this taking of their traditional resources, lands, political-legal status and rights by modern states throughout the late 19th, 20th and into the present 21st century. Insight B8: After 1950, often very small groups successfully began extracting major concessions from states by shaping the conflict around indigenous

¹²¹ Op. Cit. Werther, 1992. *Self-Determination in Western Democracies* addresses the insight points noted in the discussion below in detail. The references therein provide further depth and context. Note: The book was reviewed as the most important published on the subject.

¹²² Ibid.

or aboriginal status claims in law. They used the state's own law against it to win. Insight B9: Precedent spread success across cases and countries.

Insight B10: Where a juridical and bureaucratic status path existed, this resistance mostly took legal and public relations routes using state's law and precedent to extract concessions from their state. Insight B11: There is a pattern of 'sovereign' capacity expansion evident that allows for next iteration foresight. Insight B12: Risk here is lawsuit and public perception based, not warfare based.

Insight B13: Where an integration strategy prevailed so that peoples were reduced to a mere people status (minority) without state-recognized reserved lands, a special managing bureaucracy or a formal position of peoples de jure legal competence against the modern state there is no possible legal or bureaucratic path to effect change so that general political means and sometimes violence, as opposed to lawsuits and bureaucratic pleadings, tend to prevail within a preferred "clash of claims" format.¹²³ The important point is not any outsider's definition of who and what these non-state peoples are, but rather the kind of claim - how they ground and structure their claim - against the state. Indigenous status claims are de jure potent.

Many, not all, modern violent insurgencies erupt within this second kind of condition described in B13.¹²⁴

Notice that within this overarching conflict space between states and non-state peoples and its definitional choices, there is NO historical analogy applicable to the 20th century schema of 1) building a modern world system consisting solely of United Nations member sovereign states which was accomplished 2) by unilaterally eliminating about 6,000 non-state peoples previously accepted sovereignty status and their accompanying de jure competencies.

There is also NO historical analogy for the successful clawing back of an equal peoples status position by certain non-state peoples making a particular kind of claim that was accepted through the 2007 unanimous United Nations General Assembly vote. The admission that indigenous peoples are equal to all other peoples upends the prior schema with large, and various, future implications for firms and governments.

Naturally, during the ongoing unwinding of what was the 20th century sovereign status norm, different states interpret "equal" differently and all so far preclude dismemberment of their state as an unacceptable outcome based upon an internal indigenous peoples status claim.¹²⁵ Hence there is new foresight uncertainty and risk worldwide.

In Werther (1992), the author makes a group of concluding forecasts about how this 'clash of claims' conflict will iterate and change in the future. These old forecasts fit nicely into the expansion of capacities seen during the interim years and overall, the author's stated logic accords with the U.N.'s 2007 unanimous vote affirming an equal indigenous peoples status, as well as its present spotty implementation within the different U.N. member states to so voted.

Numerous Fortune 100 talks, often labeled "Doing Business in the New World Disorder" or using socio-political-cultural change formats were given between 1993 and the present-day supporting schema foresight provenance, and in 2013 *Military Intelligence Professionals Bulletin* published an invited article on about this status change's effects on then-present and future global insurgency conflict management.

¹²³ Ibid. Werther. 1992.

¹²⁴ Op. Cit. Werther, Guntram and Mohammad Yasin Khosti. 2013. *Indigenous Peoples: Reshaping the International Security Environment; Implications for international security practitioners.*

¹²⁵ Note: As is discussed in a later chapter, almost self-governing Greenland is moving in this direction and Denmark may permit the severance if the Greenlanders (Inuit) wish that. It is too early to tell.

This provenance is covered in more detail during the next section: Foresight with Provenance.

5.3 INSIGHT FOR SCHEMA WITH STRONG HISTORICAL ANALOGY CONDITIONS:

During the early 1990s, the author began to see the prior topic as it interfaces with present uniting Europe and globalization building schemas. Frequently, non-state peoples' claims were initiated or accelerated when a state or firm wanted to access resources located on traditional lands. Globalization particularly, by accelerating demand for resources, often fires up conflict over their ownership, control and terms of use. The same can be said for state-building and development schema.

Differently from the prior sole sovereignty regime-building schema and its unwinding, both the uniting Europe and globalization building schema have strong analogy conditions.

Insight C1: Building a schema of 'free' or at least a 'freer' trade regime through globalization, along with its frequent schema partner of uniting Europe, are ideas whose time has been coming, repetitively, within the Western experience for over 2,500 years. Insight C2: Despite partial successes, each prior schema effort has so far repetitively failed to maintain itself. Insight C3: Non-INUS compliant conditions repetitively exist or arise across time and experience that are stunningly similar. Insight C4: These recurring non-INUS compliant conditions reference very similar moral, philosophical, equity, security, local and particular interests that are seen to be under threat from doing the schema, allowing for 'good analogy' conditions for building foresight about the present to-be-managed-by-experts schema of uniting Europe and building pro-freer trade globalization. The points of consilience are sometimes startling.

For example, anciently during a growing freer trade period existing under the umbrella of the then-collapsing Roman Empire, St. Augustine of Hippo wrote, "Let Christians amend themselves, let them not trade."¹²⁶ Augustine's concern is about the ethical and moral degradation of a Christian society based upon declining social agreement on "things one loves" that is brought about by trade. Primacy is to Christian and neighborly love.¹²⁷ Consider for comparison the recent statement of the current Pope during the present freer trade globalization period: "This system is by now intolerable: farmworkers find it intolerable, laborers find it intolerable, communities find it intolerable, peoples find it intolerable ... The earth itself – our sister, Mother Earth, as Saint Francis would say – also finds it intolerable."¹²⁸

As a second example, during the previous pre-WWI freer trade period, heavy foreign direct investment in Mexico boomed, with a focus on growing export-oriented agriculture leading to an indigenous peoples uprising in southern Mexico called the Caste War of Yucatan (1847-1901) while in this present freer trade foreign direct investment boom for Mexico the Chiapas Uprising occurred in southern Mexico just as NAFTA was signed. The issue again was impact upon and control over indigenous lands by investment.

Insight C5: Parallel change patterns exist, arise and grow involving as broad range of INUS condition-shaping changes as various ways of pursuing the twinned schemas of uniting Europe and building freer trade under globalization are pursued. Similar non-INUS compliant individual, local, regional, national, security, border control/immigration and ethical/moral occurrences are among them. Again, the analogy parallels startle.

¹²⁶ St. Augustine quoted in Irwin, Douglas. 1996. *Against the Tide: An Intellectual History of Free Trade*. Princeton: Princeton University Press. Pp. 17.

¹²⁷ Wills, Gerry. Saint Augustine. New York: Lipper / Viking Press. Pp. 117.

¹²⁸ Time Staff. *Read Pope Francis' Speech on the Poor and Indigenous Peoples*. Time Magazine, July 10, 2015.

For example, as a proponent of free trade Irwin cites past and present ongoing tensions between benefits of trade and the recurring historically seen threats to the “security of the nation and its economy,”¹²⁹

The U.S. Border Patrol arose out of the Department of Commerce and Labor’s mounted border guards (1904) to become a formal agency in 1924 amid anti-Chinese labor price depression sentiments. Later, with growing unrest in Mexico, Mexican immigration control became the focus. Consider this sentiment, 100 years on, within the context of the present anti-Chinese pricing and southern border immigration control debates within the U.S. during this globalization schema.

The first broad use of exclusionary passports also stems from this period. During this present globalization effort as during the last, concerns about wage depression, U.S. Border Patrol manpower expansion occurred. Globally, wall building went from about 15 countries with border walls in 1989 to over 77 now, and increasing still.¹³⁰ Many of the issues of trade, security, immigration control and wall building applies to Europe, as is discussed more further on.

In short, repetitively the sought benefits of uniting Europe and building freer trade globalization schemas are enfolded with many of the very same kinds of schema frustrating elements then as now.¹³¹

Insight C6: Uniting Europe and building freer trade globalization is a rationalizing and harmonizing of all humanity idea at its core.

During the 1st century BCE, Philo of Alexandria first stated this justification within the Western thought tradition.¹³² “Thus through reciprocity and combination...God meant that they should come to fellowship and concord and form a single harmony, and that a universal give and take should govern them, and lead up to the consummation of the whole world.”¹³³ Quoting other classics, Irwin says that, “In the centuries since these writings, the doctrine of universal economy has been a recurring theme in the case for free trade.”¹³⁴

Since the end of Pax Romana (27 B.C.E. to 180 C.E.), there have been repeated efforts toward recreating a European union of peace, fellowship and economic prosperity, usually by dynastic intermarriage means and/or war. The Merovingian dynasty tried to incorporate Britain into mainland Europe by this means. Charlemagne briefly held part of Europe together in this way, as did later Habsburg and Hohenstaufen efforts. These pre-modern efforts used full spectrum diplomacy, intermarriage and war as means.

Subsequent uniting Europe and globalizing world rationalizers, often far less kind, were as various as the French revolutionists, Napoleon¹³⁵ and Hitler, with each favoring uniting Europe as a first step to building an orderly globalism or single world order under their umbrella. Each encountered stiff moral, legal, particular, local, regional and national interests opposing their schema, along with other arising non-INUS compliant conditions that ended their schema effort without sustained success.¹³⁶

¹²⁹ Op. Cit. Irwin, Pp. 2.

¹³⁰ Hjelmggaard, Kim. *From 7 to 77: There’s been an explosion in building border walls since World War II.* USA Today. May 24, 2018. <https://www.usatoday.com/story/news/world/2018/05/24/border-walls-berlin-wall-donald-trump-wall/553250002/>; Last accessed January 27, 2021.

¹³¹ Op. Cit. Epstein, *Range*, at pages 20-21, would term this assessment terrain “wicked” after Hogarth’s framing, as opposed to “kind”, but because my forecasting focus is entirely within the always relatively “wicked” terrain of LSILRE’s, it seems useful to notice here that these two schema examples are well-endowed with useful hindsight analogy. They are thus not ‘kind’ but considerably less ‘wicked’ in the sense of not being forecastable.

¹³² Op. Cit. Irwin.

¹³³ Philo. *On the Cherubim*. In Philo. Loeb Classical Library, 1929, 73-74.

¹³⁴ *Ibid*, P.17.

¹³⁵ Dwyer, Philip. *Napoleon and the Universal Monarchy*. History. Vol. 95, No. 3 (319) (JULY 2010), Pp. 293-307. <https://www.jstor.org/stable/24428761>;

¹³⁶ Op. Cit. Werther. *On better assessing the future outcomes of ‘grand, world-changing schema*.

For example, Hitler's New Order of Europe period sought to rationalize, modernize Europe on a German basis (plus more) with this effort seen as part of Hitler's global change template.¹³⁷ Previously the French revolutionists and Napoleon had in mind the same change sequence and outcome goal.

Insight C7: The present, more gently brought mid-20th and 21st century schema of unifying Europe and building freer trade globalization through expert guidance and institution-building is encountering many very parallel non-INUS compliant patterns and conditions.¹³⁸ From a neo-socialist perspective, Thomas Picketty's *Capital in the Twenty First Century* shows the growing global disparity of income and wealth distribution trajectory and discusses normative equity considerations.¹³⁹ Distributive equity is now a Biden administration focus. The equity topic, along with rising domestic populism and leftism amid very successful 19th century wealth growth with growing income disparity was present before the collapse of the last globalization era. Chapter 4 on foresight traces such element's provenance in depth.

5.4 INSIGHT FOR SCHEMA WITH PARTIAL ANALOGY CONDITIONS:

The COVID-19 example was requested in this project far after its start date. There is no hindsight experience of disease treatment in the author's range. There is experience of how different societies think about and seek to manage crises, with recent work done on the topic of building society-specific post-crisis intelligence using a change profiling grounding. The insight-to-foresight-to-forecast future deliverable is better understanding how different societies chose to manage COVID-19, how they are resilient and what that means for post-crisis behavior across a broad range of normal activities.

In practice, the COVID-19 insight focus is on which societal institutions are differentially preferred, used to manage, how and why both during and post-crisis within different societies? This work is necessarily preliminary in part because the COVID-19 management issue is ongoing and partly due to the author's learning curve. This latter experience is grounded in an invited special edition national resilience project with Sage Journals focused on how societies are resilient in national security crises.¹⁴⁰ Of special use is Dr. Reuven Gal's work on the granular-level tracking of Israel's national resilience and population response after each of a long series on Intifada attacks.¹⁴¹ Werther built upon Gal's work as an approach that is useful for building an in-crisis to post-crisis intelligence foresight tool, different naturally as to its change profile for each country.¹⁴²

This example uses only a few countries as examples due to time constraints. A fuller treatment of this issue of building country-specific in-crisis to post-crisis change profiling intelligence requires a separate project. So would a broader most-similar system versus a most-different system comparison mirroring the thinking of Przeworski and Teune. The latter are not attempted herein.

5.4.1 WHY PARTIAL ANALOGY?

There is nothing unusual about pandemics. Pandemics do not even usually qualify as LSLIRE's for the reason that the human condition is rife with them. COVID-19 virulence is more than most common flus but less than other

¹³⁷ Einzig, Paul. *Hitler's "New Order" in Theory and Practice*. *The Economic Journal*, Vol. 51, No. 201 (Apr., 1941), pp. 1-18.

<https://www.jstor.org/stable/2225642>; Thies, Jochen. 2012. *Hitler's Plans for Global Domination: Nazi Architecture and Ultimate War Aims*. Brooklyn, New York: Berghahn Books

¹³⁸ Op. Cit. Werther, 2019. *On Better Assessing...*

¹³⁹ Op. Cit. Picketty. 2013. *Capital in the Twenty-First Century*.

¹⁴⁰ Note: Four of the six published papers made the Sage JAF&S top-5-most-read-ever-list.

¹⁴¹ Gal, Reuven. Social Resilience in Times of Protracted Crisis: An Israeli Case Study. *J. Armed Forces and Society*, July, 2014: Vol. 40, No. 3., 452-475.

¹⁴¹ Werther, Guntram. *Introduction to the AF&S Forum on National/Societal Resilience*. *J. Armed Forces and Society*, July, 2014: Vol. 40, No. 3. 403-407; Werther, Guntram. 2014. *Resilience: Its Conceptual Links to Creating Society-Specific Forecasts About Emerging Change*. *J. Armed Forces and Society*, July, 2014: Vol. 40, No. 3. 428-451.

¹⁴² Ibid. Werther 2014.

pandemics of recent memory, the Spanish Flu prominently among them. But, as a crisis, some analogies are useful in building a hindsight-to-insight-to-foresight provenance *per society*.

Like other crises, Insight D1: society can only deal with COVID-19 using the institutions, mindsets and capacities it already has or can rapidly build and Insight D2: such differential use of institutions, mindsets and capacities is society-specific while being Insight D3: both syncretic and linked by way of entanglement of societal systems to familial systems. In brief, there ought be little to nothing random about each schema. This yields the potential of good in-crisis to post-crisis foresight and seems grounds a valid forecast. Naturally, building such an intelligence tool requires more thought and research than this project can provide.

Insight D4: The experience of trusted and non-trusted institutions within a society creates preferred usage patterns for present management efforts. Hindsight about how a society preferred to manage previous crises should be useful to assessing the present schema of how a society tries to manage COVID-19.

Insight D5: Adapting existing institutions, laws and procedures to present schema management conditions is easier than creating of new ones. The present COVID-19 schema for each different society needs to foster INUS compliant schema management outcomes by this means of adaptation and use.

Insight D6: Different societies have different ways of seeing and shaping conflict. For example, the U.S. is federal (formally dispersed power) and legalistic (uses lawsuits to solve almost any major issue) compared to others, like Japan, which are far less so. In addition, challenging societal norms and government is far more acceptable in the U.S. than in Japan. Insight D7: Societal disputing style is maintained, probably even exacerbated, during a crisis and post-crisis yielding Insight D8: a potentially granular country-by-country insight-to-foresight tool that is useful for foreseeing in-crisis and post-crisis behavior across a large spectrum of behaviors.

The foresight discussion in the next chapter provides a very preliminary change profile tentatively developed for a small number of countries, again due to time limitations in this project. These countries are the United States, Israel, Iceland and Japan, which represent a truncated most-different system comparison.

5.5 AN ACTUARY'S VIEW:

The world does not progress linearly from one point to the next. It is a complex adaptive system that moves forward through interactions. Understanding how these interactions work in the real-world is very hard to learn from a book. Experience is the best teacher and someone competent with many years as a generalist will typically outperform the genius newcomer. Actuaries with traditional practice experience typically struggle when encountering something new. Products like long term care and variable annuities were initially priced as if they had no inherent uncertainty. The actuary with a background including the asset side of the balance sheet had a knowledge advantage, but others without that knowledge ignored their warnings and initially priced products that considered these risks out of the market.

Actuaries tend to fall into the camp that “what gets measured gets managed,” but the importance of qualitative risk assessments and narratives should not be ignored. Deterministic scenarios, both narratives that stress the risk exposure and those where everything goes perfectly, are more important than a complete stochastic analysis when presenting information to decision makers. The details are incredibly important to modelers who need to be the best at understanding their unique block of business, but decision makers need to hear a story they can understand.

Can thinking differently be taught? I think it can for those open to it, but it won't blossom unless encouraged by mentors. Build a process that seeks out why a case study turned out like it did, a postmortem, and how it can be applied to future situations. Complex adaptive systems apply uniquely to specific time, location and circumstance, but there are similarities that can be used to convert hindsight to foresight. When a growth process becomes exponential, as it did with the recent pandemic, many have a hard time recognizing the risk before it is too late. While outcomes don't cycle in the exact same way, there is benefit gained from historical analysis and how decisions

were made. An experienced practitioner can recognize these patterns and identify potential paths and discontinuities.

How different countries react to a crisis also matters. For a pandemic, the decision to require masks can be made quickly when control is absolute. A simple solution may work best when there is exponential growth, but if more time is available, and a complex solution is needed, then multiple initial strategies with winners advancing may be the best strategy. Resilience includes implementing strategies (e.g., wearing masks or restricting large gatherings to flatten the curve) designed to keep a problem in check until solutions (like vaccines) have time to be developed and implemented.

Understanding regional differences in the ways we react to challenges can help to direct efforts. For example, in a litigious society like the United States a lethal future pandemic like Ebola may inflict massive human suffering relative to areas like Taiwan that respond more uniformly and positively to expert opinion.

The COVID-19 pandemic was not a surprise to many who have studied history. It was clear that we were unprepared in many ways that had ramifications not only to mortality and morbidity, but also to supply chains, assets and the “Main Street” general economy. As investors say, being early often isn’t different from being wrong – there were few takers for this experienced analysis.

If the CDC continues to control the U.S. pandemic response it should go beyond its stable of medical experts and seek to understand the implications of locking down the economy. Leaving the balancing act to politicians without giving them the benefits of experience from those who consider both the medical and economic components of this type of crisis leaves too much room for second guessing. Even prioritization of care and vaccination, debated over the last 10 years, seemed to start from scratch during this cycle rather than incorporate the proactive work done previously.

Perhaps the best results will come from partnering artificial intelligence with a human who uses their experience to identify feedback loops and tipping points. Some topics are so important, and so uncertain in specific outcomes and locations, that this type of analysis should be a part of the process. Climate change and interest rates are topics ripe for such an exercise.

How do you get relevant experience? Certainly, wisdom does not come from decades chained to your desk managing valuation tables! It requires an individual to seek out new environments and people, engaging with those who think differently than you do. Seeking out new cultures goes beyond that of a community. Each company, division and department can be learned from, stolen from and shared with. A proactive approach to get out there early, late and often will create an excellent network that you can learn from and with.

6 BUILDING FORESIGHT WITH PROVENANCE

Recapping, what we are building foresight about is not some general amorphous ‘future’ but the future of a specific schema (an idea plus the proposed actions for its achievement)¹⁴³ that requires at least one stated path to an INUS compliant condition for its achievement (insufficient but non-redundant parts of a **condition** which are themselves unnecessary but sufficient for the occurrence of the effect).¹⁴⁴

The ‘future’ is empty as a useful evaluation concept.

Saying you are going to stably unify Europe and ‘do’ globalization after millennia of failed attempts is one thing. Telling us how you propose to achieve this under present conditions is entirely another. The building, or failure, of an (any one) INUS compliant path to INUS enabling condition is the forecast target.

In their modern versions both of the above schema are to-be-managed-by-experts operations that were conceived in the middle 20th century after the ‘free market’ and imposition-by-modern-autocrats – French Revolutionist, Napoleonic, Hitler-fascist, communist – versions to a ‘new Europe and world order’ failed.

There is nothing amorphous about the building a modern European Union schema, or the present globalization through building international organizations (World Bank, IMF, etc.) with linked-up regional trade associations. Neither is the schema of building a United Nations-based world system consisting entirely of *sole sovereign* modern nation states amorphous. That schema was possible only after eliminating the traditionally *de jure* valid and universally recognized sovereignty of non-state peoples.

These are each ‘big’ foresight tasks. Building a granular COVID-19 foresight-based in-crisis to post-crisis intelligence system addressing how different states will handle future LSLIRE type crises is slightly different, enfolding national resilience and national styles mindsets, but fits the forecasting requirements as stated.

These were the Society of Actuaries agreed to demonstration topics for this holistic ‘futures’ project.

6.1 FROM SPECIFIC SCHEMA ASSESSMENT TO SPECIFIC FORESIGHT BUILDING:

Building a large-scale, large-impact schema and rare change that fosters a new arrangement in Europe and the world is not a static affair and neither is the process of its foresight assessment. If such a schema is to be achieved, an INUS condition for its realization needs to arise over time while the blockages of such a condition need to be absent or recede. It is, for example, an implausible argument that globalization is succeeding when anti-immigration sentiment, border wall building, populism, left/right anti-mainstream political parties with anti-globalization agendas and ethnic-national / non-state peoples’ opposition to global development projects are all rising. Similarly, when

¹⁴³ Note: Again, It may be all very nice that you propose to make the world a better place with your idea. Now tell us how you plan to DO that idea within the present condition and how you plan to change the present condition to achieve the stated result. A specific schema can (unite Europe stably by doing X; build stable globalization by doing X; greening energy use, self-driving cars, developing country x – whatever) can be assessed and forecast about in an INUS condition achieving sense (see below). An inchoate want or goal cannot be.

