The Knowledge Base of Futures Studies 2020

Edited by
Richard Slaughter
& Andy Hines

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Foreword

It is an honour for APF—the Association of Professional Futurists—to offer this compendium to forward-looking learners everywhere. Since 1994, thousands of practitioners have encountered the pathway of foresight through *The Knowledge Base of Futures Studies*. Now the new *KBFS 2020* builds on this classic tradition.

It is often said that experience is the best teacher. In an age of change, chaos, and complexity, however, we cannot experience everything we need to become future-ready. We must turn to trusted friends to help us navigate the future.

You will find both old and new friends in the *KBFS 2020*, thanks to its editors Richard Slaughter and Andy Hines, two distinguished foresight educators from Oceania and America. They have collected seminal contributions from foresight scholars and professionals around the world.

Early and mid-career professionals, educators, policymakers, managers, and college students will find something of value in this new volume. As well, instructors, trainers, consultants, and professors will find collected wisdom to pass onto others.

A century ago, Europe was plunged into a Great War following a terrorist event, taking 18 million lives, only to be followed by the deadly 1918 Influenza Pandemic which took another 50 million lives, mostly young adults. After the war, a progressive US President, Woodrow Wilson, received the 1919 Nobel Peace Prize for promoting the League of Nations. Central to Wilson's life was his view of knowledge: "I not only use all the brains that I have, but all that I can borrow."

It is APF's hope that every person who picks up this work will "use all the brains that they have" and "all that they can borrow" from the wisdom of the future-oriented friends who contributed to this volume.

Jay Gary, PhD
Chair, Association of Professional Futurists
Washington, DC
May 11, 2020

Introduction

The Knowledge Base of Futures Studies (KBFS) arose from ideas and conversations in various locations around the world during the early 1990s. A major concern at the time was that Futures Studies (FS) was expanding and diversifying but core features such as organizations, methods, and literature were sometimes hard to identify or evaluate. How would practitioners define their field(s) of interest and how could new entrants find their bearings? Moreover, there were growing concerns that FS could be seen as a purely Western phenomenon. In which case where were those "other voices," other views and, importantly, other "ways of knowing?" I wrote to as many practicing futurists as I could around the world requesting their insights and support.

The first incarnation of what later became known as the KBFS was a special issue of the journal *Futures* published in May 1993. It contained seven main articles, ten "divergent perspectives," and no fewer than five annotated bibliographies from different regions of the world. It was intended to be critically aware, gender neutral, multicultural, and critically informed. The first edition appeared three years later in 1996 as a three-volume set of hardcopy books in a sturdy slip case. It was launched that year in Washington, DC at a World Future Society (WFS) event and in Sydney, Australia at the Futures Foundation. It garnered some very positive reviews and was quickly seen as a welcome addition to the literature. Students from the Houston Foresight program even referred to it as a one-stop-shop.

While most understood "knowledge base" to be merely a useful metaphor, some questioned whether it suited a field as diverse and fluid as FS. In order to emphasize its process orientation and openness to diversity and change, it therefore made sense to publish a follow-up paper describing the KBFS "as an evolving process." A couple of updates ensued and, with the valuable assistance of my son Rohan (an IT specialist) the first CD-ROM version was produced in 2000. It provided a stable, easy-to-use format that, unlike the heavy hardcopy books, was easy to mail. A further five years were then required to produce the 2005 Professional Edition. The introduction to that edition can be found here. And that is where the KBFS could very well have ended.

In the years that followed I remained deeply immersed in futures work as an independent futurist, freshly liberated from academia. I continued to write, review, edit, and perform occasional consulting jobs. But I was no longer immersed daily in the active networks and intense exchanges of ideas and influences provided by universities. Yet it was unusual for a year to pass without being reminded of the KBFS and wondering how it could be updated.

I was particularly galvanized when I returned to earlier work of undoubted quality that now sat unregarded in the dark recesses of publishers' archives. I could not avoid the fact that most commercially published work only saw daylight for a brief time before vanishing behind unassailable paywalls. Nor was that the only issue. Physical copies, journals, and author offprints with multiple, uncomplicated uses had disappeared, leaving only the traces of significant amounts of human effort and professional value hidden away in distant "cloud" repositories. Two key issues arose. One was that only those with privileged access could use this vast trove of hidden knowledge. More seriously, however, no guarantee was or would ever be provided regarding the long-term conservation and maintenance of this material. Digital files have many flexible and handy uses in the here-and-now. What is less well appreciated is that the commercial case for long-term archiving of digital material is problematic at best. State-run and -financed libraries operate on an entirely different basis, but they too have human, organizational, and budgetary constraints. It's no exaggeration to conclude that most or all of this digital trove will, at some point, disappear. No knowledgebase-type exercise could possibly begin to compensate for this defective system of profiteering and expropriation. But it became a "burr in the saddle" that kept reminding me that work of considerable value and salience was continually being lost.

During these years something else had been going on. The Association of Professional Futurists (APF) was steadily growing into a world-spanning organization comprised of active and talented people from a range of futures-related disciplines. A combination of idealism and experience, along with a willingness to put the new capacities of IT to good use, meant that the APF had rapidly become a lively and distinct success. The original World Future Society (WFS) had downsized some years previously and the World Futures Studies Federation (WFSF), with which I'd been closely associated, continued on its own rather quiet and restrained path. But the APF was going places. Its in-house journal

Compass provided a lively compendium of news, reviews, and articles of genuine interest.

When Jay Gary became the new chair of the APF I felt there might finally be a chance to do something with the KBFS. I contacted Jay and was assured that he felt it was well worth doing. Moreover, the APF would be willing provide a small budget (for copyediting and production) to help make it happen. My initial delight, however, was moderated by concerns about how difficult it would be to manage such a project on my own. That's when I contacted Andy Hines, who agreed at once to be co-editor. Andy and I knew each other well. As well as catching up at conferences he'd also been a guest at the Australian Foresight Institute (AFI) back in 2003 during my time as Director. Thus in early 2019 we got started on our list of prospective contributors.

Throughout that year we, along with a small group of helpers, sought to uncover some of the best published work from the previous decade. We were not primarily focused on various "legends" of our field, people whose work was already well-known and widely appreciated, so much as on recent work by emerging writers. To assist with this we assembled a simple list of criteria, as follows.

- Does the article represent an important innovation or change in the field?
- How new and fresh is the material?
- Is it of exceptional quality?
- Does it introduce new voices, including emerging futurists?

Kristin Nauth, our copyeditor, kindly took a look at the house style used for the previous edition and a few details were updated. We provided prospective authors with this as well as a short "Author Guidelines" summary. Perhaps three-quarters of the final collection was generated by writers who produced new versions of earlier work. For the rest we asked a few people for contributions on specific topics. By early 2020, just as the Covid-19 pandemic was beginning to impact the world, nearly all the papers had been copyedited and publishing agreements signed.

As this introduction was being finalised a stream of comments and proposals for informed responses to the pandemic appeared on the APF website. A known "wild card"—the coronavirus—had emerged to become a global catastrophe. It's too early to speculate what kind of world will emerge once the pandemic has run its course, or how long this will take.

Among the many proposals, however, there are bound to be references to improving our capacity for high-quality environmental scanning and vastly increasing its active role in decision-making across the board. One point of reference for such initiatives is over twenty years old—Laurie Garrett's *The Coming Plague: Newly Emerging Diseases in a World Out of Balance* (1994, London: Virago Press). The key is in the subtitle.

As long as human civilisation continues along its present destabilising course, the world will be "out of balance." It follows that the present pandemic, challenging and frightening as it may be, can be seen as merely one expression (or continuation) of a worldview and *modus operandi* that has long called out to be thoroughly revised and redressed. KBFS 2020 does not address the current crisis directly. But it contains a number of powerful messages for the kind of disciplined enquiry and practice that the world needs now more than ever.

Andy and I trust you will enjoy the ride and, like us, find inspiration and courage on nearly every page.

Richard A Slaughter
Brisbane, Australia
April 2020

Acknowledgements

VOLUME 1: FOUNDATIONS

INTRODUCTION TO VOLUME 1: FOUNDATIONS

by Richard Slaughter

Futures thinking and futures work in general are often considered recent innovations. But as Jennifer M. Gidley shows in her extraordinary paper, "Yesterday's Futures over Three Millennia" such preconceptions could hardly be further from the truth. Intentionality, purpose, design, and direction-finding of many kinds go back millennia and have, over centuries, contributed a great deal to what it means to be human. The sheer scale of this story is mind-boggling, which makes it a profoundly challenging one to tell. Those interested should certainly obtain a copy of her book from which this paper is derived. It is greatly to Jennifer's credit that she has woven some of the main characters and influences into a coherent account of multiple changes of perspective and perception across centuries. Indeed, one of the strengths of her account is that it is not merely expressive of external history but also of vital interior dimensions such as values and worldviews, which all too often have been set aside and forgotten. As such the piece provides a fine introduction to KBFS 2020.

Alessandro Fergnani's contribution, "Mapping Fifty Years of Futures Studies Scholarship" could not be more different in that it introduces a methodology that until recently was quite literally unthinkable. The author uses data-mining techniques to perform a quantitative analysis of themes found within ten futures journals over a fifty-year period. While such techniques necessarily remain silent on questions of meaning and purpose, they can certainly reveal other avenues of understanding by identifying previously hidden patterns and poorly understood relationships between different areas of futures scholarship. While acknowledging that such work does not, and cannot, constitute a comprehensive survey of futures literature *per se* the paper nevertheless shows how certain research topics appear to interact. In so doing it reveals some of the gaps that arguably exist between them. This leads to hypotheses that are worth exploring

further, including suggestions about how the integration of futures research and development could be more effectively pursued.

In this latter respect Fergnani's paper has much in common with Chris Riedy's piece, *The State of Play in the Futures Field: 10 Years On,* a retrospective of his project by the same name (SoPiFF) which took place during 2007–9 with results published in a special issue of *Foresight* (Vol 11, No 5, 2009). The SoPiFF project was distinctive not only for its broad international scope but also for its use of an integrally informed "metascanning" methodology, which allowed the researchers to systematically employ several new diagnostic categories. While organisational type and location are clearly conventional, others (social interests, methods, domains, capacity building) were used in ways that broke new ground. For example, methods were examined according to systemic, linear, critical, or integral criteria. Social interests were viewed as supporting pragmatic, progressive, or civilizational foresight. Chris summarises the way that the results shed new light on the nature and extent of futures work. His paper also refers to other contributions to the issue including: the influence of futures work on public policy, futures work in Europe, and futures schools of thought. His conclusions in 2020 are provisional but provide little cause for comfort. On the one hand the metascanning approach was clearly successful and provided a useful snapshot of the field. Yet on the other hand the field was deemed "unequal to the task" of countering the "civilisational challenge" facing humanity. Moreover "while many of the conclusions of the SoPiFF project remain valid ten years later... the field continues to lack a good overview of its own 'state of play.'" Further work along these lines appears to be overdue.

Four papers are included in Part Two under the heading "Approaches to Futures Thinking." The first, by Andrew Curry and Anthony Hodgson, outlines a technique known as Three Horizons which is used to connect the present with a range of envisaged or imagined futures. The dynamics of change within each of these horizons is illuminated. This enables futures analysis to be connected to underlying systems and structures, to different speeds of change, and also to some of the tools and processes involved in strategy. The model allows policy- and decision-makers to appreciate continuity and discontinuity in the forward view, to distinguish between distinct modes of thinking and to orchestrate a wide variety of tools and methods. A brief history of the method is provided along with a summary of various applications. Next, Greyson's paper begins with the view that much futures-related work fails to have sufficient impact. By

way of response it explores some of the design methods that can be employed to support FS in a variety of ways and in different media. These include stimulating imagination, prototyping, design fiction, and experiential futures work. In this view design adds "visual, kinaesthetic and auditory opportunities." In the case of prototyping, "provisional objects" become flexible learning tools that provide a focus for learning and exploration. Futures visioning is discussed in relation to a Brazilian case study in which an abandoned plot of land was eventually transformed into a highly valued public square. Overall the paper provides rich evidence to show that "design methods help people to envision the invisible" in new and innovative ways.

Many readers will have heard of "Theory U" which, briefly put, refers to a U-shaped process that can be used for individuals and groups wishing to achieve a highly aware state generally known as "presencing." This paper by Adam Cowart focuses on the latter and on what can be learned and achieved through this new level of awareness. Such presencing, however, is also deemed to possess a shadow equivalent known as "absencing." Clearly the former can help to increase awareness while the latter reduces or denies it. These dynamics are explored in relation to Theory U and futures work partly through the use of a standard past, present futures cone with four emergent futures types (probable, preferable, plausible, and possible). A number of concepts and tools such as "generative scribing" are explored in relation to the above. Overall the piece provides a succinct introduction to some fairly esoteric material that, thus far, has not been commonly associated with futures work but clearly has potential.

By contrast James Dator's "Four Futures" are well known and widely used. They emerged from several decades of active involvement in almost every aspect of futures enquiry during which he saw how often people focused on one particular image of the future and overlooked others. It became clear to him that each one had "its own epistemological base, its own logic and its own preferred vision." But he also understood the folly of asserting that any one of these was more "correct" than any other. Over time he distilled four generic types of futures images, each of which exists and is valued and accepted somewhere: Grow, Collapse, Discipline, and Transform. In so doing he provides a valuable and accessible tool not only for opening out generically distinctive future scenarios for a wide range of uses but also for encouraging clearer thinking about each of them. A brief overview of each type makes it clear in exactly what ways each one

"makes very different assumptions about a number of common 'driving forces,' such as population, energy, the environment, culture, governance, technology and the like." Two vital points emerge. First, "there's no such thing as a 'normal' future… We are increasingly post-normal beings living in post-normal times." Second, humanity has no choice but to "face the mighty forces that bear down on us like giant waves." The whole point, however, is that we are "not helpless against them. We must study them closely and learn to surf them with skill and enjoyment." This is perhaps the most concise and readily understood rationale for the existence of Futures Studies and, indeed, the KBFS.

Part 1: Origins and State of Play

CHAPTER 1: YESTERDAY'S FUTURES OVER THREE MILLENNIA

by Jennifer M. Gidley

Evolving time consciousness

Our evolving views about the future, and their connection with time, are interwoven with the evolution of human consciousness. Cultural historians and consciousness researchers tell us that Charles Darwin's biological theories are not the entire story of evolution. Theories about the evolution of culture and consciousness were already circulating in the late 18th century among German idealist and romantic philosophers, such as Hegel, Goethe, and Schelling. The idea that human consciousness has evolved, and is still evolving, is central to the work of Rudolf Steiner, Pierre Teilhard de Chardin, Jean Gebser, Jürgen Habermas, Marshal McLuhan, and Ken Wilber, to name a few. Our evolving consciousness has shaped our historical views of time and future.

Gebser, Steiner, and Wilber also claimed that time consciousness evolved with human consciousness throughout history. British sociologist of time, Barbara Adam, draws on Gebser's cultural history.[1] Sociologist of Futures Studies Eleonora Masini has analysed time and the future in sociological, historical, and anthropological terms. As a cultural historian, Gebser theorized that five structures of consciousness developed throughout human history: archaic, magic, mythical, mental, and integral (emerging).[2]

Archaic consciousness was experienced by the earliest of humans well before recorded history and little can be known about it. Gebser's view is that the earliest of humans lived in a kind of pre-temporal experience that he called the "ever-present origin" or "eternal now." The eternal now is also referred to as the Dreamtime.

Early nomadic hunter-gatherers and cave dwellers, up to and including the Ice Age, lived very close to nature, experiencing what Gebser called magic consciousness. He called their temporal

consciousness "timelessness," claiming we can have a taste of it as modern humans when we listen to music or have other blissful experiences. Adam uses the phrase "a time before temporality" to refer to this ancient time when humans lived in an embedded unity with the whole, as in magic consciousness.

The shift from magic to mythical consciousness paralleled the shift from nomadic life to settled agricultural villages and the world's first cities. Mythical consciousness is associated with the development of language systems that enable complex mythology and pictographic writing, astronomy, and more complex social groupings. Gebser called this mythical time consciousness "rhythmic/cyclical." Masini refers to the cyclical perspective found in the mythic narratives of Buddhist and Hindu cultures.

Gebser placed the origins of mental-rational consciousness in ancient Greece. Greece spawned intellectual and cultural leaps through alphabetic writing, philosophy, mathematics, elite formal education, and formal legal systems. Gebser, Steiner, and Wilber all locate the incipient concept of linear time in this period, and thus the beginnings of the default idea of the future that we have today. Masini's linear-time concept, too, originated in the Graeco-Roman era, is symbolized by an arrow, and represents progress through modern science and technology. Masini also notes the gradual erosion of the idea that linear time is always associated with progress, in the wake of the Club of Rome *Limits to Growth Report* in the 1970s.

The seeds of Gebser's fifth structure of consciousness—integral-aperspectival—emerged with the Renaissance. This structure is gradually strengthening culturally, through advances in science, philosophy, and human rights. Integral consciousness parallels the development of higher modes of reasoning, such as postformal reasoning, identified in the late 20th century by developmental psychologists. Integral consciousness, being the most highly evolved, is associated with the most highly evolved time consciousness. Gebser called this "time freedom" or "concretion of time," in which we are capable of experiencing all the different cultural time senses, rather than being constrained by one perspective. Masini's most evolved time consciousness is symbolized by the spiral, which is an integration of the circle and the arrow, and draws on the work of systems scientist and consciousness researcher Ervin László.

Evolving views of time have changed our future perceptions over millennia. The time sense associated with integral consciousness will shape our futures tomorrow.

The age of the oracles
From the first millennium BCE, the major cultural leaders in Judaeo-Christian and Persian cultures were the prophets. The word "prophet" means "forespeaker" (Greek), and "delegate or mouthpiece of another" (Hebrew). The future then was believed to be predestined, as part of God's divine plan. The prophets, who could "hear and mediate the revelations of God," were deemed to be the powerful leaders of their people.

In ancient Persia, the prophet Zoroaster (Zarathustra) (*c.* 628–*c.*551 BCE) was both leader of his people and founder of the Zoroastrian religion. He encapsulates the intimate relationship between leadership, prophecy, and religion/God/Spirit. Islam took the title of prophet for its leader when it originated over a thousand years later.

Hebrew prophecy arose out of divination and seership. The main role of the prophets, as messengers of God (Yahweh), was to announce prophecies and lead their societies in civil and religious matters. From around 1,000 BCE guilds of prophets formed and they became active statesmen or mentors for the kings. The most famous Hebrew prophets were men, such as Abraham, Isaac, Jacob, and Moses. However, the Talmud names seven women, and reports that Sarah's prophetic ability was superior to that of her more famous husband, Abraham. Ironically, Alvin Toffler—whose twenty-two futurists in his book *The Futurists* included only one woman, Margaret Mead—admitted that the wives of several of the authors, including his own wife Heidi, often co-authored their works.[3]

Women had a more explicit role in the future in ancient Greece, where the sibyls were the oracles. The sibyls were believed to have direct access to divine revelations, and their oracles and predictions were treated with great respect. The original Sibylline Oracles were collected and guarded in temples to be consulted in times of great crisis. Although the original sibyls were figures from pre-Christian, pagan times, Michelangelo immortalized five of them in the grand fresco in the Sistine Chapel (the Delphic, Cumaean, Libyan, Persian, and Erythrean Sibyls). Michelangelo painted them as the first to sense the coming of the Redeemer, linking

prophecy with spiritual redemption. The call of the future in these times was a spiritual call.

While the Abrahamic religions were heavily invested in human mediation between God and the affairs of men and kings, the Chinese used inanimate objects to interpret the universal laws and "read the future." As early as 1200 BCE, the Chinese shamans of the Shang Dynasty were writing on oracle bones to send messages and predictions. Much later the Vikings threw runes to divine their futures. In medieval Europe divination was prevalent, with Tarot cards emerging in mid-15th-century France. Oddly, Tarot cards were used to read the future only after modern science appeared.

From Plato to Leonardo

The middle of the first millennium BCE saw a shift from human reliance on gods, via prophets and sibyls, to human-centred utopian visions in Greece and Rome. Lymen Sargent claims that the earlier utopian classic myths looked back to a fantasy golden age in the past, whereas the Greek and Roman utopias of Plato and Virgil (70–19 BCE) referred to human-created societies:

> This branch of the utopian tradition gives people hope because it is more realistic and because it focuses on humans solving problems, such as adequate food, housing, and clothing and security, rather than relying on Nature or the gods.[4]

Plato's *Republic* (380 BCE) addresses questions of education and the role of both women and men in society, and presents an ideal harmonious state governed by philosopher-kings. Sargent describes it as "the closest possible approximation of the ideal society." He also claims that Virgil's *Fourth Eclogue* marks a shift from the past golden age to the future, referring to Virgil's images of Arcadia where "the better world became based on human activity rather than simply being a gift from the gods."

In ancient Rome a clearer differentiation between past and future was consolidated. De Jouvenel cited Roman philosopher Marcus Tullius Cicero's (106–43 BCE) distinction between "facta: what is accomplished and can be taken as solid" and "futura: what shall come into being and is as yet "undone." De Jouvenel concluded there can be no science of the future because "the future is not the realm of the 'true or false'" but the realm of the "possible," or what he called *futuribles*. Some theorists of

time critique de Jouvenel's concepts of facta and futura as oversimplification, but they were merely starting points to more nuanced concepts in his art of conjecture.[5]

Macrohistorians Johan Galtung and Sohail Inayatullah refer to Chinese philosopher Sīmǎ Qiān (145–90 BCE) as one of the first futurists, in that he charted cycles of virtue spread over 30-, 100-, 300-, and 1,000-year time spans. Remarkably, Sīmǎ Qiān and Cicero, although writing just a few years apart, represent the two sides of that worldview shift from cyclical time to linear time.

During the so-called Dark and Middle Ages, only a few signposts can be found in the human journey to understand the future. The first to develop a utopian vision within the relatively nascent linear time concept was the Christian theologian and philosopher Augustine of Hippo (354–430 CE), who wrote the *De Civitate Dei* (translated as *City of God*) in 426 CE. Augustine proposed a utopian future society based on love, drawing from the Christian teachings of his times.

Several hundred years passed before the next significant utopian visionary. In the late 12th century, Sicilian abbot and mystic Joachim of Fiore (1135–1202) predicted three great ages on earth, with the third beginning in 1260 when the earth would become the scene for spiritual action. Dutch sociologist and politician Fred Polak has offered important insights into the contrasting concepts of the future of Augustine and Joachim.[6] In Polak's view, Augustine's utopia is a platonic ideal that attempts to spiritualize the world so that it becomes a City of God. In Augustine's approach to the future, humans were passive in the face of a transcendent God and powerful Church. By contrast, in Joachim's third age humans are responsible for transforming the earth through their actions, inspiring brotherhoods of mendicant monks in Europe, and leading to "social utopism and utopian socialism."

In the year Joachim proposed for the start of his third age (1260) English philosopher, monk, and mathematician Roger Bacon (*c.*1220–1292) published *Epistola de Secretis Operibus*. Roger Bacon (unlike Francis, much later) is often overlooked, yet he foresaw scientific knowledge leading to the invention of motorcar, helicopter, and self-propelled ship. This extract from Bacon's *Epistola* is cited by Ignatius Clarke:

> Cars can be made so that without animals they will move with
> unbelievable rapidity ... Also flying machines can be constructed
> so that a man sits in the midst of the machine revolving some
> engine by which artificial wings are made to beat the air like a
> flying bird.[7]

Roger Bacon's scientific writing was rediscovered in the 19th century and is viewed as a forerunner to Francis Bacon's experimental method. His *Epistola* reflects his alchemical writings more than his scientific writings: a science fiction prototype.

A century after Roger Bacon, North African Arab historian Ibn Khaldun (1332–1406) published *The Muqaddimah* (1377), which macrohistorians tell us included a cyclical theory of social change tracing patterns of nomadic conquest, consolidation, waste, decadence, and further conquest. Whether the future is a site of progress, decline, or repeated cycles is still contested in the 21st century.

Renaissance futures

The Renaissance birthed a revolution in thinking and culture that pointed to radically different futures. It spanned a long period of great artistic and literary creativity in Europe from the late 14th to the 17th centuries. Leonardo da Vinci (1452–1519) was a significant early futures visionary who, before the end of the 15th century, produced comprehensive drawings and models of flying machines and war machines. Over ten years from 1488 he also developed a model of an ideal city in response to the Milan plague. Leonardo's ideal city included infrastructure such as wide roads, fresh air vents in buildings, and underground sanitation systems to prevent the spread of disease. Leonardo was a Renaissance futurist whose visions provided prototypes for inventions that were way ahead of his times, yet were built many centuries later.

In parallel with the Renaissance there was a great era of maritime exploration by the Spanish, Portuguese, British, French, and Dutch. These explorers ventured by sea beyond Europe across the Atlantic, Indian, and Pacific Oceans, claiming territory for their monarchs. French philosopher Edgar Morin calls this the beginning of the "planetary era." It marked the seeds of European colonization and the beginnings of globalization, with the formation of the first multinationals, such as the British East India Company and the Dutch East India Company, at the beginning of the 1600s.

This spirit of exploration beyond the known world inspired utopian writers to imagine other lands where life could be created anew. The utopias of this period are of another place rather than of a future time (which came later). The best-known utopian narrative is More's *Utopia* (1516). It was a forerunner for socialist visions in which the values of the community were more highly prized than those of the individual.

Nostradamus' *Les Propheties* (1555) is often left out of histories of the future, perhaps for fear it might bring ridicule to a field trying to establish itself as a science. In sharp contrast to Nostradamus' imaginative prophecies, Nicolaus Copernicus' (1473–1543) *On the Revolution of the Heavenly Spheres* initiated a major shift in thinking from a geocentric to a heliocentric universe. Anticipating that the Church would view his publication as heretical, he published it just before his death. His publication started the Copernican revolution: a scientific revolution based on "new astronomy."

In 1589, Spanish theologian Louis de Molina (1535–1600) entered the centuries-old theological debate on free will versus determinism in relation to the future. In his book *Concordia*, Part IV: *On Divine Foreknowledge*, de Molina invoked Cicero's notion of "futura" to suggest that the future was neither fully determined by God nor fully free. He proposed contingent and possible human futures that God could know hypothetically. Too complex to pursue here, de Molina did influence later ideas.

A century after More, Italian philosopher and monk Tommaso Campanella (1568–1639) published *La Città del Sole* (1602), translated as *The City of the Sun*. The story is a dialogue between a Grandmaster of the Knights Hospitallers and a Genoese sea captain, who is telling the Grandmaster of the amazing city he has seen on his travels. The story begins with a physical description of a city built on a great hill and divided into seven huge circles. The story becomes more involved in esoteric details, apparently drawing inspiration from Augustine's *City of God*. The pre-modern mindset is evident when the Grandmaster gives an astrologer's view of the coming age:

> Oh, if you knew what our astrologers say of the coming age, and of our age, that has in it more history within 100 years than all the world had in 4,000 years before! Of the wonderful inventions of

printing and guns, and the use of the magnet, and how it all comes of Mercury, Mars, the Moon, and the Scorpion![8]

Medieval utopias were often linked to religious values, and yet in many cases the Church persecuted the authors for their views. Campanella spent twenty-seven years in prison for his heterodox views, but ironically wrote most of his work there. He fared better than Thomas More, who was executed.

Modern science stakes its claim on the future

Throughout the 16th and 17th centuries great upheavals were taking place all over the world: the artistic renewal and inventiveness of the Renaissance; exploration and colonization by Europeans; and the transition from mythical and religious visions to futuristic visions inspired by modern science, heralding a shift in power from church dogma to modern scientific discovery. The scientific revolution and the Age of Enlightenment introduced the first rational scientific bid for the future.

English scientist Francis Bacon's (1561–1626) *New Atlantis* was published posthumously in 1627. Bacon is often called the father of empiricism, because he developed the inductive scientific method. He marked a transition from the medieval outlook that sought happiness in the ideal, spiritualized visions of Augustine or Campanella, to a modern scientific worldview believing in the possibilities of human progress. His idealistic views of human qualities and state-funded research colleges foreshadowed the Enlightenment, from which sprang modern research universities.

Soon after Bacon's utopia René Descartes published his *Discourse on Method* (1637) in which his famous dictum "Cogito, ergo sum" (I think, therefore I am) appeared. Descartes' arguments for the mind–body split founded what is known as Cartesian (or French) Rationalism and inspired the French Enlightenment.

The astronomical writings of Copernicus, Johannes Kepler, and Galileo Galilei seeded futuristic fiction that looked beyond Earth to the moon and other planets. English bishop Francis Godwin's fantasy narrative *The Man in the Moone* (published posthumously in 1638) is his first work of science fiction. Starting as a terrestrial utopia it turns into a fantasy in which the lead character constructs a flying machine, powered by large wild swans, which carry him to the moon in twelve days.

The pragmatic British scientist Robert Boyle wrote twenty-four scientific inventions, known as *Boyle's Wishlist* (1662), most of which have since been created. In 1679 German philosopher and polymath Gottfried Wilhelm Leibniz published *The Ultimate Origin of Things* in which he put forward an evolutionary treatise that foreshadowed both Darwinism and the evolution-of-consciousness writings of the German idealists.

French author Bernard Le Bovier de Fontenelle (1657–1757), following in the footsteps of Godwin, published *Entretiens sur la pluralite des mondes* (1686) on the possibility of life on other planets. It is surprising that he has not been claimed by contemporary transhumanists as one of their pioneers. In 1687, Isaac Newton published his *Principia Mathematica*, an important marker of the birth of modern science.

This rapid series of developments saw modern science and Enlightenment rationality taking precedence over the rules of the Church and the medieval (or Hermetic) sciences of astrology and alchemy. The tensions between modern science and the Hermetic sciences are particularly marked in Isaac Newton, who was both the father of modern science and the last great alchemist, and Francis Bacon, both the father of empiricism and leader of the Rosicrucian movement in England.

Enlightenment futures
The 18th-century European Enlightenment writings formed the basis of rational philosophy and theories of knowledge for the coming centuries. A few outstanding contributions had particular impact on humanity's view of the future.

French mathematician and philosopher Pierre Louis Moreau De Maupertuis wrote about "memory and prevision" in his published *Letters* (1752). De Jouvenal quotes Maupertuis as saying, "the one is a retracing of the past, the other is an anticipation of the future." Other major contributions included the first *Encyclopedia*, coordinated by French philosopher Denis Diderot between 1751 and 1772, followed by the *Critique of Pure Reason* (1783) by German philosopher Immanuel Kant (1724–1804). Jean-Jacques Rousseau published *The Social Contract* (1762), representing his utopian view of a society in which the common people were fully engaged in creating the rules of society—foreshadowing participatory democracy. French writer Louis-Sébastien Mercier published

his utopian novel *L'An 2440* (1771) in which his world of "peaceful nations, constitutional monarchs, universal education and technological advances" was an extension of Bacon's *New Atlantis*. Ignatius Clarke described Mercier as an optimist who believed that "the combined logic of humanity and of science would inevitably lead to concord and co-operation throughout the planet."[9]

Scientific advances led to the launch of the first balloon in Paris in 1783, marking a big shift in the futures psyche of Europe. The Montgolfier balloon event led to a rapid increase in images of humans taking flight. A flurry of futuristic fiction followed, inspired by the innovative scientific invention that at last enabled humans to take mastery of the air: a vision for over 700 years. In French, the new genre was called "roman de l'avenir," in English "the tale of futurity," and in German, "Zukunftsroman."

The second half of the 18th century was a time of great global political and social upheaval. The British Industrial Revolution (1760), rapidly followed by the American Revolution (1765–83) and the French Revolution (1789–99), each dramatically changed the views of the future in their own societies and beyond. The French Revolution inspired the German idealist and romantic philosophers in the last decade of the 18th century—the German High Romantic period. Goethe published *Wilhelm Meister's Apprenticeship* (1796), founding the genre of the bildungsroman or philosophical evolutionary novel. Schelling published his *System of Transcendental Idealism* (1800) incorporating his views on conscious evolution. These philosophers initiated the humanistic ideas of human progress and cultural and intellectual futures, and are still very influential today in theories about futures of thinking and consciousness.

At this crucial time seeds were sown for the two contrasting futures we see today: human-centred futures and techno-utopian futures. La Mettrie's mechanistic view of human nature, the theories of human progress of Turgot, de Condorcet, and the visions of German idealists and romantics are discussed elsewhere.[10]

However, right at the end of this heady century of great scientific and technological progress, philosophical awakening, post-colonial revolutions, and a great burst of techno-utopian futuristic fiction across Europe, the first cracks appeared in the dream of endless progress. Clarke describes the highs and lows of utopias and dystopias:

> The tale of the future tends to be a literature of extremes ... by tracing the curves of hope and fear to their logical conclusions in visions of social perfection, or in forecasts of terrible wars, or in extravagant fantasies of human power.[11]

A darker side of progress

On the verge of the spread of the Industrial Revolution across continental Europe, Thomas Malthus controversially published *An Essay on the Principle of Population as it affects the Future Improvement of Society* (1798). Malthus critically questioned the optimistic utopian views of Godwin, Mercier, and de Condorcet, and the theories of progress of Turgot. Malthus was a philosophical dystopian who argued that infinite progress and prosperity caused serious problems. He proposed that exponential population growth would lead to a dystopian future of overpopulation without the resources for human survival. He inspired pessimistic groups known as Malthusians.

As the Industrial Revolution took hold in Europe, Malthusian theories precipitated a surge of anxiety about the future of humanity. A dramatic swing ensued, from techno-optimism to questions and fears about the very survival of the human race. The 19th century saw a new genre of apocalyptic fiction and *Last Man* art. Catherine Redford claimed the first was *Le Dernier Homme* (1805) by Jean-Baptiste Cousin de Grainville. Lord Byron and Thomas Campbell were outshone by Mary Wollstonecraft Shelley's *The Last Man* (1826). French writer Nicolas Restif de la Bretonne published *Les Posthumes* (1802), bringing the Superman trope to fiction.

By the mid-19th century the romantic thread of literature in France, Germany, and England gave way to more pragmatic approaches to the future. From the 1830s to 1860s Auguste Comte, founder of sociology, developed his theories of social evolution and positivism. Sociologist Wendell Bell suggests that Comte's discussion of the metapatterns of social change presages Futures Studies as a scholarly field.

Karl Marx and Frederick Engels published *The Communist Manifesto* (1848), a political pamphlet idealizing a communist society beyond class struggle. Marx had a paradoxical and controversial take on the future in that he condemned utopians and denied his own utopian intentions. Yet, as

Bell points out, his "*Manifesto* is regarded by many as one of the most influential utopian visions in human history."

Darwin's *The Origin of Species* (1859) on his biological evolution theory inspired Herbert Spencer's social engineering theories, as did Comte's social evolution theories and Marxian socioeconomic ideology. Comte and Spencer's social engineering, applying biological concepts of natural selection and survival of the fittest to sociology and politics, was gaining traction in Europe and the US.

From science fiction to forecasting
By the late 19th century belief in universal human progress was reaffirmed. Spurred on by theories of evolution, the triumph of scientific invention, and the celebration of materialism, the idea of endless change was gaining wide psychosocial acceptance. Cornucopianism emerged in response to Malthus, taking its name from the cornucopia, or *horn of plenty*, a symbol of abundance and overflowing riches. Cornucopianism is unbridled optimism about the future and confidence that technology will meet all the demands of society. Lindsay Grant tells us that Cornucopians argued either that population growth is good because it will solve itself, or that shortages can be made good by technology.[12] Their theory was that the population predictions of Malthus did not adequately account for the potential for exponential growth in scientific inventions to overcome the problems.

These philosophical ideas were being integrated into the new forms of science fiction, which began to include both utopian and dystopian narratives. The new genre, which became the dominant mode of future narrative for the next few decades, was science fiction. Some outstanding contributions were published in the 1870s, including Jules Verne's ecological utopia *Twenty Thousand Leagues under the Sea* (1870), George Tomkyns Chesney's dystopian novel *Battle of Dorking* (1871), and Edward Bulwer-Lytton's *Vril: The Power of the Coming Race.* Ironically, each of these has been credited with contributing to the birth of the science fiction genre.

A few years later Edward Bellamy (1850–98) published *Looking Backwards* (1888), a visionary socialist novel; William Morris published *News from Nowhere*, in part a response to Bellamy's brand of utopian socialism. Morris focused on changing the quality of work creatively, and quantitatively, not just reducing the hours of labour.

Before the end of the century H.G. Wells had published *The Time Machine* (1895). Within a decade, Wells established himself as a significant writer of "true science fiction," in that his writing was based on sound scientific knowledge. In addition to science fiction, serious notions on the reorganization of society arose, precipitating more formal forecasting. Wells was in the forefront of it. He launched modern social and technological forecasting, which took another fifty years to become fully established.

Building on the embeddedness of futuristic fiction within the human psyche, inspired by technological and scientific progress, and wedded to the theories of progress, a new kind of forecasting began to emerge. For twenty-five years, from 1890 right up until the declaration of war in 1914, forecasts about all manner of subjects appeared in newspapers and magazines. Dozens of books were published in Europe and the US, most of which were full of techno-optimism. In the early 20th century pioneering, futures-oriented, education approaches were developed by Maria Montessori and Rudolf Steiner in Europe and by John Dewey in the US. Leading physicists such as Albert Einstein and Max Planck, and philosophers such as Alfred North Whitehead and Henri Bergson, turned the concept of linear time on its head. Theories of relativity, quantum mechanics, process philosophy, and subjective time offer a sense of time freedom, empowering us to choose our own time and our own futures.

The social Darwinism of Comte and Spencer was critiqued by social scientists after it was used to rationalize racist and ethnocentric social abuses—including slavery, colonialism, ethnocide, and totalitarian eugenics. Early 20th-century cultural anthropologists developed powerful critiques, arguing that social engineering ideologies are ethnocentric and unilineal, privileging progress rather than preservation.

The outbreak of war precipitated an explicitly dystopian turn. A new generation of futurists rejected the techno-optimism of the 19th century, seriously questioning the progress narrative. The rose-coloured utopian glasses turned to black, bringing warnings about the dangers of hyper-technological civilizations, and raising fear that humans would invent and use weapons to wipe out the human race. John Stuart Mill (1806–73) coined the word *dystopia* in the British Parliament in 1868, but the dystopian literary genre proper did not begin until the 20th century.

Gregory Claeys opened a chapter on the origins of dystopia with the subtitle "malice in wonderland," presaging his discussion of the dystopian turn from the late 19th to mid-20th century.[13] He claimed dystopia was the predominant expression of the utopian ideal, linking this to the failures of totalitarian regimes. The era of the dystopian novel encompassed visionary narratives of so-called utopias that turned into dystopias through their obsession with control. The fiction of the post-First World War period was decidedly dystopian, presenting fears and anxieties that a further great crisis was looming. Like the Last Man genre a century earlier, it reawakened fears that the final catastrophe was on its way. Notable dystopian novels of that period included Cicely Hamilton's *Lest Ye Die* (1928), Aldous Huxley's *Brave New World* (1932), and H.G. Wells' *The Fate of Homo Sapiens* (1939).

After the First World War the future also became a subject of growing interest to a wide range of professions. From 1923 for almost a decade, British publishers Kegan Paul, Trench, Trubner & Co. commissioned an innovative series called *To-day and To-morrow*. Over 100 concise monographs were published to describe the status of science, technology, and/or society. Their intention was to forecast a *mostly* progressive long-range future view of the next century or so. However, the optimistic pre-war era had ended, so the series mostly reflected a post-war age of future anxiety. Some of the monographs expressed the controversies associated with biological, technological, and sociological anxiety. The authors included scientists, philosophers, poets, novelists, sociologists, and theologians, many of whom became well known. The first in the series was *Daedalus, or, Science and the Future* (1923) by British scientist J.B.S. Haldane. Contemporary transhumanists refer to it as a seminal text.

Beyond war planning to peace creating
In 1928 the USSR began its five-year economic plans (Gosplan), which continued until the collapse of the Soviet Union in 1991. In response, US President Hoover created a Research Committee on Social Trends in 1929, headed by William F. Ogburn. Using past statistics to chart trends and extrapolate to the future Ogburn pioneered technology assessment, producing *Recent Social Trends in the United States*. In 1933 Hitler initiated the first four-year plan for Nazi Germany, followed by the Goering Plan which included control over wages, production, and working conditions. Planning had entered the global geopolitical psyche followed by the quest to find more complex ways to predict or understand the future. Capitalists and communists alike introduced forecasting work,

mostly the predictive variety, into their planning and decision-making processes, all tightly linked with the war efforts.

Throughout the 1930s until the outbreak of the Second World War most forecasts spelled destruction and devastation, in line with the themes of the dystopian novels. By 1939 when the war broke out, national planning was blossoming everywhere. However, in the aftermath of the Second World War the dangers inherent in the ideological utopianism of a Hitler became clear. The simple and unidimensional notions of utopian societies and simple dystopian figures, such as medieval dragons, were replaced by more complex metaphors. These complex dystopias emerged in George Orwell's *1984* (1949), Isaac Asimov's *I, Robot* (1950) series of short stories, and Ray Bradbury's *Farenheit 451* (1953).

During the next three decades (1940s to 1960s) the future became the focus of increased state planning efforts related to military-industrial interests. Building on Hoover's planning efforts, the RAND Corporation was founded in 1945 as a leading think-tank to assist with US war efforts. RAND produced reports on the future of military technology, strategy, operations, and the containment of communism. Financed by the US Air Force it was the foremost organization focused on developing prediction and forecasting methods for military and industrial goals. Paradoxically, the dominance of the military emphasis inadvertently provoked a countermovement that led to the rise of alternatives focused on peace research.

In the wake of two world wars and the Great Depression individuals committed to democratic, global futures sowed seeds for the pluralistic Futures Studies field. From the 1950s onwards pioneers from systems science, sociology, peace research, journalism, theology, and media navigated Futures Studies away from the military-industrial complex towards more humanistic, peaceful, egalitarian approaches.[14] These individuals and the organizations they founded, most notably the Club of Rome and the World Futures Studies Federation were philosophically and practically engaged in developing theories and methods of Futures Studies that were human-centred and democratic, differing dramatically from the state planning and RANDian predictive approaches with their primary emphasis on war scenarios. I have written much more about this next stage in the history of futures thinking elsewhere.[15]

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CHAPTER 2: MAPPING FIFTY YEARS OF FUTURES STUDIES SCHOLARSHIP (1968–2017)

by Alessandro Fergnani

Introduction

Since the first Futures Studies methods were laid out as military strategy tools following the Second World War, when scenarios were what-if thought exercises led by genius forecasters such as Herman Kahn at RAND, Futures Studies has made great strides. The first academic journals devoted to the study of futures were established in the late 1960s: *Futures* in 1968 and *Technological Forecasting and Social Change* in 1969. Several other academic and specialist journals have since emerged, such as *Journal of Futures Studies* in 1996, *Foresight* in 1999, and *European Journal of Futures Research* in 2013.

In more than fifty years of scholarship, academic journals have documented the ups and downs, life and times, thematic and methodological concerns of the field. From the foray of futures methods into the corporate world, pioneered by Royal Dutch Shell in the 1970s, developments have included post-structuralist approaches to deepening the futures[1] and the combination of futures methods and integral approaches, to name a few.[2]

Yet to date, despite a few historical recapitulations of futurist thought as a whole, there is an absence of work documenting the academic research output of the field and tracing its developments, areas of research, research trends, and research gaps.[3] This article addresses this absence by providing a comprehensive visual review of the structure of the scholarly field of Futures Studies in fifty years of cumulated scholarship (1968–2017) in ten journals using bibliometric mapping techniques.

It is important to emphasize that this work relies on work published in these ten journals and is not comprehensive across all work in the field. The maps resulting from this analysis of work in these journals allow us to

identify principal research areas (clusters) in the literature, to intuitively visualize the main topics of research in each cluster, and to determine the gaps between them. From these, six recommendations for future research in the field are derived.

Bibliometric maps of fifty years of Futures Studies scholarship
This article provides several bibliometric maps to intuitively visualize the state of the art and development trends of the scholarly field of Futures Studies. To generate these maps, a total of 7,353 articles published between 1968 and 2017 in ten journals—*Futures, Foresight*, *Journal of Futures Studies, European Journal of Futures Research, Technological Forecasting and Social Change, Long Range Planning*, *Policy Futures in Education, The International Journal of Forecasting, Journal of Forecasting,* and *On the Horizon*—were collected and analyzed with the software VOSviewer.[4]

It is important to note that bibliometric mapping uses an algorithm that allows the identification of influential areas of scholarly research based on cumulated mentions. A bibliometric map is not meant to tell us whether a topic of research has been researched or not. What it is meant to tell us is the level of influence of streams of scholarship, as well as their relation. Topics may be written about, but not be influential. This can be objectively gauged by looking at the distance between two topics in the map (which means that there is an absence of a substantial body of works mentioning terms related to both areas of research together). Therefore, a salient research gap becomes apparent. It is also important to emphasize that in this study, the technique is focused on ten journals. While one might assume that these sources mirror the coverage of topics in popular press and books, this may not be true. Thus, the conclusions reached in this article reflect the literature as represented by the ten journals investigated.

The growth of the total number of articles and their respective cumulated number of citations across the ten journals over the years is shown in Figure 1. The following three subsections explain, respectively, how to interpret the generated maps and graphs, separately describe the main clusters of research identified in the maps, and provide guidelines to researchers active in the field on how to fill the current research gaps.

Fig. 1. Total number of articles and citations by year
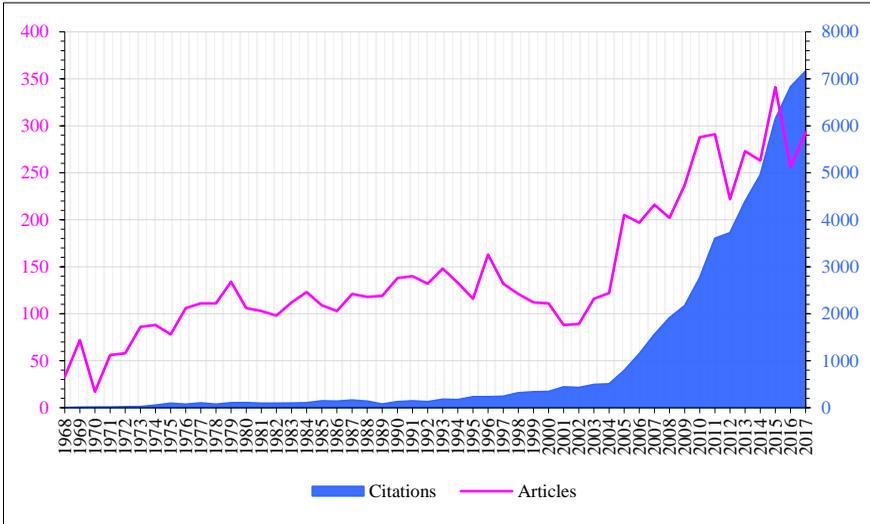
Instructions on how to interpret the maps

The first cluster map allows us to visualize the most meaningful terms of cumulated Futures Studies scholarship in a two-dimensional space (Fig. 2). In the map, the distance between two terms represents their association strength—a measure of term similarity that represents the extent to which the two terms co-occur in the corpus. Each term, interpreted as a topic of scholarly research, is represented by a circle. The dimension of the circles represents the number of article records mentioning the terms, and, therefore, the importance of topics.

Groups of terms with higher association strength between each other are separated in clusters. The six clusters that the software has identified are discernible on the cluster map through different colors. Clusters can be interpreted as macro-areas of research, or research streams, each containing several topics (as represented by the terms inside them). According to the most frequently mentioned terms in each cluster and their corresponding research themes, these six research clusters have been renamed as:

- *Corporate foresight*
- *Past and futures*
- *Humanity at the limen*

- *Environmental future*
- *Post-normality and complexity*
- *Technological trends*

These themes are discussed in the following subsection. Each cluster's size has been categorized as *large, medium,* or *small*, relative to other clusters. Descriptive information on each cluster is provided in Table 1.

A second map, the density map, distinguishes areas of different research intensity by color (Fig. 3). Research intensity represents the number of articles mentioning the topics (terms) on the map. Areas of higher research intensity are displayed in red, while areas of lower research intensity are displayed in green.

A third map, the overlay map, allows us to determine research trends (Fig. 4). It distinguishes currently trendy research topics, i.e. topics appearing more often in articles that have been recently published, in warmer colors (red, orange, yellow, represent scholarly activity in the last five to eight years), as compared to research topics appearing more often in older articles (green and blue represent scholarly activity that was trending before ten years ago). For instance, *strategic foresight* is a relatively trendier topic and its average publication year is 2011, while *war* is a relatively older topic and its average publication year is 1999.

Finally, the development of the six research clusters of Futures Studies scholarship across the ten journals over time is shown in Fig. 5. In this graph, the y-axis is indicative of the total number of published articles.

In the following subsection, each research cluster appearing in Fig. 2 is dealt with in greater detail. Subsequently, six recommendations on how to fill the research gaps identified in the maps are provided.

Table 1: Key facts for each cluster

Cluster	Cluster size	Number of cluster-specific articles	Top terms
Cluster 1: Corporate foresight	Large	1,760	Practical implication, company, forecast, firm, manager, scenario planning, strategic foresight, competitiveness, roadmap
Cluster 2: Past and futures	Large	1,934	History, culture, discourse, alternative future, image, politic, conflict, narrative, worldview, tradition, causal layered analysis, metaphor, university, student, school
Cluster 3: Humanity at the limen	Medium	955	Population, crisis, globalization, nation, decline, democracy, revolution, capitalism, war, poverty, survival, collapse, humanity, existence
Cluster 4: Environmental futures	Medium	593	Energy, demand, production, reduction, climate change, emissions, GHG, greenhouse gas, fossil fuel, environment
Cluster 5: Post-normality and complexity	Small	70	Post-normal science, stake, transdisciplinarity, interdisciplinarity, social learning, complex, 20th century, 21st century, epistemology, wicked problem
Cluster 6: Technological trends	Small	69	Communication technologies, ICT, artificial intelligence, robotic, robot, cyberspace, telecommunication, leisure, travel, entertainment, home

Fig. 2. Cluster map

Fig. 3. Density map

Fig. 4. Overlay map
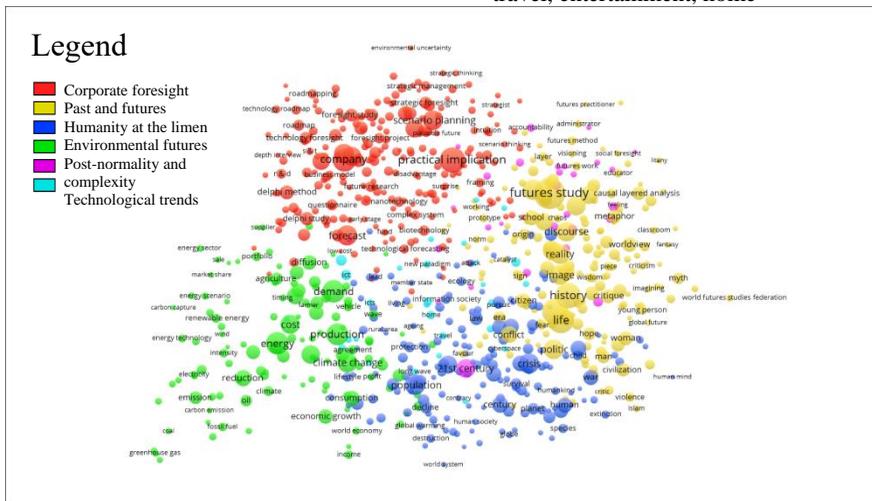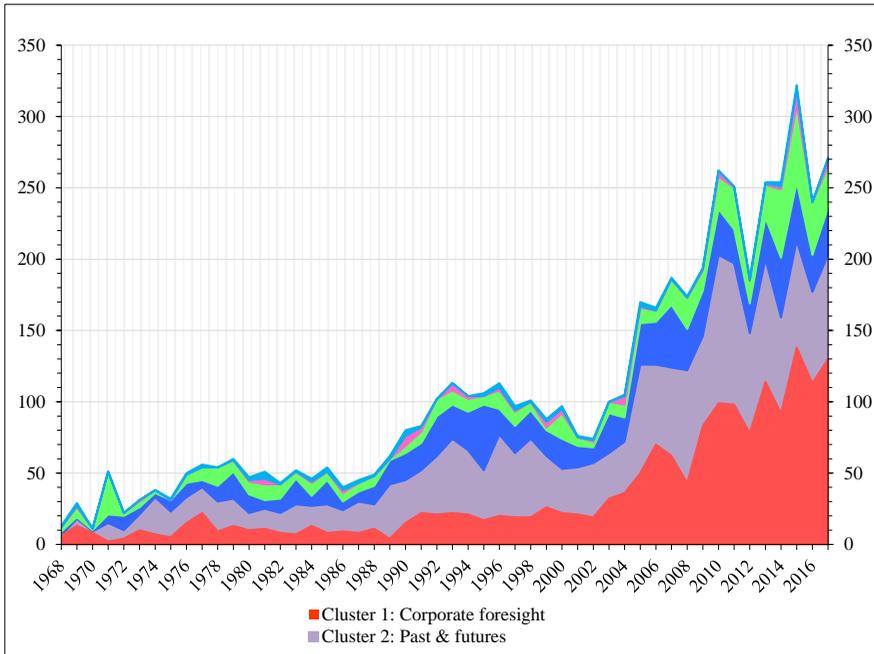
Fig 5. Number of articles per cluster by year

The six clusters of Futures Studies scholarship

Cluster 1: Corporate foresight
This cluster of topics is concerned with exploiting Futures Studies techniques to produce actionable insights to benefit organizations. Based on the most frequently mentioned terms in this cluster, such as *practical implication, company, forecast, firm, manager,* or *scenario planning* (a complete list is provided in Table 1), this cluster has been named *Corporate foresight*. It is here that the terms *foresight* or *strategic foresight* are more often used, rather than Futures Studies, to denote the activity of looking into the futures. It is discernible on the upper side of the cluster map (Fig. 2) in red. Relative to other clusters, the size of this research cluster is *large* (1,760 cluster-specific articles are associated with this cluster).

Here, scenario planning comes to the fore. The method is used, dissected, explained, and critiqued in a variety of ways, without losing sight of its practical implications for firms. The first, and still influential, article in this regard[5] discussed how cross impact analysis can improve scenario forecasts. Briefly afterward, organizational scenario-planning methods were first formally outlined.[6] Later, as the use of scenarios started to take off in the corporate world, different corporate scenario-planning techniques were compared[7] and reviewed along guidelines on how to use scenarios in business settings.[8] Godet introduced a comprehensive foresight and scenario planning method: *La Prospective.*[9] Gausemeier, Fink, and Schlake graphically explained the many phases of scenario development to enhance organizations' competitiveness;[10] Roubelat highlighted the fruitfulness of scenarios in challenging the strategic paradigms of the organization and foreseeing emerging ideologies;[11] Bezold shared insights learned in his experience in developing organizational scenarios at the Institute for Alternative Futures;[12] and Sarpong and Maclean showed how scenario planning can contribute to find opportunities for product innovation in product innovation teams.[13] These articles also often include examples of companies that successfully managed to put scenario exercises into practice, while others focus on reporting more in-depth case studies of these activities, such as Moyer who documented a scenario planning exercise undertaken by British Airways,[14] and Pagani who used scenarios and cross impact analysis to map the futures of the 3G wireless industry.[15] The many comprehensive reviews of scenario planning methods also fall in this cluster.[16]

But scenarios are not the only concern of this stream of works. Technology forecasting and keeping abreast of latest technological drivers are salient priorities when using futures methods for the strategic benefit of the firm. Although seamlessly embedded in scenario planning, these topics are also discussed on their own. Technology roadmapping, developed by the British oil giant BP, was first formally introduced by Barker and Smith[17] and later comprehensively reviewed along its use in organizational settings.[18] Vecchiato and Roveda explained how firms carrying out strategic foresight activities can benefit from understanding the consequences of the drivers of change, rather than their direction.[19] Battistella and Toni put forward a corporate foresight methodology to assess whether a company's product and vision are consistent with industry trends.[20]

Throughout this stream of research, a common recommendation is to use a combination of multiple methodologies—a key to forecasting emerging technologies and discovering new business opportunities.[21]

Finally, methodological discussions of the Delphi method also belong to this cluster, as this method has been, since its very beginning, closely knit with scenario planning, technology forecasting, and practical implications for organizations. Throughout the 1970s, '80s, and '90s the Delphi method was fervently discussed, and a number of scholars expounded how to improve its design, use, and accuracy.[22] Having reached a significant body of literature, 20 years of scholarship on the Delphi method and its applications were first comprehensively reviewed by Gupta and Clarke,[23] after which, with the exception of a few influential studies,[24] discussions on this method lost momentum.

Cluster 2: Past and futures

This cluster of topics is the very nucleus of the study of the future. Relative to other clusters, the size of this research cluster is the currently the largest (1,934 cluster-specific articles are associated with this cluster). As exemplified by its most frequently mentioned terms, such as *history, culture, discourse, alternative future, image, politic, conflict, narrative, or worldview* (a complete list is provided in Table 1), articles in this cluster reflect on the role, purposes, and achievements of the foresight discipline, and debate the many ways it can look into the past—investigating our history, worldviews, cultures, and traditions—to discover images of alternative futures. Therefore, this cluster has been named *Past and*

futures. It is discernible on the right side of the cluster map (Fig. 2) in yellow.

It was in the early 1990s that this stream of research started to gain momentum, as well as citations, with few influential studies written before. The first influential studies in this cluster were mainly epistemological. Inayatullah distinguished and examined three different epistemological approaches to the future: predictive, cultural, and critical.[25] Others expounded an important tenet of the study of futures: flexibility to different approaches to understanding, particularly those originating from the global south. Escobar questioned the concept of Western development from a Third World scholar's perspective.[26] Turnbull questioned the role of Western science vis-à-vis other knowledge traditions.[27]

It is in this cluster that we later see a meta-discourse on the very essence of Futures Studies. From Marien who highlighted the many cultural, thematic, stylistic, and ideological fragmentations in the field and suggested ways to rectify them,[28] to Sardar who proposed allegiance to the very name Futures Studies to emphasize the plurality of futures;[29] from the seminal contributions of Inayatullah, who introduced causal layered analysis, integrated several foresight methods in a uniquely comprehensive mapping framework,[30] and called attention on narratives to deepen the understanding of alternative futures,[31] to several articles attempting to integrate Futures Studies with Ken Wilber's Integral Theory.[32]

In this research cluster the futures of Futures Studies are understandably also often debated. Slaughter envisioned a preferred future where Futures Studies will have a radical impact on every institution in society,[33] and Inayatullah outlined five factors that will shape the future of the discipline.[34]

Historical and thematic reviews of the discipline also fall in this cluster.[35] Finally, teaching futures to improve the global stalemate in educational systems is a practical goal that all of the theoretical and methodological concerns cited above don't lose sight of. As cultures shape individuals' ways of thinking, Wildman and Inayatullah stressed the importance of unpacking learners' mental models with causal layered analysis when teaching futures.[36] Hursh described the neoliberal educational reforms in the US and UK, as well as their contradictions;[37]

Gidley and Hampson traced the history of Futures Studies in school education, and used Integral Theory to suggest ways to improve Futures Studies schools' literacy;[38] while Blass, Jasman, and Shelley built five scenarios of the futures of the education system in the UK.[39]

Cluster 3: Humanity at the limen
This cluster of topics documents dramatic changes in the balance of power, questions the upper boundaries of demographic growth and economic progress, proposes alternatives to the capitalist system, and is alleged to alleviate global poverty. In short, articles in this cluster study the liminal period of global systemic transition that humanity is standing in, as reflected by the most frequently cited terms in this cluster, such as *population, crisis, globalization, decline, democracy, revolution, capitalism, war, poverty, survival,* or *collapse* (a complete list is provided in Table 1). Therefore, this cluster has been named *Humanity at the limen*. It is discernible on the lower-central part of the cluster map (Fig. 2) in blue. Relative to other clusters, the size of this research cluster is *medium* (955 cluster-specific articles are associated with this cluster).

We start to see influential studies in this research cluster emerge in the late 1980s, when the changing nature of capitalism, as well as the prospect of the emergence of new economic paradigms, were beginning to be explored. Rooneek noted that technological shifts were engendering a new political-economic framework, away from *Fordist* mass production and toward greater flexibility.[40] Florida and Kenney noted that capitalistic firms were transitioning into a relatively more innovation-led production system.[41] Florida reaffirmed the importance of regions amidst increasing globalization trends.[42] Cohen critiqued and integrated two theories of social progress and modernization.[43] Mathews proffered a way for capitalism to continue to persist in a more sustainable way in the future.[44]

In the 2000s, projections of future global population and the economy become protagonists of the scholarly debate in this cluster. Booth reviewed the extant methods of demographic forecasting;[45] Grübler et al. projected global as well as national population and GDP scenarios up to the year 2100;[46] Hubacek, Guan, and Barua outlined the key drivers of economic and demographic change in China and India;[47] and Boretos used a logistic substitution model to forecast the future global population, GDP, and GDP per capita as well as change in the global economic balance of power, concluding that by 2050 China will overtake the West in its contribution to global GDP.[48]

Envisioning better alternative global futures is the ultimate outcome of this stream of research. The concerns for a more balanced and sustainable economy ultimately led to the formulation of the Scenario Archetypes Method, a scenario technique to envision four overarching global alternative future patterns: *continuation, collapse, discipline,* and *transformation.*[49] Preferable futures for the global south were put forward by Jansen and Gupta,[50] who envisioned alternative futures of poverty alleviation through biotechnology, and by Agoramoorthy who proposed an alternative irrigation model for meeting future food demand in India.[51]

Cluster 4: Environmental futures
This cluster of topics explores better futures for the planet's ecosystem. Indeed, some of the most frequently mentioned terms in this cluster are *energy, reduction, climate change, emissions, greenhouse gas,* and *environment* (a complete list is provided in Table 1). Therefore, this cluster has been named *Environmental futures.* It is discernible on the bottom-left corner of the cluster map (Fig. 2) in green. This stream of scholarship is mainly concerned with the alarming levels of greenhouse gas emissions, and committed to find solutions to reduce them. Relative to other clusters, the size of this research cluster is *medium* (593 cluster-specific articles are associated with this cluster).

The first influential study in this cluster is found in Marchetti who put forward a model to simulate energy substitution based on other commodities' substitution.[52] Later influential studies were majorly concerned with a common theme: the design of alternative scenarios of the future of climate change. Indeed, the most cited article in this cluster used environmental futures scenarios to find economically feasible strategies for the reduction of greenhouse gas emissions.[53] Along these lines, Fischer et al. projected different climate change scenarios until the year 2080 and their impact on water usage requirements.[54] Lempert and Groves explained how multiple scenarios built with statistical simulation have helped the Empire Utilities Agency to implement adaptive strategies to deal with the cost of climate change in the western US.[55]

But scholars active in this cluster are also concerned with other themes related to the environment, such as explaining under which circumstances the adoption of new agricultural technologies are effective,[56] forecasting the equilibrium price of electricity,[57] and

identifying the lifestyle(s) that lead to green and sustainable consumption.[58]

Actionable insights were provided by Kemp, who documented the reasons why it is difficult to swiftly adopt radically new sustainable technologies[59] and offered public policy guidance on how to implement new sustainable technologies; and by Roy, who encouraged the design of products and services that are environmentally sustainable.[60]

Cluster 5: Post-normality and complexity
This cluster of topics is concerned with questioning the epistemological status quo of the social sciences, proposing that the complexity of the modern world demands new ways of knowing based on post-normality and interdisciplinarity. This is apparent from some of the most frequently mentioned terms in this cluster: *post-normal science, transdisciplinarity, interdisciplinarity, complex, epistemology,* and *wicked problem* (a complete list is provided in Table 1). Therefore, this cluster has been named *Post-normality and complexity*.

It is discernible in the cluster map (Fig 2.) in violet. Relative to other clusters, the size of this research cluster is *small* (70 cluster-specific articles are associated with this cluster). Although smaller than the previous ones, this cluster permeates and honeycombs Cluster 2: *Past and futures*, as well as the very center of the map. Indeed, post-normality and complexity are key concepts undergirding the whole field of Futures Studies, and a way of thinking that futurists need to espouse to be able to investigate futures.

Although early studies encouraging interdisciplinary perspectives were put forward, it was with the introduction of the concept of post-normal science in the 1990s that studies in this stream of research became influential.[61] Advocates of the post-normal approach argue that the Newtonian scientific paradigm, committed to explain reality through linear causality, is ill-equipped to fathom the social environment of great uncertainty which we have entered—a new era, dynamic rather than mechanistic[62] and dominated by complex systems:[63] the era of post-normal science.[64] In times where we live with contradictions, chaos, and complexity, it is suggested that new virtues, such as humility, modesty, and accountability become indispensable, along with the capacities to creatively imagine ways out of uncertainty, and to abandon notions of control over the environment, growth efficiency, and management.[65]

As wicked problems of the current times, such as environmental sustainability, have to be addressed by multiple perspectives, we see influential studies investigating, documenting, and encouraging transdisciplinary and interdisciplinary inquiries.[66] It is argued that organizations embrace complex, paradoxical, and contradictory business models to achieve competitive advantage,[67] and that policy analysts unlearn to forecast and create the future through backcasting to achieve the resolution of long-term complex problems.[68]

Cluster 6: Technological trends
This cluster of topics is concerned with the study of recent technological changes, including information and communication technologies, telecommunications, artificial intelligence, and robotics. This is apparent from some of its most frequently mentioned terms: *communication technologies, artificial intelligence, robot, cyberspace,* and *telecommunication* (see complete list in Table 1). Therefore, this cluster has been named *technological trends.* It is discernible in the cluster map (Fig 2.) in light blue. Relative to other clusters, the size of this research cluster is *small* (69 cluster-specific articles are associated with this cluster). From the frequently mentioned terms *travel, leisure,* and *entertainment*, we can see that technological change is also researched in its effects on our daily lives. Indeed, although this is the smallest cluster in the map, it is not less relevant, as it can be observed that light blue dots are intermittently scattered in the very core of the map.

With few exceptions, it is understandable that the influential studies in this cluster appear more recently, i.e. in the late 1990s.[69] Antecedents, characteristics, and outcomes of technological change are studied in several ways, both in the future and in the present, from a study on the budding expansion and evolution of cyberspace[70] to the investigation of environmental and economic impacts of information and communication technologies;[71] from a study on the convergence between different information and communication technologies[72] to the quantification of the cross-impact relation between technologies over time.[73] Individuals' perception of technological change are investigated by Denyer, Parry, and Flowers, who conducted a case study on employees' perception of technological use in a company employing web 2.0 technologies;[74] by Keller and Gracht, who used the Delphi method to study the future effects of information and communication technologies on the foresight

profession;[75] and by Baum, Goertzel, and Goertzel, who interrogated experts on the likelihood of emergence of general AI.[76]

It is noteworthy that a few articles in this cluster do not shy away from the plausible, the probable, the possible, and the preferable. McNally and Inayatullah advanced the argument that robots would eventually need to enjoy legal identity.[69] Handy and Mokhtarian outlined the most salient trends affecting the futures of telecommuting.[77] Science fiction is also used as an exploratory method, featuring a scenario of a future Amsterdam populated by robot prostitutes,[78] and a vignette on the research and generation of an empathetic caregiver robot,[79] among others.

Structural observations on research gaps and research recommendations

Observation of the distance between topics of research in the maps above allows us to determine research gaps in the discipline based on the ten journals and to outline several recommendations for the future of Futures Studies based on how to fill these gaps. The main recommendations are listed as follows:

Recommendation 1: Integrating corporate foresight with other topics of research

Although corporate foresight (Cluster 1) is the most trendy research area of the field, as revealed by the orange colored dots delineating its region on the overlay map (Fig. 4), as well as a substantially research-dense area, as revealed by its red color on the density map (Fig. 3), if we judge by the between-clusters distance in the map, we can observe that corporate foresight is relatively isolated from other research topics. For example, poststructuralist and integral approaches are virtually unapplied in corporate foresight. Therefore, futures researchers may integrate corporate foresight with other topics of research in Futures Studies. For instance, researchers may explore how the responsibility to create better future ecosystems and economies can be embedded in corporate foresight activities via reports on scenario exercises meant to simultaneously achieve organizational benefit and sustainable strategies, or via applications of integral futures and causal layered analysis in organizational settings.

Recommendation 2: Using scenario planning, technology roadmapping, and the Delphi method outside of organizational settings

Inquiries into the past to study the futures (Cluster 2), into economic futures (Cluster 3), and into environmental futures (Cluster 4) are not extensively utilizing several fruitful futures methods including scenario planning, technology roadmapping, and the Delphi method. Researchers may fill this gap by using scenarios to study the futures of capitalism, diplomacy, political conflict, and wars; roadmapping to trace the development of democratizing technologies and cyberwarfare technologies; or Delphi to study the future impact of technology on social values and individuals' feelings, among several important themes in futures research.

Recommendation 3: Using previously underutilized futures methods in environmental futures research
Unexpectedly, significant interrelations are lacking between inquiries into the past (Cluster 2) and the formulation of environmental futures (Cluster 4). Indeed, we can observe a salient research gap in the post-structuralist and integral deconstruction of current modi operandi in climate management to achieve better global environmental futures. Researchers may revive environmental futures with causal layered analysis and integral futures, combinations of which there is currently a dearth.

Recommendation 4: Bringing core futures research themes back to fashion
Due to their intertwined nature as revealed by a thematic and structural interrelation on the cluster map (Fig. 2), humanity at the limen (Cluster 3) and past and futures (Cluster 2) form a macro-cluster that we can call *core futures research*. Although this is a very research-intense area (Fig 3), scholars are losing interest in this area of inquiry, as revealed—with the exception of causal layered analysis—by the relatively cooler colors used on the overlay map to indicate topics in this area (Fig. 4). To trend up core futures research topics, researchers may want to explore the weights of the past in new lights. Some examples might be: investigating how these shape, or hinder, strategy in organizational foresight settings (tied to Recommendation 1); exploring the contrast between tradition and the emergence of new technologies, such as artificial intelligence, robots, and nanotechnologies; exploring economic and political ideologies in different post-capitalist futures; or exploring the integral dimension, myth, and metaphors behind the futures of work.

Recommendation 5: Not shying away from complexity
Studies on the increasingly post-normal and chaotic nature of the environment are not well integrated with corporate foresight (Cluster 1) and environmental futures research (Cluster 4). Indeed, we can observe very few violet terms overlapping the right side of Cluster 1 (corporate foresight), and none at all overlapping Cluster 4 (environmental futures). Researchers may investigate how complexity shapes, or hinders, corporate strategy, take post-normal recommendations into account in foresight scenarios exercises, and generally increase their familiarity with complexity science, as we can observe a dearth of research in this important topical area.

Recommendation 6: Designing the futures of the "coolest" recent technologies
Corporate foresight research (Cluster 1) and core futures research (Clusters 2 and 3) in latest technologies (Cluster 6) is scant. Indeed, there is a virtual absence of light blue dots approaching the outer side of the circumference of Clusters 1 to 3. This could be explained by the relative tendency of research articles on these topics to be published in other publication venues, such as artificial intelligence and computer science journals, rather than Futures Studies journals. Researchers may want to study the futures of the internet of things, of robots, of nanotechnologies, or of biotechnologies, among other recent technological trends. These inquiries could provide us with pleasant reading material as well as insightful pieces of scholarly work.

Conclusion
This article has presented several bibliometric visualizations of fifty years of Futures Studies cumulated scholarship captured in ten journals. Bibliometric techniques have some limitations and can only aid, not completely substitute for, human analysis. Indeed, they do not allow us to include books and magazine articles in the analysis, thereby possibly excluding influential sources of futures inquiry. On the other hand, we might assume that if popular science publications were influential, this would be mirrored in the bibliometric maps, which all in all constitute a relatively reliable instrument to determine the development of and relation between research topics in the field.

It was the aim of this article to provide a useful reference for researchers and practitioners active in Futures Studies who care about contributing to the improvement of the discipline's body of knowledge as

a whole, and who wish to lead the next generation of futures research, knowing what the discipline has achieved before, and what it hasn't achieved yet.

Resting on the assumption that knowledge has more likely been produced and disseminated where research topics are more densely researched and cited, interpretation of the bibliometric maps allows us to identify the most influential topics of research and those where scholarly integration is lacking or weak. Specifically, to promote this integration, futures researchers might want to:

1) Integrate corporate foresight with other topics of research including sustainability/environmental futures, causal layered analysis, and integral futures
2) Apply corporate foresight methods, such as scenario planning, technology roadmapping, and the Delphi method, to study the futures of themes beyond the corporate world more extensively, such as capitalism, diplomacy, political conflict, wars, social values, democratizing technologies, and cyberwarfare, among others
3) Integrate post-structuralist and integral futures approaches more extensively with climate management
4) Revive research on how the weights of the past can affect the futures
5) Integrate complexity science and post-normality into corporate foresight and environmental futures research
6) Undertake more research on the futures of several technology-related themes such as the internet of things, robots, nanotechnologies, and biotechnologies, among others

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CHAPTER 3: THE STATE OF PLAY IN THE FUTURES FIELD: 10 YEARS ON

by Chris Riedy

Introduction

In 2007, a team of five researchers led by Richard Slaughter came together for a research project to assess the State of Play in the Futures Field (SOPIFF). The aim of the SOPIFF project was to build a clear picture of the current status of Futures Studies. As Slaughter notes in his overview of the project:

> Futures studies and, more lately, applied foresight, have been established for several decades. They have generated a rich and wide-ranging literature, a variety of methodologies, and a spectrum of organizations engaged in many kinds of forward-looking work. Yet futures work still lacks broad acceptance, general recognition, or wide application of proposed social innovations such as institutions of foresight.