¹⁴⁴ Note: Repeating, what John Mackie is pointing out is that within any complex system, there are many paths to an outcome. Therefore, each such pathway consists of non-redundant parts that are together sufficient to produce that outcome, BUT this particular solution is itself unnecessary (there are other paths) and insufficient to explain that particular outcome (again, there are other paths to get there). Each of the individual elements of the sufficient condition are also individually insufficient. In short, just because you have an outcome, doesn’t prove that you know how you got it. This is the big data, machine learning and artificial intelligence black box problem of producing too many patterns that nobody has a clue about the provenance of.

The author flipped this conversation for the purpose of producing insight and foresight judgments *by requiring that any schema proponent show any (at least one) path to their outcome goal in this specific complex condition, or syndrome*. That choice is what can be evaluated and forecast about. Forecasters should not be in the wishful thinking evaluation business.

major powers increase competition and countries move to leave the EU, the schema INUS compliant conditions are not advancing.

When hindsight and insight allow one to track such arising patterns and conditions early on, then relatively early foresight is also possible. This early foresight ability yields comparative advantage for any practitioner achieving this result.

Presently, both the prior and current President of the United States are pitching ‘Made in America’ schema. Respectively these policies are labeled ‘America First’ and ‘Building Back Better.’ A holistic thinking goal is to foresee shifts and stabilities before schema actors decide to do them.

6.1.1 JUDGING THE MANAGED-BY-EXPERTS SCHEMA ELEMENT:

It is not irrelevant as a foresight issue that for judging *this* iteration of historically inked globalization-is-good and uniting Europe schemas, that each has for its enabling plan the claim that *this* version will be successfully, operationally managed by experts.

To do this, obviously the experts must be capable of accomplishing that task.

That early planners worried about rising income inequality¹⁴⁵, which later arose¹⁴⁶, is not an inconsequential insight from hindsight. It is not accidental as a foresight matter that income inequality was and is now a core domestic issue for both the previous and present Presidents of the United States.

U.S. experts saw inequality as a risk threatening successful globalization during the middle 20th century,¹⁴⁷ but couldn’t stop it from being a core domestic issue by the 21st century.

Having expert management and successfully building INUS congenial conditions are two very different things. The same can be said for avoiding many other success blocking conditions. If the current schema is that experts will manage its achievement, then forecaster judgment about their ability to build INUS compliant conditions should be a focus of schema judgment. Experts need to show ability to achieve it.

That experts regularly miss or misjudge major blocking or INUS non-compliant events like BREXIT, globally rising populism, the election of President Trump and other country-first leaders, is useful foresight evidence. Whether one knows of a problem but cannot stop it, or simply does not know, the success blocking occurs. Both of the above situations can be assessed. If INUS compliant conditions arise through effective expert’s responses to prior blocking conditions that too is judged.

The result of an INUS compliance focus for foresight building is that one has built ‘string’.

6.1.2 THE FORESIGHT WITH PROVENANCE EXAMPLE GOALS:

The point of this chapter is to show how very early foresight with provenance is possible and was done for ‘no analogy’, ‘strong analogy’ and ‘partial analogy’ schema.

Assessment of INUS compliant or non-compliant conditions allows useful foresight to iteratively arise far earlier than with the use of other methods. Often the core observation that there is an arising problem is supportable with data

¹⁴⁵ Gardner, Sarah. *Why do U.S. Retraining Programs Fall Short? Marketplace. Trade Off: Stories of Globalization and Backlash*. September 1, 2017. Last uploaded May 30, 2021. <https://www.marketplace.org/2017/09/01/globalized-world-does-retraining-actually/>;

¹⁴⁶ Op. Cit. Picketty, *Capital In the 21st Century*.

¹⁴⁷ Op. Cit., Gardner, Sarah.

before other analysts even perceive a problem to model. Also, these data can be tracked in real-time to provide ever-more specific foresight as the foresight-building process matures.

6.2 BUILDING FORESIGHT FOR A ‘NO ANALOGY’ SCHEMA CONDITION:

Normally this is difficult.

Assessing the likely success of a schema for building a world consisting only of sovereign states by eliminating the prior universally accepted sovereignty of all non-state *peoples* is made easier by the fact that this schema clearly relies on a legal fiction.

Lots of things in law, like persons are adults at age 18 or all people are equal, are legal fictions. We know they are not true in practice, but we pretend that they are. Legal fictions are needed to make a society work, but once they are built into the system they can be challenged at law on practical, moral, logical and power terms.

The big problem is that the modern world system is clearly built on legal fiction. If you treated all *peoples* as sovereigns for hundreds of years, why are they suddenly not? Because you *now* said so is not a legally, morally or even politically satisfying answer. That is why and how the ‘*only modern states can be sovereign*’ schema fiction was challenged over time to produce in 2007 a unanimous United Nations General Assembly affirmation that “indigenous peoples are equal to all other peoples.”¹⁴⁸ Prefatory to this 2007 vote is a long within-schema record of increasingly successful challenges that began in several developed countries, expanded authorities and legal capabilities, and then expanded outward by way of precedent.

Universal affirmation by the member states of the United Nations is not law, but such a statement has big and growing effects on the use of legitimate power worldwide, including changes in much national law. It challenges and upsets the modern state’s sole control over internal lands, resources, individuals and proper decision-making. While the non-state peoples status challenge is well along in some developed countries, it is just starting within many less developed ones and has not arrived, but will, in yet others. There are about +5,000 peoples jammed into approximately 200 countries.¹⁴⁹ do the risk math. If you do business in or manage countries, this issue is coming at you with increasing complexity and impact.

6.2.1 WHY SHOULD ANALYSTS CARE?

Because control over land and resources, as well as decision-making authority over their use is unsettled in any place (country) that has *peoples* that can claim to be ‘indigenous’ or ‘aboriginal’.¹⁵⁰ That includes most of Africa and the Middle East, much of Asia, Oceania and South America. This peoples status change has stopped projects, development and has cost firms billions of dollars with more to come due to the unsettled nature of who owns and controls what. As development proceeds, conflict often follows. Even in developed countries where status is settled, particular claims are often not.

As one example, when Europeans settled Australia, they recognized no aboriginal (indigenous) peoples or land rights at all under their doctrine of terra nullius (empty land). Today, using the procedures being assessed, “Aboriginal and Torres Strait Islander peoples’ rights and interests in land are formally recognized over around 40 per cent of Australia’s land mass.”¹⁵¹ In Canada a similar expansion of indigenous peoples authorities from the small areas

¹⁴⁸ Op. Cit. *United Nations Declaration on the Rights of Indigenous Peoples*. 13 September 2007.

¹⁴⁹ Note: There are currently 193 member states in the United Nations, but there are also several non-member self governing entities like Taiwan, etc. Hence the rough 200 estimate. United Nations. <https://www.un.org/en/about-us/member-states>; Last uploaded May 30, 2021.

¹⁵⁰ Werther, Guntram. 1992. *Self-Determination in Western Democracies: Aboriginal Politics in a Comparative Perspective*. Westport: Greenwood Publishing. Note: Indigenous and aboriginal are often used interchangeably. They are not, as the referenced book discusses at some length, but in this discussion the author will treat them as equal claims.

¹⁵¹ National Indigenous Australians Agency. <https://www.niaa.gov.au/indigenous-affairs/land-and-housing>; Last accessed April 6, 2021.

covered by early treaties to the present 35% of the country.¹⁵² Compare to the respective size of the Kingdom of Denmark to the increasingly self-governing and resource rich Greenland part of it.

Conflicts and lawsuits involving firms doing business in Australia and Canada are common, as will be the case in other areas listed above as this issue matures because most of their landmass is potentially subject to such claims. Also, whether this conflict takes legal or violent channels is worth knowing.

That was a Cliff Notes style summary of this risk, uncertainty and forecasting issue. In the opinion of the author, this peoples' status reconsideration schema issue is one of the biggest risk and uncertainty management and foresight topics extant into the early 21st century.

6.2.2 HOW IS A SCHEMA CHANGE PROCESS WITHOUT ANALOGY CONDITIONS FORESEEABLE?

Since law often studies and borrows from the law of others,¹⁵³ relies on precedent within the British-American based systems and seeks a comity with logical and moral claims within any societal system of power, insight and foresight is possible without using analogies from hindsight. You must build the foresight framework.

Expanding on the previous discussion, once the state claims that only it is sovereign, non-state peoples can challenge in one of two ways. If the idea of sovereignty is degraded or even absent but a de facto reserved lands policy exists within a state's managing bureaucracy and the courts willing to hear a status claim, the peoples tend to use those routes to gain ever more concessions. When the state recognizes people's status within one realm of authority within its courts, this sets precedent and a base to argue further authority. This they did.¹⁵⁴ Once such a *peoples* wins a concession, others can use it as a moral or legal precedent elsewhere – and they did.¹⁵⁵ Once one level tending toward regained sovereignty or greater self-determination is achieved, the next logical level can be sought – and they did.¹⁵⁶

Other forms of challenge are possible, and these have knowable patterns.¹⁵⁷

Framing this change process based on referent choices about how conflict is justified, then profiling and tracking its differing developments allowed quite good foresight about future outcome conditions from over thirty years prior. The point is that since no analogy from hindsight is possible, the insight to foresight string needed to be constructed and iteratively tested. That takes a long time.

The author uses only actual publications and/or presentations as noted in Appendix 1 to show provenance. Dated foresight elements are stated or quoted, then the forecast outcome discussed.

Strangely, this no analogy solution yielded excellent foresight. The author places this foresight result in the realm of Nate Silver's well-understood systems category. Law, even in corrupt and strongly power-based societies, has a logic that permits internally and externally based successes to develop over time. It takes time, but there are plenty of excellent lawyers and other pressure points along which to now proceed.

For example, using developed country lawyers and legal precedents, a group of supporters built a case against Kenyan indigenous land seizure. Once the Kenyan courts recognized an Endorois indigenous *peoples* claim to their

¹⁵² Temprano, Victor. *Native Land: Land Area - Canada and Native Land Agreements*. January 11, 2018. <https://native-land.ca/land-area-comparison-canada-and-land-claims/>;

¹⁵³ Op. Cit. Werther 1992, p. 29;

¹⁵⁴ Ibid. p. xix, 28-39.

¹⁵⁵ Ibid. p. 84;

¹⁵⁶ Ibid. pp. 66, 68-71;

¹⁵⁷ Ibid. pp. xix, xxv;

traditional land and authority over its use in 2010, the African Union and other authorities take this as precedent, which places pressure on the 40 other African states wherein there are potentially +2,000 indigenous peoples. Even though the Kenyan government is only presently partially compliant to its court, the claims trend is set. This body of law and precedent is no different here than it was in other developed countries, where state's resistance occurred and was overcome step by step.

The risk and future assessment points are that there are potentially about +2,000 such claims in sub-Saharan Africa alone. They often arise when outsiders come for use of traditional lands, resources and try to make decisions about them, such as in globalization and national development schema. Given the 2007 U.N. affirmation and prior conflicts, we had better figure out how to forecast these change processes. Land tenure in much of the world is unsettled by these kinds of claims, impacting business and development.

6.2.3 CHANGE PATTERN FORESIGHT ELEMENTS WITH PROVENANCE:

Foresight B1: "Aboriginal status claims challenge the very notion of the state as the sole repository of sovereignty. This position places aboriginal peoples on a revolutionary trajectory, a collision course with liberal assumptions (every citizen is equal under law) that inform these democratic countries."¹⁵⁸ Result: Affirmed - the 2007 UN vote is the universal admission of this then-coming collision of individual versus peoples' group rights in modern states. Many countries have since 1992 expanded indigenous peoples self-determination rights as groups, have changed constitutions or interpretations of sub-national authorities. This means, for analysts, determining who is in charge is more complex and includes financial, operational and reputational risk. For example, Exxon-Mobil senior managers informed the author that they spent many years trying to get pipeline permissions from indigenous groups in Papua New Guinea after securing national government permissions. This is common. One ExxonMobil senior manager informed the author that he spent about half his time dealing with these indigenous *peoples* issues.¹⁵⁹

Foresight B2: Groups strategically claim indigenous status as a political-legal strategy to win concessions from the state: Affirmed: Especially in African countries, but also in other countries, peoples select indigenous status claims to extract concessions from states. That means, firms face increasing risk where this can be done.¹⁶⁰

Foresight B3: In the First World reserve policy countries, Supreme Courts or their equivalents are needed to "challenge the state's exclusive claim to sovereignty" and "determine the precise meaning of any micro-political concessions that the government makes."¹⁶¹ Affirmed: Since 1992, this pattern has persisted in First World countries with serial right expansion in the U.S., Canada, Australia and others subject to limitations on what the national government is willing to allow.

Greenland, for example, is now almost completely self-governing domestically within the areas of concessions allowed by the Danish state. Nunavut in Canada is similar in this regard. In general, the national government allows increased self-determination starting first with control over land and resources, going next to self-determination for indigenous peoples and their governments, next to the further expanding indigenous bureaucracies, courts and taxing authority to, now, entering the realm of disputes about authorities for regulating non-indigenous persons when in traditional communities.

¹⁵⁸ Ibid. Werther 1992, p. 89;

¹⁵⁹ Werther, Guntram, Exxon-Mobil; Featured expert speaker - middle management focus. (2009-2012). *The Holistic Analysis of Complex International Environments, and the Impacts of Future Change on Exxon-Mobil Commercial Contracting*. [Note: Highest rating in the 3-day program]. For the Geopolitics of Africa program: (November 2009/April 2010) – *Emerging African-region dynamics as they impact global complexity, international change, and executive strategy/decision-making*.

¹⁶⁰ Op. Cit. Werther 1992 as a central argument on strategically shaping conflict; See also Lynch, Gabrielle. *Becoming Indigenous In The Pursuit Of Justice: The African Commission On Human And Peoples' Rights And The Endorois. African Affairs*, Vol. 111, No. 442. January 2012, pp. 24-45.

¹⁶¹ Ibid. p. 83.

Foresight B4: This degree of self-determination, like sovereignty claims, is contingent and limited “within a larger social and political universe...self-determination, seen universally, as limited and contingent, becomes a dynamic system for political change only when we consider state policy goals as well as those of aboriginal representatives... State goals now apparently include assimilation of aboriginal communities through economic integration coupled with greater political autonomy.” It remains “contingent on the will of the state to permit it.”¹⁶² Affirmed: See Foresight comment above. In some countries, firms and governments now routinely integrate indigenous peoples into project permission processes. When they object, this can and does often halt the project development process.

See Foresight B1 comment. The successful XL pipeline closure included indigenous nation opposition, as have numerous cases in Canada, Australia and others worldwide. Finally, even though the 2007 United Nations vote affirmed “indigenous peoples are equal to all other peoples” it limited this in practice to not allowing the dissolution of U.N. member states, meaning that while they may be theoretically equal peoples, there is no equality in effect; which was the prediction of my 1992 foresight comment.

Foresight B5: Conflict with general society will increase as “more aboriginal rights become redistributive (See Foresight items below) ...This will occur as aboriginal communities separate politically while integrating economically into the mainstream.”¹⁶³ Affirmed: There are now many cases involving disputes over rights to resources, taxation, controlling regulation of people that take authority and values from one group and give to indigenous peoples. Pushback is often fierce.

Foresight B6: Where aboriginal/indigenous peoples’ status is formally recognized with reserved lands policy there is a takeoff pattern of people’s group rights expansion. Early indigenous peoples efforts are for control of resources and traditional lands, then the building of indigenous organizations and governments to control them, then expanding status, jurisdiction and sometimes the creation of indigenous courts. Claims of exclusion from non-national control and taxation, expanding to claims of authority to tax and regulate commerce of outsiders occurs. Partly Affirmed: The process continues. This rights expansion pattern occurs partly because experts and lawyers from developed countries assist in cases in developing countries. Often, as in British-American informed legal systems, precedent applies. This expansion is often countered by local and national government reluctance to cede controls and authorities. For example, after the Kenyan Endorois won a seminal legal victory stopping development of a ruby mine on traditional lands,¹⁶⁴ this case was accepted as precedent by the whole African Union courts and actively supported by the African Commission on Human and Peoples Rights. The Endorois next sought to build formal indigenous-run organizations to increasingly manage their lands and increase their group welfare. The ‘partially affirmed’ designation recognizes that national governments can and do, for a time, ignore courts and that this rights building process is very early in most of the world.¹⁶⁵

The U.N affirmation is only from 2007 and this is a long game. The risk outcome for firms and governments is that control over lands, resources and decision authorities remains unsettled even after court adjudications and need to be further negotiated between non-state peoples and the states they reside in. The above is a best-case outcome really, since absent formal status recognition, indigenous peoples are left with general political action, violence and insurgency as options. Each yields a more tenuous case judgment from a foresight perspective.

¹⁶² Ibid. p. 92-94, 98;

¹⁶³ Ibid.

¹⁶⁴ Minority Rights Group International; <https://minorityrights.org/2008/10/10/theres-rubies-in-them-there-hills/>; Last Uploaded April 6, 2021.

¹⁶⁵ The Endorois Case. June 5, 2018. <https://www.escr-net.org/news/2018/Endorois-Case>; Last Accessed April 3, 2018; Endorois Welfare Council, November 18, 2020, <https://community.abs-sustainabledevelopment.net/Wp-Content/Uploads/2020/11/Eric-Kimalit.Pdf>; Last accessed April 3, 2021; 257 resolution calling on the republic of Kenya to implement the Endorois decision - achpr/res.257(liv)2013. <https://www.achpr.org/sessions/resolutions?id=277>; Last accessed April 3, 2021.

6.2.4 A FORESIGHT LESSON:

The lesson is that holistic approaches can foresee a major world-system change process arise, then track it as it matures from over 30 years prior to a seminal event, even without analogy from hindsight.

This conversion of all peoples from equal sovereign status in law and politics – peoples with whom one signs trade agreements, has diplomacy, wages war, signs treaties – to a legal nullity for indigenous peoples and then back again to the status “indigenous peoples are equal to all other peoples” has never happened before.

Appendix 1 shows that evaluating this schema theme was a core part of publications and presentations for the years prior to the 2007 U.N. affirmation that “indigenous peoples are equal to all other peoples.”¹⁶⁶ This equality issue - degraded then being clawed back - was the central argument of author’s 1992 book, with the remainder devoted to discussing how structuring a claim as an indigenous peoples claim succeeds in iteratively gaining more self-determination concessions from enfolding states. The book’s focus was on the different change processes involved when asserting differing status claims and how each strategic choice generated foreseeable patterns and kinds of outcomes.¹⁶⁷

This was also the author’s earliest attempt at building a unique, dynamic foresight approach that captures information of different kinds, both qualitative and quantitative, from multiple disciplines over time.

At the time this work began in the mid-1980s there were few scholars outside of anthropology and law giving attention to the indigenous rights issue,¹⁶⁸ let alone its impact on sovereignty and world-systems’ change from a status shifting perspective. An explicit part of the 1992 book was that other methods misunderstood or missed the whole issue. The dissertation upon which that book was built argued that the indigenous peoples strategic positioning topic, while major as a world-systems question, was off the radar of most social sciences and their practitioners.¹⁶⁹

Today there are uncounted thousands of scholars across multiple disciplines interested in indigenous rights – it became mainstream. What has not become mainstream is the profiling of change processes and doing assessment and forecasting or world-system change through this lens.

6.2.5 WHERE THIS PRIOR EXPERIENCE LEADS METHODOLOGICALLY AND TOPICALLY:

A core argument of this work is that one cannot have hindsight, insight and forecast competence in areas about which one has no experiential understanding. Thus, expansion of capability is expansion of range.

6.2.5.1 A First Major Necessary Range Transition: From Academics to International Business and Beyond:

In that range-expanding sense, the formal *profiling change process* approach was first published in 2000,¹⁷⁰ was found in 2005 and then funded as a broader set of executive presentations and book project on the *Holistic Integrative Analysis of International Change* by the Proteus Futures Group, an Office of the Director of National Intelligence, National Intelligence University and U.S. Army Center for Strategic Leadership in an effort to improve intelligence foresight after 9/11. The author was a Senior Research Fellow.

¹⁶⁶ Op. Cit. *UN Declaration on the Rights of Indigenous Peoples*.

¹⁶⁷ Note: The book was reviewed as “a major contribution to our understanding of minority rights and the most important book published on aboriginal rights;” the dissertation from which it stemmed was twice nominated best comparative politics doctoral dissertation nationally for the Gabriel Almond Prize.

¹⁶⁸ Op Cit. Werther 1992, xv-xix;

¹⁶⁹ Werther, Guntram. 1990. *The Quiet Revolutions: Public Policy and the Structure of Aboriginal Self-Determination Movements in the First World*. St Louis: Washington University in St. Louis, Department of Political Science. UMI: 9103176.

¹⁷⁰ Op. Cit. Werther, Guntram. *Profiling ‘Change Processes’ as a Strategic Analysis Tool..*

This first range expansion, of course, needed to begin long before 2000.

At the undergraduate level, formal studies were in biology/ecology, mathematics and chemistry with long-term personal studies beginning pre high school in comparative politics, comparative religions, comparative philosophies, world economic history and trade, colonization, general history, geography and pretty much any topic that seemed interesting at the moment. This eclectic mindset turned out to be normal for recruits to the Proteus Futures Group and the author commented on that in the above-mentioned book.

After being initially hired in 1992 as Associate Professor upon earning the Ph.D. in Comparative Politics, with political and economic anthropology minors, and then being appointed the Social Science Department Chair three years later at a Business School with strong links to the intelligence community,¹⁷¹ the author began to see the improving foresight problem across multiple international business and national security issues due to the demands of clients. This range expansion was facilitated by over 20 years of invited senior management and executive/CEO education at Fortune 100 firms and multiple militaries in fifteen countries and to highly sophisticated and broadly experienced audiences representing well over 100 nationalities.¹⁷²

Early thinking linked the peoples' status schema with an international business and globalization change lens on change. As is normal of forecasters exhibiting some early range competence, promotions and ever-new career foci forced the learning whole new suites of disciplines beyond prior experiences and studies.

The Social Sciences Chair foci at a business school forced teaching, research and new course development in and across multiple disciplines and soon the development of entirely new integrative courses at both the undergraduate and graduate levels, including developing graduate courses by contract to international business schools. This growing capacity to think and research holistically expanded to extensive use of integrative change assessments and lectures to many Fortune 100 executive level programs and eventually to military and intelligence community programs, followed after 2011 by invitations to address globally leading financial, insurance, risk and actuarial audiences in multiple countries.

A lot of rethinking and refocusing of research about forecasting issues was necessary preceding iterations of the venues and audiences. Senior and executive audiences have a low tolerance for error.

Unlike the sole sovereign peoples' schema, in international business and national security landscapes the goal of uniting Europe and building globalization has lots of analogies – this time is not the first.

An important reader learning point from the above discussion is that expanding the personal range of ability for the hindsight to insight to foresight assessment around new foci is co-emergent with new personal learning of new disciplines and new practitioner occupational mindsets.

In sum, the personal process of building landscape and mindscape range expansions is simultaneous with learning to solve new foresight and forecasting problems for new audiences. There is no shortcut.

To the new foci topics having foresight with strong analogy, we now turn.

¹⁷¹ Note: Associate Professor of International Business and Strategy (1992-1996); Social Science Department Chair (1994-1996); (Professor 1996-present). Fortune 100 mid-to-senior executive consulting and executive education (1993-present) with national security, police and intelligence linked foresight work (2005-2012), followed by actuarial science and risk management forecasting foci (2012-present).

¹⁷² Note: The Society of Actuaries has the author's resume and Appendix 1 highlights many of these programs.

6.3 BUILDING FORESIGHT FOR A STRONG ANALOGY SCHEMA CONDITION:

When a seemingly good idea fails iteratively for millennia, it seems reasonable to both learn how and why this was so and then to approach the current schema with caution and a good eye to analogy. Uniting Europe and building globalization schema both fit this scenario.

Learning the issue was helped by the context of the North American Free Trade Agreement (NAFTA) at its launch in January 2004, which was followed first by an indigenous revolt on the same day NAFTA took effect and next by the near implosion of the Mexican financial system, a bail out and the end of decades of PRI party rule. This set of changes following NAFTA was not expected by almost any analysts, and thus highlighted critical hindsight to foresight issues.

The Chiapas Uprising of 1994 was familiar turf, bringing to mind the earlier mid to late 1800's Caste War of Yucatan where the indigenous peoples of southern Mexico nearly wiped out the Ladino and European population in opposition to growing foreign direct investment and the taking of lands, waters and local power from indigenes.

Foresight C1: Experts are not good at foreseeing major crisis event emergencies.

Affirmed: The mid-1800's Caste War expulsion lasted decades during a time of rapid globalization, huge foreign direct investment and rapid income growth in Mexico. The Chiapas Uprising of 2004 surprised almost all experts, who had mostly argued that NAFTA would integrate Mexico with del Norte within a few years. Requiring a \$50 billion dollar bailout to stabilize Mexico was not on the post-NAFTA agenda. The 2000 collapse of PRI rule surprised most experts, as did a rise of left-socialist parties in Mexico.

So had the just previous end of the Cold War surprised most experts, which readers will recall was greeted with both near-universal shock and the quick expectation that democracy and capitalism had won – the world is flat thinking. The ethnic-national conflict that followed again surprised most experts belying the previous flat Earth view. Later, the rise of populist anti-globalists, BREXIT and other large impact changes again surprised most experts. If experts are to manage the post-WWII schema of uniting Europe and building a stable globalization, how is this management working?

Foresight C1 Provenance: The author has argued from late 1993 onward that it is not working. The demand from senior executives and managers to improve foresight was high from 1993 to the present.

Executive references from presentations note “the ability to understand, relate and correlate global events, special perspectives and scattered bits of information weaving them into rational and understandable explanations of people’s past and present; adding a logical explanation for their future...”¹⁷³ Later letters from covering the 1994 to 2000 period document “Doing Business in the New World Disorder” and similar holistic foresight presentations at Fortune 100 mid-manager to senior executive levels with these morphing into technical discussions about how to do better holistic assessment of change. The profiling change process development as a forecasting tool and some results after 2000 are covered in those letters and publications / presentations of this era.

Foresight C2: Indigenous, ethnic, national and popular unrest arises within both schema; Foresight C3: Anti-immigration sentiment and border control sentiment rises; Foresight C4: Change upsets traditional political party dominance.

All are affirmed with provenance: Foresight C2 to C4 topics are highlighted in several power-points delivered to Homeland Defense and police services between 2008-2012; One 2008 presentation slide reads: “The USA, Plus

¹⁷³ Letter of A.R. Tossell, McDonnell Douglas Helicopter Systems (later Boeing), dated June 27, 1994; Support letters to SOA files.

Egypt, Saudi Arabia, Israel, EU, South Africa, and so forth now BUILD **PHYSICAL** BORDER WALLS; Anti-Migration policies expand worldwide; Almost all of Latin America votes Socialist; Bad Guys Use Technology in New Ways to Advance “OLD” Grievances/Agendas” (2008 to 2012 PPTs with photos on file with SOA).

Foresight C5: Conflicting moral, equity, security, local and particular interests are growing and thus impeding INUS condition compliance for this current, managed by experts, schema of uniting Europe and its sister schema, building globalization. INUS non-compliant Chinese, Russian, Iranian, Turkish, European (including internal EU), U.S. and other security, local and particular (control of resources, processes, trade, regions, currencies and so forth) interests are rising.

Discussion: For merely one presently emerging pattern consider the maturing internal division of interests in the E.U. and the external global competitions for dominance including China’s new Silk Road and String of Pearls efforts, the disputed South China Sea trade lanes as global trade and economic control or advantage competition, and so forth. For Russia, consider as one example natural resource delivery and near-abroad (including Central Asian and Russia-European trade route control) issues affecting the EU and others. Addressing also the E.U.’s growing internal divisions, Ian Kershaw writes in his *The Global Age: Europe 1950 – 2017* that “Europe in the Global Age is no longer in charge of its own destiny...Europe’s new era of insecurity is inextricably enmeshed with the deepening of globalization.”¹⁷⁴ This author has argued that within the Western mindset, uniting Europe was always linked to larger globalization schema. They also always engendered internal and external non-INUS compliant conflicts of interests.

Recalling, Insight C4 “The rise of non-INUS compliant conditions reference very similar moral, equity, security, local and particular interests seen to be under threat, allowing for ‘good analogy’ conditions for building foresight about the present to-be-managed-by-experts schema of uniting Europe and building pro-freer trade globalization”, each of these, especially conflicting security, power, local, regional and particular interests, was present leading up to the ending of prior uniting Europe and globalization schema. The WWI era ending of the prior globalization and uniting Europe Schemas is particularly analogous.

The Carolingian Empire ends when the Frankish versus Germanic interests of Charles the Bald and Louis the German diverge. Later Hohenstaufen (ended 1254), Hohenzollern in both its Brandenburg-Prussia and Imperial German aspects (ended 1918) and Austrian Habsburg (ended 1918) attempts to unify Europe were famously rife with conflicting internal and external interest disputes stopping the uniting of Europe.

A shifting array of external alliances and wars involving the above with Tsarist Russia, Sweden, Denmark and France, including strong French Revolutionist and later Napoleonic efforts to unite Europe, are defeated largely by Tsarist Russian, Germanic, Dutch, Scandinavian and British oppositions,¹⁷⁵ as is so for the still later case for Hitler’s similar goal of unifying Europe on the way to his global “New Order.”¹⁷⁶

Globally, non-INUS compliant conditions are obviously present and growing throughout each prior schema effort at building a global system. Consider particularly the history of British, American, Turkish, German, Russian, Persian (Iran), Chinese and Japanese clashes of claims, interests and goals during the last 19th century iteration leading into the WWI ending of this last globalization schema.

¹⁷⁴ Kershaw, Ian. 2018. *The Global Age: Europe 1950-21017*. UK: Viking Press, pp. xvii-xxviii.

¹⁷⁵ Note: As two readable examples in a massive literature, see: Eyek, Erich. 1968. *Bismarck and the German Empire*. New York and London: W. W. Norton & Company; Kann, Robert. 1974. *A History of the Habsburg Empire 1526-1918*. Berkeley: University of California Press.

¹⁷⁶ For a fuller discussion, see Op. Cit. Werther. *On Better Assessing the Future Outcomes of 'Grand, World-Changing Schema'; RMIFI, Spring 2019*.

Foresight C6: System-level change comes slowly, giving time to see emerging INUS condition compliance or lack thereof.

Affirmed with provenance: The border wall expansion is a good example of provenance in this area. When first mentioned in 2008 as a major issue, the author lists six countries with border walls plus the phrase “and so forth,” whereas by 2015 (pre- Trump election) to 2017 when the author was again asked to present on this same *title*, there were 55 border walls, and more being built; 77 at last count in 2020.¹⁷⁷

6.3.1 SUMMARY COMMENT FOR ASSESSING SCHEMA WITH STRONG ANALOGY CONDITIONS:

The *big* point above is that rising INUS non-compliant condition *elements* for both the globalization and uniting Europe schema such as the phenomena of growing numbers of border walls, rising anti-immigrant sentiments, rising political shifting to anti-global socialist and populist parties were track-able over time.

The schema of globalization and stably uniting Europe has not yet failed in this author’s opinion. It is the better argument that the INUS condition for its achievement simply has not matured. It may never do so.

The main foresight point here is that the dynamics of the change process leading to the present linked INUS conditions were foreseeable in ‘good enough’ fashion. Many backlash features and INUS uncongenial conditions arose in plain sight allowing early judging of later emergences that surprised many later analysts.

Some future forecasts are presented in the next chapter Forecasting With Provenance.

As previously said, learning in one realm precedes and conditions an ability to attempt at building useful judgment in a new realm. A discussion about this range expansion using multiple scholars’ views follows.

6.3.2 A SECOND MAJOR NECESSARY RANGE TRANSITION: ASSESSING SCHEMA WITH PARTIAL ANALOGY CONDITIONS – NATIONAL COVID-19 MANAGEMENT RESPONSE FORESIGHT:

As can be seen in Appendix 1, a migration of personal research focus occurred by moving from merely assessing change and doing holistic forecasting of various LSLIRE schema toward the more conceptual topic of building a profiling change processes and holistic thinking approach that is useful across many realms of inquiry and forecasting.

To be able do any work involving COVID-19 management by differing societies another significant experiential expansion of range needed to happen.

In 2011, the author received a ‘cold call’ from Dr. Reuven Gal, former Chief Psychologist of the Israeli Defense Forces, later a minister in the Israeli Government and a member of its National Security Council, asking the author to co-direct with him a Special Edition of the Sage Publications’ *J. Armed Forces and Society* on the topic of national resilience with a military and national security emphasis.¹⁷⁸

¹⁷⁷ Werther, Guntram., Beyond Tomorrow – Aon Hazards Conference, Invited Speaker (One of 14 globally selected): “*Doing Business in the New World Disorder - Forecasting Futures in Uncertain Times.*,” Aon, Gold Coast, Queensland, Australia. (September 21, 2015); Werther, Guntram. *Why “I told You So”:* Globalization Does What Globalizations Do - Suffer the consequences of their logics. Global Temple Conference, November 9th, 2016. Temple University; Werther, Guntram. *Why? I Told You So’: Integrating Shaping Ideas and Holistic Assessment to Produce Better Rare Event Foresight.* Annual Meeting of the Society of Actuaries, October 16, 2017. Sheraton Boston Hotel, Boston, MA; Werther, Guntram. *Why did THIS Future Emerge? - Integrating the Downstream Effects If Shaping Ideas Using Holistic Assessment to Forecast Change.* In Focus Seminar: The Actuary Of Tomorrow, Casualty Actuarial Society, Chicago, IL, October 2, 2017; Werther, Guntram. *Globalization, Nationalism, and Some Expected Impacts of Political and Economic Change.* RiskMinds – America: Annual Meeting, Miami, Florida. 27 June 2017. NOTE: these are mere samples. A full list is appended.

¹⁷⁸ Werther, Guntram. Inter-University Seminar on Armed Forces and Society Annual Meeting, Expert Panelist, Special Forum hosted by Dr. Reuven Gal (National Security Council - Israel): “*Resilience: Its Conceptual Links to Creating Society-Specific Forecasts about Emerging Change,*” Chicago, IL. (October 21, 2011); Werther, Guntram. Inter-University Seminar on Armed Forces and Society Annual Meeting, Invited Expert Speaker (by Program Director): “*Shaping*

Dr. Gal's eventual work for this special edition traced in minute detail Israeli society's response to serial Intifada attacks, documenting daily citizen use of and changes in their use of various institutions within Israeli society and the changing behavior of their day-to-day activity.¹⁷⁹

Casting back to prior law enforcement and national security experiences, senior executive presentations and prior research,¹⁸⁰ the author saw in Dr. Gal's work a way to build a country-specific in-crisis to post-crisis intelligence foresight and forecasting approach with which to compare different society's change process profiles both during crisis and after.¹⁸¹ Prior foci had tried to forecast crisis emergence but this effort is focused on foreseeing what happens during and after a LSLIRE has emerged. How do different societies respond and try to manage the LSLIRE? Can this be better forecast?

This focus looks at what societies differentially do once in a crisis and after a crisis: LSLIRE and post-LSLIRE forecasting, in the author's language. Without this range expanding push from Dr. Gal's request, no discussion of the 2020 SOA request that this work address COVID-19 foresight would be possible.

Societies were already in the COVID-19 crisis when this project started, so there was no sense in trying to forecast its emergence. The author is not a physician, public health specialist or immunologist, so only forecasting approaches that link to personal range experience was doable.

Judging how different countries with uniquely embedded, entangled and emergent 'ways' will foreseeably address in-crisis to post-crisis LSLIRE management issues is plausible. The problem is lack of time, resources and the fact that country change patterns are developing. We are in-crisis, which is parallel to Dr. Gal's situation when he studied Israeli responses granularly and iteratively during and between each attack.

6.3.3 ASSESSING SCHEMA WITH PARTIAL ANALOGY CONDITIONS:

A country-specific change profile must be built as the LSLIRE is happening in such situations. That is the challenge. This discussion is very conditional.

The stated goal of these governments was to manage well toward an in-crisis to post-crisis societal resiliency. As we will see, each country took different paths that are linked to their societal conditions, values and overall goals. Thus some countries tried to maintain close to normal economic and societal conditions throughout their COVID-19 management policy while others chose more interventionist management approach, but in each case the repeatedly stated goal in each country was to get back to normal or a 'new' normal conditions through their management efforts.

Such schema required using the resources, capabilities, values and mindsets extant in, or reasonably achievable for, each country and society at that point in time. There is no reason to suppose that Japanese, Israeli, Icelandic and U.S. values, mindsets, goals, and plausible solution paths using their particular institutions and procedures are equal. These countries were selected as a basic most-different system demonstration following the thinking of Przeworski and Teune's (1982) *Logic of Comparative Social Inquiry*.

Global Conflict Through 21st Century U.N. Reconsiderations of State Power: The 2007 U. N. General Assembly Vote for the Rights of Indigenous Peoples, Global Change, and the Prospects for Creating New Insurgencies and "Terrorisms." IUS, Chicago, IL. (October 21, 2011).

¹⁷⁹ Op. Cit. Gal.. *Social Resilience in Times of Protracted Crisis: An Israeli Case Study*.

¹⁸⁰ NOTE: The Society of Actuaries has the author's resume, which lists the various prior programs Western military and intelligence audiences at both senior officer and agency command leadership levels, as well as police and law enforcement experience and programs at similar officer and command levels.

¹⁸¹ Op. Cit. Werther. *Introduction to the AF&S Forum on National/Societal Resilience.*;

Op. Cit. Werther. 2014. *Resilience: Its Conceptual Links to Creating Society-Specific Forecasts About Emerging Change*.

The point is that a different society is one that thinks and acts differently. Each acts differently from different values, mindsets, institutional arrangement and capabilities, established ways, and from their particular constellation of *goals emphasized* to achieve each one's preferred constellation of outcomes.

Restating the differences over-briefly from the prior insight discussion, Israeli society trusts its military and domestic national intelligence agency to track individual infections and monitor disease spread.

Iceland does not trust its political leaders or legislature but trusts its police, which have an intelligence function also.

The Japanese benefit from and use a strong societal system of shared values, trust and peer pressure to conform, thus avoiding mandates.

The United States' society trusts neither its political institutions, military or domestic intelligence services to monitor individual COVID-19 compliance, lacks Japanese shared values, trust and impact of peer pressure on compliance and sues a lot.

Why, given these briefly summed and other mindset and landscape conditions would one expect a similar pattern of COVID-19 crisis management response in any of these countries? They are not in fact similar.

Also, there is no reason to believe that pandemic crises are internally managed similarly to other crises until evidence accumulates that they are, nor that other crises are managed similarly to pandemics across these nations due to their differing values, goals, national capacities and differing existing institutional arrangements and authorities for managing 'health code' crises versus other kinds of crises.

Internally some of these countries and their societies are more unified than others and they have differing procedures for settling disputes in general. This is a philosophical realm of values and traditions.

In Japanese society confronting, let alone suing, the government is rare whereas in the United States almost all meaningful disputes end up in court, reside there for a long time, and Americans have no problem at all with suing their government.

In Japan, group unity and pressures to conform are higher. In the United States, individualism is an affirmative social value. Israeli and Icelandic societies are both 'raucous' but vary among themselves in how they are raucous, as well as along other parameters of conflict management and behavioral choice.

Finally, as introduced previously, societies show resilience precisely because they seek to get back to familiar ground. What is adaptively got them to their present condition: it is a proven solution path.

What is 'not', innovation and new pathways, is untested¹⁸² and especially in crisis times the pull of familiarity and a return to it is a commonly stated preferred condition. Change management then can be expected to be iterative, syncretic rather than whole-system transformative. If true, this suggests utilities in forecasting management efforts based on what each society was like before the crisis emerged. Where did Italians rebuild the second most populous region in modern Italy after Vesuvius destroyed Pompeii? Same place. Familiarity.

¹⁸² Hayek, F. A. 1979. *The Counter-Revolution of Science – Studies in the Abuse of Reason*. Indianapolis, Liberty Press. Note: On page 70, Hayek notices that "At first everyone will seek for himself what seems to him the best path. But the fact that such a path has been used once is likely to make it easier to traverse and therefore more likely to be used again; and thus gradually more and more clearly defined tracks arise and come to be used to the exclusion of other possible ways."

The author's approach is "profiling change processes within societies [as a] socio-psychological approach to predicting likely futures."¹⁸³ In its iterative, integrative and holistic mindset it eschews single cases or simplifying models in favor of synthetic and syncretic dynamic foresight building for each society.

In fact, case specific foresight is at the bottom of the holistic assessment funnel, with prefatory "knowledge of values, religions, philosophies and traditional ways of relating" together with "societally validated goals and strategies and interpretations of political and historical reality at the top of the foresight and forecast building funnel. The early socio-psychological grounding focus is used to later iteratively build a "societal behavior and values profile" leading to the building of "a societal change profile."¹⁸⁴

Only then is the current forecasting 'case' – each schema for managing a crisis like COVID-19 – considered.

6.3.4 WHERE THIS APPROACH LEADS WHEN APPLIED TO A PRELIMINARY COVID-19 SCHEMA:

Google and other app-generated personal movement data, which were used in several countries for both contact tracing and for isolation or lockdown compliance monitoring purposes, can tell one where people go and how often, but not why. Building a useful change profiling foresight tool requires integrating mindset, both societal and individual, with hard data. Serious pandemics occur relatively rarely in the modern world, but other crises do often occur. Societies develop ways to deal with crises, as they must regularly do. Israel, for example, regularly faces human conflict crises, some existential, Iceland regular earthquakes and volcanoes, Japan tsunamis and earthquakes and the U.S. various weather, fire and other emergencies with occasional non-existential conflict crises like 9/11.

Building an intelligence in-crisis to post-crisis forecasting approach needs to address societal 'ways' for addressing various crises, not merely COVID-19 management observations, but at the same time pandemic management is not commensurable with, say, fire, flood and geologic crises.

Below is a preliminary assessment of four countries selected on a mild most different systems frame in order to build some tentative foresight range. To do this work properly requires most-similar systems analysis, historical analysis and the integration of societal values, norms, philosophies and ways across multiple kinds of crises. Most Different System (MDS) approaches better highlight key factor differences and important cross-system uniformities. Most Similar System (MSS) approaches better highlight finer tone contextual differences among the systems that are chosen for their overall uniformity. Close uniformity, like grouping Scandinavian countries into an MSS inquiry renders most 'variables' constant by research design (they are the same or nearly so in each system). This designed configuration allows a focus on a smaller number of plausible change inducing variables that differ among the most similar systems.

Historical analysis provides information about embedded groundings and entanglement features for each.

Socio-psychological approaches often provide contextual meaning to observed behaviors when integrated. Add time, which we do not have for developing this COVID-19 management discussion, during which to iterate hindsight and insights dynamically, and you achieve a basic profiling change processes forecast.

That is work for another day: to build robust in-crisis to post-crisis COVID-19 management forecasts of the various systems. What is below is conditional and early days thinking.

¹⁸³ Op. Cit. Werther, Proteus Future Group, 2008, p. 1.

¹⁸⁴ Ibid. Werther 2008, p. 1.