Assessing the "state of play" of the field was seen as a first step towards its reinvigoration and renewal to meet current and future challenges.

One of the triggers for the project was a paper published in the *Wilson Quarterly* in 2006 that posed the question, "Has futurism failed?" and suggested that Futures Studies had perhaps peaked as early as 1980.[1] The project sought to investigate whether this assertion was warranted and whether Futures Studies could better serve the long-term needs of humankind, particularly in terms of contributing to global sustainability.

A secondary motivation was to test an emerging meta-scanning method developed by researchers from the Australian Foresight Institute, described in more detail below. The Foundation for the Future provided funding for the initial phase of the research, which was subsequently published in a report[2] and in a special issue of *Foresight*.

A decade after the publication of the special issue, it is timely to revisit the SOPIFF project and review its findings and contributions towards the knowledge base of Futures Studies. While there have been steps forward, overall progress towards sustainability has not markedly improved since the publication of the SOPIFF work. If anything, the scale of the challenge has increased. This short piece will summarise the original findings of the SOPIFF project and reflect on subsequent progress towards the development of an effective Futures Studies field.

The meta-scanning framework

The project applied a meta-scanning framework documented by Jose Ramos[3] that categorised literature and initiatives in Futures Studies according to the scheme shown in Table 1. There were four phases to the project. In Phases 1 and 2, the research team collected futures material from around the world and ran a structured scanning process on this material. Each researcher concentrated on a specified geographic region. Sources included:

- Books, papers, and other published work
- Course outlines and teaching materials
- Websites
- Email communications
- Futures associations, organizations, and networks
- Personal contacts

The researchers sought to gather a broad, representative sample of futures work from around the world. The project was limited by a focus on work published in English and the sheer scope of Futures Studies relative to the resources available to the project. Nevertheless, the project reviewed more than 200 items and arguably provided the most thorough assessment of Futures Studies as a field at the time. Results from the first two phases are discussed in the next section.

Phase 3 of the project analyzed the results to produce overviews of regional futures activity and case studies on the impact of futures work, in the following areas:

- Social and organizational capacity building, and social and economic development

- Social innovation
- Educational systems
- Local, regional, or government policymaking, and placing new issues on the social and political agenda
- Media and web presence
- Literature and journals
- Understanding the global problematique

Table 1: The meta-scanning framework

Organisational type	Social interests	Methods	Domains	Capacity building	Country / location
Government	Pragmatic	Linear	Structural	Conceptual foundations	Country / location
Professional firm	Progressive	Systemic	Inter-subjective	Methods and tools	
Private practice	Civilisational	Critical	Behavioural	Enabling structures and processes	
Private firm		Integral	Psychological	Social legitimation	
Not-for-profit					
Research institute					
University / school					
Network					

In Phase 4, the following questions were addressed in a final report:

- What contribution has the field made to understanding and resolving aspects of the global problematique?
- On balance, is FS/Foresight work progressive … or has it been captured by existing social interests?

Results from Phases 1 and 2 are summarised below. Findings from Phases 3 and 4 are discussed in later sections.

Scanning results

One of the notable findings from the meta-scan relates to the social interests served by futures work. According to Slaughter:

Three fundamental types of social interests were identified here. They are "pragmatic" (carrying out today's business, but perhaps doing it better), "progressive" (going beyond today's practices to invent and encourage new ways of doing things), and "civilizational" (looking

beyond what currently exists and consciously working to create the foundations of the next level of world civilization and culture).

Perhaps unsurprisingly, more than half of the scanned material was assessed as pragmatic, conventional work. A little over a third was classified as progressive, and only about twelve percent was seen as civilisational work. This was worrying, as civilisational work is needed to navigate the transformations required to achieve a sustainable future for humanity.

In relation to methods, systemic (41 percent) and linear methods (38 percent) dominated. Critical methods were evident in only 16 percent and integral methods in only 5 percent of the material scanned. While linear, predictive methods were the first to emerge in FS, they had been overtaken by systemic methods by 2008. This is a positive development, as systemic methods (such as scenario development) pay greater attention to the complexity of the future and the multiple possibilities that lie ahead, rather than narrowly focusing on prediction. Critical and integral work emerged later in FS, which partly explains their lesser use. They are also methods that ask more of practitioners, drawing attention to interior dimensions, the deep structuring role of discourse and worldviews, and the marginalised voices that are omitted from mainstream futures work. Nevertheless, such work is sorely needed to ensure just future outcomes.

The scan found that futures work overwhelmingly focuses on collective entities rather than individuals, and has a tendency to take an exterior or structural view, rather than an interior or interpretive view. Slaughter wrote that:

> What this means is that knowledge about "how people act" and also "how they construct their inner worlds"—their internal development and ultimately their consciousness—are seen as of little importance.

I would argue that the quality of futures work depends heavily on the individual capacities of those involved. Further, individual values and behaviours are deeply implicated in our global challenges and responses. The research team felt that greater attention to individual interiors was certainly warranted:

Whether we take the viewpoint of disciplinary development or whether we consider the needs of individuals and society, in both cases there is a clear need to embrace and balance both interior and exterior domains of existence.

The meta-scanning framework for assessing the capacity of FS was based on a hypothesis that effective social foresight develops through the following stages:

1. Conceptual underpinnings that facilitate the emergence of a futures discourse.
2. Methods and tools of FS that assist in the resolution of practical, real-world issues and problems.
3. Institutional structures/processes within purpose-built niches that protect FS/ foresight work and raise it above mere project-based episodic use.
4. A process of social legitimation that lends value and validity to the whole.

The scan found that most futures work focused on conceptual underpinnings and application of specific methods and tools; a significantly smaller amount was focused on enabling structures and processes; and very little focused on the social legitimation of the field. Slaughter concludes:

It appears, therefore, that the goal-oriented and instrumental focus of most futures work tends to dominate and also to limit the effectiveness of such work. Only about a third of the examples sampled put as much effort into embedding it into specific contexts, and most overlooked social legitimation completely. Here we have another possible explanation for the slow and uncertain progress of the field as such. If it is to be more widely accepted it will have look beyond the immediate performance of specific tasks and engage much more fully in wider social processes. This has been a collective blind spot, perhaps, and it appears to have cost the field dearly.

The scanning results relating to organisational type and location were less compelling than those discussed above, and I will not cover them here.

Patterns in the scanning results

Slaughter identifies several patterns in the scanning results that are of interest:

> While there is a lot happening in the futures field, and there are obviously some strong thought leaders in the field, futures work remains patchy and dependent to a large extent on individual goodwill. There is a strong and dominant focus on conventional, pragmatic, government-funded research into science, technology, and economic questions. Futurists appear to be failing to think about their audience or are not seeing the mainstream public as a key audience. Social foresight is unlikely to develop unless the average person accepts and helps to validate and "mainstream" the futures imperative. There is a sense of inconsistency of quality and output in the field, which is generated from the vast array of people who call themselves futurists, and who do or do not have any formal training in the field.

He goes on to note the duplication in the field, failure of futurists to learn from each other, lack of futures thinking in educational contexts, and the lack of professionalism in FS. Before turning to the possible responses to these challenges, I will first briefly summarise the remaining four contributions to the *Foresight* special issue emerging from the project.

Understanding and resolving our civilisational challenge

Richard Slaughter and I co-authored an article that addressed the following questions:

1. What contribution has the field made to understanding and resolving aspects of the *global problematique*?
2. On balance, is futures and foresight work progressive ... or has it been captured by existing social interests? That is, does it merely help to further inscribe "the way things are" or does it help to promote constructive change informed by a clear understanding of future challenges?[4]

The "global problematique" is a term coined by the Club of Rome in the 1970s to refer to the interlocking challenges in environment, demography, development, values, governance, and the world economic and financial order that were seen to be emerging at the time. Slaughter

and I also used the term "civilisational challenge" to refer to the complex, interlocking sustainability and existential challenges humanity faces.

A notable contribution of the paper was to offer a clear-eyed perspective on this civilisational challenge, drawing on E.O. Wilson's notion that humanity is facing:

> a future "bottleneck," where options are foreclosed by looming crises and collapses. As Wilson sees it, things are going to get worse before they get better. The implication is that alternative futures are being foreclosed as we continue on an unsustainable trajectory and approach the bottleneck. For futurists that are used to thinking of the future as a realm of boundless possibilities, the idea of a bottleneck future constitutes a challenging paradigm shift. In this view, the task, for futures work, is to prepare for an extremely demanding period of human history and to help bring as many people and ecosystems as possible through the bottleneck, using "foresight and moral courage."[5]

Slaughter would go on to elaborate the ideas seeded here in his excellent book *The Biggest Wake Up Call in History*.[6]

A key role of Futures Studies should be to guide us through this bottleneck and support an effective response to the civilisational challenge. Unfortunately, our conclusion in response to the first question above was that the field:

> has made a series of contributions to understanding the origins and nature of the global problematique. Further, it has helped to put in place some of the preconditions for its resolution.... However, the bulk of mainstream futures work does little to improve the preparedness of humanity for [emerging crises].

We found that Futures Studies had made some genuine contributions, including "the steady evolution of futures concepts, tools and methods, the training of new generations of practitioners, and the rise of futures organizations and the associated publications that comprise the futures literature." Nevertheless, in an:

> unstable, contested and frankly chaotic environment ... futurists have, on the whole rather ineffectually, put forward their

proposals for innovation and change. Mostly, they have been heard neither by opinion leaders, the powerful nor ordinary people at all. One must admit, therefore, that the field as a whole has thus far been unable to resolve key aspects of the [global problematique].

One of the reasons for this failure of influence became apparent when we turned to the second question above. The SOPIFF project categorised work as pragmatic, progressive, or civilisational, as discussed above. As valuable as these first two kinds of futures work are, we argued that civilisational work is the only kind that is up to the task of addressing our civilisational challenge. Yet, the SOPIFF scans indicated that most futures work was captured by existing present-focused interests—whether pragmatic or progressive—and civilisational work was rare. Civilisational work "remains marginalized and largely ignored by the powerful and the wider public." It is little wonder, then, that Futures Studies has been ineffective.

Our paper concluded by making recommendations on how civilisational futures work could increase its relevance and influence and contribute to addressing our sustainability crisis. We recommended actions to:

> promote and publicize good work, provide annual digests of futures-related information, develop and use focused briefings, provide support for "cutting-edge" futures work, further develop advanced futures methods, pursue greater political understanding and influence, build the social capacity for foresight and strengthen the nexus between foresight and philanthropy.

I will return to these recommendations at the end of this piece to see if any progress has been made.

The influence of futures work on public policy and sustainability
My own contribution to the Foresight special issue drew on the SOPIFF scan results to "investigate the contribution of futures work to averting looming sustainability challenges and suggest new strategies for influencing policy and practice."[7] While there are multiple ways that humanity can respond to the civilisational challenge outlined above, one important response is to use our systems of governance to deliver policy and action consistent with meeting the challenge. I therefore sought to

assess whether futures work could point to much success in influencing public policy and political action on sustainability.

There is an extensive critical literature pointing to the failure of futures work to influence policy and praxis. In summary, this literature points to the following factors contributing to lack of influence:

- Much futures work is shallow and of poor quality.
- Futures work does not make it easy for policymakers to link the outcomes to specific actions.
- The dominant Western worldview reinforces short-term thinking, which marginalises futures work in policy discourse.
- Futurists do not engage sufficiently with the political context— they are politically naïve about what is required for uptake.
- Decision-makers may lack understanding of the complexities of the issues at stake and fail to grasp the necessity of actions proposed by futurists (i.e., they lack systems and futures literacy).
- Decision-makers are unwilling or unable to act on futures work due to the ideological or worldview commitments they hold.
- Futurists often have a poor understanding of their audience.

I concluded that "the influence achieved by futures work is disappointing given that many futurists are strongly committed to bringing about more desirable futures."

Despite this conclusion, the SOPIFF scan did identify some qualified success stories. I focused on three. First, science and technology foresight programs led by government agencies, such as the UK Foresight Programme, emerged as one of the areas where FS had achieved the greatest impact. I argued that:

> Decision-makers are open to science and technology foresight because it is used to maintain or improve national competitiveness in a dynamic technology marketplace. It allows national governments to identify opportunities to develop specializations that will allow them to compete globally.

This kind of futures work does not challenge dominant paradigms and would be classified as pragmatic in the SOPIFF scans.

Second, futures work could point to success in getting sustainability concerns onto the political agenda. I noted the role of the pioneering *Limits to Growth* report, the work of the Intergovernmental Panel on Climate Change, and the Great Transition Initiative in raising awareness of sustainability challenges. This work is more progressive than science and technology foresight, but it sacrifices influence over the policy agenda in favour of raising new concerns. Success in getting issues on the agenda has not easily translated into effective action.

Finally, I argued that:

> One of the real achievements of futures work is in providing inspiration for numerous small-scale, distributed, and grassroots initiatives.... These experiments act as "lifeboats" or "seeds" with the potential to grow into desirable futures. By experimenting with alternative ways of organizing social systems and cultures, they provide a source of creativity from which new futures can be born.

Collectively, these experiments could constitute the foundation of the necessary social movements to respond to our civilisational challenge, even if their individual influence was small.

The final part of the paper suggested strategies for increasing the influence of futures work, intended to explicitly respond to the reasons for lack of influence outlined above. First, I argued for methodological renewal, involving:

- Wider application of advanced futures methods, including critical, layered, and integral approaches, as a way of adding depth and breadth to futures work.
- Use of futures methods with an action focus, such as backcasting, to facilitate linkages between futures insights and practical action.

Second, I argued for more explicit political engagement by futurists in:

- Building or contributing to political movements that seek desirable change as a way of challenging the worldviews of those in power (and perhaps replacing those in power with new decision-makers).

- Providing a voice for marginal perspectives as a way of drawing attention to what is omitted from dominant worldviews.

There is, however, a dilemma to face here. The SOPIFF results indicated that futures work had most influence if closely connected to the state, but only pragmatic work was able to achieve this kind of access. More challenging futures work only happens outside the state, limiting its influence. The strategies needed to respond to this dilemma are long-term and require building individual and social futures literacy.

Third, I argued for the need to build the capacity of policymakers to engage with futures work. Drawing on an Integral Futures perspective, I argued that:

> Two clear strategies for increasing influence become apparent: translation and transformation. The first strategy requires the translation of futures concepts, findings and recommendations into terms that connect with state imperatives and are appropriate to the cognitive and moral stage of decision-makers.... The second strategy... requires futurists to consciously engage with the task of transforming individual decision makers and ultimately state imperatives through critique and political engagement.

Finally, I argued for participatory futures work, as "the potential for futures work to achieve influence appears to increase when the views of multiple stakeholders are sought and genuinely included using appropriate futures methods and processes."[8]

In closing, I called for futurists to more actively engage in political movement-building and public debate if they were to remain relevant to decisions about sustainability challenges.

Futures work in Europe

Graham May's contribution to the special issue was an overview of the scanning work he carried out on foresight in Europe.[9] May notes the long history of futures work in Europe and draws attention to the important role played by the European Union in promoting futures work, for example through the European Foresight Monitoring Network and the European Parliamentary Technology Assessment network. While May writes of the often-ephemeral nature of foresight projects in Europe, both of these networks are still active today.

May found that foresight in Europe, as per the global scan, often had a strong focus on pragmatic technology assessment:

> Although there is futures work in other areas, the term foresight in the EU has most often been related to science and technology, which both the commission and member governments have regarded as crucial to future economic development and prosperity in the global marketplace.

This focus extended to national foresight programs:

> > National foresight programs in Europe... have most often been inspired by the belief that the economic performance of the nation in question has not kept pace with that of other countries.

One of the more intriguing developments identified by May was the incorporation of futures thinking into parliamentary processes:

> The Finnish Parliament Committee for the Future was formed in 1993 and made permanent in 2000. It has 17 members from different parties and is one of the Parliament of Finland's 15 standing committees. It has a wide ranging remit covering issues and research related to the future including energy policy, regional policy, GM crops, the impact of ICT on older people and climate and energy. In 2006 the Scottish Parliament, part of the devolved system of government in the UK, created the Scottish Futures Forum with the aim of widening participation, challenging policy and increasing the ability of members of the parliament and the wider Scottish community to consider future challenges and opportunities. The forum brings together parliamentarians, academics, civil servants and business leaders.

> Both institutions remain in place today.

Looking beyond governments, May noted the "growing number of university departments, research institutes and consultancies that have... developed capability in foresight and produced several guides in the use of futures methods and techniques." However, he also notes that the scale of this activity is much smaller than that of governments.

Ultimately, May concluded that foresight and futures work in Europe had grown significantly in the last 20 years but that there "is little real appreciation of what foresight can and cannot be expected to do, or of critical evaluation of the results." Europe, in that sense, offers a representative case study of what the global SOPIFF project found for the world as a whole.

Futures schools of thought

I will give only a passing mention here to Dennis Morgan's contribution to the *Foresight* special issue. My focus in this reflective piece is on the empirical findings of the SOPIFF project, and Morgan's paper did not explicitly draw on the results of the integral scan. Instead, he postulated eight futures schools of thought, corresponding to positions in an integral futures framework.[10] These schools of thought included:

- "Techno futures" and "trans-human singularity," both focused on extrapolating a scientific, materialist worldview.
- "Empire globalization" and "global sustainable development," with a focus on the development of socioeconomic and political systems.
- "Permaculture" and "Earth community," concerned with transformation of cultural values and worldviews.
- "Anti-civilisationalists" and "spiritual transformationalists" with an interest in individual development.

As archetypal representations of different perspectives on the future, Morgan's schools of thought are an intriguing summary of the possible range of the futures field. However, unlike the other empirical outputs of the project, Morgan's paper is best understood as a theoretical working through of the implications of Ken Wilber's quadrants for futures thinking. Further, the paper was only the first part of a two-part article. The second part was published in *Foresight* the following year.[11] Interested readers should refer to those two articles to explore more of Morgan's ideas.

Reflection

The SOPIFF project painted a picture of a futures field that, in 2009, had:

> simply not progressed far enough, fast enough or been adopted broadly enough. Moreover, what the project [made] clear is that [the]

main applications [of futures work] appear to be in mainstream contexts that are almost inevitably culturally conservative and thus tend not to deal directly or well with the kind of "big issue" concerns that collectively stand before us. The more progressive, reformative and radical elements of futures/foresight work thus far do not appear to have thrived in a market-dominated global environment, though this could change. Similarly, universities and school systems have, on the whole, continued to ignore the area and its range of valuable offerings.[12]

Has anything changed in the intervening ten years? Looking around at the global political landscape, it is tempting to answer in the negative. Certainly, we seem little closer to addressing our civilisational challenges or positively resolving the global problematique. On the other hand, I can think of many positive developments in the field of Futures Studies since 2009.

First, the Association of Professional Futurists (APF), which was only seven years old when the SOPIFF project was completed, has matured into a sophisticated global community that is promoting the professional excellence of the practice of strategic foresight. As well as regular events and a valuable newsletter, the APF has developed a Foresight Competency Model that establishes what competencies professional futurists should have, an important step towards professionalisation. Further, the annual awards for the Most Significant Futures Works have done much to form a recognised disciplinary canon for Futures Studies.

Second, several of the journals in Futures Studies have strengthened their impact over the last decade. While impact factors for many of the journals do remain low, the flagship journal of the field—*Futures*—has doubled its impact factor in the last four years to a credible 2.2. *Technological Forecasting and Social Change* has achieved an impact factor of 3.8. While it is important not to read too much into metrics like these, I have a sense that futures work is being taken more seriously in academia than it was in 2009.

Third, and related to the above, there have been some interesting moves towards disciplinary renewal over the last decade. Most notably, UNESCO's work to build a Global Futures Literacy Network and establish a "discipline of anticipation" has sought to bring new coherence to Futures Studies. While I am not convinced of the need

for a new label for the field, the efforts to spread futures literacy that have taken place under this banner are certainly positive for the field and its impact.

Fourth, the theoretical and methodological development of the field continues. There has been increased interest in evaluating the effectiveness and impact of Futures Studies to see if specific projects live up to their claims. Stephen McGrail's doctoral thesis,[13] for example, is an important work in this regard. McGrail evaluated a series of futures forums and pointed out the discrepancies between what they actually achieved and what they set out to achieve. Improving our understanding of what futures work delivers, and what it does not, is crucial for the ongoing improvement of the field. There have also been valuable additions to the methodological toolkit of Futures Studies, such as the Three Horizons Framework developed by the International Futures Forum.

Finally, the emergence of a growing scholarly field focused on transition and transformation towards sustainability has attracted many social scientists over the last decade. This field is future-oriented and applies futures tools and thinking in action research projects focused on creating change. The connections to Futures Studies are perhaps clearest in the "transition management" framework, which explicitly includes visioning processes.[14] However, futures thinking is at the core of the work of many in these communities.

It is unlikely that these developments, as promising as they are, will be sufficient to allow Futures Studies to meet the civilisational challenges that we continue to face. To answer the question of whether the field is even heading in the right direction, it would be necessary to repeat the scan that was done in 2009. Our research team had intended that the 2009 scan would be the first in an ongoing series:

> So it makes a great deal of sense to carry out further survey iterations every few years and with a more widely distributed group of researchers. They will want to re-evaluate the present conclusions, refine hypotheses and also more systematically track the development of the field. Without such regular in-depth, international and critical reviews it would be genuinely difficult for practitioners, sponsors, course designers and others to make

firm judgments about the success or failure of work in this vital domain.

Unfortunately, a second iteration was never undertaken. Finding institutional and funding support for this kind of resource-intensive disciplinary reflection proved difficult. The research team disbanded and, it is fair to say, the work did not attract the level of interest we may have hoped for. Collectively, the five papers in the *Foresight* special issue have only been cited 103 times in a decade and the SOPIFF report only eight times. There could be many reasons for this, from a lack of perceived need for or interest in overviews of the field, to the recognised limitations of the research scope and resources, to uncertainty about how to constructively build from the findings.

Regardless, I would argue that many of the conclusions of the SOPIFF project remain valid ten years later. Quality futures work that extends beyond the pragmatic, and even beyond the progressive, to consider civilisational challenges is still sorely needed. While I have listed some promising signs above, the field continues to lack a good overview of its own "state of play" that makes progress towards meeting this need difficult.

This article updates Slaughter, R (2009). "The state of play in the Futures field: A metascanning overview." *Foresight*, 11(5), 6–20.

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He is hopeful that we can achieve a future that meets the needs of all life on Earth. He can be reached at criedy@uts.edu.au.

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Part 2: Approaches to Futures Thinking

CHAPTER 4: SEEING IN MULTIPLE HORIZONS: CONNECTING FUTURES TO VISION AND STRATEGY

by Andrew Curry, Anthony Hodgson

Introduction

One of the gaps in futures work, at least from a practitioner's perspective, is between the work of scenario builders in constructing a range of distinctive and coherent futures, and that of the vision-builders in helping organizations to identify a preferable future, based on a set of preferred values, and to act on that preference. This article outlines the use of a futures technique called Three Horizons. The technique connects the present with desired (or espoused) futures and helps to identify the divergent futures that may emerge as a result of conflict between the embedded present and these imagined futures. In doing so it enables futures analysis to be connected to underlying systems and structures, to the different speeds of change in different parts of the system, and also to tools and processes that facilitate strategic analysis. In doing so, it also focuses on the disruptive nature of any transition between systems.

The model is shown in Figure 1. This shows three conditions of the same system, over time, against its level of visibility (or "prevalence") in its changing external environment. A number of different aspects of futures thinking are mapped onto this diagram, as will be explained in the paper.
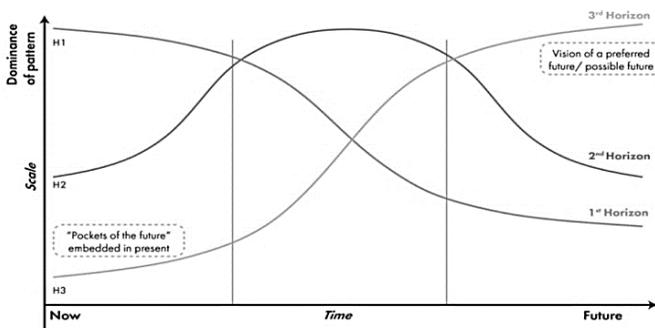
Fig. 1. Schematic of the futures-oriented Three Horizons model

Source: Bill Sharpe and Anthony Hodgson

In summary, the futures-oriented version of the model, shown in Figure 1, comprises:

- **Horizon 1:** The current prevailing system as it continues into the future, which loses "fit" over time as its external environment changes.
- **Horizon 3:** Ideas or arguments about the future of the system which are, at best, marginal in the present. Over time these may have the potential to displace the world of Horizon 1, because they represent a more effective response to changes in the external environment. Although the diagram suggests there is only one such Horizon 3, in practice, especially in the early stages, multiple Horizon 3 arguments will be articulated. This is explored later in the paper.
- **Horizon 2:** An intermediate space in which the first and third horizons collide. This is a space of transition that is typically unstable. It is characterized by clashes of values, in that competing alternative paths to the future are proposed by actors.

Horizon 1 can also be thought of as the domain of "maintainers," who keep existing systems running; Horizon 3 of "visionaries," who envision a wholly new system; and Horizon 2 of "entrepreneurs," who see opportunity for change in the transition.

The order in which they are explained here is relevant. An initial example will help to articulate this more concretely. This version of this paper adapts the example of energy and energy security, based on its use in a paper written in 2006 for the International Futures Forum (IFF) by Bill Sharpe, Anthony Hodgson, and Ian Page.

In this example, Horizon 1, at least in the affluent world, is a world in which fossil fuel sources are dominant in terms of consumption, production, and distribution infrastructure. Energy production is generally centralized. The prevailing consumption model is that energy is "always on"; continuous power is supplied to whoever wants it and can afford it. This prevailing system is falling away because of concern over carbon emissions and resource shortages. It is also problematic: the abundance of fossil fuel on which it is based is running up against a number of limits. As one stands in Horizon 1, looking at these limits, one can see around its edges the elements of different Horizon 3 systems. These include

emerging technologies, different social institutions, new business models, and so on.
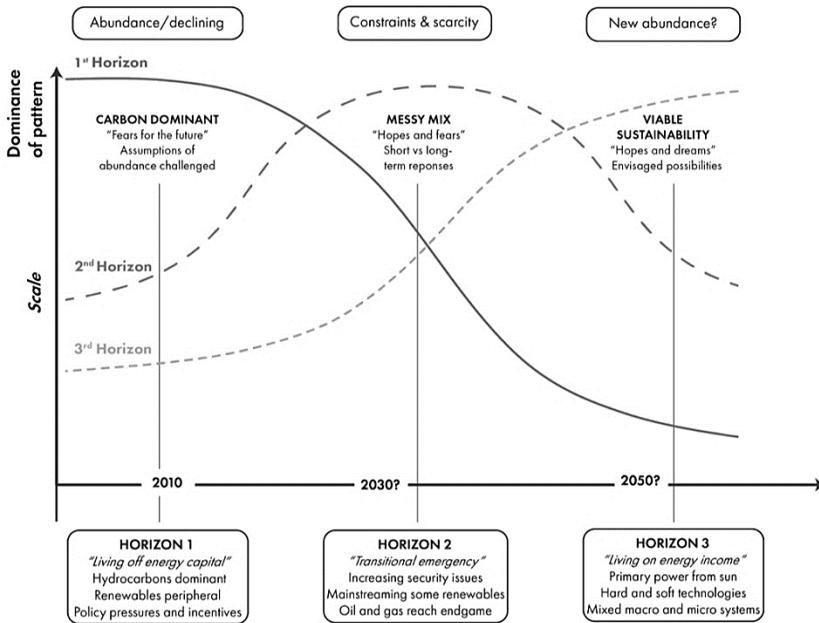
Fig. 2. Three Horizons and energy security

Adapted from Sharpe, Hodgson, and Page. (2006). *IFF Energy Security and Climate Change: Discussion Paper*. International Futures Forum.

In the energy example, Horizon 3 advocates generally propose the production of energy from renewable energy sources. Some also advocate more local or decentralized energy systems, and there are some who also propose reduced consumption. Some link high levels of energy use explicitly to degradation of ecosystems and biodiversity. Emerging technologies (such as combined heat and power) are championed; different energy-based business models are tried (for example service-based energy companies). Other Horizon 3 actors point to hydrogen-based energy futures; some to an energy future based on nuclear fission. Horizon 3, then, represents a potential range of futures in which there are different types of abundance. But views on these futures are not universally shared.

Since it can take thirty to 100 years for new ideas to move from the edge into the mainstream, as Graham Molitor reminds us, there are always "weak signals" of Horizon 3 ideas. "Pockets of the future embedded in the present" will be used as examples of change by Horizon 3 advocates. At the same time, in some areas (if no longer in energy), Horizon 1 actors can simply contradict (or ignore) the frame, or frames, being used by Horizon 3 actors as the basis for advocating change.

Horizon 3 advocates face two main challenges if they are to displace the dominant social system in Horizon 1. The first is that they need to be better developed and better connected; people need to believe that they can work at the required social scale. The second is that they need to win a battle of values about the future system. The Horizon 2 transition always involves a transition in social values.

Horizon 2, then, becomes a space of both conflicts and options. There are some options in which the technologies espoused by Horizon 3 advocates are given significant public (and fiscal) support, as happened in Germany to a significant extent through subsidies to renewables. There are options around approaches to demand reduction, whether through changes in values and behavior, or changes in energy management systems.

Other options represent responses of the existing energy industry (the current Horizon 1 actors) to those factors that are identified as challenging the current Horizon 1 model. These might include "cleaning" existing energy supply technologies (such as carbon capture and storage) or investment in existing technologies that are regarded as clean (such as nuclear power). The emerging technologies in this space are generally understood, but still evolving. There may be disputes as to whether they can scale.

There will also be conflicts *between* Horizon 2 actors as to the nature of the problem that is being solved. In the energy example, some will be concerned about resilience, some about global warming, some about energy security, some about energy equity. Our information about the future, and the present, is necessarily incomplete, so claims made about these futures are open to challenge.

The competition between these values are also inflected by the values and assumptions that have informed the existing Horizon 1 system, since a dominant system does not vanish, but only fades slowly. These voices are

still heard strongly in Horizon 2. For example, in terms of energy supply, the need to maintain security of supply is seen as a political prerequisite. Familiar discourses can appear more compelling simply because they are more familiar. Successful alternative models either need to be seen as likely to deliver this, or they need to reframe the issue effectively (in terms of supply, for example, by bringing demand management into the discourse).

These systems transitions are inherently both messy and non-linear. In summary, different groups will respond to the failing system in Horizon 1 by advocating multiple alternatives, and there will be different experiments informed by different assessments of risk, cost, performance, and social and political values. Some ideas fail, despite having substantial resources expended on them. A new prevailing system does emerge from this complex process, but it is impossible to predict the eventual shape of this system. These are processes of political, social, and public negotiation, occurring within complex adaptive systems.

A Brief History of Three Horizons

The first published version of a "Three Horizons" model appeared in a well-regarded management book, *The Alchemy of Growth*. It argued that managers needed to keep three different business horizons in their heads at the same time. In the short term, Horizon 1, they should focus on extending and defending core businesses. In Horizon 2, the medium term, they should build emerging businesses. In Horizon 3, the long term, they should "create viable options." Each horizon was portrayed as the top half of an S-curve, without resolving how exactly to move from one horizon to the next.

Shortly after the book's publication, Anthony Hodgson, with colleagues, used the *Alchemy* model in conjunction with a scenarios method to explore with a group of corporate strategists different impacts across the short, medium, and long term. This identified the need for a better understanding of the qualitative differences between each of the Horizons, and structural changes over time, to get to deeper strategic insight.

The Three Horizons model that developed from this work was then adapted further by the technologist Bill Sharpe, in work for the UK Government's Foresight project on Intelligent Infrastructure Futures. Sharpe used it as a framework to project the fifty-year evolution of the

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transport sector in a paper co-authored with Anthony Hodgson (see https://www.gov.uk/government/publications/intelligent-infrastructure-futures). The futures team on the project, led by Andrew Curry, worked with Hodgson to apply a version of Three Horizons to understand the likely dynamics of longer-term change in the project's scenarios, which also took a fifty-year view.

A critical development of this model transformed Three Horizons into a valuable futures tool. Rather than seeing the horizons as successive states, as in *The Alchemy of Growth*, it characterized all three as existing in parallel, but with different levels of social salience at any given time.

Since then, the model has been widely in many contexts and countries. Bill Sharpe's book *Three Horizons,* published in 2013, which explored the method as a tool for developing preferred futures, has also been influential.

The time periods covered by different horizons vary with the subject or domain under scrutiny. Broadly, the Horizon 3 will cover the period over which the significant elements of a system can be changed. For energy security, which involves significant infrastructure issues, the Horizon 3 transition could take thirty to fifty years. For the computer industry it would be shorter.

It should also be noted that when used as a practitioner's tool, the model seems to allow workshop groups (who may be inexperienced in futures techniques) to construct reasonably rich futures models, and to have fairly complex structured conversations about them. However, it is a practitioner's technique that is also underpinned by a body of theory.

Exploring the futures-oriented Three Horizons model
As outlined above, the axes of the Three Horizons diagram are time (along the x-axis), and the dominance of prevailing patterns—economic, technological, economic, regulatory, and so on —in the external environment of the organization or network (along the y-axis). The latter can be assessed in terms of prevailing degree of acceptance of ideas within society as a whole about the political, economic, organizational, and cultural norms embedded in an organization or network. At the left hand of the Horizon 1 line, as can be seen from the diagrams, is the world in which we find ourselves today, and the way in which it is expressed and represented in prevailing discourse. The S-curve tailing away to the right

represents the decline of any given model if it does not adapt to external change. This is a well-understood feature of open systems theory.1

Horizon 3, in contrast, represents a world (or more accurately, one of a number of competing worlds) that is desired by those who propose a different service model, a different political, cultural, or institutional framework, or a different paradigm. Looking into the future, then, Horizon 3 represents proposals for transformative change. In the present, such proposals can be thought of as emerging issues, and the evidence for these is found only in small "pockets of the future" embedded in the present. These might be, for example, manifestos by campaigning groups, a feasibility study by a research institute, a different business model, new practices by activists, or a prototype or trial developed by a progressive local authority. In futures terms, Horizon 3 is a world of weak signals.

Because of the transformational nature of the change that is sought, the trajectory of Horizon 3 is deeply informed by values. It fumbles towards "utopia," using the only tools that its marginalized advocates have to hand: the powers of voice and experiment. This relationship with values makes it a useful scenario testing tool, since alternative scenarios are often informed by competing values and worldviews, or ought to be, as well as by different "logics" or underlying structures.

This leads us to the world of Horizon 2. In Horizon 2 we learn what is heard of Horizon 3 and acted upon by those in Horizon 1. Sometimes this is merely a recognition of timescales. As the US President Theodore Roosevelt once said, "Do what you can, with what you have, where you are." Adaptation takes time. Sometimes, though, it represents a far more fundamental conflict of values and of discourse. In the case of energy, there are clear conflicts in Horizon 2 around "green" and "clean," between "local" and "centralized," between maintaining consumption and reducing it, between self-contained energy systems and energy systems that are integrated with other social and environmental processes.

Thus, the dominant actors in Horizon 1 can hear the word "green" but translate it as "clean," and can disregard the components about integration and decentralization. Their vision for the long-term future of the industry has some consonance with that of their critics (i.e., their existing Horizon 1 model is not sustainable) but the consonance is limited. The outcome is that the world of Horizon 2 is turbulent and ambiguous. It is also possible that the conflict in this space will produce poor social outcomes.

It is worth acknowledging the underlying assumption that gives shape to the overall model. Effectively it assumes that systems, in terms of their degree of overall "fit" to their external environment, follow a conventional bell-curve distribution over time. This is in keeping with the S-curve model that is widely used in emerging issues analysis. To expand this further, one way of thinking about the curves of the three horizons is to envisage Horizon 1 (at the start of the time period under consideration) as having reached the top of its bell curve (and is therefore about halfway through its life). Horizon 2, in contrast, has reached the middle of its upward S-curve, and is therefore about a quarter of the way through its lifespan; it will peak and decline during the life of the time period being considered. Horizon 3, meanwhile, is just starting out, and will not reach its peak until the end of the time period.

Once peaked, of course, Horizon 3 will in turn lose fit with its environment and start to decline. The world of Horizon 3, when seen from Horizon 1, is an aspiration, not an end-state. To the extent that Horizon 3 can be seen as utopian, it is as "the expression of the desire for a better way of being or living," as Ruth Levitas suggests in Utopia as Method, not as a blueprint.

In an early use of the Three Horizons model, the UK Government's foresight report *Intelligent Infrastructure Futures: Technology Forward Look*, and in the development of the project's scenario narratives, the model was used in conjunction with existing practices. However, with further application of the model, its specific qualities started to reveal themselves. In particular, it characterizes the space of Horizon 2 as a space of conflict between Horizon 1 (the present embedded social, economic, technical, and institutional structures) and Horizon 3 (a value-driven desired future) rather than as a progression.

The Three Horizons futures model and futures practice
There are a number of critiques of conventional scenarios processes. First, they frequently do not challenge the underlying values and assumptions of the futures worlds that they create. Second, their emphasis on "important" drivers of change (whether certain or uncertain) encourages participants to pay insufficient attention to weak signals or emerging issues, which might otherwise open up possibilities of disruptive change. (Organizations are generally poor at seeing weak signals or acting on them.) Finally, it is sometimes argued that the presentation of scenarios as likely possible outcomes can discourage individuals from believing that their actions can

make a difference. This last view, in Shell's scenarios practice, was reified into the view, later critiqued, that one should not seek to influence the future, but to be aware of possible shifts in the external environment and to be prepared to respond to them as and when that environment changes.

The Three Horizons model has something to say on each of these three points.

Futures work as a challenge to values
One of the underlying features of Three Horizons is that it requires different possible versions of the future, as read by different mindsets, to be held in view simultaneously. Horizon 3, in particular, has little traction in the present moment other than as an articulation of a future that is constructed quite differently from the present. It is driven by a desire for change. As Hodgson and Sharpe write:

> The H3 mindset is seeing beyond our current system, motivated by vision, value, and beliefs. If an H2 entrepreneurial mindset is concerned with anticipating and capturing changing values, then H3 is concerned with driving such changes.... Thus the organic food movement promotes *an outlook* on how food should be grown that is fundamentally different from the dominant model of the last few decades.2 [our emphasis]

It is worth reiterating that there will be multiple Horizon 3 worlds, certainly in the early stages, supported and promoted by different advocates, and largely underpinned by differing values. For example, looking at the future of urban vehicle transport, one future might be dominated by the need to improve the performance of existing vehicles in terms of fuel, noise, and other pollutants, whereas a competing third horizon view might be about reducing the impact of vehicles on community cohesion and vulnerable users of urban space. A second group envisages a reduction in the number of vehicles as well as in their environmental impact. A third may wish to make car use complementary with public transport systems instead of competing with them, and so on. While these futures may have more in common with each other than with actors in Horizon 1, they are likely also to have divergent perspectives from each other. This is partly because each group is likely to define the problem they seek to resolve quite differently from the others. The values, desires, and assumptions that underpin these competing projects can be sharply at odds. We will return to this point.

Horizon 1, in contrast, is a world whose values are all too familiar, to the point of being hegemonic. H1 is "the way we do things around here," the world of "business as usual." Analysis of Horizon 1 makes explicit the assumptions and values that underpin the current world. Equally, in reviewing the possible paths of adaptation of the current system to construct the Horizon 2 world, an assessment can be made of the extent to which this is a system that is making an adaptive shift to new values, or, on the contrary, is making the smallest possible adjustment to maintain itself.

De-privileging competing futures

One of the particular features of the Three Horizons model is that it positions emerging issues in such a way that neither the prevailing or dominant view represented by Horizon 1, nor the emergent view in Horizon 3, is privileged. Further, the need to understand the structure of the second Horizon means that the values, assumptions, and actors within both H1 and H3 have to be properly understood. This is because Horizon 2 evolves from the particular and contingent circumstances in which Horizon 1 is challenged by the new perspectives offered by Horizon 3.

In some futures processes, in contrast, some views of the future tend to be privileged over others. Richard Slaughter offers a well-known critique of conventional deductive scenarios as representing "flatland," with little space within the futures process to explore or challenge existing power relationships.3 At the same time, weak signals of change are often not given sufficient consideration by participants. Equally, some visioning processes are so energetic in constructing their desired world that they spend too little time on understanding the worldviews underpinning the prevailing current (H1) model.

In effect, then, Horizon 3 is constructed as the domain of emerging issues, and thereby ensures that these are as visible in the process as the more familiar shorter-term trends that are generally better understood and better rehearsed by futures participants. The model gives permission to think beyond the usual strategic limits without being ridiculed, and also enables participants with competing or divergent views of the future to discover where different viewpoints lie across the three curves, and therefore what conversations between them should be prompted.

Futures work and the process of change

One of the curiosities of futures work is that for a body of practice that is, above all, interested in change, there are relatively few models of change

in the literature. The scenarios literature is particularly thin on this. In visioning, where most of the relevant work is to be found, there is an important process in defining the gap between "what is" and "what ought to be," and then setting out to fill it. Indeed, classic works in the visioning literature, such as Polak's The Image of the Future, emphasized the role of visions as a vehicle to channel the energy of social actors, to act as a catalyst for change.

Robert Jungk, one of the community futures pioneers, tells a story of taking some "deeply pessimistic" German youngsters, found by a competition, through a futures workshop. He discovered that they then produced more optimistic images of the future. "Asked to explain the contradiction, one of them answered, to general assent: 'It's obvious. In the competition we were asked what kind of future we expected. Here we were asked what kind of future we want.'"4

The Three Horizons model aligns well with this underlying model used by Robert Jungk in his visioning work. The review of Horizon 1 serves as a critique of the present, while Horizon 3 permits a desired future to be articulated.

The triangle of change
One of the striking aspects of the Three Horizons technique, which has become clear through use, is that the shape of the curves of the different horizons effectively defines a triangle of choice. This lies in the space where the first horizon has started to fall away, the second horizon is close to its apex, and the third horizon is still gaining influence. These choices are about the resolution of the conflicts identified under Horizon 2. It is also possible to assess how these might be resolved, and which actors will capture the future social or commercial value. Such choices are often about strategy or policy issues. But they could equally be about choices in values. In this latter case it becomes a question about the way in which we need to reframe discourse if we want to enable Horizon 3 to emerge.
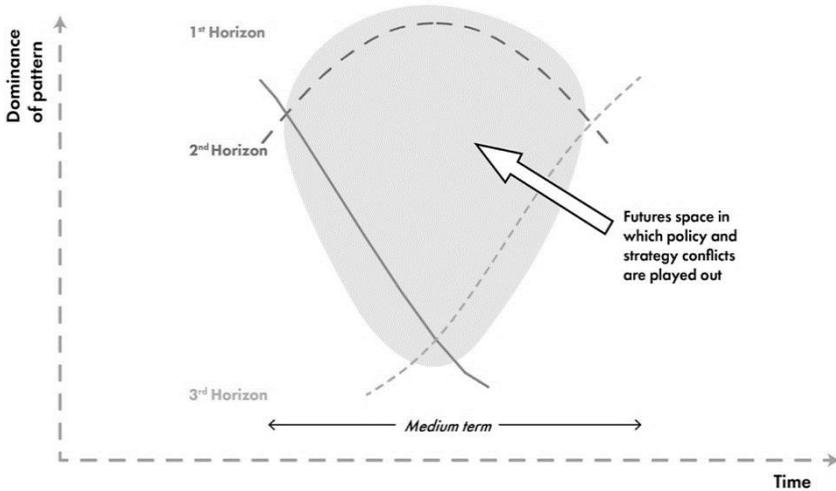
Fig. 3. The triangle of change (detail of 3H diagram)
Source: Anthony Hodgson and Bill Sharpe

It is worth returning to the earlier example of the energy supply industry to explore how such conflicts are played out. For energy, one of the conflicts within the triangle is between the centralized model that has prevailed for the past fifty years, and a decentralized model of possible future distribution.

If the centralized model prevails, it will do so by combining the need for a low carbon model (part of the challenge of values from Horizon 3) with the Horizon 1 values of centralized management and control. But if this centralized model is successful, it is unlikely that there will be room for alternatives, other than at the edge of the system, because of the substantial investment required to develop the required clean technologies (such as carbon capture and storage, and nuclear), and to rebuild the ageing long-distance grid infrastructure. This investment will likely squeeze out investment in renewable or local energy systems.

The Three Horizons model, then, raises questions about how competing systems come into conflict. But to be truly useful, it needs to do more. It needs also to have a view of how such conflicts are resolved. There is a model drawn from the "social shaping" school that can help.

The social shaping school starts from the premise that:

technology does not develop according to an inner technical logic but is instead a social product, patterned by the conditions of its creation and use.... Alongside narrowly 'technical' considerations, a range of 'social' factors affect the options that are selected—thus influencing the content of technologies, and their social implications.[5]

It derives in part from work done by Fred Emery and Eric Trist in the 1950s on socio-technical systems.[6] Emery and Trist also wrote one of the papers that opened up the discipline of futures,[7] while Emery developed much of the theory on open systems that provides an important basis for many of the visioning techniques used by futures practitioners.

The social shaping literature has tended to concentrate on processes of technological innovation and development, and the social practices and configurations in which they are embedded. Futures work, in contrast, tends to regard technology as one strand among many. Nonetheless, almost all futures work involves some consideration of change either in technology, infrastructure (which can be thought of as embedded technology), or governance and institutions (in effect a technology of organizations). As the social shaping school reminds us, technology involves systems as well as artefacts, and is about social influences on technology formation, and their implications. Technology is not neutral and its outcomes are not inevitable.

From this perspective one of the most relevant social shaping models is the constructivist model proposed by Wiebe Bijker.[8] In brief, Bijker argues that social groups and actors form around technologies, and that in the early stages of this process, there is considerable "interpretative flexibility" between different groups about the machine or technology in question. In effect, in these initial stages, different groups attach different meanings to the machine in question, and these meanings constitute the machine.

Clearly, such a situation is socially and ontologically unstable. Eventually, however, "closure" is achieved around a technology, as the level of interpretative flexibility reduces and consensus between actors increases. As a result, a dominant interpretation starts to emerge, which in turn leads to the emergence of a shared meaning about the machine or technology (this is the "stabilization" process).

3To summarize, then, "an artifact… is gradually constructed in the social interventions between and within relevant social groups." So how does competition between such social constructions occur? Bijker suggests three possible configurations for technologies and their related social ensembles. These can apply to forms of social innovation as well as of technological change. As we shall suggest shortly, these correspond to different stages of the Three Horizons model.

- In the first configuration, "there is no dominant group, and there is, as a result, no effective set of vested interests under such circumstances, and if the necessary resources are available to a range of actors, there will be many different innovations."
- In the second configuration, "one dominant group is able to insist upon its definition of both problems and appropriate solutions." Under such circumstances, he notes, "innovations tend to be conventional."
- And in the third configuration, "there are two or more entrenched groups with divergent technological frames." As a result, "arguments which carry weight in one of the frames will carry little weight in the other. Under such circumstances, criteria external to the frames in question may become important as appeals are made to third parties." Such conflicts can be caused by different views of means and ends, and of differences in values. These become essentially political disputes, in the broad sense of the word.

Mapping these frames back onto the Three Horizons model, it is clear that the first of these three applies strongly to the early stages of a Horizon 3 innovation. The alternative proposals that are generated tend to be radical and relatively unconstrained.

But even at this stage some form of stabilization and closure is necessary if actors who are critical of the frame represented in Horizon 1 are to create the necessary coalition of actors needed to make an effective (visible) critique of the dominant frame. As Horizon 3 evolves, some innovative proposals disappear from the discourse.

The second configuration, of one dominant frame, corresponds to the ensemble of actors around Horizon 1. Even so, even among actors who are attached to this dominant configuration, there are different degrees of inclusion; some are more committed to the frame than others.

The third configuration is, for our present purposes, perhaps the most interesting. It corresponds to that significant area of the model where a Horizon 1 frame is declining but still dominant. It has made some changes to construct an adaptive Horizon 2 frame but is being challenged by a new framework that has emerged from the battle of ideas in Horizon 3. Strategies to achieve closure are as likely to involve rhetoric as evidence. In the present emerging battle over the future of aviation, industry advocates link aviation to international economic competition; their critics reference global warming and sustainability.

Three significant themes emerge from this discussion. The first is about the meanings of time. Hodgson and Sharpe, along with Stewart Brand in *The Long Now,* distinguish between "chronos" and "kairos." These are differing notions of time as seen by the ancient Greeks. *Chronos* is the view of time as sequence, of time passing. *Kairos* is the notion of time as a moment of opportunity, in which choices can be made. Futures work can appear to focus on one or the other, but not both. In contrast the Three Horizons model lays out both to view.

The second is the role of contested meaning in the conflict between different horizons. Different horizons are also likely to use different languages, different reference points, and different taxonomies. There are similarities between the shift between competing scientific theories, and between competing horizons (which embrace competing social, political, economic, and technological theories).

The third is the role of the relations between different social groups in reaching any kind of resolution. In the early stages of Horizon 3 actors will broaden their coalitions by "enrolment," effectively reframing their interpretation of the technologies to include new social groups. Again, drawing on the example of energy supply, advocates of decentralized power production and distribution may attempt to enroll others in their support of combined heat and power plants by underlining their role in empowering communities or reducing social exclusion around energy use.

During the transition, some actors are likely to detach themselves from one horizon and attach themselves to another. Bijker refers to "low inclusion" actors; in Horizon 1 these are likely to include, for example, younger scientists or managers within mainstream social groups or organizations.

Understanding systems and group behavior in the competing horizons
All systems decay over time. The Horizon 1 system is always losing fit
with the broader environment. The pattern is always fraying at the edges.
However, this does not mean that Horizon 1 actors necessarily accept that
change is inevitable. They hold resources, influence, and, usually,
institutional power. "Lock-in" is always a feature of a dominant system.
Indeed, this is a necessary part of the stabilization process after a system
transition.

It follows that H1 actors have considerable powers to influence the
nature of the transition in Horizon 2. Practitioners make a distinction
between "H2-minus" innovation and "H2-plus" innovation.[9] H2-minus
innovations are designed to maintain the core features of the existing H1
system in the face of change. H2-plus innovations are designed to
accelerate the transition to a new system.

The transition from fossil-based energy systems is littered with H2-
minus aspects. These are seen in the vast continuing subsidies to fossil-
based energy infrastructure, or in attempts by incumbent electricity
companies to levy payments from renewable producers for accessing the
grid. In contrast, H2-plus innovations include disinvestment by financial
institutions and pensions providers from fossil-based energy companies
and incumbents—under pressure from H3 advocates such as divestment
campaigners.

In some circumstances the Horizon 3 model fails to gain traction
because of economic arguments, political preferences, or because it has
failed to achieve sufficient engagement with early mainstream thinking.
Sometimes, the babel of competing Horizon 3 models makes engagement
hard. It requires a process of "social shaping" amongst Horizon 3
visionaries—still in the early stages of evolution of their ideas and new
practice—until a dominant set of ideas about this Horizon 3 model
emerges among the actors in this horizon. This does not yet mean that this
model will represent a challenge to Horizon 1. But it does mean that the
ideas emerging in Horizon 3 will start to become sufficiently coherent to
start to be noticed by some Horizon 1 actors.

In some cases, Horizon 3 will emerge through the policy noise
because the prevailing Horizon 1 model is too "stuck'" or too destructive
to be capable of developing sufficiently through a process of adaptive
change. For example, in the '00s, increasing consumer interest in well-
being, and the potentially huge costs to public health and social care

budgets of rising obesity in the UK, led to regulatory intervention that also challenged conventional industry assumptions about product development. In such cases, systems tools afford useful additional analysis or understanding.

Applications

One of the distinguishing features of Three Horizons is that it can provide easy entry for policymakers, decision-makers, and others to do three things simultaneously:

- To appreciate continuity and discontinuity in looking ahead
- To distinguish the three modes of thinking and evaluating
- To orchestrate a wider variety of appropriate futures and strategic thinking tools

In addition, it can help —through visualization of the critical issues in Horizon 2—to envisage medium-term policy options that might lead to unintended outcomes, through path dependency or particular forms of lock-in.

In summary, because it is a model of systemic change, and because it enables exploration of both preferred futures and possible futures, Three Horizons has wide application within futures, as has been seen from its widespread use in practice. Much of this has been in conjunction with other futures methods. Three Horizons has been used in:

- **Development of scenarios narratives**. Three Horizons can add depth to the development of scenario narratives. This is true both of deductive methods such as the double uncertainty and morphological scenarios approaches, and perhaps more so of inductive methods such as Causal Layered Analysis that foreground differences in discourse, worldviews, and values. Equally, the conflicts and uncertainties of Horizon 2 can be structured into multiple narratives using appropriate scenarios techniques.
- **Systems archetypes and analysis**. Each horizon has a characteristic behavior over time. A deeper analysis of the reasons for this can be derived by applying causal feedback thinking to see what the dominant loops and restraining loops are in each horizon.
- **Framing innovation dilemmas**. The tension between Horizon 1

and Horizon 3 creates dilemmas where the requirements of actors in both need fulfilling, despite their incompatibility. The dilemma resolution method of Charles Hampden-Turner, which has been further developed by Tony Hodgson, can be used to frame creative thinking around "both/and" resolutions. This enables a distinction to be made between H2 innovations that are assimilated into the trends manifesting Horizon 3 (H2+) and those that are captured by Horizon 1 and, in effect, prop up and prolong its dominance (H2-).

- **Visioning**. Three Horizons is used as a way to help groups or organizations design a route to a preferred future. It has been combined with the Manoa method to develop community futures in the Seeds of Hope project in Africa. Closer to home, the International Futures Forum has combined it with organizational change tools in the health and education sectors, and elsewhere.

Conclusion

As a method, Three Horizons allows appropriate futures and strategy techniques to be combined in a timely way as required. It has proved to be robust in practice, even in the hands of less experienced practitioners. The methods are publicly documented, so useful resources can be found online. In use, new aspects of practice and related theory continue to evolve and to be documented.

In particular it provides a link between the values-based approaches that underpin visioning work, and the more analytical thinking used in much scenarios work. It promotes consideration of emerging issues that can be identified only through different mental models than those determined by H1's "business as usual," and it makes it necessary to review these as part of the futures process.

It also has the benefit of being fairly accessible to non-practitioners, which means that workshop participants find it relatively easy to assimilate and to use.

Finally, the model links futures to the policy and strategy issues and options for change that are likely to arise in the medium term. This addresses a recurring criticism that futures work is too often disconnected from organizational planning and strategy-making processes.

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CHAPTER 5: DESIGN FOR THE ABSTRACT QUALITIES OF FUTURES STUDIES

by Maggie Greyson, MDes

Introduction

Some Futures Studies findings are not making enough impact. Insights from this research must connect with all stakeholders. Stakeholders often include an audience beyond the individuals who commission the work but may not see the results. For example, a strategy team in an engineering company authorizes a foresight exercise. They have 45 minutes to present the results of a 90-page document to a vice president. The PowerPoint deck and full report are delivered by email to the VP's team. They are focused on obtaining results in the next two fiscal quarters. The pie charts, bar graphs, and stock photos are not urgent for senior managers' operational concerns. They have received the findings, but they may not appreciate the nuances. The insights do not impact their professional practice, nor influence their image of the future. This paper intends to illustrate that design methods enhance the value of Futures Studies for individuals and groups.

Design has ways to overcome some fundamental challenges for Futures Studies. Imagining multiple futures requires an internal paradigm shift. The work may become invisible when the insights are needed most. Those who embrace the ambiguity and gain tremendous wisdom through participation lack communication tools to make an impact. A design methodology is a process, an output, a strategy, and a mindset useful in creating strategies for alternative futures. As a systematic approach, design can augment understandings of possible, probable, or potential futures. The design of communications, products, and services can also influence how futures come to life.

This paper seeks to answer the question: in what way do design methods support the abstract qualities of Futures Studies? Benefits to the practice of Futures Studies include the application of prototyping, research with design fiction, and the details of experiential futures. Futures Studies can learn from these hands-on approaches.

The opportunities that design brings to Futures Studies
The imagination is one of the most powerful assets that humans have. Designers develop concepts by making drawings, models, storyboards, digital renderings, and physical prototypes to generate ideas. They use some of these same creative tools to test their assumptions and refine the design. A mental concept is easier to understand when it is tangible or pictured outside of the mind. The way to achieve a preferred future is to invest time connecting with it on a human level. Dr. Donna Addis, Principle Investigator at the Memory Lab, demonstrates that a working imagination is necessary to construct future episodes. She says, "We benefit from having a memory in our mind before we can build it."[1] In other words, past memories support future narratives. The clearer an episodic memory is, the easier it is to construct a future memory. This insight is why it is so important to integrate design methods into Futures Studies.

Designer and futurist Kelly Kornet wants participants to envision distant tomorrows. She pays attention to the details in the building of an ethnographic experiential futures museum. She displays an excavated pair of work boots from a future in which a catastrophic explosion happens in a small industrial town in Ontario, Canada.[2] The boots are charred and odorous, representing the remains of a destructive incident in 2025. They are a fictional artefact, but rich in detail, which connects thoughts and feelings to the implications of dismissing a potential future scenario.

Design adds visual, kinesthetic, and auditory learning opportunities to Futures Studies. The senses enhance comprehension at a subconscious level. This paper will explore the role that design might play in helping individuals and organizations to connect more personally to Futures Studies. In looking at the critical question, this paper will also explore:

- What can Futures Studies learn from a prototyping process?
- How might design support collaborative visioning?
- Why is it essential to add qualitative details to Futures Studies?
- How does the concept of futures come to life in the 21st century?
- Why is communication design important?

Futures Studies helps people to think long-term, explore impacts, and collaborate ahead of big decisions. Sections in this paper describe where design helps make sense of abstract qualities of Futures Studies: prototyping, collaboration, multiple futures, the 21st century, and

communications to external stakeholders.

The benefits of a prototyping process for Futures Studies (What can Futures Studies learn from a prototyping process?)
A prototype is an experiential learning tool used for testing a desired product or service. Designers use prototyping methods for testing specific variables about the form, function, or behaviour of a finished product or service. Early-stage prototypes can be used to challenge a designer's assumptions with open-ended questions. This approach helps to identify unexpected challenges in the early phases of development. For example, a model airplane is tested in a wind tunnel to see how air flows around it. If the aerospace engineers don't like the results, they can easily tweak a small model before creating the large-scale airplane body.

The function of a prototype is more important than the form. The form serves the purpose of an investigation. For instance, a prototype of a city's future may look like a life-size urban planning proposal for 100 years from now. It may come in the form of a provocative artefact of the future (e.g. a fire hydrant), an immersive community experience (e.g. voting devices), future public communications (e.g. propaganda posters), or theatrical events (e.g. a crime scene). Interactions with the prototype are deliberately guided for learning purposes while omitting unnecessary contextual elements.

Determining the intention of the final product or service opens up potential solutions. When a prototype advances in incremental stages, it is called an iterative process. Designers continue to iterate their prototypes until a problem is understood and they have the confidence to move ahead. This state of unknowing can be uncomfortable. Depending on the complexity of the variables, dozens or hundreds of attempts may be required. Futures Studies can learn many things by integrating similar methods of prototyping. Just as prototypes help designers to imagine impacts before committing to a solution, foresight analysis helps a foresight practitioner to consider several levels of implications before sharing strategic recommendations.

MakeTools is a design consultancy that uses design methods to conceptualize systems. Dr. Elizabeth Sanders' facilitation uses simple objects: Legos, rocks, string, etc. She says, "MakeTools is a language that can be used by everyone for harnessing and directing collective creativity towards positive change for the future."3 Workshop participants collaborate with these items to develop a shared understanding of the

dynamics in a system. For example, a large rock may represent a hospital, pebbles represent clinics, and string may represent a flow of financial resources. The collaborators discuss the future impacts of a driver or trend on the system. When objects get rearranged, they generate new questions. This type of prototype advances a collective understanding and creates a shared experience.

The Lucky Iron Fish is an example of a successful prototyping process.[4] When researchers from the University of Guelph, Canada went to Cambodia, they found a section of the population to be anemic, or significantly deficient in iron in their blood. These researchers came from the Global West and could have made recommendations that emulate solutions in the West, such as spinach with lemon juice, iron supplements, or cooking with an iron skillet. The researchers reviewed cooking habits, agricultural feasibility, and pharmaceutical distribution across Cambodia. The research revealed that typical Western solutions could be useless or, at best, more trouble than they're worth. The university research team suggested that people in the region studied add iron into soups and stews as they cook. People were given little iron bars that would release small amounts of the mineral. The shape was unappealing, and the rust that formed on the bar after cooking, doubly so.

The researchers applied what they knew was working from the first version, and tested iterations that led to a new shape. A fish is a religious symbol for the people of Cambodia, and this became the Lucky Iron Fish. As this solution is scalable and sustainable, the company began selling internationally. This fish works across cultures and fits in the kitchen drawer. A lesson learned from the prototype of the iron bar and the iron fish is that aesthetic details matter and dramatically shape adoption.

Lessons learned from these examples include:

- Obvious solutions may have invisible barriers to adoption.
- The prototyping process is a nimble way to test strategic plans.
- It is a risk to set out on significant endeavours without considering the existence of multiple outcomes.
- Test these prototypes of the future with the mindset of exploration, not completion.
- The exploration phase is a challenge; however, consequences can be dire if participants are not resilient in this part of the process.

Prototyping futures creates low-risk opportunities for decision making. The prototyping process teaches people to become comfortable with ambiguity. Exploit ambiguity; otherwise, it is a high risk to assume that the futures will repeat themselves.

Using design in visioning futures (How might design support collaborative visioning?)

Futures Studies surface hot-button topics around social and professional differences, such as power structures, entitlement, agency, gender diversity, education, North vs. South divides, and generational responsibilities. Design helps stakeholders to connect across such differences. Futures artefacts and experiences provide scaffolding for productive conversations. Contradictions exist between the stakeholders' paradigms, biases, and assumptions, but making invisible concepts tangible helps members of a group to understand each other. The small case study below illustrates the journey of a brownfield in Sao Paulo, Brazil into a public square.

Case study: [Jardim Las Vegas](#) in Sao Paulo, Brazil

A nonprofit organization identified that an abandoned plot of land in an underserved community was not recognized by the children as a public square and barely used by the majority of the residents. Abandoned for more than 30 years, the place became invisible. The non-governmental organization, in collaboration with a nonprofit organization from Spain that specializes in low-cost recycled playgrounds, organized an event in the community to reimagine the square. Printed photos of possible playgrounds were presented to the parents to prioritize while the children could draw freely what they would like to have.

The photos were used as an anchor to inspire the imagination of alternatives. Based on the inputs from the children and mothers, volunteers from inside and outside the community collected the materials and built the playground, bringing new life to the square. The design was inspired by the creative contributions from the kids. People who had previously dismissed this project now had a tangible way to participate in the vision. Unfortunately, not everyone was happy. Shortly after the play area was completed, the local government tore it down, citing health concerns around children playing on used tires.

The second iteration of the square was designed in collaboration with a larger diversity of stakeholders, including residents of all ages and the local government. In this phase, meetings with the residents were

organized using methods such as modelling, prioritization of proposals, and finally a drawing made by a local architect who lived in front of the square. These materials were presented to the city hall, which used it as an inspiration for the technical plans for the square. The process, therefore, was an iterative "drawing" process, starting with the children, to different local stakeholders, until it became a technical design proposal from the government. Collective visualization overlapping with practical implementation created the momentum to make an invisible place visible. As a result, together, they created a new public place addressing more of the community's desires and making the results more sustainable.[5]

Why is this an important case study for Futures Studies?
The example of the public square in Sao Paulo demonstrates how design methods engaged multiple stakeholders in the creation of a future environment. These are some insights that can be applied to Futures Studies:

- Hands-on creativity helps participants to express ideas; e.g. the children used their imaginations to make simple drawings of a future environment.
- Images and artifacts help to communicate strategy; e.g. these drawings supplied enough information for the project organizers to formulate some strategic direction.
- A low-cost implementation of the strategy helped other stakeholders to provide feedback; e.g. a diversity of stakeholders interacted with the brownfield because the playground was in place. Stakeholders began to imagine how this public square might work for them.
- Design methods lead to unexpected solutions; e.g. even the most experienced practitioners never know the most optimal solution until they start to build it.
- The impact of design is measurable; e.g. the project attracted dozens of people who volunteered hundreds of hours. Residents did not recognize the potential of the brownfield as a public square until members of the community started to put effort into cleaning it up. It became recognized as an essential local connection point.

How can these insights be incorporated into Futures Studies?
The example of Jardim Las Vegas in Sao Paulo, Brazil can be a template for applying design prompts to Futures Studies:

Step 1. Unearth existing assumptions—for example, "The square is invisible."
Step 2. Create opportunities for discussion with visual and experiential research—e.g. photos and children's art.
Step 3. Respond with a tangible manifestation of abstract ideas—the first version of the playground was built according to a collection of design concepts.
Step 4. Solicit articulate feedback from direct and indirect stakeholders—eventually, the city's involvement and plans drawn by an architect.
Step 5. Repeat until stakeholders feel a sense of ownership over the solution to move into action.
Step 6. Reflect success as both quantitative and qualitative metrics.

How did these design tools help a group to create a shared narrative?
Human factors impact the effectiveness of Futures Studies. Design methods help by creating personal connections to futures scenarios.

1. Comfort with Futures Studies
Participants enter into a Futures Studies process with a diversity of professional experiences of foresight, such as working with scenarios or performing long-term thinking within strategic planning. Not everyone involved in Futures Studies will have the same level of foresight readiness. In this case, foresight readiness alludes to the capacity to understand a plurality of futures and to use them to evaluate strategic planning. Some people are more prepared to think about long-term futures than others. Some people in the group may already feel comfortable with, or crave discussions about, the existence of possible, probable, and potential futures. Others may be more comfortable with predictions, such as having a bias towards continuous growth or expecting that the past is destined to repeat itself.

Design fiction is one way to help people engage with the impacts of Futures Studies. For example, the Nature Conservancy of Brazil wanted to educate the public about the effects of climate change. The team created a series of design fiction artefacts called Products of Tomorrow. One of these advertised SPF 350+ sun protection lotion because, they noted, "By 2070, Earth will be 4 degrees Celsius warmer than today." People were able to see a future artefact that connected global warming directly to their

daily lives. This simple communication carried a warning of a potential future from the primary organization to the general public.

2. Personal investment in the outcome
Participants in a foresight exercise will have different levels of interest and stake in the results. Any group has a cross-section of interested parties who are either keen, unconvinced, or bystanders, waiting to see where Futures Studies becomes relevant to them. People enjoy sharing what they already know. Design tools enable people to communicate their perspectives to create images in the mind of others. Tangible, visual, and experiential futures generate healthy tensions in looking for shared meaning.

A great relic of a future memory creates an opportunity for authentic debate. Pantopicon is a foresight and design studio in Antwerp, Belgium that support hands-on learning for solving complex problems. "We see futures as tools to reframe challenges and enrich the imagination space. We make, in order to spark debate and catalyze change." Pantopticon assists the city of Antwerp in running its urban lab: Citylab2050 (Stadslab2050), an experimental garden for all citizens, the public, and the private sector to co-create and spin out future-oriented, innovative solutions to render the city more sustainable. "Experiments make possible futures tangible, fueling debate and engaging people in collaboration and entrepreneurship."

3. Diversity
Futures Studies can set up barriers to participation due to resource restrictions, such as time, ability, and related experience levels. Design can transcend language differences through images and artefacts. Visualized, tactile, and experiential futures assist a group to discuss multiple perspectives. In a collaborative setting, a shared language emerges to communicate complex ideas. Symbols, images, and artefacts break down an assumption that everyone has the same perspective; for example, the optical illusion of the Rabbit-Duck. This illustration of an ambiguous duck or rabbit figure has created a friendly dispute since 1899. When the group has named an element, it becomes part of a new shared language that elevates the imagination of one individual into a collective experience.

4. Communicating futures with design
The media philosopher Marshall McLuhan is famous for observing that *the medium of the message* has the power to inform the *meaning of the*

message. Futures Studies generates reports, whitepapers, PowerPoint presentations, and peer-reviewed articles. The details in the findings matter greatly, and one must find diverse ways to communicate these insights. People absorb information differently: some will scan a full report to get high-level messages, some will only read executive summaries, and some don't look past the title, or download an attachment. Futures Studies is not just another exercise, it is an important strategic tool. It requires designing different formats for clients, their stakeholders, and the people whose day-to-day lives will change because of these insights.

Foresight teams need to understand their audience—and the competition. There is a disproportionate number of "Futures of X" reports with stock images of humans surrounded by robots and rays of light. Filling pages with clichés, stereotypes, and sterile activity does a disservice to the insights generated in Futures Studies. Images that belong in marketing campaigns market the future.

Ken Wilber's Integral Theory greatly influenced Richard Slaughter's Integral Futures. This work introduced "other ways of knowing" into the Futures Studies vernacular. It prioritized human intelligence not yet codified in scientific methods as having equal value. Sensory inputs like sounds, smells, and tastes support the formation of strong memories. Even sharing images of the process in a futures prototype session enables wisdom to extend beyond the boardroom.

Stuart Candy and Jake Dunagan published a framework in 2016 called the Experiential Futures Ladder. It is a series of descending rungs on a ladder from the abstract and general to concrete and specific elements of future possibilities. Starting with the setting, scenario, and situation and concluding with stuff, each rung is recognized to have more information to interact with about a "day-in-the-life."

Futures Studies often describes setting and scenario. There are many opportunities to add experience and stuff to a scenario. Examples of products and services created collaboratively by designers and futurists are design fictions, artefacts, immersive environments, graphic novels, video, soundscapes, advertisements, postcards, experiential futures, etc. Each artefact or experience is designed to address the senses and provide recall for a future memory.

In 2010 Stuart Candy published his doctoral dissertation, [The Futures of Everyday Life](#).[6] In his paper Candy introduces the term "experiential futures" into the world of Futures Studies. He describes several projects that provoke people to think about the impacts of long-term inaction. Most recently he and Cher Potter co-edited a double volume issue on design in futures for the *Journal of Futures Studies.* This included topics such as Worldbuilding with science fiction, futures and design, and Ethnographic Experiential Futures. In 2019, the largest issue of the *Journal of Futures Studies* was published with Stuart Candy and Cher Potter as editors.[7] The entirety of the 400-page volume contains peer-reviewed pieces that discuss the connections that art, craft, and science are making with Futures Studies.

Conclusion (In what way do design methods support the qualitative aspects of Futures Studies?)

Design methods help people to envision the invisible. Creative methods help Futures Studies to communicate with wider audiences. Rich narratives help stakeholders to imagine a context better than charts or graphs could. Prototyping futures helps to develop strategic actions in the present. They are tools to test assumptions about how something might work in the long term.

Perfection suggests that there is only one way to succeed: the future is either a victory or a failure. Digital media and continuous upgrades create a metaphor for a new mindset about alternative futures. This evolution helps shape the human relationship to the future. One can take advantage of an unknown future and play with it, as Alan Lightman has. Lisa Kay Solomon, Designer in Residence at Stanford's Institute for Design, writes, "These methods help us move beyond the feeling that 'the future is going to happen to us, and I don't know what that means'... It gets us to feel something which will better inform our decisions today. This might help us get ahead of the crisis or unwanted outcome."[8] Exploring the imagination in a tangible way helps to release the mind from the snares of perfection.

There are many new voices in Futures Studies looking at the role of design and prototypes in long-term thinking. A few of these researchers are creating personal experiences for a general audience. Maggie Greyson's (author of this paper) contribution to Futures Studies is a technique called [Making the Futures Present](#).[9] It is an experience that prioritizes design methods in long-term thinking. Participants explore personal priorities for the future by surfacing their assumptions. They

prototype artefacts or role-play experiences to address challenges in their preferred future. A future becomes real when they hold a piece of it in their hands.

Design can play a role in supporting the challenges of Futures Studies. Design can increase the impact of Futures Studies through creative communications. Design has frameworks that Futures Studies can borrow from to make scenarios, systems, and insights comprehensible and defensible. It can help Futures Studies come to life at precisely the time it is needed the most—a time to design alternative futures.

This article is drawn from Greyson, A.H.M. (2017). "Making the futures present," master's thesis, OCAD University, http://openresearch.ocadu.ca/id/eprint/144.

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CHAPTER 6: PRESENCING: THE THEORY U FRAMEWORK AS FORESIGHT METHOD

by Adam Cowart

Introduction

Theory U emerged out of the MIT Center for Organizational Learning, which grew out of the MIT System Dynamics group that played a key role in producing the *Limits to Growth* study in 1972. After writing *The Fifth Discipline* and forming the Learning Center, Peter Senge noted that some practitioners of the tools developed in his book were highly effective in creating change, while other practitioners had little success. Otto Scharmer investigated this curious inconsistency and conducted over 100 interviews with leaders, innovators, and changemakers around the world, which led him to develop Theory U. The Presencing Institute formed in 2006, as an action research platform, to create social and organizational change by disseminating Theory U to a broad and diverse audience. Scharmer is a Senior Lecturer at MIT.