6.3.5 THE ISRAEL SCHEMA:

Israel, probably because of the history of the Jewish peoples and their modern state, takes almost everything as a national security concern. Perhaps from this context, it is understandable that Israel is the only country to use its domestic intelligence service, the Israel Security Agency (Shin Bet) to track the movements of individuals in the COVID-19 crisis without court order. More, uniquely again, Israel's National Security Council, Defense Ministry and Prime Minister's Office decided all areas of societal behavior during the COVID-19 crisis. The National Security Council and Defense Ministry also decided which government agencies could remain open and under what rules, police were placed along highways and city entrances to enforce rules¹⁸⁵ during what is described as "the world's longest and strictest national lockdown."¹⁸⁶ People were restricted to only essential travel within 1km of their homes, and essentially confined to their homes for four months.¹⁸⁷

In sum, Shin Bet and the Israeli Defense Force (IDF) did citizen contact tracing and, together with the police, managed lockdown compliance, the National Security Council set operating rules for Israeli government agencies and The Defense Ministry decided which businesses and persons are essential.¹⁸⁸ When tied to Israel's outstanding health services that were built through large prior public investments in a universal health system with a centralized chain of command, its excellent data processing capabilities and an early decision to buy vaccines on the world market at double standard prices, Israel achieved rapid vaccine rollout, the world's highest percentage of vaccination and early reopening.¹⁸⁹

To get there, all economic activity was shut down for two weeks resulting in conflict between the Finance Ministry, which initiated the shut down, and the Science Ministry and Bank of Israel, which opposed it. Inter-party conflict was high, with the common view that the COVID-19 response was politicized.¹⁹⁰ Religious, partisan, non-vaccination choosers, and anti-government protesters complicated the national schema and frustrated full achievement of goals. Because the government could not force people to be vaccinated, the national government instituted a "Green Pass" that allowed documented vaccinated individuals to access society's venues. A law was passed to allow public sharing of the identities of non-vaccinated persons as a way or pressuring them to comply using public shaming.¹⁹¹ Despite what the government sees as a success, only 24% of the population approved of the national government response.¹⁹²

Tentative Foresight Discussion:

Israel shows a case of high trust of its national security organizations both because of history and because of nearly universal service in these services by young people. Most Israelis trust their national security and intelligence services because their children are running them, because they are technically excellent and have served Israel through many crises, both short and prolonged. Interacting with this is an Israeli culture of raucous discussion

¹⁸⁵ Op. Cit. TOI Staff. *Cabinet approves near-total national shutdown to stem runaway infection rate* | *The Times of Israel*. 24 September 2020.

¹⁸⁶ Schwartz, Yarden. *Israel's Handling of coronavirus seems like a success. Residents tell a different story*. NBC news.com, Feb. 6, 2021. <https://www.nbcnews.com/news/world/israel-s-handling-coronavirus-seems-success-residents-tell-different-story-n1256835>; Last downloaded April 8, 2021.

¹⁸⁷ Ibid. NBC - Schwartz.

¹⁸⁸ Op. Cit. *Times of Israel*; Altshuler, Tehila Shwartz and Rachel Aridor Hershkowitz. *How Israel's COVID-19 mass surveillance operation works*.

¹⁸⁹ Baher, Dany. *The Secret Sauce behind Israel's Successful COVID-19 Vaccination Program*. Brookings.edu/blog, Jan. 5, 2021. <https://www.brookings.edu/blog/up-front/2021/01/05/the-secret-sauce-behind-israels-successful-covid-19-vaccination-program/>; Last downloaded April 8, 2021; Schraer, Rachel. *Covid: Israel's Vaccination Rollout Linked to Infection Fall*. BBC News, Feb. 1, 2021. <https://www.bbc.com/news/health-55706855>; Last downloaded April 8, 2021; Op. Cit. *Times of Israel*.

¹⁹⁰ Op. Cit. Schwartz, NBC News.

¹⁹¹ Ben-Gal, Michal. *New Law Lets Israeli Health Ministry Share Personal Info of Citizen's Who Decline COVID Vaccine*. CBS News. Feb. 25, 2021. <https://www.cbsnews.com/news/covid-vaccine-israel-law-personal-information-privacy/>; Last Downloaded April 8, 2021.

¹⁹² DW.com. *Israel Opens Cultural Shows for People with COVID-19 Jab*. March 2, 2021, <https://www.dw.com/en/israel-opens-cultural-shows-for-people-with-covid-19-jab/a-56745306>; Last downloaded April 8, 2021.

among its many religious factions and other interests, a tradition of challenging authority to defend those interests and sharply contentious political space. These mindset features are important. In the author's view, economic power is highly centralized in Israel whereas political power is highly dispersed with coalitions forming and fracturing often. Historically, Israel had a socialist or at least communitarian bent that has changed in recent decades to be far less so. The Prime Minister during the pandemic, Benjamin Netanyahu, has free market, privatization and work-for-welfare inclinations within what is still a strong welfare state on the European model.

Next, Iceland, a similarly raucous Scandinavian welfare state with strong trust in its police and national security institutions, a strong distrust of politicians but with a very different COVID-19 management schema is discussed.

6.3.6 THE ICELAND SCHEMA:

Whereas Israel used a highly centralized political, military, intelligence and national security guided change process to enforce compliance and a harsh lock-down schema whereby compliance was tracked by Shin Bet and police to manage COVID-19, Iceland never locked down, mostly remained opened to international travel and returned to domestic normalcy very fast. It never closed its lower schools and reopened higher schools rapidly, relied on public cooperation to manage the COVID-19 disease and achieved the highest voluntary testing compliance known: 98% of the population voluntarily were tested.¹⁹³ Israel, in contrast, shut down almost everyone for four months and used mandates and enforcement.

Iceland, normally "an unruly nation" and in this way similar culturally to Israel, trusted people. They were asked to comply, and they did. The tone was described as "public solidarity" and the schema was "test, trace, trust."¹⁹⁴ Israel, in comparison, controlled people.

In Iceland, the scientists made the rules for COVID-19 management and the politicians did not. The public listened to the experts and had confidence in the scientists but not have trust in the politicians. Iceland used its highly trusted and respected police service (92% trust) to do individual tracing, amid low trust in Iceland's other institutions after the 2009 financial collapse.¹⁹⁵ The actual tracing program was managed by a police detective with organized crime duties. However, the compliance was a mere request to quarantine to an "isolation hotel" where the test positive patients were sent.¹⁹⁶ Arriving overseas visitors were tested, and if positive asked to quarantine, which allowed the economy to stay open.¹⁹⁷ Most of the testing within Iceland was done by a private company - deCODE.¹⁹⁸

Finally, Iceland, with its history of volcanic eruptions, earthquakes and avalanches, had prepared for a pandemic with a clear, step-by-step national plan over 15 years prior to the COVID-19 event. The management goal was to live

¹⁹³ Herman, Sarah and Carlo Augerer. *Test, Trace and Trust: How Iceland Became a COVID-19 Success Story*. NBC News. March 15, 2021, <https://www.yahoo.com/entertainment/test-trace-trust-iceland-became-083109585.html>; Last Downloaded April 8, 2021; Bishop, Todd. *COVID-19 Lessons From Iceland: How One Nordic Country has All But Stopped The Virus in its Tracks*. Geekwire. May 17, 2020. <https://www.geekwire.com/2020/covid-19-lessons-iceland-one-nordic-country-stopped-virus-tracks/>; Last downloaded April 8, 2021.

¹⁹⁴ Ibid. Herman and Augerer;

¹⁹⁵ Vilhelmsdottir, S. *Political Trust in Iceland: Determinants and Trends 1983-2018*. University of Iceland, Faculty of Political Science doctoral thesis, February 2020, pp. 107 & 111. ISBN 978-9935-9477-5-8; https://vol.hi.is/wp-content/uploads/2020/04/Political-trust-in-Iceland_Sj%C3%B6fn-Vilhelmsd%C3%B3ttir_PhD-thesis_07022020-1.pdf; Accessed 15 September 2020.

¹⁹⁶ Mackenzie, Jean. *How Iceland Clamped Down to Conquer Coronavirus*. BBC News, March 23, 2021. <https://www.bbc.com/news/world-europe-56412790>; Last downloaded April 8, 2021.

¹⁹⁷ Op. Cit. Apr 9, 2020 - *A Cop Skilled in Tracking Mobsters Is Now Focused on the Coronavirus. Icelandic police superintendent put gangster duty on hold to trace coronavirus*. <https://www.wsj.com/articles/a-cop-skilled-in-tracking-mobsters-is-now-focused-on-the-coronavirus-11586424602>; Accessed September 25, 2020; Op. Cit. Vilhelmsdottir, S. *Political Trust in Iceland*.

¹⁹⁸ Grose, Thomas. *What Iceland Can Teach the World About Minimizing COVID-19*. USNews.com, May 4, 2021. <https://www.usnews.com/news/best-countries/articles/2020-05-04/what-iceland-can-teach-the-world-about-minimizing-the-coronavirus>; Last downloaded April 8, 2021.

with the crisis and Iceland never envisioned eliminating the virus just as you don't eliminate a volcano – you learn to live with it. In this they are similar to Japan's schema.

To do this, Iceland relied on constantly informing the public, partnership with private firms, early and aggressive individual contact tracing but not general population testing. This is a bubble strategy that allows familiars to live relatively normally. Testing focused on finding clusters and treating those individuals. There are various restrictions on persons and business, but compliance is largely voluntary based on trust.¹⁹⁹ As a committed welfare state, Iceland provided generous COVID-19 crisis-linked benefits to job seekers, families, disabled people, the vulnerable, pensioners and focused on resilience through revenue loss subsidies for business.

Iceland is seen as a model of success without closing down society or using harsh methods to achieve compliance.

Tentative Further Foresight Comparison:

Like Israel, Icelandic society is 'raucous' with robust social argumentation and criticism of government as normal, but with high trust of some institutions. Both have used shaming as a tool in crises, although Iceland did not do so during the Covid-19 management response. A colleague, visiting Iceland after the 2008-2009 financial crisis, which overthrew the Icelandic government and resulted in jailed bankers, noted thereafter the many pictures of bankers placed on the bottom of men's urinals.²⁰⁰ Israel used public access to non-vaccination records for shaming.

Both have highest quality medical, police and internal national security services and trusted them. Because internal intelligence in Iceland is a police function²⁰¹, both thus in effect used their domestic intelligence services for individual contact tracing: in Iceland, using police usually tasked with organized crime duties and in Israel, Shin Bet. This is unique worldwide among developed countries. Some Israelis objected, Icelanders apparently not.

Both countries were helped by isolation, Iceland via North Atlantic island status and Israel being surrounded by security walls and soldiers – few people get into either uninited.

Each has only one international airport²⁰², making ingress monitoring plausible, which both did very differently. Israel "hermetically sealed" the country via a total shutdown of Ben Gurion Airport, Iceland has air travel entry rules but did not seal.²⁰³

Both benefit from high levels of education, generally healthy populations and both are modeled upon European welfare states with robust support of populations through these services as the norm.

6.3.7 THE JAPAN SCHEMA:

Japan is not 'raucous' and, unlike Iceland or Israel, does not have the cultural habit of openly criticizing government or society's groups and persons. To the contrary, group harmony, interdependence, belonging, politeness, saving 'face' and 'giri' (roughly, having a sense of moral debt and obligation not to shame one's self, family, community or

¹⁹⁹ Iceland Review. <https://www.icelandreview.com/ask-ir/whats-the-status-of-covid-19-in-iceland/>; Accessed April 10, 2021.

²⁰⁰ Global Non-Violent Action Database. *Icelanders overthrow top power holders responsible for economic crisis (Kitchenware Revolution), 2008-9*; <https://nvdatabase.swarthmore.edu/content/icelanders-overthrow-top-power-holders-responsible-economic-crisis-kitchenware-revolution-20>; Last accessed April 10, 2021; Pers. Com. David K. Hurst, Conference Board of Canada Conference on Enterprise Risk Management, Toronto, Canada, March 31, 2014. The Nature of Uncertainty – Hunting Black Swans. <http://www.davidhurst.com/the-nature-of-uncertainty/>.

²⁰¹ Greiningardeild - (Icelandic Police); Skattransoknarstjóri Ríkisins - (National Tax Investigation Police).

²⁰² Note: Except for flights from Greenland and Faroe Islands, 99% of international flights to Iceland go to Keflavik Airport.

²⁰³ 124News. *Israel shuts down Ben Gurion Airport for all travel purposes for first time in history*; i24NEWS January 24, 2021, 11:22 AM; latest revision January 26, 2021, 9:06 AM; <https://www.i24news.tv/en/news/coronavirus/1611505307-israel-shuts-down-ben-gurion-airport-for-all-travel-purposes-for-first-time-in-history>; last accessed April 10, 2021; Op. Cit. Iceland Review.

society through a lack of loyalty or sense of duty), are among the values that make voluntary compliance plausible. So are private groups that shame non-compliant people.

Additionally, the national government in Japan has constitutionally limited power to enforce lockdowns and other forms of forced individual compliance.²⁰⁴ The result is a management schema of asking, keeping people apprised and of supporting compliance. In this, Japan mirrors Iceland's schema.

Japan, like Iceland, was well prepared for a pandemic crisis, but via a regionalized public health law and dispersed care system where prefecture health services functioned like "mini-CDC's."²⁰⁵ Israel and Iceland, by comparison, have excellent mandated but centralized *national* systems.

"The country used retrospective monitoring methods to find closer links to an infected person...Japan's retrospective method was claimed to more reliably identify the initial source of infection and thus tracked all close contacts of sources of infection. The basic policy of the authority was to early detect the source of an infected individual through symptoms, follow all the people in the cluster who are highly transmissible, test and isolate them immediately and treat them as symptoms rather than general testing of the country's entire population."²⁰⁶ This is like Iceland's cluster tracing and bubble strategy and unlike Israel's national one.

Iceland had a COVID-19 hotel, whereas Japan used designated COVID-19-only hospitals to which patients were referred. Both Iceland and Japan pursued a schema to stay economically and socially open using a "Bubble Strategy" of allowing openness within close societal networks and within regions, with contact tracing of cases rather than Israel's top-down general lockdown and universal testing and vaccine strategy.

In Japan this is perhaps due to the national government's limited constitutional authority whereas Iceland's post-2009 financial collapse generated distrust of central government likely caused Icelandic politicians to maintain a distance from ordering people about. Israel, traditionally in a state of existential crisis, showed a strong national security mindset with a military-intelligence operational focus and command mindset.

Strangely, from its progressive values, Iceland sees the topic of 'national security' very broadly: "The concept of security is no longer restricted to territorial defence; the concept is much wider and extends to coming to terms with new challenges [to] prevent the proliferation of weapons of mass destruction, terrorism, international crime, environmental degradation, financial security, cyber threats, human trafficking, the negative impact of climate change, poverty and destitution, nor the threat posed by fragile states.... Emphasis will be placed on new global threats, brought about by climate change, natural disasters, food safety and security, health safety issues, and epidemics (emphasis added)."²⁰⁷

This mindset may partly explain Icelandic use of domestic intelligence for individual monitoring.

This schema cannot be so in Japan. After WWII, the authority of the national government in terms of national security especially was greatly limited. Thus, "At the beginning of the pandemic, the central Government of Japan asked (emphasis added) people to avoid large gatherings, encouraged teleworking, and avoid unimportant trips, with the encouragement of avoidance (emphasis added) of 3Cs. The places that meet the 3Cs are closed spaces,

²⁰⁴ Stevenson, Emma. *What the data tells us about Japan's Covid-19 response*. Asset Management – Schroders. September 9, 2020. <https://www.schroders.com/en/bm/asset-management/insights/equities/what-the-data-tells-us-about-japans-response/>.

²⁰⁵ Hamaguchi, Ryoko, Kay Negishi, Masaya Higuchi, Masafumi Funato, June-Ho Kim, Asaf Bitton. *A Regionalized Public Health Model To Combat COVID-19 Lessons From Japan*. Health Affairs. July 22, 2020; <https://www.healthaffairs.org/doi/10.1377/hblog20200721.404992/full/>; Last downloaded April 8, 2021.

²⁰⁶ Sayeed, Urme and Ahmed Hussain. *How Japan Managed to Curb the Pandemic Early On: Lessons Learned from the First Eight Months of COVID-19*; J. of Global Health, Dec. 2020; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7688188/>; Last downloaded April 8, 2021.

²⁰⁷ Government of Iceland; <https://www.government.is/topics/foreign-affairs/national-security/>; Last accessed April 10, 2021.

crowded places, and close-contact settings. Later Japan updated into “3C Plus” that included behavior modifications like avoiding loud talking and singing. The national authority's policy was to raise public awareness and stop the spread of this virus without requiring a full shutdown.”²⁰⁸

Public awareness building and voluntary compliance in Japan shows, again, an Icelandic parallel. Like Iceland,²⁰⁹ Japan relied on private choice to ask persons to wear a tracing tool in collaboration with private firms, “On June 19, the Government of Japan released a coronavirus tracing app for Android and IOS phones named “COCOA”. With the collaboration of Japan Microsoft, Apple, and Google, the app was launched to trace the people in contact with a COVID-19 positive patient.”²¹⁰ Both Japan’s and Iceland’s were voluntary, whereas in Israel strict police enforcement was used limiting people to 1 km of home and banning intercity travel without permissions.

Like Iceland, but unlike Israel, “Japan's mild lockdowns seem to have had a real lockdown effect. While people were not forced to remain at home, they did in general. The citizens of Japan have complied with authority from the very beginning of the pandemic...the people kept away from mass gatherings and trivial trips in compliance with the request.”²¹¹

Like Iceland but unlike Israel, “Japan has never talked about eliminating the pathogen...Japan's experts tried to promote a “new way of living” where people will have to deal with the virus. Japan followed the idea of maximizing efforts to suppress transmission and to minimize socio-economic damage,”²¹² again similar to Iceland but not to Israel. Israel’s government spoke of hermetically sealing society and attaining herd immunity through large-scale vaccination.

Again, the reason seems to be socio-cultural and values based.

“In a country where fear of standing out is almost as intense as fear of the coronavirus, most people respect the guidelines: One study published in August found that the main reason people gave for wearing masks was “peer pressure,” rather than preventing the virus from spreading... Oshitani places Japan’s approach in a cultural context. “Coexistence” with the virus rather than attempting to eliminate it makes sense in a country that has suffered many waves of deadly epidemics over the centuries, from smallpox to cholera, influenza and measles... There are many stone monuments in Japan to the smallpox god,” he said. “For the Japanese, it is something very powerful that is out of our control, something we respect. We accept that this is something that cannot be eliminated. In fact, the vast majority of infectious diseases cannot be eliminated...Cultural factors have also played an important role in Japan’s acceptance of mask-wearing, its emphasis on hygiene, its conformity to rules.”²¹³

Interestingly, both Japan and Iceland have regular LSLIRE natural disaster crises that cannot be eliminated (earthquakes, volcanoes, tsunamis, etc.) whereas Israel has virtually none. Israel’s crises involve human conflict, are chronic and potentially existential, and erupt in LSLIRE fashion regularly.

6.3.8 THE UNITED STATES OF AMERICA SCHEMA:

The United States of America is, by design, inefficient in its political actions and separates authorities as a way of preserving individual, local, state and regional autonomies and liberties. It is a complex, dynamic system of

²⁰⁸ Op. Cit. Sayeed, Urme and Ahmed Hossain. *How Japan managed to curb the pandemic early on:*

²⁰⁹ Johnson, Bobbie. *Nearly 40% of Icelanders are using a covid app—and it hasn’t helped much.* M.I.T. Technology Review; <https://www.technologyreview.com/2020/05/11/1001541/iceland-raking-c19-covid-contact-tracing/>; Last accessed April 8, 2021.

²¹⁰ Op. Cit. Hamaguchi, et. al.

²¹¹ Op. Cit. Sayeed and Hussain, NCBI.

²¹² Ibid. The idea in both cases was to keep the economy open while learning to live with the virus through societal compliance.

²¹³ Denyer, Simon. *As infections ebb, Japan hopes it has cracked the covid code on coexisting with the virus.* The Washington Post, September 19, 2020. https://www.washingtonpost.com/world/asia_pacific/as-infections-ebb-japan-hopes-it-has-cracked-the-covid-code-on-coexisting-with-the-virus/2020/09/17/4742e284-eea2-11ea-bd08-1b10132b458f_story.html; Last Accessed April 8, 2021.

autonomous, semi-autonomous, nested and sometimes interlocking authorities and institutional arrangements that are often both unclearly defined and are defended by various political, bureaucratic, private and individual interests at all levels across almost all policy regimes.

It is the only country among those assessed here without a universal, mandated health care system, its medical information flows and authorities are not well integrated and often use technical systems that cannot communicate with each other. Data management is less centralized, and information is harder to believably communicate to the public. Like Israel, COVID-19 management was politicized amid what is a contentious and partisan divide and conflicted political scene. Only 20% of the population within the U.S. trusts government to do what is right all or most of the time. U. S. trust in its institutions, policy areas and political class is low.²¹⁴ Media organizations received the lowest trust levels, rendering information transmission suspect or adversely received. Only 9% in U.S. trust mass media "a great deal" and 31% "a fair amount", 27% have "not very much" trust and 33% "none at all." The percentage with no trust at all is a record high, up five points since 2019.²¹⁵

The U.S. has about 70% of the world's lawyers and uses them. As previously discussed, there is hardly a meaningful question arising in U.S. society that does not end up in court. Why should COVID-19 management, indeed any area of crisis management, be different? It is entirely to be expected that Americans argued and sued their way through COVID-19 and sought to manage the crisis in a disputing, local, regional and often states-rights manner with differing approaches taken in different places.

Locals guarding their powers, as we will soon see, was also done in past U.S. pandemic experiences, as will be discussed in chapter 5.

The U.S. has a federal system where the national Constitution, like in Japan's unitary system, the power of the national government has defined limits. Unitary Israel has no written constitution and unitary Iceland's constitution shares national parliamentary (Althing) and Presidential power within a republican structure.

The U.S. national government has, by design, past practice and in law, only limited authority, power and capacity to enforce national compliance. Further, in the U.S. the idea of entrusting its main domestic intelligence agency, the FBI, or the police to trace individual COVID-19 transmission is implausible. The FBI would not want that task since it would know what is coming politically and legally. State and local police in many U.S. jurisdictions simply refused to enforce government COVID-19 management mandates.²¹⁶ In Israel and Iceland they were intimately involved in COVID-19 management.