Presencing vs. Theory U

The terms Presencing and Theory U are often used interchangeably but are not the same. Presencing is a combination of "sensing" and "presence," meaning to sense deeply into the present moment to become aware of our highest future potential as it emerges. The present moment is viewed as possessing a past-facing and future-facing side. The past-facing side is shaped by past patterns of behavior and assumptions based on experience. The future-facing side is shaped by the future as it emerges. The past-facing present is where humanity historically and habitually resides; the future-facing present is the area where Presencing seeks to focus our attention. Theory U is a framework, literally a U-shaped process, employed to achieve an individual and/or collective state of Presencing, and then to action what is learned from this new level of awareness.[1]

The blind spot of leadership

At its core, Theory U connects attention to action, in that how we attend to the world around us manifests in the actions we take and the success of those actions. This was the critical insight Scharmer took from his initial investigation. One of Scharmer's interviews was with Bill O'Brien,

former CEO of Hanover Insurance, who said, "The success of an intervention depends on the interior condition of the intervener." This interior condition is now referred to as the blind spot of leadership. Traditionally, organizations focus on the *what* (product or output), the *how* (process), and/or on the *why* (purpose or meaning). These three focuses have been enormously influential in how humanity has organized across business, social, and cultural domains. An early insight by Scharmer, and one that has shaped Theory U, is the *where*. Put another way, while most people can speak of what they contribute to producing, how it is produced, and why it is produced, they are blind to the place from which their intentions emerge. The source of their individual and collective actions. In Theory U this is referred to as the *blind spot*. Theory U is not only about consistently and collectively accessing this deeper place of knowing: it also seeks to develop a grammar, a language, to actually describe this blind spot.[2]

An example Scharmer uses is that of the painter: we have a language and understanding of the final product, the painting; we have language and understanding of the process and techniques of painting; and we have language and understanding of why the painter paints. What we do not have is a sophisticated understanding of where the intention to paint springs from and how this contributes to the success or failure of the final product.

This same logic applies to creating systems level change: we have an understanding of what we want to change, how we want to change, and why we want to change, but lack the critical understanding of the source, the blind spot, for where our intention to change springs from. Without this knowledge and awareness, the likelihood for success is limited.

The Theory U framework
Theory U is a U-shaped series of "movements" that are meant to act as a replicable process to overcome seemingly intractable problems. Scharmer refers to these problems as divides, and has identified three systematic divides familiar to any futurist: ecological, social, and spiritual. The U framework acts as a bridge to cross these divides, linking the present in which we are stuck on one edge of the divide, with our highest future potential on the other side of the divide. It is impossible to bridge the divide in a linear, business-as-usual way. We must "go deep," to Presence into the emerging future, in order to cross the divide.[3]

It should be noted there are subtle variations on the Theory U process as it has evolved over time. They are all similar in content and intent. Perhaps the earliest iteration is one in which Scharmer articulated three movements: observe, retreat, and act. This three-movement structure is still referenced as the larger architecture of the overall U process. Heuristically it is articulated as "observe, observe, observe" while going down the left hand side of the U; "retreat and reflect" at the bottom of the U to allow inner knowing to emerge (Presencing); and "act in an instant", which means to learn from the future by doing, while travelling up the right hand side of the U.

The more granular U process is broken down into seven movements. The generative Presencing U process also has its shadow process, Absencing.

Table 1: Presencing and absencing movement

Movement	Presencing	Absencing
Downloading	Both Presencing and Absencing begin with Downloading. Downloading is the habitual ways in which we think and behave. Our customary performance. A disruption of some sort, a discernable shift in a large or small way, triggers us to reconsider our current ways of knowing and behaving.	
Seeing Denying	Seeing is observing without judgement, commonly referred to as "seeing with fresh eyes," and breaking free of habitual awareness and interpretations.	Denying is a rejection of what is right in front of us. Rather than seeing, old patterns of knowing and being override reality. Jim Dator would likely define this as "crackpot realism."
Sensing De-Sensing	Sensing is a deepening of awareness in which the observer focuses not just on the objective world in front of them, but the source, the deeper intention, in which the observer is now a part as well. The observer must begin to "let go" of old assumptions and modes of thinking.	De-sensing is often described as the echo chamber where the individual, having removed themselves from reality, now hear and see their own, subjective reality. As if they have deepened into their own science fiction.
Presencing Absencing	The observer and the observed collapse into each other and connect to a deeper source of knowledge in which an emerging future potential is accessible.	A barrier is formed between the old world and the world that wishes to be born, effectively making the actor or actors "stuck" in the old world.
Crystallizing Blaming	Crystallizing is the step of "letting come" the future world that wants to emerge. Crystallization is the embracing and clarification of the	Blaming focuses energy on the other, versus on the self, and on the current situation the observer is now "stuck" in,

Movement	Presencing	Absencing
	emerging future, in which the vision of the future is inspired and sourced from the future versus from the individual ego self.	versus an emerging future potential. Self-reflection is no longer possible.
Prototyping Destroying	Prototyping focuses on iterating in order to learn from the future. Where the left side of the U process is centered on observation, the right side is centered on doing.	Destroying is the breakdown of trust, of the environment, and of the future that wishes to emerge.
Performing Destroying	Performing is embodying the new world, in tune with the larger ecosystem.	

The final two stages of Presencing—enacting (or prototyping) and performing—are broken into two discrete steps, while in Absencing, these two steps are collapsed into one. There is, presumably, no differentiation between iterative and embodied destruction.

How is Theory U different from other foresight models?
In Theory U, assumptions shift regarding our relationship to creating the future. Rather than the conventional agency/deterministic and optimistic/pessimistic dichotomies of perspectives on the future, Theory U takes as a foundational assumption that there is a higher future potential *that already exists*, and that wants to be born—the "seeds of the future." As changemakers and citizens of planet earth, our job is to shift our interior condition and open ourselves up to observation and awareness so that we sense into that future potential. While the distinction between formulating a better future and sensing into a future that wishes to be born might seem immaterial to some, it is a defining concept of Theory U. In short, trying to create a conventionally defined preferred future is one that is ego, versus eco, driven. We would be creating *our* preferred future, versus *the* highest future potential.

Theory U as generative response to disruption
Theory U can be overlaid with the more traditional Futures Cone, in which the distinctions between probable, preferred, plausible, and possible futures are articulated visually. At some point along the continuum of past/present/future, a disruption to the baseline (or most likely) future occurs. This triggers the U process, leading to individual and collective examples of Presencing as well as, and arguably primarily, of Absencing. Situated in a traditional foresight context, we could say that Theory U is a method to support the movement of society from a disrupted baseline future to a new, preferred future. As for Absencing, it is less clear whether

the process locks individuals and social groups in a sort of ghosted probable present/future that no longer actually exists (perhaps what Zygmunt Bauman refers to as "retrotopia"[4]), or if a critical mass of "Absenced" individuals have the power to create a new probable future, locked in denial.
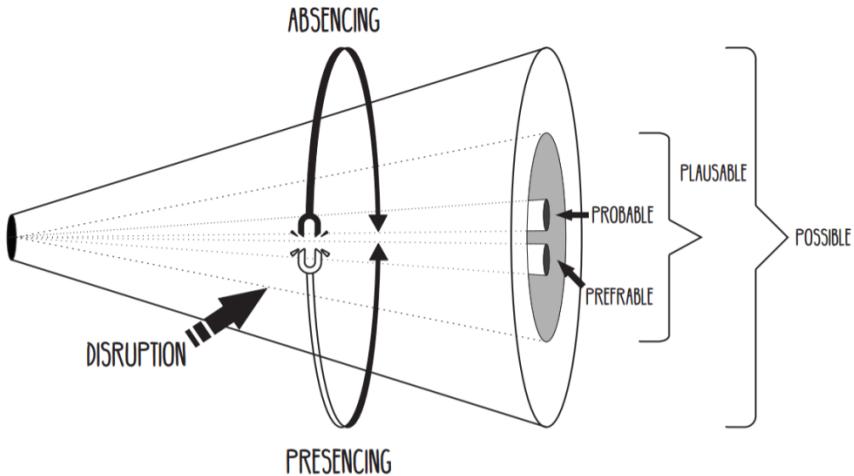
Fig. 1. Futures Cone with Theory U overlay

The initial response to disruption can trigger dramatically different results. Theory U is a useful framework, not only as a replicable process for creating systems-level awareness and change, but for situating individual and societal responses to disruption along the Absencing continuum. The meaning of disruption here is the sudden or gradual discontinuity of the baseline future. The disruption of the probable future triggers a divide between "here" and "there." How do we return to the path we were on? Or, more importantly, reach the path we wish to be on (preferred)?

The mainstream response to climate change is a perfect example. At some point in the past the socially constructed "probable" future of perpetual growth and progress was disrupted. As a response to that disruption, we see individuals and systems that have responded in generative ways, and individuals and systems that have responded by Absencing into a probable future of ecological collapse.

Supporting core concepts of Theory U
There are two key supporting concepts of Theory U: Levels of Awareness and the Three Instruments of Inner Knowing.

Levels of Awareness
How we operate in the world is intimately connected with our level of awareness. Hence, awareness is perhaps the most critical requirement in Theory U. The Four Levels of Awareness are: habitual, ego-system, empathic-relational, and generative. These four levels of awareness are also known as the social fields in which we operate.

- To be in a habitual field is to be in a default position of downloading and "talking nice" with others.
- Ego-system is oppositional and stating positions: "talking tough."
- Empathic-relational is dialoguing with others and moving beyond static perspectives.
- And the generative level of awareness is often described as "flow," not unlike the sense of flow experienced by athletes or when artists lose themselves for a period of time in their work. This flow can be experienced collectively as an openness to a higher future potential.
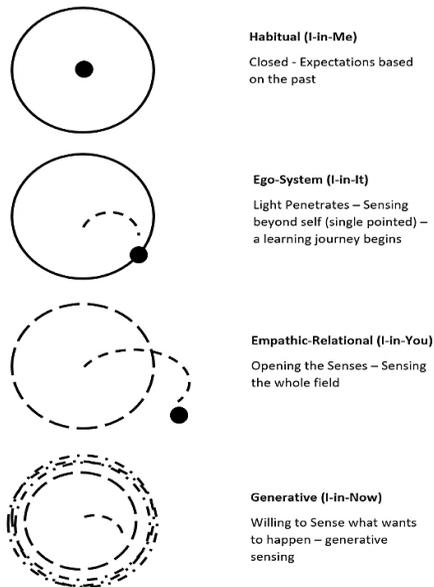
Fig. 2. Four levels of awareness

The Three Instruments of Inner Knowing
The Theory U framework and individual tools work to cultivate an open mind, open heart, and open will. These are the Three Instruments of Inner Knowing. The open mind is connected to seeing with fresh eyes by suspending habitual patterns of interpretation. Open heart focuses on the ability to empathize with others. And open will is the ability to let go and let come.

While the Three Instruments are critically important to successfully navigating the U framework, the heart is a bit unique. The heart (emotion) connects the intelligence of the head (information) with that of the hands (will or motivation). Without the heart, we will often find ourselves "stuck" in mindless action (where the hands are fully in control) or stuck in actionless mind (where the head is in full control). We can think of the heart as the fulcrum of a teeter-totter, maintaining a balance between the head and the hands. This dynamic also occurs at the systems level, where the knowledge of systemic problems and the will to do something about them are out of sync, still leaving us collectively "stuck." The wisdom of the heart is crucial to becoming "unstuck."

Movement
While the Theory U framework has evolved over time, academic deepening on Theory U and Presencing is not the primary focus of Scharmer's work. His work, and those of the Presencing Institute and practitioners around the world, is actioning the methodology to create systems-level change. Hence, emphasis has been placed on the development of a platform for collaborating on global initiatives and disseminating information, as well as developing, refining, and sharing tools.

As an action-research oriented methodology, the Presencing Institute has engaged with a large audience, offering both educational programs through workshops and MOOCs, as well as creating a platform for what the Institute refers to as "u.labs." Collaborative work is underway across several societal domains including well-being, finance, education, sustainable food, and resilient cities.

Theory U tools
Over several years, a focus of the Presencing Institute has been to develop and cultivate specific practices that can support the Theory U process and attainment of sensing the field through Presencing. Tools used throughout the co-stages of Theory U workshops are primarily preexisting tools that

have been appropriated or modified in order to support the desired aim of each movement in the U process.

Table 2: Commonly used tools for each Theory U movement

Co-Initiating	Co-Sensing	Sense-making	Presencing	Co-creating	Co-evolving
Intention Setting	Learning Journeys	Case Clinics	Guided Journaling	Brainstorming	Mentoring
Dialogue Interviews	Stakeholder Interviews	Stakeholder Voices/Shoes	Moments of Mindfulness	Causal Loop Diagrams	Supportive Infrastructure
Empathy Walk	Specialist Inputs	System Mapping	Poetry	Mock-Ups	Open Space
World Café	Shadowing	3D Sculpting	Music	Teams (Dedicated and Cross Team Reflection)	Presentations
Check-in Rounds: What draws me here?	Social Presencing Theatre (SPT)	Scenario Planning	Solo in Nature	Personas	Cross System Case Clinics
		SPT	Stepping into the Field of the Future	Prototyping	
			SPT		

Theory U practices
The intent of the practices that have emerged to support Theory U is to cultivate awareness of the emerging future. The two primary practices are Social Presencing Theatre (SPT) and Generative Scribing.

Social Presencing Theatre
SPT is a body-based awareness and movement discipline developed by a longtime collaborator of Scharmer, Arawana Hayashi. It is used as a complementary set of tools within the larger Theory U toolkit, or as a standalone series of activities that move participants through the U. Basic preparatory exercises are meant to ground individuals in their bodies. An example of a preparatory exercise is the "20-minute dance" in which participants lie on the ground and have twenty minutes to reach a standing position. The purpose is to allow the mind to relax and let the body decide when and how it wants to move. The mind becomes an observer.

The primary goal of SPT is to bring awareness to individual and systematic "stucks," areas where we are unable to move forward, and

allow the intelligence of the body to become "unstuck." Examples of individual stucks involve an exercise referred to as Sculpture 1 and Sculpture 2. Individuals reflect on their current situation and allow their bodies to take on the shape of the stuck, how it manifests within their body. Then, the individual deepens into the stuck, allowing the body to clarify it. Finally, the individual rests in the stuck until the body feels compelled to move. The individual lets the body move until it returns to a state of rest. This is Sculpture 2, which should provide insight not only into the stuck, but into how to resolve the stuck through the transitionary movement from Sculpture 1 to Sculpture 2. This exercise can be done individually or with a small supporting group.

Finally, at the systems level, there is "4D Mapping" in which participants take on assigned roles within the system. Each enters the space and finds their opening sculpture. Once all participants are in place there is a deepening of the collective stuck sculpture, and then movement occurs. This movement will eventually find a resting place which helps to clarify the challenges and solutions to the collective stuck.

At the core of all exercises is the emphasis on attending to our individual and collective levels of awareness, and observing without judgement or interpretation. Hence, practitioners are taught sensory language, speaking in terms of proximity, levels, and direction, rather than specific meaning.

Generative Scribing
Generative scribing has emerged as a critical tool in the development of Theory U as well as in Theory U workshops. It is a form of graphic facilitation unique to Theory U and is meant to activate the social field within a workshop from habitual to generative. Generative scribing's founding practitioner, Kelvy Bird, views scribing as an inversion of conventional learning: scribing begins with the heart (empathizing) and moves to action (drawing); then new understanding emerges (knowledge that comes from scribing).[5]

Bird has developed a model of practice with five domains. They are:
1. *Be*: How to show up in the space. The interior condition of the scribe.
2. *Join*: How to connect with others across boundaries. And, as scribes, to not get lost in the self but to listen to what is flowing through the room as you work.

3. *Perceive*: Level of awareness, or the ability to sense the larger system at work, often beneath the surface of the conversations happening in the room.
4. *Know*: The ability to NOT include everything on the page. To NOT scribe verbatim but to find coherence, to find the story or stories, the images, that most succinctly capture the generative dialogue happening in the room.
5. *Draw*: The synthesis and visual manifestation of both what is said and what is meant. The coherence of knowing is not enough—the coherence needs form.

Ultimately, generative scribing allows the system to see itself—a critical tool in supporting the U journey.

Conclusion

Theory U continues to develop as a theory, method, and movement to create systems level change. The framework has proven successful in shifting the mindsets of workshop participants and allowing them to Presence into a higher future potential. Beyond its practical applications, the Presencing Institute also serves as a useful example of how to cultivate an esoteric and complicated theory and deploy it at scale in a fairly short timeframe.

Adam Cowart

Adam Cowart is a strategic foresight professional and playwright. He holds a creative writing B.F.A. and M.F.A. from the University of British Columbia, a M.B.A. from Simon Fraser University, and a M.Sc. in Foresight from the University of Houston. He is also a six sigma black belt and a proud alum of the Stanford d.School's *Design Thinking Bootcamp* and Harvard's *Reimagining Strategy* executive education program. His recent produced plays include *Entanglement* which premiered at the 2017 Impact Festival and *Definition of Time* at Vancouver's legendary Cultch theatre in 2014. He is an Adjunct Professor in the University of Houston Foresight department and a Senior Project Manager for Loblaw Companies Limited. He is a member of the Association of Professional Futurists where he was named an Emerging Fellow in 2018, and a member of the Playwright's Guild of Canada.

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CHAPTER 7: THE MANOA SCHOOL'S FOUR FUTURES

by Jim Dator

Introduction

For most of human history—for tens of thousands of years—humans lived in societies where there was very little social or environmental change. Past, present, and future seemed exactly the same. Indeed, the best way to anticipate the future was to imitate the past, and the best people to ask about the future were old people who could tell you what it was like before they were born. They thus could tell you the best path forward without any fear of contradiction or failure.

But for some time you and I have lived in a very different world; one in which change and uncertainty are constant, where no one can—or should—say with confidence: "do this, because if it worked before, it surely will work tomorrow." Our situation is as if we had been standing for a very long time on a large old-fashioned movie film. We look down and see the scene in the frame in which we are standing, and we look forward, and as far as we can see, the scene in each frame seems the same as it is where we stand now. And if we look backward, we see the same thing: not much change that we can see from the past to now.

What change there is seems cyclical, based on the rhythms of nature, from the movement of the sun over the heavens bringing forever the repetition of night and day, and of the four seasons—"If winter comes, can spring be far behind?"—or of the alternation of societies between "the fat years and the lean years," so that nothing gets too bad nor too good, but cycles endlessly around a golden mean.

It is futile, and probably sacrilegious, to worry about the future. "Consider the lilies of the field…. They toil not, neither do they spin, yet Solomon in all his glory was not arrayed like one of these." "Take no thought for the morrow for the morrow shall take thought for the things of itself. Sufficient unto the day is the evil thereof." "Que sera, sera: Whatever will be, will be."

It was like that for so long that we are all biologically programmed to expect the future to be essentially like the present, just as the present is essentially like the past. There was no reason for uncertainty or anxiety for the most part. Just follow the rules, do as you are told, and everything will be as good as it can be.

Indeed, it was dangerous to imagine, much less to strive for, novelty. Leave well enough alone. If it works, keep it working. The ape who swings for the visionary bough will not live to pass on his genes. Of course every once in a while something would occur to disrupt the predictability of the future. Your community could be suddenly overrun by a tribe that had much more powerful tools than you did. An earthquake could devour your village. New diseases could sweep through, bearing everyone away. Your community could outstrip the carrying-capacity of its environment. A shipwrecked sailor might show up with a new pair of genes, and suddenly the biological basis of your community could significantly alter.

But most of the time, after a brief period of uncertainty and confusion, a new normal would emerge and everything would be predictable once again.

Once in a while something truly transformative would happen: Someone would invent writing, and all the customs and rules that served oral cultures so well would be tested and fail. New rules, new institutions, new ideas, new ways of thinking based on writing would replace the old ones based on word-of-mouth, which then would rule for thousands of years until the printing press replaced the people, institutions, and practices that had evolved around handwriting, while newer rules, newer institutions, newer ideas, and newer ways of thinking based on the cheap and rapid sharing of printed ideas replaced the old ones.

But eventually, the rate of social and environmental change itself picked up and began to accelerate. The time between one new invention and the next got shorter and shorter. People were constantly having to learn how to adapt to the new before they had barely come to understand the old.

It was as though someone had picked up the old movie film off the floor, placed it in a motion picture projector, and turned on the switch. Suddenly we saw that we could no longer predict the future on the basis of the present or past. None of us could be sure what was coming next.

Old ways were being destroyed. There were many things about the new ways that people found better than the old—as well as many things about the old ways that were being lost and replaced by things inferior, flimsy, flighty, ephemeral.

Some people tried to hold on to the old ways but often could not because there seemed to be no way to turn off the projector. We were being propelled into unknown futures against our wills, to the great pleasure of some and the extreme agony of others. Indeed, today's winners often became tomorrow's losers as new technologies brought new behaviors that produced newer values that challenged old values provoked by old behavior produced by old technologies.

Suddenly, what had been one long predictable future was in doubt, and in its place many alternative images of the futures sprang up, flourished, and faded while others grew, merged, persisted, until in place of one future—or one thousand—it became possible to see that there were in fact four generic, basic, mutually exclusive images of the futures that existed in different peoples' minds, stories, songs, plans, and actions around the world.

When I first became seriously interested in understanding the future, I assumed I could accurately predict the future by using computer models. But the more I looked and read, the more I saw that I could be content with predicting one future only if I were content to ignore all the other different images of the futures that existed. And I could not do that. Each image had its own epistemological base, its own logic, its own set of facts, its own preferred vision, and I could not find any basis for me to assert that one was correct and all the rest wrong. Rather, I concluded that it was my duty as a futurist to gather and explore as many images of the future as possible, and to help my students—and my clients—to consider these images fairly and thoroughly.

But no one can consider them all, and so after a great deal of looking and thinking over many years, I finally realized that all of the millions of different images of the future are specific variations of one of four generic, basic, fundamentally different images. The labels we have used have varied over time, but now we designate the four as Grow, Collapse/New Beginnings, Discipline, or Transform.

Grow

One image, still the brightest and most clearly seen, is the image of Grow—typically meaning continued, or renewed, economic growth. One version of that image began to form about 300 years ago, and became the official image of the future when the scientific-industrial revolution began destroying agricultural societies, propelling everyone off the farms into the cities in pursuit of profit, prosperity, and progress—endless, upward progress going forever forward, forever replacing the old with the new. Economic development drove all other kinds of development, and all other kinds of development were aimed at producing still more economic development globally and without end.
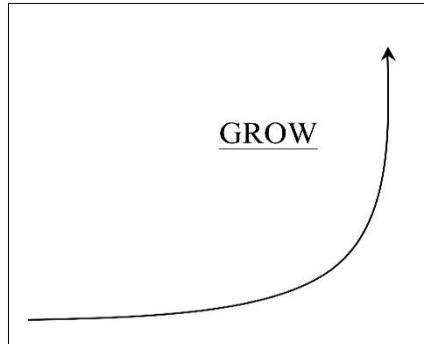
Modern science and technologies vastly increased humanity's abilities to manipulate nature in ways impossible before. Science and technology led to the development of new cheap and abundant energy sources—first coal and then oil. Without cheap and abundant energy we would still be living in feudal squalor.

Because of cheap and abundant oil, modern methods of urban sanitation and medicine enabled more people to be born, thrive, and live to ripe old age—causing sudden and massive local and global population growth. Because of cheap and abundant oil, some members of ever-multiplying humanity were able to be fed, housed, and clothed more extravagantly than ever before.

Because of science, technology, and cheap and abundant energy, new forms of transportation were invented, quickly replacing

human, animal, wind, and water technologies that had persisted for thousands and thousands of years. The railroad, the steamboat, the automobile, the airplane, the railroad system, global shipping, intercontinental highway systems, global airline networks. Distance almost vanished.

And then both time and distance did vanish with the advent of electric and electronic communication systems that knit us together at the speed of light—all because of science, technology, and cheap and abundant oil.

It is as though both the film and the movie projector vanished, while many parts of the world have become just a blur of cosmic light, as the astronaut/poet Story Musgrave put it, in part:

Falling into sleep,
Drifting into dreams,
Cosmic crashes in my eye,
Cosmic flashes in my brain
Cosmic rays and Wilson clouds,
Clear my consciousness.
Memories of infinity,
Particles of eternity
Starlettes pierce my eyes,
In my brain fire flies.

Collapse

But wait, many other people cried out! To grow simply for the sake of growth is the logic of the cancer cell that eats its host until both die. Continued economic growth not only has destroyed all of the good things about previous cultures but is clearly killing Earth and all of its inhabitants as well. We are in the midst of the sixth great extinction of life on Earth. The first five extinctions were the result of natural processes. The sixth is entirely the fault of humans who think themselves superior to other animals. Moreover, in our mindless pursuit of growth, we have

COLLAPSE
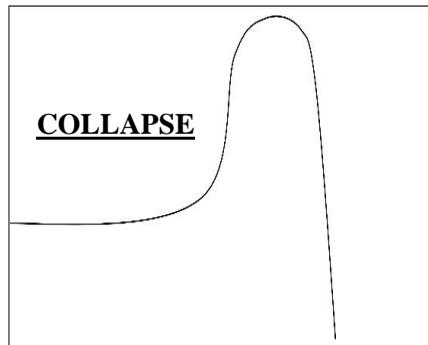
lost any sense of ethics or morality, so blinded are we by the false glitter of gilt, gold, and greed. Both communism and capitalism were aimed at outgrowing the other; neither questioned the goal. It is not the case that one was successful and the other failed. Both are failures, one simply collapsing before the other, and neither distributing wealth fairly, equitably, and with no irreversible environmental damage.

It was also fortuitous that global climate during the past 300 years has been unusually stable and predictable, enabling, along with oil, food production to keep up with population growth. But the period of climate predictability is over. Largely chaotic climate change will persist. And so we have been thrust out of the largely benign Holocene geological epoch into which *homo sapiens sapiens* evolved a little over 10,000 years ago, after the last Ice Age, into a new geological epoch, called the Anthropocene because of humanity's major role in creating it.

Humans emerged into a wilderness upon which we could rely for abundance. We chose to change the wilderness into a garden that we must diligently tend. We seem now in the process of changing the garden into a wholly artificial iron lung that we must constantly create, govern, and re-create in order simply to survive.

And yet we do not focus our attention on designing, inventing, and operating our artificial world. Instead we continue to focus on growth, and on ancient ethnic animosities, wasting time and resources preparing for and fighting endless wars over nothing while the time to extinction slips relentlessly away.

As a consequence, all societies have either collapsed or are in the early stages of inevitable collapse. Just how far will this collapse go? To the extinction of humanity? Or the extinction of all human technologies and institutions since agriculture, industry, and electronics? Are we moving towards new forms of hunting and gathering societies, or at least of agricultural societies dependent on animal and human energy and materials for the most part?

If so, then total Collapse gives humanity the great chance and obligation to start all over again—to experience a new Garden of Eden, within which we may learn to be content and happy, or from

which we may learn to evolve gracefully, peacefully, cooperatively, meaningfully.

So are Grow or Die our only alternatives? Is there no way that humanity can step off the suicidal path to endless growth other than by stepping onto the equally suicidal path to collapse, even with the hope of new beginnings?

Discipline

Yes, of course there are alternatives, shout many voices! We have known for a long time that we must learn to thrive without continuous economic growth; that there are many values far more important than simply endless material possession and consumption. More and more people have come to embrace voluntary simplicity—"Live simply so others may simply live," they say. They live according to the laws of nature, or of God, or of some other ideology or belief system to which they are convinced they should offer their service.
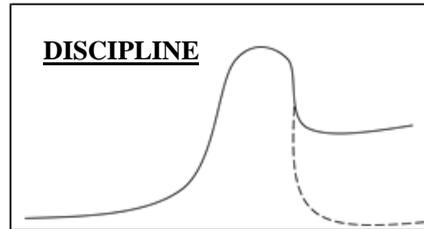
This image of the future can be called Discipline. However, the term does not mean forced obedience, though in some circumstances that might be necessary. Overwhelmingly, Discipline means voluntary obedience to a higher cause from which one receives much greater satisfaction than could possibly come from selfish greed and material possessions.

The world is full of good examples of disciplined, sustainable communities now. For a short period during the late 1970s the Science Council of Canada took it as its duty to change Canada from a mindless, destructive "Consumer Society" into a healthy "Conserver Society." Many Canadians spent a great deal of time and effort visualizing and planning for what a "conserver society" might mean in various contexts.

Unfortunately, the project was killed by the far larger and better financed interests behind continued economic growth, but now is the time for a revival of the concept not only in Canada but everywhere in

the world. Fortunately, there are many actually existing "conserver societies" from which the rest of us can learn.

Transform

No, no, say still other voices. While Continued Growth as practiced is unsustainable, neither Collapse nor Discipline are acceptable alternatives. The Anthropocene is real. Humanity and our biosphere are in the midst of a profound transformation. If we can nurture it into being, we can lead humanity, and post-humanity, into experiences and values never before experienced on a planetary scale.
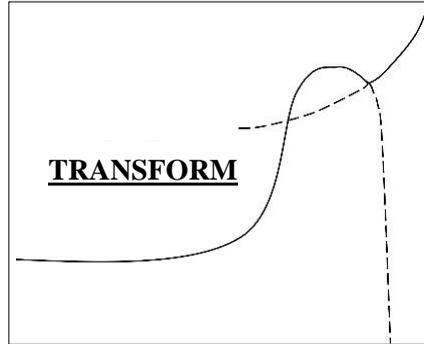
TRANSFORM

We are transforming society as surprisingly as a humble caterpillar is transformed into a beautiful butterfly, or liquid water is transformed into steam or ice.

A world of abundance and leisure with humans, transhumans, and artilects on Earth and the inner solar system is potentially imminent. The timid views and actions of "sustainability" are unimaginative and uninspiring, they argue.

Robots, artificial intelligence, autonomous entities, cyborgs, artilects, ubiquitous technologies have already just about taken over all manual and mental jobs that once upon a time only humans could do. New, real jobs requiring human labor and intelligence will not emerge to take the place of the old, necessary jobs the robots have taken over. A world free of meaningless make-work should also be a world of great creativity. A Dream Society. A Creative Society of leisure, abundance, play, and full unemployment!

Four images of the futures

The four images of the futures of Grow, Collapse, Discipline, and Transform are not simply variations around a common theme, such as "high, medium, and low," or "optimistic vs. pessimistic," or "pro- vs. anti- technology," etc. Each future makes very different assumptions

about a number of common "driving forces," such as population, energy, the environment, culture, governance, technology, and the like.

Very importantly, I did *not* make them up. The four images are each based on extensive evidence produced by concerned people who are earnestly trying to understand what lies ahead—and are coming to very, very different conclusions. It is my duty as a futurist to help you consider each of the four futures fully, fairly, and usefully.

And it is your duty to seriously and fairly try to understand the evidence supporting each future before you decide what you think, and what your preferred future is.

So whenever you think about and plan for the futures, always think about and plan for *all* four equally seriously and fully. Don't privilege one over the others.

But as you do plan for preferred futures, please remember Dator's Second Law of the Futures, which is that in a rapidly changing society, "Any useful idea about the futures should appear to be ridiculous."

In truth, if we had known to look for them, we would have seen that these four images of the futures always existed throughout world history. Not only will these four futures always be before us, they have also always been here within us.

What might seem to be one clear path from the past to the present is in fact a matrix of endless choices and chances that have lurched humanity forward, sideways, backwards, upwards, round and round though time to the present—always the four generic images of grow, collapse, discipline, and transform. What may be unique about us now is that the four images are so clearly and starkly apparent, on the one hand, and so clearly global in their impact, on the other.

Some nations and regions have experienced 200 years of comparatively steady economic growth—surely with episodes of collapse, discipline, and transformation. Japan, Finland, Singapore, South Korea, China are examples of quickly transformed socioeconomic systems, while others have experienced and are currently experiencing long periods of collapse or discipline, while hoping to find a path to continued growth.

But if collapse, which seems so very likely now to many people, does become a worldwide experience, and if attempts fail to segue from discipline to grow, as many people believe likely, then so-called developed or advanced societies will have a lot to learn from those who have found ways to thrive and live meaningful lives in what currently privileged people see as collapse or severe discipline.

One of the biggest lessons we need to learn from all of this is that there is no such thing as a "normal" future from which all other futures are exceptions. No "most likely" future, and no "least likely" future either. There are no wildcards, no black swans, no images of the futures that are more plausible or implausible than any others. We are increasingly post-normal beings living in post-normal times. "We are all aborigines in a brave new world." We need new sciences that include human actions—past, present, and futures—in their understanding of the limits and demands of the unfolding Anthropocene Epoch for which we must become responsible.

Most urgently, we must learn to become visionaries and artists who are also skillful social inventors of communities on local, global, and interplanetary scales. Humanity must face the mighty forces that bear down on us like gigantic waves. We are not helpless against them. We must study them closely and learn to surf them with skill and enjoyment.

Can we do that? Yes we can. Will we do that?

This exposition is intended to be one of many small steps being taken now to help humanity envision, invent, create, and re-create peaceful, fair, equitable, and evolvable communities for Earth and wherever humans, posthumans, and artilects may humbly go.

Let's come back in 25 years and see how we did.

This article is based on Dator, J. (2017). "Manoa's four generic images of the futures," *APF Compass*, July, 2-7.

Jim Dator

Jim Dator is professor emeritus of Alternative Futures, Department of Political Science, University of Hawaii at Manoa. This was slightly modified from the opening keynote address of the "Design, Develop, Transform" (DDT) conference in Brussels, published in *APF Compass* July 2017. There is a short bibliography of some of the many recent sources underlying each of the four images of the futures at the DDT conference website. He may be contacted at dator@hawaii.edu.

VOLUME 2: METHODS AND PRACTICES

INTRODUCTION TO VOLUME 2: METHODS AND PRACTICES

by Andy Hines

It is not uncommon to hear the lament that there has not been much innovation in foresight. I hope that the KBFS helps to dispel that notion. It is perhaps fair to say that as a field heavy on practitioners and light on academics, it has been easier for busy practitioners to tweak existing methods. The limited number of PhD programs, which one might argue is that heart of serious methodological research and innovation, does not make it easy. In my experience running a Foresight Master's program, we find that most students are working professionals and don't have the bandwidth to invent from scratch. Despite these challenges, our broad survey of "what's new" in methods and practices found that innovation in foresight is alive and well.

Part One on "Futures Methods and Tools" includes six pieces on innovations since 2005. It is appropriately opened by Cornelia Daheim's overview of four significant developments in emerging practices. Their adoption is a bit uneven and given the field itself is relatively small, it is understandable that some of these practices go relatively unnoticed. But they are there! Cornelia cites four major themes in emerging practices: (1) integrated qualitative-quantitative approaches (2) IT-based and "automated" approaches (3) open and crowdsourced approaches, and (4) experiential foresight. In the KBFS 2020 we were a bit "stingy" on what got included. We did include a piece on experiential foresight, but not on the others. So there is even more out the brewing than we have captured here. The first piece dedicated to a specific method is Clem Bezold's "Aspirational Futures." While Clem and his colleagues at IAF were heavily involved in the visioning aspect of foresight over their forty years of operation, it was only a decade ago that they formally captured and published their methodology. As need for positive visions grows, the availability of this approach is likely to come in increasingly handy.

"Experiential Futures," by Stuart Candy and Kelly Cornet, nicely captures this emerging practice noted in Cornelia's work. Stuart and Kelly summarize Experiential Futures (XF) as a family of approaches for making futures visible, tangible, interactive, and otherwise explorable in a range of modes. It explores people's images of the future in a variety of ways, from academic experimentation to documentary, activist, and public deliberation purposes, as well as more personal, quasi-therapeutic, and outright playful ones.

The contributions to KBFS2020 were locked in just before Covid-19 hit. This development will surely spark an investigation into the role of wild cards. Happily, Elina Hiltunen contributed a piece on "Wild Cards and Weak Signals" that summarized her yeoman's work on this topic over the years. She contends that many so-called wild cards are really the result of gradual changes and appear as surprises to those who haven't been looking. Brian David Johnson provides a very practical "Guide to Science Fiction Prototyping," a method he developed in his days with Intel. A science fiction prototype is an architecture or outline to help authors explore the implications of a specific possible future. It's a skeleton of the story that provides a step-by-step description of what happens in a particular future. The beauty of the method is that it refuels one's imagination by looking at the future in new and exciting ways.

The final method in Part One is "Framework Foresight" developed by Peter Bishop and myself. It outlines the approach to teaching and practicing the future that has evolved at the University of Houston Foresight program. It provides is a systematic way to develop a "start-to-finish" future view of a domain or topic of interest and to explore its implications and develop options. Its six generic steps are deliberately designed in a modular fashion in which other futures techniques can be plugged in. It acknowledges that there is no one right way to explore the future, but offers a structural framework based on the Foresight Competency Model developed by APF and described later in this volume by Luke van der Laan.

Part Two of "Methods and Practices" covers developments in "Critical Practice and Integral Futures." At the time of the previous edition, these approaches were still working toward acceptance by

the futures community. They have since mainstreamed and become essential components of futures practice.

The first piece by Pupul Bisht, "Decolonizing Futures: Finding Voice, and Making Room for Non-Western Ways of Knowing, Being, and Doing," makes a case for opening up foresight to a wider range of voices. It recognizes various culture approaches to narrative and storytelling outside of traditional Western methods that provides an alternative way of engaging with and imagining futures. It provides concrete recommendations on how to make room for perspectives that have tended to be marginalized or left out of futures work.

"Surfacing the Intangible: Integrating the Doing and Thinking of Strategy" by Maree Conway is an excellent demonstration of how Integral Futures has evolved from an interesting theoretical perspective to a very practical tool. She describes how her use of Integral Futures has evolved out of "stealth mode" as she sought ways to reinvigorate strategy development. And she is not done yet, as she outlines plans to move strategy out of the box and move it to a more progressive futures space.

The last piece of Part Two, is Richard Slaughter's "Integral Futures: Theory, Vision, Practice." No one has done more to promote Integral Futures, so it is fitting that he shares his views on where it's at and where it might go. He chronicles its evolution by outlining several mini case studies that show how it provides a greater depth of analysis than more conventional tools. These cases demonstrate how it can be applied both to explore the multiple crises that threaten our world, as well as more pragmatic applications within organizations. While he acknowledges that integrally-informed futures work is challenging and not for the faint-hearted, it also enables a range of constructive responses to a world currently desperate for solutions to the encroaching global emergency.

Part 1: Futures Methods and Tools

CHAPTER 8: EMERGING PRACTICES IN FORESIGHT

by Cornelia Daheim

Introduction

Foresight is showing new directions of methodological developments—as it probably always has. But one can argue that this has been happening with increased speed and diffusion. The changes stem from several drivers including:

- Changes in demand for the use of foresight in science, technology, and innovation (STI) policy (for example a demand for wider participation) and also in other decision-making arenas, such as corporate foresight.
- Technological innovations that enable new approaches (for example improvements in information technology that enable progress in text mining and clustering for scanning).
- Research and practical insights into weaknesses in the traditional approaches and attempts to thus further develop approaches (e.g. the push to more clearly demonstrate impacts and create more inclusive forms of engagement).

Different aspects of these recent methodological developments have been discussed using a variety of labels and terms, such as "Foresight 2.0," "Open Foresight," "5th generation foresight," "networked foresight," and "experiential foresight." Thus, although reflection on these changes has been the subject of a lively and increasingly prominent discussion in the foresight community, there are few attempts at more formal overviews and reflections of the impacts. This makes it difficult to judge the overall picture[1] and conduct a productive discussion about future directions. This research aims to shed light onto some of the relevant issues by providing a structured overview of these changes, backed by the views of experts. The goal is to advance the debate on future directions of methodological development in foresight.

It should be noted that all outcomes are at the level of first insights. To verify where exactly developments are going, more thorough research would be needed.

Structure

This paper outlines the major approaches and sources of insight used, and gives further details on the emerging clusters of "new" approaches in foresight that were identified from the research, via a descriptive overview of project examples and insights on strengths and weaknesses. It also reflects on potential future developments with respect to further use in specific phases of foresight processes, summarizes the main conclusions, and indicates directions for further research.

Survey and expert interviews: The research approach
Methodology

An international expert survey was used as the core of the research. This was supported by literature review and informal expert consultations in the preparatory stage, a workshop with experts from the field at a European conference on forward-looking technology analyses, and more in-depth expert interviews following the survey.

Emerging practices in foresight
Integrated qualitative/quantitative approaches

For this cluster, it is clear that the integration of both paradigms— qualitative and quantitative—has gained importance and brings about the first signs of "bridging the gap between numbers and narratives." The topic brought about some strong judgements on whether this is a positive development. The input from experts can be largely categorized into two reactions:

- A minority claims this development is or should be nonexistent, stressing that the development *should* not exist because foresight has to be qualitative.
- The majority of comments state that there have been traditions of both qualitative and quantitative approaches in foresight for a long time, and that the new development in the last decade is really about bridging the two sides of the practitioner/expert community, and what we see now is steps towards the true integration of these two "worlds."

Indeed, while a major share of futures-related work labeled as foresight seems to be qualitative[2] there have been longstanding traditions of quantification within the foresight or wider futures-oriented research arena, first and foremost in the forecasting tradition. While there is no formal, established agreement yet on the difference between foresight and futures studies and forecasting, in practice the difference to most experts and experienced practitioners is clear, even if boundaries are more blurry in application than in theory.[3] Cuhls reflects that forecasting is more "quantitative than qualitative" whereas foresight is more "qualitative than quantitative." However, for both traditions, forecasting and foresight, increasing integration can be witnessed as both communities seem to be moving towards greater use of both.

What is meant by this change becomes clearer when we look at exemplary projects. It has been argued that the increasing integration of qualitative and quantitative can enable a more holistic view and better address the needs of decision-makers. One project referred to in this respect is "Emission-Free Transport in Cities 2050,"[4][5] which brings together system dynamics modeling with "traditional" foresight methods (visioning) and impact assessment. The authors argue that such new methods are needed in order to deal with "the increasing complexity of socio-technical environments." This requires:

- "Methods which strengthen horizontal approaches"
- "Steering mechanisms which are adaptive and able to respond to rapidly changing situations"
- "Approaches which support strategic thinking and interlink activities with a view of strategic management"

Ahlqvist concludes that the advantage of the approach is that it is able to concretely assess the consequences of various policy actions (including the more systematic possibility to map the intended and unintended consequences of the policies), define various paths to desired societal vision, and assess the usability of various policy measures in the context of specific socio-technical change. "The case of emission free transport indicates concretely how an optimal mix of various policy measures may support change towards desired vision in a complex socio-technical environment, and how various possible paths towards vision can be defined."[6]

Another advantage is illustrated by the UK's Department for Environment, Food and Rural Affairs' (DEFRA) "future of waste scenarios."[7] Systemic modeling was integrated with a participative, key-factor-based qualitative scenario methodology. Hirsch argues that this approach deepened insight into potential disruptions and systemic interconnection, allowed insight into potential development paths and their consequences for respective actions, and generally connected better to the mindset of decision-makers.

The DEFRA waste scenarios illustrate how these integrated approaches address concrete needs in decision-making: here, a "traditional" (participative, consistency- and key-factor-based) scenario methodology was integrated with a model (encompassing waste volumes and treatment) that builds on and connects with the narrative and qualitative scenarios. The project was specifically created to feed into the 2010 Waste Policy Review that needed to encompass perspectives of alternative policy developments, but also had to relate to specific impacts that can be expressed numerically, such as consequences for CO_2 emissions. The project was successful in bringing together the two perspectives of previously existing insights from research and the respective experts from the qualitative and quantitative side on waste issues, in a policy field where it had not been possible to connect these perspectives in alternative scenarios to support policymaking.

Hadjis, referring to a case of integrating modeling within a software company's strategy process in what they call an "investigative research process" based on system dynamics, comes to the same conclusion. He asserts that integrated qualitative and quantitative approaches enable "a more dynamic approach" capable of dealing with complex and rapid changes exceeding a single analyst´s capacity or those of a traditional planning process.[8] Furthermore, in sustainability research, an integrated approach of numerical modeling, scenario analysis, and participative approaches has even been described as becoming common.[9] It is striking that all these examples highlight the use of an integrated qualitative-quantitative approach as better dealing with complexity, and stress that it connects better to reality and the needs of the decision-making processes.

The UK innovation agency NESTA comes to a comparable conclusion in their analysis of emerging quantitative approaches, stressing that their analysis suggests:

The most promising methods are those that allow the analysis to explore states of ignorance. These exercises are not capable of predicting instances of outcomes, but they help explore the future in a conditional manner, acknowledging the incompleteness of knowledge. We suggest that these types of agent modeling and scenario modeling are the ones that can make a more positive contribution to policy-oriented FTA—by avoiding narrow prediction and allowing plural exploration of future technologies.[10]

IT-based and "automated" foresight

Many players from IT-based industries have strongly moved and publicized in recent years the potentials of increasing computing power, cloud-based technologies, and semantic analysis for making sense of the future. Famous examples are the Microsoft Prediction Engine and Lab, the cooperation between IBM and Twitter for Watson's predictive capacities, or the "predictive modeling" services by Kaggle. While none of these examples claims to be or can be regarded as foresight, taken together they show the speed of the development of underlying drivers. One might also wonder whether players from outside the traditional foresight community are actually taking over this realm of IT-based foresight.

Examples from the foresight field exist as well.[11] The Millennium Project, a global NGO and think tank on future issues, has switched its own research and communication base to a system called "Global Futures Intelligence System" and opened it up to other contributors and users from outside the Millennium Project as such:

> GFIS is not just new software, vast information, and global experts; it is also a system to produce synergies among these three elements for greater intelligence than their separate values. It is rather a global intelligence utility from which governments, UN agencies, businesses, NGOs, universities, media, and consultants can draw different values. The GFIS staff is more interested in synergistic intelligence than competitive intelligence, and how the world can work for all, not just for a single nation, ideology, or issue. It can provide decision makers, advisors, and educators with insights that reflect the consensus and/or range of views on the important issues of our time. The engagement of the user with our information, participants, and software is intended to help humanity become more proactive.[12]

Structured along the project's long-tracked fifteen global challenges, GFIS enables shared information tracking and scanning, but also communication between contributors, and defines "collective intelligence" as an emergent property from synergies among: 1) data, info, knowledge, intelligence, and wisdom; 2) software and hardware; and 3) experts and others with insight—all of which collectively enables continual learning from feedback to produce timely knowledge for better decisions than these elements acting alone. As is clear from its description, the idea and long-term goal of GFIS is to utilize the technology behind the tool, software, and platform to provide more transparent insight into global debates on futures issues for a larger group of users as well as to create more proactivity towards the future.

Shaping Tomorrow, a web-based service providing access to information on trends and future developments, has also recently demonstrated a new approach in utilizing IT for its scanning. It works with an "extractor software," a tool created to help in the collection and structuring of information on the future:

> A software service which works invisibly in the background and helps the user in two ways: it extracts metadata like publication date, author, source, country, region, keywords automatically from the input URL and adds it to the insight. It gives suggestions to the user about which parts of the texts are relevant for the future.[13]

The tool thus helps to more quickly gather information and enter it into a structured database, which Shaping Tomorrow claims halves the time effort and "increases the quality and consistency of human tagging." It is clear (and stressed by the team from Shaping Tomorrow) that the tool does not fully automate the scanning process, but aims to make it less time-intensive by assisting in it. This focus on the benefit of time and effort being reduced in certain tasks is also visible in other IT-based approaches that are described in the next section, regarding crowd-based approaches, as these also focus on bringing in input from a large number of contributors.

Open and crowdsourced foresight
Already in 2008, there were claims of foresight becoming more open in the sense of including a wider view of participants. Several projects in

recent years clearly illustrate this shift, a well-known one being "The Future of Facebook." This independent project brought together expert views and public insight from a wide range of contributors through an online-based process. It defined open foresight as a process for analyzing complex issues in an open and collaborative way, and to raise the bar on public discourse and forward-focused critical thinking. The process draws on well-established methodologies, principles from design thinking, and visual communication tools to create a framework for building forecasts and scenarios.[14] The project resulted in a series of six videos that explore the impact of social technologies. It worked under a creative commons license, and brought about a wide discussion through numerous channels such as Facebook, Twitter, YouTube, and Quora.

The project "Singapore 2065" also used technology to enable an open foresight process. This project by the Thought Collective, a group of social enterprises in collaboration with Singapore's Ministry of Culture, Community and Youth, is "an inaugural 3P platform for the exchange of ideas on the envisioning of Singapore's communities and spaces for the future." It crowdsourced visions for shared spaces—having for example produced visions for a living museum and office-worker sanctuaries in the city center—through online-based and face-to-face communication and workshops.[15] [16]

Further examples of projects that have attributed themselves to the open foresight or open innovation and foresight category include the BBVA Vision 2025 project[17] or the completed rounds of "Future Agenda." The latter, aiming to open up the dialogue in its current activities more towards younger generations and increasing its social network use, currently has what is probably the widest reach. It has achieved global interactions on a consistent basis via an interaction-based dialogue format. It had planned 100 workshops with 2,000 organizations in 2015, and engaged with over 50,000 people from more than 145 countries in its first round, including online interactions.[18]

With respect to crowdsourced approaches, this is one of the few areas that have seen formal analysis. Raford has analyzed how foresight support systems or online approaches impact specific attributes of a scenario-planning process. By using data from five empirical case studies, he juxtaposed a traditional and non-crowdsourced scenario process with foresight projects that were substantially based on crowdsourcing.[19] After analyzing key aspects of the scenario process (such as number, type,

geographic scope of participants involved, number of variables and opinions collected, the time spent on data collection and analysis, and the amount of user debate and reflection), he concluded that a significant increase in participation (in terms of absolute number of participants involved, their geographical distribution, and their disciplines and areas of expertise) could be shown.

However, the nature of participation was "in most instances fairly limited" and focused on the early stages of the scenario process. Raford also found that methods for clustering and ranking data demonstrated "new mechanisms for analysis and exploration that helped to more effectively leverage the existing time available." Also, costs for the online-based approaches can be assumed to be clearly lower than those for traditional approaches. But the most marked difference was in the depth and type of socialization, which took place mainly in limited online-based forms. Raford stresses specifically that "the different kind and level of social intensity produced by the online cases… [means] that they are not, at present, capable of achieving the stated emotional and social goals sought after in the best scenario workshops." In his conclusion on future perspectives of these approaches, he suggests that "a hybrid form of online and face-to-face engagement could be developed that would leverage the benefits of both virtual and in-person collaboration more effectively."

Experiential foresight: Emerging communication, engagement, and interaction formats including visualization, gaming, and design fiction
Experiential foresight seems to be the one approach where most examples of such projects are known and documented. The cluster here embraces approaches that either work with "new" formats of visualization and communication (e.g. videos or quizzes) or that have not been traditionally used a lot in foresight (with its "report dominance"); e.g., those that employ design-fiction based approaches by for example creating or co-creating future artifacts, or that use gaming approaches.

Visualization characterizes the first group of emerging experiential practices that have become more widespread. While storytelling in the written, narrative form has of course always been a well-established approach in foresight, these approaches go further, working with images or live visualization in workshops or video. As for publicized futures-oriented studies, one might argue that this is by now a nearly standard approach, but it seems this now also becomes a stronger tendency in

research-based, public sector-funded foresight. (For example the use of images, cartoons, and movies in the Korean national foresight exercises Korea 2030 and Park 2005, and in the UK Commission for Employment and Skills "future of work" scenarios that used visual vignettes and a visualized online scenario quiz.[20])

Video as an output format to communicate scenarios has also been used by crowdsourced foresight projects. Heather Schlegel's "Future of Money" TV series was funded on Kickstarter, and her video "Fly Me to the Moon, aka Dinner with Friends" is a vivid example of new narrative forms being used in online media.[21] In the video, a scenario that would in a traditional foresight project have been written up as a narrative story is enacted as a scene from around 2020, when cash is a frowned-upon anachronism. A group of friends share a dinner and then pay digitally, using a variety of new transaction forms enabling them to smoothly share the costs of a bottle of merlot as well as of tipping the waiter—who in turn is able to realize his dream of space travel. The video, by "showing" instead of telling us what the future could look like, brings this scenario story to life.

Another example of video use in a more "homemade," clearly less costly format comes from the open and crowdsourced category: the "Future of Facebook" project videos that summarize online-generated video input.[14] While there is usually no formal documentation for these examples in terms of their impact, it became clear through expert interviews that the benefits experienced were about expanding attention to a wider public. They brought a different kind of reaction. Many interviewees mentioned that the videos led to a more engaged and enthusiastic reaction to futures content, when conveyed in this way. The motivation for using these tools stemmed from the aim to be less abstract, to "make the future real and tangible," a motivation that also applies to design-fiction related foresight.[22] [23]

The influence of gamification—referring to the growing use of playful or gamified approaches—is emerging in all kinds of workshops and professional settings.[24] While the term "gamification" describes "the use of game design elements in non-game contexts," it is also related "to similar concepts such as serious games, serious gaming, playful interaction, and game-based technologies."[25] In foresight, there are by now numerous gamified or playful futures workshop approaches, one being "The Thing from the Future," from the Situation Lab by Candy and

Watson. It is an imagination game that challenges players to collaborate and compete by describing objects from a range of alternative futures.[26] Also by the Situation Lab is the Rilao Remote Viewing Protocol (RRVP), a collaborative world-building game produced for the 2014 Science of Fiction conference in Los Angeles that had over 300 participants create a whole future world. Participants worked with a world-building system, time-travelers who introduce the future world, prompts, a card deck, and a set of rules to scaffold participants through a storytelling and creative process. A website collected the output of this process in real-time, enabling participants to watch live as the fictional world of Rilao emerged from their collective imagination.

The "World System Model," initially a mental model of the "world problématique," has also been developed by the International Futures Forum into a participative learning game. The game can be played in versions ranging from a couple of hours to a full day. It involves a number of topics and contexts such as the future of cities or of public health policy; one example in 2014 was the topic Resilient Toronto, with a team of academics and concerned citizens from public services.[27]

Other examples of card game-based approaches include the "Foresight Cards" by IVTO, a research and education institute in the Netherlands, consisting of "125 external driving forces cards supported by high quality photos (25 per STEEP category)" and materials for running three workshops ("create awareness," "stress test business models" and "determine key uncertainties for scenario planning").[28] There is also the award-winning sustainability-oriented game "Mobility Vision Integration Project (MVIP) Cards" by Advanced Mobility Research and Graduate Industrial Design Programs from the Art Center College of Design. These cards support "rapid future scenario development on the topic of sustainable mobility so that groups and individuals can quickly enter a dialog and brainstorm about possible outcomes, solutions and strategies."[29] Along these lines of toolboxes that incorporate playful elements there is also the Playbook for Strategic Foresight and Innovation.[30] Designed as a resource for the self-learner in organizations, it encompasses numerous tools and case studies, among them game-based approaches such as creating fictional "Future User" profiles and "Futuretelling" (scenes from the future enacted as a performance) or paper mock-ups of future products.

It is obvious from these examples that there is strong interaction between current trends in design, such as speculative design or critical design, and foresight. The movement is towards creating what has been called "a profoundly engaging experience that goes beyond technical reports and PowerPoint presentations towards a new level of engagement." It is debated whether a whole new "school" of futures work is developing on this basis.[31] [32] All have in common that they stress the creation of a future fictional world, going beyond a text-based scenario description. In this realm, a group called "Future Fabulators" from Belgium has developed a full approach called "prehearsals," making it possible to "rehearse" a possible future. Their approach is to experience living in different scenarios and observe our reactions to them.[33] They have tested the approach in different contexts and conceptualized it into a "Prehearsal Pocket Guide." An example is the Food Futures project, which they call "a scenario building experiment and edible pre-enactment," where futures techniques are used "to look at how the relationship between food, health, and the environment might evolve in the future."[34] The first installment was realized as a tasting dinner at the Edinburgh Science festival in April 2014, and the second installment as a reception at the opening of the Future Fictions exhibition at Z33 in Hasselt, Belgium. Four scenarios were translated into a series of respective dishes, and the respective events also worked with elements of storytelling and visualization.

In a related manner, IPS Prism from 2012 in Singapore is an example of a project that started from a series of workshops, with 140 leaders of different sectors creating alternative scenarios on the question: "How will we govern ourselves in 2022?" It then used the outcomes to engage with a wider public. The scenarios were interpreted into different visualization and artistic forms to offer the public a "peek into the future" through an immersive arts experience at the National Library Building. Members of the public were invited to view the Prism Scenarios in this manner and then asked to share their own stories about how they saw governance unfolding over the next ten years. The process was thus opened up and worked explicitly with what are being called immersive, experiential approaches; the process and its results are documented on the project's webpage including videos.[35]

Based on the same idea, a framework called "Ethnographic Experiential Futures" (EXF) was recently developed and featured by Candy and Cornet. In order to decolonize and democratize the ways in

which futures are conceptualized, they developed a "design-driven, hybrid approach to foresight aimed at increasing the accessibility, variety, and depth of available images of the future."[36] Their concept brings the two schools of ethnographic and experiential foresight together and attempts to trigger more public engagement on issues of the future. The method is based on a subsequent number of steps in which vivid experiential future scenarios are "mapped, multiplied, mediated, and mounted."[37] A successful example is "FoundFutures," in which future artifacts in the form of urban installations and happenings were shown to the public in Chinatown, Honolulu, Hawaii.

Probably the largest and most impressive example so far in this field of immersive approaches has been the "Museum of Future Government Services" by the UAE Prime Minister's Office, launched at the World Government Summit in Dubai in 2014. It aims to "create images of the future explicitly designed to shift policy conversations and accelerate innovation."[38] Raford observes that the Museum provided "an immersive, interactive experience that explored the future of key government services. It did so by creating 'diegetic prototypes'… of working future services that participants could interact with and experience for themselves." He mentions there was a strong impact on the national discourse and that several policy initiatives were launched as a direct result, and concludes that "taken as a whole, these design-based approaches suggest an alternative way of embodying future narratives that could become more popular, and perhaps, more influential, in policy framing."

While in the overall reflection on the use of experiential approaches so far—stressing that the more direct, personal, and powerful engagement dominates—there has also been note of "risk of producing visually rich, but analytically impoverished, outputs," which, however, could be foregone by combinations with deeper research and analyses approaches.[39]

Future perspectives of the emerging approaches and conclusion
As this survey has shown, experts expect an increasing use of all four clusters of approaches in the next decade. How, where, and to what extent these approaches will be used are what practice will show. Whether this expected increase in their use will in fact turn out to be the case will surely depend on more demonstrative cases that make clear the benefits, as well as their potential integration with the established methodologies. It will

also depend on the willingness of the community to work with approaches that are not yet in their established toolboxes and might move some practitioners outside of their comfort zone. As we aimed at providing an overview of these new approaches for enabling a more informed and structured discussion, let us revisit what the described examples, reflections, and problems of the approaches show in a condensed form and in terms of their benefits. However, it has to be noted that only in the comparison of cases by Raford can we draw from a systematic scholarly analysis of projects, while all other cases are more informally documented insights.

We started from the observation that there is considerable uncertainty about current directions in foresight methodology development, which is further exacerbated by the usual time lag between changes in practice and scholarly publication, documentation, and reflection. Thus, the research presented here aims to provide a structured overview of the changes visible in the field, backed by the views of experts on current developments, and thereby further the debate on the future direction of methodological development in foresight.

On the basis of the research input outlined, we can conclude that there is a strongly shared view among the experts in terms of the identified four clusters of emerging practices. Thus, while this paper provides in no way a full or concise overview (and many examples could be added since the original study was realized), the research was able to identify a first tableau of clusters with the respective project examples. Also, first insights into benefits and problems related to the respective approaches can be summarized. Some key issues are as follows:

- For integrated qualitative-quantitative approaches there is a risk of output being reduced to numbers and qualitative insights being overlooked or pushed into the background. The challenge is to avoid being narrowed into a predictive perspective.
- For the IT-based and "automated" approaches: the risk is of perceived overpromise relating to the perception that insights can now simply be "generated."
- For open and crowdsourced approaches: the risk is of less deep, less continuous interaction (and resulting insights), lacking the deep interaction and socialization of traditional scenario workshops.

- For experiential foresight: the risk is of a lack of deep insight and analysis.

However, in most cases suggestions for how these challenges can be dealt with exist as well. On the benefits side, some recurring themes were striking:

- A wider, broader participation can be noted for the IT-based and automated, as well as for the open and crowdsourced, approaches.
- In terms of insight and methods improvement, for integrated qualitative-quantitative approaches this includes being better able to deal with complexity and improved insight into systemic interactions and disruptions, which are also regarded as benefits of IT-based approaches.
- There are a number of references to aspects of time needed and reactivity. These highlight the approaches as being more dynamic, more able to react rapidly to changes, to stress timely knowledge production and real-time interaction, and more effective in their time-use. Also, higher cost-effectiveness is mentioned for two approaches.
- Improved impact and connection to decision-making is identified for three approaches, and enabling connection between experts' views and contributions from a wider public is mentioned for two clusters.

In terms of further analysis, there are many clear directions for promising research. It would be worthwhile to investigate whether there is a difference in the use of existing and emerging approaches for different contexts, e.g. between different regions, nations, or organizations with different cultures. For each of the clusters, or even for groups within them (such as the many gamified approaches within the experiential foresight cluster), a systematic analysis of comparable cases would also be an important field for further enquiry.

A reflection on underlying theory and connections to insights from other fields such as design and psychology, i.e. for what has been called the "experience factor in foresight," would also be worthwhile.[32] However, while we still lack these solid research insights and probably will for some time in the future, the dynamics of the developments in all four clusters of emerging approaches, the degree of agreement between the experts consulted concerning their current and future relevance, and

the first insights into their wide range of benefits all form a strong indication that the foresight community should be striving to integrate them more into their practices.

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CHAPTER 9: ASPIRATIONAL FUTURES

by Clem Bezold

Introduction

The Institute for Alternative Futures (IAF) has developed "Aspirational Futures," an approach that combines learning about the future and its uncertainty with vision and creating preferred futures. This article defines aspirational futures and differentiates it from other approaches, then gives examples of its application to scenario use across corporate, government, association, and community settings.

Futures is an evolving field that uses a variety of tools to consider the future more consciously and to create the future more effectively. Foresight is the application of futures tools in specific policymaking or decision-making settings.

Aspirational Futures involves understanding what might happen (likely and preferred futures) and a clear, shared commitment to creating the community's or organization's vision. Both the understanding of the future and an effective commitment to creating it are essential, and they form the basis of the Aspirational Futures approach. This approach has grown out of several sources, including Alvin Toffler's pioneering work in Future Shock, Jim Dator's work on his alternative futures approach, and my work with Toffler, Dator, and others on Anticipatory Democracy in communities, legislatures, and agencies. In our work at IAF (a US tax-exempt nonprofit organization) and our for-profit subsidiary Alternative Futures Associates we have evolved the processes of Aspirational Futures through our facilitation, research, training, and speaking.

Aspirational Futures can be described in terms of its major components, and I'll do that below. There are many similarities to other approaches to futures work. Much futures work, and some strategic planning and effective decision making, deal with many of the same components. Being aware of the plausible and the preferable is critical. The plausible considers what might happen, the preferable what we want, often with some degree of commitment to making it happen (particularly vision and goals). We acknowledge the power of scenarios to explore plausible futures space. We add that the plausible space that scenarios

explore should include paths to visionary outcomes. This is the largest difference between Aspirational Futures and some other futures approaches.

There are four interrelated phases to the process that IAF normally recommends for Aspirational Futures:

1. System Analysis and Environmental Assessment
2. Scenario Development
3. Visioning
4. Strategic Analysis

1. The system analysis and environmental assessment phase

In the first phase, the organization becomes more conscious of the systems the organization or its field sits in, and more aware of what is happening in its environment. One approach to understanding systems that we use is Causal Layered Analysis, pioneered by Sohail Inayatullah. It involves understanding:

- The litany (conventional, official description; surface level analysis)
- Social causes (deeper systemic, sociopolitical, and economic drivers)
- Still deeper worldviews
- Deep metaphors or myths that inform the entire process

Once the drivers and key forces are identified the environmental assessment of trends in them are mapped. This often includes a broad range of political, economic, technological, environmental, and social forces. Information is gathered from a variety of sources, such as literature reviews, expert interviews, focus groups and surveys, and site visits. This process helps to clarify the mental model that guides the organization's view of its situation. Given the environmental assessment, alternative forecasts are typically developed that project key forces or important elements in the environment into the future. The timeframe typically ranges from ten years to fifty years depending on the organization and the speed of change in the organization's environment, its core work, and its products and services. Using the Aspirational Futures approach, the alternative forecasts for the drivers parallel the key archetypes— expectable, challenging, and visionary—that also guide scenario development.

2. Scenario development

Assessment of trends and key forces can reduce some uncertainties about the future, but it cannot eliminate them, and it often will highlight just how great the uncertainties really are. To deal responsibly with irreducible uncertainties requires a style of thinking based on scenarios, which embrace and explore uncertainty instead of repressing it. Scenarios serve three purposes:

1. To bound the range of uncertainty and display the broad range of possibilities ahead.
2. To stimulate the exploration of both dangers to be avoided and positive possibilities that can be used in constructing a vision of the preferred future.
3. To test how potential strategies and actions might work in different future circumstances; to test how "robust" strategies are across multiple scenarios.

Developing scenarios using IAF's Aspirational Futures approach leads to using a set of archetypes that explore expectable, challenging, and visionary futures, shown by Figure 1. The expectable, "best estimate" or "best guess" scenario is based on the best available intelligence, informed by the environmental scan and by any core assumptions used by the organization. This scenario is sometimes based on the "official future": the assumptions and forecasts used in current strategic plans, policies, and budgets. While this expectable future begins with conventional expectations, it must also include expectable (or most likely) disruptions. Given the potentially rapid technology transformations as we approach or experience the "Singularity," this expectable scenario is difficult to develop, but must represent the overall assumptions of what is thought to be most likely. (This is not predicting "the future," it is developing the best estimate of what is likely—although the subsequent polling of the likelihood and preferability of the scenarios will indicate how likely the developers and users of the scenarios think this expectable scenario is. See below.)
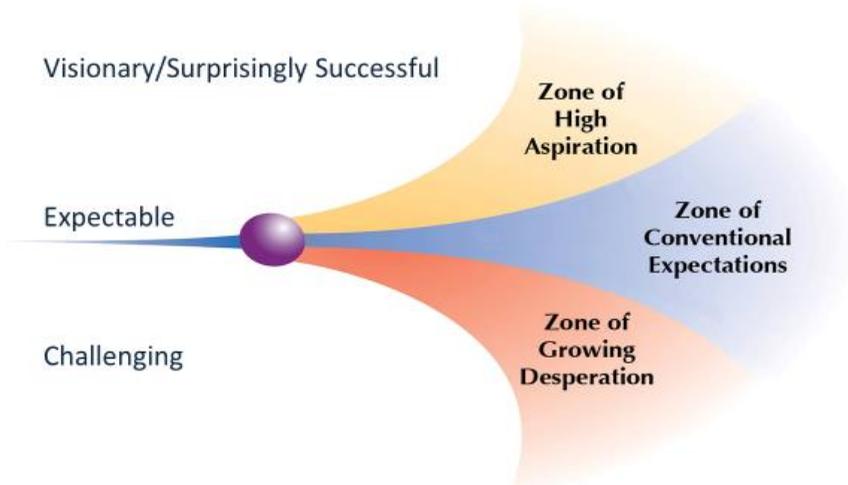
Fig 1. Scenario archetypes in IAF's Aspirational Futures

The second scenario asks, "What could go wrong?" Organizations often avoid considering these factors or their implications. For this scenario, a list of major challenges relevant to the organization and its environment should be created. In light of the environmental scan, the most likely future, and other inputs, a set of challenges is built into the second scenario. These challenges should not go so far as to remove any ability to act. The scenario should not send the organization "over the cliff"; but it should consider challenging, "bad news" prospects that are moderately likely and relevant. This approach differs from Dator's "Collapse" archetype which does go "over the cliff."1

The third archetype for the scenarios is "visionary." The "visionary" scenario explores a future where a critical mass of stakeholders successfully pursued visionary strategies, the results or outcomes of their efforts, and the path to those visionary outcomes. Having the organization or the principal users of the scenario define what visionary means for them is essential. This vision is broader than their vision for the organization alone; rather it is the vision for their industry, sector, or community. Defining visionary futures allows the organization to explore differing spaces and paths towards surprisingly successful futures consistent with their vision.

The "visionary" scenario forces organizations to be explicit about what success would look like, as well as the paths to achieve that visionary state. Luke Georghiou and his colleagues at the University of

Manchester have developed an approach to "success scenarios" that uses a somewhat similar method for communities to develop images of preferable outcomes for community.2

Organizations usually don't commit to these visionary scenarios. The purpose of visionary scenarios is to explore visionary space and what is needed to get there. Taking organizations into this visionary space also allows them to consider potential new or revised visions. The Robert Wood Johnson Foundation case below is an example of using a trip into visionary futures as a stimulus for a new vision.

Four scenarios are usually developed, though three can be effective. Given the importance of using scenarios to explore visionary futures, typically the fourth scenario considers different visionary outcomes and/or alternative paths or requirements for achieving those visionary outcomes. There are many examples of scenarios developed using this approach; four are given below.

Thus, IAF's Aspirational Futures approach develops plausible scenarios that include visionary or preferable scenarios in the mix. Some scenario approaches call for normative scenarios or images of desired futures. Our visionary scenarios represent an exploration of desired futures that, as noted, ask "what it would look like if visionary outcomes were achieved by a critical mass of stakeholders." And we recommend, as noted, developing two different visionary scenarios that reflect distinct paths to visionary endpoints.

There are other effective approaches to developing scenarios. Some use quantitative models; others simulate the moves of key actors or competitors. In the US the best-known scenario approach is from the former Global Business Network (GBN): it identifies the most important and uncertain factors to construct a 2x2 grid, and then uses the grid to position one scenario in each of the four quadrants of the grid. Other key variables are considered in developing each scenario, but the most important and most uncertain variables define and differentiate the scenarios. This is useful and provides a straightforward way to confront uncertainty. Yet reality, both present and future, is often not reducible to two main variables. And scenarios should help explore the plausible future spaces that are likely and preferable. In effect, our scenarios differentiate most likely, challenging, and visionary as three "archetypal" pathways.

Aspirational Futures helps to better understand and to better create the future. Effectively creating a better future requires a shared vision and audacious or "stretch" goals, the next phase of Aspirational Futures work.

3. The visioning and audacious goals phase

In this phase of work, the organization explores aspirations and develops a deeply felt shared vision of the preferred future. It then sets specific goals associated with that vision. While trends and scenarios are "futures for the head" that help us think systematically about future possibilities, visions are "futures for the heart." Visions inspire by stating what we are striving to become, why we do what we do, and what higher contribution flows from our efforts. They touch us and move us to action. A living vision—as opposed to merely words on paper—is something that people share, feel deeply about, believe is possible, and commit themselves to achieving. Vision deals with the ultimate questions facing every individual, group, and organization—questions about purpose, meaning, direction, and reasons for existence.

When people are really committed to a vision, they will stretch themselves and their organizations to make it happen. Within organizations, shared vision allows management to decentralize. People can be given more freedom to act independently and creatively when they have a clear sense of direction and know the importance of their "piece" in the realization of the vision. A shared vision can serve as a focus for collaboration and alignment of efforts by outside organizations.

To be a real force in people's hearts, and not just words on paper, a vision must meet several conditions. A vision must:

- *Be legitimate.* A vision can never be imposed on an individual or group. To have emotional power, a vision must be inwardly accepted as fully legitimate.
- *Be shared.* A vision only works when it is shared. Vision works by posing a collective challenge, aligning people, and generating a group spirit in which people move towards the vision.
- *Express people's highest aspirations for what they want to create in the world.* Self-centered visions that talk about things like "being successful" or "making a profit" inevitably lack emotional power. Goals of this type are perfectly valid, but vision needs to go further and engage people at the level of their highest aspirations for "making a difference."

- *Stretch beyond the limits of current realities.* Visions are not about current reality. They create a tension between current reality and the vision. Visions that command attention always challenge people and push against the limits of what they have assumed to be possible. Challenges that are easy to meet never elicit the best efforts of a group. Our organization uses the vision to create audacious or stretch goals that are bold enough to make people ask themselves "Is this really possible?" Once the inner answer is "Yes," the vision and stretch goals' very boldness become a major source of their power. Because they articulate a daring adventure with important outcomes, stretch goals give people the sense they can make important contributions and surpass what they thought were their personal limits.
- *Conceivably be achievable within a specific timeframe.* Even though a powerful vision must push at the boundaries of change, the people who share it must in fact believe that they can eventually make it happen. They must be convinced of its ultimate possibility, no matter how difficult it may be to achieve.

There is much analysis of the power of vision. Collin and Porras in *Built to Last* gave numerous examples of the power of vision in the corporate sector.[3] They point out that companies with a powerful, shared vision that was felt and owned by their workforce, outperformed the general stock market by a factor of 12 between 1925 and the 1990s.

And it turns out that a powerful shared vision can be a major factor in successful change management by enabling people throughout the organization to feel they are part of making a larger contribution and being more willing to change. IAF learned this in a roundabout way. Among our corporate clients, several worked with us to create scenarios and new or revised visions, then proceeded to vision-driven change management. The Gartner Group did a global survey of multinational companies to learn how consulting groups supported effective change management for multinational companies. They identified a few large consulting firms and a dozen "boutique firms" globally doing effective change management—and IAF was on that list! We were honored, even though we don't sell change management services per se. We earned a spot on that list for facilitating the development of powerful shared visions that gave people throughout the organization a higher shared purpose and, thus, enabled the organization and its corporate leaders to make the changes needed to achieve the shared vision.