Societally, the U.S. is 'raucous' but does not have Israel's unifying sense of existential threat, Iceland and Japan's national focus on natural disasters. U.S. style disasters are normally mostly local or regional occurrences and managed in this local or regional way with perhaps some Federal Emergency Management Agency and other national agency temporary support, if requested by state authorities. Certainly, the U.S. lacks the social values of Japan, Iceland or Israel, especially Japanese notions of harmony, interdependence, trust and giri, the prior step-by-step preparedness for epidemics of Iceland or the practiced mini-CDC competencies of Japan.

²¹⁴ Pew Research Center. *Americans' Views of Government: Low Trust, but Some Positive Performance Ratings*. September 14, 2020. <https://www.pewresearch.org/politics/2020/09/14/americans-views-of-government-low-trust-but-some-positive-performance-ratings/>;

²¹⁵ Brennan, Megan. *Americans Remain Distrustful of Mass Media*, Gallup News, September 30, 2020.

<https://news.gallup.com/poll/321116/americans-remain-distrustful-mass-media.aspx>; Last Accessed April 8, 2021.

²¹⁶ Whigham, Nick. *Coronavirus U.S.: Police refuse to enforce 'flat out ridiculous' lockdown*. Yahoo News, December 7, 2020.

<https://au.news.yahoo.com/coronavirus-police-refuse-enforce-ridiculous-lockdown-124911779.html>; Sykes, Stefan. Some New York sheriffs say they'll refuse to enforce limit on Thanksgiving gatherings. NBC News. <https://www.nbcnews.com/news/us-news/some-new-york-sheriffs-say-they-ll-refuse-enforce-gov-n1248051>; Parker, Jim. *El Paso police refuse to enforce county judge's order limiting business due to virus outbreak*. October 30, 2020. KVIA News. <https://kvia.com/coronavirus/2020/10/30/el-paso-police-refuse-to-enforce-county-judges-order-limiting-business-due-to-virus-outbreak/>.

These mindset to schema as aspects are visible in hindsight when looking at the 1918 Spanish flu, suggesting a good potential ability to forecast at a granular level.

After a cursory reading while folding in personal experience of U.S. crises management, the U.S. typically acted locally and in conflicting ways during the Spanish Flu pandemic, and after various natural and other crises. This suggests that building a profiling change processes capacity as a within-crisis-to-post-crisis foresight tool (where localized hindsight information does not exist) for the U.S. will require integration of both national and many differing at least state-level and major city schema.

The within-to-post crisis forecasting problem for the U.S. is that, more than is true of many other societies, local and regional systems of dispersed power and conflicting self-interest, coupled with a 'raucous' political style that is more than willing to challenge central authorities likely makes building a valid country-level forecast challenging. Consider that Los Angeles, San Francisco, Chicago and New York City each built and maintained schema that were different from their enfolded state, let alone different from the weak U.S. national schema. That such a U.S. pattern of highly dispersed and locally conflicting responses to the Spanish Flu pandemic occurred supports this foresight conjecture.

There is not much that is unexpected in the diffused pattern of, and the conflicted and legalistic nature of, the present U.S. and state-local COVID-19 schemas.

6.3.9 A CLOSING COMMENT ON SCHEMA WITH PARTIAL ANALOGY CONDITIONS:

Each schema was implemented but in radically different ways that were linked via tentative provenance to differing system goals, values, ways and so forth. One needs to further build string to build good enough forecasts. Chapter 5 begins that process for this schema.

What is being built here, potentially, is an integrative, holistic and context-specific intelligence foresight capacity with provenance for in- and post-crisis forecasting. This is somewhat different than the INUS schema judging with provenance done for the No Analogy and Strong Analogy foresight examples because it includes the impacts of societal resilience.

Tentatively, the author thinks that over time, when further MSS, MDS, historical and case analogy is available, that long-term foresight is possible, to which forecast discussion we turn in Chapter 5 to close out the monograph.

6.4 AN ACTUARY'S VIEW:

Dr. Werther's COVID-19 analysis, looking not at the health implications but on how past experience has driven culture in different ways based on country, is fascinating and valuable in its own right. His focus on getting it right, rather than the researcher incited focus on funding and publishing, is important to acknowledge. To achieve this desired result, we need to shift from a short time horizon that is tactically focused to one with a longer time horizon that incorporates risk interactions and discontinuities. Financial incentives need to align, tied to asset-liability matching best practices in traditional actuarial practice. As climate change looms, can insurance and pension practitioners continue to offer products with long duration liabilities when the stability of the asset duration is at risk? Many insurance products (e.g., long-term care and payout annuities) are longer than the asset classes available today, and these assets may need to be reinvested in a much different environment.

The U.S. administratively has not progressed much, in some ways, beyond its shortcomings from a century ago when it battled Spanish Influenza (H1N1). Reporting groups remain the same, with the highest starting at 85 despite great improvements in longevity. There is no standard for reporting by state, and political interference has led the U.S. public to trust groups like Johns Hopkins University, the Washington Post and the Our World in Data website for case and death counts rather than the CDC. The U.S. public response has been as though we don't respect the virus, assuming that technology will defeat it while ignoring mitigations. This technique will not always be successful.

In the United States, Dr. Werther described in Chapter 4 how litigiousness has impacted the COVID-19 response. Now a legal precedent set in an opioid settlement awarding the state of Oklahoma money could be used against it by a Tulsa group seeking damages for a century old race massacre. This type of legal challenge could extend to other topics like climate change and have great strategic ramifications. Risk managers should look for these types of events and rulings that have broader impact than is clear initially. We will receive numerous opportunities of this type as the pandemic continues to play out; how a region dealt with early variants will provide clues to future success.

7 FORECASTING HOLISTICALLY WITH PROVENANCE:

7.1 ON NON-COINCIDENCES AFFECTING SCHEMA JUDGMENT:

Japan: In 1918, amid the Spanish Flu, a Japanese police officer complained that he was not permitted to enforce the ban “on all mass gatherings, even for worship,” as was the case in Korea. In Japan, “which was undergoing a transition from rule by a small group of oligarchs to a nascent democracy, the authorities did not even consider closing public meeting places.”²¹⁷

Japan: In 2020-2021, one century later, the Republic of Korea (South Korea) authorizes “the RoK police [to] jointly deal with serious violations of the Act, such as quarantine breaks, dissemination of false information around COVID-19, and collective and organizational disruption...”²¹⁸ whereas Japanese National Government directives do not carry the force of law and thus may not be enforced by Japanese police.²¹⁹

The RoK schema today remains total population monitoring and control, albeit with population cooperation for the mandates, while the Japanese schema remains voluntary compliance based on large-scale voluntary population cooperation supported by social pressure to conform²²⁰ but with a lack of law enforcement.²²¹

United States: In 1918, “The more officials and newspapers reassured, the more they said, There is no cause for alarm if proper precautions are taken, or Influenza is nothing more or less than old-fashioned grippe, the more people believed themselves cast adrift, adrift with no one to trust, adrift on an ocean of death.”²²²

Then President Woodrow Wilson “overruled the military doctors, insisting that the transports continue – and may have delayed declaring an epidemic so as not to impede them.”²²³

Reaction to managing the pandemic was local. In Colorado, “Lake City guards kept the town entirely free of disease, allowing no one to enter. Silverton...authorized the closing businesses...The Town of Ouray set up a “shot gun quarantine”...Gunnison and most neighboring towns issued a closing order and a ban on all public gatherings...Gunnison lawmen blocked all through roads...Prescott, Arizona made it illegal to shake hands.”²²⁴ Various individual town or city initiatives and mandates include those for San Francisco, Quitman, GA, Savannah, GA, and so forth.²²⁵ The hindsight point is that pandemic management was local and various during the Spanish Flu episode.

There is a national argument over whether masks are useful, with mandates enforced in some areas but not in others. ‘Health officials disagreed as to whether masks actually reduced transmission. They were divided on the use of disinfectant too.’²²⁶

“Public funerals were banned in New York, only spouses being allowed to accompany the coffin.”²²⁷

²¹⁷ Spinney, Laura. 2017. *Pale Rider: The Spanish Flu of 1918 and How it Changed the World*. New York: Public Affairs Hachette Book Group. p. 99.

²¹⁸ Kang, Hyunjin, Seonman Kwon and Eunkyoung Kim. World Health Organization Regional Office for South-East Asia COVID-19 health system response monitor: Republic of Korea. February 2021.

²¹⁹ Fisher, James. COVID-19, Collective Action, and Japan’s Constitution. Tokyo Review, May 13, 2020; <https://www.tokyoreview.net/2020/05/covid-19-collective-action-and-japans-constitution/>.

²²⁰ Osaki, Tomohiro. Japan’s ‘virus vigilantes’ take on rule-breakers and invaders. <https://www.japantimes.co.jp/news/2020/05/13/national/coronavirus-vigilantes-japan/>.

²²¹ Op. Cit. Fisher, James. COVID-19, Collective Action, and Japan’s Constitution.

²²² Barry, John. 2005 (2018 edition). *The Great Influenza: the Story of the Deadliest Pandemic in History*. New York: Penguin Books. Pp.340.

²²³ Op. Cit. Spinney, pp. 104.

²²⁴ Op. Cit. Barry, pp. 345; 347.

²²⁵ Ibid. pp. 374-375.

²²⁶ Ibid. pp. 374-375; Op. Cit. Spinney, pp. 97, 205.

²²⁷ Op. Cit. Spinney, pp. 110.

Despite lacking any knowledge of germ theory, pandemic patient zero was, then as now, claimed by many people to be of China origin.²²⁸

United States: In 2020-2021, as previously noted, U.S. trust in media and government officials are at record lows during this period, the state and local variation and lack of a uniform national schema in COVID-19 management schema closely matches the 1918 experience, politicization exists in both contexts, including initial downplaying about the seriousness of the virus and seeing China as the origin is the same. Management decisions banning public funerals in New York City matches across the 1918 and 2020 period, as an interested documented parallel, and the argument over the efficacy of masks within the medical community and public is the same, with differing locally-decided mask mandates observed in both cases.

Israel (1948) and Iceland (1944) did not exist as independent states in 1918, so no pandemic management comparison is possible.

What Does This Mean for Holistic Forecasting?

Central to this orientation to understanding societal change, especially large-scale, large-impact and rare event emergence, is that these emergences do not come from nowhere – they have a long, usually slow, observable, traceable gestation periods and maturation processes.

Nassim Taleb’s orientation is that he sees discrete ‘Black Swan’ *events* when in reality most LSLIRE’s are dynamic change processes of knowable provenance that mature over time. These are better forecast as emergences.

For example, building a stable Lebanese state was a schema that required an INUS compliant condition that never existed. Almost every serious scholar at the time recognized the growing instability of Lebanon’s consociational²²⁹ state-building experiment, just as practical politicians both inside Lebanon and outside sought to limit the damage of state failure to their interests. Consociational states are theoretically fraught with dangers. This is well known.

Examining on Taleb’s famous Black Swan example, the author wrote in 2013 that Taleb claimed, “Lebanon ... in the early twentieth century, appeared to be a stable paradise. ... The Lebanese ‘paradise’ suddenly evaporated. ... A Black Swan, coming out of nowhere, transformed the place from heaven to hell.” The implication is that nobody could see this coming. The truth is [this author wrote] many did.

“Any historian of “The Lebanon” and of the modern 20th century Lebanese state understands that these are very different things, and knows that the Lebanese state was an unfolding crisis from its inception, drawing into crisis various Levantine societies in due course. What follows is purposely a thumbnail history, available anywhere, followed by implications for doing better LSLIRE foresight and assessment.”

“In 1926, French-run Lebanon was declared a republic and a constitution was adopted. The constitution was suspended in 1932 due to upheavals, with some factions in Lebanon wanting unity with Syria and others demanding independence. In 1943, Lebanon gained its independence from France. As part of its new constitution, the formation of the government was based on consociationalism, specifically confessionalism, with power shared among the differing religious groups in the area. Social and political unrest continued, until in 1956, faced with an active civil war, Lebanese President Camille Chamoun asked the United States to send troops to preserve Lebanon’s

²²⁸ Ibid. pp. 153.

²²⁹ Note: A consociational (joined societies) state has major vertically reinforced internal divisions along ethnic, religious, or linguistic lines. They require formal power-sharing arrangements of be stable. Other examples are Switzerland (German, French, Italian and Romansh), Belgium (Flemish and Walloon), and Malaysia (Malay and Chinese). Often stable management requires a quota-based distribution of power sharing and institutional control.

independence. The United States, fearing a repeat version of the conflict in early 20th century Iraq, sent the U.S. Marines, which stayed for several months.”

“Various Levantine militia groups formed, mostly sectarian, many of which deteriorated to mafia-like organizations in the 1950s to 1970s. During this time, the Arab-Israeli conflicts prompted Palestinians to use Lebanon as a base for activities against Israel, prompting, in turn, December 1968 Israeli raids on the Beirut airport, which destroyed 13 civilian planes. In November 1969, an agreement was signed to control Palestinian guerilla activity in Lebanon, but on April 10, 1973, Israeli commandos raided Beirut, killing three Palestinian leaders. This prompted the Lebanese government to resign the next day. On April 13, 1975, Phalangist gunmen, part of a political paramilitary group formed in 1936, killed 27 passengers, mostly Palestinians, on a bus in Beirut, and this incident is judged the start of the Lebanese civil war.”

“That is: “The Lebanese ‘paradise’ suddenly evaporated ... a Black Swan coming out of nowhere transformed the place from heaven to hell,” says Taleb.”²³⁰

Nassim Taleb’s personally highlighted example of an unpredictable Black Swan coming out of nowhere was no Black Swan at all, and it certainly did not come out of nowhere. In this author’s opinion, the reason politicians, reporters and other observers foresaw Lebanon’s unraveling was that they were watching the deteriorating situation over time and understood the tenuous nature of a power-sharing state-building experiment, whereas Taleb is ‘event’ focused as opposed to ‘change process’ focused while seeing a then-stable state. Like the U.S. prior to the Civil War, Lebanon was for a long time anything but stable and many people knew that. This author’s evaluative argument is that a shift in mindset from ‘event’ to ‘change process’ orientation coupled with a profiling change processes approach leads to fewer surprises, earlier recognition of and thus more correctly judged LSLIRE’s.

In this work the author has showed that by using an iterative, integrative and dynamic change process profiling approach, it is possible to foresee and forecast ‘good enough’ with provenance LSLIRE outcomes and their processes under both strong analogy and no analogy conditions. The author did this by turning the forecasting task around to ask *does this specific schema lead to an INUS compliant condition?* The focus was never on ‘predicting’ some general, amorphous future but always the future of a specific, operationalized idea that is being pursued – a schema. Flipping this falsifiability focus places the onus where it belongs: on the proponent of change whether normal or large-scale, large impact and rare.

The second decision the author made, many decades ago, was to place the profiling change process procedure of iterative, holistic (integrative) assessment within a socio-psychological grounding.

Facts, arrangements of facts and problems change, but just as one’s personality, values and cognitive orientation to the world are relatively set and hard to change, so are any society’s values, philosophy-religions, traditions, habits, built-up infrastructures and ways of addressing problems. Socio-psychological insight is relatively stable assessment ground, which varies among societies and largely defines them. It is who and what they are and shapes how they try to succeed in the world. From this perspective we see each society as a proven ‘solution path.’

That is why and how Japan and Korea, the U.S. and every other society, maintains its integrity and resilience as a complex adaptive system in a world of changes and why *their* solution paths persist in time reasonably well. That persistence is a better ground upon which to build a forecasting method. This author thought so +30 years ago during those first steps in this assessment direction and thinks so now.

²³⁰ Op. Cit. Werther, Guntram with Thomas R. Herget. 2013. *Recognizing When Black Swans Aren’t*, P. 21.

Two forecasting tasks remain.

Below is a discussion of two schema forecasts, which, if the reader is attentive, are tentative in the sense that their change process is ongoing. Future change is likely dynamic and syncretic, not episodic.

Second is to look at the mindset and assessment landscape of acknowledged thinkers whose forecasting work is grounded otherwise, mainly in episodic event judgment with statistical measurement as a requirement of provenance.

7.2 SOME CORRECT FORECAST WITH PROVENANCE:

7.2.1 THE 'PEOPLES EQUALITY' SCHEMA IN FUTURE PLAY:

Forecast 1: On April 8, 2021 the Wall Street Journal wrote, "*Greenland Upends China Mining Plan*" after a Inuit Ataqatigiit Party win that "leaves in limbo a project that is part of Beijing's quest to increase its grip on rare earths...Global demand for rare earths is forecast to soar."²³¹

This kind of large-impact power wielded by indigenous peoples is coming to most of Africa, the Middle East and Asia where presently governments do not usually have reserve policy status for indigenous/aboriginal peoples. This reality forecasts general system political unrest, including elevated risk of violence where the indigenous group's capacity is adequate, when no legal and bureaucratic route to disputing is validated by the enfolding state. Where indigenous recognition by the state exists with established pathways for disputing, a juridical and bureaucratic path to gaining more self-determination is forecast.

In both instances, rising uncertainty and increased risk, political, economic and reputational, happens wherever outside entities fail to engage well with peoples making an indigenous peoples' claim. Note that this position did not require that they *are* indigenous peoples, only that they *can plausibly make* this claim.

Forecast Discussion: Growing Inuit self-determination, now almost complete, within The Kingdom of Denmark and was correctly forecast pre-1992 by this author as a general political system style claim and change process to be pursued against Denmark.

Quoting from 1992, "In Denmark (a non-reserve policy country) after home rule for Greenland passed Greenlandic Parties...thereafter broadened their "domestic" agenda to create new cleavages [with Denmark] concerned with governing Greenland...the Siamut, Atassut and *Inuit Ataqatigiit* ...held the majority of seats in the Greenland legislature...[this] demonstrates a legislative/lobbying path to self-determination."²³² The page then explains how this kind of path to greater self-determination compares to other "aboriginal self-determination movements as dynamic processes involving the attempt to convince, rather than force, states to yield concessions" (for self-determination)... "in Norway and Denmark, aboriginal self-determination has had a stronger interest group and political party base."²³³

Continues the April 8, 2021 article, "At stake is Greenland's independence. The island is still partly governed by Denmark, which helms the country's defense and foreign affairs portfolio and gives Greenland an annual block grant of 3.9 billion Danish Krone to help fund basic services."²³⁴

In 1992, the negotiation was over basic self-determination authorities with the author's prediction that these would continue along the same conflict-shaping trajectory. The 2021 article discusses the minutia of indigenous political

²³¹ Hinshaw, Drew and Stacy Meichtry. *Greenland Upends China Mining Plan*. The Wall Street Journal, A16, Thursday April 8, 2021.

²³² Op. Cit. Werther, 1992. P. 61.

²³³ Ibid. p. 62-64.

²³⁴ Op. Cit. Hinshaw and Meichtry, p. A16.

parties and interest groups within a now almost independent Greenland as a decision-making power affecting China's future control of a critical resource – rare earths – needed for green energy agendas involving many of the world's largest state powers.

In short, by 1992 (1990 for the dissertation), the author set out the correct change process and its growing self-determination implication for Greenland's indigenous peoples. This is only one example of the power of profiling change processes as a foresight and forecasting tool. See also the discussion in Chapter 3 on Insight with Provenance.

Forecast 2: Other paths were forecast in reserve policy states. As one example, at the time of writing the 1992 book, Australian and Torres Island aboriginals weakly controlled about 1.5% of Australia, whereas today increasing control exists over 40%. Successful indigenous peoples' claims in this and in other developed countries have spread to less developed ones by way of precedent and the assistance of successful lawyers and experts.

Discussion 2: The relevant future consideration for investors, analysts and policymakers is that indigenous (aboriginal) peoples' status claims are strategic choices about how to ground their claim and they rise in number and scale when outside interests desire access to disputed lands, resources and decisions about their control. Access and control are precisely the goals that various development and globalization schema advance, thus where, and as, globalization and development schema advance, so does the growth and severity of such indigenous peoples' status claims. The forecast here is that the more globalization and development advances, the more conflict of this kind arises. The strategic shaping of that conflict is strongly influenced by whether bureaucratic and juridical paths for indigenous claims adjudication exist in that state.

Forecast 3: Thus, because indigenous peoples strategically use the state's own institutions against it, especially law, what is presently a many hundreds of billions of dollars at risk problem will morph into a much larger number of perhaps many trillions of dollars at risk.

Discussion 3: This risk expansion will occur as this conflict shaping choice expands in places like Africa, the Middle East and Asia/Oceania. It is already a serious recurring issue within the Canadian Arctic and near Arctic. One reason it includes uncertainty as well as risk is discussed as Forecast 4.

Forecast 4: Most firms and governments will not understand, or want to de facto support, this *equal peoples status* claim and how it differs from a minority rights or equal citizen status claim which is based in the more familiar concept of state's sole sovereignty with no 'equal' indigenous peoples' rights.

Discussion 4: Their training, mindsets, and interests do not support the idea of non-state peoples' rights as an equal to the state sovereignty issue. One can see this shifting of the conflict space already when several African countries simply ignored court rulings and their implications. This will not solve the U.N. vote impact problem, leading likely to further 'clash of claims' dynamic conflicts (in the language of the 1992 book) over the coming years. There are plenty of lawyers, legal precedents and public relations challenges coming at countries and firms that become enveloped in these peoples' status conflicts.

7.2.2 THE GLOBALIZATION AND UNITING EUROPE SCHEMA IN PLAY:

Forecast 1: Neither the globalization nor uniting Europe schemas have failed. However, rising particular group, local, regional, and national interests, especially great powers competition, will increase and thereby retrench globalization schema objectives.

Discussion 1: Recalling the review of prior globalization and uniting Europe efforts, "Insight C3: Non-INUS compliant conditions repetitively exist or arise across time and experience that are stunningly similar. Insight C4: These non-INUS compliant conditions reference very similar moral, equity, security, local and particular interests seen to be under threat, allowing for 'good analogy' conditions for building foresight about the present to-be-managed-by-

experts schema of uniting Europe and building pro-freer trade globalization.” Judgment is helped by the fact that both schemas have been tried for +2,500 years and always failed to persist. Expert management has not shown itself superior.