4. The strategic analysis phase

Once a vision and stretch goals have been articulated, the more "traditional" aspects of a strategic plan, particularly strategies and action plans, are needed to focus efforts on achieving the vision. Vision and strategic analysis are equally important for shaping the future. Without vision, strategy is merely reactive. Without realistic strategies to achieve them, visions are only lofty ideals. Each of the proposed strategies must undergo a detailed analysis to consider internal and external requirements for success, robustness (i.e., useful, robust in differing scenarios), risk, outcomes, and audacity. The organization, in light of its preferred future and the nature of its operations, selects the specific outcomes and evaluation criteria for each strategy.

The advantages of Aspirational Futures

The Aspirational Futures approach lends itself to the development of strategy. Organizations develop good strategies by using vision and stretch goals to stretch their commitment and capacities. Good strategies also reflect the established assets and capacities of the organization. Aspirational Futures provides a number of advantages to an organization beyond traditional strategic planning:

- Aspirational Futures emphasizes planning "from the future." We essentially ask the organization what world it wishes to create and then systematically develop a plan to create that future.
- Aspirational Futures focuses the organization on its long-term preferred future. Many strategic and organizational plans are designed for short periods of time and can lose their audacious quality, narrowly restrict their options, and set too-easily achieved goals.
- Aspirational Futures facilitates an explicit discussion of the organization's vision, values, and mission. Most strategic planning processes move quickly to evaluate specific strategies in light of the existing mission or organizational imperatives. Aspirational Futures invites participants to explore an organization's "heart" first. This allows participants to be reintroduced to the organization's essential characteristics before moving into decision making.
- Aspirational Futures assures that specific goals are driven by the organization's vision, values, and guiding principles. Textbook strategic planning typically proposes that goals and measures be established once the final strategies are selected. Aspirational

Futures asks the participants to identify audacious goals consistent with their vision, values, and principles and then to select specific strategies that will achieve these goals in a manner aligned with the organization's vision, values, and principles.

- Aspirational Futures emphasizes that strategic decision-makers should examine a range of alternative futures before making strategic decisions. Scenarios stretch the strategist's imagination, offer insights into how the organization's environment may evolve, and foster unique creative dialogues that can generate new ideas for consideration. All too often, strategic planning processes consider only one future—a future that assumes tomorrow will be relatively similar to today. This can be broadened by multiple scenarios, but some scenarios approaches, such as the GBN approach, fail to explicitly call for consideration of visionary paths.
- Aspirational Futures takes advantage of the dynamics between the external environment and the internal capacities. Most planners ask what an organization can do with its resources and pay relatively little attention to trends that may create new resources. We ask leaders to examine what resources the future will make available. By exploring trends and developing scenarios, the planning process helps organizations recognize opportunities and threats that are invisible to traditional planning.
- Aspirational Futures emphasizes stakeholder participation and empowerment. The process should be highly participatory, involving stakeholders including staff, volunteer leaders, and experts in a structured dialogue and decision-making process.

Figure 2 shows the relationship between the scanning/scenario work and the vision/preferred future work in Aspirational Futures.
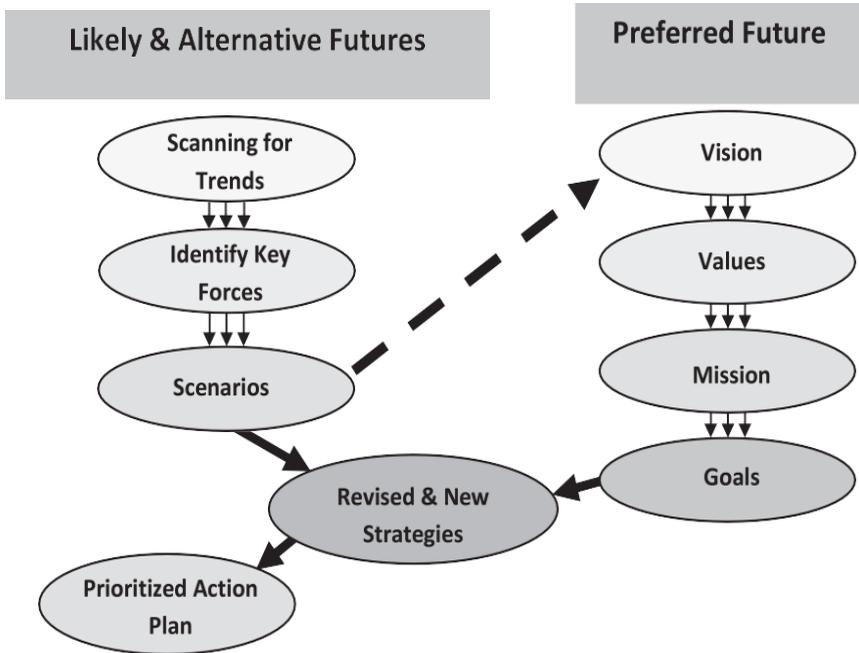
Fig. 2. Aspirational Futures process

Examples of Aspirational Futures

The multiple phases of Aspirational Futures have been reviewed above. In some settings that full cycle is deployed. In other settings parts of the process are used: e.g., scenarios or an environmental scan. In terms of Aspirational Futures, the core question is whether the range of factors in the environmental scan or scenarios includes likely, challenging, and visionary developments. Aspirational Futures can be applied to an organization or community, or used to guide specific decisions or policies. Here are some examples:

- *The Economic and Social Research Council (ESRC).* ESRC is the UK research funding agency for social science and economics. Faced with the task of setting up centers to study genomics and providing those centers with ten years' worth of funding, the ESRC commissioned scenarios to consider what the issues, research questions, and priorities might be for this emerging genomics area. IAF and the Institute for Innovation Research at the University of Manchester identified a series of ten drivers that would be important for genomics, its uses, and its societal impacts. Research

was done on trends in these drivers and forecasts were developed considering likely (alpha), challenging (beta), and visionary (delta) forecasts for each of the ten key forces. These were built into scenarios[4] which an expert panel used to explore the future and the genomics, identify issues for ESRC, and suggest priorities for funding. ESRC felt at the time that the process had uncovered questions of importance which its team had not considered, and used the results in formulating priorities and funding. The forecasts, scenarios, and results were published as a special issue of the futures journal *foresight*.[5]

- *American Cancer Society.* The American Cancer Society (ACS) is the largest health voluntary organization in the US. It is a charity which raises money for cancer prevention, research, treatment, and patient support. IAF worked closely with ACS' senior leadership for more than a decade. The first project was a futures effort to consider what ACS should promise as the target for its 100th anniversary. IAF worked with 25 experts to develop forecast papers on the cancer macroenvironment, primary and secondary prevention, cancer treatment, and health voluntary organizations. We simultaneously worked with a team of ACS staff and volunteer leaders to develop scenarios using the Aspirational Futures process. The forecasts and scenarios were used at a national ACS meeting to develop audacious goals aligned with its vision for cancer prevention and control. The results were published in an ACS Book[6] and used to develop the ACS 2015 Goals, which became the focus for ACS programming for an extended period of time. It also led ACS to start the National Dialogue on Cancer, later named C-Change, to unite the cancer community to pursue a shared agenda.

- *Military Health System 2020.* The US Department of Defense (DoD) asked IAF to assist in a major research project designed to help military and civilian healthcare experts to envision the future of health and healthcare delivery. We assisted in developing scenarios that explore the future of war and global society and the nature of both warzone medicine and day-to-day healthcare for active duty personnel, dependents, and retirees. We facilitated and coached the interactions within and between 20 online working groups comprised of approximately 200 expert participants, as they analyzed trends and forecast potential developments in their defined specialties and disciplines within the healthcare system. A set of scenarios was developed; then the group developed a vision and audacious

goals. One of these goals—to extend the "golden hour" (the average time a soldier wounded in combat needs to get treatment before dying) to six hours. This goal was largely accomplished in the ensuing years.

- *AARP*. AARP is a 40 million-member organization that provides services and advocacy for those over age 50 in the US. It is the largest membership organization in the US. IAF has worked with AARP on numerous occasions to help its leaders better understand and shape the future, including developing 50-year scenarios for aging and providing scenario training to AARP executives. In 2007, IAF provided a futurist's view of the next decade in relation to AARP's Livable Communities strategy and related research and assumptions. This provided a sense of key forces and future directions together with our critique of AARP's strategy in the context of those trends and forecasts and the AARP vision. This led to the realization that their strategies had to consider a longer length of time and to be broader than their original objectives.[7] In 2008, IAF developed scenarios of healthcare in the US using the Aspirational Futures process. The project included working with AARP executives to understand their sense of the future, using IAF's forecasts for healthcare, and interviewing key thought leaders in the US. AARP is a leader in the US in encouraging universal access to healthcare and lobbying for a range of related healthcare policies. AARP came away from the exercise better aware of a broader range of economic recovery endpoints for the US economy (two to ten years), and the need to advocate for "health in all policies" including transportation, housing, and other policies. This includes the realization, identified in some of the scenarios, that the US might be ready faster than previously expected to support progressive policies in health.
- *Robert Wood Johnson Foundation.* The Robert Wood Johnson Foundation (RWJF) is the largest health philanthropy in the US, providing about $500 million annually in grants to promote health and increase healthcare quality and access. RWJF funded several IAF projects, including explorations of how emerging health technology could promote health equity, including:
  - Vulnerability 2030 (Institute for Alternative Futures, 2011)—scenarios on social and economic security.
  - Public Health 2030 (Institute for Alternative Futures, 2014).

- o In 2012, as part of its 40ᵗʰ anniversary celebrations, RWJF asked IAF to hold a scenario symposium. The event was well received and provided RWJF with direction for its vision, which was being revised at the time. Typical of our Aspirational Futures approach, the first scenario was expectable or "most likely"; the second explored a range of challenges; and the third and fourth explored paths to visionary outcomes. The fourth scenario, "A Culture of Health," envisioned communities creating environments to support and improve all domains of health, including the social determinants of health. At the September 2012 symposium participants explored the scenarios, considered implications, and developed broad recommendations. RWJF reflected on the process, on the "visionary space" explored in the fourth scenario, and on the recommendations. In 2014 it announced a vision of working with others to build a Culture of Health that gives everyone in America an equal opportunity to live the healthiest life they can. That commitment led them to define the social components of the culture of health; to develop metrics for measuring the culture of health; and to focus their programs and grants more directly on community and leadership development.

Note: After IAF closed in 2019, its website and the reports listed above were permanently stored at the Internet Archive. To find a particular report, go to https://archive-it.org/home/altfutures and search for the project name.

Conclusion

Aspirational Futures calls for a richer consideration of the future—aware of our mental model of key forces and of their likely trajectories—and of scenarios that include the expectable, challenging, and visionary pathways. These approaches enable being smarter about the future. The development of shared vision growing out of the values of the organization or community, linked to audacious goals and strategies, enables wiser and more effective creation of the future. Not all the steps in Aspirational Futures need to be taken, as long as the aspirations are made clear and the future is considered in relation to them.

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CHAPTER 10: ETHNOGRAPHIC EXPERIENTIAL FUTURES (EXF)

by Stuart Candy, Kelly Kornet

Introduction

This article outlines a framework for hybrid design/futures research and practice called Ethnographic Experiential Futures (EXF). It is all about making images of the future more legible and concrete and seeing what one can learn from doing so. Rather than being dreamt up from scratch, EXF originated in a pattern identified as underpinning multiple projects previously undertaken by futurists, designers, and researchers with diverse investigation and engagement objectives in mind.

The framework may be considered for application any time a practitioner looks to pair ethnographic and experiential futures, or put another way, wants to do the following two things:

- Examine "existing" or generate "new" images of the future through working with particular individuals or cultures.
- Render these images more accessible, legible, and discussable via tangible, performative or other mediation strategies.

EXF's purpose, then, is to serve as a practical structure and set of prompts for use in devising projects and interventions to come, with a view to promoting the availability of a more diverse and deeper array of scenarios for consideration, in all sorts of contexts, and ultimately in service of developing a social capacity for foresight.

The body of this article is in three parts:

- A background section briefly locating the work in futures literature and practice.
- A description of the framework and outline of the cases that inspired it.
- And finally a section on application, looking at key questions and issues raised when using EXF to design a project.

Background: Ethnographic and Experiential Futures

Critical futures scholarship argues that "the future" does not exist as such but is inherently a domain of ideation and imagination. As Slaughter has noted, for example, it "cannot be experienced directly, but only though images, thoughts, feelings and the multiple ways these are subsequently expressed in the outer world."[1] The concept of "images of the future" thus has occupied a central place in Futures Studies.[2]

In the 1970s, Stanford anthropologist Robert Textor, a younger associate of the great Margaret Mead, began integrating Futures Studies with tools and approaches from his own field. He saw the value of "anticipatory anthropology" in terms of confronting a pair of ubiquitous ills: "*ethnocentrism* refers to one's being excessively centered in one's own culture, and *tempocentrism* to one's being excessively centered in one's own timeframe."[3] Textor and his students developed Ethnographic Futures Research (EFR) as a process for systematically mapping images of the future held by various individuals and communities: "Just as the cultural anthropologist conventionally uses ethnography to study an extant culture, so the cultural futures researcher uses EFR to elicit from members of an extant social group their images and preferences (cognitions and values) with respect to possible or probable future cultures for their social group."[4] A semi-structured interview format is used to draw out participants' alternative projections in terms of what they *want*, *fear*, and *expect*.

Textor avoided positing a singular future, echoing the ontological and epistemological pluralism of Futures Studies. In a similar spirit, we put the EXF cycle forward in the interest of methodological pluralism. EFR's version of ethnography for studying futures is useful but is not set on a pedestal as the best or only way to do so. (Only two of the five projects outlined here use that specific approach.) Thus, EFR is one way to try rendering people's otherwise invisible images of the future "visible" in words. But what happens when we go even further: rendering particular futures materially or performatively using other media and strategies of representation?

Experiential Futures (XF) is a family of approaches for making futures visible, tangible, interactive, and otherwise explorable in a range of modes.[5] XF, led by practice and accompanied by a growing theoretical base, is grounded in the big-picture agenda of contributing to a social capacity for foresight.[6] The turn to experience as a canvas for futures

practice prods at a traditional overreliance in the field on words, and corresponding underutilization of other media,[7] disclosing a transmedia landscape of alternative ways to use the future. More embodied and media-rich depictions of futures, proponents argue, can make the field more effective in shaping change, and the practitioners and projects of XF are highly intertwined with those of design-led futures-oriented activities which have come into prominence over the same period (since the mid-2000s), including speculative design and design fiction.[8] Yet the task of enhancing futures thinking is medium-agnostic—the best approach is whatever it takes—and so XF exhibits great variety in terms of the media and engagement strategies used. This can be seen in the projects outlined below.

The result of bringing ethnographic and experiential futures together as described here could be characterized (following José Ramos) as a protocol for Futures Action Research.[9] We are of course not trying to establish foreknowledge of what the future will be, but aim instead to extend critical and participatory foresight work into a deeply embodied mode, by scaffolding processes to more effectively explore the futures thinking of diverse communities, using design (broadly) to loop from an interior register to an exterior—thinkable, feelable, discussable—one. Any project following the EXF Cycle also potentially tackles a need highlighted in Integral Futures scholarship: to span interior and exterior, individual and collective ways of knowing.[10]

Framework: Shape and origins of the EXF Cycle
The steps involved in EXF may be summarized as follows:

(a) *Map₁*: Inquire into and record people's existing images of the future—whether using the classic EFR trio of probable, preferred, and non-preferred futures, or some other guiding approach.
(b) *Multiply*: Generate alternative images or scenarios to challenge or extend existing thinking. (This step is optional, especially in first iteration.)
(c) *Mediate*: Translate these ideas about the future/s into experiences: tangible, immersive, visual, or interactive representations.
(d) *Mount*: Stage experiential scenario/s for participants to encounter, for the original subject/s, others, or both.
(e) *Map₂*: Investigate and record responses; that is, revisit the inner landscape of futures thinking, taking stock of how it has been (perhaps) changed, perturbed, or deepened by the intervention. In a

sense the process circles back to the first stage.

These steps take the form of a loop or cycle (Figure 1) and could be repeated any number of times. A first iteration might document anchoring narratives such as those that EFR seeks to capture, while subsequent rounds could challenge or revise these.
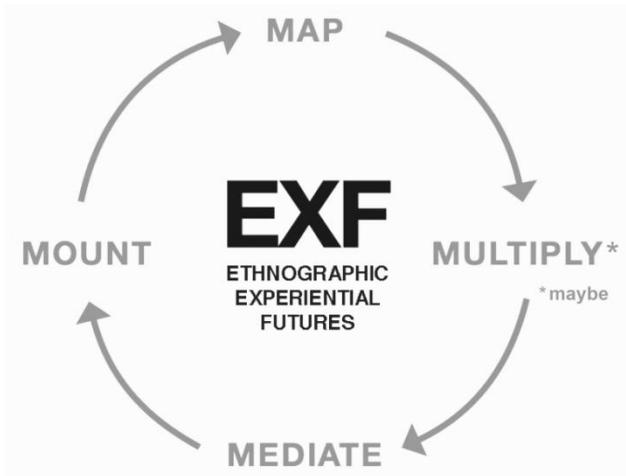
Fig. 1. The EXF Cycle

Below we outline in broad strokes a diverse set of five projects—having different goals, media, and contexts—that nonetheless share a structural resemblance in combining ethnographic and experiential elements. These projects were all created prior to the framework diagrammed above, and in fact helped to inspire its development.[11]

Project 1. FoundFutures: Chinatown (2007)[12]
In the mid-2000s, Stuart Candy and Jake Dunagan ran a series of informal experiments deploying "future artifacts" to the public on an unsolicited basis. They called the approach "guerrilla futures" by analogy with guerrilla theatre, marketing, art, and semiotics. Initial gestures such as "droplifting" future products into local shops paved the way to *FoundFutures: Chinatown*, a more systematic effort to bring futures to life at the scale of a community—Honolulu's Chinatown, on O'ahu, Hawaii. Bringing backgrounds in anthropology and theatre, they orchestrated artifact deployments and enactments from a series of imaginaries for the

neighborhood, grounded in the particulars of place and history. The set of scenarios was generated after interviewing area residents and business-owners, and then translated into urban installations and happenings.

Gentrification concerns were dramatized through signage heralding the (then-unprecedented) arrival of American franchises such as Starbucks and TGI Fridays, and luxury apartments (see Image 1). Another intervention, inspired by the outbreaks of bubonic plague in Chinatown in the early 20th century, hypothesized an epidemic of "Hang Ten" flu. A third posed the question: what becomes of Chinatowns in a future where China is the preeminent superpower? Reactions were registered via direct observation, as well as in the press, and at a free community workshop.

Project 2. Causing an Effect (2015)[13]

Kelly Kornet, a designer and researcher who had grown up near one of Canada's most polluted industrial centers, an area known as Chemical Valley, undertook a project to gain an understanding of the thinking and motivations of environmental activists from that area and places like it. In one-on-one interviews, and using Textor's EFR format, participants were invited to speak about the kinds of futures that they expected, hoped for, and feared.

Kornet then set about materializing these divergent futures in a selection of future artifacts, as if the imagined scenarios had actually come to pass. This meant creating props, as it were, from the movies in the minds of her informants: the industrial accident that they worried could occur at the plant; or the laws that they hoped local authorities would properly enforce to restore air and water quality. These were shared at a small exhibition in Toronto, *Causing an Effect,* to which not only the research participants but also the general public were invited to respond.

Project 3. 1-888-FUTURES (2015)[14]

A series of day-long participatory design workshops was staged in the mid-2010s by researchers from Situation Lab and The Extrapolation Factory (Situation Lab is run by Stuart Candy and Jeff Watson; The Extrapolation Factory is run by Elliott Montgomery and Chris Woebken). Hosted at the University of Southern California's School of Cinematic Arts in Los Angeles, *1-888-FUTURES* solicited public input in the weeks prior by inviting people to call a toll-free number and record their future dream in a voicemail, together with a mailing address.

On the day, workshop participants were assigned a random voicemail to retrieve as the basis for a "tangibilization" (Woebken's excellent word) of the dream. The makers then recorded a video explaining how the dream recording had inspired their "future present," and boxed it up to send to the provided address. Afterwards, on social media, some recipients posted responses to the artifact they had opened.

Project 4. Making the Futures Present (2016)15

Designer and futurist Maggie Greyson developed a framework for "Personal Experiential Futures" to help people more concretely picture their possible future selves and circumstances, drawing partly on EFR and partly on Personal Futures practice.[16] The process entailed interviewing volunteer participants one on one about a range of scenarios they could imagine facing on a 20-year time horizon in their own lives: positive, negative, and expected, and then "unexpected" too. (Not part of EFR's descriptive protocol, the latter was added to probe, challenge, or expand prospective thinking.) In the same session, researcher and participant co-created rapid prototypes from selected futures, and afterwards the host went on to develop more polished, real-looking artifacts as a basis for deeper conversation at their next meeting.

Project 5. Futureproof (2017)17

Conor Holler is a management consultant with a background in improvisational comedy, who undertook a design project to research how it might be used for more serious foresight purposes. "Improv," a longstanding theatrical tradition, has recently become fashionable among businesses seeking to enhance their creativity.18 Holler devised an improv format that put topic experts and actors together in front of a live audience, to create scenes from possible futures: "Futureproof explores improv's potential to contribute positively to futures practice, with XF work serving as its main conceptual and methodological reference point." For instance, a guest expert in genetics was invited onstage to describe how genetic technologies might figure in everyday life a generation from now. The host and actors asked some questions, then the players improvised a series of scenes from futures inspired and informed by the opening, for both audience and expert to react to.

We first presented EXF to the futures community at the Design/Develop/Transform Conference in Brussels in mid-2017.[19] Soon after this we encountered a humanitarian activist initiative about girls in Syrian refugee camps being supported in imagining their own preferred

life and career paths. *Vision Not Victim* had originated in entirely different circumstances, tied to neither the futures field nor design, yet it followed the same trajectory as these other projects,[20] which for us underscored how the structure might genuinely be useful for traversing a wide project-design space.

Having outlined the framework and considered a range of ways that it can look from extant examples, we now turn to considering how it can be applied. What kind of orientation and guidance does EXF provide, and what kind of project design questions and options is it intended to surface?

Application: Using EXF to design a project

We have seen that each step in the cycle—Map, Multiply, Mediate, Mount, and Map again—admits of wide variation. This may make for strange juxtapositions, but it also points towards the utility of a framework intended to be flexible, with each step being part of a design conversation and opening up numerous generative questions for practitioners. So while the questions might be quite similar from one context to another, the answers ought to be as different as their futurist/ designer/ researcher/ participant co-creators can imagine.

(a) Map1

Whose futures are being explored, and why? Are individual, personal-scale mental models especially of interest, or those of a group or community? If the latter, who speaks for the community? What are the elicitation strategies—in writing or interview, in person or remotely, with how much scaffolding and of what kinds? When might existing evidence of future images suffice?

All five of the cases outlined were self-initiated as opposed to client-facing efforts, with three being culminating projects of students receiving a terminal design (MDes) degree. The research collaborators represented multiple demographics: some of the sort perhaps conventionally orbiting relatively wealthy, Western university-based participatory design projects and invited subject-matter experts; but alongside the usual suspects were residents of a traditionally ethnic-minority urban neighborhood, and environmental activists from fence-line and First Nations communities. It is exciting to consider how projects to come could partner with and be activated by many more kinds of stakeholder.

In discussing this Mapping phase, we acknowledge potential objections in some quarters to the term "ethnography" being used so flexibly—perhaps less where EFR is deployed than where the imaginative contributions are more rapidly produced or playful. We exercise a certain license in describing an improvisational theater format in terms of "ethnography," and although it is beyond our scope to weigh in on the contested question of what should count as such,[21] we repeat that our aim is to support attempts to animate and embody futures thinking in many contexts. Ethnographic depth is for us a design parameter; a spectrum to be throttled up and down as circumstances require, rather than a fixed boundary to be drawn and policed in the same way at all times. On the spectrum of depth some projects might be located in the middle ground (*FoundFutures*), and one starts to see how certain kinds of inquiry (conversation with neighborhood residents who might not have much time to spare) could be less effective, or practically prohibited, with a stricter approach. This spectrum view, together with the imperative that format be crafted to fit the case, comports with our aim of enabling not simply *more*, but appropriate, activity in this design space. It might seem strange to say, but rigor or depth are not an unalloyed scholarly good to be maximized at any cost; they are part of a dynamic project-design landscape in which more of one thing (e.g. time spent with informants) is bound to mean less of something else (e.g. access for certain kinds of participants).

So for initial mapping, EFR could be used, but less formal portals will sometimes be appropriate, be they voicemails from the public or the ruminations of a subject live onstage. One method seemingly well suited to mapping futures in projects to come is Causal Layered Analysis, useful for analyzing and also generating in-depth images of the future.

(b) Multiply
Should the initially found images of the future be specifically challenged, diversified, and expanded? And if so, on a first pass, or later and in which directions? To supplement a first set of futures images is an optional variation in the process. One might omit it where the goal is to consider primary "extant" futures (like the activists' motivating narratives in *Causing an Effect*), or where the diversity of the original inputs meets requirements (like the dozens of voicemails recorded by the public ahead of *1-888-FUTURES*). The key underlying question, often the case in futures practice, is which future stories need to be told, regardless of how they are arrived at or framed—"surfaced" from prior thought, co-created from scratch, or something else.

(c) Mediate

How, where, and when can the future(s) be brought to life? Whose responsibility is it in the project setup? Might participants be able to manifest their own future concepts directly? This step is about taking relatively vague ideas or future narratives towards more concrete ones. As our examples suggest, there are myriad ways to make this move, from hybrid design/research exhibition, to rapid prototyping, guerrilla art installation, and improv theatre. Techniques and formats for producing experiential scenarios—"situations" and "stuff" from times to come—are covered elsewhere; in particular the Experiential Futures Ladder may offer relevant scaffolding for this stage.[22]

There may seem to be an assumption here that people always need help to bring their futures thinking to life—casting the futurist/designer/researcher as coming to the rescue with superior representational skills. We are not making such an assumption. While possibly be true in some cases, aside from the obvious parameter of medium or format for expression, the other central Mediate question is how collaboration is set up. Design responsibility might sometimes be located with the researchers (as in the artifacts made for *FoundFutures* and *Causing an Effect*), or more with participants (a kind of autoethnographic experiential scenario creation is integral to *Making the Futures Present*), or with third parties (*Futureproof*; *1-888-FUTURES*).

EXF starts with Mapping because that is where futures work usually starts, and too often, ends as well. But in some cases direct nonverbal mediation could be a starting point—such as hand-drawn (pictorial) images of the future (used by Candy in introductory foresight courses for designers), or the recent Turkish study of children's paintings of potential future technologies,[23] or still-life tableaux created on the spot by workshop participants in the emancipatory theatre practice of Augusto Boal (e.g. "the image of transition").[24] These quick and dirty representations may be more symbolic than diegetic in how they invoke the future; potentially rich fodder for discussion when closing the loop in Map$_2$.

(d) Mount

How, when, where, and for whom is the experiential scenario made available? What it means to Mount an EXF project depends on what and how one chooses to Mediate. These are not neatly separate variables. An improv theatre scene or Boal tableau Mediates and Mounts an experiential

scenario all at once; there is literally no distinction. But they are separated in the framework because in some formats they are intrinsically different design choices, so the creation of artifacts from a particular future could occur at one point and be staged for an audience much later.

Of course the circumstances in which a person "meets" the future can vary considerably—a scripted environment like a workshop (*Making the Futures Present*) is quite different from an unscripted one like a city street (*FoundFutures*), or a private one (future presents received in the mail after *1-888-FUTURES*). There may sometimes be a single Mounting event for multiple constituencies (*Causing an Effect*) and capturing the responses of different groups to a given experiential scenario may be highly illuminating.

(e) Map2
At last, and connected to all of the above, how best to Map responses to the experiential scenario? Whose responses are in scope? Is there the possibility, or need, to bring different views into dialogue, and if so how? Are they to be recorded formally or informally; live or online; privately or with others present; from a captive audience or a parade of passers-by? A rigorous research approach may call for interviews with the original informants (*Causing an Effect*; *Making the Futures Present*) or a questionnaire filled out by an audience (*Futureproof*). Less demanding of participants might be direct observation of those having the futures encounter (*FoundFutures*), monitoring of public responses online (*1-888-FUTURES*), or opt-in feedback mechanisms (like the blackboard prompts that invited visitors' reactions at *Causing an Effect*).

The closing of a cycle may be quite another matter from its opening, with the circumstances of a particular encounter (and thus capture of responses) sometimes being dramatically different from those at the start. Still, the range of options here, including depth and rigor required, can be usefully compared to those in Map$_1$ above.

Conclusion
This article has provided a pattern for creating hybrid design/futures projects, through pairing moves to surface people's images of the future with moves to dramatize and deepen the scenarios in play. In the initial handful of cases, motivating agendas vary from academic experimentation to documentary, activist, and public deliberation purposes, as well as more personal, quasi-therapeutic, and outright playful ones. Going forward we

picture not only cultural and social foresight-oriented projects being extended, but also uses in more formal and institutional contexts such as businesses, classrooms, governments, and nonprofits. Some such applications have already begun and can be explored in work to come.

For the most part, the projects seen here circle just once, but if pursued past a preliminary pass, the learning loop (or feedforward) shape of EXF could let all parties refine and track evolving images of the future over time. This raises the prospect of supporting social foresight through continuing community elaboration and deliberation of alternatives—for example, tied to a public election cycle, to participatory organisational governance, or for ongoing disaster preparedness efforts. So appears part of the potential for a pattern structurally echoing action research, experiential learning, and iteration in design.

Meanwhile, in navigating the framework details and variations in this setting, we must take care not to lose sight of the human heart of the matter: people often find it difficult to think about the future,[25] and even in supposedly advanced democracies, often our aspirations and motivating narratives are not present or legible to one other in *any* form, let alone in idioms designed to "create empathy and build understanding for the perspectives of others",[26] bring the "disruptive energy of laughter,"[27] or combine "interactive interviews, deep listening, systems thinking and prototyping together."[28]

Overall, EXF represents a part of what Candy and Dunagan have described as "the experiential turn" in futures, which includes:

> finding ways to translate or articulate the established, routinised foresight outputs with which we are traditionally comfortable—talky workshops, scenario documents—into an extended range of forms with which still too few futurists are professionally familiar at this time (filmmaking, theatre, and the design disciplines, for starters). . . . [A] central challenge, perhaps indeed *the* central challenge, for the next generation of foresight practitioners will have less to do with generating and broadcasting ideas about the future, than it will have to do with *designing circumstances or situations in which the collective intelligence and imagination of a community can come forth*. To design and stage an experience of the future is one class of activity. To attend to the design of processes whereby such experiences are designed—making

structures of participation—is another.[29]

The framework carries in its DNA some core ideas from the futures field, both longstanding, like the centrality and importance of plural images of the future, and more recent, like XF's contention that finding new and compelling ways of making invisible images of the future thinkable, feelable, and discussable—"turning foresight inside out," so to speak—is critical for humanity to have any chance of developing a distributed social capacity to think ahead. It is our hope that others will discover variations and uses that currently cannot be foreseen. We look forward to what a community of EXF experimenters will generate.

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CHAPTER 11: WILD CARDS AND WEAK SIGNALS

by Elina Hiltunen

Introduction

In the literature, mostly in futures research, wild cards have raised interest because of some dramatic, surprising events that have happened in recent years. The most famous is the September 11 attack on the World Trade Center towers. This was a typical wild card: a surprising and high impact event that was hard to anticipate. However, there is a question of whether that event was truly so surprising. Could it have been anticipated by making wild card scenarios or spotting early warning signals?

In exploring different definitions of the term wild card, one finds both similarities and differences—some mutual understanding but also some fuzziness. This is especially true of the examples given of wild cards. I found that some are not that surprising. Rather, they are more gradual changes that could have been anticipated. In this paper I divide changes into two types: wild card changes (referring to surprising and high impact changes) and gradual changes.

Some definitions for wild cards

Wild cards, even though they have become more popular in the literature during the last decade, are not a new concept. They are closely connected to other terms like discontinuity, radical or surprising changes, or critical events.[1] Let's look at some ways they've been defined and described:

- Ansoff talked about "strategic surprise," which he describes as "sudden, urgent, unfamiliar changes in the firm's perspective which threaten either a major profit reversal or loss of a major opportunity."[2] His concept of strategic surprise resembles a later conception of wild cards held by some futurists. Some synonyms for wild cards used in research papers include disruptive events, structural breaks, discontinuities, surprises, bifurcations, and unprecedented developments.[3]
- Rockfellow specified wild cards as "events that have a low probability of occurrence, but an inordinately high impact if it

does."4 His examples defined concrete premises for wild cards: they would become evident by the beginning of the twenty-first century (his piece was written in 1994); the likelihood of such an event occurring was less than one in ten; and the events will likely have high impact on international business firms.

- Petersen, author of the famous Out of the Blue: How to Anticipate Big Future Surprises suggests that wild cards are "low-probability, hi-impact events that happen quickly" and "they have huge sweeping consequences." Wild cards, according to him, generally surprise everyone, because they materialize so quickly that the underlying social systems cannot effectively respond to them.5
- Cornish described a wild card as "a surprising, startling event that has important consequences." He continued that "Wild cards have the power to completely upset many things and radically change many people's thinking and planning." Cornish underlines that the more extraordinary the surprise event, the more it qualifies as a wild card surprise in terms of upsetting our expectations.6
- Futurist.com's website defines wild cards as "developments on the horizon which are possible, and which, if they occur, will change everything."7
- Mendonça et al. define wild cards as "sudden and unique incidents that can constitute turning points in the evolution of a certain trend." They continue that a wild card is "an occurrence that is assumed to be improbable, but which would have large and immediate consequences for organizational stakeholders if it were to take place." They see wild cards as "one of the most unpredictable and potentially damaging triggers of change of four conceivable components of change: trends, cycles, emerging issues and wild cards."8
- Dewar talks not about wild cards but about wild card scenarios, which he defines as less likely than other plausible futures. He adds that what makes the wild card scenario important is when the future it describes would produce disproportionately dire consequences. To draw conclusions from this discussion, one can notice that wild cards are typically considered to be low-probability (surprising) and high-impact events.9

Practical examples of wild cards in history and in the future
Most authors give some examples of historical wild cards and some that might happen in the future. Past examples includes the leaps from horse to

car, pen to typewriter, and typewriter to computer. Future examples include Hong Kong ruling China, Europe goes regional, and a no-carbon economy. Petersen gives a general example of a wild card: a major hurricane devastating a town in a day. He emphasizes that, for example, women moving into the workforce in the 1950s was a major, unexpected thing that had great impact—but because it happened so gradually, it was not a wild card. In his book Petersen lists almost eighty wild cards (note: referred to as scenarios on the back cover of the book!) that might happen in the future, varying from a shift of the earth's axis to future prediction becoming a standard business. He also puts forward an impact index based on seven impact factors, such as their likely timing or impact, as a way to assess and prioritise wild cards.

Cornish mentions some examples of wild cards that could have been foreseen, but came as a total surprise. One is the German invasion of Russia in 1941. Russia was warned by the British about Hitler's planned assault, but this warning was ignored by Stalin. Cornish also mentions the crashes into the World Trade Center towers in New York on September 11, 2001. Futurist.com lists nanotechnology, airplanes that fly by themselves, and doubling one's lifespan as examples of wild cards.

Discussion of the properties of wild cards
Even though the descriptions of wild cards by various authors may seem to be the same, there are some differences and even confusion among them. As an example, Rockfellow, Petersen, and Cornish use the term "event" in defining wild cards while Mendonça et al. use the term "incident." Hiemstra of Futurist.com uses "developments" and Derwar considers wild card to be attached to the word "scenario." Thus one can see disagreement about the duration of wild cards. An event or incident refers to shorter duration, while a development or scenario takes more time to unfold. One could even argue that a development is a series of events.

The short duration of a wild card is referred to in some of the definitions more clearly. Petersen suggests wild cards happen quickly (like a hurricane destroying a city), which suggests their duration is short. On the other hand, he also refers to longer duration of wild cards, such as the shifting of the earth's axis or rapid climate change. Mendonça et al. write about the suddenness of wild cards.

Some authors have used the terms "wild cards" and "weak signals" as synonyms. I disagree and probe into the nature of wild cards and weak signals. To separate a wild card from a weak signal, I point out the differences of these two concepts:

- Weak signals are small events or issues that seem to be insignificant. They exist here today, and they can tell us about changes in the future. In other words: they are clues and signs in the present suggesting possible events in the future. From the past we can also point out weak signals that were hinting at future events.
- Wild cards, on the other hand, are surprising events with huge consequences. They have happened in history or might happen right now. In these cases their consequences are known. For the future perspective, I see that it makes more sense to talk about wild card scenarios. These are scenarios in which an imaginary sudden event, which has dramatic consequences (i.e., an imaginary wild card), is dominating. See Figure 1.
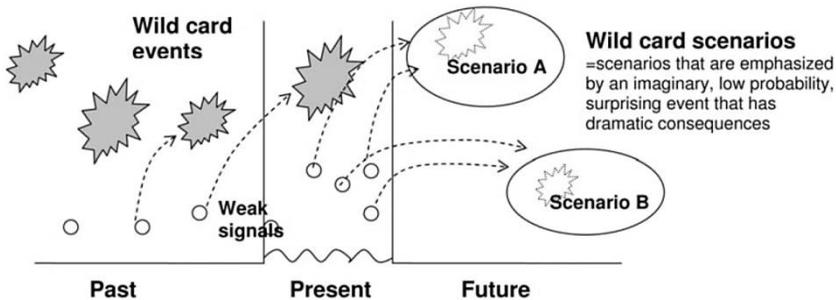
Fig. 1. Relating wild cards and weak signals

Classifications of wild cards

Based on the dilemma of the duration of the wild card, I divide wild card events into irreversible and reversible changes as shown in Table 1. Of course, when talking about reversibility of the system, it is mostly a question of time. For some changes, to resume the same values as in their original state before the wild card event might take only months or years. These I categorize as reversible changes. But if returning to the original state takes more than tens of years or does not happen at all, I label this event as irreversible. Examples of these categories are listed in Table 1.

Table 1: Two types of wild cards

Type of wild card	Example
Irreversible	Shift of Earth's axis
Reversible	Stock market crash

Another critical thing when considering changes is the time available to react to them. With aspect to this, I have divided changes into (1) wild card types of changes and (2) gradual changes.

In the first case there is only a little time to react to the change before it happens. On the contrary, with gradual changes it is possible to anticipate them well in advance. I see that this division resembles the division of "discontinuities" into two categories by van Notten et al.—abrupt and gradual discontinuities.[10] Even though they do not use the term wild card in this sense, I see that their "abrupt discontinuity" is very similar to wild cards while "gradual discontinuity" (or "transition" as they also refer to it) has some of the same elements of the term "gradual change" which I use.

Wild card and gradual change types of changes are presented in Figures 2 and 3. For these figures I have combined ideas of Ansoff, Coffman,[11] Mendonça et al.,[12] and Steinmüller.[13]
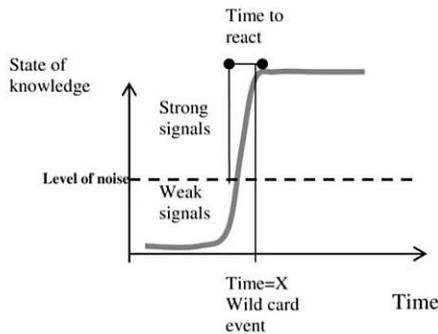
Fig. 2. Wild card type of change

A sudden change is one that gives little time to respond to it or be prepared for it. The level of noise refers to the level above which the event is visible to the majority of people, e.g., one can notice strong signals. Below the level of noise, only weak signals of the change exist. Time to

react is the duration of time from which an "average" person can see the wild card is imminent (the level of noise has been exceeded) to the actual time that the wild card happens (Time=X).
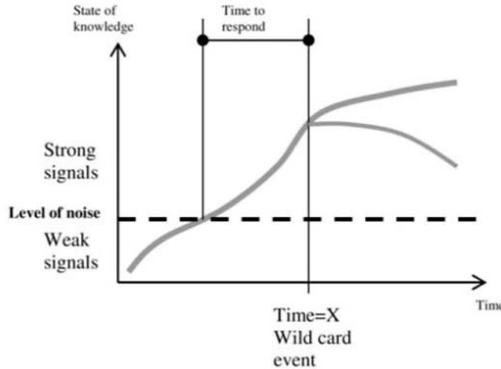
Figure 3. Gradual type of change

With gradual change, the issue itself is evolving gradually and gives more time to respond. The issue has different possibilities to evolve after the Time X (increasing, decreasing, or keeping the same level).

In light of the previous categorization, I classify some of the wild cards mentioned by the authors.

As one can see from Fig. 4, most of the wild cards mentioned by the authors were categorized as gradual changes. The classification is complex and subjective and the examples in the figure are not absolute. The point is more to show the tendency of the pattern, which in this case is that most of the listed wild cards are not actually wild cards but more like the gradual type of changes.

Thus, I here question the general claim that the listed wild cards in the table are surprising events. I present another interpretation: even though some of the listed wild cards possibly will happen/have happened quickly (classified as wild cards), most of the wild cards listed by authors are events whose signs we have just ignored. They are more gradual changes. We could have anticipated them (in the case of historical wild cards) or can already see signs of them today (in the case of possible future wild cards). In either case, they are gradual changes that have surprised or will surprise us. Of course, it is tempting to label a gradual change as a wild

card if we have had problems in anticipating it. For example in developing technological innovations (examples: change from horse to car, and possible in the future: doubling of lifespan and thermal depolymerisation), getting the new technology from the laboratory scale to everyday use takes plenty of time, and thus gives us time to react to it if we just keep our eyes open. These kinds of changes cannot be called wild cards.

Wild card listed by authors	Possible wild card/ history wild card	Author	Type of the wild card WC=wild card GC=gradual change
Hong Kong Rules China	P	Rockfellow	GC
Europe goes Regional	P	Rockfellow	GC
Leap from horse to car	H	Rockfellow	GC
Leap from typewriter to computer	H	Rockfellow	GC
A hurricane devastating a town	P/H	Petersen	WC
Shift of Earth's axis	P	Petersen	WC/GC
Asteroid or comet hits the earth	P	Petersen	WC
Gulf or jet stream shifts location permanently	P	Petersen	GC/WC
Crashes of WTC tower, 9/11	H	Cornish, Mendonça et al.	WC
The fall of Berlin Wall (the reunion of Germany)	H	Mendonça et al.	WC/GC
Major stock market financial crash	P/H	Mendonça et al.	WC
Thermal Depolymerization (everything into oil)	P	Futurist.com	GC
Doubling the life span	P	Futurist.com	GC
The rights of robots	P	Mannermaa (1999)	GC/WC
A global multimedia monopoly	P	Mannermaa (1999)	GC

Fig. 4. Examples of wild cards in the literature

It seems that one common aspect of the so-called wild cards listed in Fig. 4 is that they have a major impact on the system. The surprise factor, on the other hand, is something that I reject as a common factor of the listed wild cards in Fig. 4.

Can wild cards be anticipated?
I agreed with the claim by Cornish, Petersen, and Mendonça et al. that sometimes with wild cards, it is possible to anticipate them beforehand.

For example Cornish rejects the surprise factor of the crash of the World Trade Center towers on 9/11. According to him warning signs were all there before. He cites examples of these from two articles in *The Futurist*: an article by terrorism expert Brian Jenkins, who discussed the possibility of aerial suicide attacks, and an article by forecaster Marvin J. Cetron, who identified the World Trade Center as a choice target from terrorists' perspective. He also reminds us about the terrorist attack on the World Trade Center in 1993, which failed. He concludes that maybe the 9/11 event could have been foreseen in scenario work. Mendonça et al. and Petersen also very clearly announce that most of the time, signals of wild cards are there as early warnings or early indicators.

Mendonça et al. emphasize that wild cards can be anticipated by watching for weak signals of them. With weak signals they use the definition by Coffman:

1. An idea or trend that will affect how we do business, what business we do, and the environment in which we will work.
2. New and surprising from the signal receiver's vantage point (although others may already perceive it).
3. Sometimes difficult to track down amid other noise and signals.
4. A threat or opportunity to your organization.
5. Often scoffed at by people who "know."
6. Usually has a substantial lag time before it matures and becomes mainstream.
7. Therefore represents an opportunity to learn, grow, and evolve.[14]

Mendonça et al. emphasize that scanning for weak signals in the environment can help anticipate some wild cards. Petersen also notes that wild cards can sometimes be anticipated and assessed ahead of time. The key is doing careful, focused, and objective observation with sophisticated methods of accessing information. He suggests getting expert input from experts in systems behavior, the Internet, complexity theory, and other "new sciences," as well as from many traditional disciplines. When listing his almost 80 wild cards he also lists early warnings that would seem to have indicated the possibility that the wild cards could happen. For example, for the wild card "Gulf or jet stream shifts location permanently" he cites several early indicators: unusual periodicity of El Niño (1990–97), large variations in jet stream location over North America, and higher frequency and greater intensity of storms. For those wild cards that cannot

be anticipated, organizational improvisation is needed for dealing with
ongoing crises.

When discussing the dilemma of anticipating wild cards and gradual
changes, I refer to Figures 2 and 3 in this paper. As can be seen from these
figures, there is a short time between the first signs of the change
becoming visible to the majority (level of noise exceeded) and the time of
impact of the wild card. The only thing that we can do to anticipate wild
cards, then, is to try to look below the noise level and spot the weak
signals. This can be done for example by environmental scanning that
includes a focus on extraordinary sources of information.

Why are signs of wild cards not recognized?
If weak signals exist before the surprising event, why are wild cards not
recognized in advance? For this issue Ansoff has presented a theory of
information filtering, which can be seen in Fig. 5.
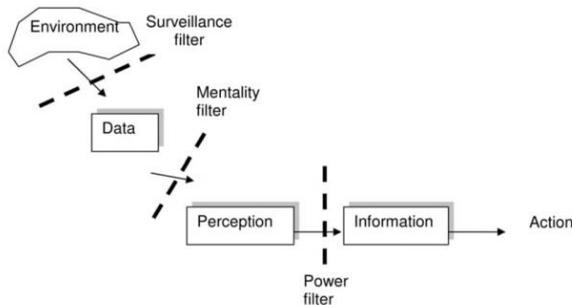
Figure 5. Filters for information by Ansoff

According to Ansoff, signals have to pass through three filters—
surveillance, mentality, and power—to be able to affect decisions. In
every filter some signals are blocked out. For getting relevant information
from the environment, he suggests that it is important to use techniques
(environmental surveillance, forecasting, and analysis) that can capture
essential elements of the reality despite the surveillance filter. For
broadening the mentality filter, a key manager's mentality for
responsiveness to future turbulence needs to be developed. A wider power
filter calls for powerful managers to have the appropriate mentality to see
novel things.

Webb also lists some reasons why sometimes signals are weak and hard to recognize:

1. The signal is strong but the sensory apparatus is not capable of detecting the signal.
2. The sensory apparatus is designed to detect particular signals, and thus it will not detect other signals, no matter how strong they are.
3. Filters interposed between the signal and detector attenuate the signal from its original strength.
4. The discontinuity that causes the signal may exist geographically too far from the sensor.
5. When the discontinuity commences it will emit signals that are weak at first.[15]

In my opinion, trying to widen the filters listed by Ansoff for receiving signals is one way to get a better view of future wild cards. Practically, in an organizational context, this can be done by:

- Using wider and even atypical information sources for environmental scanning and forecasting activities (widening the surveillance filter)
- Hiring employees from different disciplines and different backgrounds (widening the mentality filter)
- Educating top managers to be open to alternatives of the futures and be ready to act differently if needed (widening the power filter)

To overcome the problems listed by Webb, I suggest that many of the solutions for Ansoff's filters address these problems. The Internet has made so much information available that we are not lacking for potential sources of weak signals. On the contrary, today the essential challenge is to spot the relative weak signals among the noise.

A future sign as a tool for clarifying the concept weak signals
I have clarified the complex definition of wild cards above. But how to define weak signals? This was a wicked problem that challenged me to create a new concept of the future sign to clarify the concept of weak signals. The debate about the characteristics of weak signals was active, especially in Finland, at the time that I was doing my academic research on weak signals. The main questions about weak signals included:

- Are weak signals change itself or are they signals of change?
- Are weak signals and emerging issues synonyms?
- How does a weak signal become stronger?

I consider *the triadic model of the future sign* as the main contribution of my academic work on weak signals. This model has been used in order to come up with an answer to the questions and critique raised in discussions among Finnish scholars about the characteristics of weak signals. The triadic model of the future sign is based on Charles Sanders Peirce's triadic model of the sign, which I consider to be applicable in its versatility to resolve some obscurities in the weak signal dilemma.[16] As for the future, semiotics, which has not been used much in futures research, could have much to offer the discipline.

Charles Peirce provided the triadic model of the sign (see Fig. 6), which consists of the *representamen*, the *interpretant,* and the *object*. The representamen stands for the form that the sign takes (not necessarily material); the interpretant is not equivalent to the interpreter but rather the sense made of the sign; and the object is that to which the sign refers.
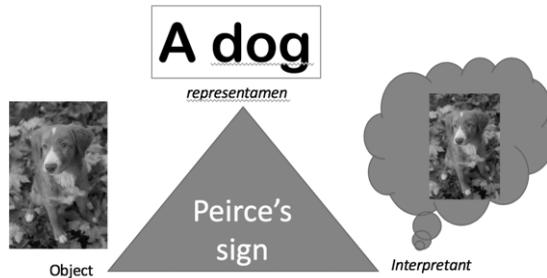
Fig. 6. The triadic model of the sign by Charles Peirce

The future sign, presented by the author, can be divided into three dimensions according to Peirce's sign. In the case of future signs, these dimensions have the following meanings:

- *The object* refers to an (emerging) issue.
- *The representamen* is the concrete form the sign takes. I will call this *signal*, because it is usually sent by someone (note: not in every case, though). In the case of future signs, signals can take

the form of a news article, a rumour, a photo, a TV news story, an image, etc. The signal is in connection with the *issue*.

- *The interpretant* is a sense made of the future potentiality of the sign. This means the clarity to an interpreter of the sign to make assumptions of future events based on the sign. Contexts are included in this dimension, because interpreters make their conclusions about signs within their own context.

The model of the triadic future sign is presented in Figure 7.
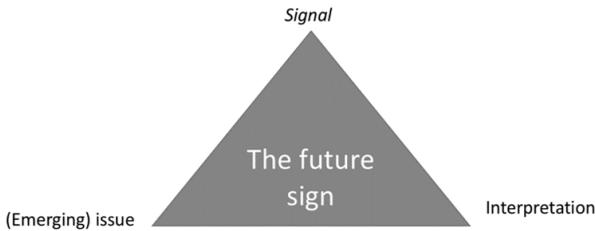
Fig. 7. The model of the triadic future sign

For further examination of the dynamic characteristics of the future sign in particular, I find it worthwhile to describe the future sign in three-dimensional space too (see Figure 8). In this figure, the axes (i.e., the dimensions of the future sign) are called *the signal*, *the issue,* and *the interpretation*. The units of these dimensions are the following:

- *The signal:* The number and/or visibility of signals.
- *The issue:* For example, the number of events. A variety of other units that describe the diffusion of the phenomenon are also possible (e.g., the percentage of net sales or the percentage of internal sales; the share of employees abroad).
- *The interpretation:* The receiver's understanding of the future sign's meaning (an organizational point of view of this could be the importance of the sign for an organization in the future).
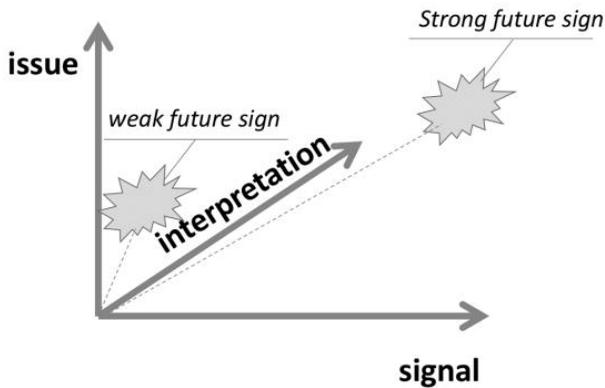
Fig. 8. Three dimensions of the future sign

The stronger the future sign is, the further it is located from the origin.

Discussion

In this paper I have discussed the problematic definition of wild cards. There seems to be a degree of mutual understanding about what a wild card is, but there is also fuzziness. The fuzziness shows up in the examples of wild cards. In this paper I present two types of changes: wild card changes and gradual changes. My examination shows that many of these wild cards are more like gradual changes. In many cases when the authors are talking about wild cards as surprising and big-impact events, these events are not that surprising. In fact, it would have been possible to see weak signals or early warning signs of these changes well in advance.

In this paper, I also discuss the term weak signal. Sometimes the term wild card is used as a synonym for weak signal. In my opinion they are not synonymous. For clarifying the challenges in defining the weak signal, I have introduced a triadic concept future sign based on semiotics. It aims to help in understanding the logic of change and its dimensions, especially the role of weak signals in it.

Elina Hiltunen
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CHAPTER 12: AN UPDATED PRACTITIONERS GUIDE TO SCIENCE FICTION PROTOTYPING

by Brian David Johnson

Introduction
I've always been fascinated by all things science and all things science fiction. This paper gives a practitioner's breakdown of science fiction prototyping (SFP), a process I invented over a decade ago that uses science fiction narrative structures to explore possible futures and their implications. This paper also captures previously unpublished updates to the SFP process that I have been working on in recent years.

The blending of science fiction and science fact is nothing new. Their symbiotic relationship stretches back in history for hundreds of years. No one would really argue with the observation that scientific research and technology inspire writers to dream up thrilling stories and amazing new worlds.[1] Likewise, generations of scientists have had their imaginations set on fire by science fiction stories, inspiring them to devote their lives to science.[2]

"It's alive! It's alive!"
How Science Fiction Prototyping escaped the laboratory and took on a life of its own
(Nerd reference to 1931 James Whale film version of *Frankenstein*)
There was a specific moment in my life when I saw that the SFP process was going to have a far more expansive and diverse future than I had originally thought. I was in Colchester, England at the University of Essex. This was the epicenter of SFP development in the UK for the first decade of the twenty-first century. Years before, I had developed the SFP process, applied it, lectured on it, ran workshops, and eventually wrote a textbook on it. The main prompt for writing the textbook was that the professors who were using the SFP process couldn't afford to keep flying me over to lecture and run workshops. "Replace yourself with a textbook, mate," one professor smiled at me over a pint of bitter beer. "It will save the air miles."

Once the book was written the SFP process took on a life of its own. It was this new life and surprisingly novel applications that brought me back to Colchester in 2013. The journal *Futures* was poised to release an entire edition, Volume 50, "Exploring Future Business Visions Using Creative Fictional Prototypes."[3] Led by a group of professors from the Universities of Essex, Leeds, and Manchester, I was invited to the University of Essex to kick off the project.

Before my first lecture I took a stroll with my host, Dr. Victor Callaghan. It was a chilly fall day as we meandered around the campus. The architecture and design of Essex is called Brutalist. Its look is stark and industrial and feels like a science fiction movie set. I always thought it was fitting that SFPs were being created by young minds here.

"We're going to use science fiction prototypes in the business school next year," Vic explained.

"You're going to do what?" I asked.

This seemed like an odd thing to me. I wasn't sure that I heard him correctly. Originally the SFP process was something I did for myself, as an extension of my work as a futurist. Over the years I began to apply it in different engineering and product development areas. This is what led me to formalize the process, so I could explain it and use it with the groups I was working with.

What got really interesting was not just when I was using the process to develop futures but when my collogues, who weren't SF authors like myself, were using it to come up with futures ideas. The original title of the textbook was going to be *Science Fiction Prototyping—Science Fiction for Engineers.* The publisher, Michael Morgan, wisely told me that this could limit the book's usage, so we went with *Science Fiction Prototyping—Designing the Future with Science Fiction.* He couldn't have been more correct.

Back in Essex, Vic explained, "We're using the process to work with students in the business school. We want them to not only imagine the future but also use it to design future businesses and business models." I was struck mute for a moment. I had never considered using the process this way. I was a little worried that my little process might be used in a

way that could, if not actually harm people… lead them down some crazy paths. Had I created a monster?

"Are you sure that's a good idea?" I asked.

"Of course," Vic laughed. "It's a great idea. What is a business plan or a business prospectus if it's not a work of science fiction?"

"True," I replied.

"You do know that a sales projection from a company is just a science fiction story written in a spreadsheet..."

Brilliant! It was at that point standing in the chilly English fall that I could see the SFP process was about to take on a life of its own. I could feel myself buckling up and just waiting for the surprises and innovative ideas that lay ahead.

My little monster's origin story
To get to the origin story of SFPs I need to tell you a little bit about what I do and how I do it. I'm a futurist. I work with organizations to look ten years out into the future and explore a range of possible and potential futures. As an applied futurist I then work with those organizations to figure out what they need to do today, tomorrow, and five years from now to move towards the futures they want and avoid the futures they don't want. I call this futurecasting, using a range of multidisciplinary inputs to develop effects-based models that explore the future. An effects-based model doesn't model a product or business in the future. We explore the effects that we want that possible product or business to have, and then we reverse-engineer it. It was this that was key to the development of the SFP process.

When we develop effects-based models we move from the macro to the micro. We take a wide range of high-level research from social science, economics, technology, cultural history, trends, and global interviews, and then we get specific. We look at a person in a place ten years in the future experiencing a problem. The person, place, and problem are all informed by the high-level research or inputs, but the effects-based model forces us to get specific. We then model multiple futures—multiple people in multiple places experiencing different problems. From this dataset we can begin to find clusters and patterns that

are the core output of futurecasting. Then we can backcast to explore the specific steps that can be taken by an organization today to enable those futures, and we can also explore the external indicators that these futures are on their way to becoming real.

Central to the process is the person in a place experiencing a problem. These are the exact same components of a good science fiction story. The better you can describe the person and the place and the more nasty and exciting the problem is, the better the story.

I'm also a science fiction writer. My science fiction has always been based on fact. The idea that the futures we create in fiction could actually be real was far more thrilling than just a good story. In fact, my recent young adult (YA) novel, *Wizards and Robots* is an SFP.[4] We deliberately based the story on real science and technology so that we could talk to the young minds who were enjoying the story and tell them, "It's all real. It could all happen in the future!"

However, the direct output of the SFP process is not a story. Many SFPs have been turned into stories, graphic novellas, movies, novels, and even art installations but the specific product of the SFP process is an outline or an architecture for a possible future. This architecture provides practitioners a framework to generate detailed descriptions of their future, with the intent of not only making that future possible but also of exploring its implications in the world—people, business, ethics, policy, etc.

Building a science fiction prototype in five easy steps
An SFP is an architecture or outline to help authors explore the implications of their specific possible future. An outline is the skeleton of the story, providing a step-by-step description of what happens. The architecture is a five-step process that gives authors specific guidance, questions, and prompts to help them explore the effects and ramifications of their future.[5]

As Figure 1 illustrates, an SFP is not a traditional written story. It is not written in prose like a novel or short story. The architecture of the SFP is a list of events, descriptions, and scenes that describe the action in this future world.
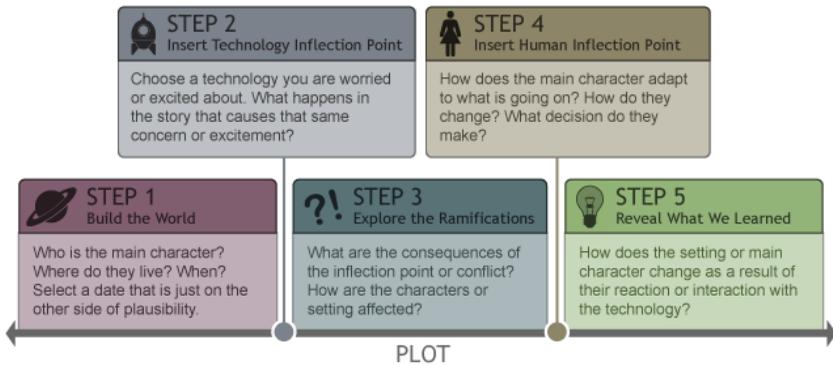
Fig. 1. The SFP architecture: Designing the future in five easy steps

Step 1. Build the world

Step 1 is the most important and time consuming of all the steps. In this step, pick a future and use it to build a world around it. Like all good narratives it will include detailed descriptions of people, places, and events. Where and how you choose your future is up to you. In the past, practitioners have used the specific research they are currently exploring. Others have taken an emerging technology or scientific advance and used the SFP process to explore its effects on the future. You could even take a recent article or lecture and use it as the basis for your future world. Corporate and government participants have taken specific problems or threats and used the SFP architecture and process as a platform.

Once you have your future you will need to pick a person who will be the central character of your SFP. This will be the person who viscerally experiences the future; you will use them and the people around them as vehicles to draw out specific details. With all narratives, the more detail and the more robust your description of your person, the place they live in, and ultimately the world they live in will make your SFP even more successful.

As you imagine the plot of your SFP, it is important to remember that you are placing your topic or idea in a real world. Now, granted we are talking about science fiction or your real world might be far into the future, but regardless, the world must feel real. It is still governed by the laws and logic of science.

The world that you are creating needs to be populated by real people. These real people will have real problems that have nothing to do with your topic. In the future, people will still not want to go to a boring job. In the future, people will still fall in love and some will have their hearts broken. In the future, we will still feel too lazy to take out the trash. It is often helpful to use the following prompts to get you going. You don't need to use them all but they can help give you a jumpstart.

Prompts:

- What is your future and why do you want to explore it?
- What is exciting or worrying about your future?
- Is your future dramatically different than today? What will make it interesting and challenging?
- What are the implications of your future when it hits mass adoption?
- What is the worst thing that could go wrong and how would it affect the people and locations in the story?
- What is the best thing that could happen and how would it better the lives of the people and locations in the story?
- If this technology was in an average home, how would it actually work?
- Who is your person and why did you pick them?
- Who is their greater community and how will that community be affected by the future?
- Give specific details for where they live. What does it feel like? Smell like?
- How is a Tuesday different then a Saturday in your world?

Step 2. The problem (the event or inflection point)
Now that you have a person in a place… the next step is setting the problem. All good stories have really bad, nasty, and complicated problems. The problem is the specific moment or event when your future becomes real. This could be a positive future or a negative future. Spoiler alert: generally, most SFPs will explore something negative.

The problem is a specific moment in time, often an event, that is the physical or digital instantiation of the future. The problem can be subtle or catastrophic. It can happen behind the scenes or literally blow up in your person's face. Part of the richness of your SFP will be thinking through the multilayered details of how your event unfolds. The more detail you

can give, the more things we can see, and the more things that might be hidden will give you the raw materials to work with as you move through the following steps.

Prompts:

- What is the problem?
- What is the digital or physical event that presents your future to your person?
- How will it be different from what they have seen before?
- What is seen and what is hidden?
- Who is behind the problem? Is it a person, an enemy, or an unintended consequence of the future you have selected?
- Tell us about the morning before the event happens. What is the quiet before the storm?
- When the event does happen, does just your person experience it or do others in their community, or the entire world, also experience it?
- Does the event happen to someone else and does that effect bring it home to your person?
- Just how bad can you make it? (This is the drama storytelling part of the SFP process.)
- What is the grit in the system that will fuel your SFP?

Step 3. Things go terribly wrong (ramifications)
Once you have unleashed your future problem into your world, it will have knock-on effects for your person, their community, and your future world. The people in your story will adapt and change because of the future you have introduced. This is not only good storytelling, it is also beneficial to the development of the future you are exploring. Step 3 is the richest section of your SFP and gives you the room and space to dig deep. Explore as many details as you can.

Here's a hint: Go to extremes! Pushing your SFP to the extremes (either good or bad) will expose new areas for investigation or exploration. Once you have explored and mapped the outer edges and extreme scenarios, then you can map back to the middle to a more normal and realistic situation. But going to these extremes will help give clarity to your idea. Explore the implications and ramifications of the problem on your world. This is where you get to explore in detail the effects your future has on the world. This is the core of the model.

Prompts:

- Has it made their lives better? Has it made their lives worse?
- How will your person deal with the messy and real-world implications of this future?
- What will it feel like?
- What will it look like?
- How will it affect the people around them?
- What will the press say? How will the wider world react?
- What are the financial, medical, governmental, security, cultural impacts to the event?
- Will people die? (This is what sets the SFP process apart from many foresight and modeling processes. In SFPs, like in good fiction, people die. Often in traditional modeling frameworks people will shy away from the nasty and perilous parts of the future. Because an SFP is a narrative it gives people license to go dark, to take things to extremes. In an SFP as in real life… people get hurt. But the goal of the SFP is to explore these futures so that we can make sure that they don't happen.

Step 4. The solution
The situation in your SFP has gotten dire. You have gone to the extreme! The characters are at their wits' end. Their lives may even be in danger. This is the point at which we learn what your characters will do to adapt themselves to the future you have introduced. The people in your story will alter or change the future to suit themselves. Life goes on.

These outcomes need to be in keeping with the world you have created. The future needs to stay logical. It is important in Step 4 that the changes be believable for your world and stay within the constraints of science. If you constrain yourself to these boundaries, then the outcome of your SFP will be more valuable and applicable to further investigation.

Prompts:

- What do your characters need to do to survive?
- What is needed to fix the problem?
- What does your person learn that they didn't understand before?
- How does the broader community adjust?

- Are there regulatory, governmental, cultural, or legal changes to solve the problem?
- Does everyone just die? (Spoiler alert: for many science fiction stories this is an acceptable ending but for an SFP really this is not the point.)

Step 5: Reflection (What did we learn?)
Most people skip this step of the SFP process. Step 5 pushes us to explore what we have learned. It is a time for reflection, far and above what your person and their world learned from the future—what did *you* learn? Take a step back and give yourself the space to reflect on the drama, horror, and resiliency of your story.

Prompts

- How did your world change?
- How did the people, society, and systems change?
- What could be done differently?
- What cautions do you need to pay attention to?
- What fears were unfounded?
- What should be different?
- What would you improve?
- What must stay the same?
- What ramifications have you uncovered by using the SFP process? How has it changed your outlook?
- What could we do to make the future better for everyone?

The five steps of this SFP process walk you through a simple architecture to examine and reexamine both the future and the impacts that future will have. As with many processes, once you feel comfortable with it you can make your own deviations and modifications. But if you follow these five easy steps you will come away with a solid outline for an SFP. You can then turn this outline into whatever form you think best suits your ideas and imagination. Remember, the ultimate goal of the SFP process is collaboration, iteration, and fueling your imagination to look at the future in new and exciting ways.

With great power comes great responsibility
(Nerdy reference to Stan Lee and the *Spiderman* comics)

There you have it! You now have the ability to imagine and create multiple futures, both astoundingly positive and frighteningly negative. What will you do with this power? As practitioners, how will you employ the SFP process in the work you do? Science fiction is the language that people use to talk about the future. These future stories have value and currency: science fiction narratives have already changed the future countless times.

SFPs give us a framework to not only build detailed futures but to use narrative structures to examine the darker regions and what we can do to make them better. The future is messy… How will you make it better?

This article is derived from Johnson, B.D. (2011). *Science Fiction Prototyping: Designing the Future with Science Fiction*, 1st Edition. San Rafael, CA: Morgan & Claypool Publishers.

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CHAPTER 13: FRAMEWORK FORESIGHT: EXPLORING FUTURES THE HOUSTON WAY

by Andy Hines, Peter Bishop

Introduction

Framework Foresight is a method for carrying out foresight projects that was developed by the University of Houston's Foresight program. The method is a systematic way to develop a "start-to-finish" future view of a domain or topic of interest and to explore its implications. The decision to adopt a "standard" method represented a philosophical shift from a historically neutral teaching approach that presented methods without particular advocacy for one or the other—rather they were presented with their respective strengths and weaknesses. The challenge this neutral approach creates is that each method is somewhat different. For those new to foresight, it is often difficult to distinguish the methods or to know when to use one or the other.

Pieces of the method were introduced in the late 1990s with graduate students. The first prototype was produced in 2000. Bishop originally developed the method for mapping or describing the future as Framework Forecasting. In 2005, the authors turned to their colleagues first at the Association of Professional Futurists (APF) and then from the broader futurist community to solicit ideas on how practicing futurists organized their project work. The response was enormous. The hundreds of suggestions clustered into six categories of activities. The categories and advice, in the form of guidelines, were published in the 2007 edition of *Thinking about the Future: Guidelines for Strategic Foresight*. There are always some minor tweaks and refinements that are made as a method is applied. A significant upgrade led by Hines extended Framework Forecasting to include influencing the future (implications, plans, and actions). Thus, Framework Forecasting was rechristened Framework Foresight and captured in the journal *Futures* in 2013. Further refinements appeared in the second edition of *Thinking about the Future*, which added a chapter on the integrated process. In short, the method will never be finished but is continually evolving.

Framework Foresight provides a common approach and thus provides a basis of comparison to how other methods accomplish similar tasks. In that sense, Framework Foresight could be viewed as a meta-method, a method that can incorporate other foresight methods. It specifically acknowledges the values of multiple methods or techniques that can be plugged into a project in a modular fashion. When students carry out several framework projects, they learn the essential steps involved in a foresight project and understand how different methods can be invoked for carrying out the different steps. We have observed that students leave the program much better prepared to start working on projects right away.

Several graduates have reported using Framework Foresight in their jobs over the years and that it worked well in practice. In 2014 the Houston Foresight Program established a research program involving faculty, alumni, and students working together on client projects, thereby putting Framework Foresight to the test in the "real world," with similar good results. It worked well in practice. So the authors felt that since it had evolved beyond just a teaching tool, it would be useful to pull a description together and offer it to the foresight community as a new method.
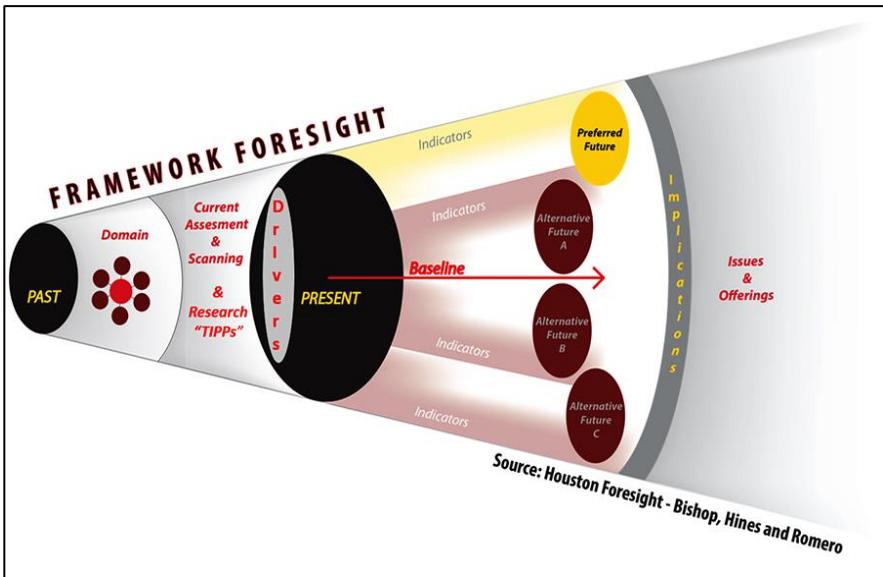
Figure 1. Framework Foresight Cone

The method classifies information and captures it in templates arranged in a logical flow. The method works best with a clearly defined client, but one can "make one up" as our students often do, and that works fine as well. It starts by describing the domain, characterizing its present status and reviewing the relevant recent past. It then identifies changes through scanning and specific types of futures information (trends, inputs, plans, and projection), which are then synthesized into drivers of change, which in turn are synthesized into a baseline future and alternative futures. Next, it explores the implications of those futures, and identifies the resulting strategic issues or opportunities they suggest, and ties it all together with an integrated strategic approach. Finally, it identifies leading indicators to track the progress of the domain going forward. While we teach the method piecemeal over the course of a semester, when we review the process from start to finish at the end of the semester, the students report that it really comes together for them and they understand how it all fits together.

The steps
Framework Foresight does not require that all steps be completed. It may be enough, for instance, to simply stop at developing the baseline or alternative futures. Or one might start with futures that have already been developed and focus on their implications and develop strategic options. Each step uses templates that capture inputs, as well as a summary deliverable consisting of categories of information that are filled in:

Table 1. Framework steps and templates

Step	Templates
Framing	1. Domain description
	2. Current assessment
Scanning	3. Scanning & inputs
	4. Drivers
Forecasting	5. Baselines and alternative futures
Visioning	6. Implications analysis
Planning	7. Options & strategic approach
Acting	8. Indicators

Again, we emphasize that this is not the "right way" but one way of doing a foresight project. One might substitute, for example, Clem Bezold's Aspirational Futures technique to craft the alternative futures or scenarios—or any scenario technique for that matter. The key deliverable is a set of future scenarios, however that is achieved. An example of adding an additional module might come from incorporating a critical

perspective using Causal Layered Analysis to question the baseline future and develop alternative futures. The modularity could get fairly granular, that is, aiming at a specific aspect of a module in the templates. For instance, in doing the Alternative Futures inputs, one might add in a wildcard analysis to stretch thinking. We have found that having this core framework approach actually enhances understanding of other methods, as it provides a context upon which to evaluate them—the students can see how different methods set about accomplishing tasks compared to how the framework accomplishes them.

1. Domain description

The method begins by identifying the domain or topic to be explored. One of the key challenges in any project is bounding and scoping, with the goal being a description that is neither too broad nor too narrow. This step can be revisited and the domain re-scoped as more is learned about the project.

Domain definition

A domain is any topic that can be forecast; and since everything has a future, a domain is just about any topic whatsoever. A domain might be a geographic region from a neighborhood to countries to the world as a whole. It might be an organization from the local church to the United Nations, including businesses, government agencies, or nonprofits. It could be an issue like AIDS or climate change. It could be an industry like chemicals or automobiles. It could be an institution like education or transportation. In other words, a domain could be anything that has a future, and what does not?

Sometimes a domain is clear from the start. A client asks for a particular study around a specific question or with a specific objective. Or the futurist has an intended audience in mind around a particular topic. In other cases, the domain is murkier. There may be a general sense of a need, challenge, or problem but it is not specific. For instance, an organization might be interested in new business opportunities relating to water, but is not sure about what aspect. The research might start with a broad view of water. It might reveal that desalination is a promising opportunity space. If the client agrees, then the domain could be narrowed to the future of desalination. The domain definition and subsequent research, as with the entire Framework Foresight method, are iterative.

Geographic scope

It is helpful to note the geographic scope of the forecast—is there a particular city, country, or region, or is it global? Drawing a boundary around the geographic scope, or even the domain as a whole, does not exclude the rest of the world and the changes going on there. In fact, those STEEP categories (social, technological, economic, environmental, and political) are essential for driving long-term change. The domain and its geography just identify what is inside the domain, leaving outside influences to drive those changes.

Time horizon
The time horizon specifies how long into the future the forecast extends—how far one is intending to look into the future. The time horizon is usually expressed as a year, and usually a round number like 2025 or 2030. The year actually stands for how much change one is going to allow in the forecast. Transformational events can happen any day, but the probability of significant change and uncertainty increases as the time horizon gets longer. So a time horizon of 2050 will include a lot more change than will a time horizon of 2030.

Different domains will have different logical time horizons: eighteen months is a generation for computer chips; four to five years is typical for consumer products or automobiles; and more than thirty years is common for forestry or energy exploration. A recent enhancement to our thinking about time horizon is the addition of concepts from the Three Horizons approach.[1]

Domain map
It is helpful to explicitly identify "what's in and what's out." What parts of the domain are definitely going to be considered? These show up on the domain map. The domain map is a visual representation of the boundaries and key categories and sub-categories to be explored in the research phase. It is an outline of the research in visual format.

Simple "bubbles" can be used to represent key categories and sub-categories. Mind mapping software works quite well for this as well. In the Framework Foresight method, it is enough to start with mapping out the major categories and sub-categories of the domain. It is possible, of course, to get more sophisticated here and get closer to a formal systems map by noting the interrelationships. Those with design flair can make these visually compelling. But it is enough simply to guide the initial research with a simple visual, and it can be revised as more is learned

about the topic. When working with a client, the domain map can be shared with them to gain shared agreement on what the domain looks like. Gray areas can then be discussed and decisions made about the close calls.
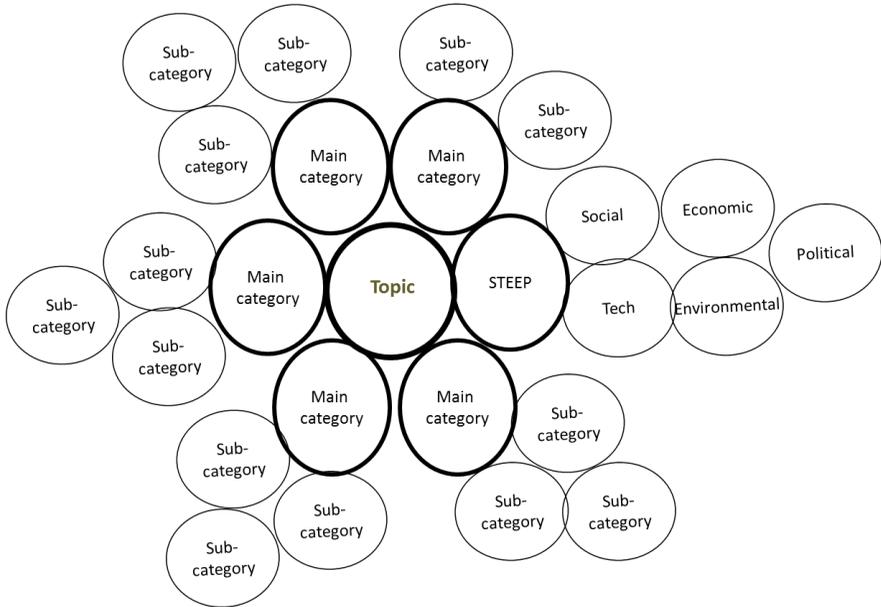
Figure 1. Domain map

We have been amazed at how useful this simple tool has proved in practice—it really helps the students and/or client get their heads around the topic and organizes the scanning and research.

Key issue(s) or key question(s)
This is an optional component, but can be helpful for certain domains. It is more or less a problem statement, in the form of an issue or question. In essence, why is the topic being explored? Sometimes projects are motivated by a specific purpose; thus, an issue or question can be articulated. Other projects are more purely exploratory, where the purpose is to learn what the key issues or questions are.

2. Current assessment
Any foresight approach benefits from taking stock of where the domain currently stands and how it got there. Framework Foresight calls this out in the current assessment. It identifies and assembles the pieces and the

recent history of the domain and provides a snapshot as it exists in the present. We often joke that these are the topics that will come up at cocktails or dinner with a client, so we need to be informed of them to craft relevant views of the future.

Current conditions
This category brings together the key variables, quantities, and structural arrangements. Our experience is that there is no precise formula for what to include in terms of what is the most important information. Basic factors such as growth rates, the competitive set, or key regulations typically appear. In the domain of petrochemicals, for instance, it might include total annual sales, perhaps by major product category and by application area. It could also cover costs of raw materials—if that is a big issue—or where new facilities are being built, or what chemistries are dominant. It is often helpful to think about what a conference on the domain would cover in a state-of-the-industry address. The goal here is to list the five to ten items that are the essential, "need-to-know" information about the domain. It is worth noting that systems mapping, Causal Layered Analysis, or Integral Futures could be used to provide a more detailed or alternative view of the current conditions in the domain.

Stakeholders
The current assessment also includes the stakeholders: the individuals and organizations that work in and could affect the future of the domain. In petrochemicals, for example, the stakeholders would be the primary producing companies, their suppliers and customers, service providers like transportation companies or equipment manufacturers, government regulators and not-for-profit groups like trade associations or environmental organizations. The stakeholders contain all the people involved in the domain just as the current conditions contain all the quantities and structural elements.

History
Framework Foresight also includes a little history, but just a little. Some would like to go back to the Roman aqueducts in describing the history of water. While immensely interesting, that era is long gone and has little practical value for forecasting. So history in Framework Foresight is confined to understanding the key events of the recent past, such as the iPod marking the beginning of a new era in digital music. A rule of thumb is to look as far back as the forecasts will project forward.

3. Scanning and inputs
Scanning library
Scanning hits capture the "signals of change" in a domain. More grounded scanning hits describe events, or are solid pieces of information that indicate a plausible change in the future. More speculative ones, often referred to as weak signals, are especially useful to Framework Foresight in providing "raw material" to work with in crafting alternative futures.

There are three basic steps in scanning. The first, FIND, is the process of searching for and identifying potential scanning hits. The domain map categories provide an excellent jumping-off point to organize the search. Myriad tools are available for finding and monitoring up-to-the-minute information, such as feeds and alerts. Search terms are less important than in the past, as many search engines now practically accept spoken language.

Something has to be done with these hits; thus, the second step is COLLECT. There are several online bookmarking approaches with tagging capabilities that can handle group inputs (for instance, we like Diigo). An old-fashioned spreadsheet can work just fine as well. The key is to keep track of the hits so that when it's time to craft alternatives, they are easily accessible.

The third step is to ANALYZE. There are degrees of analysis, from a simple triage to detailed multi-criteria and weighted indices. For most purposes, two or three criteria can usually provide enough for useful evaluation, such as likelihood, novelty, or impact. In many if not most cases, it is not necessary to do a formal prioritization. We review the entire scanning library and informally draw upon those that are most useful in constructing drivers and scenarios.

Inputs
We use the acronym TIPPs to capture the four types of specific information to search for to complement the scanning: trends, issues, plans, and projections.

- **Trends.** Trends are quantities or changes that move incrementally in a specific direction over a long period of time; the value of the quantity and its rate of change (if known). One can always say "more" or "less," or "increasing" or "decreasing" when describing a trend. Similar trends are clustered into macro themes of

uncertainty during the generation of alternative futures in the next step.

It is often useful to go back to the domain map and identify trends that emerge from the categories and sub-categories. While the method suggests it is enough to capture the top five to ten trends in the template, the "other" trends may prove useful later in providing additional raw material for building the baseline and especially the alternative futures. In project work, it is common to develop a much larger list of trends—say fifty to 150.

- **Issues.** Issues also have the power to shape the future. Issues are decisions yet to be made. They are currently under debate or could emerge as a matter of debate during the project's time horizon. Resolving these issues one way or another could make the future different. Issues on the agenda today include US involvement in the rest of the world, free trade versus protectionism, assistance for or competition with the world's developing countries, universal healthcare, and endangered species.

  Other useful developments to identify are "emerging issues"—issues that have not yet appeared on the public agenda. As with events, emerging issues are inherently uncountable, but some are more apparent than others. They may not be unheard of, but they are not receiving the attention they could. The difference is a framing event: an occurrence that propels the issue onto the public agenda. Books or studies might be such an event. Dr. Jim Hansen's testimony on the reality of ozone depletion before Congress in 1989 was just such an event, changing the discourse about climate change. 9/11 put terrorism on the world's agenda; Iran and North Korea did the same for nuclear proliferation.

- **Plans.** Plans are intentions to act. They are announced by individuals, organizations, or governments. Strategies can be considered as well, although they are generally less available publicly. People who announce plans do not always carry them out, but they are usually sincere in their intention to do so. Hence they represent a driver of the future. A government's plan to reduce taxes or to start a new program is not guaranteed to occur, but once announced it is more likely than if it were just a

possibility. An automaker announcing plans to develop fuel cell vehicles by 2025, for example, would be important to consider for the domain of transportation.

- **Projections.** Projections are publicly available forecasts made by others. Again these are not guaranteed to be accurate, but they can be mined for useful insights. Projections also increase their own likelihood by the process of self-fulfilling prophecy—that is, what people believe is going to happen is more likely to occur than if they do not believe it. The explosion of information available on the Internet has greatly increased the public availability of projections.

4. Drivers

The inputs are used to craft a set of drivers. A driver is a thematic cluster of related trends and other inputs that is influencing or shaping change. We just added drivers as an explicit component in the process a few years ago. Our sense was that the conceptual jump from inputs to scenarios was too large. And in practice with clients, we routinely included the identification of drivers. The addition of the drivers activity in-between has proven to be a useful bridge between the inputs and alternative futures. The inputs are synthesized into drivers and the drivers in turn are synthesized into the alternative futures. Crafting drivers is an additional piece of work, but we have seen much better results so far in terms of building a consistent set of scenarios.

The drivers can be thought of as the variables or building blocks. In the core archetype approach that we are using, each driver is projected into the future by each archetype to see how it plays out differently.

5. Alternative futures

Let us begin with proper credit to Professor Jim Dator[2] for the concept, and Wendy Schultz (see http://www.infinitefutures.com/essays/prez/scenarch/index.htm) and my colleague Mark Justman at the former Social Technologies as my key influences.

The principal tweak that we've made is to genericize the archetype stories into underlying patterns of change that can be used to explore the future of any domain. A key assumption is that we view the domain as a system. We use a loose operational

definition of system as "the way things are done or the established rules of the game." That domain/system is likely to follow one of the four archetypes, which are essentially common patterns of change.

The table explains the patterns for each archetype, and includes a "made-up" example using automated vehicles. The archetypes provide the framework or structure for developing the scenario stories. You take the set of drivers developed in the previous step, and interpret their outcomes in each of the four archetypes. That provides you with a set of ingredients or plot elements upon which you can build the scenario story. Simple, right? A great technique to use with groups new to scenarios and foresight—and from our experience, it provides a robust set of scenarios to work with. (See our Future of Work for NASA for an example.)

Table 2. Scenario archetypes

Archetype	Pattern of Change	Example: automated vehicles (AVs) w/ 10-year time horizon
Continuation[1]	The present trends and forces (inputs, in our lingo) within the topic continue without any major disruptions or surprises. The system/topic continues along its current trajectory.	Growing number of pilots and experiments, mostly in major metropolitan areas and some freeways, with conflict over standards and regulations.
Collapse	The system/topic "breaks" or falls into a state of dysfunction. The established way of doing things no longer works, and there is a decline in the "health" of the system/topic.	Backlash against automation and high-profile hacks and accidents put the concept of AVs on the back burner.
New Equilibrium	The system/topic is confronted with a major challenge to how it has	Growth of AVs is slowed due to safety and technical issues, but this brings
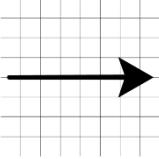
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[1] It should be noted that the continuation archetype is the "baseline" in our terminology.

Archetype	Pattern of Change	Example: automated vehicles (AVs) w/ 10-year time horizon
	been operating, and is forced to adapt and compromise in order to "save itself"—to keep the basic structure of the current system intact.	previously competing parties together—which enables standards-setting and agreements on basic approach and builds excitement for a relaunch.
Transformation	Entails fundamental change to the system/topic. The rules of the game are "scrapped" and new ways of doing things emerge.	Major regional coalition(s) roll out first operational systems and several cities launch downtown projects relying on ridesharing approach.

One of the challenges we are still working on is to adequately incorporate "non-driver" information (scan hits for instance may not be connected to drivers) into our scenarios.

6. Implications analysis

This step is a transition from the description of the world "out there" to a focus on what it means for the client "in here." It is helpful to think of this in terms of the levels of change: the futures (aka scenarios) describe changes at the global and industry levels, and the implications explore what changes are thereby implied for the client at the organizational level. Implications are thus defined here as implied changes. The process starts with the baseline and alternative futures, one at a time, and seeks to identify the impacts, challenges, and issues that might emerge in the future. At this point, no particular judgment is made of whether they will "come true"; rather it is assumed that they will, for the purpose of identifying a rich set of implications. It answers the simple question, if this future happens, what would it mean for….?

It is worth noting that the Framework Foresight process is rigorous and systematic as well as creative and inefficient. The early steps (1-4) ensure that the implications are identified for the appropriate "categories." The latter steps then rely on a creative process that generates lots of possibilities, which will eventually be prioritized to a smaller number for further analysis. As with any creative process, many of the ideas generated

will be discarded, and in some cases the process will seem to result in a dead end. That is okay. The goal is to stimulate insights that are worth paying attention to. The steps of implications analysis are described below.

1. Choose a future (baseline or one of the alternatives)
It is helpful to do one at a time or, if multiple small groups are involved, to divide the futures among the small groups.

2. Choose the categories
The categories to focus on for the implications depend on the client. Sometimes the focus will be clear from the purpose of the project. If the purpose was to identify innovative new products or services, then new business development would be a key focus. Or if the goal is to identify policy alternatives, there may be a specific agency or department in the government that would be a natural focus.

Absent that specific guidance, it is helpful to start by listing at a high level the types of activities or functions the client is involved in. Examples for a business organization might include: supply chain, R&D, human resources, manufacturing, communications, legal/regulatory, finance, marketing, facilities, new business development, etc. Another approach is to start by looking at the stakeholder analysis. It is also helpful to refer back to the domain map and see if there is a category of interest that may not have emerged from the activity or stakeholder viewpoint.

3. Identify key changes in each category
For each of the categories that have been selected, brainstorm potential changes that the scenario suggests. The future is assumed to occur—the task is to brainstorm the changes it would suggest in the category. It is best to generate a list of such changes and then prioritize perhaps one or two; the time available will suggest how many are practical. These implications (implied changes) will then be explored further using futures wheels.

4. Identify additional implications using the Futures Wheel
We most often use the Futures Wheel to identify implications, but we have also used Joel Barker's Implications Wheel software. Whatever the tool, the goal is to explore further implications or changes suggested by the initial implications. What might change next? Those changes go into a

set of circles containing first-order changes that lead to second-order changes, and so on. The process keeps flowing until the ideas run out.

The futures wheel is a brainstorming technique; it is not analytical truth. As with other brainstorming techniques, most of the material is either well-known or highly questionable. But a few nuggets of insight usually emerge, elements of the future that were not immediately evident on first impression. The process is repeated for each of the changes.

5. Most important and provocative implications

When the futures wheels are complete, they are displayed in a way that makes them easy to see. Then two sets of implications are prioritized (in a group setting, often flip charted and posted on the wall). The first set are the "most important": those implications whose impact is judged to be of such importance that the client must pay attention to them. The second set are the "most provocative": those that may be less likely to occur, but if they do they will have a significant impact, such that they merit further attention. These lists are captured in the template.

6. Issues or opportunities

The next step is to state these implications as either issues or opportunities. If the project is concerned with strategy, the most helpful format is as strategic issues to be considered. If the project is concerned with identifying new offerings, such as new products for business or new services for a government agency, the most helpful format is as opportunities.

It is useful to reiterate here that sometimes the issues or opportunities that are identified were already apparent to the group at the beginning of the process. An issue or opportunity may look like or be identical to the challenge that was initially loaded into the futures wheel. That is okay. The intent is to explore these challenges more fully and thus feel confident that the issues identified are the "right" ones. A key benefit of the process is that oftentimes a challenge is reinterpreted in a more meaningful way, or an entirely new issue or opportunity emerges from the analysis.

7. Options and strategic approach

This method tackles the question of how to link futures or scenarios more tightly into organizational processes, whether in the form of strategic issues, new business or service offerings, policy alternatives, etc. It has been our experience that the "forecasting" side of the house was often not

talking to, or at least not tightly integrated with, the "planning" side of the house. Even in our foresight education they are often taught in separate classes. In developing Framework Foresight, a key goal was to link them more tightly.

Develop strategic options
Armed with the prioritized issues/opportunities, the next step is to outline the potential responses to the issues or opportunities. We have been using a version of the popular "Elevator Speech" tool with terrific results. The key idea is to quickly get at what the essential information is to understand the intended response in the shortest amount of time possible. The goal is to come up with a high-level outline of a response to the issues or opportunities answering basic questions of why, what, how, and who. They are typically answered in that order: first, why is there a need for a response, then what does the response look like, how is it enabled or brought to action, and finally who in the organization can help make it happen.

Framework Foresight does not typically get into crafting specific detailed responses, but seeks to provide enough information about the potential responses that the client team with the mandate to act has a clear sense of the intention, which it can then decide to use or modify at its discretion.

At this point in the project, the rubber meets the road. The client can now see ways in which they might respond to issues or opportunities suggested by the futures. While clients are often uncomfortable in the creation phase of a project, they typically get excited, or at least interested, in seeing what they can do.

Develop an integrated strategic approach
This is the most recent addition to the process. As is typical in developing a new application, we first tried it in the project world, refined it, and then adopted it in the teaching practice. The approach we use is borrowed from the former Global Business Network, and involves looking across the scenario landscape as a whole and considering four potential approaches to it. The options range as follows, from safest to riskiest:

- A robust strategy looks for elements common to all four options and focuses on these commonalities.

- A hedge-your-bets strategy gives equal weight to all four options; that is, it assumes all four are equally viable and divides the action equally across them.
- A core-satellite strategy emphasizes one option as the most likely and pays the most attention to it, but also pays lesser attention to the other options just in case.
- A bet-the-farm strategy selects one option as the best and invests all its energy in pursing that option.

Our experience is that clients most often select a core-satellite approach. This suggests a goal of focusing most of its strategic attention and resources on a particular scenario (or scenarios) and developing contingencies for the others.

This addition has proven valuable in providing a sense of strategic direction towards the future. The options developed previously are folded into the strategic approach as appropriate. It has really helped students and clients to tie their projects together in providing an overall sense of strategic direction going forward.

The description above suggested two common objectives in foresight projects: identifying strategic issues as input to strategy or identifying new business opportunities or offerings as an input to innovation. But the method is by no means restricted to these outputs and can be modified to suit particular client needs, such as policy analysis for a government client. It is a matter of customizing the types of questions asked and adjusting the templates.

8. Indicators
While futurists revel in the uncertainties of the long-term future, those items will not be uncertain forever. As the future gets closer, they will resolve themselves into a singular present (or at least that is the way it is thought to be). At any rate, events that do not happen, issues that do not appear, ideas that are not created pass off to the side much like the hazards to navigation (rocks, buoys, other ships) that pass off the side of a vessel underway. So knowing as early as possible how the uncertainties are resolving themselves is the key to navigating the waters of the future.

Indicators are the focused information that will tell how uncertainty is resolving itself. It is a set of precursor events or statistics that point towards one alternative rather than another. What are the signs of

impending recession? What indicates whether the have/have-not gap is growing or shrinking? How does one tell whether other countries resent the US's position in the world more or less? As opposed to scanning, which takes in everything relevant to change in the domain, leading indicators are very specific, targeted pieces of information with a clear link to one alternative future or another. In this method, the baseline, since it is present trends continued, is assumed to be happening. Thus it is the alternatives that must be monitored. Monitoring is the common term used for tracking leading indicators. Scanning uses the radar image; monitoring uses the image of a pilot or nurse who monitors their instruments for any signs of change. Change (or stability) in the leading indicator gives a clear signal towards the increasing likelihood of one alternative future or another. Indicators are the signposts along the way to whatever future ultimately prevails.

Conclusion

The Framework Foresight method offers value to the foresight community as both a teaching tool and a means for practice. Students have found it helpful for identifying and analyzing the information required in carrying out a foresight project and arranging it in a logical flow. It helps them to see how the pieces of a foresight project fit together. And in providing a consistent set of steps and framework, they are able to see how the steps of other methods "fit" with it. Thus, the authors embraced the notion of teaching a standard method that both stands alone in accomplishing foresight projects, but also provides a framework against which other methods can be compared. It takes a modular approach that accommodates the incorporation of other methods.

Counter to our initial wariness about promoting a standard method, our experience is that it does not detract from the teaching of other methods, and in fact has made it easier. Framework Foresight was deliberately built to accommodate and incorporate other methods and approaches, to avoid the appearance that the authors were teaching a "one right way" of doing foresight. It provides a basis of comparison for how various practitioners and methods do the work, enabling them to assess the strengths and weaknesses of each. The steps in the Framework Foresight method, for instance, typically aim at getting to the essential points, thus routinely trading off depth for speed. Students or practitioners aware of other methods can substitute an approach that provides greater depth—if that fits the needs of a particular project.

Practitioners are likely to make modifications to the method based on their experience and preferences. The authors encourage this innovation and have found this to be part of their own experience in using the method in practice. They would be grateful for feedback in how others apply and innovate around Framework Foresight.

Looking ahead, the next significant update is to finish incorporating the language and refinements from the new APF Foresight Competency model.[3] Forecasting becomes "futuring," planning becomes "designing," and acting becomes "adapting." This conversion work has been ongoing the last couple of years. For now, we've been keeping the related terms together: forecasting/futuring, planning/designing, and acting/adapting. At some point, we'll complete the conversion to the new language. As noted earlier, the work in refining our approach to the future will likely never be done.

This piece is based primarily on Hines, A. and Bishop, P. (2013). "Framework Foresight: Exploring futures the Houston way," *Futures*, 51, 31–49.

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Part 2: Critical Practice and Integral Futures

CHAPTER 14: DECOLONIZING FUTURES: FINDING VOICE, AND MAKING ROOM FOR NON-WESTERN WAYS OF KNOWING, BEING, AND DOING

by Pupul Bisht

Introduction

A short story: Once upon a time, about seven months before I penned my thesis proposal, I was given the task of reflecting on my favorite story set in the future for a class assignment. While several science-fiction novels, short stories, and movies flashed in front of my eyes instantly, I was determined to bring a fresh perspective to class by writing about an Indian story. Unfortunately, what followed was two weeks of endless searching with no success. Google failed me first, my memory failed me second, and then about a dozen family members, including my grandmother, could not recall any story that would fit my assignment brief. "Does the Indian culture not think about the future?" was the reaction I was met with in class when I shared my experience of fruitless searching. I knew that wasn't true. The Indian culture thrives on storytelling. We are also a culture of dreamers, filled with hope, aspirations, and unbound imagination. Then why was it that I could not think of any Indian story set in the future? Why was my culture not telling stories about the future? Or, was my culture telling stories about the future differently?

Storytelling has been omnipresent in human culture, as a crucial tool for preserving memories of what came before and for imagining what could come after. Over the course of human history, the role of storytelling in transferring knowledge, communicating values, and inspiring action has been undeniable. The field of Futures Studies uses various narrative methodologies to build impactful images of possible futures. Futurists widely accept that the image of the future one holds shapes their attitude towards the future and how they behave in the present.

It should surprise nobody, then, that as practitioners of foresight we spend significant time and effort in generating narratives of possible, plausible, and preferred futures. In doing so, while the concept of alternative futures is held at the core of the discipline, the conversation around alternative *histories* gets left out. More often than not, the subjective yet widely accepted (as the most "legitimate") frameworks of time, space, and meaning-making tend to shape these narratives. The resulting images of the future are predominantly expert-led and "colonized" by historically popularized worldviews. Often, the dominant worldviews are largely tacit, with practitioners as well as others participating in a futures exercise unaware of these biases. In a world that is becoming increasingly multicultural, large-scale projects that rely on foresight methods for designing future-ready products, policies, and strategies cannot afford to ignore this gap, which perpetuates the dominance of Euro-centric modernity in imaginaries of the future by continuing to exclude and make invisible historically marginalized worldviews and epistemologies.

Recognizing a lack of culturally inclusive participatory methods, the methodological innovation discussed in this paper offers an alternative way of engaging with and imagining futures. Using storytelling as a tool for decolonization, it pushes for epistemological plurality by opening up the discourse to non-Western perspectives. Previous efforts to include plural perspectives in futures work, through frameworks such as Causal Layered Analysis (CLA), Integral Futures, and Sardar's Four Laws of Futures Studies,[1] acted as a point of departure for this work. Furthermore, this project offers an alternative to expert-led, top-down approaches to futuring by directly engaging participants from historically marginalized communities in building visions of their preferred futures.

Storytelling futures

In "The danger of a single story," one of the most powerfully crafted TED talks ever given, novelist Chimamanda Adichie examines the problematic nature of a single narrative. "A single story," she warns, "creates stereotypes and the problem with stereotypes is not that they are untrue, but that they are incomplete."[2] One may say that Futures Studies, in its current iteration, too actively attempts to move away from a single story. Since the post-positivist turn in the discourse, most practitioners have focused on generation and development of multiple futures, explicitly differentiating themselves from those in the business of predicting a "singular" future.

Acknowledging the possibility of multiple futures outcomes, diverging at varying degrees from our present state, is a characteristic feature of the discipline and is evident in the prevalent use of the plural term "futures."

Multiplicity, however, does not guarantee plurality. Stories about the future in a foresight project take the shape of scenarios and visions. And while most formal contemporary methods facilitate generation of alternatives, these explorations tend to be guided by a singular epistemology. This dominant mode of thinking about the future has "a clear Western genealogy which is evident from the way time and space are perceived, masculinity and technology are privileged, social organization and institutional arrangements are structured, and non-Western cultures are made invisible."[3]

Limitations of our methods

An act of decolonizing[4] futures, therefore, must begin with actively identifying stereotypes, biases, and cultural assumptions prevalent in images of the future produced through our work. Identifying and acknowledging ways in which these render our exploration of futures incomplete is an important prerequisite to making room for historically marginalized cultural perspectives. My own inquiry into the underlying limitations in popular frameworks/methods was primarily led by the following three questions:

1. Do they challenge normalized categories of time and space, and initiate a conversation around visions of the future that may fall outside mainstream narratives/imagination?
2. Do they support plural ways of knowing, doing, and being as well as allow for plurality of interpretation/expression?
3. Are they truly participatory, by way of being accessible to "non-expert" stakeholders, and by creating a sense of agency in the participants to (re)shape the future?

Let us take for example the Futures Cone, also known as Cone of Possibility, which is undoubtedly one of the most fundamental conceptual futures frameworks. Its popularity may be attributed to the effective simplicity with which it illustrates the core idea of "many alternative" futures, plotting a range of divergent "P" futures on a scale of possibility

to probability. This classification of futures is a commonly used typology in Futures Studies. However, semiotically speaking, this visualization upholds a Western cultural epistemology by visualizing present and future as linearly arranged, sequential entities. In this way, it fails to support plural ways of knowing, as many languages and cultures around the world are known to visualize time as non- linear. A person with a worldview that sees time as cyclical, for example, may find this representation alienating and/or challenging to adopt. Additionally, by representing the present as a single point of origin from which multiple futures diverge, the diagram does not account for the diversity of conditions in our world. Without acknowledging alternative experiences and narratives of the past and present, imagination of alternative futures falls short of accommodating plurality.

Secondly, a large number of popular frameworks rely on reason and analytics. Processes for envisioning futures possibilities tend to be linear, expert-led, and based on deductive reasoning, which is reminiscent of the discipline's militaristic and industrial past. The popularity and dominance of methods such as the 2X2 Uncertainty Matrix, Dator's Generic Images of the Future, Three Horizons, Delphi, and trend extrapolations are all cases in point. In building and telling stories of futures in these ways, "we treat the future like a distant colonial outpost, an 'empty time' which is ours for the taking or to plunder as we please."[5] The prevalence of this rational approach of studying, exploring, and imagining the future leaves little to no room for relational ways of being, guided by emotion and intuition.

Lastly, when it comes to storytelling futures one ought to pay attention to ways in which the genre of Science Fiction (SF) enjoys an uncontested seat at the head of the table. With its unmistakable obsession with the discovery of new territories and invasions by the "other," SF "doesn't just demonstrate future possibilities, but future limits—the extent to which dreams of what we'll do remain captive to the things we've already done."[6,7] Movements such as Afrofuturism and Indigenous Futures seek to challenge and disrupt hegemonic SF narratives, and in recent times have been gaining popularity and momentum in mainstream pop culture.[8]

Ways of building cultural plurality
There is much to learn from ways in which the need for plurality has been addressed in futures work. Sohail Inayatullah's Causal Layered Analysis

explicitly engages participants in uncovering assumptions and biases that lie below the surface and would otherwise remain invisible/unexamined. One of the ways in which CLA challenges the dominant linear spatiality of time is by visualizing time vertically, disrupting the focus from "what lies ahead" to look instead at "what lies beneath," and ultimately surfacing core metaphors that shape the various worldviews.[9] In non-Western storytelling, use of metaphors in describing the unknown is very common. In design of the Kaavad method (see below), metaphors are employed as a central device.

Of Sardar's Four Laws of Futures Studies, the second law of Mutually Assured Diversity (MAD) advocates for taking the diversity of perspectives into account as well as for the inclusion of "all those who will be actors in the future and would have to live with the consequences of future outcomes." The Kaavad method is informed by this two-part view on cultural inclusion.

Furthermore, in thinking of ways to support alternate worldviews, the awareness and exploration of the "interior collective" (society) and the "interior individual" (the unique world of each person), as discussed in Richard Slaughter's Integral Futures approach, becomes important both to building agency as well as to engaging in a deeper, more holistic dialogue about futures.[10]

Storytelling futures differently
I argue above that methods and frameworks tend to reflect the values of the worldview in which they originate.[21] Therefore, in order to make room for perspectives that tend to be marginalized or left out of futures work, it made sense for me to seek inspiration from modes of knowledge-sharing that originate from a different cultural milieu. To find inspiration for designing an alternative futures method, I went back to my roots in the desert state of Rajasthan in North-Western India.

Kaavad: An oral storytelling tradition
Since much before the advent of modern forms of entertainment and communication, several unique forms of storytelling, which brought the tellers and listeners together in the worlds of mythical heroes, gods, and saints, have been in practice all around India. Most of these traditions are centered on communal storytelling, and often have religious and/or cultural significance. The Kaavad tradition of Rajasthan is one such rich oral storytelling tradition that is known to be around 400 years old.[11]

This art of storytelling gets its name from Kaavad—a painted wooden shrine used by the itinerant storyteller (Kaavadiya) to recite stories and genealogies for his hereditary patrons. This travelling shrine, shaped like a box, contains within its doors elaborate tales and epics from Hindu mythology.[12]

Like most folk traditions of India, Kaavad is a dying art form which has been adversely affected by the changes brought in by modernization and globalization. In the past two decades, Nina Sabnani, an Indian animator, researcher, and storyteller, has dedicated her practice to the research and revival of the Kaavad tradition. Nina's PhD research on the same, as well as several projects undertaken by her, served as a point of entry for me. In many of her papers, Nina makes a compelling case for Kaavad as being a highly inclusive and pluralistic storytelling tool.

An inclusive tool for storytelling

The Kaavad has been defined as a portable shrine—"chalta phirta mandir" (Hindi for "walking- roaming temple")—that comes to the devotee rather than the devotee going to the temple.[13] "It is possible that the Kaavad may have provided access for personal worship and a virtual pilgrimage. The inaccessibility to an actual temple could be attributed to Rajasthan's sandy terrain and to the strong hierarchical and feudal system of caste and race."[14] The Kaavad community is a marginalized community that lies outside of the classical Hindu caste system; its members are referred to as OBCs (Other Backward Classes) by the government of India.

The act of challenging conventional social order is so deeply embedded in the Kaavad tradition that its stories often depict impossible relationships between two caste members who "may otherwise never eat or drink together." Storytelling in this way is used as a mechanism to resolve conflict experienced in real world.

A closer examination of its physical attributes reveal that the Kaavad is a culturally inclusive tool in its physical design as well. In her doctoral research, Nina Sabnani performs an in-depth structural analysis of the Kaavad object and highlights some salient features that make it culturally inclusive.[15] Some of these features, as identified relevant to the development of the futures method, are:

1. Kaavad is multidimensional and multi-temporal

Despite being highly symmetric, in practice the Kaavad is used as a multidimensional object. The opening and closing of panels adds dimensionality to the narration and creates an illusion of movement through time and space. During our interview, Nina, while pointing to the multi- temporal nature of the Kaavad, noted:

> Just like many other Indian stories, the Kaavad represents past, present, and future fused into one. For example there are images of real people/patrons who are dead and gone, then patrons who are living, saints who once existed, and then there are gods that are eternal. So it accommodates all kinds of time and all kinds of spaces. The artifact in itself represents coexistence of many time periods within one space and within one story.

2. The single Kaavad holds multiple narratives

The polysemic[16] imagery of the Kaavad makes it highly inclusive by allowing it to hold many stories. With each recitation, the storyteller accords different identities to the same image in order to contextualize the storytelling in relation to the identity of the listener. "The images may also be considered as 'polyphonous' texts since they not only represent multiple voices but also allow for various conflicting voices to be heard."

3. Listener is part of the telling

The generic and symbolic nature of visuals on the Kaavad also calls for a deeper engagement of the listener with the story. "Since the image is emblematic and does not really illustrate the event or story, the listener/patron has to exercise his imagination to complete the picture and the events in his mind."[17] Therefore, the sense-making process in a Kaavad recitation hinges on a collaborative process between the teller and the listener.

Designing an alternative futures method

Recognizing specific ways in which existing practical frameworks either exclude, or fail to support, cultural diversity in perspectives quickly makes it clear that decolonizing futures requires an alternative framework that actively centers the histories, perspectives, and participation of non-dominant cultures. In part borrowed from salient characteristics common in non-Western storytelling traditions and in part informed by decolonial/postcolonial literature, the following Seven Principles of

Inclusive Storytelling[18] closely define the values of inclusion and diversity underpinning the Kaavad method of futuring.

These principles are a step towards creating a new paradigm which from the ground up exists through an alternate worldview and supports different ways of knowing, being, and doing.

Seven principles of inclusive storytelling
1. Researcher as a "listener": The method is designed to remove the foresight expert from the role of "narrative-creator/storyteller" and instead be positioned as the "story-listener.[19]

2. Totality vs deconstruction: The focus remains on creating and understanding the stories of preferred futures as a whole, rather than analyzing individual constituent elements/themes in isolation, in keeping with the relational and often symbolic style of sense-making characteristic of many non-Western cultures.[20]

3. Comfort with diversity: The tool is versatile in that multiple stories can be generated from the same version of the tool and each resultant narrative would reflect and celebrate the subjective voice of the storyteller.

4. Particularity = universality: The method is designed to explicitly bring the personal voices and subjective perspectives of the participants into the conversation. Most of the prompts are designed to encourage the participants to reflect on and express personal stories.

5. Constructive storytelling:[21] By engaging participants in imagination and articulation of preferred/desired futures and by creating a safe space for open dialogue, this method hopes to actively foster collaboration and build images of just and equitable futures.

6. Power of orality: In the spirit of acknowledging and valuing alternative, non-Western ways of instruction, this proposed method is designed to use "oral and visual" storytelling as the primary mode of expression, which is in contrast to other popular foresight methods that often rely on the written word.

7. Not without my history: The method explicitly addresses alternative/marginalized individual and collective histories, as well as lived experiences of stakeholders, by extending the futures cone backwards.

Kaavad as a futures method

The traditional Kaavad was historically designed to compensate for the ability of the patrons (who mostly belong to marginalized castes) to perform religious pilgrimage by imitating the typical ten-step journey of Hindu pilgrimage in its storytelling structure. Similarly, the new method hopes to open the futures discourse to participants who are typically left out of futures conversations. While the traditional Kaavad imitates pilgrimage in order to facilitate *Darshan*[22] (act of seeing) of the deity by the devotee,[36] the Kaavad futures method is designed to facilitate *Darshan* of the vision of a desired future by the participating stakeholders. In this way, the "ten steps of Hindu pilgrimage' are reinterpreted as "Ten Steps of Time Travel" (Figure 1).
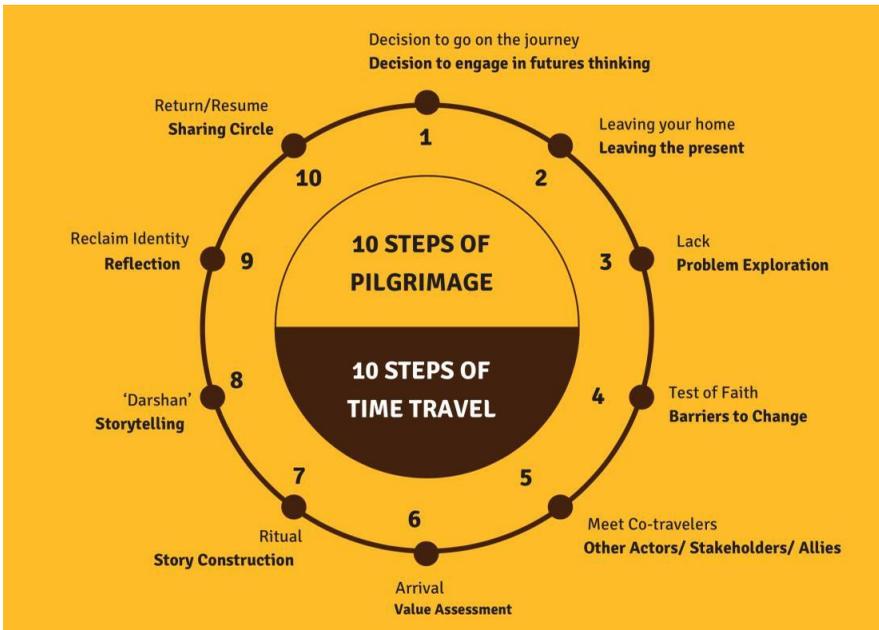
Fig. 1: A diagrammatic representation of the framework adapted for design of the new method (Bisht ©2017)

As a pilgrimage begins with the act of the pilgrim deciding to undertake the journey, the futures exercise begins with stakeholders deciding to engage in futures thinking.

The Tool
The physical structure of the tool used in the workshop follows the structure of the traditional Kaavad artifact. A central panel is flanked by six identical blank panels on either side. During the workshop, the Kaavad is unfolded following the numerical order of the panels. The participants only see and populate one panel at a time from Steps 2 to 7.

For ease of production, simple cardstock paper is used to make these Kaavad-tools. The panels are held together with masking tape, which also allows for easy folding. In each workshop, a visual kit with basic icons, stickers, and other visual material such as magazines, newspapers, etc., is provided for the participants to populate their Kaavads with. The participants may also be asked to bring some images of their own to add to the mix.

Method in use
The two case studies below discuss ways in which that the adaptation of Kaavad as a futures storytelling method did in fact make room for plural ways of thinking about time and future.

Healing from colonial trauma
The pilot workshop for the Kaavad method was conducted in Canada with a group of participants from the Ontario-based nonprofit network, Youth Social Infrastructure (YSI). Given their own socio-cultural backgrounds and the focus of their work with marginalized and indigenous youth, the participants explored the theme of *"Healing from colonial trauma over the next 30 years"* within the broader context of grassroots youth organizing in Canada.

Kavaad, having been derived from the structure of a pilgrimage, proved effective in its ability to support the journey of the participants from their present states into desired futures, as opposed to producing distant, flatland images of the future. When asked to visualize a metaphor for their desired futures, all groups used circular imagery, reflecting the values of "connectedness" and "holistic growth," which also manifested in storytelling that was evidently non-linear. The diversity of ways in which the participating groups were able to visualize and use time/space in their

stories and storytelling points to the ability of this method to accommodate different perspectives.

One of the groups used "water" (referred through feminine pronouns) as the protagonist for their story of the future, imagining the story of humanity's journey towards an equitable future by tracing the path of water. Their choice of water as a protagonist reflected their indigenous worldview, in tune with the value of interconnectedness of all living beings with land and nature. For a narrative outcome of a futures process to be so free of technological references—and to use the unusual protagonist of water, personified as a female entity—is extremely rare. The fact that all members in this group were BIPOC (Black, Indigenous, People of Color) females is a testament to the fact that the method allowed for their authentic worldviews and personal voices to be reflected in the final story of the future.

Several times during the workshop, the limitations of my own worldview were challenged. One of the groups, in illustrating *allies/co-travelers* in their journey towards preferred futures, identified non-human entities such as the forest, land, and animals. The method showed great strength in preventing my own worldview, as a facilitator, from overpowering that of the participants.

Gakko 2018
In the summer of 2018 I ran a series of Kaavad futures workshops with a group of 50 high- school students from around the world. Conducted as part of an experiential learning camp called Gakko (Japanese for school) in the United States, the primary aim of these engagements was to broaden the horizons of the students by introducing them to skills that are not offered as part of conventional high-school education.

In this context, the Kaavad acted as a tool for empathy generation. By offering ample space to reflect upon mainstream as well as marginalized histories, uncovered through discussion of cultural and personal memories, the Kaavad helped participating students to explore and negotiate their diverse individual and cultural identities in a safe space. Through this they were able to reflect on their collective agency towards shaping the future of their respective communities and understand the implications of their actions in the wider scheme of global futures.

Through the central metaphors, each student was encouraged to visualize their future selves, using the Kaavad as a tool for exploring themes of self-actualization. Applying critical reflection to perceived barriers to change, personal values, and state of their present-day environments, the students built detailed and nuanced narratives for their preferred futures.

Given the multi-disciplinary format of Gakko, the futures personas produced during the Kaavad workshop were then tangibly explored through a workshop in dramaturgy and drag. In the last session of this series, the students came together in groups of six to co-creatively build utopian worlds wherein each of their futures identities could survive and thrive. The journey through these three stages—futures thinking, prototyping, and worldbuilding—allowed the students an opportunity to share, negotiate, and witness a dialogue between diverse histories, worldviews, and conditions. This enabled them to reflect at an individual as well as collective level and understand the direct and indirect implications of holding certain images of the future.

Conclusion
In Jain philosophy, the Anekāntavāda (literally translates to many view-ism) takes a non- absolutist position in epistemology. It serves as a useful reminder that no single perspective can offer complete or absolute truth and we must at least consider the narratives that do not resonate with our own. As foresight moves outside its purely organizational confines and engages in conversations about collective human/civilizational futures, practical frameworks for reconciliation, tolerance, and consideration of diverse views and ideas must be designed, promoted, and used.

The Kaavad method fills a significant void in the contemporary futures discourse: that of methods/frameworks directly derived from and reflective of non-Western perspectives on the future. It aims to facilitate and inspire creation of positive and compelling images of the future that may otherwise remain ignored and/or marginalized.

In my native language of Hindi the word "kal" is used to signify both yesterday and tomorrow. While the present moment is transient, yesterday and tomorrow provide space for introspection/contemplation and imagination. In the Indian worldview, the past and the future are two sides of the same coin—the same time being re-expressed/re-imagined. In futures work, valuing this intimate relationship between our pasts and

presents would mean that we continually look back to make the future different and better. If our intention is to truly move towards "preferred" futures, the question of "To whom are the imagined futures preferable?" needs to be diligently held at the core of any inquiry. And any effort to answer this question without the involvement of those who will have to live with the consequences of the imagined futures outcomes would be self-defeating.

This article is based on Bisht, P. (2017). "Decolonizing futures: Exploring storytelling as a tool for inclusion in foresight," master's thesis, OCAD University, 43–46, http://openresearch.ocadu.ca/id/eprint/2129/1/Bisht_Pupul_2017_MDES_SFI_MRP.pdf.

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[4] The landscape of theoretical literature criticizing colonial rule is divided into post-colonial theory and decolonial theory. While both challenge the insularity of historical narratives and traditions emanating from Europe, it was an important part of my learning process as a researcher to understand that each theory emerged in different socio-historical contexts with distinct experiences of colonialism. In this research, the critique of existing foresight methods has been made with an intention to challenge dominant worldviews and highlight epistemic limitation. This project understands decoloniality as *an act of delinking from the hegemonic narrative of Western civilization and to engage in building knowledge*

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CHAPTER 15: SURFACING THE INTANGIBLE: INTEGRATING THE DOING AND THINKING OF STRATEGY

by Maree Conway

Introduction

There are many forms of integral thinking, and at their deepest level these cognitive frames allow us to explore the development of human consciousness. I was introduced to Ken Wilber's Integral Theory when I was studying strategic foresight at Swinburne University of Technology, and its use has changed how I approach my work and how I think. Like any framework or model, it won't suit everyone (many call it flawed) and it's only useful if it's useful in the context in which it's applied.

Until now I have mostly used Integral Theory in stealth mode in my work. Experience tells me that a lot of people aren't ready for integral. They want the single right answer and they want it now so they can solve the problem and get on with their work. Conventional strategic planning gives us a process where we focus on the plan, rather than on how we think about the future that the plan is intended to move us towards. The glossy plan becomes the Holy Grail and our idea of the future is trapped in today's comfort zone thinking. I hope you agree that this sort of conventional approach to problem solving and preparing for the future is ineffective and a waste of our collective energy and resources.

A gap between doing and thinking strategy

Wanting the right answer immediately is all about the doing of strategy—ticking a box, following a process, getting an outcome that can be measured, moving on to dealing with the next problem, living in the short term. These sorts of responses to change generate thinking about the future as a project. We observe the future as disconnected from today; we package it up by following the strategic planning process, writing words that sound like change is happening (usually in the form of a restructure), then measuring outcomes to see if the strategy has been executed effectively. Data reigns supreme here. Doing strategy usually results in the executive group coming up with a strategy and presenting it to the organisation with instructions for people to "go forth and implement my

plan." This is what I increasingly call strategy in a box—contained, with the illusion of control, and with seemingly measurable outcomes that are supposed to inform everyone's work. Doing strategy means we are doing something, but we rarely challenge why we *do* strategy this way, instead trusting a process that has passed its use-by date.

Doing strategy ignores the human factor. It ignores the reality that each person charged with implementing a strategy needs to understand the rationale for change from their own perspective. They should be, and usually want to be, involved in thinking strategically—thinking about how to identify and respond to changes shaping their organisation's future and co-creating *its* future. It matters very little how perfect your strategic planning process is or how good your strategy looks on paper if people aren't at the core of the process. For me, strategy without people is strategy without a future. Jeanne Leidtka[1] talks about this as both knowing and feeling strategy—experiencing strategy both cognitively and emotionally.

Putting the human back into strategy development is strategy that has closed the gap between doing strategy and thinking strategy, that has escaped the box, and that has people and collaborative processes at its core. When the focus shifts to people, the imperative is to make time for collaborative thinking and conversations about possible futures. This is thinking strategy, moving beyond the conventional. And it is this thinking that strengthens decision making and problem solving because it starts from the future, not only the past and the present.

Using integral to connect the doing and thinking of strategy
An integral mindset connects the doing and thinking in strategy development. Integral Theory is complex, multifaceted, well researched, and contentious. Like any model or framework, its use is context bound and thus helpful if it makes sense of something in more depth. A primary organising concept in Integral Theory is the four-quadrant framework with which to view human consciousness and action. These four quadrants each represent a particular dimension of reality and a particular perspective on the world, structured around interior/exterior and individual/collective domains.

Figure 1 shows my interpretation of Wilber's integral four quadrants to highlight what we need to pay attention to when we are crafting strategy.
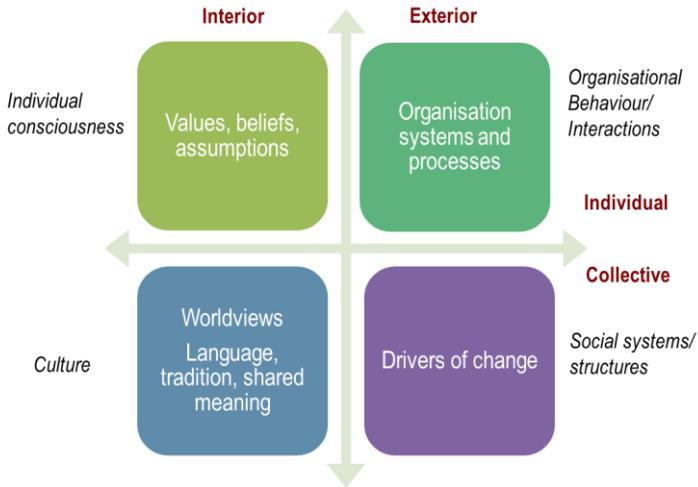
Fig. 1: Integral Quadrants for Strategy

The right-hand ("exterior") quadrants are where we do strategy—where we identify change that matters, create change management and strategic planning processes, write strategic plans, have annual workshops, produce KPI reports, and create new goods and services. We need this work, but doing strategy in this space alone will not result in the changes organisations are seeking to help them respond proactively to change and to be ready for whatever futures emerge over time. In Leidtka's terms, we know strategy in the rational, cognitive sense here.

The left-hand ("interior") quadrants are the realm of human consciousness and organisational culture. Intangible, non-empirical and tacit in nature, this is where we think strategy. We feel it, understand it emotionally. This language alone is enough to send strategic planning aficionados running in the opposite direction though. This isn't the realm of data, because intuition (knowledge + expertise + experience) matters here—and you can't develop a KPI for someone's ideas about or images of the future.

The left-hand quadrants are where we hold beliefs and images of the future of our organisations, and when we are asked to do new things, it is where our responses are generated. It's where we as individuals either accept or resist change or buy into a strategy put in front of us. These decisions are usually informed by our unquestioned assumptions and cognitive biases. Here we also draw on our understandings of our

organisation's culture and the unwritten rules about "how we do things around here." The impact of our thinking in this space is generally subconscious. In Leidtka's terms, here we feel strategy, we have an emotional reaction to it.

It's not hard to see why conventional strategic planning approaches are contained in the right-hand quadrants. The left-hand quadrants are messy, can't be measured. Developing KPIs is hard, and they tap into feelings as well as data. This left-hand quadrant space requires that we have processes to engage people in authentic ways, to involve them from the beginning to the end of the strategy development process. To make the decision to engage with people and culture in the strategy process is of course akin to opening Pandora's box—it will bring all the elephants into the room. If we are to be futures-ready, however, we must reconnect people and process.

Integral in my work
I have occasionally used integral in my work with audiences whom I knew were open enough to explore its value and not dismiss the framework as too different to their well-understood strategic planning. There were people who understood that dealing with complex change, wicked problems, a VUCA world—whatever we call the environment we operate in today—requires more than a good change-management process to ensure strategy is implemented in meaningful ways. They understood the value of thinking about what goes on in our minds, and the influence of culture on the actions we take every day. They understood that their people underpinned and would shape the success of their organisation's strategy and the emergence of their preferred future.

As a result, I have focused my business mainly in the right-hand quadrants on the doing of strategy, around helping people scan and identify change that mattered for their organisations. Using scenario thinking helped me inject possible futures into the strategy process to help people shift their thinking and identify future-facing strategic options. Most importantly, we worked together to write strategy documents that avoided the formulaic approaches of conventional planning. In this work, I often felt and listened to their exhaustion and frustration at dealing with conventional planning approaches that they just couldn't accept in their hearts and minds. I was grateful when they said scanning and scenario thinking had opened their minds to the future. I was working in this conventional strategy box while trying to push its boundaries as far as I could.

It is, however, and as Richard Slaughter suggests, time to get strategy out of the box and to move this work from the pragmatic to the progressive futures space.[2] That involves making visible in my work how I reframe strategy development using the integral four quadrants. It involves challenging the formulaic strategic planning approach that we now might tweak and change, while continuing to use without question its underpinning assumptions. It means valuing people and culture as much as process. It also means surfacing a diversity of views about the future in order to generate multiple possible futures. In so doing we value what's possible as much as we value data and forecasts or the single "right" future. Most importantly, it's time to integrate the thinking and doing of strategy to perhaps create a space where we first gather to think strategy, to feel it, to think about possibilities, to acknowledge our emotional responses to those possibilities, and to work collectively across the organisation to identify what needs to happen next. This is a space where our thinking is first expansive and divergent.

Strategy needs to be documented and communicated, as well, and that does require a box of sorts. We need convergent thinking within this box to focus on doing, getting things done, enacting the strategy. However, this is a new strategy box because it's not the fixed box of conventional strategic planning; instead its sides are permeable, letting new thinking in as it emerges, adjusting processes as needed, focusing as much on KPIs as on making sure the strategic questions are right. It's a box that looks not for the right answer but to identify the possible, to develop more robust, futures-ready action today.

The integral frame fundamentally scaffolds the thinking activity in the left-hand quadrants and the doing activity in the right-hand quadrants, thereby integrating people and process in strategy development. Both are essential. This integrated space connecting thinking and doing is where I now position my work in an overt way, doing away with integral in stealth mode. That might mean fewer conventional jobs, such as one-day introductory workshops on foresight which others can do better than myself anyway. I hope it means working with people on projects, establishing relationships, working out how to bring my now isolated clients into a new collaborative space where we can have a continuing collaborative conversation about using foresight in practice.

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CHAPTER 16: INTEGRAL FUTURES: THEORY, VISION, PRACTICE

Richard Slaughter

Introduction

This paper provides an overview of Integral Futures (IF) and outlines aspects of its evolution over the last twenty or so years. In so doing it also outlines some of the various uses and applications that have evolved over this time. At the outset it's helpful to note that the way people respond to Integral Futures—or more correctly integrally informed approaches to futures—depends very much upon where they're coming from. That is, what they value, what they perceive, and how they create and manage their own unique interior worlds. Most people get the point of the generic four-quadrant model and readily add it to their existing toolkit. Many also find the developmental perspectives within each quadrant illuminating. A closer and more sustained engagement can also reveal an underlying spirit of generousity embedded within the inclusive character of these four "windows on reality." This is due to the fact that, unlike methods that foreground individual capability and insight, the four quadrants honour and integrate the efforts of many workers and scholars from different cultures and traditions, most of whom would otherwise be overlooked.

That said, an Integral perspective is certainly not for everyone. In the early days at least some considered it immodest and over-ambitious. Others have found aspects of the language challenging or preferred to avoid some of the more esoteric theoretical debates. On the other hand it should be noted that we are not speaking here of a top-down, monolithic, "finished product" intended for sale on the open market for economic or instrumental ends. Rather, in keeping with other progressive futures work, it is closer to an open source asset that evolves and changes as it is taken up in different fields, applied, critiqued, and modified.

It should not be overlooked, however, that Integral Futures does pose real challenges to conventional practice and ways of operating. As is now more widely recognised the main focus of much conventional work is on exteriors—cities, infrastructures, and new technologies—*especially* new technologies. Within this common but limited focus one often finds an implicit or explicit view that the future is predominantly created by

technology. Unfortunately, however, such approaches are radically incomplete because, in effect, they overlook "half of reality." That is, they foreground science, technology, infrastructures, and the like but convey thin and unhelpful views of the very people, cultures, and societies from which these objects (and obsessions) spring. Such assumptions are, for example, clearly central to the default worldview of Silicon Valley, and they help to explain some of its dysfunctional consequences (see below). This web of barely-glimpsed assumptions obscures the fact that *everything around us is socially constructed*. No "thing" ever made by human beings stands by itself. It arises from a long period of gestation and development that may reach back centuries.

Each and every technology therefore has as much to do with cultures, worldviews, and values as it does with, for example, mining, metallurgy, and information technology (IT). Thus one immediate consequence of applying integrally informed approaches to Futures Studies & Applied Foresight (FSAP) is that they help to reveal, and then counter, reductionism and embedded structural bias. Another is that they enrich and enlarge the conceptual and operational spaces available. Put simply, this means that deeper, more granular and dynamic views of reality can emerge. The latter become shared resources that impact futures work at every level from organisational strategy to the analysis of global issues.

Evolution of futures methods
Futures methods have changed significantly over recent decades. To put this very briefly indeed, it can be suggested that during the second half of the twentieth century FSAP progressed from an early focus on forecasting and scenarios through a social construction period, followed by multicultural and Integrally informed developments. During the 1960s and '70s forecasting was regarded as a cutting-edge methodology. Over time, however, it became associated with more mundane uses, just as the rise of scenario building and scenario planning were becoming prominent. These were real additions to the futures toolkit as they permitted the exploration of divergence within forward views. But both forecasting and, to a lesser extent, scenarios tended to focus predominantly on the external world. Critical Futures Studies (CFS), on the other hand, explored approaches that opened up and explored what are now often referred to as the "social interiors." That is, they saw the familiar exterior forms of society (populations, technologies, infrastructure, and so on) as grounded in, and dependent upon, powerful social factors such as worldviews, paradigms, and values.[1]

While futurists had by no means overlooked these social factors, many saw them as insubstantial and problematic. Methods to incorporate them systematically into futures enquiry and action were needed. Perhaps the central claim of CFS was that it is to no small extent within these shared *symbolic* foundations that certain vital wellsprings of the present, as well as the seeds of many possible alternative futures, can be uncovered and seen more clearly. It's here that questions of power, social interests, and legitimation became valid subjects of forward-looking enquiry. Since the notion of "alternatives" was long seen as a key guiding concept in futures work generally, locating their origins deep within the ways that different societies actually worked was a significant step forward. Yet inevitably, perhaps, critical futures work itself lacked something essential: deeper insight into the nature and dynamics of individual agency. By finally addressing this missing dimension Integral Futures arguably completed a long process of disciplinary development and initiated a new phase of innovation and change.[2]

Aspects of Integral methods

Three aspects of Integral methodology are outlined here in Table 1: the four quadrants, levels of worldview complexity, and value levels. Their careful and discriminating use arguably brings clarity to our "fractured" present and to identifying priority tasks for the future.

Table 1. Summary of quadrants, worldviews, and values

The four quadrants (or "windows" on reality)	1.	The lower right quadrant (the exterior world and physical universe)
	2.	The upper left quadrant (the interior "world" of human identity and self-reference)
	3.	The lower left quadrant (the interior "world" of cultural identity and knowledge)
	4.	The upper right quadrant (the exterior "world" of individual existence and behavior)
Four levels of worldview complexity	1.	Pre-conventional (survival and self-protection)
	2.	Conventional (socialised, passive, adherence to status quo)
	3.	Post-conventional (reflexive, open to complexity and change)
	4.	Integral (holistic, systemic, values all contributions, works across boundaries, disciplines, and cultures)
Six value levels	1.	Red (egocentric and exploitative)
	2.	Amber (absolutist and authoritarian)
	3.	Orange (multiplistic and strategic)
	4.	Green (relativistic and consensual)
	5.	Teal (systemic and integral)
	6.	Turquoise (holistic and ecological)

The four quadrants

Some years ago Ken Wilber found a way of integrating the central ideas of key people from a wide variety of disciplines including scientists, engineers, psychologists, and even mystics. His synthesis resulted in a framework that views the world through a four quadrant framework created by a simple division between "inner" and "outer" on a vertical axis; and between "individual" and "social" on the horizontal one. The quadrants are, as noted, best understood as providing four "windows" on reality: the Upper Left (UL or individual interior), the Upper Right (UR or individual exterior); the Lower Left (LL or collective interior) and the Lower Right (LR or collective exterior). Within the upper left these intersect with over 20 "developmental lines" and stages of development. Two of the most significant lines are worldview complexity and values. Each quadrant records the process of evolution in its domain—from simple stages to more complex ones. Hence there are four parallel processes, each intimately linked with the others: interior–individual development; exterior–individual development; interior–social development, and exterior–social development. According to Wilber, "the upper half of the diagram represents individual realities; the lower half, social or communal realities. The right half represents exterior forms— what things look like from the outside; and the left hand represents interior forms—what things look like from within."[3]
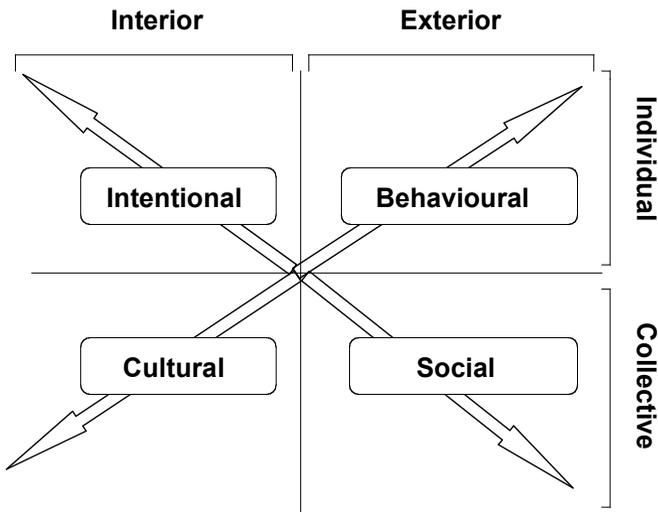
Fig. 1. The Integral framework

The four quadrant model can be further elaborated but even simple versions help us to question the widespread habit of viewing the world as if it were a singular monolithic entity—which is how it appears to human senses. We unconsciously run quite different domains together—which unfortunately creates endless confusion. With these clarifications, however, it is easier to see how different principles and tests of truth (etc.) apply within different domains. This, in turn, brings greater clarity to the kinds of tasks that futurists undertake, as well as opening out more innovative solutions (as explored further below).

Levels of worldview complexity

As Table 1 suggests a pre-conventional worldview is one in which individuals are restricted to basic needs such as survival and self-protection. As such human beings operate unreflectively and contribute little to broader social ends. The conventional stage indicates successful integration into an existing social order. Individuals can certainly fit in, so to speak, but they are seldom innovative, except by accident. It is at the post-conventional stage of worldview development that interesting things begin to happen because it is here, in this greatly expanded domain, that innovative thinking and actions occur. Finally, in this brief summary, an Integral worldview values inputs from a huge variety of sources, works fluidly across boundaries and can therefore be innovative in new and original ways. Translating this into FSAP, conventional work clearly has its place, even though it is basically a matter of following rules and precedents. It operates within pre-defined boundaries according to clearly defined rules using well-known ideas and methods. A great deal of futures work in the world is like this. It serves well-known needs and clients. It operates in familiar territory: corporations, planning departments, consultancies, government agencies, and the like. Those working in this mode are likely to have a degree together with long experience in well-known futures methods such as Delphi, trend analysis, and scenarios. By definition they also tend to focus on the "exterior collective" domain (technology, the infrastructure, the physical world). Such work can now be enhanced by considering post-conventional approaches and explicitly including the interior domains.

On the other hand, post-conventional work recognises that the entire external world is constantly "held together" by interior structures of meaning and value, some of them very ancient. Two brief examples are the dogged pursuit of economic growth and viewing nature merely as a set of resources for human use. In a post-conventional view, objective accounts of the world are not possible (even within the so-called hard

sciences). Rather, human activities everywhere are supported by subtle but powerful networks of value, meaning, and purpose that are socially created and often maintained over long periods of time. Post-conventional work draws on these more intangible domains and certainly demands more of practitioners. It means, for example, that a focus on various "ways of knowing" (e.g. empirical, psychological, critical) becomes unavoidable. Yet the effort involved is certainly worthwhile. Careful and appropriate use of these methods means that practitioners can gain deeper knowledge and more profound insight into both the currently changing social order and its possible futures. Clearly, Integrally informed futures work can augment these nascent capabilities and apply them in new and truly innovative ways.

Six value levels
A further step took place with the development of "spiral dynamics," based on the work of Clare Graves.[4] Spiral dynamics depicts a nested series of "human operating systems" that provide many clues as to what is going on "under the surface." Again, the path here is from quite restricted and self-regarding modes of being towards more positive, outward, and hopefully more effective ones. The approach can be used as a guide to individual and social interiors but it is not immune to critique and is by no means the only option. As mentioned above, the "values line" in the UL quadrant is only one of over twenty distinct "lines of development" in human beings (others include interpersonal, communicative, self-concept etc.). A practical consequence is that the careful use of such hitherto invisible distinctions means that we can gain greater clarity about our own ways of knowing, our preferences, strengths, blind spots etc., as well as those of others.[5] What emerges is, in effect, a richer view of human agency.

Such developments imply that "successful practice" (whatever that means to different people in different places) involves rather more than mastering some of the better-known FS techniques. One of the most striking discoveries is that *it is levels of development within the practitioner that, more than anything else, determine how well (or badly) any particular methodology will be used or any practical task will be performed.* In one sense this is obvious. An inexperienced or poorly trained practitioner will always get inferior results when compared with others who have in-depth personal and professional knowledge. Yet, especially in past decades, there have been all-too-few professional training programs that have taken seriously the interior development issues of practitioners.

It's now obvious why the earlier tendency to focus on a practitioner's cognitive development and methodological skills provided an incomplete picture. As Peter Hayward and others have demonstrated, to be a success in any field demands a good deal more than cognitive ability and technical competence.[6] We now know, for example, that ethical, communicative, and interpersonal lines of development are equally vital to the "well rounded" practitioner.

Evolution of Integral Futures theory and practice

In their valuable overview of the first ten years of IF Collins and Hines recognise three distinct phases as below and in Table 2:

1. *The perspective phase:* Focus on the theory and initial applications
2. *The methods phase:* Attempts to apply Integral Theory to futures practice in the form of methods
3. *The sense-making phase:* Debate and some controversy

Table 2. Timeline of Integral Futures

Phase	Year	Author	Publication	Contribution to Futures
Perspective Phase	1998	Richard Slaughter	Transcending Flatland	Foundational Theory
	2001	Joseph Voros	Reframing Environmental Scanning: An Integral Approach	Refreshes Environmental Scanning
	2003	Andy Hines	Applying Integral Futures to Environmental Scanning	4-step Integral Scanning Framework
	2004	Richard Slaughter	Futures Beyond Dystopia	Questions for applying the Integral perspective
Methods Phase	2005	Mark Edwards	The Integral Holon: A Holonomic Approach to Organizational Change and Transformation	Organizational Development
	2005	Mark Edwards and Ron Cacioppe	Seeking the Holy Grail of Organizational Development: A Synthesis of Integral Theory, Spiral Dynamics, Corporate Transformation and Action Inquiry	Organizational Development

Phase	Year	Author	Publication	Contribution to Futures
	2005	Landrum and Gardner	Using Integral Theory to Effect Strategic Change	Strategic Change
	2005	Peter Hayward	Resolving the Moral Impediments to Foresight Action	Individual development and Ethics
	2008	Mark Edwards	Every Today Was a Tomorrow: An Integral Method for Indexing the Social Mediation of Preferred Futures	Framework for global social development
	2008	Chris Stewart	Integral Scenarios: Reframing Theory, Building from Practice	Deeper and Richer Scenarios
	2008	Peter Hayward	Pathways to integral perspectives	Awakening individual capacities through development
	2008	Joseph Voros	Integral Futures: An Approach to Futures Inquiry	Development of paradigms for inquiry
	2008	Josh Floyd	Towards an Integral Renewal of Systems Methodology for Futures Studies	Integral Futures in Systems
	2008	Chris Riedy	An Integral Extension of Causal Layered Analysis	Assessing Futures Tools
	2008	Richard Slaughter	Integral Futures Methodologies	How Integral can be used to enhance Futures
Sense-Making Phase	2008	Josh Floyd, Alex Burns, & Jose Ramos	A Challenging Conversation on Integral Futures: Embodied Foresight & Trialogues	Individual practitioner development
	2010	Various	"Response" Special Issue, *Futures* (42) 2010	Response to Integral Futures "Special Issue"
	2010	Sohail Inayatullah	Epistemological Pluralism in Futures Studies: The CLA–Integral Debates	Response to Chris Riedy critique

Following this period IF has been widely recognised as a useful innovation and, as such, has diffused steadily into various forms of practice. That is not to say, however, that it has become universally popular. An international survey carried out in 2009 showed that systemic, linear, and critical methods remained dominant.[7] Which is perhaps what would be expected given (a) the continued dominance of conventional methods, especially in business and government and (b) the fact that

locations where IF can be explored by emerging practitioners remain uncommon. At the same time the significance of Integral Futures theories and practices continues to emerge as the latter are applied to an expanding range of issues and concerns. Here are some examples.

Linking foresight and sustainablity: An integral approach (2010)
A paper by Floyd and Zubevich explores the notion of Integral Sustainability (IS). Central to it is a shift of thinking about sustainability itself. That is, instead of considering a world of objects, and systems of objects, IS considers it in terms of perspectives. As such it represents a deliberate shift from constituting issues as if they were right hand quadrant (RHQ) entities to seeing them as also expressive of left hand quadrant (LHQ) ones. Such a shift immediately evokes the interior worlds of people and cultures and allows the authors to examine how, for example, different worldviews and values help to determine our views of reality. Casting a critical eye over dominant perspectives it becomes clear that external (empirical) ones are, as they put it, "well catered for" in this context. Equally, however, they also find that "there is a deficit in our individual and collective ability ... to take responsibility..." Taking the example of nuclear power as a "solution" to expected energy shortages they identify five distinctive perspectives:

- Energy for all
- Safety first
- Our only hope
- Yesterday's solution
- Time will tell[8]

The authors point out that it is not necessary to give each perspective what might be called an "equal voice" so much as to allow them to be "inhabited" in ways that are balanced and unbiased. They conclude with an example from Tim Flannery (a well-known Australian scientist and commentator on environmental matters) in which he distinguishes purely utilitarian issues from those that are political and value-laden. They see this as a worthwhile attempt at "perspective formation" that remains open to the real complexities raised when nuclear power is seen as a viable solution through largely empirical eyes. Clearly, from an IS view, it is connected to many other phenomena that also need to be brought into awareness and considered more fully. This expanded picture allows for, indeed enourages, divergence and variety which in turn means that social and value-based solutions can also be brought into play.

Descent Pathways, Foresight special issue (2014)

In recent years it has become clear that humanity has for some years been overshooting a number of critical global limits and bringing upon itself the very real prospect of what earlier model builders called "overshoot and collapse" futures. Responses to these dire prospects have varied from outright denial to the pursuit of many strategies such as reining in growth, conserving energy, protecting forests, and so on. What has been widely overlooked, especially in conventional settings, is the possibility of creating strategies for consciously and deliberately crafting "descent pathways." That is, pathways for de-development that seek to avoid the catastrophic and widespread collapse of human and natural systems. A special issue of *Foresight* contains work that considers different aspects of this issue by drawing on material from all four of the Integral quadrants, especially the upper left (individual interior) and lower left (collective, or cultural, interiors). In so doing terms such as "new normal," "voluntary simplification," "sensemaking," and "interior aspects" of descent can enter and enrich the discussion. In so doing they open out new and under-regarded symbolic and practical spaces within which to explore new and unconventional approaches. In this way the frame of thinking and strategy formation opens out beyond the limitations of predominantly empirical (external) accounts.[9]

For example, one paper examined the rise of "organised denialism" and used Integral criteria (reality domains, worldviews, and values) to delineate some human and social aspects that arguably characterise the "denial machine." This led in turn to a discussion of a range of "post-conventional" responses not as an academic exercise but as embodied in the life and work of three living exemplars. While these post-conventional exemplars had obvious differences, what they had in common clearly set them apart from the denialists and their organisations. Each displayed qualities such as a:

- Broad focus beyond limited reality domains
- Lack of preoccupation with self
- View beyond limited value sets
- Lack of interest in the drive for wealth and power[10]

Another paper explored the notion of "voluntary simplification" as an alternative to collapse. Following an overview of the history and grounding of this idea, the author reviewed Tainter's notion that collapse

is associated with unsustainable social complexity and concluded that it had serious limitations. On the other hand while notions of voluntary simplicity are currently marginalised by a growth-obsessed culuture they can be seen as containing the seeds of possible solutions, at least at the local scale. One reason for this is that, in contrast with the drive to further complexity, they provide "the most effective way for individuals and communities to build resilience."[11] This, in other words, is an example of post-conventional, world-centric perspective formation that consciously mediates between LHQ and RHQ sources. Of these it is perhaps the "post-conventional" stance that is decisive for it is here that options and responses can be framed that are effectively invisible or untenable at earlier developmental stages.