Forecast 2: Issues like rising anti-immigration sentiment, more border wall construction, increasing income inequality and debates over its amelioration will continue to undercut globalization and uniting Europe schema INUS compliance. Experts do not know how to, or cannot de facto, mitigate the arising downside elements impacting schema success.

Discussion 2: Recalling that by much expert consensus, 1994 NAFTA was supposed to bring Mexico to economic and developed country status equality with its partners Canada and the USA within twenty years, that 19th century foreign direct investment in Mexico greatly boosted both societal wealth and inequality and that both led to the opposite of schema success claims – more internal violence and the overthrow of a long present government in Mexico. In parallel, the European Union (EU) did not prevent BREXIT nor has it quelled the populist pressures, especially in eastern and southern EU countries.

Forecast 3: Schema proponents will increasingly use more and stronger elements of state power and authoritative means to maintain policy control:

For example, Germany’s national government has tasked its internal intelligence agency to monitor the rising populist political party AfD. The present German leadership’s concern is broad: “The AfD rocked the German political scene when it was created in 2013 by a group of Eurosceptics, triggered by opposition to the EU’s bailout of Greece. It quickly became an anti-immigrant force, bolstered by Angela Merkel’s decision not to close Germany’s borders during the refugee crisis of 2015, which led to almost a million migrants arriving in the country.”²³⁵ In brief, the AfD doesn’t like the EU and globalization schema.

Similarly, the U.S. is tasking its internal security services and intelligence agencies to monitor “domestic terrorists” broadly defined to include “sociopolitical factors” motivating these groups, such as narratives of fraud in the recent general election, the emboldening impact of the violent breach of the U.S. Capitol, conditions related to the COVID-19 pandemic, and conspiracy theories promoting violence.”²³⁶

Parallel efforts are rising within other countries.

Discussion 3: The author entered the analysis with a broad knowledge of prior schema failures, thus early assessments were labeled “*Doing Business in the New World Disorder*”, as well as various regional holistic assessments. Various customized regional assessment talks and papers were presented which focused on the complex upside and downside emerging trends involving globalization and uniting Europe.

After 2008, specific elements like rising border walls, rising anti-immigration, rising transnational crime and internal instability-insurgency, political left-right shifting away from mainstream parties that supported globalization and EU integration and rising ethnic and indigenous issues in responding negatively to globalization schema were listed, discussed and evaluated.

In particular, the merging of advanced technologies with more traditional efforts to pursue peoples’ rights and advance conflict potency was presented. These instances of merging included indigenous peoples, who were living a

²³⁵ The Guardian. *German intelligence agency to spy on far-right AfD party*. <https://www.theguardian.com/world/2021/mar/03/german-intelligence-agency-to-spy-on-far-right-afd-party>.

²³⁶ Diaz, Jaclyn. *U.S. Intelligence Agencies Warn Of Heightened Domestic Extremism Threat*. NPR. March 18, 2021. <https://www.npr.org/2021/03/18/978463364/u-s-intelligence-agencies-warn-of-heightened-domestic-extremism-threat>.

traditional rural lifestyle, using global positioning devices to advance their claims to traditional lands and resources, indigenous peoples using cell phones during bow and arrow tribal warfare in Kenya, indigenous peoples using drones in conflicts against states, and so forth. The point is that the claims may be traditional but the means of pursuing the claims can be quite sophisticated. Indigenous peoples using some of the world's best lawyers to fight firms and states is another example. They win quite often.

The above were often applied to particular industries' concerns and those of their leading firms, principally AT&T and their world partner governments and firms, ExxonMobil, Lucent Technologies, where the author was keynote speaker at their 1996 Opening Ceremonies as the new firm split from AT&T. That keynote talk was about why and how globalization would not go smoothly.

After 2012, the author was more focused on improving holistic foresight as a method, using globalization schema examples complexities throughout. By now broader recognition that globalization and uniting Europe was increasingly problematic as a schema was occurring. Recall that GE's Immelt saw the issue, talked about it in media venues, and changed GE's orientation to globalization. For example, a 2015, and thus pre-U.S. election, talk by the author was titled: "Forging Synergies: A Changing Global System, Emerging Risks and Catastrophe Dynamics." That same year, Aon-Benfield invited the author to Gold Coast Australia to revisit the 1992 era "*Doing Business in the New World Disorder*" theme given the now broader recognition that this initial focus had been correct.

We leave the provenance discussion on these twin schemas there because the 2016 U.S. Presidential election and June 2016 BREXIT vote have made the downside issues discernable to the average person and analyst. The author's point is that this change process was foreseeable and traceable with provenance long before the crowd saw it.

The monograph closes with a discussion of how this change process profiling approach applied to schema varies from the approaches of some recent leading works.

7.3 AN ACTUARY'S VIEW:

The typical definition of a Black Swan is that no one could have ever anticipated the event, but there are very few true Black Swans. COVID-19 was certainly not one. The crazy pandemic guy who anticipated a new virus that impacts health, supply chains and financial markets was perhaps not so crazy after all. Those who warn may not be able to lay out their arguments as if it is a legal case. It may be that all they have is a gut feel, or premonition.²³⁷ In a perfect world that would be enough, especially if they have a track record.

Warren Buffett, when asked why Berkshire Hathaway had vacated its seats on the board and sold their shares of Fannie Mae and Freddie Mac in 2000 said he was uncomfortable with a recent practice and that there is "seldom just one cockroach in the kitchen." Not a legal argument, but the message is clear.

Other past events that were anticipated, or provided information about future events, include the 1993 World Trade Center car bomb, the interactions between immigration and other risks, and the reduction of interest rates since 1981.

Looking at today's events, should analysts have anticipated the volatile retail trading that had been represented by "stonk" trades and Gamestop? Government debt levels as a percent of Gross Domestic Product (GDP) now exceed those at the end of World War II, and no politician is arguing for immediate reductions. These movements are not random, but they take experienced analysts who are encouraged to look for discontinuities to identify future paths that are realistic and more likely than expected.

²³⁷ Michael Lewis refers to this in *The Premonition*. 2021. Norton.

Climate change interacts with many other risks. Its long-term impact on society will depend on feedback loops and risk interactions. We continually hear of potential tipping points, and these will play out in ways that will favor the prepared. Some of the outcomes to watch are immigration policies by region and food insecurity in developing nations.

Not everyone has the temperament to look at decades of history to anticipate future trends, but actuarial training provides a broad knowledge base and actuarial jobs require interaction with other areas with backgrounds that differ so expose the actuary to a range of skill sets and experience. Much like risk management, actuaries look to be inclusive, with a seat at the table, rather than exclusive in this expertise.

It is hard to recognize change from within. Beware of inward-looking analysis and the belief that “our way is best.” Seeking out best practices from outside your regular contacts is very healthy.

8 CONCLUDING COMMENTS:

8.1 IMPROVING HOLLISTIC FORESIGHT

The perceptive reader has noticed that the holistic schema judging approach can form a ‘good enough’ forecast about emergences with provenance long before a LSLIRE so-called ‘event’ happens.

The author tried to show this throughout, especially in the hindsight, insight and foresight examples and discussions within the various chapters. This syncretic change profiling process focus has a large forecasting advantage.

Things don’t just happen - or not. Recognize that before the *event* called ‘Trump’s election’ or the *event* called ‘BREXIT’ ever happened, there were decades of rising anti-immigration sentiments, global border wall construction, populism, left/right shifting away from mainstream parties and many other visible change processes that were applicable to building a useful globalization or uniting Europe schema judgment.

Moreover, on the day of each event, there was no end of the change processes shaping it and the change process judging effort does not stop with any event. The focus remains the INUS compliant or non-compliant conditional emergences that surround the schema.

Lastly, forecasting an event ‘Trump elected’ and an event ‘BREXIT’ is impressive²³⁸ but far less meaningful than building an integrated holistic judgment about each schema’s present to future INUS condition. This is what Philip Tetlock meant when differentiating between small things that can be statistically measured and ‘big’ things that cannot.

Reside in the ‘big’ schema forecasting realm if your goal is useful forecasting.

For example, in the era called post-Trump and post-BREXIT nobody has solved anything that significantly alters the growing backlashes to either globalization or uniting Europe schema. OK – Greece did not leave the Eurozone within a couple of pre-set weeks in 2015. Nice call. At this writing, internal and regional E.U. conflict concerns are rising, as are concerns that more than just the U.K. will leave. Merkel says multiculturalism failed.²³⁹ Macron confronts populist nationalism.²⁴⁰ Financial, anti-immigration and other INUS constraining conditions and their trends are not abetted.

The holistic judgment for each example above was not about forming a correct judgment about a discrete event happening by a preset arbitrary time but upon doing ‘good enough’ judging about a schema enabling change process maturing, or not, toward an INUS compliant condition within this specific embedded, entangled complex adaptive system. There is nothing general, or average or non-specific about this effort.

Such a new condition, or syndrome of a prior condition, whether it involves Greece changing course to stay within the Eurozone or choosing to leave it, is syncretic – a new inflectional form of Greece – that shifts internal aspects of Greece’s society and its outside relations. This does not happen randomly on a preset timeline nor should its judgment.

²³⁸ This author predicted neither.

²³⁹ Siebold, Sabine. *Merkel says German multiculturalism has failed*. Reuters. October 16, 2010. <https://www.reuters.com/article/us-germany-merkel-immigration/merkel-says-german-multiculturalism-has-failed-idUSTRE69F1K320101016>; Last accessed February 14, 2021.

²⁴⁰ Politico. *Call Emmanuel Macron any name you like – but not ‘liberal’: in French Politics it’s a dirty word*. Sunday, February 14, 2021. <https://www.politico.eu/article/call-emmanuel-macron-any-name-you-like-but-not-liberal-lef-right-division-politics/>; Last uploaded February 14, 2021.

The same kind of INUS compliance judgment is used for the larger scope building of globalization and uniting Europe schema conditions. Preset time brackets are not a concern of holistic judgment.

Some of the best work in this sense is archeological in mindset. For example, in *The Barbarians Speak: How the Conquered Peoples Shaped Roman Europe*, Peter Wells shows, with fine provenance, how the Roman actions toward conquering the Germanic peoples simultaneously changed Rome and the Germans. The dual syncretism of this change process is detailed in great specificity.²⁴¹ Roman conquest of Germanic lands was neither an event, nor a series of them. It was a holistic and integrative change process from which twin syncretic syndromes emerged. Eventually this new syndrome was called the Holy Roman Empire of the German People after the old syndrome of Rome spent a few centuries declining. There is a reason Edward Gibbon wrote seven volumes of almost 600 pages each to examine the many and intertwined ‘causes’ of the *Decline and Fall of the Roman Empire* ending by writing “I have reserved for the last and most potent and forcible cause of destruction, the domestic hostilities of the Romans themselves.”²⁴²

Similarly, in the *Discovery of France* Graham Robb tracks the change processes that created modern ‘France’ from disparate, non-French speaking peoples that are now part of *France*. These iterative syncretic emergences changed the Paris region (old France) just as Paris slowly changed the non-French speaking peoples that became ‘*French*’.²⁴³

Events, as arbitrarily defined points of someone’s interest, are a very minor way to understand emerging futures. It is foreseeing an atom in a sea change.

This shift in focus is not minor or unimportant. During my relationship with the intelligence community, *its* focus was on shaping the future. While bureaucratically defensible and necessary, this is very different from understanding the future of a schema and its emerging INUS compliant syndromes. That former task is too unfocussed and awash with information and pattern overload where everything is significant.²⁴⁴ The latter task is doable and can be judged with provenance by inverting the forecasting task.

Schema are about shaping the future INUS condition needed for their expression, whether that schema is building globalization, uniting Europe, building a world system wherein only U.N. member national states have sovereign status or managing COVID-19. Each such schema can be evaluated. It is about judging INUS compliant syncretic changes of a syndrome enabling or not a schema success.

8.2 CLOSING LESSONS

To do that, there are some closing lessons.

Interrogate the Schema: Is the syndrome moving toward or away from an INUS enabling schema condition? Is the actual emerging evidence, not the judgment of experts, supporting the future emergence of such an enabling condition?

Interrogate the Syndrome: What can and cannot be? Systems and their syndromes have a history with its specific embedded, entangled arrangements. Each is un-free. This interrogation is not event focused but rather is change process focused.

²⁴¹ Wells, Peter. 1999. *The Barbarians Speak: How the Conquered Peoples Shaped Roman Europe*. Princeton: Princeton University Press.

²⁴² Gibbon, Edward. *The Decline and Fall of the Roman Empire*, Volume VII. New York: AMS Press. Pp. 326.

²⁴³ Robb, Graham. 2007. *The Discovery of France: A Historical Geography*. New York: W. W. Norton.

²⁴⁴ Op. Cit. Pentland.

Interrogate the Change Process of Syncretic Change: What is and is not plausible to do, and how is it plausible to do that, from the $t=0$ condition onward within this syndrome of this system?

This Interrogation is About Doing Systems-level Thinking Throughout:

The focus is always on the whole system, which is the main conclusion Przeworski and Teune arrived when they were tasked with thinking about understanding complex adaptive system change during the 1980's.

Go Slow – Holistic Thinking is Not a Pop-Quiz Quick Answer Interrogation:

Managing directed change in any large, complex human-involved system is difficult. For large scale, large impact and rare event schema, managing directed change is even more difficult. Better to have some schema insight and foresight about where you are going, how, what challenges lay in the proposed path and how to overcome them. Have an INUS compliant schema plan.

One can assess and forecast about a plan. This monograph was about better doing that.

8.3 AN ACTUARY'S VIEW:

Some have argued that Central Banks and the countries they represent have backed themselves into a corner. By progressively weakening creative destruction through too big to fail policies, governments have gradually reduced resilience, their ability to rebound from future crises. Whether the Federal Reserve can successfully maneuver a soft landing or not, the risk manager should consider this type of scenario.

Financial systems are designed to fulfill long-term promises. The environment will change over that time horizon and the risk manager should use their experience to anticipate potential changes.

Mentors should encourage young actuaries to think about emerging risks and discourage the idea that lack of preparation is okay if everyone else is doing it too. We need to revisit rules of thumb on a regular schedule. Working from first principles is the perfect way to learn. The world is Bayesian. Those who don't adjust and adapt do so at their own risk.

So what should an actuary take from this monograph? Dr. Werther has spent his career learning how to anticipate events, with the most difficult task being where to look. His footnotes could be a book unto themselves! While I have many years training and working as an actuary, my interest in making better decisions comes mostly from my interest in investment strategies. I found actuarial texts to be too focused on efficient markets, and most career actuaries follow that assumption of rationality. To be someone who contributes to the well-being of an entity, the actuary needs to see where prices are accurate and where they may not be. Our training looks at present values and contingent events, so we have the training. You don't need to read all of Dr. Werther's references, although you may want to read some of them. This monograph was created to save you time down this path. Not everyone will take to the topic, but for those who do a lifetime of continuous learning and value added awaits!

9 APPENDIX A – Documentation.

9.1 SELECTED MAJOR CLIENT PROGRAMS AND PROFESSIONAL PRESENTATIONS (SAMPLE LISTING ONLY):

2020 (as of April 15, 2020):

- Werther, Guntram. *Developing String in AI/Machine Learning: Joining the Horse (Empirical Data) with the Cart (Human Understanding)*. Conference on *Thought Leadership In Artificial Intelligence And Machine Learning*, Philadelphia, PA: The Fox School of Business, Temple University. March 2, 2020.
- Werther, Guntram. *A Swan Song: Does Color Matter for Forecasting?* Keynote Speaker at the Philadelphia Chapter and New Jersey Chapter Joint Annual Conference, Cherry Hill, New Jersey, April 3, 2020 (postponed due to the Covid event).

2019:

- Werther, Guntram. Panel Chair and Discussant: *When the State is Not in Complete Control of Conflict*. The 2019 Biennial Conference of the Inter-University Seminar on Armed Forces and Society, Reston Virginia, November 8-10.
- Werther, Guntram. *Large Scale, Large Impact Risks You Likely Won't See Coming*.
- The 2019 In-Focus Virtual Seminar: The Casualty Actuarial Society. October 1, 2019.
- Werther, Guntram. *What is the Business Professional of the Future? - Do Professionals Have the Correct Skills to Leverage Machine Outputs in Future Foresight (forecasting)?* MBA Program – Webinar, The Fox School of Business, Temple University, April 11, 2019.

2018:

- Werther, Guntram. *'Diversity' of what? – How looks are deceiving*. Diversity of Thought Panel, Inter-University Seminar on Armed Forces and Society – Canada, Lord Elgin Hotel, Ottawa, CA. October 20, 2018.
- Werther, Guntram. *Improving Finance and risk management foresight abilities*. RiskMinds-Americas Sept. 26, 2018. Boston, MA, USA.
- Werther, Guntram. *Why Did This Future Emerge: Integrating the downstream Effects of Shaping Ideas Using Holistic Assessment*. Featured Speaker, National Society of Insurance Premium Auditors Annual Conference, April 8-10, 2018.
- Werther, Guntram. *What are the Learning Elements of Integrative Assessment?* Featured Speaker, National Society of Insurance Premium Auditors Annual Conference, April 8-10, 2018.

2017:

- Werther, Guntram. *Why I 'Told You So': Integrating Shaping Ideas and Holistic Assessment to Produce Better Rare Event Foresight*. Annual Meeting of the Society of Actuaries, October 16, 2017. Sheraton Boston Hotel, Boston, MA.
- Werther, Guntram. *Why did THIS Future Emerge? - Integrating the Downstream Effects of Shaping Ideas Using Holistic Assessment to Forecast Change*. IN FOCUS SEMINAR: THE ACTUARY OF TOMORROW, Casualty Actuarial Society, Chicago, IL, October 2, 2017.

- Werther, Guntram. Globalization, Nationalism, and Some Expected Impacts of Political and Economic Change. RiskMinds – America: Annual Meeting, Miami, Florida. 27 June 2017.
- Werther, Guntram. When Black Swans' Aren't (revised). Invited Keynote Speaker. DePaul University Arditti Center for Risk Management at the Kellstadt Graduate School of Business. 22 June 2017. Chicago, Illinois. Note: This entire conference is based on my decade's long themes.
- Werther, Guntram. Invited Speaker - *Society's Pattern Recognition & Dynamic Shifts*. The Philadelphia Insurer's Auditor's Society A-Level Event. Desmond Hotel, Malvern, PA. 7 April 2017.

2016:

- Werther, Guntram. Invited Speaker - *Foreseeing Synergies: A Changing Global System, Emerging Risks and 'Catastrophe' Dynamics*. Casualty Actuarial Society Annual Meeting, Orlando, Florida, November 13-16, 2016.
- Werther, Guntram. *Why "I told You So": Globalization Does What Globalizations Do - Suffer the consequences of their logics*. Global Temple Conference, November 9th, 2016. Temple University.
- Werther, Guntram. Invited Section Chair – *The Future of Risk Management*. RISKMINDS – America Annual Conference, Chicago Illinois, September 22, 2016.
- Werther, Guntram. Invited Speaker: *What 'Is' The Finance Professional Of The Future?* RISKMINDS – America Annual Conference, Chicago Illinois, September 22, 2016.
- Werther, Guntram. Invited Speaker: *Wearing the Change You Forged in Life*. RISKMINDS – America Annual Conference, Chicago Illinois, September 22, 2016.
- Werther, Guntram. Seminar Development. *From Latest Buzzword to Increased Competence in a Volatile World*. Casualty Actuarial Society - Enterprise Risk Management Annual Meeting: March 2016. Arlington, Virginia.

2015:

- Werther, Guntram., CAS Annual Meeting, Invited Speaker: "Executive Roundtable: Man Vs. Machine: Do Actuaries Have the Skill set to Leverage Machine Outputs in the Future?," Casualty Actuarial Society (CAS), Philadelphia, PA. (November 16, 2015).
- Werther, Guntram., CAS Annual Meeting, Invited Speaker: "Man Vs. Machine: Do Actuaries Have the Skill set to Leverage Machine
- Outputs in the Future?" Casualty Actuarial Society (CAS), Philadelphia, PA. (November 16, 2015).
- Werther, Guntram., CAS Annual Meeting, Invited Speaker: "Man Vs. Machine: Do Actuaries Have the Skill set to Leverage Machine
- Outputs in the Future?" Casualty Actuarial Society (CAS), Philadelphia, PA. (November 16, 2015). Second presentation due to high demand.
- Werther, Guntram., CAS Expanding the Toolset Seminar, Invited Speaker: "Forging Synergies: A Changing Global System, Emerging Risks and Catastrophe Dynamics," CAS - In Focus Seminar, Boston, MA. (October 22, 2015).
- Werther, Guntram., Expanding the Toolset, Invited Speaker: "Forging Synergies: A Changing Global System, Emerging Risks and Catastrophe Dynamics," CAS - In Focus Seminar, Boston, MA. (October 22, 2015). Second presentation due to high demand.
- Werther, Guntram., Beyond Tomorrow – Aon Hazards Conference, Invited Speaker (One of 14 globally selected): "Doing Business in the New World Disorder - Forecasting Futures in Uncertain Times.," Aon, Gold Coast, Queensland, Australia. (September 21, 2015).

- Werther, Guntram., National Science Foundation Workshop - Privacy in an Era of Big Data, "Privacy in an Era of Big Data - sessions," NSF - Temple University, Temple University - Fox School of Business. (April 22, 2015).
- Werther, Guntram. F. A., Invited Speaker: Actuarial Science Career Development Committee, "How to Make Yourself the Hiring Target in Highest Demand: Numbers are Necessary but Insufficient," Temple University, Temple University - Fox School of Business. (February 9, 2015).