Surfacing the intangible (2016)

Great, potentially world-shaping notions are all very well but, at the same time, IF must be able to demonstrate a certain amplitude—that is, be applicable and useful at a range of scales. If it failed to resonate with individual practictioners and were incapable of being used in standard organisational settings then its own future would be in doubt. There is, however, good evidence that, when put to the test of industry consulting and the development of effective organisational strategies, IF performs well in the hands of those who know how to use it. An example (also included in the *KBFS 2020* update) is Conway's account of how she became dissatisfied with standard approches to strategy mainly because, in her words "doing strategy ignores the human factor." For Conway "it matters very little how perfect your strategic planning process is or how good your strategy looks on paper, if people aren't at the core of the process. For me strategy without people is a strategy without a future." She then adds the following:

> It is, however, ... time to get strategy out of the box, and move this work from the pragmatic to the progressive futures space. That involves making visible in my work how I re-frame strategy development using the integral four quadrants. It involves challenging the formulaic strategic planning approach that we now might tweak and change, while continuing to use without questioning its underpinning assumptions. It means valuing people and culture as much as process. It also means surfacing a diversity of views about the future to create possible futures. In so doing we value what's possible as much as data and forecasts and the single 'right' future. Most importantly, it's time to integrate the

thinking and doing of strategy to perhaps create a space first where we gather to think strategy, to feel it, to think about possibilities, to acknowledge our emotional responses to those possibilities, and to work collectively across the organisation to identify what needs to happen next. This is a space where our thinking is first expansive and divergent.[12]

This is not to suggest that earlier practices in the FSAP domain ignored the inner capacities of human beings. The attention paid to assumptions, for example, in scenario planning is proof of that. Yet it arguably needed the development of IF to provide a more systematic and comprehensive "map" of reality, with distinct reality domains and valuable accounts (plural) of lines of development within all human beings. For this practitioner, as with others, "the integral frame scaffolds the thinking activity in the left-hand quadrants and the doing box in the right-hand quadrants, integrating people and process in strategy development." She adds, "both are essential. This integrated space connecting thinking and doing is where I now position my work..."

The Polak Game (2017)
As time passes, it's likely that addressing the interior worlds of individuals and cultures will continue to inspire the emergence of new methods and approaches. A further example is a workshop activity initially developed in 2004 at Swinburne's Australian Foresight Institute by Peter Hayward and Joseph Voros. It draws primarily on two pairs of concepts from Fred Polak's classic work on images of the future. These are "Essence Optimism" vs. "Essence Pessimism" and "Influence Optimism" vs. "Influence Pessimism." The "Essence" categories refer to a kind of fatalism about whether a particular course of events is changeable or not. The "Influence" ones are used to determine how people feel about the possibilities of human intervention. Both deal with individual interior responses to exterior reality. Stated thus, they sound abstract but when a group of people actually inhabit those spaces in a workshop setting it rapidly becomes clear that, as Hayward notes, much "depends on where you are standing."

In the original model of the Polak Game people are encouraged to arrange themselves on a 4x4 matrix, first along one linear dimension and then in relation to both. Participants are then encouraged to move around the matrix, to "try out" different orientations and perhaps settle on a location that best reflects their own provisional views. With careful facilitation they can then be assisted to reflect on the assumptions

underlying their choices. The workshop format provides a user-friendly structure for facilitating far-reaching conversations among students and / or clients. It runs for up to an hour or so and provides an accessible approach to exploring such images as properties of individuals and cultures. Stuart Candy, among others, has taken up and adapted this model in other settings and the results of these collaborations have been written up in a short accessible paper.[13]

Re-assessing the IT revolution (2018)
A further example of IF work addresses the way that the IT revolution has not only failed to live up to the expectations of the early pioneers but also taken a number of regressive and ill-advised turns towards what Zuboff calls "surveillance capitalism."[14] Moreover, China, a state with no tradition of human rights or interest in democratic norms, is in the process of creating the world's first IT dystopia. The potential of IT for productive use and social well-being is clearly under real and deepening threat. Yet it's consistent with the above to suggest that the search for solutions cannot, by definition, be confined to the underlying technology per se. The technology is, of course, a set of consequences of other forces—human, social, economic, and so on—that have been operating over some two decades. So the "way in," so to speak, only marginally concerns the invention or adaptation of devices. Of far greater significance are questions about social values and worldviews, the very things that were previously missing from FSAP but where so many core issues are grounded.[15] Figure 2 illustrates some of these concerns and indicates some of the actions and policy changes suggested within each of the quadrants. Each of them suggests "proto-solutions" or starting points for further and more detailed work.

Imaging, empowerment and action
It's not hard to imagine futures in which vision logic, the transpersonal realm, and other such higher order realities were never achieved. The dystopian consequences are clearly displayed in books, films, TV, computer games, the Internet and so on. In this context, the continuing emergence of powerful new technologies can only lead to a "continuing disaster" for one key reason: the "it" world (or upper right and lower right quadrants) contains no principle of self-limitation. If left to itself "it" will further engulf human cultures and the natural world. But if the scene is shifted, if the parameters are changed, strikingly different world outlooks emerge. For example, a world where "average level" consciousness evoked green values and beyond, and a worldview that is world-centric or above, is one in which the options for deep innovation and change

multiply. In this alternative world the powers of new technologies would be seen anew. Raw technical power would be reined in because it would be clearly understood that such power, taken alone, was entirely defeating of the wider human project. In other words, *the most interesting futures are those in which human and social evolution matches that of scientific and technological development*.

Interior human development	**Exterior actions**
Relate human development factors to organizational development and innovation. Implications of different worldviews, values, and choices. Revalue human agency as source of power and capability. Redress their takeover by tech substitutes. Refocus attention on human and social priorities for positive futures.	Abandon the century-long fiction that consumerism equals happiness. Revalue human capabilities. Restrict "screen time" in favor of real-world interaction and experiences. Refine uses of "digital reality." Protect children and young people from online exploitation. Subject Internet oligarchs to stringent regulations.
Interior cultural development	**Global system, infrastructure**
Revalue the sociocultural domain and recognize how IT conditioned these foundations. Develop understanding of how cognitive, social, and economic interests intersect with technical and practical outcomes. Identify role of public goods and moral universals in pursuit of healthy social forms. Abandon business models based on theft of private data. Support progressive innovations such as social democracy and platform cooperatives.	Revise, update civil infrastructure to shift core functions from private interest. Invest powerful new oversight and foresight functions. Subject new digital tech (algorithms, cryptocurrencies, facial recognition) to stringent auditing. Require that innovation and tech development contribute to human, social, and environmental well-being. Ensure that 'sharing cities' reflect democratic principles. Steady-state economics.

Fig. 2. Humanizing and democratizing IT
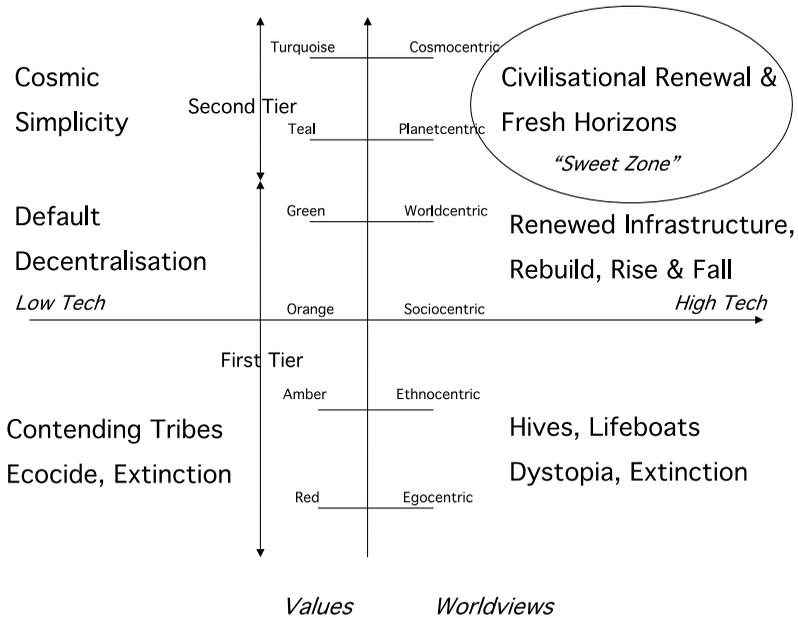
Fig. 3. Futures imaging matrix

Figure 3 renders some of these suggestions into graphic form, as applied to the medium-term collective future. While not a scenario matrix per se, it follows that general form by running variables against each other to create four cells and six possible futures. These are framed by a vertical line representing the value bands we first encountered in Table 1 above, and one that runs left to right, from low-tech to high-tech. It will be recalled that red, amber, and orange values tend to be exclusive, self-limiting, and often conflict ridden. In low-tech environments they can lead to tribal warfare over land and resources. If we shift towards higher tech versions then the results are larger in scale but with similar outcomes. The key point is that *ascending the value hierarchy changes these prospects dramatically*. The move from orange to green, and then to teal and turquoise evokes two other scenarios that have been called "green tech" and "earth steward." Both suggest decentralised societies where human intelligence and progressive values lead to greater resilience and improved prospects for social harmony. These are societies that understand and recognise global limits and also seek to balance out the different contributions of values in relation to many things, including technology.[16]

The upper reaches of values development then lead into territory that must be treated with care since few people have accessed these advanced levels directly or in a sustained way. Sufficient clues can be gleaned, however, to make some suggestions about how human and social prospects appear to shift into new territory here. That is, they appear to go through a kind of "phase change"—a shift from one state to another. What have been called "second tier values" are sufficiently broad and deep to recognise the validity and necessity of all other value sets. This gives them unprecedented freedom in that they can "inhabit" all other value sets *without identifying with them*, without, that is, seeing the world *only* from a particular stance. In a profound sense, therefore, *people with second tier values are, in essence, peacemakers and protectors of the entire Earth community*. They are also proven sources of wisdom and deep understanding. It is, however, the high-tech version of second tier that is the most interesting because it is here that I think we can glimpse the beginnings of thoroughgoing civilisational renewal and the emergence of truly "fresh horizons."

It should be clear why this domain has been called the "sweet zone." It indicates a state of being in which human beings have transcended earlier conflicts and healed the rift between society and nature that was created during the scientific revolution. This is not some dull Utopia but a world characterised by *dynamic balance*. It has a steady state economy that respects ecological laws and reconnects the threads of mutual interdependence. Clearly such a vision may still lie far in the future. Yet, understood as a compelling image of a truly desirable future, it can act as a powerful magnet that draws people and societies towards its realisation. It follows that the "push" factor of the global emergency, coupled with the "pull" factor of further human development towards such compelling futures, constitute two powerfully productive forces that can be fully acknowledged and more widely employed. The seeds of such a renewed civilisation are not hard to identify but are, perhaps, merely waiting for their chance to grow and develop. The prospect of wise cultures living more lightly upon the earth, supporting the full variety of *homo sapiens* and its fellow creatures in a mutual web of respect and security, while at the same time employing highly advanced technical means to do so, need not remain distant and unreachable. It can be brought within reach of our collective vision, imagination, and purpose.

Integral futures in practice
With the possible exception of the reference to Conway's experience above, those who are working in conventional organisational settings

could be forgiven for wondering if IF is essentially focused on visions and grand world-shaping ideas. But there is, in fact, plentiful evidence that this is not the case. One way to demonstrate this is to review some back issues of the *Journal of Integral Theory and Practice*. While it contains its fair share of theoretical work it also contains a wealth of examples of how Integral thinking and methods have been widely applied within many fields and professions. Another way, and one more directly related to IF, is to turn the clock back some 20 years and consider an article on environmental scanning (ES). It took a critical look at conventional business organisations by noting their pragmatism, their inability to grasp the bigger picture, and the fact that they were mostly interested in technical and narrowly financial (rather than human or cultural) goals. Three reasons were put forward to suggest why ES in such organisations fell short of what was needed:

- The typical scanning frame overlooks phenomena that do not respond to empirical "ways of knowing."
- All organisations are located in a wider milieu—a world that is experiencing stress, disruption, and upheaval on an unprecedented scale.
- Organisations themselves need access to richer, deeper outlooks and more thoughtful, innovative strategies.[17]

The paper went on to outline a "new frame" for ES based on the four quadrants of Integral enquiry and briefly outlined what might be involved in referring explictly to what it called these "four worlds." Following a visit to the Australian Foresight Institute[18] in 2003 Andy Hines was among the first to try out this new approach in the exacting context of a large American chemical company. His conclusions were written up in *Futures Research Quarterly*. Bearing in mind that it was early days in the development of a new perspective, and in relation specifically to IF he concluded that it provided "three key enhancements." The Integral approach:

- Emphasises the importance of knowing yourself and your filters
- Provides a model for making sense of what's going on out there
- Guides you to go beyond the norm and access a wide range of resources

Then, in relation to these and other aspects of organisational management and strategy formation Hines added:

- Insights coming from the right-hand side can be measured, while those from the left-hand side must be interpreted.
- (IF therefore) re-balances scanning to integate the empirical and the intuitive.
- (It) challenges your and others' assumptions (and) aids in communicating insights.
- (It) brings a wider and deeper perspective to new business development, strategy-making and decision-making in general.[19]

Clearly these are not minor shifts. For example the idea that interpretation and measurement should be treated as of equal significance could be seen as almost revolutionary in some settings. Changes of this magnitude clearly take time. So we should not expect IF to achieve universal influence and application in the short term. But in the longer term it is entirely possible since its influence may be seen as non-trivial as much at the hands-on organisational level as it is for understanding and responding to global dilemmas.

So what general guidelines might emerge from this brief overview for emerging and existing practitioners? Some brief suggestions follow:

- Take time to read around the topic and, if possible, get in touch with someone you trust who has found IF useful in their life and work.
- Don't rush into organisational settings poorly or half-prepared. Start small with minor projects and applications. Don't be afraid to get it wrong.
- Don't feel that you have to follow the rules blindly. There are many aspects to IF and many different way of approaching them. You don't have to master them all.
- Equally, don't reinvent the wheel. If or when you run into problems don't imagine that you're the first one to do so.
- Check in with a reference group if you possibly can. If you can't find the right post-grad course, lobby for one to be created.
- Above all maintain a spirit of openness and generousity. Remember that "everyone is right (but) all truths are not equal."

Conclusion
This paper has argued that Integral approaches to futures enquiry and action provide FSAP with richer options than hitherto. They arguably help

us to engage in depth both with everyday concerns and with the multiple crises that threaten our world and its nascent futures. In summary, the distinctive features of Integrally informed work include:

- The underlying rigour and depth of an Integral metaperspective provides a firm, yet evolving foundation for forward-looking thinking and action.
- The focus on credible accounts of human and cultural development means that the interior worlds of people and societies are seen as significant drivers in their own right.
- Integral perspectives provide well-grounded and legitimate means for challenging the dominance of empiricism, technolology, and instrumentalism.
- Hence narratives of dystopian inevitability can be challenged and pathways towards more viable human futures explored in greater depth and detail.

As futurists we can start looking more deeply into ourselves and into our social contexts to find the "levers of change"—the strategies, the enabling contexts, the pathways to social foresight.[20] Such work reaches across previously separate realms. It regards exterior developments with the eye of perception that it *consciously* adopts. It participates in shared social processes and takes careful note of shared objective realities. In other words this is an invitation to move and act in a deeper, richer, and more subtly interconnected world. Post-conventional and Integrally informed futures work is certainly not for the faint-hearted. Yet it suggests a range of constructive responses to a world currently desperate for solutions to the encroaching global emergency.[21]

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VOLUME 3: SYNERGIES, CASE STUDIES AND IMPLEMENTATION

INTRODUCTION TO VOLUME 3: SYNERGIES, CASE STUDIES, AND IMPLEMENTATION

by Andy Hines

In this section we get a glimpse into how foresight in being used around the world and inside organizations. To include the stories of foresight in all geographies and all organizations would be a massive endeavor, so regretfully we have been forced to make some representative choices. While one might fairly argue that foresight needs to do a much better job of having a tangible impact in its application, there has been gradual and steady adoption of it since the 2005 KBFS.

Part One, on Synergies and Implementation, looks at foresight in various spots around the world. The seven pieces provide a snapshot of how foresight is being used, including cases where the cyclical nature of adoption has led, at least temporarily, to its demise. That cyclicality is apparent in the first piece, on the Swinburne University Foresight program by Meredith Bowden. She tells the story of the program's rise and demise in a very personal manner, weaving in her experience as a student. The program got caught in a numbers game despite delivering an outstanding education experience, one that has created an incredibly devoted community of alums.

Sirkka Heinonen focuses on the story of the Finnish Futures Research Center (FFRC) and artfully weaves in aspects of Finnish and Nordic Futures Studies, including sections on Sweden, Norway, Denmark, and Iceland. FFRC evolved from a research organization to a full-fledged academic program and is one of the few places offering both master's and PhD degrees in foresight. The Center continues to produce innovative research and has also been closely linked with the Finnish government, one of the most futures-oriented governments in the world.

The story of the evolution of the Institute for Futures Research (IFR) at Stellenbosch University in South Africa by Andre Roux and Doris Viljoen provides a useful roadmap of how to develop an academic program in Futures Studies. The authors provide valuable lessons learned as they strove to keep pushing the envelope in the Futures Studies

offering. They also provide a whirlwind tour of the state of Futures Studies in South Africa and several other African countries.

An interesting new, or at least newish, home for foresight is in the foundation space. Katherine Prince chronicles the journey of foresight at KnowledgeWorks, an educational foundation. While the journey started off tenuously, as is so often the case with foresight, she hung in there and pushed for better days. Indeed, following a near-death experience they arrived. Today her staff includes three academically trained futurists who put out first-rate foresight work. This case is instructive and demonstrates that persistence and commitment can sometimes lead to the promised land.

The next piece takes a bit of a detour in featuring the story of the Polak Game, by Peter Hayward and Stuart Candy. The game was developed to provide a fun and inviting way to explore the fundamental Futures Studies concept of images of the future. It has become a truly global tool, played in classrooms and boardrooms worldwide. Its popularity reflects a significant trend in foresight towards greater use of interactive and participatory games to introduce key concepts and approaches.

Clients are increasingly asking "How are we doing?" in regard to their foresight practice. In steps Terry Grim with the Foresight Maturity Model, for measuring the maturity of an organization's foresight practice. The question of evaluation in foresight is a big one. Trying to measure the bottom-line impact of foresight is a tricky business, given the typical lag time in implementation. Terry sidesteps that issue by measuring how well the foresight work itself is being done. The model provides an approach to assess the maturity of six key practices at five levels.

The final piece in Part One of this volume features the Foresight Competency Model, developed by a team at the Association of Professional Futurists (APF), for assessing the skills of individual professional futurists. Luke van der Laan, one of the team members, tells the story of the model's development just a few years ago. One might consider this a landmark development for the field. For so many years, a familiar conversation was that futurists can't agree on anything. It turns out that we agree on a lot, and much of the perceived difference is in the details. The Foresight Competency Model not only maps out six core competencies for futurists; it also lays out key requirements for futurists in

entry-level, associate, and senior-level jobs for consulting and organizational futurists.

Part Two of this volume tells the story of foresight in governance. My observation on the growth of foresight in the last decade or so is that public sector adoption has outpaced that in the corporate world. Before that, it wouldn't have been unfair to say that implementing foresight in governance was a really tough sell. This recent growth in adoption in both national and local governments, as well as at the global NGO level, is extremely happy news. The three stories recounted here provide a small snapshot of the flurry of activity of futures in governance.

The first piece by Anita Sykes-Kelleher conveys the story of foresight in transforming global governance. She points to the growing recognition by scholars, activists, futurists, and social scientists of the interconnectedness of all things on planet Earth, and how this has stimulated greater interest in foresight for addressing global issues such as climate change and resources shortages. In turn, this interest in the future has led to a significant uptake of foresight by global research and academic organizations, such the Brookings Institution, the Global Public Policy Institute, the Asian Development Bank Institute, the National University of Singapore, Oxford University, and many others. She finds that Futures Studies is playing an increasingly vital role in developing contemporary and emerging views of global governance futures.

The concept of Anticipatory Governance is gaining steam according to Matthew Burroughs and Oliver Gnad. They acknowledge the need for strong visionary leadership in a world that seems to be derailing, as old concepts of order erode faster than new recipes for stability can be created. They introduce a four-step foresight method to help policymakers take greater account of the future; a method they see as a reframing process that allows for deeper understanding of major drivers of societal change, interpreting weak signals of change, and thereby considering plausible alternative futures. They make the case that Anticipatory Governance is vital for the future of governance and the planet.

The final piece by veteran futurist Peter Padbury tells the story of foresight in the Canadian government. He creatively titles it "Foresight as a Rigorous and Systematic Imagining Process," reflecting his belief that foresight has to be seen as rigorous if it is to be taken seriously by policymakers. He describes the story of the development of Policy

Horizons Canada's Horizons Foresight Method, as it emerged from hard-earned lessons in practicing foresight in the Canadian government.

Part 1: Synergies and Implementation

CHAPTER 17: AUSTRALIAN FUTURES: THE SWINBURNE FORESIGHT PROGRAM

by Meredith Bowden

Introduction

Humans have been interested in the future since the beginning of time. People have been obsessed with knowing what will happen, and find the unknown uncomfortable. In times of great uncertainty people have turned to fortune-tellers, astrologers, and oracles to try to get answers. We are soothed in the short term by the false sense of security such people provide. We love stories of time travelers who can go back and forth in time, able to change future events by changing decisions in the past or present.

At this point, we do not have any way of seeing the future, of knowing what will happen, or of making the unknown known. Despite this, there are people who make good money offering predictions and forecasts about the future. Very few people are trained to think intelligently and usefully about the future and to apply that thinking in practical ways. In a radio broadcast in 1932, HG Wells noted that people tend to let the future "happen to us." He suggested a need for professors of foresight to help us "anticipate and prepare for the consequences" of new inventions and other actions.[1] Since that time, various efforts have been made to introduce Futures Studies in academia, including the establishment in 1999 of the Australian Foresight Institute (AFI) at Swinburne University of Technology (SUT) in Melbourne, Australia. The AFI's aims include supporting the emergence of a new generation of foresight practitioners and carrying out original research in order to address the issues described by Wells.

This paper tells the story of the establishment and development of a formal Futures Studies program at SUT and explores whether its aims were met. This story has been told by others.[2] [3] This paper offers a fresh perspective—that of a member of the "new generation of foresight practitioners" trying to make foresight work in the real world. With the closure of Swinburne's Master of Strategic Foresight (MSF) program in 2018, it seems we have taken a backwards step from HG Wells' call to action. This paper has implications for those interested in continuing the

tradition of Futures Studies education and asks: "What does the future hold for the education of the next new generation of foresight practitioners?" Surely they are still needed.

Onto the boat

I was fortunate to be in the last intake of the MSF. I had worked as a psychologist for many years, then took on leadership and strategy roles in the community health sector. I returned with fresh focus to the workforce after having children, but I was feeling lost professionally. I didn't want to take my psychology career further, but I didn't like the look of senior management roles either. I became an explorer, and went to a postgraduate studies information session at the Melbourne Town Hall. All the major universities (except one) were represented there. I was immediately met by a smiling woman from a leading university with long, flowing hair and a business suit. She started to talk at me about her wonderful course and showed me her glossy MBA brochure. I remember thinking, "There must be more than this." As I walked around the hall, I found more of the same. Drained and disheartened, I started to give up and went to leave. As I walked past the Swinburne stall I ended up having a conversation with the convener of the MBA, who made me curious when he mentioned "strategic foresight." On his advice, I rang Peter Hayward and we arranged to meet. I remember Peter described the MSF as, "If the MBA is over here…," gesturing in front of himself (business suit, flowy hair, glossy brochure), "…the MSF is over here"—turning 180 degrees. I still didn't know what it was, but I knew I needed to sign up. I made it onto the boat.

This kind of story is not unusual. When our class did its final clearing at the end of 2016, the stories of coming to the program were very similar. Meeting strangers in registration queues and, based on that quick conversation, being internally compelled to sign up, and clambering onto the boat. We all said that this course had changed our lives, it was transformational, it changed how we understood the world.

The future can only be seen through the lens of the past, so it is worth recapping the history of formal Futures Studies at Swinburne through combining the work of Slaughter and Hayward, Voros and Morrow, and adding some details of what happened next. Hopefully some lessons will emerge that might give insight into possibilities for future Futures Studies education.

Chrysalis

While people have been interested in "the future," and in making predictions about it going back at least hundreds of years, strategic foresight and Futures Studies have only relatively recently emerged as a legitimate professional field and academic discipline. As part of the professionalization of the field, key professional bodies were established in the 1960s and 1970s. University courses in Futures Studies began to emerge in the 1970s. Some of the earliest academic courses still exist today, such as the University of Houston graduate program in Studies of the Future (now Foresight), established in 1974, and the Hawaii Research Centre for Future Studies in 1971. Since then, there has been a proliferation of formal Futures Studies programs both internationally and in Australia, some successful, some less so. Development of the *Knowledge Base of Futures Studies* (KBFS) in the 1990s made a significant contribution to the legitimation of the Futures Studies field.

In the 1980s in Australia, at a government level there was a growing understanding that futures thinking was needed. The Labor Government established the Commission for the Future (CFF) in 1985 as "an entity to encourage the public to have a say about the use of science and technology in building the future." Unfortunately, the CFF was not designed as a true futures or foresight organization. In 1996 it was privatized and ultimately was closed in 1998. At about this time, the Vice Chancellor of SUT started to think about Futures Studies. Adolph Hanich, a consultant to the university, and Richard Slaughter, who had been working with Hanich to design strategy/foresight workshops for a local management college, were invited to put forward a proposal for a feasibility study. In September 1998 the Vice Chancellor accepted the proposal and wished to proceed.

The feasibility study focused on how an institute for Futures Studies and applied foresight might be established. The resulting recommendation was for an institute that would offer postgraduate qualifications centered on the concept of strategic foresight, as well as carrying out original research. In February 1999, Slaughter was offered a Professorial Fellowship to set up the Australian Foresight Institute (AFI). Accreditation of the program was granted with the full support of the Vice Chancellor in September 2000, and classes commenced in the Master of Science (Strategic Foresight) in February 2001.

Terra Firma

The Australian Foresight Institute took an applied approach to Futures Studies in an attempt to balance theory, tools, and applications. In this spirit, the AFI deliberately chose to focus on Strategic Foresight rather than Futures Studies as it was felt that "people did not understand what Futures Studies was all about." This focus meant that the program "could be distinguished from more academic approaches to futures enquiry and concentrate on practice, or implementation." The AFI had its own external Board of Directors which provided access to high-quality expertise from outside the university. For example, Barry Jones, who had set up the CFF, agreed to be a patron.

The core purposes of the AFI were:

1. To understand and help create social foresight in Australia
2. To support the emergence of a new generation of foresight practitioners
3. To develop and run successful world-class courses
4. To carry out original research, with a special focus on methodological renewal in Futures Studies and applied foresight
5. To be a global resource center and exemplar for the above work
6. To gain financial independence

In two specific ways, the AFI had a new take on what futures enquiry and practice were all about. The first was a focus on linking foresight to strategy, with the view that "foresight refreshes strategy." Foresight was therefore seen as a "fusion of futures methods with those of strategic management." It was intended to have real-world applications in a wide range of organizations and to help organizations face the challenges of the early twenty-first century.

The second was the view that "Depth within the practitioner is what evokes depth and capability in whatever method is being used." Slaughter believed that "the bulk of US [futures] work… foregrounds the external world and overlooks the inner world of people and cultures." As part of "methodological renewal," the program focused on the inner world through Ken Wilber's Integral Theory. This was a key pedagogical difference of this program compared to other programs. In 2002, the AFI created the first course unit anywhere in the world on "Integral Futures."

In addition to the master's course, research played a central part in the overall AFI program. The goal was to ensure that Swinburne was at the

cutting edge of work in the field. The backbone of the research was a three-year project called "Creating and Sustaining Social Foresight in Australia," supported by the Pratt Foundation. It included the establishment of AFI's publishing program in 2003, including the launch of the [Australian Foresight Institute Monograph Series](). According to Slaughter, the AFI "focus on social foresight… helps to lift our eyes from the nitty-gritty of daily organizational life and lends the enterprise a high-order social purpose."

The program attracted a group of students who were already very forward thinking, and of whom many were experienced professionals, ranging in age from the late 20s to the late 50s. Some were already working in the futures field and were hungry for formal training. The program became highly sought after and there was a formal application process to enter. The three-year program was designed to appeal to "mid-level professionals," who typically took the courses via "block mode": five full days separated by a period of a week or weekend. The units were also taught in a logical sequence. This mode of teaching meant that each cohort developed its own unique dynamic. This cohort effect was later considered to have been a key to the success of the program. All assignments were related to real-world projects. The KBFS was another fundamental element of the AFI course, with a copy provided to each student in advance of the first class.

In 2001, Richard Slaughter was elected President of the World Futures Studies Federation. By 2004, Swinburne's master's program had "attracted several cohorts of extremely capable and forward-thinking people" and it began to receive international recognition. The first-year Graduate Certificate program was translated into an online course in 2004, taught by Jennifer Gidley. It seemed that the AFI was going from strength to strength. The future looked bright.

As it turned out, 2004 was a "crisis moment"[4] for the program. The Vice Chancellor who had championed Futures Studies at Swinburne retired in 2003. His successor made sweeping changes, including a change in university policy over what could be called an institute. This resulted in the abolishment of many of the research institutes within the university[5] and the AFI was disestablished. Slaughter felt that "the value and associated status accorded to it and myself in the previous administration slowly diminished," and in August 2004 he decided to leave the university.

Phoenix
Rising from the ashes
At the time that the AFI was disestablished as a research institute, total enrollments in the master's program had been declining. It seemed that the initial pool of enthusiastic potential students was drying up. The deputy deans of the university decided not to reaccredit the existing MSF and suggested it be changed to a Graduate Certificate. Peter Hayward worked with a small group of people in late 2004 to quickly put together an alternative proposal to try to save the master's.

The redesign changed the discipline from Master of Science (Strategic Foresight) to Master of Management (Strategic Foresight), removed all prerequisites so that class sizes would not shrink over time, and removed most research and practice units. The third year of the program was designed so that students could choose to take either a research or practitioner (through an enterprise project) pathway. The deputy deans approved this redesigned program and relocated it to the newly formed Faculty of Business and Enterprise.

The program was also opened up to other, non-foresight, postgraduate students in the faculty without the requirement for the earlier prerequisites. Many of these came from the MBA and some from the Master of Entrepreneurship and Innovation (MEI). This resulted in a "futurist-manager dichotomy," a dichotomy that was present until the program closed. This new dynamic forced Hayward and Voros to rethink the way they taught foresight. For the reader interested in the changing cohort, see Voros[6] for a detailed account.

Joseph Voros and Peter Hayward were the tenured academics and took responsibility for the running and development of the program. They continually modified the course to "try to adapt to the changing demands of the student/customer base, the hosting institution, and our own experience as foresight practitioners of what was effective in undertaking actual foresight interventions." As part of the reaccreditation process in 2008, units were unbundled to allow for full-time study, and there was no longer a logical sequence of units. This had a significant impact on the dynamics of the group and the critical cohort effect was lost.

The view of the AFI that "foresight refreshes strategy" was retained in the redesigned master's, and the Generic Foresight Process (GFP)[7] was introduced as a key organizing framework for how to do foresight work as part of methodological renewal. The GFP, based on the work of

Mintzberg, formed "part of the formal curriculum for many of the subjects in the MSF." The "underlying urge behind the creation of the GFP was to attempt to take an integrative or integral view of the wide range of methods." The purpose of the GFP was to take a "process/template view of foresight in contrast to particular-method-based views which were (and indeed still are) very widely held."

The focus on the importance of developing "depth within the practitioner" was also retained. However, there was a fundamental shift in the way integral theory was approached and taught. The internal work was still considered to be a critical element of foresight work, but a broader approach was taken in which the integrative or integral view was made more general. In 2006 the Integral Futures subject was redesigned to "no longer focus only on integral theory as a knowledge framework as such but also on the use of integral theory on the subjective nature of perspective-taking," and was renamed "Integral Perspectives." Hayward and Voros opened up this space to other theorists and thinkers. It was around this time that the program became influenced by the work of C. Otto Scharmer, and particularly Scharmer's Theory U,[8] not only in the curriculum but also in the way foresight was taught (i.e. creating "the field" and designing processes that took students on a deep dive "down the U" of self-awareness in order to do the work required on the other side).

Whereas the KBFS had been a foundational aspect of the AFI master's, at this time it was considered to be "a bit dated as a resource." The internet allowed for "rapid and widespread dissemination of new ideas and debates." Thus the KBFS was viewed as an important "snapshot of the field" but it was used "in a different way than was its original expression."

Hayward and Voros introduced two new key areas of curriculum into the master's. They decided to expressly teach philosophy, as they believed that "to teach foresight properly, and to prepare researchers and practitioners well, we must explicitly and consciously consider the philosophical foundations upon which futures research may be built." They also introduced a dedicated systems-thinking unit, run by Rod Sarah, which became so popular that it became a core offering in another master's course. The sustainability unit was deleted.

Another key shift in the program was a change in pedagogy from "a single foresight expert/academic teaching all" to utilizing a "facilitator at

the front of the room" coupled with lectures from subject experts. This meant that the process of learning was explicitly divorced from the content being learned. Rowena Morrow brought a different perspective into the program at this time, focusing on relationships and trying to create less power imbalance in the classroom. Her role was as facilitator in the room with the students, and Hayward and Voros came into the room to teach content sessions. Morrow would then unpack the session with the students, which meant that students could learn how to reflect and think critically about the information they had been given. The program was run this way for two or three years and, while it was felt that "magic was created" in that room, the model was expensive and ultimately could not continue. After this, different ways of creating conversational spaces without a "guru" present were tried; for instance having people come in and out of the room. This pedagogical philosophy continued through to the end of the MSF and was a significant factor in the power of the program.

Hayward and Voros took a participatory approach to teaching strategic foresight, which resulted in innovative teaching methods. Their belief that reality comes into existence through participation, and the importance of "practical knowing"[9]—that we know things through doing things, that there is a wisdom in "doing" as opposed to merely thinking and talking—resulted in teaching through "running carefully designed processes" rather than through traditional lecture-style formats.

A key example of this participatory approach to teaching foresight is the Polak Game.[10] Hayward and Voros ran this game for the first time around 2004. They were teaching Polak's concept of the "image of the future" and Hayward said, "Instead of explaining Polak, let's *do* Polak." Students found that through embodied processes such as these, they developed a much deeper level of understanding of the concepts than if they had listened to a lecture on the topic. Another example of this approach is the Sarkar Game, which was invented by Voros and Hayward based on PR Sarkar's theories of social change[11] and was first run in 2003. Voros and Hayward believed that by using the Sarkar Game to create the experience of the social cycle in the classroom, students learn of their own social constructions and roles. This was certainly a powerful way to learn this complex theory.

Flight
With a new dean, the second reaccreditation process occurred around 2010 in a more supportive atmosphere. This time it was not a matter of

saving the master's, but of adapt-or- die. The focus was on resolving the problem of the sustainability of teaching and the desire to recover the critical cohort effect. The result was to reduce the number of units taught from twelve to eight, and a "mini cohort effect" was created by teaching the first four methods units as two double units.

Significantly, the award was at last called the "Master of Strategic Foresight" (MSF). The MSF could be offered as a double master's with the MBA, giving it additional credibility. The Graduate Certificate level was removed completely. The MSF gave two pathways in: one for experienced students who could bypass the Graduate Certificate completely, and one for inexperienced and international students who could still do a Graduate Certificate. The program was asked to reinstate a sustainability unit. Integral theory, systems thinking, and sustainability were squeezed into two "new" units and 21st Century Challenges (21CC) was introduced as the capstone subject.

Undergraduate teaching in Futures Studies also commenced for the first time in 2010. Four undergraduate foresight units were created and offered as part of the Bachelor of Business Entrepreneurship and Innovation degree. A difficulty was experienced in recruiting permanent staff to manage the undergraduate program, and it was too difficult to sustain in the long term.

Two important new areas of study were added to the program and remained part of the curriculum until the MSF closed. Foresight Leadership (taught by Nita Cherry) focused on developing students' ability to respond to, and lead through, uncertainty and change. The second unit was Foresight & Design (taught by Bridgette Engeler) which was intended to develop a foresight approach to innovation and design. It was thought that the inclusion of design principles in Futures Studies education would help students design a response to change, or a plan to take them towards their preferred future. In addition to traditional design thinking methodologies, students were introduced to Bill Sharpe's Three Horizons model and transition design. These methods could be applied in an organizational context or in response to "wicked problems."

Flames

The MSF underwent reaccreditation again in 2015. The context for this reaccreditation process was once again difficult, but this was related to issues faced by the higher education sector in general—student numbers at

universities were falling and costs were rising. It seemed that the MSF was under threat once again.

Whereas previous reaccreditation processes had involved many and significant changes to the program, in 2015 the course was "tweaked." Sustainability was dropped yet again, as was the dedicated integral unit. A new unit, "Powering 21ˢᵗ Century Innovation" (P21) was introduced based on the coming Energy Transition as a context-setter for the capstone unit 21CC. These units together represented another sequence at the second year, partially recapturing the first-year double-unit cohort effect. Undergraduate units were also withdrawn.

More recently, Hayward and Voros introduced Big History, the "science-based story of how our present-day technological civilization came to be the way it is." History and Macrohistory[12] have always been a big part of futures thinking, but Hayward and Voros found that "one of the best ways to teach an openness to *futures* thinking is to introduce students to *the whole of the past!*" Voros argues that Big History "invites students to not only consider the deep past that lies behind and gave rise to us but also consider the possible futures that may lie ahead." While Big History was shut down in other parts of SUT in the second half of 2015, it continued at the undergraduate level and MSF students continued to undertake a "whirlwind tour" of Big History in the P21 unit.

While foresight had come to be viewed by the university as a "strategic differentiator," it was not generating the income required. Despite the program developing strongly, it ultimately got caught up in the problems faced by the higher education sector. In 2016, SUT completed a review of all postgraduate programs and announced the end of the MSF. The program was taught out in 2017–18. Peter Hayward retired at the end of 2016 and a unique event was held to honor the program: the MSF "wake." This event drew a number of people from the futures field, from people who had been involved from the very early days to recent graduates. There was a real sense at the gathering that something important had been lost.

Ashes

Since the closing of the MSF, two significant, privately organized initiatives have been undertaken to try to continue the Futures Studies education tradition in Melbourne. Peter Hayward established and currently coordinates the AltMSF. This is intended to be an extension of the learning space created in the MSF room and offers an opportunity for

people to practice their craft. A range of MSF alumni attend these events, from highly experienced to those new to the field. The group comes together every couple of months on a Saturday and a member of the alumni, or occasionally a guest, facilitates the day. It was always an aim to open this space to new people, those who were not lucky enough to have made it onto the MSF boat. This has started happening, partly because the numbers from graduates alone have been small.

The second initiative is the FuturePod podcast series. FuturePod "gathers voices from the international field of Futures and Foresight." FuturePod contains interviews with a range of people from the foresight and futures community on a range of topics, including Andy Hines, Andrew Curry, Debra Bateman, Zia Sardar, Jim Dator, Rene Rohrbeck, Kate Delaney, Sohail Inayatullah, Tanya Schindler and many more.

And foresight has not disappeared from Swinburne completely. Bridgette Engeler has now moved from Design to teach foresight and innovation in the Master of Entrepreneurship and Innovation (MEI). SUT is also currently rethinking its university offerings and is looking to develop micro-unit or single-unit strategies around topics that the market has said it wants. The core introductory material from the MSF continues to live on as units for industry and government, and currently decisions are to be made to turn the content into executive education. A new unit, "Futures Thinking," was commissioned by an industry partner as part of the MEI and ran for the first time in 2019. This unit is designed to be offered as a standalone unit, and a second follow-up unit, "Strategic Foresight," is currently awaiting the go-ahead for development.

Reflections

Many of those who completed the MSF over the years agree that the experience was life changing. Personally, I went into the course looking for "something." I didn't know what that was, but I wanted something *more*. This is consistent with Hayward's research which explored the growth of foresight capacity in relation to stages of development of the Self. He found that people who took to foresight were at a certain later stage of Self-development compared with those who had not.

As someone looking for more, the MSF was a true gift. I found that my thinking changed, my understanding of the world deepened. Brexit. Trump. All of a sudden, these things made sense. I didn't like it, but I could see. My previous need for "answers" and the "right" way was

replaced with curiosity, questioning, and openness. My strong inclination to judge was replaced with higher levels of compassion and a desire to understand. My growing anxiety was calmed by zooming out and looking at the bigger picture. There can be no doubt that for those who came in at the right developmental level, the MSF was transformational. The MSF clearly succeeded in developing "depth in the practitioner." Looking at this through Wilber's four quadrants,[13] a key strength of the MSF was in the upper left quadrant (individual, internal).

Another strength of the MSF was in the futures methods that we were taught. The classroom was a wonderful and, at times, messy experience. We were taught traditional futures methods, such as a wide range of ways to approach scenario development. We received strong grounding in how to facilitate group processes in a foresightful way. Again, using the four quadrants, the MSF provided students with strong development in the upper right quadrant (individual, external).

The new generation of foresight practitioners was supported at an individual level by the MSF program; however when they came out of the program and started to look for ways to make their training land in the real world, the story was a bit different. There seemed to be no organized professional support at a local level. People outside the foresight community didn't seem to grasp the value of what we offer. The community itself seems to be fractured. There are some who do extremely well as individual practitioners, others who seem to disappear into their organizations and do foresight work quietly from within, and others still who really want to make a go of it but can't seem to work out how to make it happen. There is even confusion over what to call ourselves. Is it "strategic foresight practitioners," or just "foresight practitioners," or "professional" not "practitioner," or "futurists," or something else? This lack of clarity and a common language makes it difficult to communicate with non-foresight people.

It seems that there is some work to be done in the lower right quadrant (collective, external). The CFF and the AFI were both attempts to develop a formal futures system, but neither was able to survive in the long term. Despite good intentions and effort, the government's CFF seemed to fail as there was a lack of trained futurists involved in the organization, and the AFI did not seem to have the full support of the academic institution that was hosting it at an organizational level. While there are professional futures bodies, these are international and are not specific to the Australian context and culture. I remember when the Australian

Psychological Society decided that it needed to work hard to professionalize the field of psychology, to differentiate it from other rapidly emerging areas requiring less (or sometimes no) training, such as "therapists and "counsellors." It was understood that as a community, psychologists needed to come together and sell the value of their qualifications, training, and ethics. They seem to have been successful in this (of course nothing is perfect), and it seems to me that Australian futures practitioners would benefit from a similar legitimation system.

And then there is the matter of the lower left quadrant (collective, internal). If our work and ways of thinking do not align with the underlying culture and values of our society, foresight practitioners will struggle as a profession. We will not have the legitimation of the very people we are trying to influence. So there is work to be done in the lower left quadrant as well. This is huge. Currently we exist here in Australia in a culture of short-term, capitalist thinking. We find ourselves in our current reality, driven by others' own interests. Of course, like everywhere else, there is an emerging voice of dissatisfaction that challenges the status quo. Our society can see that there are global challenges and that many of these are linked to our society's capitalist values, economic growth, and the "profit motive." But we do not have the collective imagination to conceive of an acceptable alternative. So we stick with capitalism. People are even becoming more aware that short-term thinking is contributing to the problems we face, but as a society we do not know how to think usefully about the future, sadly bringing us back to where we began with the reflections of HG Wells.

It is clear that, although humans are natural "futures thinkers," and have historically been fascinated by the future, we are resistant when it comes to applying this in a professional or civilizational way. It is clear that we need to be explicitly taught how to think about the future so that we can, as Wells argued, anticipate the consequences of the decisions we make today. But for some reason this capacity has not been prioritized; in fact it has been sidelined. Given this resistance, it is important to prime people to think about the future in useful ways. In order to think about civilizational futures, people need to be able to understand their place "in the grand scheme of things."

Voros' insights into the challenges of educating "non-foresight" people to grasp future time and futures are helpful. He found that people enjoyed learning about Big History (as opposed to some of the challenges

he experienced teaching futures to those who don't "get" it) and that this way of thinking primed people for futures thinking:

> Even for non-foresight students taking P21 [an energy transition unit that began with an introduction to Big History] "cold," as it were (i.e. without any prior foresight study), the long "run-up" provided by the Big History perspective did seem to tend to make "switching on" foresight cognition just that bit easier for them.

It is worth considering different ways that people and society can be primed for the futures thinking that is needed in order to respond adaptively to the significant challenges we face. Perhaps teaching Big History as a lead-in to futures thinking at primary, secondary, and tertiary levels would be one way of priming people to think about the future, and thus making a change in the lower left quadrant. Some progressive Australian schools have included Big History in the curriculum; however relatively few schools seem to combine this with a formal approach to futures thinking.

The key aim of the AFI, supporting the emergence of the new generation of foresight practitioners, has been partially achieved. The strength of the MSF was in developing the "individual" quadrants, but the difficulties lie in developing the "collective" quadrants. High quality Futures Studies education is a necessary, but not sufficient, condition for the emergence of a new generation of foresight practitioners. Without the support of external systems and a societal culture open to our way of thinking, these practitioners will struggle to *apply* this education in order to make a difference in the world. In order to support the next new generation of foresight practitioners, we need high quality educational experiences such as those provided by the MSF. But we also need the systems and structures in place to support us and them to put their education and training into practice, and to make the much needed and overdue change in the world that we want to see.

The paper draws heavily on the work of Slaughter[14] and Hayward, Voros and Morrow[15] for the details of the history of the AFI and MSF.

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CHAPTER 18: FINNISH AND NORDIC FUTURES STUDIES – CURRENT INSIGHTS AND NEW VOICES

by Sirkka Heinonen

Introduction

Finland has a long tradition in the field of Futures Studies, dating back to the 1970s. However, Finland was not the first Nordic country to get involved; Sweden was already active before that. Today, the Finland Futures Research Centre (FFRC) is the largest academic Futures Studies unit in the Nordic countries, and one of the few in the world awarding master's and doctor's degrees. Its activities include research and education, as well as societal interaction and networking. The FFRC has grown from three people when established in 1992 to over fifty staff members, hundreds of research and developmental projects, and more than a thousand publications.

In 2013, the centre became a department inside the University of Turku. This was a pivotal step in consolidating Futures Studies as an academic discipline. Professor Pentti Malaska, our visionary grand old man of Futures Studies, made sure that his students would take the Futures Studies torch further. He emphasised that it is our duty to show that the "world is a better place with us humans than without us." His recent biography acts as an inspiring handbook of visionary heritage to young futures researchers. An award for promoting Futures Studies in Finland was established in his name a few years ago.

Professor Malaska was a radical, visionary thinker whose research interests crossed a wide range of academic disciplines, from mathematics and electrical engineering to philosophy, ecology, and strategic management. His work boldly crossed sectoral boundaries between the academic world, the business world, and societal influencing. This kind of wide range of bold vision-making on the one hand, and pursuit of concrete action on the other, is present in many research projects on technology foresight. A recent example is a study to anticipate societal transformation by exploring 100 radical technologies.[1]

We now have graduate students from over thirty-five different countries. Futures Studies graduates find employment in many sectors in Finland. They may continue as researchers or doctoral students. Currently we have several doctoral candidates, with thesis topics ranging from digi-native journalism to privacy, solar energy startups in Africa, and understanding social change through long waves. Young futurists may also get a job in the private sector, since more and more companies have awakened to the necessity of corporate foresight for their strategy planning.

The public sector, too, has become more open to adding futures capacity to their staff. The Finnish national foresight system renewed its activities and organisation in 2008. Today it functions as a balanced interactive network, where communication flows freely. The national foresight network engages itself in constant futures dialogue, inviting citizens and NGOs to engage with its activities. The main actor is the Prime Minister's Office, which prepares a government futures report during every electorate period. It submits the report to the Parliament, where the Committee for the Future gives its own report on the official futures report, with some responses that bind the government.

The Committee for the Future's counsel, Olli Hietanen, moved over to the committee from the FFRC, which means that the FFRC has a permanent advisor on the committee. Thus, academic research is regularly interacting with parliamentary and government foresight. Hietanen even describes that it is nowadays "rather an exception if a person does *not* embrace long-term thinking." One of the committee's tasks is the development of Futures Studies and Foresight as a discipline and methodology. The members work in close collaboration with the FFRC, as mentioned above, and participate in the work of the National Foresight Network and its coordinating body, the Government Foresight Group.

The major actors in the Finnish national foresight network are, to a large degree, the same institutes that were active in the launch of Futures Studies in Finland: besides FFRC, the Academy of Finland (see more below), Tekes (now Business Finland), Sitra, the Economic Institute of Finland VATT, and the Technical Research Centre of Finland VTT. Cities, municipal authorities, and regional councils are likewise oriented in futures thinking and exercises. In 2018, the main national newspaper, *Helsingin Sanomat,* appointed a permanent futures reporter to cover futures-related topics.

Since 1994: Dialogue on the future: Government's and Parliament's Future Reports
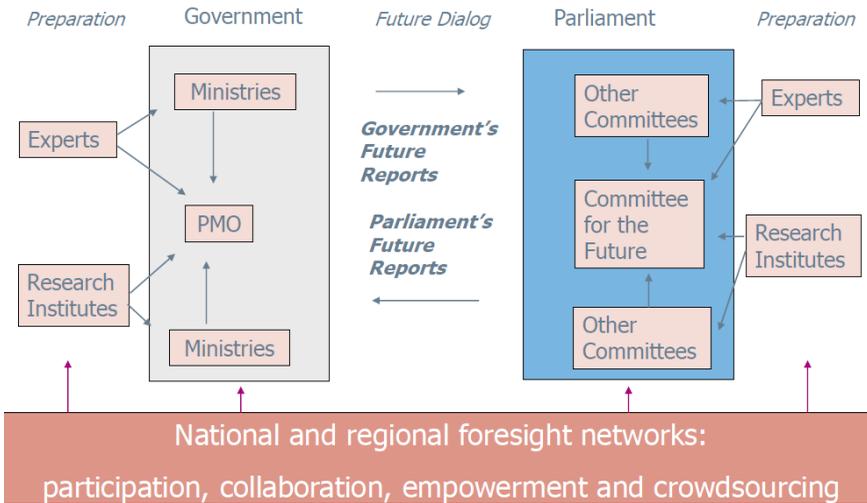
Fig. 1. The Finnish National Foresight System and its actors in constant dialogue

The Academy of Finland has played a key role in setting up and organizing Futures Studies in Finland. It recently launched a comprehensive reorganising of research funding, which had a major impact on Futures Studies. This included forming the Strategic Research Council (SRC) to fund larger cross-disciplinary consortia. The emphasis here was to improve the societal impacts of research, renew the fields of science, and include researchers at different stages in their careers in the projects.

Innovative research: on hybrid methods and experimentation
The SRC provides funding for long-term and programme-based research aimed at finding solutions to the major challenges facing Finnish society. The main themes of SRC research programmes are decided by the Finnish govt. The three current themes for 2020 are:

- Dealing with Climate Change—the Human Perspective
- Information Literacy and Evidence Informed Decision-Making
- Inclusive Co-Creation (as the cross-cutting priority)

A major step for Finnish Futures Studies was the establishment of the Finnish Society for Futures Studies in 1980, on the recommendation of the Government's Central Board of Research Councils. Fourteen Finnish institutions of higher education were among the founding members, and fourteen additional institutions and almost 700 individuals have since joined the Society. The aim of the Finnish Society for Futures Studies is to influence the long-term development of Finnish society by promoting futures research and its utilisation. In the 1990s, the Society compiled a directory on Finnish Futures Studies.[2]

The Society is both a scientific association and an NGO, engaging in a futures dialogue through its manifold activities: seminars, Top Ten Futures, local discussion groups, and publications. In recent years it has also strengthened its publishing activities. For any country that is eager to develop Futures Studies, a national association is a good first step— followed by concrete, engaging, and inclusive activities. The Society started with publishing dissertations of futures researchers and is now moving towards production of a methodology handbook.

Finnish futurists have focused a lot on the use of methods in appropriate ways. We try to find the best methods possible to fit the application and help decision-making. We often use several methods in combination, even in unusual mixes, as well as combinations of qualitative and quantitative methods. These we call hybrid methods. This is in line with the Finnish government's exhortation to embrace the culture of experimentation. The government itself has experimented with making new legislation using crowdsourcing. Some developments include:

- Causal Layered Analysis (CLA) has not been much used, but recently it has received growing interest for testing scenarios and for injecting into scenario construction as a positive disruptor.
- Investigating images of the future of adolescents and young adults has been a key focus.[3][4][5]
- Finnish Futures Studies was pivotal in developing the online Delphi platform eDelphi.[6] Moreover, two Policy Delphi applications that do not rely on consensus building, but instead focus on grouping various views into descriptions of alternative futures, have been developed in Finland: the Argument Delphi[7] and the Disaggregative Policy Delphi.[8]
- Innovation with scenarios includes the futures table,[9] an application rather close to morphological analysis and the Field Anomaly Relaxation (FAR) technique.

- Some futures researchers have focused on studying the nature of megatrends, trends, weak signals, wildcards, and the future sign[10] or future signal.[11]
- Researchers are also exploring non-linearities, discontinuities, and unexpected events within a larger concept of futures awareness or futures consciousness.[12] [13]

Four methodological innovations

Four examples of hybrid methodology can be singled out from Finnish Futures Studies. Hybrid Futures Studies methods are combinations of more established methods. At least four such methodological combinations have been developed at the FFRC: the Futures Clinique, the Creative Foresight Space, the ACTVOD, process and the Q2 scenarios.

1. *The Futures Clinique* is a specially structured futures workshop developed at the FFRC by Sirkka Heinonen and then elaborated in her research team.[14] It is designed for sense-making in a deeply networked, constantly changing, and increasingly systemic society flooded with information. Accordingly, it focuses on discontinuities, disruptions, and tipping points, as well as a systems-oriented "big picture" view of selected issues, in order to outline possible, preferable, alternative, and surprising futures rather than the most probable ones. The metaphor of a Clinique refers to a shared diagnosis of problems and issues, together finding out remedies and recipes, as well as making a prognosis for further action and recovery.

2. *The Creative Foresight Space* consists of physical hybrid spaces combining physical, digital, and virtual elements, tools, platforms, and communities that enrich conventional work areas such as office rooms, cubicles, or desks. CFSs are used to systematically foster both creative and futures thinking among employees. The aim is to utilise and enrich the collective creativity of an organisation. Typically, CFSs can be used for conducting Futures Cliniques as described above. Or, they can include Futures Windows in several modifications. The ethos of CFS is to create immersive experiential futures—providing futures-oriented spaces that invite people in the space to effectively time-travel[15] through the means of appealing to their many senses (visual, audio, touch).

3. *The ACTVOD workshops* are one-day workshops that help organisations to increase the futures thinking of their strategic decision-making.[16] Its name is an acronym containing the words Actors, Customers, Transformation processes, Values, Obstacles, and Drivers. It is a developed form of the CATWOE workshop known in

Soft Systems Methodology,[17] and includes use of the futures wheel and the morphological Futures Table, as well as development of a normative preferred scenario.

4. *The Q2 scenario method* is a mixed-method approach combining qualitative and quantitative phases. It combines a Delphi study and the Futures Table to construct scenarios. The expert interviews in the first Delphi round ensure rich material for analysing the prospects of the research topic; the numeric questions (typically with quantitative indicators of the past) bring in the exactness needed for applying the results in strategy implementation processes.

The strength of Finnish Futures Studies has always been in sharing, freedom, teamwork, and networking. On the one hand, a pragmatic approach is presumed in order to gain results and impact from Futures Studies. On the other hand, a critical lens gives focus on the identification and anticipation of consequences from technological development, reflecting socio-cultural foundations.

A recent approach involves an attempt to pursue Futures Studies for economic development. This has been conducted in several foresight capacity building projects for developing countries, mainly in the Mekong area and, more recently, in Cuba and the Caribbean. We also actively engage in international Futures Studies activities; to mention a few major platforms, the Club of Rome, the Millennium Project, the World Futures Studies Federation, the European Union, and the OECD. A major venue for the international exchange of ideas and results is the annual Futures Studies conference organised by the FFRC.

Swedish Futures Studies: public policy and scenario thinking
Like Finland, Sweden has invested significantly in a governmental foresight system, including research and training. Sweden was an early pioneer in government-sponsored foresight and established a Secretariat for Futures Studies in 1973. The Secretariat's task was to report to the Prime Minister's Office. Sweden has adopted a wide-ranging national-level foresight approach. The first national foresight project was carried out by eight panels in 1999–2000, followed by more focused regional dissemination events.

The second round of the Swedish Technology Foresight project in 2003–2004 took a slightly different approach. Five sub-projects analysed the foresight studies of other countries, updated the outcomes of the previous round, involved young researchers and entrepreneurs, examined

the changes in the global environment, assessed the potential breakthrough areas in technology and knowledge, and compiled a synthesis of the results of the other sub-projects. The main idea was to bring together people with various backgrounds to discuss the driving forces, preconditions, and possible strategies for the national innovation landscape—looking at not just technology, economy, and education but also society as a whole. Close cooperation took place among the Swedish Government, companies, public agencies and other interested parties such as the IVA, the Swedish Business Development Agency (NUTEK), the Swedish Governmental Agency for Innovation Systems (VINNOVA), the Swedish Research Council, and the Knowledge Foundation.[18]

A key actor in Swedish Futures Studies is the Institute for Futures Studies. It is an independent research foundation that promotes future perspectives in research and public debate. Illustrative examples of recent publications include:

- "The lure of power. Career paths and considerations among policy professionals in Sweden," a working paper by Niels Selling and Stefan Svallfors. It analyses career paths and career considerations among policy professionals in Sweden.
- "Popular sovereignty facing the deep state. The rule of recognition and the powers of the people," by Ludvig Beckman.[19] It investigates the relationship between the idea of popular sovereignty and the conditions for legal validity and argues that the latter imposes definitive limits to the former.

These examples show how the research is leaning towards the issues of power, politics, and public policy, as well as concentrating on demographic foresight studies.

A major foresight actor is the Swedish Defence Agency (FOI). Its Environmental Strategies Research Group was moved to the Royal University of Technology, which consequently has also become a key player in the futures field. The FOI/ESRG grouping has provided methodology experts for Nordic foresight projects, as well as European and national foresight projects, especially in the fields of energy, environment, and defence. The Foresight Laboratory at Örebro University instead focuses mainly on regional foresight.

Another group performing Futures Studies is found at the KTH Royal Institute of Technology in Stockholm, where a few scholars, especially

Mattias Höjer, Åsa Svenfelt, and Josefin Wangel, have concentrated on applying the scenario technique in research projects concerning the future of cities and transportation.[20] Höjer is a professor in Environmental Strategies and Futures Studies at the Division of Strategic Sustainability Studies, SEED, and at the Centre for the Future of Places. He is working on Futures Studies for sustainable development and on smart sustainable cities in a broad sense. He is involved in a project on a resource-efficient circular economy, where a focus area is buildings. He is also involved in the "Exponential Climate Action Road Map" project of Future Earth, a global research programme.

Climate change and the circular economy are topics that are widely discussed in Sweden. A prominent figure in Swedish Futures Studies is Anders Wijkman, a former member of the EU Parliament, who earlier also was Co-President of the Club of Rome. The young climate activist Greta Thunberg is now a globally known representative of the movement of acting for the futures and future generations to save the planet. She is the epitome of the necessary bridge between research, public decision-makers, business, and citizens.

Norwegian Futures Studies—from peace studies towards innovation foresight
Norway has a unique characteristic of combining Futures Studies and peace studies, thanks largely to one person, Johan Galtung, with his solid background of pioneering in this approach. A more recent development is the combination of Futures Studies and innovation studies. The Research Council of Norway is a major actor for addressing Futures Studies. In 1998–2001, the Norwegian Government conducted a comprehensive scenario project, Norway2030, which aimed at identifying roadmaps for the Future of Public Sector. An important step was taken in 2006, when the Royal Ministry of Education and Research established a new unit within the Department for Higher Education, addressing research and innovation policy issues and the use and development of foresight methodology.

The Norwegian academic institution with most experience in foresight, especially in scenario construction, is the Norwegian School of Management (BI). In addition, both the University of Tromsø and the University of Stavanger are academic foresight actors, particularly in the energy field and addressing the Barents region in the northern part of Norway.

A comprehensive study called *Foresight in Nordic Innovation Systems* was conducted with the cooperation of not only research units, but also governmental organisations. A starting point for the study was the intense pressure put on companies to be adaptable and innovative. Moreover, public sector organisations are also under strong pressure to innovate. Both private and public decision-makers must cope with rapid technological developments by anticipating new opportunities and threats. The study claimed that the search for proper tools that can create strategic intelligence in decision-making systems has intensified. In such a search, technology foresight exercises can be regarded as effective tools for "wiring up" the innovation system.

This Nordic Foresight Forum project had two main objectives. One was to create and operate a Nordic Foresight Forum where technology foresight practitioners and researchers can exchange their experience and ideas. The other was to identify "good practices" in the Nordic countries for technology foresight and similar methodologies for prioritisation in science and technology development. The study then presented its results as eight recommendations to the Nordic Innovation Centre and other Nordic actors in foresight, together with reflections on how foresight can give added value at the Nordic level. One of the recommendations was the initiation of a systematic procedure for generating and assessing good ideas and topics for Nordic cooperation in foresight. The following ideas illustrate the contents of this recommendation:

- The future of innovation in the Nordic social model—This is a broad foresight theme that could encompass many others. In particular it features the two aspects on how Nordic social models may enable innovation and be supported by innovation.
- Nordic Energy Foresights—These could be seen as a continuation of the Hydrogen Energy Foresight, with much of the same type of Nordic added value.
- From Common Agricultural Policy to bioenergy and R&D funding—Implications for the Nordic countries if (some of) the funding for the EU Common Agricultural Policy is shifted to support bioenergy production and R&D.
- Nordic security foresight—This could comprise both Nordic and European homeland security, the Nordic contribution to global stability and security, and security as a market for Nordic industry.
- Nordic services foresight(s)—Examples could include education, healthcare, and services for older people, both as part of the

> Nordic social model and as (potentially) globally competitive Nordic industries.
> - Nordic remote-areas foresight.

A key Norwegian futures researcher, Erik Øverland, is one of the writers of the above-mentioned report, as well as of *Norway 2030: Five scenarios on the future of the public sector in Norway.* At the time of writing this text, he also serves as President of the World Futures Studies Federation. Norway is also providing venues for anticipation studies in the form of seminars and conferences, such as the one in Oslo in October 2019.

Danish Futures Studies—concentration on technology and corporate foresight

The Danish government conducted a programme for national technology foresight for the period 2001–04.[21] The fields covered were Bio- and Healthcare, Green Technologies, Hygiene, Nanotechnologies, Pervasive Computing, Ageing Society 2030, ICT from Farm to Table, Cognition and Robotics, and Mobile and Wireless. The first round of green technology foresight was followed up with three more focused foresights: 1) Green Technology Foresight about environmentally friendly products and materials, 2) Sustainable agriculture, and 3) ICT from Farm to Table.

The Nanotechnologies foresight project contributed to the government's political decisions on the focus areas of the newly established High Technology Foundation. Based on the recommendations from the foresight exercises, the Danish Board of Technology initiated two political debates on pervasive healthcare in the Danish healthcare services, as well as on toxicology and nanotechnology.

Among the government's forward-looking activities, the Globalisation Council must also be mentioned. The Council was set up in the spring of 2005 with the prime minister as chairman and with the task of advising the government on a strategy for Denmark in the global economy. It recommended that "a broad-based survey should be regularly carried out to identify the research needs that society and business developments create as well as the capabilities of Danish research institutions to meet these needs." With the reorganising of the Ministry of Science, Technology, and Innovation in 2006, foresight-like activities were moved from the Ministry to the reinforced Danish Agency for Science, Technology, and Innovation (DASTI). DASTI's responsibilities include "dialogue on priorities in research and technology initiatives."

Another unit worth mentioning is the Disruption Council, established by the Danish government to focus on exploring the future, for example the future of work. Foresight is visible in projects such as: "RFID—Risks and Opportunities" and "The Future Danish Energy System" of the Danish Board of Technology. Participatory elements and close interaction with members of parliament are key modes of the Council's activities.

Furthermore, the Danish Society of Engineers has conducted a very large foresight effort, focusing on energy for the future. The process consisted of several rounds of foresight projects with brainstorming, workshops, Internet-based dialogue with members, scenarios, and roadmap seminars on six areas of energy technology. At the municipal and regional levels, several futures workshops have been carried out for many years, in conjunction with physical planning and planning of the economic development of municipalities and counties.

Dr. Rene Rohrbeck is a prominent foresight researcher in Denmark. He works in the field of strategic foresight at Aarhus University. In the same university the Danes also have a Strategic Foresight Research Network.

Currently, the most visible Futures Studies unit in Denmark is the Copenhagen Institute for Futures Studies, established in 1969. It is an independent and nonprofit global research body and consultancy for corporations and organisations. Its research topics are multiple and some of the results are presented in their regular *SCENARIO Magazine*.

Icelandic Futures Studies—Innovations, scenarios, and preparedness for surprises
In the early 1970s, the Icelandic Centre for Research was concerned with a few long-term planning programmes for different business sectors. In Iceland, foresight approaches have been actively promoted by private organisations such as Icelandic New Energy and the Icelandic Confederation of Industries. RANNIS (the Icelandic Centre for Research) and Iceland's Science and Technology Policy Council have expressed their interest in developing the national foresight activities of the country. The first attempt to work on a national foresight project was started in the fall of 2006, when a foresight project was launched in conjunction with the evaluation of the Icelandic health and medicine field.

Futures Studies is still in its infancy in Iceland, since in practical terms it is conceived as too fuzzy or complicated by the business community. Only a few scenario planning projects had been conducted in Iceland at the time of the financial crash in 2008. Both the financial crisis of 2008 and the natural catastrophe in 2004, when a volcanic ash cloud shut down air traffic in all of Europe for the first time in history, were apt events to open people's eyes to a forward-looking approach that acknowledges not only uncertainties but also sudden events that the future can bring along. Between 2005 and 2015, at least twenty-four scenario projects were completed in Iceland.

The Icelandic Parliament has recently formed a futures committee, and the Management Association of Iceland has formed focus groups on Futures Studies. Today, active stakeholders promoting Futures Studies in Iceland are the Innovation Center Iceland and the Icelandic Centre for Futures Studies.

The establishment of the Icelandic Node for the Millennium Project this year was a major breakthrough in engaging in the international Futures Studies arena. The Helsinki Node of the Millennium project has been the only node in the Nordic countries so far. The Chair of the Icelandic Node (which is the sixty-fifth node of the Millennium project) is Karl Fridriksson. He is managing director of the Innovation Center Iceland under the Ministry of Innovation.

Last but not least—even though efforts to conduct Futures Studies in Iceland are rather recent—Iceland is the origin country for a most interesting initiative for joint Nordic Futures Studies. The Nordic Foresight Cluster–Nordic Joint Initiative recognizes that the Nordic countries, as other societies, are facing increasing future challenges and disruptions which are already significantly impacting social structures and businesses. To improve wellbeing in the Nordic countries, they must work closer together to effectively evaluate possible outcomes of future trends and long-term forces. All Nordic countries have interest groups, associations, universities, and other institutions that focus on Futures Studies, both academically and to implement practical applications in everyday society. These can be in the form of scenario planning, i.e., evaluating and assessing different futures with the aim of defining possible opportunities. Although scenario planning is one of the most frequently used tools of Futures Studies, it is by no means the only one. Futures Studies has an assortment of tools to investigate future challenges for governments and businesses. It would clearly be of added value if

different parties in the Nordic countries were to join forces in the field of Futures Studies. The Cluster Initiative would be beneficial in enabling targeting of joint challenges. Such a cooperative program would probably benefit local projects run by varying interest groups.

Concluding remarks

The presentation of Nordic Futures Studies in this chapter is illustrative and emblematic, not exhaustive. Hopefully, readers can grasp the current state of the art of Futures Studies in Nordic countries through the chosen examples of topics and approaches. Beyond this, the aim was to shed light on the future projections of what might be achieved together.

The Nordic countries share the same culture and values— emphasising, for example, the importance of including all stakeholders in a shared futures dialogue and research processes on the one hand, and on the other hand the balanced study of technology and economy in a whole-society approach where socio-cultural issues are of equal importance. Shared goals of Futures Studies in Nordic countries are to attain sustainable growth for business, to promote forward-looking and just governance, and to maintain the wellbeing of the citizens.

This kind of shared conception of the mission and possibilities of Futures Studies may give an added value to Futures Studies reflections within the global context.

Sirkka Heinonen

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Technical Sciences (2014–), and President (2012–2015) and Vice-President (2016–) of the Finnish Society for Futures Studies. She is also a member of the board of editors for six scientific journals. She can be reached at the Finland Futures Research Centre (FFRC), University of Turku, Korkeavuorenkatu 25 A 2, 00130 Helsinki, Finland. Email: sirkka.heinonen@utu.fi

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CHAPTER 19: THE IFR STORY AND FUTURES IN AFRICA

by André Roux, Doris Viljoen

Introduction: when and why it all started

In the early 1970s world population was approaching four billion; there was a clear ideological and military divide between the chief protagonists of the Cold War; China was for many merely a five-lettered word on a map; the climate was not changing; Africa's population was smaller than that of Europe; and South Africa was an inward-looking society, with the white minority wallowing in a fool's paradise of eternal prosperity, dominance, and strength.

The Club of Rome gave notice that Planet Earth was unhappy, and that the frenetic pursuit of economic growth was not sustainable. In South Africa, forward thinking members of society started realising that, in a world of rapid, pervasive, and omnipresent change, *ad hoc*, instinctive decision-making was not only inappropriate, but potentially dangerous. At the same time, South Africa entered a period of isolation, economic stagnation, and fatalism. Leaders—both business and political—were in desperate need of strategic foresight.

Against this background, Dr. Anton Rupert and Mr. Tom Bezuidenhout, both from Rupert International, together with Professors Rias van Wyk and Ewert Scheurkogel, planted the seeds for the establishment of the (then) Unit for Futures Research (UFR) at Stellenbosch University in 1974. It was initially launched as one of two research units operating within the university's Bureau of Economic Research (BER). The primary functions of the UFR were:

- An information function—to gather, collate, and disseminate information about possible future trends in South Africa, and to distill from that the concomitant threats and opportunities.
- An advocacy function—to generate and stimulate societal interest in the long-term future and the art and discipline of futures thinking.

Importantly, the early leaders of the UFR—Trevor Williams, Rias van Wyk, and Philip Spies—laid down a firm foundation for using futures studies for strategic decision-making. The emphasis was on environmental scanning, multiple perspectives, and transdisciplinary thinking rather than attempting to "predict" the future. Moreover, the operating ethos was to focus on changes in the business environment, rather than on key issues or global issues, which was the general inclination at most Futures Studies entities at that time. Given the focus on the broader process of change, especially in South Africa, the UFR was reconfigured into a more autonomous institute, the Institute for Futures Research (IFR), in 1984.

From the outset, with a view towards improving strategic thinking in organisations, the UFR/ IFR has provided an exclusive service to its Associates—companies and institutions that co-finance the UFR/ IFR research program in exchange for a range of "products" aimed at sensitising thinking towards adaptive, more behavioural concepts of planning.

In sum, the futures thinking practice and philosophy established in South Africa by the IFR was built on a bedrock of transdisciplinary analysis, using systems thinking as an intellectual model, scientific inquiry, questioning of assumptions, the exploration of a variety of prognoses, and strategic learning. In so doing we wanted to avoid succumbing to the seductive allure of "pop" futurism. The future was no longer a mystical, ephemeral, temporal dimension; it was a space in time that could be measured and made. And, importantly, by knowing and applying the right techniques, models, and tools, and through a disciplined systemic inspection and analysis of trends and behavioural patterns, it was possible to devise strategies for a fan of plausible future outcomes.

Early initiatives and lessons1

The IFR's first involvement in planning and change management was triggered by an invitation from a number of its Associates (clients) to participate in their planning sessions. Initially, this involvement was confined to a systemic scanning of the environment to serve as an *entrée* to their planning meetings. When IFR was subsequently requested to assist in designing planning processes, it was deemed appropriate and necessary to investigate the operating philosophy of some of the leading proponents of business futuristics. To this end three institutions were identified:

- The Stanford Research Institute (Palo Alto, California).

- The Institute for the Future (Palo Alto, California).
- The Center for Futures Research (University of Southern California).

Although the practices of the Stanford Research Institute resonated well with the aims of the IFR, it was felt that it did not offer a feasible model for a small institute. The Stanford Research Institute is a large international consultancy with a small army of highly qualified international consultants (approximately three thousand); the UFR/ IFR had (and has) fewer than five. As for the Institute for the Future, although its size was similar to that of the UFR, unlike the UFR it operated as an *ad hoc* private sector consultancy, with some support from a few clients. The Center for Futures Research was more akin to the UFR with regard to size, operating philosophy, and institutional positioning. The Center had also developed an elegantly simple procedure, QUEST (Quick Environmental Scanning Technique)[2], to use in strategic planning exercises. This was a natural fit for the UFR's envisaged involvement in similar exercises, which comprised four stages: a preparation phase, a divergent planning session, a planning review and scenario development stage, and a scenario review stage.

The first major strategic planning exercise that the UFR embarked upon, using an adapted QUEST, was an inquiry into the future of the (then named) KwaZulu-Natal region. The objective of the study, which was commissioned by the (then) Natal Town and Regional Planning Commission, was to facilitate a process aimed at reaching a consensus between the former Natal and KwaZulu administrations with regard to (a) the real challenges facing the region, and the dominant forces driving developments there; (b) the actions required to resolve the differences between the two administrative bodies; and (c) the design of cooperative programs that could improve the long-term prospects of the region.

The adapted QUEST methodology used in the KwaZulu project was based on the firm belief that systems thinking should be an integral part of planning. Thus, a five-dimensional change management model was developed to capture the following steps (each one of which is co-determined by all the other steps or dimensions):

- Designs for dissolving conflict.
- Designs for sound communication strategies.

- Contextualisation: development of insight into and understanding of the context of the current situation, and the long-term implications thereof.
- Idealisation: Designing desirable, yet plausible, alternatives to the current situation.
- Development of programs for participation by all the relevant stakeholders.

One of the most important lessons learned from the KwaZulu-Natal exercise (and from a few smaller ones that followed) was that severe problems cannot be solved at the level of the system at which they are produced. Moreover, ideally one should design problems out of existence, i.e., dissolve them by creating new conditions and new circumstances. This realisation prompted the use by the IFR of concepts such as an "alternative revolution" and a "New South Africa" in scenarios developed after 1986.

The next important milestone in the evolution of the IFR's operating philosophy was a commissioned contract to evaluate the application of development theory in South Africa. In essence this required using some kind of "meta-theory" to evaluate another theory. The "meta-theory" deemed to be the most appropriate was the application of systems thinking in planning and organisational development. This afforded the IFR the opportunity to engage in basic research. It also resulted in a number of important new developments. For instance, a small team of highly creative thinkers started working on various applications of applied systems thinking in futures studies and planning. It also opened up the opportunity to engage in a larger discourse on systems-based planning with Associates. At the same time, three leading lights in the application of social systems thinking in planning—Jamshid Gharajedaghi, Russell Ackoff, and Peter Senge—were invited to present short courses and to participate in planning exercises with IFR Associates.

In 1980 the IFR decided to develop five core structural programmes in order to provide a framework and fundamental foundation for business futuristics in general, and scenario work in particular. The five programmes were demographic studies, technology futures, economic structure studies, sociopolitical futures, and natural resource studies. Demography was chosen because population growth, migration, urbanisation, and generation changes form the basis of long-term forecasting. Over the years the IFR gained a deserved reputation as a leading agency in population forecasting, and one of the first to include

plausible assumptions about the impact of HIV and AIDS on mortality and life expectancy.

The Technology Futures programme was premised on the notion that technological change is the driving force behind long-term socioeconomic change and global transformation. By later including technology management as a focus, the programme moved beyond just measuring technological change, towards creating ("making") designs for innovation. Within the context of long-term studies, Economics covers macro-economic trend analysis, the analysis of shifts in the relative importance of production factors, development studies, and input-output analysis. A social accounting matrix simulation model (SAMSIM) was designed to simulate the impact of different social policies on economic growth and job creation.

The intensification of political instability and uncertainty in South Africa during the 1980s more than justified the core programme in Sociopolitical studies. There was a particular emphasis on long-term trends in the political environment, the forces moulding these trends, and the interpretation of political events and issues. Research reports provided valuable insights into the long-term implications for South Africa of the state of poverty and malnutrition in the country, the problems of racial inequality in education, and the secular implications of growing unemployment and the warped distribution of skills. Many of these factors were seen to be the main driving forces in South Africa's transformation, and therefore used as key inputs in the IFR's scenario development exercises.

The Natural Resources programme covered a wide range of issues related to the physical environment within which organisations operate. As early as the 1970s UFR reports reviewed the growing water shortage in South Africa, the long-term contribution of the country's extractive industry, pollution and other environmental threats, and South Africa's energy resources. Regarding the latter, an Energy Futures programme was established in the late 1980s.

For the best part of two decades, until 1995, the IFR was led by Prof. Philip Spies. He crafted and honed the discipline of Futures Studies by, at first, learning from the best; before very long he became one of the best. During this time Futures Studies came of age. It is therefore fitting to include a list of rules compiled by Prof. Spies (based on his expertise and foresight interactions with Associates) for futures work:

- Ask the right questions: know which questions to ask before starting to search for answers.
- Understand the relationship between problems (the *problematique*) that emerges from the questions asked, rather than tackling only the problem faced.
- The real problem to be addressed is invariably at a higher order of understanding and resolution than the problems being faced, viz. the conditions sustaining the problems.
- One of the key avenues to changing these conditions is the search for an exciting ideal—a vision of hope. Another is to discover new ways of doing things.
- The journey towards discovery is through re-creative design— starting with ideals and specifications and ending with a model for excellence.
- Without creative stress nothing will happen. This means that the key actors in an organization must develop a full and proper understanding of the non-sustainability of the current future, and an almost evangelical desire to progress towards the desirable future that they have designed.
- Participation and buy-in by the key actors is crucial.

The unheralded role of scenarios in South Africa's 1994 transition
The use of scenarios in South Africa, although not quite ubiquitous has been a well-established practice for many decades. This has occurred at two levels: First, at an organisational level, in order to broaden perspectives, raise questions, challenge conventional thinking, and ultimately assist organisations in surviving and even thriving from uncertainty in the business environment. These exercises also contributed to stimulating strategic thought and communication within companies. Moreover, they assisted organisations in setting goals and formulating strategies, weighing up options, and identifying indicators for taking action. An unknown, but large number of these exercises have been (and continue to be) conducted. The IFR (and the authors of this paper, in particular) are regularly requested to facilitate scenario exercises for large and small businesses, government departments, and quasi-state organisations.

The second type of scenario practice in South Africa is at the public domain and national interest level. These exercises came of age at a time when the country was on the brink of a systemic implosion. By the mid-to-late 1980s internal institutionalised suppression of a majority group by

the white minority, coupled with international ostracism, meant that human development in South Africa was being obstructed by a toxic cocktail of deeply entrenched economic, political, scientific, aesthetic, and ethical/ moral vices and defects. The release of Nelson Mandela in 1990 and the unbanning of the African National Congress (ANC) paved the way for the genesis of a New South Africa in 1994. However, in the period leading up to this transition to emancipation and unqualified suffrage, the spectrum of society's emotions included nervousness, skepticism, fear, cynicism, excitement, joy, relief, and ignorance.

It is during this time that three public-policy scenario exercises, dealing primarily with the sociopolitical economy, played a major role in the public discourse of the time. As policy scenarios they offered possible alternatives for deciding how to act and what actions should be taken. They also served an aadvocacy and consensus-building function. The three exercises were:

- The Anglo-American (Clem Sunter) *High Road/ Low Road* scenarios (1987).
- The Nedcor/ Old Mutual project *South Africa: Prospects for a Successful Transition* (1992).
- The *Mont Fleur* scenarios (1992).[3]

Although the objectives, methodologies, budgets, and ideological bent of the three exercises differed substantially, each in its own way resonated with at least one societal stakeholder and enhanced the understanding of the possible outcomes of fundamental policy decisions made by a fledgling democracy in an increasingly integrated world. After a thorough analysis of the three exercises, Nick Segal drew the following conclusions:

- The scenario method is attractive because it has the potential to combine in a rigorous fashion both the intellectual and the experiential approaches to public policy. The ability to harmoniously blend the two approaches depends largely on the skills of the facilitator and the caliber, diversity, insight, and wisdom of the scenario team members.
- The scenario technique is powerful because it has the inherent capacity to examine the issues and options in a dispassionate fashion, and allows logic and common-sense rather than preconceived notions to discover the answers. The attributes of the facilitator and the participants are decisive.

- The exercise must have legitimacy among the groups it is targeting and the intended users.
- The style and reach of public dissemination determines the effectiveness of the scenarios. Here, the simplicity, clarity and "memorability" of the message are important.
- The three exercises helped break the then prevailing paradigm; as such they were catalysts in the country's transition, rather than causal factors.[4]

Academic programmes

By the mid-1990s the IFR had built up an impressive repository of both scholarly and applied knowledge in the still little-known area of Futures Studies. It was time to formalise and institutionalise Futures Studies as a post-graduate qualification.

After convincing the "powers that be" (the IFR's own management committee, the university's Faculty of Economic and Management Sciences, the university's Academic Planning Committee, and the Council on Higher Education) that an M Phil programme in Futures Studies was justifiable, plausible, financially viable, do-able, and of sufficient scholarly worthiness to be included in the university's suite of academic offerings, approval to roll out the M Phil in Futures Studies was granted. This was a two-year modular (block release) programme within the University of Stellenbosch Business School, managed and choreographed by the IFR.

In early 1998 the first ten candidates for the M Phil programme in Futures Studies arrived on campus. They graduated two years later, having passed a number of subjects, and having written a "mini-thesis." The subjects were chosen to provide a sound scholarly foundation (e.g., Introduction to Futures Studies, and Systems Thinking), as well as equipping students with the skills to apply principles in practice (e.g., Applied Demography, Technology Futures, and Advanced Futures Studies). The "mini-thesis" gave students the opportunity to use the toolkit at a futurist's disposal to analyse and research a futures-related issue or problem, and to propose ways of solving or mitigating for that problem.

An implicit objective of the programme was to ensure that graduates practiced proper futures thinking (transdisciplinary analysis, using systems thinking as an intellectual model, scientific inquiry, questioning assumptions, evidence-based research). Just as a neurosurgeon needs to

have advanced degrees in medicine, so, we believe, should a proper futurist possess an advanced qualification in futures thinking or foresight.

It soon became clear that, while the interest in our programme was undeniably healthy, the mode of delivery (being away from the office for a few weeks over a two-year period) was neither appealing nor practical for the caliber of students we wished to attract (fairly advanced in their careers; engaged in strategic thinking). Fortunately, at that time Stellenbosch University launched a new initiative: telematic learning. Lectures were broadcast live from a studio in Stellenbosch to over twenty appropriately equipped electronic classrooms in various centres throughout the country, and in Namibia. This meant that students could attend classes at their nearest centre once a week, experiencing an interactive classroom situation, with only a marginal disruption of their career and family responsibilities. Thanks to this new mode of delivery, over the next fifteen years Stellenbosch University conferred the M Phil in Futures Studies on more than two hundred students.

Until 2013 students were able to enroll for any M Phil degree without having a previous post-graduate qualification (Honours or equivalent) in that discipline (or a closely related one). In 2013 South Africa's Council on Higher Education changed the rules of the game. Henceforth, the possession of an appropriate post-graduate qualification would be a requirement for admission to any M Phil programme in South Africa. This necessitated a comprehensive reassessment, restructuring, and revamp of our post-graduate offering.

The outcome of this exercise was the post-graduate diploma in Futures Studies (PG Dip FS), and the relaunch of a new, revised M Phil programme in Futures Studies (M Phil FS). The PG Dip FS is a one-year programme, and the M Phil, as before, a two-year programme. Although the PG Dip is an essential prerequisite for admission to the M Phil, it is also, in its own right a standalone qualification, equipping students with the basic skills to implement long-term strategies to create better futures by taking into account increasing competitiveness, complexity, and volatility. In recognition of the nature of the discipline, the programme stretches candidates' cognitive flexibility and creativity by exposing them to a wide range of modules (including Applied Philosophy, Introduction to Futures Thinking, Systems Thinking, Understanding the World, and Managing for Change) underpinned by the mantra that we can make and manage the future. Since its launch in 2014, over fifty students a year have enrolled in the programme.

The M Phil FS goes beyond the PG Dip FS, further enhancing students' knowledge and understanding of futures concepts and tools so that they are able to perform their duties as professional futurists responsible for strategising and planning. Skills are acquired to understand local and global issues, and also to understand the impact of such issues on strategic planning. The content of the programme is therefore aligned with the professional and intellectual skills required of futurists. Candidates acquire consultation and facilitation capabilities, and learn how to manage projects and do stakeholder analysis, environmental scanning, scenario planning, and strategic planning. The research assignment (during the second year of enrolment) gives students the opportunity to apply the knowledge and skills acquired to a field of their choice. Since its (re)launch in 2015 some fifteen students have been enrolled in the M Phil FS each year. There is also a PhD in Futures Studies, which builds on the M Phil FS. This programme allows candidates to become specialists in this field by acquiring in-depth knowledge through supervised doctoral research. This is the only PhD of its kind in Africa. The minimum registration period is two years.

Meanwhile, information and communication technology does not stand still. The University of Stellenbosch Business School has introduced blended (hybrid) learning, which combines e-learning technology and methods with traditional classroom learning practices to create a hybrid way of learning. This means students can choose to attend a class on campus or via any internet-linked device from anywhere in the world. The online option is delivered synchronously with the on-campus option. Those who follow the classes via an internet-linked device can also remotely ask questions and interact with the class. Both of the post-graduate programmes are delivered in this fashion. Sessions lasting four hours each are generally presented once a week.

Foresight elsewhere in Africa: A view from South Africa

Africa is the continent with the longest recorded history of human inhabitation—some historians even refer to the continent as the birthplace of humanity. Africa is vast, accounting for twenty percent of the world's total land area. Africa is also, in all probability, the most diverse continent, being home to 55 countries and more than a thousand languages. However, although Africa accounts for more than 16 percent of the world's population, it produces barely 4 percent of global output. Consequently, GDP per capita is lower than US$2,500; poverty rates are

the highest in the world; life expectancy is the lowest in the world; and human development index ratings are well below the world average.

In light of Africa's sustained socioeconomic underperformance, various foresight institutions like ours have proposed a new narrative for Africa. Futures Studies in Africa is emerging. Narrow versions of foresight, like risk management, strategic planning, and extrapolation of existing trends are practised with some sophistication. In addition, a series of issue-driven reports can be found (e.g., health, water scarcity, education). However, deep insights about plausible futures over a longer period (20 years and more) are uncommon.

The *Foresight for Development* (FFD) initiative seeks to aggregate, enhance, and promote futures thinking and practice in Africa. It is piloted by the South Africa Node of the Millennium Project with support from the Rockefeller Foundation. The electronic platform is a gateway to the profiles of foresight practitioners, articles and videos on tools and techniques, and news of foresight projects. The FFD has five objectives:

- Provide a digital repository of the most important and influential regional foresight content from futures practice, activities, and sources.
- Assemble a regional community of futurists and foresight practitioners.
- Share foresight case studies, methodologies, tools, news, calendars, and experiences.
- Feature African foresight initiatives and practitioners.
- Be the gateway to relevant foresight products and resources in Africa.

In accordance with the above, the South Africa Node of the Millennium Project hosted workshops during December 2018 to gather the insights of eighty participants about the impacts of technology on the future of work in Southern Africa towards 2050.

Mauritius, an island state with an open economic and political system, finds itself in a transition towards a knowledge society. Between 2011 and 2013, the Mauritius Research Council and the Manchester Institute of Innovation Research conducted a national foresight research exercise to explore topics like emerging trends, possible futures for Mauritius, changing agendas, and opportunities for research and innovation. Three

scenarios were constructed, with 2030 as time horizon. From these a roadmap for addressing risks and unlocking opportunities was drafted.[5]

In October 2014, government officials in **Rwanda** gathered to discuss how foresight could be incorporated into their existing planning processes. The Rwanda Governance Board organised the workshop in collaboration with the Global Centre for Public Service Excellence in Singapore and One UN Rwanda. The participants imagined futures of urbanisation, rural sector development, and large-scale investment projects. Although the workshop was deemed to be successful, participants expressed the need for further practical training on foresight.[6]

The **UNDP** Global Center for Public Service Excellence[7] also hosted a number of ForesightXchanges in Africa during 2014 and 2015. In November 2015, delegates from twelve African countries met to discuss foresight opportunities. They emphasised the need for inclusive planning and public innovation.

For many years, the **Brookings Institution** has led foresight projects in and about Africa. Its latest Africa Growth Initiative report is entitled *Foresight Africa: Top priorities for the continent in 2019*.[8] The report covers six topics:

- Governance
- Debt burdens
- The potential youth dividend and job creation
- The role of the private sector in addressing fragility
- Areas with untapped business potential
- Regional and international engagement to boost trade and investment

UNESCO runs Futures Literacy Labs across the globe. During July 2018 UNESCO facilitated a meeting to discuss the research protocol for an Imagining Africa's Futures (IAF)[9] project. IAF is a three-year research initiative, funded by the OCP Foundation of Morocco. Futures Literacy Labs will test collective intelligence knowledge-creation processes that use-the-future in Africa.

Finally, **Agenda 2063**[10] is a fairly recent initiative of the African Union Commission to unite the continent's diverse countries towards becoming an "integrated, prosperous and peaceful Africa." This fifty-year plan is gaining traction among government leaders across the continent. It

captures seven aspirations for "the Africa we want," and is increasingly incorporated into regional and national development plans. Agenda 2063 is a live and constantly evolving document. For instance, it has recently been amended to align with the Sustainable Development Goals (SDGs).

Agenda 2063 has identified fourteen flagship projects: key programmes and initiatives that are crucial for the acceleration of Africa's long-term economic growth and development. Included are an integrated high-speed train network; the formulation of an African commodities strategy; establishment of the African Continental Free Trade Area; Silencing the Guns by 2020; the creation of African Continental Financial Institutions; a Pan-African e-network; and an African virtual and e-university.

Conclusion

Futures Studies and the practice of foresight has a long history in South Africa and the rest of Africa. However, there is a great deal of unfinished business. In addition to having to grow and prosper in an increasingly volatile global environment, most African countries have to contend with an additional array of development challenges—including meeting basic needs that high-income economies take for granted. It is regrettable, although understandable, that societies that are engaged in a constant quest for survival tend to plan and strategise for the short term. Moreover, there is a propensity to focus on the details of a specific issue (for example, hunger, water scarcity, poverty, education) rather than the complex systemic dynamics of the problem.

This is where Futures Studies and the practice of foresight has a decisive role to play—by asking the right questions; by gaining insights and knowledge about the problematique; by exploring multiple plausible futures; by searching for a vision of hope; by recognising that creative stress is a valuable ingredient for re-creative design; and by stretching time horizons beyond just five or ten years.

At the same time, we need to recognise the fact that Western-based models and paradigms may not always be appropriate for understanding the Africa problematique. Many of Africa's diverse societies have a long history of foretelling, based on ancestral wisdom. These narratives need to be incorporated into conventional Futures Studies practices without being mutually exclusive.

Hopefully, Africa will see a surge in the number of professional and practising futurists, sharing a common vision of hope for the continent and displaying an evangelical passion for uniting the thinking power and wisdom of its people.

André Roux
André Roux was the Director of the Institute for Futures Research (IFR) at the University of Stellenbosch from 1996 to August 2015. André is now in the full-time employ of the University of Stellenbosch Business School, where he lectures on economics and is also the programme head for the School's postgraduate programmes in Futures Studies. He also teaches on various executive education programmes in South Africa and, from time to time, in Australia, Belgium, China, Mauritius, Namibia, Swaziland, Tanzania, Ghana, and Nigeria. André holds a PhD in Economics and is responsible for more than 150 popular publications.
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Doris Viljoen is a senior futurist at Stellenbosch University's Institute for Futures Research (IFR) where she endeavours to interpret global as well as local trends and assess their relevance for South Africa and Africa. She has specialised skills in environmental scanning, the application of foresight methodology, and scenario planning as well as strategy development. Before joining the IFR, Doris did consulting work on feasibility and location assessment studies for large capital projects and received the top student award in Stellenbosch's M Phil Futures Studies programme. She has a wide range of research interests and is passionate about asking the right questions, searching for and finding relevant data, and designing tools and techniques to facilitate thinking about plausible futures. She can also be reached at the University of Stellenbosch Business School: doris@ifr.sun.ac.za.

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CHAPTER 20: A FORESIGHT JOURNEY IN EDUCATION FUTURES, FOUNDATION STYLE

by Katherine Prince

Introduction
Fourteen years ago, KnowledgeWorks commissioned a forecast on the future of learning that resulted in a compelling product which launched the organization onto the national stage. Today, we continue to publish freely available foresight work on the future of learning, along with deep dives into specific topic areas, strategy guides for shaping the future of learning, and other sense-making and engagement tools. We also deliver presentations and workshops to help education stakeholders in the US, and sometimes beyond, explore future possibilities.

To tell the story of how KnowledgeWorks has evolved and grown into its use of foresight is also to tell the story of the organization itself, and my own professional journey. Across multiple leadership changes and strategy shifts, KnowledgeWorks has come to see the value of foresight in guiding its own future. Initial excitement led the organization to use foresight to provide guidance for others across education. Over the years, we came to realize the full potential of foresight, such that we now use our work to anchor the organization's strategic direction. The journey continues, with new risks emerging as the work becomes increasingly integrated into the organization and with new opportunities manifesting as the nature of the work evolves.

KnowledgeWorks now
KnowledgeWorks is an operating foundation based in Cincinnati, OH, and working across the US. Our vision is that every student experience meaningful personalized learning that enables him or her to thrive in college, career, and civic life. Currently, we work in four areas:

- Exploring the future of and in learning
- Growing educator impact by helping schools and school districts transition to personalized, competency-based learning
- Partnering with state and federal policymakers to align policy in support of that approach to learning
- Creating an evidence base for student-centered learning

Each of these bodies of work supports the others and allows the organization to help co-create the future of learning alongside education stakeholders.

KnowledgeWorks has a team of four people in different locations around the US focusing on foresight. We extend our capacity by involving consultants in some projects. Every three years, we publish a ten-year forecast on the future of learning, which kicks off a new cycle of foresight work. We use these forecasts and related assets as the basis for helping stakeholders make sense of future possibilities and generate strategic insights through presentations, workshops, and other forms of engagement. These engagements focus on helping a wide range of education stakeholders see themselves as active agents of change in shaping the future of learning. Typically, participants enter unaware of the field of foresight.

These engagements, along with our publications, seek to build education stakeholders' capacity to understand change, examine multiple possible futures, and extend the time horizon of their decision making. Our foresight work concentrates on external forces of change shaping education and the broader society that students will inhabit. We find that our education stakeholders tend to have a solid understanding of trends and changes within education, but less awareness of how their roles, practices, and structures might need to change to help students address significant global issues such as climate change, implications of data usage and surveillance, and the spread of artificial intelligence. Indeed, we see part of our mission as helping to raise awareness of such issues. We help stakeholders question their assumptions about how education operates and take more informed action in steering the future of education.

KnowledgeWorks then
In 2005, KnowledgeWorks served only Ohio. We aimed to further universal access to high-quality educational opportunities. Our programs initially focused on supporting high schools, and they also addressed the needs of adult learners and young children. During strategic planning activity, our founding CEO learned of foresight from contacts at Procter & Gamble. Eager to make informed choices in planning our future, we commissioned a projection the future of education from the Institute for the Future (IFTF).

The 2006 map: Onto the national stage

KnowledgeWorks used this project—*2006–16 Map of Future Forces Affecting Education*[1]—to inform its strategic planning. We quickly realized that the possibilities and insights it raised had far broader value. At what became a seminal event, we gathered a small group of education leaders and influencers from around the US for an exclusive, in-depth reveal of the map of the futures from that project. It created a stir, becoming something of a sensation in the world of US education reform. Colleagues began traveling the country to present on its insights. The map, as we called it, opened doors for KnowledgeWorks and extended our reach, catapulting the organization onto the national stage.

My first experience with the map was at an all-staff gathering. I had been working for only a few months as a program manager. I had heard of scenario planning when my previous employer had commissioned a set of scenarios and had required many staff to participate in conversations about them. The process was not generally well-received as my colleagues did not see how to connect the future to their daily work.

My perception changed during the all-staff presentation on KnowledgeWorks' map of the future. Among other drivers of change, the map highlighted a sick herd; an urban wilderness; strong opinions, strongly held; and the end of cyberspace. Personally, I found it frightening and destabilizing, but intriguing. I started using the map in the context of other projects and working more deeply with its content.

One of those projects used the map to frame convenings about possibilities for teaching and professional learning. Leaders came together to imagine scenarios for the future and to identify innovations that could help them move toward preferred futures. Insights from the convenings led KnowledgeWorks to acquire another organization in order to help align our portfolio with emerging needs. A second project, a collaboration with a national organization, used an extended exploration of future possibilities to support state coalitions in identifying ways of improving teaching in their states.

In addition, KnowledgeWorks collaborated with other regional and national education organizations to engage their audiences with the map. We also partnered with an education research lab that had been tracking trends to develop and publish scenarios derived from the map project. We worked with a digital storytelling organization to publish student-created videos depicting future possibilities. We maintained a separate, interactive

website that invited users to share signals of change related to the map. All of these efforts reflected different ways of helping education stakeholders engage with future possibilities and develop insights that could help reform the system. They were expensive, but KnowledgeWorks wanted to make an investment and an impact. From these early days, we were looking not only at the future of education but also at futures *in* education in a collaborative way.

During this phase, the organization was excited to have such a valuable tool. We used the map broadly and strategically and explored a range of ways for bringing its insights to different audiences, but we did not really know what we had. We saw the map as a thing—a great thing—but a thing. We did not yet fully appreciate the field of foresight in which it was situated.

The 2020 forecast: A world of learning
Wanting more, KnowledgeWorks commissioned a second map of the future, *2020 Forecast: Creating the Future of Learning*[2] in spring 2009. This work emphasized the increasingly widespread options for individuals and organizations to create their own futures, along with the dilemmas that bottom-up developments could cause for traditional education institutions. We shared these maps broadly across the country. Audiences were keenly interested in the drivers of change, along with signals of change illustrating how those drivers were beginning to impact education. We were still early in the development of our foresight capability, but it aligned well with our audiences, who for the most part were not yet on the foresight journey.

The maps became a hot item, which generated a lot of internal debate about who got to do what with it and under what team it would be housed. These growing pains reflected both KnowledgeWorks' shifting organizational focus and structure and its developing understanding of Foresight—and they took place in the context of the Great Recession, when two difficult rounds of layoffs occurred. I was called in to manage the production of foresight work, which required me to get involved with depicting ideas about the future in a visually accessible form. It also involved helping audiences to connect with future possibilities, even though I myself did not yet deeply understand what it meant to think about the future. My involvement in foresight was still just half-time, and stayed there for five years and across several different team configurations.

Even with the strain of reduced resources, foresight work generated interest and excitement that fueled a deepening commitment to it. My team started facilitating strategic learning experiences that went beyond an introductory presentation. These experiences aimed to support participants in applying insights from the forecast to specific contexts and in using the experience of learning about the future to inform strategic decisions. We were moving beyond simply producing content about the future to working with our audience to co-create futures.

KnowledgeWorks was getting high marks on surveys evaluating the immersive strategic learning experiences. We came to understand how much easier it was to engage audiences with the future when individuals had a choice about whether to attend an event. We also continued to learn about how to apply foresight to education. Because our stakeholders generally lacked familiarity with foresight, our introduction of new material and ways of thinking had to address that gap. Taking this gap into account, we developed increasing skill in helping people find ways into exploring the future of learning. But we did not always manage it well— one memorable comment from a questionnaire described an experience that a colleague and I facilitated as having been like stepping into a bad science fiction novel.

We started charging fees for some strategic learning experiences, with modest annual revenue goals. We also continued to expand and deepen our foresight partnerships. For instance, we collaborated with a social innovation practice that had experience in Futures Studies to create two gatherings for grant-makers. The resulting events had participants walking in the shoes of futures personas to explore what different scenarios could mean for learners. These types of collaborations enabled us to expand our capability and experience with foresight tools.

Because the foresight work had an identity that was different from that of the foundation as a whole, we maintained a separate website and shared content on then-new social media platforms with #FutureEd. We started publishing new kinds of futures pieces with the goals of maximizing reach, deepening engagement, and reinforcing credibility, such as:

- Policy briefs
- Written and video personas illustrating potential future educator roles

- A toolkit for helping individuals and organizations design their own explorations of the future
- Short publications highlighting new models of learning
- A blog[3]

Early blog posts tended to emphasize how ongoing developments or signals of change related to the drivers of change we had identified. Audiences occupied with the daily business of running education systems or engaged in improving them needed evidence of how the changes described in our scenarios were beginning to play out.

Two years after the release of the 2020 Forecast, we published an update to freshen up its ideas without introducing new drivers of change. We had learned that our audiences needed time to internalize and make sense of the concepts, so we paced the delivery of our work to stay aligned with them. The update approach represented a significant departure. For the first time we took a stance on what we wanted for the future of learning. We called for a world of learning that was amplified, authentic, connected, customized, relevant, and resilient. Then we provided guidance on ways of taking action to bring to that vision to life. It felt bold to take a stance on where we wanted learning to go instead of being a neutral purveyor of possibilities. Doing so influenced our thinking about the organization's broader work, and led to an integration of the foresight blog with KnowledgeWorks' main blog under a new name: "World of Learning." Foresight was becoming an increasingly important component of the foundation's work.

Throughout this period, which spanned 2008 through 2011, our foresight practice and publications were growing and deepening, and the organization was developing more foresight capacity. We increasingly saw the value of foresight as a strategic tool that deepened our work with different audiences as we focused much more on its application. However, we still situated the work more in the context of organizational learning and development than in the context of foresight. We were well on our way past product and into process, and on our way to building a deeper understanding of foresight's value within our organization and with our audience.

Recombinant education: Radically personalized learning
The next leg of the journey began with a review of the impacts of our foresight work. We interviewed former partners and clients to make a case that went beyond easily measurable numbers such as the number of

publications distributed and cited, number of engagements conducted, and the like.

The resulting whitepaper described the ways in which our Futures Studies work had broadened our presence in the field of education while also deepening our impact. It found that the foresight work had built KnowledgeWorks' visibility and credibility, and help cement the organization as a national thought leader. The foresight work was challenging the educational status quo by reframing the conversation about the future. It strengthened and built relationships for other areas of our work. It also established a credible and coherent messaging platform for the foundation. The whitepaper concluded that moving ahead with foresight ensured KnowledgeWorks' position as "a key architect of the new education landscape."[4]

We contracted with a former IFTF futurist to lead our third major forecast project. Our staff was becoming more involved, but we lacked formal training—it had all been learning by doing and from partners, while weaving in other competencies in areas such as organizational learning and creative problem solving.

Recombinant Education: Regenerating the Learning Ecosystem was published in fall 2012. It highlighted the uncoupling of teaching and learning from traditional education institutions as a result of digital disintermediation and called for readers to be active agents of change in harnessing disruptive forces of change to create new approaches that could enable rich personalization for every learner throughout a lifetime. It also raised the possibility that the disruptions of the coming decade could perpetuate inequities, undermine education institutions' capacity to adapt, and fragment the education landscape enough that innovations would have limited impact.

A few days after that forecast launched, I became the *de facto* leader of the foresight work. It still represented only half of my overall work, but there were two other people supporting the foresight work as well. In my external engagements, I increasingly focused on helping people identify their preferred futures of learning and consider how they might move toward them. That sense of encouraging and building agency for creating the future is a key attraction of foresight for me. I came to see myself as an interpreter who bridged education and external environments, present and future, the possible and the preferred for clients.

In 2013 organizational changes and shifting priorities had cut into our futures work, but the interim CEO allowed me to focus on foresight full time, while at the same time laying off or reassigning the team's other members. He conveyed that he did not see the value of foresight personally, but that he would let the work continue for the next CEO to assess.

Ironically, this low point for the work turned out to be a coalescing moment for me. Freed to focus on foresight full time, I found that I had the headspace to go deeper with the work and to develop more as a futurist. I sought training, earning a Professional Certificate in Foresight from the University of Houston and completing IFTF's foresight practitioner training. I finally obtained more context about the field in which my practice had been partially situated for six years. Taking this time to develop my own studies and training helped prepare me for reestablishing foresight when the circumstances improved.

Though the initial excitement around KnowledgeWorks' foresight work had waned, a subset of colleagues had come to see the strategic value of looking ahead. The policy team, for example, used our *Recombinant Education* to inform a new platform focused on competency-based education. That platform eventually led KnowledgeWorks to reorient its support of schools. In addition, KnowledgeWorks' next CEO invited me to facilitate an internal engagement applying insights from that work to the question of organizational focus. The engagement led to the organization's current vision and mission focusing on personalized learning. Despite those successes, there were many times when limited capacity and my own proclivities caused me to emphasize external engagements, where the work continued to gain traction, over internal application. I still struggled to make the foresight work seem relevant to my colleagues and to articulate just how different the future might be from present-day innovations. I did not realize at the time that such resistance is a predictable response that futurists in many settings need to navigate.

About a year after KnowledgeWorks' foresight work had come to teeter on the brink of survival, I succeeded in creating a new foresight position. I was extremely fortunate to be able to hire a Director of Strategic Foresight, Jason Swanson, a graduate of the University of Houston Foresight Program. We began to rebuild from the ashes, bringing a fresh set of perspectives into our engagement work and publishing scenario-based explorations of specific topics that presented a range of

alternative futures.[5] In addition, we extended our use of immersive experiences through the creation of a website simulating possible future educator roles, and I wrote KnowledgeWorks' first piece focusing solely on taking action toward preferred futures.

This period of KnowledgeWorks' foresight work was marked by organizational skepticism and streamlining. But it also included strategic uses of foresight that laid the groundwork for the organization's current focus. Our futures work was re-growing, moving in a deeper and more informed direction as we built our internal capacity.

The era of Partners in Code: New methods, fresh approaches
With this new iteration of the work, KnowledgeWorks regularized our foresight publication cycle, committing to publishing a new ten-year forecast on the future of learning every three years. Doing that made planning and annual budget setting more predictable. As our communications function matured, we brought the design of our publications largely internal and became more intentional about how we publicized them. This increased professionalism helped extend reach and impact.

In fall 2015, KnowledgeWorks published its fourth forecast, *The Future of Learning: Education in the Era of Partners in Code*. That forecast described people's increasing interaction and interlinkage with digital tools, and warned that the next decade represented a critical window of choice regarding the ways in which we let our partnerships with the code powering our devices shape daily life, education, and the broader society. Among other implications, it highlighted coming challenges to the purpose of education, growing difficulties in making learning ecosystems equitable, the need for learners and their families to navigate increasingly complex learning landscapes, and the need for traditional institutions to have new supports in navigating rapid change.

While we originally intended for this forecast to take the form of previous ones, it gathered a form of its own, becoming a much more complex physical product as well as a more nuanced exploration of ideas. We benefited from having support in letting it become what it needed to be. We also had the leeway to try some new communications strategies. We branched into the creation of infographics that highlighted our storylines and moved to more visually oriented offerings. We also created a video trailer[6] before the forecast launched; hosted a student design

challenge after its release; and created an immersive experience with partners for a conference.

As part of this forecast cycle, KnowledgeWorks also published our first strategy guide on shaping the future of learning.[7] In creating it, we broadened our methodology, hosting three implications workshops exploring the opportunities and challenges facing K-12 education, postsecondary education, and community-based learning. Hosting our own workshops enabled us to incorporate the perspectives of a broad range of stakeholders and accelerated KnowledgeWorks' understanding of how to work with this forecast in other contexts.

We reinvigorated our fee-for-service client engagements in recognition that earning some revenue instead of relying entirely on KnowledgeWorks' investment would help us do more and keep pushing the edge of our practice. In addition, we started to attract funding for foresight publications and engagements, including a regional adaptation of the *Partners in Code* forecast, district engagements related to extending public will and support for student-centered learning, and regional strategy guides responding to a deep dive on the future of readiness that we had published.

That deep dive, *The Future of Learning: Redefining Readiness from the Inside Out*—one of four that KnowledgeWorks published during this forecast cycle—took on a stature of its own, striking a chord with education audiences and achieving considerable distribution numbers. This publication unpacked ways in which the rise of smart machines and the decline of full-time employment could have profound impacts on people's lives and livings, as well as on what society considers success and on what kinds of educational experiences might be valued and accessible. It urged readers to redefine readiness for further learning, work, and life in ways that would help individuals develop the foundational skills and practices needed to navigate the major societal changes on the horizon. In 2018, it earned a Most Significant Futures Award from the Association of Professional Futurists. For me, receiving that award with co-authors Jason Swanson and Andrea Saveri marked a gratifying recognition of the re-growth that we had been nurturing since 2013, when KnowledgeWorks' foresight program had barely survived.

During this phase, we started to notice a shift in the reception of our work: even though we had begun emphasizing the exponential nature of change and highlighting possible impacts of artificial intelligence and

machine learning, which understandably tended to seem off-putting to education stakeholders, our audiences showed deeper acceptance that the world was changing. We encountered less resistance to our emphasis on looking ahead and looking outside education and grappling with more serious future-oriented issues, as more people had started feeling the effects of change in their daily lives.

Internally, we continued to identify targeted opportunities to apply our foresight work to KnowledgeWorks' program areas, with colleagues on other teams incorporating aspects of some publications into their engagements with educators. Yet we struggled to develop a coherent focus and statement of impact that included foresight.

To help expand thinking about how the different areas of our work contributed to the organization's vision and mission, I led an effort to articulate a strategic framework for KnowledgeWorks. This framework borrowed from the Three Horizons Model to illustrate how our foresight, policy, and practice work impacted the field of education on different time horizons. The framework helped promote a more inclusive understanding of organizational impact along with a more nuanced view of how KnowledgeWorks' program areas complemented one another.

This phase of KnowledgeWorks' foresight work brought new methods and fresh approaches to our practice and greater integration with the rest of the organization. As part of that, University of Houston graduate Katie King joined the team as Director of Strategic Foresight Engagements.

Navigating the future of learning: Deepening and extending practice
In fall 2018, KnowledgeWorks published its fifth forecast, *Navigating the Future of Learning*. For the first time, we deliberately picked up on the big story of the previous forecast. We continued to explore the shape and possible impacts of the new era of partners in code that it had described. We also underscored the urgent need to identify frameworks for living, working, and learning focused on helping people thrive as more and more of our choices get automated, we alter our brains in intentional and unintentional ways, and our narratives and metrics of success become increasingly toxic to individual and social health.

Despite the continuity of the frame, our fifth forecast found yet another material form and another approach to conveying provocations for the future of learning. Having seen some success with the earlier strategy guide, we published another, convening stakeholders across education

sectors in mixed groups as our usage statistics had not supported the delineation among them.

Honing our practice remains a continuing dance. To achieve a better balance between our publishing and engagement activities—and to give each publication more time to breathe—we plan to produce only three deep dives into topics raised by *Navigating the Future of Learning*. In addition, we are aiming to expand our use of immersive experiences, along with different content formats and media, so as to make ideas from our publications more vivid and more broadly accessible. We are also aiming to attract higher-visibility media coverage and presentations; to create longer-term, more in-depth engagements with clients; and to help our partners build their foresight capacity.

Internally, under the leadership of KnowledgeWorks' current CEO, the timing proved right for the organization to use *Navigating the Future of Learning* as a key input into the articulation of an aspirational goal that will serve as a north star for the organization's work. Leading up to its launch, engagements with staff and with our board solidified earlier efforts to facilitate understanding of this forecast with colleagues. (While KnowledgeWorks now has a deep appreciation of the value of foresight, each publication requires internal strategies to maximize its utility.) When we describe the work of KnowledgeWorks, we say that we are "creating the future of learning, together." There were moments when we did not know whether foresight work had a place within the organization. Now, it is central to the organization's work.

In addition, we have started more extensively and deliberately embedding the use of our foresight publications and engagement techniques in convenings and projects led by other parts of the organization. There is now clear understanding of, and excitement about, the ability of foresight to motivate audiences and to provide a rationale for change. An example of this can be seen in the publication *State Policy Framework for Personalized Learning*, which adapts information from *Navigating the Future of Learning* for policymakers. KnowledgeWorks' next internal horizon is to foster more ongoing engagement with, and application of, Futures Studies, including the mindsets that it invites, beyond that moment of visioning.

Another recent area of growth involved reaching beyond the education domain through a partnership with Capita, an ideas lab focused on how social and cultural transformations affect young children, to

explore the futures of young children and their families. Together, the two organizations sought funding for the project, which required KnowledgeWorks to get better at helping funders understand the value of foresight. Working with an adjacent domain has stretched our thinking and promises to open another avenue for engaging stakeholders in improving social sector services and societal conditions. As with earlier publications, there remains an element of opportunism and creativity amid massive amounts of planning.

Whether through new assets, new forms of engagement, greater internal integration, or the exploration of new domains, KnowledgeWorks has reached a moment of deepening and extending its foresight practice while continuing to grow from the strong foundation that the team and the organization have rebuilt. Continuing internal and external promotion and application are necessary for maintaining and growing our audiences and our impact. While the volume of work has often made it easiest to respond to incoming requests, we will need to continue to seek out new opportunities and approaches to keep the work fresh and impactful.

Reflections on fourteen years of education foresight
KnowledgeWorks' foresight journey has represented continuing organizational learning, much of it public. While this work continues to bring KnowledgeWorks significant reputational advantage, its reception and scope have been heavily influenced by organizational leadership, moment, and culture. Parallel with that journey, my professional development journey has been one of moving from project to operational to strategic leadership while at the same time building competency in foresight.

For years now, KnowledgeWorks has generated a steady stream of rigorous foresight publications. The specific ways in which each work has added value have varied with audience and moment. When KnowledgeWorks first released the 2006 map, there was a sense of awakening to a new way of looking at education; now, more people in more kinds of education organizations seem attuned to attending to the demands of the future, making KnowledgeWorks' sustained and deep examination of the future of learning less distinct even as it also continues to push people's thinking and practice and has come to be relied on as a source of inspiration and awareness. Our commitment to helping education stakeholders anticipate and respond effectively to emerging issues that could affect learning, or which could impact the world that today's learners will inhabit, has remained constant. Our emphasis on the

importance of considering multiple possible futures as well as opportunities and challenges faced by different stakeholders and types of institutions has become more nuanced.

Our new and established audiences value having the intelligence presented by a forecast, deep dive, or strategy guide, even if they never work with us directly. Because we offer our foresight publications, and sometimes also our engagements, to the field as a philanthropic contribution, KnowledgeWorks rarely has occasion to work with a specific client in an extended way. Even though we have a steady stream of new readers and audience members, we continue to find ways to keep the work and people's experiences of it fresh while also getting more pointed about important issues such as equity and the risks that smart technologies present to privacy and individual liberty. As we integrate our foresight work more tightly alongside other areas of KnowledgeWorks' portfolio, we are seeking effective ways to deepen workshop participants' futures literacy and to build their capacity to use foresight in a sustained way, not just at the moment of initial visioning, which colleagues have come to accept as a first step in pursuing change in education.

In addition, we continue to hone our methods for understanding impact. That impact is perpetually hard to track and even harder to quantify; we may never hear about the ways in which our work has influenced an organization or individual, or we may not hear about that influence until years later. KnowledgeWorks has also started looking back at the future by writing retrospectives that explore how our triennial forecasts have played out.[8]

The world is much less material than it was when KnowledgeWorks published its first forecast. That shift has changed the dynamics around how readers access our publications. At the same time, now that we and others have had more time to settle into the effects of the digital revolution, the organization exhibits less of an impulse to leap toward newer media and formats simply because they are novel. In addition to becoming more informed, our foresight practice has also become more measured. We will continue to calibrate along these and many other dimensions.

There is still a sense of excitement among staff and external audiences when KnowledgeWorks releases a new ten-year forecast. These triennial releases represent moments to reach and to dream. Even so, it continues to take time for people in and beyond the organization to learn about and

relate to new material. At first, a new forecast feels alien because it is fresh and reaches farther than our last one. Then people start seeing how things that they are noticing connect with it, and the drivers of change start seeming more familiar; the future possibilities, more possible.

Persistence has been key to the journey. While other people steered the course before me, I sometimes feel as if I acted as an erosive force that consistently, and often quietly, wore away at resistance, lack of comprehension, and resource constraints—or re-diverted because of them. I have often felt like an insider-outsider, someone who occupies a fringe between today and tomorrow and between what we know to be true and what might be possible. Sometimes that has felt exciting; other times, deeply wearying. Walking that edge between the familiar and the unknown—and helping education stakeholders bridge them while seeing themselves as creators of the future: that balance has lain at the heart of KnowledgeWorks' foresight journey.

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Since joining KnowledgeWorks in 2006, Katherine has also led organizational development initiatives, contributed to national collaborations informed by the fields of systems thinking and organizational change, and managed programs to foster teaching and professional learning innovations and encourage collaborative knowledge management among educators. Katherine holds a BA in English from Ohio Wesleyan University, an MA in English from the University of Iowa, and an MBA from The Open University. She earned a Certificate in Foresight from the University of Houston, completed IFTF's foresight practitioner training, and is a member of the Association of Professional Futurists. She can be reached at PrinceK@knowledgeworks.org.

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CHAPTER 21: THE POLAK GAME

by Peter Hayward, Stuart Candy

Introduction

This article describes the origins and uses of a workshop and classroom activity called the Polak Game, or Where Do You Stand? It is an accessible and effective approach to introducing "images of the future" as a basic property of both cultures and individuals. Over some fifteen years of use to date, the game has provided a user-friendly structure for facilitating far-reaching conversations among foresight clients or students, and as such, it has proven useful for paving the way for more advanced tools and frameworks. The duration of the game is flexible, and partly dependent on group size, but typically runs around forty-five minutes. This text is in two parts, covering the experiences of the two authors.

Origin and orientation (Peter Hayward)

The Polak Game was a magical development arising from a surprising source: *The Image of the Future*, a famous text in the history of futures studies, written by the Dutch sociologist Frederik Lodewijk Polak.[1] The author, who was Jewish, survived the Holocaust hiding out in the German-occupied Netherlands. He went on to write this magnum opus about how various human cultures have shaped their own destinies through their collective images of the future.[2] The book's lineage is even more interesting when you discover that it was translated from Dutch by Elise Boulding, another giant of the futures field. It is a book of its time in which Polak takes a swing at some big post-WWII themes, including Christianity, Marxism, Utopia, and Culture, to name a few. It's a ripping read.

In such a far-reaching work, over 800 pages in the original two volumes, though less than half that in the abridged edition (an electronic copy is available on Michel Godet's website *La Prospective*: http://en.laprospective.fr/dyn/anglais/memoire/the-image-of-the-future.pdf). I became fascinated by a particular passage explaining the role played by optimism and pessimism in the power of the image of the future. I have reread this single paragraph many times:

> It will be helpful to make distinctions between optimism and pessimism along the lines of the concepts of Seinmüssen, "what

must be," and Seinsollen, "what ought to be." It would then be possible to speak of Seinoptimismus or Seinpessimismus, which we will refer to as essence-optimism or essence-pessimism, and Willensoptimismus or Willenspessismus, which we shall refer to as influence-optimism or influence-pessimism. The essence categories refer to an unchangeable course of events; the influence categories refer to the supposed or rejected possibility of human intervention. The first point of view sees history as a book that has already been written; the second sees history as a process that man can or cannot manipulate.[3]

I found that this explanation led me to imagine a 2x2 matrix, with the vertical axis describing essence-optimism and -pessimism, and influence-optimism and -pessimism plotted on the horizontal. And so in my mind's eye, I saw it as shown in Figure 1.
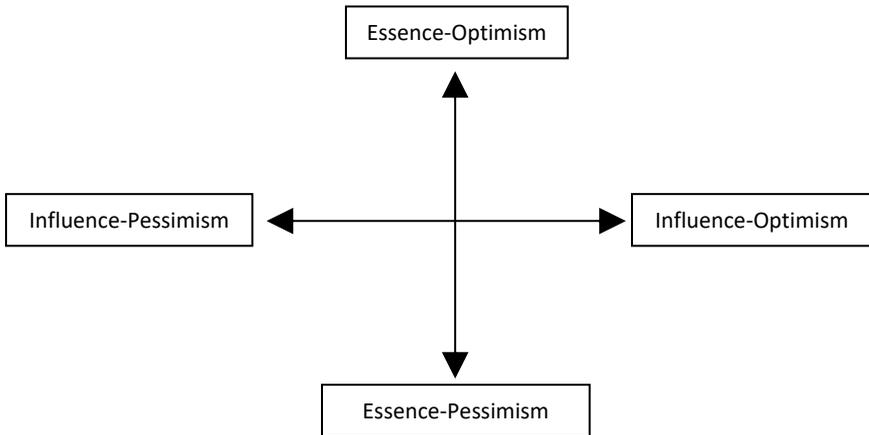
Fig. 1. Imagined Polak orientations

These factors, Polak seemed to claim, gave every image of the future its underlying logic, moral basis, and power to attract people and create culture. This basic grasp of the theory gave the game its start. It seems fitting that the first time I really began to use Polak's idea was in response to someone else who I thought was missing the point. Dennis Morgan published an article on *The Image of the Future*, finding that it lacked for him the essential notion of human progress.[4] My rejoinder to Dennis was that the notion of progress was wholly dependent on where you stood in relation to these dimensions of essence and influence.[5] On reflection, it was this simple metaphor—"it all depends on where you are standing"— that became the enduring motif of the game itself.

The first time I ran the Polak Game was in the classroom with Joseph Voros at Swinburne University around 2004. We were teaching the concept of "the image of the future" and invoking Jim Dator's statement of its importance to the futures field:

> Futures studies does not—or should not—pretend to predict "the future." It *studies ideas about the future*—what I usually call **"images of the future"**—which each individual (and group) has (often holding several conflicting images at one time). These images often serve as the basis for actions in the present.[6]

It was of course Polak who had introduced the concept of images of the future referred to in Dator's remark. At that moment, however, instead of trying to explain Polak, I said "Let's *do* Polak." I asked everyone to stand up and gather in the middle of the classroom. I then stood at one end of the room, and Joe stood at the other. I explained that the two of us marked the extreme perspectives as to whether change in the world was working its way towards optimistic futures (my "north") or pessimistic futures (Joe's "south"). People were asked to arrange themselves somewhere on that spectrum to express their expectations for the future relative to the endpoints. The first question from the class was "What context do I use?" I think I responded, "How you experience the world, so you set the context." This may not have been great direction, but it did illustrate a key point in using the game: the context of participants is crucial, and you need to establish its importance early on.

The whole class was now distributed along a north–south (or upper–lower) line: the expectation axis (the vertical in Figure 1). Joe and I moved to the sides of the room, and I instructed everyone else not to move. Now the two of us were marking out the ends of the influence axis (horizontal in Figure 1). Again we explained the perspectives corresponding to the two ends: that people have influence (right), or that people don't (left). The participants were told to retain their present upper–lower positioning and to move sideways to indicate their own degree of optimism or pessimism on the influence axis, and then stop.

Having moved the second time, everyone was now standing in one of the four quadrants I had visualised. We went on to explore the nature, logic, moral basis, culture, etc. of each quadrant. Each had its own distinct ontological and ethical foundations.

As the game developed after that, I would either show this basic set of perspectives in a PowerPoint slide, or draw out the relevant characteristics through discussion during the game. Figure 2 shows an attempt to capture a sense of the quadrants, employing what I would describe as a naïve framing.

Upper Left: Things are good and getting better;

We can't do anything about it, but why worry? Things are OK!

Upper Right: Things are good and getting better;

AND we can act to make things even better.

Lower Left: Things are getting worse;

the world is going to hell;

There is nothing we can do about it!

Lower Right: Things are getting worse;

the world is going to hell;

BUT we can act to change things for the better, and avert disaster.

Fig. 2. Generic responses within the quadrants

The framing shown in Figure 2 will get participants to stand somewhere and have interesting conversation, but I came to feel that it was also a bit limiting, as people tended to congregate on the influence-optimism (right) side only. I soon began to modify how I would ask people to orientate themselves. The vertical axis was still essence-optimism and -pessimism, but I would explain it this way:

> I will ask you to orientate yourself according to how you experience the world; how you understand the way that it has been and is. At one end of the room [the upper half], our sense from experience in the world is this: while things go wrong from time to time, the overall trend is that things are getting better. At the other end [the lower half], while things go okay from time to time, the overall trend is that it's more of a struggle, and things are not getting better.

I made this textual change because I did not find a binary utopia/dystopia framing that helpful. A more realistic and complex

spectrum seemed more useful for participants than a simple good-world/bad-world dichotomy. The influence variable was tricky as people would commonly see the optimistic right half of the matrix as "strong," and the pessimistic left side as weak or passive. Again, I did not consider such simple dichotomies very useful for groups to play with, so here is how I ended up explaining that axis.

> Now we are orientating ourselves according to what caused our experience and sense of the world. On the influence-optimism [right] side, the driving cause was the actions of people. While there are big processes and forces that have shaped the world, by far the biggest cause is people. On the influence-pessimism [left] side, while people are influential, it is the larger forces—physical, political, cultural, and spiritual, to mention a few—that have caused the world to be the way you have experienced it.

Using a script along these lines, we would see a more even spread of people around the matrix, and the slightly different sense of the four quadrants could be described as in Figure 3.

Upper Left: Things are good and getting better; We have to work with the larger forces and play our part.	**Upper Right:** Things are good and getting better; And we can act to make things even better.
Lower Left: Things are getting worse; There is nothing I can do about it. I cannot make things worse so I am free of the responsibility of trying to do that.	**Lower Right:** Things are getting worse generally; But I can act to make a difference here and now, in this place. It may not change the future but it is still worthwhile.

Fig. 3. Modified responses within the quadrants

With participants distributed more evenly around the matrix, the facilitator can draw out a richer discussion both of where people are, and of what they see or feel when thinking about those in the other quadrants.

The attributions and conversations *across* quadrants are probably among the most useful aspects of the game.

When you ask players to describe what energises their own image of the future, you tend to get the following self-descriptions within quadrants:

- Upper Right (UR): Powerful, or Agentic
- Upper Left (UL): Service-oriented
- Lower Right (LR): Realistic, or Stoic
- Lower Left (LL): Free, or Que Sera Sera

When asking players how they would describe the other quadrants, you get something like this:

Table 1. How the other quadrants are viewed from each quadrant

In-quadrant view	View from UR	View from UL	View from LR	View from LL
UR - Powerful	X	Deluded	Unrealistic	Oppressors
UL – Service-oriented	Passive	X	Idealists	Lucky
LR – Stoic	Battlers	Martyrs	X	Lost Cause
LL – Free	Losers	Victims	Lazy	X

The UR may, for instance, think of themselves as powerful change agents, but then hear from others (moving clockwise) that the LR regard them as being unrealistic or just privileged; the LL describe them as deluded or hubristic, and the UL see them as the ones who create the world that the LL live in. You can then move people into different quadrants to "see how things look from where others stand."

When deployed in an organisation the dynamics of the game can get very interesting. Once I worked with an executive group who all huddled in the UR, almost competing to be furthest into that optimistic-influential quadrant. As if channelling the UL's critique, I asked: "How do you know you are not deluded?" When a group of decision-makers cluster in the UR, you can ask, "Where are your staff standing?" "Where are your customers?" The realisation may start to dawn that others are not necessarily energized by the same image of the future.

On another occasion, I ran the game with an executive group where, again, most were in the UR. Later on, however, while developing their

strategic plan, I heard them listing all the things that they "could not do" until someone else acted first. I asked, "So why were you standing in the UR earlier?" The group quickly dropped the "We need others to act first" comment and got on with planning the actions they could take.

It is when I have used it with groups trying to create a vision of a shared future that I think the power of the Polak Game has become most apparent. Humans construct narratives from their own experience and sense of the world. You could say that we stand on our individual ontology. What the game can reveal to players is that we each need to meet others where they are, and listen to their ontologies, before we have any chance of creating a shared one. During the game, it often becomes obvious who in a group feels that they have power and opportunity, and who does not; who has been treated fairly in the past, and who has not. By bringing these hidden dimensions to light, those with power may feel humbled by their privilege, and those with disadvantage can feel acknowledged and heard. And from there, an enduring sense of what "our" future could be starts to emerge.

Exploration and evolution (Stuart Candy)
Peter and I met for the first time at the World Future Society Conference in Chicago in 2005. Early the next year he managed to visit the "Manoa School" for a few short days, where Jake Dunagan and I were graduate students at the time; a group of us spent a highly memorable afternoon during which Peter facilitated and we hosted at the Hawaii Research Center for Futures Studies. As I have consistently found to be the case with Peter, even this all-too-brief interaction left a lasting impression.

Somehow it did not register with me at the time that this activity he had introduced to us as the Polak Game was such a recent invention; it already had the hallmarks of a classic, tried-and-tested pedagogy. It had a robust rationale, and an intriguing backstory in Polak's own life experience, and it offered a striking way to call forth participants' assumptions to be examined by themselves and others. This key aspect of futures work—uncovering hidden assumptions—is not always simple to pull off. Yet this game was easy to play, and endlessly generative.

In our very first conversation in Chicago, I recall Peter describing his notion that a thorough understanding of a subject, coupled with a willingness to experiment, could yield an endless stream of innovations in pedagogy and practice—an "infinite toolkit." Sometimes, in the course of experimentation, you hit on a key pattern that crystallises into a tool worth

keeping, revisiting, and iterating. Such was the case with his invention of the Polak Game.

Flashing forward to a 2016 retreat held in Silicon Valley to explore futures and imagination, the Institute for the Future's Jane McGonigal (herself a renowned game designer) led our assembled group through an activity called "the Future Orientation Game." Although neither Polak nor Hayward were mentioned at first, the family resemblance was unmistakeable. The game had made its way to IFTF via Dunagan, who had worked there for many years after leaving Hawaii. I was glad to be able to add something about its origins and underlying thinking.[7]

Now, any useful and thought-provoking futures activity deserves to spread, and this second- or third-generation descendant reminds us of an important fact about how futures practice and tools are actually disseminated—evolving from hand to hand, like any folk knowledge or craft. We might recognise that the evolution of our tools and tricks of the trade—these foresight craft genealogies—often escape not only documentation, but even our explicit notice.

In this context then I want to share a few lessons I've gleaned as an avid facilitator of the Polak Game during its first decade and a half, as a resource for those who may wish to build on it during the next phase. Until we wrote this article together, I was not aware of changes to the game that Peter had made later, so the game I've developed over the years, both in its intellectual framing and in its more theatrical aspects, is probably more a cousin of the original than a clone.

A few months after his visit in 2006, I contacted Peter to ask permission to use the game with a group from the East-West Center's Asia-Pacific Leadership Program, in a session that I would be running at the end of the year in Sapa, Vietnam. In that event, out of thirty or forty participants from perhaps two dozen countries across Asia and the Pacific, all but one stood in the influence-optimism square of the matrix. Unusually diverse in terms of disciplinary and cultural background, an invisible dimension of the cohort was suddenly apparent; one on which they turned out not to vary so much. These aspiring leaders had a distinct, robust sense of personal influence.

This first deployment highlighted one of the key learning opportunities that the game presents: a playful but meaningful way to talk about "who is in the room" and who is not. Leaders (and as a design

professor, I would add designers) of various kinds are often well-represented in the UR quadrant (essence-optimism and influence-optimism). Rarely is a group of players statistically representative of attitudes to the future found in a random sample outside, there being a level of privilege built into educational and organisational contexts, which we can recognise and use to underline the critical value of considering other perspectives. Indeed, depending on group size, one or other of the influence-pessimism quadrants sometimes stays empty.

In the end, whatever their configuration, people are challenged and encouraged to explore and empathise with each other's views, and especially with marginal or absent perspectives on possible futures: how do, and how should, each of us relate to our peers or constituents who happen not to have the same attitudes to change and agency? These moves exercise the perspective-taking muscles that foresight practice asks us to develop. The lesson that contrasting ways of thinking about futures may be present in a society or organization, but that these are not necessarily all represented at the top table where the loudest voices are heard and the biggest decisions taken, is important for those with positional authority to grasp.

The Asia-Pacific group in Vietnam was the first of dozens of deployments I have facilitated in a range of contexts.[8] Generally, as in the first run of the game in Hawaii, I ask players to start by standing in a line, all in a single row, facing me. I open with something like this:

> I have a question for you, and I will ask you to answer by moving. The question is about your expectations for the future. When you cast your imagination one generation forward, say 20 years from today, do you expect the world to be better than the one we live in—better as defined by you—or do you imagine it as being worse? If you feel optimistic in your expectations for how the world will look in 2040 [as of 2020], then when I say "go," you should step forward, and the stronger that feeling is, the further forward you should step. If on the other hand, you feel pessimistic or doubtful in your expectations about the state of the world in 2040, then when I say "go," step backward; and again, the more strongly you feel that way the further you should move. There is a subjective judgment at play here, which is fine—that's what we want. Go! Move as far forward or as far back as you like.

In this approach, the vertical axis is described in terms of "expectation" rather than "essence" optimism and pessimism; a semantic shift that might help players acknowledge their particular perspectives as being just that, as opposed to coming from some future "essence" entirely outside themselves.

Having stepped forward or back from the starting line, however clustered or spread out they are, I double check that folks are comfortable that where they stand reflects their answer. This is of course a far cry from the kind of tidy, replicable responses prized by many social scientists, and there is a significant element of tacit social positioning and interpersonal negotiation at play in any given Polak Game. Some individuals for example take it upon themselves to push to the edges of their group, while others may hold back. However, this is all grist to the mill, because the process itself is in large part about the complex interplay between individual and emergent group/cultural perspectives.

Next, having them take care not to move forward or back, but to step sideways and, still facing forward, gather along the imaginary vertical/upper-lower axis through the centre of the space, I might say the following:

> Now I have another question for you, and it is about your agency—your personal capacity to influence change at the global level over the next 20 years, in directions you personally consider to be positive. If you feel that you do have agency and can shape the world, then when I say "go" please step to the right, and the more strongly you feel that way, the further you are invited to move. If on the other hand, you have your doubts, if you are skeptical or pessimistic about your capacity to shape things on that scale, over that time period, then when I say "go" move to the left, commensurate with your level of doubt. Go!

These specific parameters—the whole world, one generation from now, your own personal capacity to affect global level change—represent shared reference points, variables we hold in place so that the conversation can then push off and pivot around these in considering the multiple other issues in play. In this approach, as Peter noted, we are aiming to avoid a simplistic good world/bad world dichotomy, using instead a more dimensional better/worse (than today) spectrum and associated confidence levels to surface a range of responses. More open-ended language in the prompt is certainly possible (e.g., leaving out a time

horizon, or leaving out a scope of influence), but the ensuing conversation could take a lot of time unearthing predictable differences of interpretation of a vaguer prompt ("oh, I was thinking about a decade from now, whereas she was thinking more like a century"). Being specific helps factor certain differences out, and focus instead on some of the many other issues at play behind people's responses, such as the different kinds of evidence that players attend to, or ignore, when explaining their expectations.

The personalities, experiences, and imaginations of those assembled are the always interesting and potentially revealing raw materials of the Polak Game. It presents a wealth of opportunities to surface and sift countless factors that might lie beneath people's varying responses on that day and in that moment: cultural, disciplinary, developmental, dispositional, contextual, and so on. I may invite players to move in case they find their view has changed; they rarely take you up on it, but the fact that people's current positions are fluid, and partly arbitrary, is good to acknowledge. I've run the game indoors and outdoors, in gardens and courtyards, hotels, classrooms, boardrooms, and hallways. If lacking access to a suitable space for bodily staging the conversation (which usually lasts around forty-five minutes), on a few occasions we have resorted to people writing their names on index cards and moving those around on a tabletop. This can work well too.

While not, strictly speaking, a game of experiential futures ("the design of situations and stuff from the future to catalyse insight and change"[9]), it is certainly an experiential game about futures. What is remarkably effective about the game is that, not unlike the Sarkar Game,[10] it beds down a new vocabulary, or dimension of awareness, through embodiment. It makes immediate and memorable some useful abstract and analytical categories that can be referenced and built upon in later futures work, both inwardly (as in our invitation to players to keep paying attention to these factors) and outwardly (as in Peter's example of the buck-passing execs from the Upper-Right quadrant). The game works well with classes or professional groups brand new to foresight. As a way to structure introductory conversation it can be highly effective: you can incorporate learning people's names, departments, and the like just as readily into the game as any standalone icebreaker or introductory circle, and it often goes a lot deeper than those. At the end of a futures course or program, days, months, or even years later, people regularly remark on how this first conversation stayed with them.

Sometimes, quite moving personal stories arise in answer to the simple question posed of people in each quadrant, "Why do you stand where you are?" I always thank participants for generously sharing of themselves in this way. I also like to encourage direct dialogue between players. ("Peter, what do you think you're seeing that Stuart might be missing? Tell him.") In a successful game, the facilitator finds ways to move out of the conversational spotlight as the group gathers its own momentum, and members assume more responsibility for negotiating understandings across multiple dimensions of difference.

On the whole, I don't see major differences between workplace and educational deployments. Whatever the occasion convening a group, discussion usually gravitates to the themes that matter most to them. Where a shared mission unifies participants, as in a recent session at Red Cross / Red Crescent headquarters, they may join the dots spontaneously between insights from the game and their organisational functions. If they don't, you can invite them to. One practical difference between contexts may show up in the takeaways that bear emphasis as the game concludes (although these distinctions are not hard and fast). For groups from a single organisation, considerations of inclusivity and personal responsibility may have a sharper operational upshot; for example, "How can you bring in, honour, and learn from the perspectives of those not in the room?" For disparate participants in the classroom, the closing moments may turn to broader philosophical questions: "What images of the future do you personally carry? Where do they come from? How do they fit, or not, into wider cultural patterns?" You might add: "Whose interests do they appear to advance, and whose do they marginalise? What might these themes, and the variety of such images, or lack thereof, portend for the culture?"

As part of a feature documentary film shoot engaging the South Sudanese community in Australia, we ran the game twice, back-to-back. The first time, my questions used the standard parameters concerning participants' expectations and influence around global-scale change over the next generation. The second time, however, we focused on the future of South Sudan, which at that moment was highly uncertain. Several participants stood in completely different places from one round to the next, and both similarities and contrasts between iterations were instructive: having heard about and seen each other's dispositions at the world level gave people a deeper context for their own and others' views—optimistic, pessimistic, or mixed—at the scale of their country of birth.

The parameters of the game may be adjusted for valuable conversation in all sorts of settings. For example, a generation before Polak identified the dimensions of "essence" and "influence," physicist J.D. Bernal observed, "There are two futures, the future of desire and the future of fate, and man's reason has never learnt to separate them."[11] Bernal's framing suggests an alternative "Where do you stand?" matrix, exploring participants' attitudes to a certain scenario. At its heart, however, the Polak Game introduces the central concept of images of the future and invites players to put up antennae; to pay closer attention to the ideas and sentiments circulating in their personal, organisational, and cultural imaginaries. Everyone tends to have a view on these questions even if they may not have thought much about them before.

In theoretical terms, of course, tuning in to these often unsuspected but ever-present interior (individual and collective) dimensions of futures discourse is among the core suggestions of integral futures.[12] However, the reasons to do so are equally practical, and in playing the Polak Game, those new to the field quickly grasp why this is a literacy with extensive ethical and practical implications. Cultivating awareness of the landscape of images of the future goes directly to the cultural, political, and interpersonal challenges of implementing change in multiple settings. In this sense, the game can be a very effective gateway to more technical tools and frameworks. (Incidentally, it also provides a foundational or baseline conversation to refer back to, as people reflect on their own learning and shifts of perspective while developing futures literacy.) For practitioners, it is not a replacement for but a handy prelude and companion to more focused, pragmatic tasks.

Although foresight is currently a luxury for many in the world, normatively we could consider it a right.[13] I believe, with Robert Jungk— another important figure in European futures, a contemporary of Polak, and like him, a Jewish Holocaust survivor—that "The future belongs to everybody."[14] For those who share an impulse to democratise foresight, wherever they may be operating, having ways for "everybody" to contribute matters. The fundamental question, "Where do you stand?" in relation to futures, as inspired by Fred Polak and crystallised by Peter Hayward, is one we should all consider. To approach it playfully, with good humour, curiosity, and compassion, is a great way to start.

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[8] Others include: futures students from Singapore to Mexico (often with Dunagan as co-instructor); leaders of the United Nations Development Programme in New York; the International Federation of Red Cross and Red Crescent Societies in Geneva; mental health experts at Yale University; the Board of Directors of the Sydney Opera House; designers in the Netherlands, Russia, and Brazil; high school kids in North Carolina; biomedical engineers in Toronto, and members of the South Sudanese community in Melbourne.

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CHAPTER 22: FORESIGHT MATURITY MODEL (FMM): ACHIEVING BEST PRACTICES IN THE FORESIGHT FIELD

by Terry Grim

Introduction

Measurement is a foundational component of scientific enquiry, providing an objective framework or structure for contributing to the body of human knowledge. Without this framework, there would be no way to objectively describe the world around us, let alone to compare and monitor change within it. Some things are relatively easy to measure, like ingredients for recipes, the physical dimensions of a person, or the temperature of a room; while other things, such as a ball player's skill or a beautiful sunset, seem to defy measurement. So measuring complex and intangible items is quite a challenge, and measuring the right aspects of those items is especially critical.

Currently we have no generally accepted measurement system in the practice of foresight. Practitioners will tell you that it is difficult to evaluate futures work because the results are too far out in the future, that there are variables that cannot be controlled, and that often the result of good futures work is to avoid an undesirable outcome—a "non-event" that often goes unnoticed. Avoiding the issue of measurement, however, leaves us unable to answer key questions about futures work. What does good futures work look like? How to excel at futures work? What is the level of the current practice so that it can be compared to other enterprises, so changes can be demonstrated over time? A good measurement system also adds credibility to a field. It defines, assesses, and recognizes best practices. It also provides guidance to those purchasing professional services. So the foresight community needs a system to define and regularly evaluate its practice in order to move forward as a respected profession.

Focus on practices not outcomes

High-performance software, like that used throughout the US space program, relies on a method to assess practices rather than outcomes—a way of assessing effort without having to wait ten to twenty years to

determine if the approach was effective. The Capability Maturity Model (CMM and now called CMMI) was developed in 1986 by the US Department of Defense in collaboration with Carnegie Mellon University. The premise was that using practices that have been determined to be "best practices" in the field will result in a higher probability of a more successful project. Over time, the maturity model approach has become well respected and widely adopted. In fact, Lee Copeland describes 34 different uses of the maturity model.[1]

The Capability Maturity Model is part of a class of models known as developmental models. As with Spiral Dynamics or other organic models, the premise for the model is that change and improvement need to "grow" or mature. The goal of the model is to guide process improvement through various stages or levels.

The Foresight Maturity Model framework (FMM)
The Foresight Maturity Model uses the same constructs that are used in many of the other maturity models, such as the CMMI model for software development. The elements of that framework are disciplines, practices, maturity levels, and maturity indicators as described below. Assessment values range from 1 to 5. The underlying philosophy behind calculating assessment values is understanding that the overall success of an organization or project is limited by the weakest point. So, the numerical assessment associated with any discipline within a field is the lowest assessment value associated with any of the practices, and the overall value for the assessment is the lowest assessment value of any of the disciplines. It is also important to recognize that the optimum price-point of an assessment is 3. Although many people automatically want to achieve a 4 or a 5, it is often not required and can be very expensive.

Disciplines
Disciplines are the independent sets of activity that a practitioner would recognize and use, basically the taxonomy of the major activities in a field. The Foresight Maturity Model uses the following six disciplines to define best practices for the foresight field:

1. *Leadership.* Helping organizations to translate foresight into action… on an ongoing basis.
2. *Framing.* Helping the organization identify and solve the right problems.

3. *Scanning.* Helping organizations to understand what's going on in its immediate environment and in the world at large.
4. *Forecasting.* Helping organizations consider a range of future possibilities.
5. *Visioning.* Helping organizations decide what they want in the future.
6. *Planning.* Helping people develop plans, people, skills, and processes that support the organization's vision.

These disciplines are based on the framework outlined in *Thinking about the Future,* co-edited by futurists Andy Hines and Peter Bishop.[2] The book synthesizes contributions of leading futurists and describes their best practices. It identifies six practices areas that define the field: 1. Framing; 2. Scanning; 3. Forecasting; 4. Visioning; 5. Planning; and 6. Acting. For the FMM, Acting was expanded to Leadership as the sixth discipline.

Practices

Practices are the actionable and specific activities of a discipline. Practices define what needs to be done in order to execute a discipline. A good practice is "what" needs to be done—not "how" it is to be done, since methodologies for implementing a practice can vary based on topic and environment.

In the FMM, three to five practices are defined for each of the disciplines. The practices are derived from research, input, feedback, and review by members of the Association of Professional Futurists.

Maturity Levels

Maturity levels or stages are the different levels at which the practice is executed. The basic maturity model contains five (5) maturity levels:

*   *Ad hoc (level 1).* The organization is not or only marginally aware of processes and most work is done without plans or expertise. This is the initial state for any practice.
*   *Aware (level 2).* The organization is aware that there are best practices in the field and is learning from external input and past experiences.
*   *Capable (level 3).* The organization has reached a level where it has a consistent approach for a practice and uses it across the

organization, which delivers an acceptable level of performance and return on investment.

- *Mature (level 4).* The organization has invested additional resources to develop expertise and advanced processes for a practice.
- *World-class (level 5).* The organization is considered a leader in this area, often including the creation and dissemination of new methods.

These levels are developmental and cumulative. In other words, organizations can only achieve higher levels after mastering and passing through the lower levels. As with any developmental process, there is no shortcut. If an organization is performing at an *Ad hoc* level, it needs to mature with experience and guidance through the *Aware* level towards the *Capable* level.