2014

- Werther, Guntram, Risk Minds - America: Global Risk Regulation Summit, Invited speaker: "Recognizing When Black Swans Aren't: Effective Techniques For Recognizing Emerging Extreme Events." PricewaterhouseCoopers. Miami, FL. (June 19, 2014).
- Werther, Guntram. 2014 Life and Annuity Symposium, Invited speaker: "Avoiding Big Confusion," Society of Actuaries, Atlanta, GA. (May 20, 2014).
- Werther, Guntram. Harvard Pensions Conference, Invited Expert: "Swan Song for Retirement Funds," Harvard Law School: Boston, MA. (May 9, 2014).
- Werther, Guntram. International Congress of Actuaries Quadrennial Meeting, Invited Plenary Speaker: "Improve Forecasting Through a Different Focus: 'Is it the fault of the paint and the brushes when we cannot paint like Rembrandt?'" Washington DC: (April 4, 2014).
- Werther, Guntram. Enterprise Risk Management 2014, Invited Plenary Speaker: "Using Foresight to Cultivate Resilience: Profiling National and Societal Responses to Crises as an Intelligence Forecasting Tool," Conference Board of Canada, Toronto, Canada. (March 31, 2014).
- Werther, Guntram. Actuaries Club of Philadelphia - Spring 2014 Meeting, Invited Plenary Speaker: "Avoiding 'Big Confusion' in a World of 'Big Data': Best Practice Large Scale, Large Impact Event Assessment," Union League - Philadelphia, PA. (February 11, 2014).

2013

- Werther, Guntram. Southeast Actuaries Conference, Invited Plenary Speaker: "When Black Swans Aren't (revised version)," Society of Actuaries, Atlanta, GA. (November 22, 2013).
- Werther, Guntram, Madigan, K., and Edwards, T., AIRROC Matters – Invited Expert Roundtable Interview: "Reliance on Models: Best Practices," AIRROC, Philadelphia, PA. (November 11, 2013).
- Werther, Guntram. (Invited Panelist), Langione, J. (Invited Panelist), Jones, T. (Invited Panelist), Insurance Risk - North America, "Emerging Risks: The Chief Risk Officer's Expanding Role," Ernst & Young, IBM, Northern Trust, and QRM. Held at the New York Athletic Club, New York City, NY. (November 5, 2013).
- Werther, Guntram. Annual Meeting of the Association of Insurance & Reinsurance Runoff Companies, Invited Keynote Speaker: "When Black Swans Aren't," Association of Insurance & Reinsurance Runoff Companies, Held at The Meadowlands, East Rutherford, New Jersey. (October 14, 2013).
- Werther, Guntram. IN- FOCUS Symposium: Elephants in the Room – High-Severity Risks You Cannot Overlook, Invited Speaker: "Resilience: How Societies Recover from Crisis and Its Applications to Risk Management and Forecasting.," Casualty Actuarial Society, Chicago, IL. (October 1, 2013).
- Werther, Guntram. IN- FOCUS Symposium: Elephants in the Room – High-Severity Risks You Cannot Overlook, Invited Speaker: "Improving Forecasting and Management of Extreme Events." Casualty Actuarial Society: Chicago, IL. (September 30, 2013).
- Werther, Guntram. Life and Annuity Symposium, "When Black Swans Aren't." Invited Speaker, Society of Actuaries, Toronto, Canada. (May 7, 2013).

- Werther, Guntram, Life and Annuity Symposium, “Extreme Event Risk Recognition and Assessment.” Invited Moderator and Speaker, Society of Actuaries & Canadian Institute of Actuaries: Toronto, Canada. (May 6, 2013).
- Werther, Guntram. Enterprise Risk Management Symposium on ‘ERM - A Critical Self-Reflection’, “Anticipating Outliers – Improving Odds of Seeing Rare Events Before Your Competitors” (one-day seminar leader), and Invited Plenary Speaker: “Rare Event Risk Recognition and Assessment.” Society of Actuaries, Chicago, IL: (April 22-24, 2013).
- Werther, Guntram. CPCU/Reinsurance Symposium, “When Black Swans Aren’t,” Invited Plenary Speaker. CPCU Society, Philadelphia, PA. (March 14, 2013).

2012

- Werther, Guntram. Insurance and Risk Program: Invited guest/expert speaker, “When Black Swans Aren’t,” University of Minnesota, Virtual. (October 9, 2012).
- Werther, Guntram. Canadian Institute of Actuaries, Invited Guest Expert (virtual – across Canada). “Improving Rare Event Foresight and Risk Assessment,” Ottawa, Canada, August 29, 2012.
- Werther, Guntram. American Risk and Insurance Association, Featured Speaker – Plenary Session: “When Black Swans Aren’t: On Better Holistic Assessment and Forecasting of Emerging Global and Country-Level Change.” Minneapolis, Minnesota. (August 6, 2012).
- Werther, Guntram, Enterprise Risk Management Symposium, Casualty Actuarial Society, Keynote Speaker: “When Black Swans Aren’t: On Better Holistic Assessment and Forecasting of Emerging Global and Country-Level Change.” Washington DC: (April 20 2012).
- Werther, Guntram. Enterprise Risk Management Symposium - End of Program Plenary Session Moderator on “Far Our Risk.” (Discussant and host for the Leader of G.E. Risk: Energy, Mr. Frans Valk). Casualty Actuarial Society: Washington D.C. (April 20, 2012).
- Werther, Guntram. Exxon-Mobil: Featured expert speaker - middle management focus. (2009-2012). “The Holistic Analysis of Complex International Environments, and the Impacts of Future Change on Exxon-Mobil Commercial Contracting.” [Note: Highest rating in the 3-day program]. Geopolitics of Africa: (November 2009/April 2010) – “Emerging African-region dynamics as they impact global complexity, international change, and executive strategy/decision-making.”
- Werther, Guntram. Alcatel-Lucent, Murray Hill, NJ: 2008-2012. Featured expert speaker: Provide custom workshops and “Global Change Series” for up to 1,200 “critical talent” managers on international change forecasting and emerging patterns of international change, as this affects leadership and management decision-making (on-ground delivery is in 25 person groups). The monthly 2010 virtual delivery formatted “Global Change” management program averages 50-200 worldwide participants.
- Werther, Guntram. Arizona Police Association and Phoenix Police Sergeants and Lieutenants Association, (March 2012) Invited Expert/Speaker: “*Globalization, Development, and Its Unintended Consequences for U.S. Public Safety: Patterns of Conflict, Insurgency, Crime, and International Development.*” State of Arizona Certified - Advanced: Arizona Peace Officers Standards. ITERATE 2010.

2011

- Werther, Guntram. Association of Merger and Acquisitions Advisors: Keynote Speaker: “Foreseeing Change: Holistic Assessment and Complex Adaptive Systems Thinking.” New Orleans, LA. (January 2011).

- Werther, Guntram. Inter-University Seminar on Armed Forces and Society Annual Meeting, Expert Panelist, Special Forum hosted by Dr. Reuven Gal (National Security Council - Israel): "Resilience: Its Conceptual Links to Creating Society-Specific Forecasts about Emerging Change," Chicago, IL. (October 21, 2011).
- Werther, Guntram. Inter-University Seminar on Armed Forces and Society Annual Meeting, Invited Expert Speaker (by Program Director): "Shaping Global Conflict Through 21st Century U.N. Reconsiderations of State Power: The 2007 U. N. General Assembly Vote for the Rights of Indigenous Peoples, Global Change, and the Prospects for Creating New Insurgencies and 'Terrorisms.'" IUS, Chicago, IL. (October 21, 2011).
- Werther, Guntram. Maersk Oil: (CEO & senior management team). "The Holistic Assessment of Global Change: Building a Business Strategy within a Complex World Environment." - Session 2, (March 2011).
- Multiple ExxonMobil and Alcatel-Lucent executive and senior management programs: as detailed above.

2010

- Werther, Guntram. Featured Expert Speaker: Maersk Oil: (CEO & senior management team). "The Holistic Assessment of Global Change: Building a Business Strategy within a Complex World Environment." Session 1, (October 2010).
- Werther, Guntram. Arizona Police Association and Phoenix Police Sergeants and Lieutenants Association, (September 2010) Invited Expert/Speaker: "Globalization, Development, and Its Unintended Consequences for U.S. Public Safety: Patterns of Conflict, Insurgency, Crime, and International Development." State of Arizona Certified - Advanced: Arizona Peace Officers Standards.
- Werther, Guntram. Phoenix Police Sergeants and Lieutenants Association. Globalization and Police Futures Forecasting. Spring 2010. Phoenix, AZ.
- Multiple ExxonMobil and Alcatel-Lucent executive and senior management programs: as detailed above.

2009

- Werther, Guntram. Featured Guest Speaker. Association of Former Intelligence Officers – AFIO Phoenix Chapter: *Moving Intelligence Assessment Forward in Ways that Improve Our Ability to Navigate the 21st Century*. Scottsdale, Arizona. (May 2009).
- Multiple ExxonMobil and Alcatel-Lucent executive and senior management programs: as detailed above.

2008

- Werther, Guntram. Three sessions: Expert/Speaker, Featured Presenter, and Senior Management Group Panel Discussant. Arizona Police Association conference on "Globalization Impacts and Trends on Illegal Immigration," Public Safety, and Homeland Security Law and Practice Conference, Scottsdale, Arizona, Certified - Advanced: Arizona Peace Officers Standards. (August 27, 2008).
- Werther, Guntram. Participant in an April 2008 private roundtable discussion (12 invited persons) with Admiral Stavridis, Commander – U.S. Southern Command, Pentagon, on Global/Latin American trends.
- Multiple Alcatel-Lucent executive and senior management programs: as detailed above.

2007

- Invited Presenter, Proteus 2007 Complex Systems Analysis Workshop, sponsored by the Office of the Director, National Intelligence / Center for Strategic Leadership, U.S. Army War College, Carlisle, PA.
- Panel expert and featured presenter, Public Safety and Homeland Security Law and Practice Conference, The Arizona Police Association, June 4-6, 2007, Scottsdale, Arizona. Certified - Advanced: Arizona Peace Officers Standards.

2006

- Werther, Guntram. Invited Workshop Participant, “Competitive Strategies in Complex Systems”, Chief of Naval Operations, Strategic Studies Group, The Santa Fe Institute, and Alidade Inc. sponsored program, The Pell Center for International Relations and Public Policy, Sale Regina University, Newport, RI. (Dec 4-5, 2006).
- Werther, Guntram. “Integrated Analysis as a Foundation for International Security: Why the House Cannot Stand.” Canadian Conference on Armed Forces and Society: IUSAFS. Ottawa, Canada (2006).
- Werther, Guntram. “Integrated Learning as a Necessary Ground for Integrated Security Solutions.” Canadian Conference on Armed Forces and Society: IUSAFS. Ottawa, Canada (2006).

2005

- Werther, Guntram. Cisco Systems – Invited Expert: Vice President level (restricted), Executive Management Program on Emerging Global Trends - India & China Focus. Sheen Falls, Republic of Ireland. (2005).

2004 and Prior

- Werther, Guntram. Washington University in St. Louis “Salon Series” – Keynote: “Emerging Global Trends, Analysis of International Change, and Related Topics”: Phoenix, Tucson, and St. Louis (2000-2004).
- Werther, Guntram. Faculty Leader, Penn State University Executive Program: Numerous 1998-2004 custom presentations to senior corporate and government managers representing hundreds of agencies and major global firms, including from Latin America, Middle East/North Africa, Europe, and East/South Asia.
- Werther, Guntram. Lucent Technologies. 1996-2004. Developed and delivered numerous mid to senior level programs throughout the USA, Europe, and Latin America on *Emerging International Political/Economic Trends, Regional Political, Economic, and Business Environments (interdisciplinary) & Predicting International Change (Senior Manager Level 7000 series seminar)*. I presented senior executive programs to numerous Lucent-hosted visiting leaders representing various countries and governments, including Russia, Ukraine, Indonesia, Brazil, China (The Chinese Ministry of Information Industries, China Unicom), etc.
- Werther, Guntram. Lucent Technologies, Keynote Speaker – “Opening Ceremonies: Emerging International Trends and Why Globalization Will Not Go Smoothly.” (September 1996).
- Werther, Guntram. AT&T. 1993-1996: Developed and presented numerous mid-level to senior management seminars within the AT&T Mini-MBA Program: *Predicting International Change, Emerging International Political/Economic Trends, Regional Development and Change*. Customized programs were presented throughout the United States, Asia, and Europe, including to AT&T-hosted senior leadership groups from other countries.

- Werther, Guntram. Rockwell Automation. 1993-1996: Senior Executive Management Programs in Ireland, Germany and Mexico.
- Werther, Guntram. McDonnell Douglas Helicopter Group: Featured Expert: Senior and Mid-Managers. Nine 1993-1994 regional seminars: Emerging Social, Political, & Economic Factors within World Regions.

9.2 BOOKS AND MONOGRAPHS:

- Werther, Guntram with Thomas R. Herget. 2013. *Recognizing When Black Swans Aren't: Holistically Training Management to Better Recognize, Assess, and Respond to Emerging Extreme Events*. Chicago, IL: Society of Actuaries. (Pp. 57).
- Werther, Guntram. 2008. *Holistic Integrative Analysis of International Change: A Commentary of Teaching Emergent Futures* (3rd ed., vol. 1, pp. 80). The Proteus Futures Group, Carlisle, PA: Office of the Director of National Intelligence, National Intelligence University & U.S. Army Center for Strategic Leadership: U.S. Government Printing Office.
- Werther, Guntram. 2008. Contracted Book on: *Holistically Integrating Hindsight, Insight, and Foresight for International Futures Forecasting*. Contract from: Proteus Futures Group. Carlisle Barracks: Office of the Director of National Intelligence and the Center for Strategic Leadership, U. S. Army War College. Not available.
- Werther, G.1992. *Self Determination in Western Democracies: Aboriginal Politics in a Comparative Perspective*. Westport, CT: Greenwood Publishing Group Inc. pp. 113.

9.3 BOOK CHAPTERS:

- Werther, Guntram. 2010. *Fusion Centers and Beyond: The Future of Analysis*. In Logan, Keith Ed. *Homeland Security and Intelligence*, Santa Barbara: ABC-CLIO. Pp. 204-215.
- Werther, Guntram. 2007. *Profiling International Change Processes: Introducing a Holistically Integrative And Socio-psychologically Grounded Approach To Emerging Trends Prediction*. In. John Auger and William Wimbish III, Eds. *Proteus Futures Digest*: Carlisle Barrack: Office of the Director of National Intelligence, National Intelligence University, and the Center for Strategic Leadership, U. S. Army War College, 161-181.
- Werther, Guntram. 2007. *Back to the Future: Private Military Contractors and Political Theory in the Modern Democratic State* in: Thomas Jäger & Gerhard Kümmel (Eds.): *Private Military and Security Companies: Chances, Problems, Pitfalls and Prospects*. Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 321-329. Sponsored by the Social Knowledge Group, German Military.
- Werther, Guntram. 2007. *Transition Dreams, Human Realities: Military-Civil Transitions as Humane Enterprises*. In Alexander Woodcock and David Davis (Ed.), *Analysis for Civil-Military Transitions*, Canadian Peacekeeping Press. The April, 2006 Cornwallis XI Conference, hosted by the U.S. Army Peacekeeping and Stability Operations Institute, U.S. Army War College and the Lester B. Pearson Canadian International Peacekeeping Centre. Boiling Springs Resort, PA.
- Werther, Guntram. 2006. *Profiling International Change Processes: a holistic, integrative, and socio-psychologically grounded approach to emerging trends prediction*. Proteus Conference on Analyzing Future Complex National Security Challenges, 22-24 August 2006, Sponsored by the Office of the Director, National Intelligence at the U.S. Army War College, Carlisle Barracks, PA.
- Werther, Guntram. 1992. *Self Determination in Western Democracies: aboriginal politics in a comparative perspective*. Westport: Greenwood Press. (Still in print: now also available in electronic or paper format).

- Werther, Guntram. 2007. *Transition Dreams, Human Realities: Military-Civil Transitions as Humane Enterprises* (pp. 41-52). Canadian Peacekeeping Press: Lester B. Pearson Canadian International Peacekeeping Training Centre, Government of Canada.

9.4 ACADEMIC (PEER REVIEWED) AND PROFESSIONAL (PRACTICE) JOURNAL ARTICLES

- Werther, Guntram. *Assessing 'Idea' Risk for 'World-Changing Schema': On Assessing Risk When Grand Transformative Hopes, and Often Hype, Becomes Policy*. Invited article - *Knect365 Finance* (Editor's Thought Leadership selection), Knect365.com. April 17, 2019. <https://informaconnect.com/assessing-idea-risk-for-world-changing-schema/>
- Werther, Guntram. *On better assessing the future outcomes of 'grand, world-changing schema': Seeing present EU and globalization backlashes as to-be-expected*. *Journal of Risk Management in Financial Institutions*. London: Henry Stewart Publications, Spring 2019: Vol. 12, No. 1, 1–10.
- Werther, Guntram. *Achieving a better balance: Building the 'translational' business school and university*. *Journal of Education Advancement and Marketing*, London: Henry Stewart Publications, Spring 2019: Vol. 4, No. 1, 1-6.
- Werther, Guntram. Who Put the Quants in Charge? *QuantMinds*, Knect365-Finance. November 28, 2018. <https://knect365.com/quantminds/article/55a5f4f2-e7ec-4385-b071-4810c5f04f8b/who-put-the-quants-in-charge>; (Editor's Thought Leadership selection).
- Werther, Guntram. May 28, 2018. *Achieving Better Foresight and Forecasting in the "Trump Era."* Invited essay, *RiskMinds 365*. https://knect365.com/riskminds/article/d6079559-bb4a-4b8e-b900-0e7bb67b5148/achieving-better-foresight-and-forecasting-in-the-trump-era?utm_source=speaker&utm_medium=social&utm_campaign=speakerto-blog&utm_content=STB&tracker_id=STB.
- Werther, G. (2017, December 31). *What are the learning elements of integrative (holistic) thinking?* [Video file] In 'The Business & Management Collection, Henry Stewart Talks.' Retrieved January 5, 2018, from <https://hstalks.com/bm/3646/>.
- Werther, Guntram. *Improving Finance and Risk Management Foresight Abilities: Growing Past the 'Black Swan' Mindset through Integrative Assessment*. *Journal of Risk Management in Financial Institutions: September 2017, Vol. 10. No. 4*.
- Werther, Guntram. *Doing Business in the 'New World Disorder' (again?)*. *RiskMinds Live*. January 2017. #risks <http://spr.ly/61848Hqcr>.
- Werther, Guntram. *What does risk management look like in a future of automation?* *RiskMinds Series*, July 20, 2016: <http://www.riskmindslive.com/risk-management-look-like-future-automation/>
- Werther, Guntram. *Doing Business in the 'New World Disorder' (again?)*. Brisbane: Aon Internal Corporate Publication. October (4th Quarter/Autumn), 2015.
- Werther, Guntram. December 2014. *Holistic Thinking for Intelligence within a Complex Dynamic World*. In Greg Moore, Editor. *The Encyclopedia of U. S. Intelligence*: Taylor & Francis. Entered as: Holistic Thinking.
- Werther, Guntram. December 2014. *Shape Shifting of the Intelligence Community as a Response to New Challenges*. In Greg Moore, Editor. *The Encyclopedia of U. S. Intelligence*: Taylor & Francis. Entered as: Intelligence Shape Shifting.
- Werther, Guntram. *Introduction to the AF&S Forum on National/Societal Resilience*. *J. Armed Forces and Society*, June 16, 2014: Vol. 40, No. 3. 403-407.
- Werther, Guntram. 2014. *Resilience: Its Conceptual Links to Creating Society-Specific Forecasts About Emerging Change*. *J. Armed Forces and Society*, June 16, 2014: Vol. 40, No. 3. 428-451.

- Werther, Guntram, Madigan, Kevin, Edwalds, Thomas, Spivey, Leah, and Scarpata, Peter. Spring 2014. *Beware of Model Tunnel Vision: Reliance on Models in Insurance and Reinsurance* (1st Ed., Vol. 10, pp. 6-12).
- Werther, Guntram. March-April 2014. Recognizing the Next Elephant in the Room: On the Better Forecasting of Extreme Event Emergence. 41(2), 35-37. <http://www.casact.org/pubs/?fa=actuarialreview>.
- Werther, Guntram. *When Black Swans Aren't: On Better Recognition, Assessment, and forecasting of Large Scale, Large Impact and Rare Event Change*. *Risk Management and Insurance Review*. 2013: Vol. 16, No. 1, 1-23. (Invited paper).
- Werther, Guntram and Mohammad Yasin Khosti. 2013. *Indigenous Peoples: Reshaping the International Security Environment; Implications for international security practitioners*. Military Intelligence Professionals Bulletin. U.S. Army Intelligence Center of Excellence: January-March Special Edition 2013.39 (1) 8. <https://ckc.army.mil>.
- Werther, Guntram. 2013. *Iterated Multi-level Thinking for Doing Improved Foresight, Forecasting, and Change Assessment. Part 2*. (Vol. 31(3), pp. 8), Minneapolis: CPCU Society - Reinsurance Encounters.
- Werther, Guntram. 2013. *Iterated Multi-Level Thinking for Doing Improved Foresight, Forecasting, and Change Assessment. Part 1* (2nd ed., vol. 31, pp. 8), Minneapolis: CPCU Society - Reinsurance Encounters.
- Herget, Tom, Ronora Stryker, with Guntram Werther. *Are Black Swans Real? - Tips for Better Recognizing, Assessing and Responding to Emerging Extreme Events*. *The Actuary*. April/May 2013, Vol. 10, Issue 2, 18-22.
- *Shaping Global Conflict Through 21st Century U.N. Reconsiderations of State Power: The 2007 U. N. General Assembly Vote for the Rights of Indigenous Peoples, Global Change, and the Prospects for Creating New Insurgencies and 'Terrorisms.'* Invited Presentation by the Program Director, for The Inter-University Seminar on Armed Forces and Society's Annual Meeting. 21 October 2011: Chicago.
- Global Temple Conference: *Systematically Leveraging Relationships to Facilitate Temple University Internationalization*. Invited presenter and discussant. November 16, 2011. Published online.
- *Globalization's Effect on Temple Teaching and Research*: April 16, 2011. Invited Speaker, Fox Alumni Reunion Event.
- Werther, Guntram. 2006. *Integrated Learning as a Necessary Ground of Integrated Security Solutions*. Proceedings: The Canadian IUS Conference on "Integrated Security", Ottawa, Canada: October 2006.
- Werther, Guntram. *Integrated Analysis as Foundation for Integrated Security: Why the House Cannot Stand*. Proceedings: The Canadian IUS Conference on "Integrated Security", Ottawa, Canada: October 2006.
- Werther, Guntram. Feb. 2006. *The Other War: resurgent socialism and insurgency in the age of globalization*. Published online and within international police intelligence/counter terrorism forum.
- Werther, Guntram. *Building an Analysis Age for Business Intelligence in the 21st Century*. *The Competitive Intelligence Review*: Vol. 12, No. 1, (Spring 2001), pp. 41-47.
- Werther, Guntram. *Beyond the Blocking Tree: Improving Performance in Future-Oriented Analysis*. *Competitive Intelligence Magazine*: Vol, 3, No. 4, (October-December 2000), pp. 40-44.
- Werther, Guntram. *Profiling 'Change Processes' as a Strategic Analysis Tool*. *Competitive Intelligence Magazine*: Vol. 3, No. 1. (January-March 2000), pp. 19-22.
- Werther, Guntram. *The Crisis in Business Intelligence: The need for training reform*. *Thunderbird International Business Review*, Vol. 41(3) (May-June 1999), pp. 287-290.
- Werther, Guntram. *The Problem with Precision: three tendencies to avoid if your aim is effective strategic analysis*. *Competitive Intelligence Magazine*: Vol. 1, No. 2. (July-September 1998), pp. 24-26.
- Werther, Guntram. *Doing Business in the New World Disorder: assessing, understanding, and effectively responding to the challenges of social and political instability within emerging markets*. *Competitive Intelligence Review*, Vol. 8 (4), (1997), pp. 12-18.

10 APPENDIX B - Improving Long-Horizon LSLIRE Forecasting in Light of Other Views:

Among the main claims in Epstein's *Range* is that *Super-forecasters*, as defined by Tetlock's work on *predicting events*, have range, which allows them to gather many perspectives. They are nosy, inquisitive. Having gathered 'many perspectives' from experts and from others with information spanning several disciplines, the best forecasters can integrate these diverse perspectives to generate a better forecast.

Some of these points are valid from a holistic forecasting perspective, others not.

The initial premise of this work was that if a different approach works well, use it. Both Tetlock and Gardner's, and Epstein's fit that case. Holistic forecasting has divergences of mindscape and approaches that are worth comparing.

The super-forecaster judgments arrive on very short time horizons.²⁴⁵ The actively "omnivorous" *getting* behavior of the forecaster is emphasized. This activity is described in Epstein as "Their foxy hunt for information was like a literal fox's hunt for prey: roam freely, listen carefully and consume omnivorously."²⁴⁶

That analogy is literally wrong about how LSLIRE forecasters and non-human predators, including foxes, interact with their environment. Successful predators have intimate knowledge of *their specific environment*, learned initially from their parent or group, and hunt prey experientially. Track a predator long enough (including foxes) and you will see that when hunting they traverse their *home range* from likely food patch to likely food patch avoiding low probability ground...among other lifestyle considerations. There is little "roam freely" in this, which is: 1) how trappers catch them by putting a trap just exactly where a fox *making the rounds* is likely to be in the future and 2) why transplanted predators rarely survive.

This point may seem funny, but it is serious for forecasting. As Alexander Pope observed, the proper study of mankind is man. Analogies are fine, except when so wrongly used. I suggest that the growing bestiary of animal analogies that are being over-simply applied to the judgment of complex human-involved system forecasting be curtailed.²⁴⁷

There are many insight problems with this particular analogy. First, both foxes and hedgehogs are opportunistic omnivores. In both, females more than males have non-overlapping home ranges, but even males do not seem to "roam freely." We'll get to Isaiah Berlin's very limited use of the fox/hedgehog information use analogy within his overall view of good judgment in a moment. *The Hedgehog and the Fox: An Essay on Tolstoy's View of History* (note the full title) addresses Tolstoy's common-sense view of judgment in human history where "simple people often know the truth better than learned men."²⁴⁸ Wrote Berlin, Tolstoy saw "the manifold objects and situations on earth in their full multiplicity; he grasped the individual essences, and what divided them from what they are not...." Also, "Men's acts may seem free of the social nexus, but they are not free, they cannot be free, they are part of it."²⁴⁹

Such points are important. Understanding context specific meanings matters. There is not much 'free' about complex adaptive human systems or life within them, which is rather the point of societal arrangements, customs, traditions, laws and so forth.

²⁴⁵ Op. Cit. Epstein, *Range*. Pp. 222. "Every day for four years, predictions were due at 9 a.m. Eastern time."

²⁴⁶ Ibid.

²⁴⁷ Berlin, Isaiah. 1993. *The Hedgehog and the Fox: An Essay of Tolstoy's View of History*. Chicago: Elephant Paperback; Berlin is very cautious about this at pp. 3-4.

²⁴⁸ Ibid. Pp. 46.

²⁴⁹ Ibid. Pp. 37; 32.

Because different human systems are both complicated and exist as *a syndrome of a complex* that is changing in time, holistic assessment is passive toward information and not about “getting” since the person assessing syndrome change needs to focus on what arises and not actively ‘get’ what s/he thinks is needed.

The super-forecaster’s focus is upon the statistical likelihood of *queried events* happening. An *event* is nothing more than an arbitrary focal point of interest to someone that is carved out for attention within a complex’s ongoing process of change. An *event* is a human construction. One can use the term as a convenient shorthand, as I do with LSLIRE (large-scale, large-impact rare events) where the assessment focus is on the embedded, entangled and emergent aspects of a specific complex adaptive system and on its specific *change processes*, or one can use it literally as meaning ‘this specific outcome will happen by or at this time,’ which is how Tetlock and Gardner and, later, Epstein, mainly use the term *event*.

This timed event perspective is at variance with the holistic change process approach. Each event forecast is seen as a hypothesis, which is testable against a timed *outcome* as a way to get better in the future. Judgment is statistically mathematized.²⁵⁰

This contingent and testable hypothesis mindset is reasonable and is parallel to the iterative judgment aspect when one is building a holistic forecast with provenance.

The requirement that a forecast contain a statistical probability of it happening by a set time is not reasonable. Much, probably most, of human life is forecast without an arbitrary timed probability statistic attached.²⁵¹

Isaiah Berlin, who both authors quote selectively, mostly emphasizes the inappropriateness of relying on the statistical view over the intimate, experiential relationship in many human circumstances.²⁵² How many non-expert people does one see putting a statistical probability to their forecast that dinner is at 6, the office will be where it was yesterday or of much else? Since both Tetlock and Epstein circle from seeing common people as forecasters to judging experts to concluding that some common people are better than experts, including experts with classified access, perhaps mimicking their open-ended and non-statistical behavior is wise.

As examples, neither Reinhart and Rogoff’s *This Time is Different* nor Lewis’ *The Big Short* rely in timed statistics to correctly judge that an important change is coming.

Most ‘good enough’ forecasting in human life is not statistical, but if one has a well-understood condition where statistical treatment is plausible by all means do so.

From the holistic forecasting perspective that needs to build provenance for the judgment there are additional issues differing from the Epstein (*Range*) and Tetlock and Gardner (*Superforecasting*) approaches that deserve comment.

First, an event-focused procedure does not build connections to how the queried specialized experts and others built *their* partial or mostly wrong perspectives. These various perspectives, recall, are the ones integrated to build better judgment.

²⁵⁰ Ibid. Pp. 219, 224 -225, 231.

²⁵¹ Consider, for example, Reinhart, Carmen and Kenneth Rogoff. 2009. *This Time is Different: Eight Centuries of Financial Folly*. Princeton; Princeton University Press or Lewis, Michael. 2010. *The Big Short: Inside the Doomsday Machine*. New York: Norton & Company.

²⁵² Berlin, Isaiah. 1996. *The Sense of Reality: Studies in Ideas and Their History*. New York: Farrar, Straus and Giroux, pp. 22-25, 32-33; See also Berlin, Isaiah. 1997. *The Proper Study of Mankind: An anthology of Essays*. Henry Hardy and Roger Hausheer, Eds. New York: Farrar, Straus and Giroux.

Second, and more importantly, such an approach primarily interrogates other *experts' judgments*, but not the actual syndrome that is changing over time. Berlin, again, is on the other side of this in favor of intimacy of holistic "long experience."²⁵³

Third, and most importantly, such an approach does not interrogate the *particularly limited syncretism of this syndrome change process*. It is discrete *event focused* rather than *change process focused*.

In sum, the described super-forecaster's approach interrogates for perspectives about whether an *event* of interest will occur by a preset point in time rather than judging *a* specifically conditioned entangled and embedded system as to *its* context-specific change process and emergence. The super-forecasting approach is atomistic in this way by focusing on predicting the statistical likelihood of discrete "events" happening, or not, within a set time rather than upon *change processes'* implications for non-free, specifically embedded and entangled syndromes from which a constrained outcome can emerge. . From a schema futures judging perspective, the latter provides a very different mindset and landscape solution.

Holistic forecasting is not bracketed in time. A timing judgment about some aspect of the change process, if of interest, arises separately but is never preset. In parallel, the 'event' focus is replaced by judgments about a specific schema's INUS *condition*.

Using Epstein's example, "...in 2015, forecasters were asked if Greece would exit the eurozone that year."²⁵⁴ A schema approach would instead focus upon whether the proponents of the schema of Greece leaving the Eurozone are successfully forming, or are passively benefiting from, an INUS compliant path building to this condition?

²⁵³ Ibid. and Berlin, Op. Cit. The Hedgehog and the Fox, Pp. 33.

²⁵⁴ Ibid. pp. 230.

11 Appendix C - Glossary of Terms

Accretion – Formally this is the process of growth or increase by the gradual accumulation of additional layers. As used in this work, accretion is the process of folding and layering up new information as it arises and then iteratively reevaluating.

Black Box – The visual is of a condition in which the observer or judge has no idea how the result happened. In machine learning and artificial intelligence, as well as other assessment methods where patterns emerge in the output result, a black box condition exists where the viewer or researcher has no idea how the assessment tool produced that result. It is a black box outcome.

Black Swan – This is a concept, fostered mainly by Nassim Taleb influential book of that title, that forecasting is impossible because “life is the cumulative effect of a handful of significant shocks.”²⁵⁵ The concept, and its support and criticisms, is covered in many literatures.

Catholic – Read this as meaning universal or all encompassing.

Complex – Complex has two broad uses, the first meaning that something is complicated. As used in this monograph, ‘complex’ often refers to ‘a complex’, meaning an interpenetrated whole arrangement of things. Different societies are certainly ‘complex’ but they are also distinctive complexes, one from another. These complexes are what is changing, from a holistic perspective.

Consilience – Formally consilience refers to the condition where there is agreement between the outputs of approaches to assessing a topic via of different subjects. The idea is that a ‘unity’ is forming. As used in this work, a consilience condition exists when the outputs of approaches agree as to the syndrome or state of that condition holistically viewed. For example, financial, political, social and psychological assessment approaches (different subjects), using their differing methods yield the same, or in reality, very similar conclusions: a crisis situation exists. The reader is referred to the book by the socio-biologist Edward O. Wilson (1998), *Consilience: the Unity of Knowledge* for a further discussion of the concept.

Embedded – Embedded means that something is attached to another thing. As used in this work, to be embedded within a specific societal condition or way is to be un-free about future choices. It is opposed to the view of randomness and freedom in societal arrangements. As examples, if a person or firm or organization is embedded within U.S. or German or Japanese society and each one’s different shaping features, then its choices are constrained by whether it is in the U.S., Germany or Japan. It is not ‘free’ to do whatever it wants.

Emergent – With reference to an embedded and entangled condition, an emergent choice or outcome proceeds from that condition or syndrome of that that condition. See embedded.

Entangled – As used in this work, two societal systems are entangled if they were once one (or in practice colonized) but have since separated. Because they were once one, they share social, psychological, legal, political, economic and other elements of their now-separate state of being in such a way that this helps prediction. For example, spawn of the British Empire share many of these features like law, political and military institutions, language and cultural impacts; ditto French, Sinic, Indic, Islamic and other once conjoined systems. Without overdoing this insight-producing concept, the mindscape idea here is that Canada and Australia often act similarly to the U.S. and Great

²⁵⁵ Op. Cit. Taleb. *The Black Swan*. pp. xix.

Britain because they share so much from the time when they were one with the British Empire. Norway, Sweden, Denmark and Iceland, are, for example, similarly entangled. In quantum theory, entanglement is the way that particles of energy/matter can become correlated to predictably interact with each other regardless of how far apart they are.

Focused Inquiry – As used in this monograph, the meaning is that forecasting is not about ‘general’ prediction but rather on evaluating a specific schema.

Folding In – As used in this work, folding in means iteratively adding and then re-evaluating a condition or change process as new information arises by adding and integrating it to the existing mixture (condition). See also Layering Up. In baking, for example, folding in aims to incorporate ingredients or components into the ongoing process.

Foresight – As used in this work, foresight derives from insight about what will be needed to forecast, or ‘predict’ some future event or emergence. The author uses foresight as a constituent part of building a forecast, which is the end product.

Forecast – as used in this work, the forecast is the formal judgment of an integrative / holistic process of building up an assessment from hindsight (if available), insight and foresight.

Fusion Center – A fusion center is an organizational arrangement, often used in law enforcement and intelligence assessment, that brings together multidisciplinary expertise in an effort to fuse their disparate knowledge and information sources to produce a holistic or at least well-integrated judgment. For example, counter-terrorism centers or an organized crime fighting centers often has fusion foci. This author has written that a well-functioning fusion center has broad range synthetic thinkers on board.

Good Enough – As used in this work, a good enough forecast stance acknowledges that when one combines information from multiple disciplines and sources with differing potentials for precision and accuracy, the resulting judgment is similarly qualified. Aristotle called this recognition about limits a feature of the trained mind, which does not expect more precision than the topic is capable of providing. The mindscape concept of use herein comes from the good parenting literature, which recognizes that all parents make mistakes, but a ‘good enough’ parent produces a functional young adult for that society.

Gray Rhino – Generally discussed along with the terms elephant in the room and Black Swan, a Gray Rhino is a highly probable, high impact yet ignored threat made popular by Michele Wucker.

Holistic – As used in this work, holistic is a process term for looking at the whole situation or condition that does not imply getting all the information (impossible) or achieving comprehensiveness as in an encyclopedic accumulation of all knowledge as a goal. Holistic thinking is a process not a state of being where all information has been considered. For example, a holistic thinking process folds in and layers up information as it arises but does not pretend that it has, wants or could even assess ‘all the information’ that is out there. Nobody actually does ‘total information’ judgments in real life, but people do often take an integrative and holistic thinking approach to judge well.

INUS – A concept introduced by John Mackie. Mackie was concerned with the difficulty of proving formal causation within complex systems where there are likely many paths to an outcome. Thus his unnecessary (U) but sufficient (S) elements refer to each *one path* among the many possible paths to an outcome. Formally, Mackie sees it this way. Because there are many ways to an outcome, each single factor of a (any) successful proof is related to the effect as individually insufficient (I) to produce it but as a non-redundant (N) factor linked to other non-redundant factors of an unnecessary (U) but sufficient (S) condition. In plainer English, you cannot prove that this particular path to an outcome ‘causes’ it because there are other paths that could have. Each path is made up of non-redundant (N) elements sufficient (S) to ‘cause’ the outcome. But which one did? Thus each individual path is unnecessary (U). Showing the path could have caused the outcome is insufficient (I) to prove that it did.

INUS Condition – As repurposed in this work, the core idea by John Mackie is that in any complex system there are many paths to any outcome, making a formal causal proof impossible. But as a forecasting issue: Who cares?

The person proposing a schema has the ‘proof’ problem. Forecasters are assessing that specific schema. An INUS compliant condition is one where the proposer of a schema has specified any ONE path to achieving their idea goal and specified the actions needed to achieve that condition. The forecasting mindscape position is that specific schema can be forecast about, but wishes and hopes, absent specifics on how to achieve them, cannot. See Schema. INUS conditions are discussed within the monograph text and in footnotes.

Iteration – Iteration is an ongoing, repetitive process. As used here, as new information arises during the process of building up a holistic judgment, the whole judgment is repetitively reconsidered.

Layering Up – See Folding In and Consilience. As used in this work, layering up is the iterative process of continually adding information, especially from new disciplines or fields of knowledge, to the holistic judgment building process. The mindscape position is that the judgment has to conditionally fit.

Prediction – See also, Forecast. As used herein, forecast is the professionally preferred term implying, more than prediction, an empirically grounded judgment. Prediction, whether rightly or not, has a connotation of non-empirical insight leading to a judgment.

Provenance – Formally, provenance refers to having or knowing the origin or earliest history of something. As used in this work, provenance refers to having built a record of how the forecast judgment was created. This is in opposition to black box outputs there nobody has any provenance – no specific information - about the origin of the observed output pattern, about how and upon what judgments it was created.

Schema – Simply stated, a schema is an idea plus the specific policies and actions to bring it about. As used in this work, a schema is more comprehensive than having a mere idea or goal in that one has to specify how to achieve it. For example, perhaps totally replacing human-driven with self-driving cars is a great idea. Now tell us specifically how to achieve that condition. An idea without specifics on how to achieve it is a wish or a hope. Forecasting is not a wish assessing business. It requires specifics for evaluation.

Sense making – As used in this work, sense making is the process of building up a judgment with provenance that joins the empirical information with the idea. Many philosophers of ideas have addressed the need to make sense (hypothesis or theory building) is empirical data as a creative process. The author has particularly references Kant’s notion that judgment joins the idea to the empirical.

String – The concept of ‘string’ or ‘thread’ is common in the world literatures involving the act of making sense of the world and its changes. The core idea is that one needs to link up disparate facts *and* ideas to make sense of a situation, condition and its changes. As used in this work, Immanuel Kant’s comment that ‘judgment’ is what one uses to string/thread the ‘idea’ together with the ‘empirical’ is emblematic of this notion about sense making. Recall that a schema (which one can forecast about) is an ‘idea’ plus its required ‘actions.’

Syncretism / Syncretic – Formally, this refers to the combination of different forms of belief or practice to form a new unity that is emergent via that combination activity. The logic involving change and its forecasting comes from the field of religions study, where, for example, new varieties of Christianity or Islam or Buddhism and so forth commonly arise from their older stock. One can trace this. For example, Lutheran from Catholic forms. Mahayana Buddhism from Theravada Buddhism’s stock, and so forth. The idea here is that combining elements from one or more older forms to yield a new form is not an unrelated or untraceable change process. These are essentially fusions of originally different inflectional forms. How the author uses this when forecasting relies on the fact that, as in the concept of syndrome change, much carries over to the new form and its behavior. See also Most Similar Systems.

Syndrome - Formally, a syndrome is a set of concurrent elements in an arrangement of things, emotions and actions that form an identifiable pattern. In this work, syndrome is used as in Przeworski and Teune's 1982 *Logic of Comparative Social Inquiry* to identify a shift in a condition being assessed. These authors correctly notice that the altering, adding, or subtracting of just one element in a complex condition can change its manifestation, its behavior. Over-simply, consider you with a cold and you without a cold. Everything about you is the same in both conditions of the complex (you), except that now you behave differently due to the cold. Now consider, as in this paper's assessment, Israel without COVID-19 and Israel with COVID-19. The pattern shifting and stability elements are of interest in forecasting. The concept of syndrome change links up nicely with the concept of syncretism or syncretic change to build valid forecasts. **See also Most Similar Systems.**

Synthesis – This is the action, beyond mere integration of elements, of the combining parts or elements so as to form a whole. The focus is on forming a whole view.

Thread – See String.

Translational – In current parlance it is trying to apply more theoretical or academically focused research outputs to real-world problems and situations. The idea of translational research arose mainly from the medical field where the goal of even the most theoretical and original research is to eventually treat a patient. In business schools, the long-time critique that almost nobody except other academics actually reads academic business journals and that most of what is in them is not useful to business, has given rise to a 'new' focus on being useful: translating academic output to assist in real-world conditions.

Unknown knowns – The concept is that the information is 'known' (somewhere) but that the analyst does not know it. This author has emphasized that one can only assess well in areas that one has experience of.

White Swan – As used in this monograph, the notion is that much of life can and must be predictable in 'good enough' fashion for human and societal survival. It contradicts the 'Black Swan' thesis of Nassim Taleb that success is the result of being "lucky" and that "our world is dominated by the extreme, the unknown and the very improbable."²⁵⁶ White swan thinking is, in this sense, a foundation of effective forecasting. It does not argue that extreme events never occur, but rather that even in extreme event forecasting – large-scale, large-impact and rare event/emergence (LSLIRE) in the author's parlance – much can be forecast.

²⁵⁶ Op. Cit. Taleb. *The Black Swan*, pp. xxi, xxvii.

12 Appendix D – Literature Cited

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13 Acknowledgments

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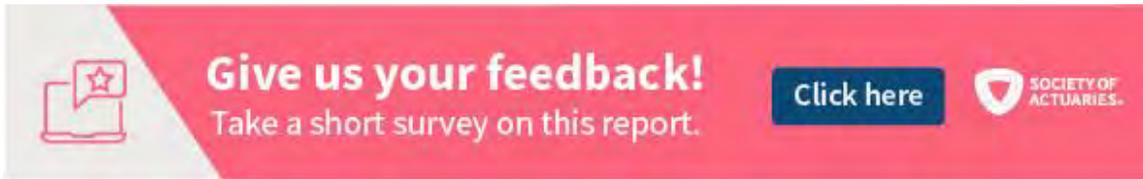
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14 Feedback



The banner features a red background with a white diagonal stripe on the left. On the white stripe is an icon of a laptop with a star in a speech bubble. The main text is in white, and the 'Click here' button is a dark blue rectangle with white text. The Society of Actuaries logo is on the right.

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