Figure 1 contains recommendations for how to move from one level to the next. For example, one of the best ways to move from *Ad hoc* to *Aware* is through education or lessons learned.
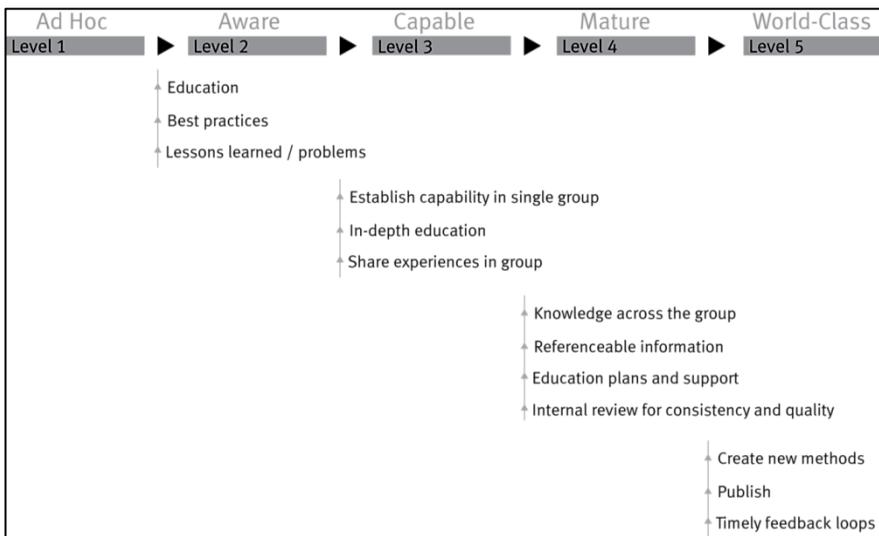
Fig. 1. Ways to move from one level to the next

Maturity indicators

Maturity indicators are the observable indicators that measure at what maturity level a practice is being executed. These are "snapshots" of the practice at that level and not intended to be fully comprehensive. Maturity indicators are the intersection of the maturity level with the discipline/ practice. It gives a brief description of what that practice looks like when performed at that level of maturity.

Figure 2 illustrates this terminology on an example of an FMM Matrix.
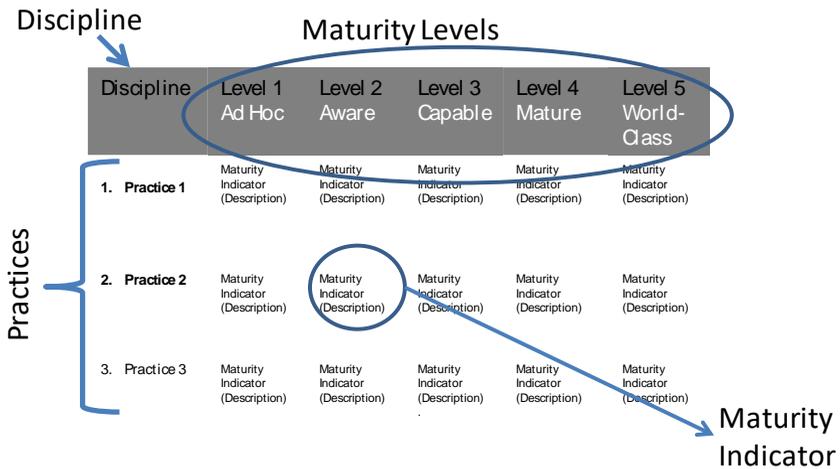
Fig. 2 FMM terms illustrated

Using the FMM

There are many uses for maturity models. At the most basic level it is a compilation of best practices aggregated into disciplines for a field. So it is a quick reference and a language for the field. At the next level, it contains snapshots of what a practice looks like as it matures from the "winging it" to "leading the industry," thereby providing an outline of how an organization can effectively build strength and become more effective. And finally, it provides a *numerical* assessment of the maturity of the practices. This number can be used for a variety of purposes: providing an initial assessment, or baseline, for an organization to monitor improvements, helping to build a plan, and determining resource allocation.

For each discipline and for each practice within the discipline, an organization needs to assess how important that practice is to the success

of the organization and how much investment should be made. The matrices are designed so that the *capable* level is usually the optimum price/performance point. Below that, *ad hoc* or *aware* level performance does not achieve what is needed for that practice and can be viewed as an opportunity cost. Above a level 3, *mature* and *world-class* levels require investments and should be considered only if they are critical to the organization's success.

Figure 3 illustrates how an organization can show the process plan improvements.

Example of Organizational Scorecard	Level 1 Ad Hoc	Level 2 Aware	Level 3 Capable	Level 4 Mature	Level 5 World Class
Leadership		Today		Goal	
Framing	Today		Goal		
Scanning		Today	Goal		
Forecasting	Today			Goal	
Visioning		Today	Goal		
Planning			Today		Goal
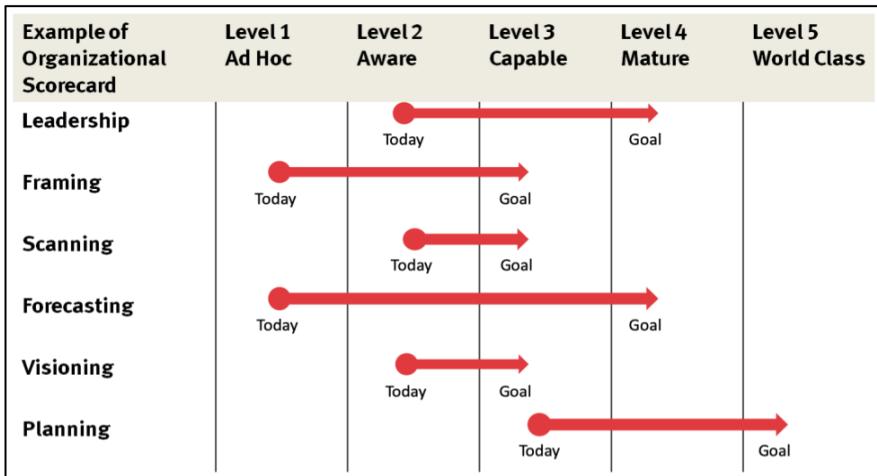
Fig. 3. Assessing where you are and what you want to achieve

The way to calculate an organization's numerical score is to assess each practice within a discipline. The level of the lowest level practice is the assessment level for the whole discipline. (It is not the average of the practices.) Thus, a discipline is only as good as its weakest practice.

An example
Probably the best way to understand the model is to work with an example. Since scanning is something most futurists quickly identify with, this is the discipline we will use for illustration.

Discipline: The scanning discipline is defined as follows: Collection of appropriate and relevant information in a format and timeframe that supports useful retrieval.

Practices: There are five practices for scanning:

1. Map the domain of the system into a framework of areas to explore.
2. Collect pertinent information from a range of diverse and credible sources.
3. Identify outliers or "outside the system" signals of change that provide insight into possible emerging changes that could impact the system.
4. Integrate external and internal information into a common framework and language.
5. Create a useful and accessible information repository.

Maturity levels: The same as with any other CMM—Ad hoc, Aware, Capable, Mature, World-Class.

Maturity indicators: Figure 4 shows the maturity indicators for each maturity level within the five practices of scanning.

Scanning	Level 1 Ad Hoc	Level 2 Aware	Level 3 Capable	Level 4 Mature	Level 5 World-Class
1. Map the domain of the system into a framework of areas to explore.	The map is created from those areas directly and explicitly connected to the area of interest.	In addition to the directly connected areas, the map is augmented with other areas "called-out" by the information collected.	A recognized framework (such as STEEP) is used to create a complete map, supporting evaluation of many different facets of the system.	Organizational processes exist to define and build a comprehensive map, exploring domains such as second-order impacts.	An anticipatory map adjusts dynamically to changes to provide insightful observations from underlying streams.
2. Continue to collect pertinent information from a range of diffuse and credible sources.	Information is from easily accessible resources commonly used by the project, collected as needed.	Information is collected from traditional resources as well as some from novel sources. Effort is made, when time allows, to do general scanning.	Information is collected routinely from varied sources ranging from the traditional to alternative. Analysts consider information from other domains that could provide insight.	A systematic process collects information from a wide range of resources and media formats on a consistent cycle providing for a comprehensive view of the topic.	Sophisticated methodology and tools provide timely and continuous collection of information, allowing for visibility on many dimensions with unique views of the topic.
3. Identify outliers or "outside-the-system" signals of change that provide insight to possible changes which can impact the system.	The primary source for any signals of change come from the media, as they document and discuss potential changes.	High-impact and low-probability events are considered in addition to media spotlights when looking for potential surprises.	There is a process in place to continually review and evaluate trendy or novel occurrences happening in the fringes of society.	Best practices such as ethnographic journeys or wild cards are part of the organization's culture to consistently identify outliers.	Organization has created unique practices in the industry to highlight potential changes including those not related directly to topic.
4. Integrate external and internal information into a common framework and language.	Scanned information points are taken as is, with minimal effort to understand and integrate them.	Linkages are informally made and generally within a category, providing a variable view of information.	Connections are made between different categories providing a comprehensive and cohesive view of scanned information.	Universal models provide a powerful world-view framework for deep understanding and an integrative picture of the information collected.	New, innovative, and dynamic models created by the organization bring context and insight to diffuse and wide-ranging data points.
5. Create a useful and accessible information repository.	Scanned data is stored in an unstructured and ad hoc manner. Retrieval is generally by the person who collected the information.	An informal process is in place to collect, tag, and store information. Information can be retrieved but may take some time.	Information is tagged and stored in an organization-wide repository providing easy access to retrieve information of interest.	A high-tech repository with an intuitive structure helps facilitate insight and organize thoughts as information is retrieved.	Organization provides leadership in state-of-the-art content storage and retrieval, pushing out information in anticipation of need.

Fig. 4. Scanning maturity matrix

To complete the exercise, the assessment would match each indicator to how the organization does its scanning. This is something that needs to be actually done, not a goal or an "almost." In this example assessment:

- Practice 1, Map the domain, was assessed at a 2 or Aware level. The domain map is created by obvious areas explicit to the topic

with a few other areas indicated by research. There is no formal framework such as STEEP to make sure that the domain map is comprehensive.

- Practice 4, Integrate external and internal information, was assessed at a 4 or Mature level. Models used by the organization provide a worldview framework that helps make the information understandable and integrates what is known internally with external scanning.
- Practices 2, 3, and 5 are assessed at a 3 or Capable level.

Assessment is best done by a group that is involved with the foresight work. Not only does this provide a more accurate assessment, but it serves to start communication and clarification around the practice. The assessment in this example can be seen in Figure 5.

The result in this example is that the organization's scanning discipline overall is at a 2 level. It is not the average, or 3 level. This makes sense because no matter how well you integrate and collect information, if you haven't identified the proper and comprehensive domain, it won't yield good scanning results.

This also highlights that when you fix a single weak area (level 1 or 2), you move the whole discipline up to a Capable level. (Note: In contrast to this example, you generally don't find that one practice is a 2 and another is a 4 within the same discipline.)

Scanning	Level 1 Ad Hoc	Level 2 Aware	Level 3 Capable	Level 4 Mature	Level 5 World-Class
(1) Map the domain of the project request into a framework of areas to explore.	The domain map is created from those areas directly and explicitly connected to the area of interest.	In addition to the directly connected areas, the domain map is augmented with other areas "called-out" by the information collected.	A recognized framework (e.g., STEEP) is used to create a complete domain map, supporting evaluation of many different facets of the system.	Organizational processes exist to define and build a comprehensive domain map, exploring domains such as second-order impacts.	An anticipatory domain map adjusts dynamically to changes to provide insightful observations from underlying streams.

(2) Collect pertinent information from a range of diffuse and credible sources.	Information is gathered from easily accessible resources commonly used by the project, and collected only as needed.	Information is collected from traditional resources as well as some novel sources. Effort is made, when time allows, to do general scanning.	Information is collected routinely from varied sources ranging from the traditional to alternative. Analysts consider information from other domains that could provide insight.	A systematic process collects information from a wide range of resources and media formats on a consistent cycle providing for a comprehensive view of the topic.	Sophisticated methodology and tools provide timely and continuous collection of information, allowing for visibility on many dimensions with unique views of topic.
(3) Identify outliers or "outside-the-system" indicators that signal impending changes that could impact the system.	The media are the primary source for any signals of change.	High-impact and low-probability events are considered in addition to media spotlights when looking for potential surprises.	There is a process in place to continually review and evaluate trendy or novel occurrences happening in the fringes of society.	Best practices such as ethnographic journeys or wild cards, are part of the organization's culture to consistently identify outliers.	The organization has created unique practices in the industry to highlight potential changes including those not related directly to the topic.
(4) Integrate external and internal information into a common framework and language.	Scanned information points are taken as is, with minimal effort to understand and integrate them.	Linkages are informally made and generally within a category, providing a variable view of information.	Connections are made between different categories providing a comprehensive and cohesive view of scanned information.	Universal models provide a powerful world-view framework for deep understanding and an integrated picture of the information.	New, innovative, and dynamic models created by the organization bring context and insight to diffuse and wide-ranging data points.
(5) Create a useful and accessible information repository.	Scanned data is stored in an unstructured and ad hoc manner. Retrieval is	An informal process is in place to collect, tag, and store information. Information	Information is tagged and stored in an organization-wide repository providing easy access to	A high-tech repository with an intuitive structure helps facilitate insight and organize	Organization provides leadership in state-of-the-art content storage and retrieval,

generally by the person who collected the information.	can be retrieved but may take some time.	retrieve information of interest.	thoughts as information is retrieved.	pushing out information in anticipation of need.

Fig. 5 Scanning Example Assessment

Experience

Feedback on the FMM from organizations that have applied it have highlighted a number of common experiences. The primary benefit is that they've created a language around futures within the organization and team and a way to effectively provide status updates and discussion points with management. And it helps the team to understand where to prioritize resources and define plans to improve their foresight work.

The concept of language also extends to how foresight practices are communicated between foresight practitioners and clients. Talking to clients, one gets a sense of what level they are at; the guidance is to avoid talking more than one level above their current awareness or you risk losing them.

One of the challenges in implementing a maturity model such as the FMM is moving people away from being overly focused on the "number." While it is useful, gaming the system to get a better number defeats the purpose of the model—to build capacity. And there is often a push to average the scores within a discipline or to be "almost" a 3, etc. The reason that the lowest-scoring practice determines the overall score of the discipline is because it gates the ability of the other practices to be effective within the discipline.

Conclusion

The Foresight Maturity Model is a first-of-its-kind for the field of foresight. It provides a framework for a clinical, numerical assessment of current practices, allowing for more informed decision-making on priorities and investments in foresight practices, while also helping to define the incremental steps an organization will need to take in order to improve its foresight activities. The model offers a much-needed starting point for defining best practices in the field and measuring futures / foresight competency. And given the intangible nature of some of these

practices, it is expected and hoped that the model will continue to evolve as it matures with use, improving its efficacy along the way.

This article is based on Grim, T. (2009). "Foresight Maturity Model (FMM): Achieving best practices in the foresight field," *Journal of Futures Studies*, 3(4), 69–80. The complete Foresight Maturity Model is freely available for use with appropriate attribution. It can be downloaded at https://www.foresightalliance.com/resources.

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CHAPTER 23: FORESIGHT CAPACITY: TOWARDS A FORESIGHT COMPETENCY MODEL

by Luke van der Laan

Introduction

How *competent* are you in anticipating and shaping the future? How *competent* are you in helping others do the same? Perhaps as a leader or a consultant? Nearly three decades ago the futures field began to ask itself these questions related to individual, organizational, social, and national foresight. In the same period the notion of competence flourished as it related to individual skills and knowledge or organizational core competence. The focus on individual competence as promoted by Richard Boyatzis[1] has grown significantly. Within the context of 21st century change, where professional futurists are increasingly called upon to describe foresight capacity, a need has emerged to develop a framework that informs contemporary foresight competence. This paper is based on the work by Hines, Gary, Daheim, and van der Laan[2] describing the process towards developing such a framework.

In the sea of competence thinking, futurists began to consider if and how they were building foresight capacity. Some began to define foresight as it relates to foresight practice; some began to refine "foresight style" instruments; others documented "corporate foresight" practices; while still others developed organizational foresight maturity models. By 2012, many applied-futures consultancies had moved beyond providing trends to government or business, to building *foresight capacity* among client teams through participatory and experiential futures.

In this context the Association of Professional Futurists (APF) developed a "Foresight Competency Model." The model is a product of a taskforce of twenty-three futurists from four continents working on issues in professionalizing foresight that had been identified in Delphi studies and competitive industry analysis. The purpose of this model is to understand and shape how futurists view their own knowledge, skills, and abilities as they serve others as professionals.

The Foresight Competency Model addresses the basic question of what one ought to be capable of doing as a professional futurist. Most practicing futurists could probably tick off a list of skills, tools, methods, concepts, and processes that they would consider useful. There have also been more formal, but piecemeal efforts to describe the characteristics of futurists and what constitutes good futures work. Various academic programs also have their perspectives on what should be taught to futurists, and have identified concepts in common. The Foresight Competency Model builds on this prior work, and recognizes its model cannot be static or fixed, but must likewise evolve along with the field it describes.

This article describes how other fields have used competency models to define what professionals do, documents how APF came to develop this model, and explains the interrelated features of the model.

What is professional competence?

"Professions" can be broadly defined as occupations that are at least nominally self-governing, require a level of knowledge, and have traditions of autonomy, ethics, and independent judgement. In return for the advantages of being a profession there is an assumption that professionals are adequately proficient and that they exercise this proficiency in a fair and ethical manner. Professional associations are therefore concerned with, among other things, the conditions for recognizing members as fit to practice and with maintaining a minimum standard of ongoing competence. Associations have traditionally fulfilled this function by stipulated education and training routes, with a more recent trend towards defining the competencies for practice. While foresight is arguably not yet a profession in a formal sense, there is a widespread concern that those who engage in this practice raise their level of professionalism or competence. This section therefore defines professionalism in foresight by turning to the literature to define professional competence, foresight competence, and competency models.

Competences and competency

The literature is elusive in its definition of the concept of competence and its distinction from competency and capability. The notion of competence was first described as "enduring personal characteristics which best predict on-the-job performance as opposed to education and intelligence measures in use at that time."[3] In terms of the theory of action and job performance, which is the basis of the concept of competency,

performance is optimized when a person's abilities match the responsibilities and tasks of particular job demands and the context of the organizational environment. "Job demands" are the responsibilities of a role and the tasks that need to be performed to fulfill it. A common typology explains competence in terms of three features: a) its association with a role and the organization within which it exists, b) its association with performance, and c) specific behaviors that can be observed.

Due to the increasing complexity of a broad cross-section of existing, new, and emerging roles of the future, additional attributes are being associated with superior performance and these are holistically referred to as a competency or in the plural, competencies. Definitions of a competence and competency vary, primarily in terms of the use of terminology relating to whether a competence is a competency or capability or whether capabilities, abilities, competence, and competency are different concepts. Indeed, most prominent competence authors including Zemke, Spencer, and Boyatzis recognize that there is a lack of uniform definition.

For the purposes of this discussion, a competence is defined *as an ability made up of skills, knowledge, and attributes that support an underlying intent in relation to effective performance in a job and task completion*. Some authors note that it is perhaps more accurate to refer to degrees of competence, from where an individual meets a threshold of defined parameters of a task but can be developed further for greater knowledge, understanding, and skills. Competences can be developed and for the purposes of this article the abilities, knowledge, and understanding that lead to superior performance (and which are not necessarily stipulated in terms of the task) is referred to as individual competency.

Foresight competence
Before proposing what competencies describe foresight capacity, a definition of foresight is needed. Based on the definitions of individual foresight that align with it being an innate individual cognitive ability that can be developed, as noted by, e.g., Slaughter, Amsteus, Hayward, Inayatullah, Tsoukas, Hines, Gary and van der Laan amongst others, the definition of foresight adopted by this article is regarded as the *human ability to creatively envision possible futures, understand the complexity and ambiguity of systems, and provide input for the taking of provident care in detecting and avoiding hazards while envisioning desired futures*.

Being able to identify emergent patterns in an organization's future, acknowledging the complexity of its environment, and understanding the system within which it operates are competencies that differentiate outstanding from average performance in individuals.[4] Numerous authors agree, and include "time horizon" as one of the dimensions illustrating progression from lower to higher levels of competency (the others include intensity, complexity, and breadth of impact). These competencies can also be regarded as part of a construct supporting the notion of a foresight competency model that may differentiate successful futures work from those meeting with less success.

It is from this individual cognitive perspective that the Foresight Competency Model was developed, as opposed to describing a collective foresight process or organizational capability. Foresight at an individual level focuses on the mental processes—both rational and intuitive—used to develop images of the future as a form of cognitive intelligence. Individual foresight competence therefore complements the institutionalized technique, process, or capability of foresight in its aggregated form.

Individual foresight is an innate individual cognitive ability that can be developed. Many authors concur that foresight is a critical and desirable individual competency. Futures thinking is fundamental to foresight as a dynamic cognitive ability fulfilled by individuals, rather than just being regarded as a property that organizations have. As such, the development of competencies that stimulate optimal performance in the facilitation and participation of foresight-orientated activities is crucial to their perceived success and continued usage and development.

Competency models
There is general agreement that a competency model is a "descriptive tool that identifies the competencies needed to operate in a specific role within a(n) job, occupation or industry."[5] Competency models seek to describe the skills, knowledge, and attributes associated with work performance that "fits" the role. Competency models are rational and descriptive by nature. They seek to describe measurable, identifiable competences that collectively account for effective and adequate performance, the extent of which is known. They are usually structured hierarchically and often pictorially represented.

Competency modeling can be a highly effective and compelling approach to developing professional capacity and performance. The value of competency models is that they encompass a holistic approach that can estimate the competences an individual has and those that still need to be developed. Applied in this fashion, rather than as a clinical recruitment tool or performance measurement, competency models inspire authenticity and confidence.

The function of competency models therefore is developmental for those aspiring to a particular role or those wishing to improve their professional practice. Seen from the individual's perspective, competency models are powerful career development tools. In summary, competency models make worthwhile contributions to professional development imperatives and help to more clearly define competent and meaningful work practices.

Why a competency model?
There are many ways to think about what it takes to be a professional futurist. Many of these perspectives were explored in the lead-up to the establishment of the APF's Professionalization Task Force. The goal of this Professionalization Task Force was to synthesize learning to date around professionalization and explore options for how the APF might cultivate further professionalism in its members.

The Professionalization Task Force consisted of eleven core members supplemented by another dozen "extended" members. From their work it was recommended that "the APF Board commission a team to draft a competency model for professional futurists' competences," which is described in this paper. It was noted by the Board that competency models are used by HR, educational institutions, and associations in order to map and visualize competencies that are necessary to perform professionally and successfully in a specific occupation or field. Importantly, it was agreed that the model must continuously evolve based on changes in the practice and the environment.

Approach to developing the model
With the work endorsed and broadly outlined, a team of four—two from the US, one from Germany, and one from Australia—was formed. Team members investigated different approaches to developing competency models and decided on the US Department of Labor/Employment Training Administration (DOL/ETA) approach. The team felt the

DOL/ETA approach offers an excellent blend of comprehensiveness, clear process, and user-friendly templates. It was recognized that using a US-based approach might create the need for geographic customization of the model later in the process.

The DOL/ETA approach organizes competencies into nine tiers or clusters in a pyramid structure, moving from general to discipline-specific. Three foundational tiers include personal effectiveness, academic, and workplace competencies that apply to a variety of disciplines. The fourth tier or cluster, referred to as industry-wide technical competencies, are the specific core competencies that are central and specific to doing the core work of the discipline—in our case the foresight core competencies. The fifth tier or cluster describes sector competencies: how a discipline organizes its work into different sectors. Tiers six through nine involve job specializations within the fifth-tier sectors.

A question quickly emerged around "competencies for what?" What is the field or practice for which the competencies are being characterized? Thus the tricky question of names and definitions of the field and its workers emerged, as it often has. After several rounds of discussion and revision, the recommendations are shown in Table 1.

Table 1. Definitions

Knowledge domain/discipline	Futures Studies	Was not defined, as it was not directly applicable to the competency model, which is aimed at practice; however, some participants were concerned about losing the identity of futures studies.
Practice	Foresight	Foresight helps individuals, organizations, and communities to develop possible futures in order to make better decisions in the present.
Practitioner	Professional Futurist	Professional futurists explore the future in order to help clients and stakeholders understand, anticipate, and influence the future.

As the team considered the definitions task, they realized it would be useful to pursue the development of a foresight ecosystem map on a parallel path. The team enlisted graduate students from the University of Houston's Foresight program to help with that task. Mapping and visualizing related fields and disciplines and what they do proved to be a useful backdrop for thinking about what is unique to futurists. Thus, a key benefit of thinking through related fields was to help the team clarify "What is us?"

Indeed, futurists are not the only profession dealing with the future. Others, such as policy or risk analysts, urban and strategic planners, decision scientists, etc., do so without using the description of futurist. In addition to clarifying who futurists are, a larger goal of the Professionalization Task Force was to identify related fields in order to explore possibilities for collaboration. The term "ecosystem" was chosen deliberately to suggest that many disciplines are involved in exploring the future, each occupying different niches, although these sometimes overlap. The team was quite insistent that the purpose behind the work was to build bridges between disciplines, not walls.

Using the DOL/ETA process

The DOL/ETA process (https://www.careeronestop.org/competencymodel/) describes the process followed by the team in developing the Foresight Competency Model, highlighting key steps.

The team started with the framework used in *Thinking about the Future*,[6] since that framework was originally developed in the mid-2000s with the assistance of APF in its professional development work. This framework is also a key part of Grim's Foresight Maturity Model, which was recommended by the team as warranting consideration in the development of the competency model. Table 4 lists six competencies and their sub-competencies that were derived out of the process.

Table 2. Six Foresight competencies

1. <u>Framing</u>: Scoping the project, defining the focal issue and current conditions

Scoping
- Defining and bounding the topic, specifying the geography and timeframe.

Mapping
- Locating the topic in its context, system, assumptions, and worldview; including key drivers of change; this may include a visual map as well as categories for initial research.

Retrospecting
- Understanding the topic or systems history, particularly back to the last major discontinuity.

Assessing
- Diagnosing audience/client knowledge; identifying stakeholders, modes of learning, and receptivity; preparing engagement processes and presentations appropriately.

2. <u>Scanning</u>: Exploring signals of change as indicators of the futures
Exploring
- Finding signals of change that affect the topic or system, aka "scanning hits."

Collecting
- Gathering the scanning hits into a structured inventory.

Analyzing
- Evaluating the scanning hits using agreed-upon criteria.

3. <u>Futuring</u>: Identifying a baseline and alternative futures
Letting Go
- Suspending pre-conceived notions of the future in order to challenge assumptions and see the future with fresh eyes.

Converging
- Forecasting a baseline future or "most likely" scenario from current trends, issues, and plans, along with its assumptions and associated risk.

Diverging
- Generating alternative futures or scenarios based on wildcards, ideas, or systematically derived alternative projections and images built around key drivers, uncertainties, challenges, opportunities, and aspirations.

4. <u>Visioning</u>: Developing and committing to a preferred future
Sensemaking
- Considering the implications suggested by past, present, and alternative futures.

Committing
- Making a choice of one's strategic direction/preferred future and committing to act on it.

Goal-setting
- Setting specific, tangible goals to create a preferred future.
- Facilitating processes to help a group agree on shared goals to create a preferred future.
- Developing stretch targets, or audacious goals, to achieve the vision.

5. <u>Designing</u>: Developing prototypes, offerings, or artifacts to achieve the vision and goals
Facilitating
- Guiding interpersonal interactions to achieve desired foresight results.

Prototyping
- Creating activities or artifacts to explore baseline and alternative futures and visions.

6. <u>Adapting</u>: Enabling organizations to generate options to alternatives futures
Strategizing
- Reflecting on paths one could take over time, weighing their pros and cons.
- Bridging goals and the present state with strategies, options, tactics, and actions.
- Communicating alternative futures, vision, goals, and strategic options to capture stakeholders' attention and influence their actions.
- Monitoring indicators or precursors to indicate how uncertainty is resolving to move towards specific scenarios.
- Refreshing the process every few years or as needed.

To illustrate how the competencies "show up" in practice, examples of common foresight methods relating to the competencies are shown in Table 3.

Table 3. Foresight competencies and related methods

Framing	domain mapping, integral futures, organizational foresight audit, sensemaking
Scanning	environmental scanning, bellwether analysis, Causal Layered Analysis, content analysis, cross impact analysis, data mining, emerging issues analysis, leading/lagging indicators, stakeholder analysis, trend identification and analysis, patent analysis
Futuring	Delphi, gaming/simulation, historical analogy/pattern recognition, personas, predictive markets, roadmapping, scenarios (2x2, archetypes, backcasting, incasting, morphological, etc.), statistical modeling (time series), systems analysis, technology forecasting, TRIZ
Visioning	appreciative inquiry, creative imagery, Futures Search, futures wheel, implications analysis, visualization (e.g., mental time travel)
Designing	artifacts, decision modeling, personas, prototyping, risk analysis, simulations, strategic planning, technology assessment
Adapting	action research, artifacts, change management, coaching, consulting, Foresight Maturity Model, issues management

In all, eight versions of the foresight core competencies were produced before the team felt confident it had done the best job it could to reach consensus.

Foresight Competency Model

Figure 1 below depicts the Foresight Competency Model (FCM) built around a center circle of the six foresight core competencies: framing, scanning, futuring, designing, visioning, and adapting. This central node is undergirded by a base of three foundational clusters: personal, academic, and workplace competencies. In turn, two professional competency clusters are above the central foresight competencies: sector and occupational roles. The six competencies and the job sector and specializations were the primary focus of the APF work teams.
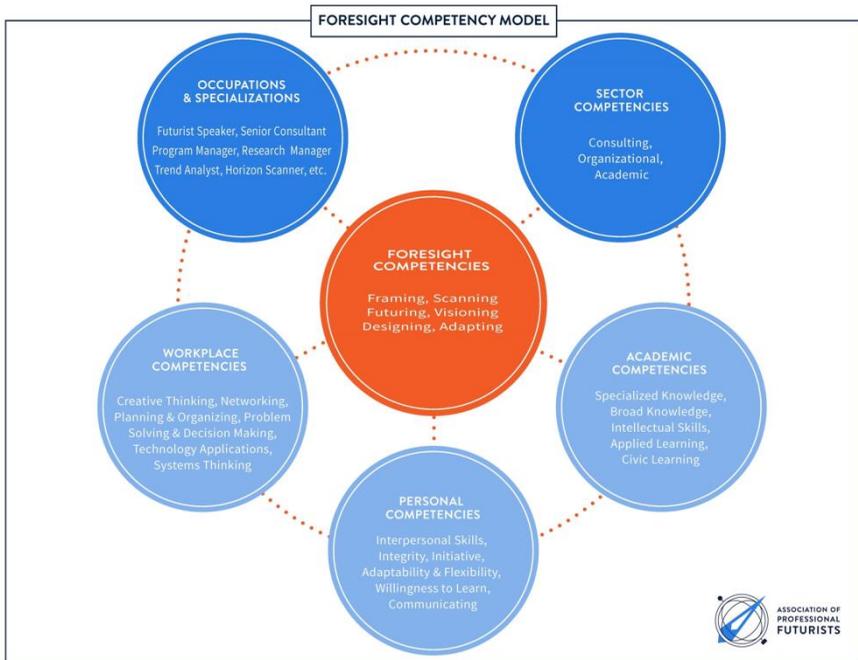
Fig. 1. Foresight competency model

Foundational competencies

The *foundational competencies* (Tiers 1-3 in the DOL/ETA approach) form the foundation needed for one to be ready to enter the workplace.

- *Personal effectiveness competencies* are competencies essential for all life roles. These "soft skills" are generally learned in the home or community and reinforced and honed at school and in the workplace.
- *Academic competencies* are critical competencies learned chiefly in primary, secondary, and tertiary school settings. They include cognitive functions and thinking styles, and generally apply to all industries and occupations.
- *Workplace competencies* represent motives, traits, and interpersonal and self-management styles that are generally applicable to a large number of occupations and industries.

Professional competencies

The *Foresight Sector Competencies* (Tier 5 in the DOL/ETA approach)

represent broad sectors of foresight activities. The APF team sorted the foresight job market into three sectors: consulting, organizational, and academic. To test the categorization, and also to address the process task of identifying job specializations, the team put out a call for futurist job descriptions. The team analyzed over three dozen job descriptions, which enabled a fleshing out of the sectors and specializations.

How to use the model
Competency models have increasingly been used in HR and beyond in the last decades. In the examples documented, a variety of use cases have been shown to be beneficial. For example, the Competency Model Clearing House (www.careeronestop.org/competencymodel/home.aspx) provides user guides and worksheets for five specific ways of applying a CM:

- *Communicate workforce needs*: Use competency models to communicate the needs of your organization or industry.
- *Identify credential competencies*: Develop or update a certification, license, or assessment using competency models.
- *Develop curriculum*: Use competency models to assess or develop a curriculum.
- *Perform human resources activities*: Measure worker performance, assess training needs, and select or recruit workers using competency models and career ladders/lattices.
- *Career exploration and guidance*: View the competencies needed in selected industries to help determine which career is right for you.

Thus, as with models in other professions, the APF Foresight Competency Model can be used in a variety of ways, from a one-off "competency check" to a framework for much longer-term competency development for and by an individual, or for and by a team. In all its use cases, the underlying logic is similar: the Foresight Competency Model serves as a framework or benchmark for systematically analyzing existing and desired or needed future competencies.

In such a process, the model serves as a starting point to systematically analyze and develop one's own or a team's competencies. As with all professions' competency models, it should not be regarded as sacrosanct, fully exhaustive, or in any way prescriptive, but as a tool that can and should be adapted to the use case at hand. However, it provides a

shared benchmark from which a structured conversation and a systematic process of competency development can start.

These questions will of course first and foremost be answered on an individual level, but in the case of a team, they can also be used to map strengths and weaknesses in a full team's competency portfolio, thus aiding team development, training decisions, job descriptions, and interview processes for future team members. In a simplified grid, different use cases of the Foresight Competency Model can for example be characterized by the "user," and reach:

Table 4. Characteristics of different use cases of the Foresight Competency Model and prototypical steps

Users / Guiding Questions and Steps	Individual	Team leader in an organizational context	
		For working with an individual team member	For developing a team
Guiding question	What is my current set of skills compared to those listed in the model, and which do I want to develop further?	What is the team member's current set of skills compared to those listed in the model, and which should he /she develop further?	What is the team's current set of skills compared to those listed in the model, and which should we develop further?
Steps	• Identify current strengths and gaps in competencies • Select one to five priority areas in which to further develop critical competencies • Create and realize action plan for how to develop the competencies (e.g. identify training and mentoring opportunities)	• Identify current strengths and gaps in competencies (together with team member) • Select one to five priority areas in which to further develop critical competencies (together with team member) • Create and realize action plan for how to develop the competencies (e.g. identify training and mentoring opportunities) • Regularly review and adapt	• Identify individual team members' current strengths and gaps in competencies • Identify current strengths and gaps in competencies across the full team (building on individuals' competency mapping) • Select one to five priority areas in which to further develop critical competencies in the team • Create and realize action plan for how to develop the competencies (e.g. identify training and mentoring

Users / Guiding Questions and Steps	Individual	Team leader in an organizational context	
		For working with an individual team member	For developing a team
	• Regularly review and adapt		opportunities, hire new staff, create mentoring teams) • Regularly review and adapt

APF intended uses

For the APF roll-out of the model, documented use cases of the model can and should also flow back into the model as such and inform a continuing practice of reflecting on the shifting landscape of competency needs in the field. The model can be a starting point for aiding and structuring dialogue around the emerging needs in newer forms of foresight practice, such as experiential futures. The APF team advocates an adaptive, forward-looking approach that takes into account not only a pre-described set of competencies, but also focuses on identifying needs for competencies that are emerging—an approach that seems especially suitable for a forward-looking profession.

What else?

In the process of developing the FCM, team members realized how the professional process of foresight itself was changing. A point of interest to one of the US-based authors was a strong reaction against the proposed use of the term "forecasting" as one of the six foresight core competencies. The resistance was strongest among European team members, since the term's use has fallen out of favor with professional futurists in Europe. In the US, where there is a community of forecasters doing traditional, mostly quantitative forecasts, many futurists still use the term—essentially sharing it with forecasters. But given the strong reaction against it within the APF team, the term was replaced with "futuring." ("Prospection" was another term given much consideration, but the desire to keep the terms all in gerund form required "prospecting," which sounded a bit too much like searching for gold or sales leads.)

Some might be surprised to see "design" incorporated as one of the six foresight competencies. This reflects the growing cooperation between the fields of design and foresight. APF has been active in pursuing design topics in its professional development and annual conferences. It also reflects the increasing pressure on futurists to move across the value chain towards implementation, via prototypes, artifacts, and more direct action.

Thus, planning was "demoted" to a sub-category or descriptor of designing.

Compiling the academic competencies raised an interesting discussion. The initial thinking was to draw on work done by the graduate programs in foresight that identified commonalities in what and how they taught.[7] The competency model approach to academic competencies, however, is to keep them more general. Given that academic teaching content closely resembled the foresight core competencies of what practitioners used in the field, it was decided to keep them generic. The team turned to academic competencies developed by Lumina Foundation as part of its generic degree plan. One addition to the workplace competencies was systems thinking—one that was felt to be core to futurists, but had not shown up in the DOL/ETA model to that point.

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Part 2: Futures in Governance

CHAPTER 24: TRANSFORMING GLOBAL GOVERNANCE IN THE 21ST CENTURY: ISSUES AND PROPOSALS

by Anita Sykes-Kelleher

Introduction

The Causal Layered Analysis (CLA) futures research method is used here to construct models of each group's preferred global governance future from elements of their discourses and deeply held ideological commitments. Structural aspects are also considered and the author offers an analytical framework summarising the models against the layers of CLA. and the history, power base, globalisation worldview and agency congruent with each model.

The models are then presented as visionary scenarios generating images of future alternatives whilst providing an opportunity to hear what the nations unrepresented in the current system have to say. Their image produced a more inclusive, egalitarian, and holistic image of a global governance future when compared with the business-as-usual UN future. As we enter 2020 and the 70th anniversary year of the establishment of the UN, this conversation provides a timely prompt for the review of the UN system of global governance and an opportunity for the UN to consider how it might transform to retain relevance in a rapidly changing global environment.

Global governance for a planetary civilisation

As the world awakens to the interconnectedness of all things on planet Earth there is a growing call by scholars, activists, futurists and social scientists for the recognition of the human family as a planetary civilisation and for Earth's human inhabitants to take on the additional layers of identity and responsibility of planetary citizens. Citizenship confers upon the citizen multiple rights and responsibilities according to the laws and customs of the city, State or ruler to which allegiance is given or compelled. Hence the views as to what constitutes a planetary civilisation and what Earth citizenship might entail could be as diverse as the communities that inhabit the planet. Nonetheless there is a growing international conversation about global governance and the means by

which a planetary civilisation might manage its common affairs for as Laszlo writes:[1]

> To work for the smoothest and most efficient transition to an order capable of sustaining the world population, in conditions satisfying at least its minimum non-negotiable demands, is not only a matter of long-term rationality but also of basic morality. Ultimately the study of global futures moves from the area of physical-technological constraints, to socio-economic processes, to the heart of the matter: the investigation of perceptions of human interest and the advocacy of genuine morality among fellow passengers on a small, crowded and fragile planet earth.

Other writers share Laszlo's sentiments. The topics of an emerging planetary civilisation and its common affairs, global problems that require coordinated worldwide responses, and globalisation are collectively stimulating an international conversation about global governance futures. Some view global governance through the lens of societal evolution and group decision-making, albeit from the differing perspectives of the creation of a global civil society, a planetary society facilitated by technological advancements, a cultural path to planetary civilisation and the inevitability of a planetary phase based on historical civilisational transitions. Others take the stance that the human family needs to collectively manage its common affairs, particularly the challenges of this century that threaten the ways of life, even survival, of many people, and that present problems beyond the capability of individual States to address. Climate change and water and energy shortages, for example, point to the need for cohesive worldwide resolutions and significant changes in thinking and human behaviour. More recently, global governance futures has been introduced into research institute and university programs, including programs supported by the Brookings Institution, the Global Public Policy Institute, the Asian Development Bank Institute, the National University of Singapore, Oxford University and many others.

In the past, humans could adapt their thinking over several generations before a crucial change in behavior was completed. In the first decade of the twenty-first century scientists told us we must achieve a fundamental civilisational shift within less than a decade to avert the worst effects of climate change on humans.[2] Yet more than a decade later, there is no universally agreed means by which humanity's common affairs can be debated and decided at the planetary level, or the means for the people

of Earth to exercise the as yet imaginary rights and responsibilities of planetary citizenship. As Hamm writes:[3]

> "decisions of today shape the future. Not all decisions are of equal weight. The higher a decision-making unit in the global power hierarchy, the more people will be affected by the decisions it makes. However, the decision-maker follows his own specific worldview, his interests, his perception of problems and of the means to solve them. His views tend to be neither idiosyncratic nor universal, but rather follow the perceptions and attitudes of his reference groups. Power structure research has put forward the idea of an emerging global ruling class as the highest level decision-makers. What they decide, what they do or do not, will impact, directly or indirectly, on the lives of most people on earth. It will set the conditions under which less powerful people will act."

Therefore understanding power, worldviews and the underlying myths that produce them is a crucial key to understanding futures.

The international conversation on global governance also draws attention to the role of the United Nations (UN) in global affairs, questioning its effectiveness and relevance in the twenty-first century. The UN, with a General Assembly now comprising 193 of the world's 194 nations, is at the core of the current global governance system. Some might consider the UN to be the legitimate forum for the people of the world to debate and agree the management of their common affairs, as envisioned by the C.G.G, or to seek global resolutions to challenges and intractable problems.

However there are weaknesses in the structure and operation of the UN that limit its ability to act. The balance of power within the UN is skewed by the power of veto held by a small number of politically and economically dominant countries. The views on globalisation and global governance held by these countries are influenced by a commitment to Neoliberalism reminiscent of the Thatcher-Reagan ethos of the 1980s. Representatives of less influential nations attending UN and World Trade Organisation forums are not always in a position to stand up to the powerful States that can wield the veto to attain their own ends. Some nations have been coerced or induced by more powerful actors to sign agreements and to vote on issues contrary to their people's best interests. In such a highly contested arena dominated by a few elite nations it is

difficult for the majority of the world's people to be heard. Individual citizens have no legitimate means of contributing to global decisions in these forums. Only States that have recognised each other through international treaty are represented at the UN and only heads of States participate in decision-making. As Galtung writes: "there are 2000 nations in 200 countries,"[4] which suggests that not only are the views of some 1800 unrepresented nations potentially not being heard at the UN General Assembly but of the '200' States eligible to participate in this high-level decision-making forum, just a small minority are actually shaping the agendas on issues that affect the whole planet.

Whilst people in many countries are becoming aware of the global nature of the problems facing humanity, the responses from their States and the actions of the UN to date lack the imaginative, transformative capacity that scientists and scholars envisage will be necessary for human survival and thrival. While the Paris Accord and the commitments to the Sustainable Development Goals gave rise to increasing optimism in 2015 State actions in support of the agreements have again been inadequate. New thinking and new perspectives are therefore required from outside of the States-based UN system to rapidly transform global governance for relevancy and effectiveness in the twenty-first century.

Views from the edge: New thinking from the periphery of global civil society
One potential source of new thinking on global governance is civil society. As the UN Commission on Global Governance observed: "the people of the world have more power to shape the future than ever before and never has there been a greater need to exercise that power.[5] The current global governance system, however, only recognises the power of States to shape the global future. Opportunities for individuals and non-State actors to be heard in key global decision-making forums such as the UN General Assembly are almost non-existent.

The stance assumed by the author is that drawing on the different ways of knowing of a wide range of people is not simply about being politically correct and inclusive but rather is an opportunity to explore possibilities of new thinking for global governance transformation. Deep in the unheard stories, the veiled myths and metaphors of the human family could lay the means of human survival in the twenty-first century.

Emerging schools of thought from Indian and Islamic writers, for example, are adding depth to the global governance debate in the form of

more spiritual paths to world order. Doubtless there are perspectives in other cultures and civilisations that would further enrich the discourse. The consideration of these perspectives has the potential to prevent future global governance arrangements from becoming merely a larger Western democracy. From the standpoint of societal evolution, non-Western views might also yield the spark of creativity needed to ignite a fundamental civilizational shift.

Actively producing the non-existence of the other
The exclusion of many nations and peoples from global governance arrangements is not an oversight. Boaventura de Sousa writes that the dominant nations *actively* produce the non-existence of the 'other' and keep them excluded by five means: [6]

- First, the dominant Western scientific view of knowledge discredits and excludes other ways of knowing.
- Second, the dominant Western nations of the world consider linear time to be correct. People that construct time differently are considered primitive and may therefore be excluded as lacking credibility.
- Third, the classification of people normalises differences and hierarchies enabling racial and sexual classifications, for example, to be used as means of exclusion and to create dominator societies.
- Fourth, the high value placed on the global and the universal ensure that the local and the particular are not considered credible alternatives.
- Fifth, the principal criteria of commercial productivity and efficiency, applied to nature as well as human labour, 'produces non-existence as non-productiveness ensuring that what is considered non-productive can be discarded."

For some developing nations, as well as unrepresented nations and peoples, these means of exclusion render them invisible to the majority of the world's people.

Including the excluded
Whilst globalisation discourses are highly contested, few researchers to date have used them as the basis for positing alternative global governance futures. Nor have they explored the deeper, ideological levels of globalisation and global governance.To contribute towards redressing the exclusion of many voices in the conversation whilst catalysing new areas

of exploration concerning the interconnectedness of globalisation ideologies and forms of global governance, the potentiality of alternative futures is conceptually modelled here as emergence from alternative globalisation ideologies using the four levels of CLA: Litany, Systems, Worldviews, and Metaphors and Myths.

- The litany level generally comprises quantitative trends and issues, statistical measures and "official histories."
- At the systems level, the analysis produces a different pattern of insights according to the dynamics of the interplay, hence multiple patterns of the interconnected systems under review are discernible.
- At the worldviews level the analyst might explore ideological positions, civilisational worldviews, epistemic commitments, stakeholder interests and multiple and/or contesting worldviews of the same topic. The discourses entailed with the worldviews typically verbalise deep ideological or cultural allegiances, such as values and beliefs, which underpin the worldview as are indicated in the following matrix.
- The fourth layer is concerned with myth and metaphor, focusing on the deep narratives and archetypes that drive evolution. At this level the language used is less specific, more concerned with evoking visual images, with touching the heart instead of reading the head.

Each future global governance model is then constructed around the ideologies of prominent actor groups competing for attention in the emerging global governance discourses, considering their history and worldviews, and the forms of structure, agency, and episteme that are congruent with their ideologies. Given the slow rate of change associated with shifts in ideology and worldviews, it is reasonable to assume that these commitments will shape the preferred futures of the different actor groups. Hence the alternative futures summarised in the matrix overleaf are conceptual models of possible global governance futures should a particular actor group gain ascendency in the debate and subsequently implement an alternative to, or guide the reform of, the current UN-centred global governance system. The matrix positions UNPO. perspectives alongside those of other more prominent non-state actor groups such as international feminist movements, environmental movements, cosmopolitan democrats, post-colonial social movements and technocrats. Images of each model are then created using the Visionary Scenarios technique.

Table 1. Matrix of preferred global governance futures

Future/ CLA	Assertive Multilateralism	Grassroots Globalism	Planetary Partnerships	Global Digital Democracies
The Litany Measures of Progress Issues and History	Trade balances, G.D.P., stock exchanges, transnational corporation listings. Issues: security and development. Seventeenth – twenty-first century. Westphalia, League of Nations, Bretton Woods, UN	Freedom index, human wellbeing and happiness measures. Issues: Neoliberal globalisation and transnational corporations. Seventeenth-twentieth century colonialism and de-colonisation. Rise of social movements.	Women's status, ratio to men in key roles, women educated and work valued. Issues: economic redistribution, gender hierarchies and inequalities. Nineteenth century transnational feminist movement to counter global capitalism. 1976-1985 UN decade for women.	Number of "friends," hits and visitors online. Issues: the convergence of I.C.Ts; technology haves and have-nots. Sixteenth century Erasmus and world citizenship. Printing enabling international communications
Systems and social causes Structures and Agency Basis of Power	Economic, political. Counter to Keynesian economics that had led to stagnation of economies. Reformed UN State-base extended to include non-State actors. Hierarchical structure. Decisions by 'world citizens'; States dominate. Coercive, economic and institutional power.	Social. Colonialism and conquest to self-determination and internal development. Decentralised authority to the local level. Direct participation in political, economic and social life. Non-linear structure. Local citizen participation energised by social movements. Power in moral authority.	Social, patriarchy. Dominator societies. Violence used to destroy past egalitarian societies. Restructured institutions including T.F.Ns. Care economy. Linking, consensual structure. Egalitarian governance. Gender balanced decision-making. Power in moral authority is global, multi-dimensional and	Technopolitics. Social media; P2P production; wide diffusion and convergence of ICT. Cross-sector networks in loose institutional arrangements. Two-way networking. Syntegrity. Horizontal structure. Epistemic communities. Decisions online. Power in access to ICT.

			interactive.	
Worldviews Ideology Episteme Globalisation Time	Neoliberalism. Epistemology of positivist scientific thinking. Globalisation as economic agent. Linear time.	Critical, post-colonial. Epistemology of many ways of knowing. Globalisation as social equaliser. Spiral time.	Feminisms. Epistemology of a politics of connection. Globalisation as cultural evolution through egalitarian societies. Women's time.	Techno-fix. Epistemology of the noosphere. Globalisation as technologies connecting people. Time is 24/7.
Discourses	Consumption, nature as commodity. Progress is industrialism, materialism, competition, and growth. We have the tools to fix the problems.	Autonomy; broad development; human rights; self-determination. North versus global South. Progress is freedom and an end to poverty.	Exploitation; sexual discrimination; lack of voice and representation; low value; gender equity; global sisterhood; global identity; alliances and resistance. Progress through partnerships.	Systems theories; self-organisation; noosphere; collaboration; communities of interest. Progress is more people with access to the internet connected by online social networks.
Metaphors and Myths	The world is a machine. 'Survival of the fittest'.	The world is a battleground. 'Unity in adversity'.	The world is a chasm. 'Planetary Partnerships'	The world is a web. 'The Matrix'.

Table 1. (continued)

Future/ CLA	**Bioregionalism**	**Cosmopolitan Democracy**	**UNPO Preferred**
The Litany Measures of Progress Issues and History	Eco-footprints, number of flora, fauna and natural environments restored to health. Issues: ecological degradation and social injustice. 1960s onwards. Biopolitics, PROut, Bioregional movement.	Index of Democracy. Signatories to UN international laws and treaties. Lists of global challenges and goals. Issues: inequalities and social justice. 1960s onwards. End of Cold War. Weakening States system. W.O.M.P.	Genuine Progress Indicators, indices of democracy, freedom and planetary wellbeing. Issues: security, social justice, environment, inequalities, identity, exclusion, neo-liberal globalisation. Cultural genocide. Wars, twentieth century decolonisation.
Systems and	Socio-ecological. De-	Socio-political/ legal.	Interconnected

Social Causes	localised life through industrial revolution and globalising markets. Biological regions, local governments and cooperatives. Party-less democracy.	Inabilities of States to address global issues and enforce democracy, regulation and justice. People's assembly. I.C.C.	systems. Dominator societies. Reformed UN Democratic; egalitarian; power sharing.
Structures and Agency	Environmental governance. Organic structure.	Institutional Heterarchy structure. 'Humane' global governance.	Decentralised authority to the local level.
Basis of Power	Decisions by local communities. Power in community is distributed and multilevel.	Global Civil Society. Power in law and moral authority.	Symbiosis of nations. Heterarchy structure. Power is in moral authority.
Worldviews Ideology Episteme Globalisation Time	Neohumanism. Indigenous and ecological epistemologies. Globalisation as interconnectedness of all life forms. Time is cyclical and seasonal.	Cosmopolitanism. Epistemology of recognition and mutual evaluation. Globalisation as public participation in world citizenship. Time is highly organised.	Ubuntuism. Epistemology of many ways of knowing. Globalisation as unity of world's people. Sync time.
Discourses	Deep ecology; complex systems; global commons; sustainable communities; indigenous knowledge; spirituality. Gaia-tech. Progress without 'growth'.	Participation; global civil society; equal access to legal rights and responsibilities; global governance for global problems. Progress as world order based on law, democracy.	Self-determination; solidarity; non-violence; equality; indigenous knowledge; love of nature. Progress is peace, unity of the human family and recognition of the 2000 nations.
Metaphors and Myths	The world is a garden. 'Gaia of civilisations'.	The world is a dialogue. 'The Great Transition'.	The world is a village. Symbiosis. 'One World'.

Visionary scenario for Assertive Multilateralism

In this future, global governance is a modified version of the current UN system. Still concerned with issues of political security and economic development, an elite group of States relies on coercive and economic power to dominate decision-making forums and policy formulation. The widely debated UN reforms of the early twenty-first century did not eventuate. The States-based membership was extended to allow for some deliberative processes with non-state actors such as international NGO's, corporations, and occasionally indigenous peoples but the promise of decisions by Planizens is still a chimera. The weight of the past continues to influence the present and the future in an organised, linear progression. A hierarchical structure is maintained; States dominate the hierarchy and

the elite States dominate the less politically and economically powerful. The metaphor here is "the World is a Machine" and the underlying myth shaping societal evolutionary direction is "Survival of the Fittest."

Visionary scenario for Grassroots Globalism
In this socially oriented system the Grassroots Globalists have succeeded in their battle against Neoliberal globalisation. Global governance operates in a non-linear structure that facilitates decision-making at local levels enabling relatively small communities to have direct participation in social, economic and political life energised by social movements. Moral power is used to ensure the system is inclusive, recognising many ways of knowing, including multiple constructs of time. In this future, globalisation is a social equaliser. All nations and peoples are recognised and their rights to self-determination, local autonomy and their own form of development are upheld. Progress towards a world where all are free and none live in poverty is monitored by the Freedom Index, Planetary Wellbeing and Human Happiness indices. The metaphor here is 'Solidarity World' and the guiding myth is "Unity in Diversity."

Visionary scenario for Planetary Partnership
In this future there is no such term as "global governance;" it has been replaced by Planetary Partnerships, acknowledging the dominator language inherent in governance terminology. Power is in moral authority and is global, multidimensional and interactive. All decision-making forums have equal gender representation. The Planetary Partnerships system consists of entities that operate in linking, consensual organisational models. All of the former institutions of the hierarchical UN system have been restructured in this way. Globalisation has transitioned from the twentieth-century neoliberal form to a form of cultural evolution through egalitarian societies. Significant advances are being made in societal, cultural and technological domains as new language and inspiring symbols of male/female unity are spreading through international feminist networks and promoting a new renaissance for the human family. Cyclical women's time has softened the linearity of Western scientific time, creating a loose spiral of societal progress. The global economy is a Care Economy that recognises the value of all forms of work. Economic redistribution is underway to redress the problems associated with unrecognised female labour. The "world is a chasm" metaphor reminiscent of the twentieth century has been replaced by the "Yin/Yang" symbol depicting the small amount of male within the female and the small amount of female within the male. The myth of Planetary Partnerships is becoming reality.

Visionary scenario for Global Digital Democracies.
In this future, global governance is an online system founded on the Universal Right to Communicate. Building on the philosophy of the sixteenth century European men known as "the republic of letters" that used the new printing technologies to share scholarly papers, Global Digital Democracies uses social media, peer-to-peer production and internet technologies to enable the Planizens of global civil society to debate and democratically vote on global issues. It is a networked structure using the icosahedrons three-dimensional structure devised by Beer to ensure optimal communicability of world issues, presentation and decision-making forums and voting opportunities, effectively crowd sourcing governance. Time is 24/7 online. Planizens receive information and education about planetary issues, and civil society campaign groups are mobilised within hours or days. Political responses are yet to catch up with the speed at which civil society can lobby for particular policy interventions. Power relies on access to information and communications technologies. The structure appears to be horizontal and web-like. However, due to lack of access to technology infrastructure, maintenance skills and training in the earlier years, and despite some notable successes, developing countries and civil society groups overall are less successful than transnational corporations and States in influencing the contents of the online voting agendas. These powerful actors often marshal epistemic communities, using the power of their intellectual arguments to persuade the public that the actors' agenda items are in the best interests of the world. Some say the developing nations and civil society are "pawns rather than partners"[7] in this system which privileges the elite nations that use technology to dominate and oppress. The guiding myth is 'The Matrix': the online world is not the real world and only by unplugging do we maintain our humanity.

Visionary scenario for Bioregionalism
In the Bioregional scenario environmental global governance takes priority over other forms. The structure is an organic, party-less democracy. Local communities make decisions through elected local government and cooperative representatives.

Power is in community; it is distributed and multilevel. In this future, globalisation is the interconnectedness of all life forms. Time is cyclical and seasonal. During the twenty-first century this new worldview permeated public conversations about ecology, spirituality, sustainable and resilient communities. Building on the knowledge of indigenous

peoples and learning from nature itself, a Planetary Civilisation emerged that saw progress through the eyes of learning, cultural advancement, restoration of damaged environments, and technology used in service of the Planet's life systems. Spiritual growth is seen as more important than other forms of growth. Economies operate within the Bioregions themselves ensuring that no human activities exceed the limits of the natural environment to replenish itself. The myth of a Gaia of Civilisations underpins the metaphor of 'the world is a garden' and is seen as a considerable shift in thought and language from the machine metaphor of the twentieth century.

Visionary scenario for Cosmopolitan Democracy
In the Cosmopolitan Democracy model, global governance of the future is dominated by the legal system ensuring Planizens have equal access to their human rights and understand their responsibility to participate in world citizenship. Cosmopolitan Democrats have successfully established a democratic world order. Time is understood as a precise, highly organised construct. Two key institutional structures are at the core of a heterarchical structure: the peoples' assembly and the International Criminal Court. Here power lies in the law and the moral authority of global civil society. The former enforces the rights of the people, democracy, regulations and justice, whilst the latter determines the preferred planetary future. Both monitor and evaluate the other. The 'world is a dialogue' in legal terms and the myth of 'the Great Transition' underpins a desire to ensure global societal evolution occurs in a manner that is socially just.

Visionary Scenario for the UNPO
In this future, global governance is a reformed UN called "One World." The old UN model has been democratised with global civil society admitted to planetary decision-making forums through a civil society assembly. Security Council membership has been extended, the power of veto abolished, and Responsibility to Protect measures have been introduced ensuring that genocide is a distant memory and that the human and cultural rights of all people are protected. The decolonisation commission has been reinstated and is negotiating peaceful terms of settlement between nations in conflict over twentieth century settlements. "One World's" democratic and egalitarian decision making processes ensure gender balance in major forums and encourage decentralisation of authority to local levels. This enables the leaders of almost 2000 nations to engage in democratic processes that use communications technologies to facilitate local, regional and planetary participation. Planetary civilisation

is taking shape as more people assume the additional layer of identity of planetary citizen and the world becomes a global village.

The importance of images of global governance futures
Whereas macro-historians study the histories of social systems in search of patterns of social change,[8] futures researchers interpret these patterns, consider possible trajectories, and complete the theories of future social change by incorporating the idea of the image of the future. The importance of images of the future in influencing human action to create the future has been the subject of many scholarly works, seminal of which are Boulding's 1956 book *The Image* and Polak's 1973 book *The Image of the Future.* Boulding wrote about the unique reflective character of the human image and the human capacity to respond to images of the future that are "filtered through an elaborate value system." He emphasised our ability to envisage what exists and what might be in the future. Polak's study linked images of the future with the dynamics of culture, concluding that the images a society holds of its future determine the rise or descent of that society's culture. A positive, quality image leads to a vibrant, healthy culture and society whereas a negative image will lead to its demise. His studies showed that new images of human potential precede and accompany significant periods of social transformation.

Further research revealed that community attitudes to images of the future represent that community's knowledge and determine the image's usefulness in futures research generally. For Denton, "an image is plausible when it stimulates dialogue within the community, forces us to lay aside old and attempt new languages, and opens us to seeing new and different possibilities for the future."[9] It is a form of visual communication much of which is performed through symbolic means, by words and signs and symbols. Ames describes imaging a world as 'tracing effective correlations among interdependent details and producing harmony.[10]

The Visionary Scenarios method used here communicates images in word form. The stories produced when using the method represent the shared views of a collective. In this method, contrary to scenario methods where multiple scenarios are developed and used to test or create strategy or policy, one clearly preferred, shared image of the future is co-created by each collective. According to Gordon visionary scenarios can be used to help build consensus and to foster public engagement in national, regional, and in this instance global, debate.[11] He does, however, identify a weakness in this method in that it lacks the adaptive capacity of working with a range of scenarios. Gordon contends that robustness is achieved by

identifying common leverage points across scenarios to produce the preferred scenario. This thinking was applied differently in the research for this paper that used the common elements of global governance futures identified from the literature to structure the alternative futures matrix. A preferred future was constructed for each competing ideology, thereby developing a range of images and visions on the topic and providing some adaptive capacity for policy makers and planners who might be interested in tracking the emergence of particular futures, or the increasing dominance of a particular ideology, and changing their own strategies accordingly. This approach is more consistent with the original use of scenarios in the theatre where audiences decide how the story ends from a small number of scenarios described to them by the actors. As in the theatre, research takes the story of global governance to a point and then addresses the high ambiguity of the global governance futures domain by allowing different actors' interests, worldviews and influential myths to change the story and end the play on a different note.

Conclusion

At the outset of this paper my premise was that those on the periphery of the current global governance system might contribute new thinking to an international conversation concerning global governance futures. My aim was to include the voices of the culturally diverse and marginalised nations of the UNPO in this conversation that currently privileges the voices of North American and European writers.

The models and scenarios presented in this paper begin to achieve that aim whilst revealing significant differences in the deeply held ideological worldviews of several actor groups participating in the global governance futures conversation. Two of the proposals for global governance futures, Assertive Multilateralism and Cosmopolitan Democracy, provide examples of more conventional thinking and established bodies of work. Comparing these more established positions with those of the non-State actor groups shows that the latter would embrace broader measures of progress beyond the economic and political/legal concerns of the former, including measures of freedom, happiness, equality, and ecological health. They are also strongly oriented towards social systems, non-hierarchical structures, distributed power, and more egalitarian decision-making. At the deeper levels of worldview and discourse, however, we find ideologies and epistemes firmly entrenched in contesting camps with neoliberalism and positivist scientific thinking still dominating. These differences highlight the challenges faced by reform champions within the UN in their endeavours to include civil society in a greater range of UN activities as

encouraged by former Secretary-General Annan and previously by the C.G.G. Nonetheless the five non-traditional models of Grassroots Globalism, Planetary Partnerships, Global Digital Democracies, Bioregionalism and the UNPO preferred future enrich the international conversation on global governance futures by expanding its breadth and depth and contributing unconventional perspectives on the issues.

The nations on the periphery, the UNPO, are particularly keen to highlight the issues of identity and exclusion and the need for a more inclusive means for the people of the world to collaboratively deal with humanity's common affairs. Some members consider exclusion as a significant barrier to world harmony. This perspective could be viewed as an expected response from groups that are unrepresented and nations and peoples in situations of oppression. Galtung, however, understands this ongoing situation as a threat to world peace when he writes of "2000 nations in 200" State, States being comprised of many nations and usually dominated by one nation. For Galtung, 2000 nations with common cultures, languages, histories and an attachment to a homeland, dominated by 200 States in an era when the State system is declining and nationalism and civil society involvement in international affairs is rising, signals the potential for conflict. Whilst UNPO members are committed to non-violent solutions to their considerable challenges, there are other nations that are unrepresented or underrepresented in international decision-making forums. They might choose the path of violence to achieve the recognition and freedoms that the politically and economically powerful States have created, and continue to maintain, for themselves.

Applying De Sousa Santos' sociology of absences, the current system of global governance actively produces the non-existence of approximately 1800 nations; it de-identifies them. The ramifications of continuing this exclusion and de-identification, and of allowing atrocities to be committed unchecked in several countries, might well be more incidents of international and intra-national conflict and terrorism. It is therefore vital, and timely given the forthcoming 75th anniversary of the UN in 2020, that global governance is re-examined and transformed to include the excluded in forums that enable them to contribute to decisions that affect all of our futures.

The use of Futures research methods assisted in the exploration of these contemporary and emerging views of global governance futures that consider the evolving social, environmental, economic, technological and political landscapes of the twenty-first century. These views provided

significant contrast with the perspectives underpinning the establishment of the UN-centric global governance system that was designed in the twentieth century to achieve political and economic imperatives after World War II. The models constructed herein also considered power, agency and the deeper ideological levels of global governance that were identified as absent from the literature whilst revealing metaphors and myths shaping the preferred evolution of global governance from each actor's perspective. Finally, this article included the voices of the unrepresented, the marginalised and the victims of the current system whose ideologies produced more inclusive, egalitarian and holistic future images of a global governance system. These images are in stark contrast to the current exclusive system.

As the majority of the contributors to this research prefer a reformed UN to a completely new system they lobby separately and infrequently for different aspects of reform according to the worldviews of their reference groups. The UNPO preferred future, "One World." would accommodate most of the preferences expressed by other groups. If the international non-State actor groups and movements unite on the theme of Global Governance futures at the mythic level they could write the next chapter in the story of global governance. In considering its reform agenda, and to maintain its relevance in the twenty-first century, the UN would do well to listen to these voices from the periphery.

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CHAPTER 25: ANTICIPATORY GOVERNANCE: THE ROLE OF FUTURES STUDIES IN REGAINING THE POLITICAL INITIATIVE

by Mathew J. Burrows, Oliver Gnad

Prologue: True lies—history continues, civilizations coexist, and the world isn't flat

If we have learned anything during the last ten years of crisis management, it is about "knowns" and "unknowns," about "true lies" and "inconvenient truths." We also learned that our VUCA world—a world that is increasingly volatile, uncertain, complex, and ambiguous in nature—is not prone to one-dimensional explanations, simplistic answers, or quick fixes.

This is bad news for politicians who depend on their ability to offer attractive and plausible visions—narratives of a better future that have the potential to mobilize political support, social capital, and economic resources.

This article makes the case for strong visionary leadership in a world that seems to be derailing; a world in which old concepts of order erode faster than new recipes for stability can be created and tested; a polycentric environment in which many cooks spoil the broth. It also argues that leadership in the VUCA world should rely on the ability to anticipate seismic shifts within our societies and that Futures Studies and scenario planning enable decision-makers to acquire these abilities.

So, how useful are visionary strategic concepts in a highly unpredictable VUCA world? Take the two most prominent Western narratives of the 1990s and early 2000s: after the end of the Cold War we lulled ourselves into the belief that we had reached some kind of Kantian peace. Francis Fukuyama, deputy head of the US State Department's Planning Staff in 1989, was so overwhelmed by the fall of the Berlin Wall that he enthusiastically proclaimed "the end of history."[1]

During these days, metaphors were created faster than they could be reflected on; Francis Fukuyama's punchline and Samuel P. Huntington's "clash of civilizations" were probably the most prominent. But even more leitmotifs competed for recognition. Even before the Soviet Union was dismantled, George H. Bush hailed the beginning of a "new world order." Later, Bill Clinton wanted to invest the "peace dividend" in education and an improved welfare system, while the neoconservative backlash resulted in "nation building" and "regime change" throughout the Greater Middle East.

In retrospect, all these concepts proved to be misleading, if not dead wrong. The "new world order" was based on the same liberal principles that the US and its Western allies preached during the Cold War. Russia was absent as a strong power at the beginning of the new order while others were still rehearsing their new roles backstage (China, India, Brazil, South Africa). The "peace dividend" never materialized—it either seeped away in new theatres of war (Iraq, Somalia, Afghanistan, the "War on Terror"), or was spent on "nation building" and "regime change" abroad (also with extensive military means). Both the US and EU injected much-needed assistance to reform Cold War-torn societies in Central and Eastern Europe. Newly released military budgets also went into the enlargement of NATO and the EU, while reunified Germany poured billions of euros into the reconstruction of the bankrupt former GDR—and became the "sick man of Europe."

Three decades after the end of the Cold War, our world is a far cry away from what we expected in 1989–91 when the bipolar world order came to an end. We have not experienced the "end of history," nor are we confronted with a full-fledged "clash of civilizations." And if we are at the threshold of a "new world order" it is a completely different one from what we anticipated or wished for. As the journalists George Will and Fareed Zakaria have suggested, after 9 November 1989 history only took a short vacation;[2] it returned forcefully and unexpectedly on 11 September 2001.

What decision-makers can really learn from history
But is the critique of past generations not self-righteous? With hindsight, it is quite easy to prove past assumptions about the world's trajectories right or wrong. In retrospect, we can easily contextualize hitherto unconnected trends. We can even impose logic on developments that we did not understand when they happened. Looking back, human

development can be explained as a zero-sum game: everything falls into its right place and can be attributed to our values and worldviews.

From a socio-psychological point of view, writing history is a social (re-)construction of past events, a sense-making process to impose meaning upon once chaotic, often ambiguous developments. Like criminal investigators, historians engage in postmortem analysis. But even though historians want to uncover "how it really was," we have to accept the fact that historical science can only be an approximation, a plausible interpretation of what happened—not the full picture, and definitely not "the truth." More importantly, Churchill's "History is written by the victors" reminds us that historians often leave us with a tainted picture of the past. So, if we can only agree to disagree about the interpretation of our historical past, how can we ever assume that there will be only a singular version of the future?

Innumerable drivers of change—social, cultural, technological, legal, economic, military, political, normative, ecological etc.—play important roles in the development of societies. They are inseparably intertwined and constantly changing. Continuously interacting, they form so-called "emergent systems," which often turn out to be wicked problems for policymakers. But which drivers of change play out more importantly than others? Which trends are becoming systemic? Which factors trigger disruptive change and paradigm shifts, while others are marginal and can be disregarded?

These are the questions that historians and political analysts have in common. But while historians have become humbler in recent decades in their interpretations of the past, political analyst typically still explain world affairs quite self-confidently—despite their sparse foresight capabilities in recent years.

Executive myopia and the need for Futures Studies
Indeed, political analysts are confronted with a similar task as historians: they are expected to explain how complex situations may unfold. While historians (and criminologists)—using evidence, data, and surviving witnesses—engage in postmortem investigations (What was?) political analysts are preoccupied with pre-mortem analyses (What if?).[3]

Due to the lack of data or first-hand accounts, political analysts have to base their judgment about future developments on the extrapolation of

past data (experience/expertise)—often grounded in normative frameworks and belief systems or schools of thought that are also evolving, depending on events. Basing their judgments on such sandy foundations, they advise decision-makers, who in turn "cherry pick" pieces of experts' advice that fit their mental models and reframe them so that they resonate among their political peer groups. It is all too obvious that this mode of political consultancy has clear limitations in our modern VUCA world. More metaphorically, it could be compared with a speedy, nighttime car race in bad weather conditions with all drivers—their fingers crossed—looking into their rear mirrors, hoping for orientation while praying that they will not hit an obstacle.

The consequence is a widespread feeling of uncertainty. Nik Gowing and Chris Langdon have adequately described this uneasy situation: "A proliferation of 'unthinkable' events … has revealed a new fragility at the highest levels of corporate and public service leaderships. Their ability to spot, identify, and handle unexpected, non-normative events is shown not just to be wanting but also perilously inadequate at critical moments. The overall picture is deeply disturbing." Even more troubling is the inactivity of leaders despite their collective experience of numbness. "Remarkably," Gowing/Langdon continue, "there remains a deep reluctance, or what might be called 'executive myopia,' to see and contemplate even the possibility that 'unthinkables' might happen, let alone how to handle them."[4]

When engaging with state institutions and corporate management in strategy development, analysts have to overcome not only cognitive limitations but also various other stumbling blocks, most of them structural in nature. Decision making structures—particularly in political administration—are, for example, still aligned with the processes and demands of the emerging national economies and military/industrial complexes at the end of the 19th century. The operating principles have remained essentially unchanged to the present day: compartmentalized to a high degree according to jurisdiction, strictly hierarchical and thus vertically structured, mechanical in procedure, and sluggish in generating coherence. Even though bureaucracies are part of highly interactive social systems, their modus operandi is "increasing efficiency," not "managing complexity."[5]

This often leads to structural blindness. A political apparatus that organizes its forward planning chiefly along the lines of departments and

responsibilities is inclined to ignore weak signals of change that do not comply with its organizational logic. Hence, its worldview is often over-simplified, always fragmented, and sometimes deterministic and linear. The late American columnist Will Rogers once summed up this phenomenon with the ironic observation that "everybody is ignorant—only on different subjects." This is particularly true for stove-piped bureaucracies.

Executive myopia—sometimes aggravated by sheer ignorance—exposes us to unfamiliar terrain: the return of geopolitics, the fluctuating global economy, epidemics such as Ebola, cyber security, hybrid warfare, the redesign of regional orders. Flabbergasted by surprising events, we have all stumbled from crisis to crisis: 9/11 (2001) and the financial meltdown (2007–08), the Arab Spring leading to the collapse of Libya and Syria (2010–), the nuclear disaster in Fukushima (2011), the conflict in Ukraine and the annexation of the Crimea by Russia (2014–), the rise of the so-called Islamic State and the proclamation of the Caliphate (2014–2019), the wave of migrants from the Greater Middle East to Europe (2015–16), Brexit (2016–), and Donald Trump's victory in the US Presidential elections (2016)—these are all "wicked problems" that defy linear solutions and need lateral thinking instead of efficiency-driven bureaucratic processes.[6]

Government, whether on autopilot, muddling through, or constant crisis management, will not produce good-enough—let alone sustainable—solutions and robust results. To master the challenge, we have to invest in Futures Studies and enhanced capabilities for "anticipatory governance." Thinking systematically about alternative futures—all of which are plausible—and planning accordingly is a prerequisite to building up resilience in a constantly changing environment. So-called evidence-based decision making—i.e., decisions relying on past experience, existing evidence, and linear projection—has its limits in our VUCA world. The further we try to look into the future the less we can rely on the extrapolation of past data.

"Slow thinking": Futures Studies based on qualitative analysis
Before examining the value of foresight and scenario planning for policy planning processes in more depth, a commonly held misconception needs to be discarded: forward-looking policy planning is not about forecasting or even predicting future developments. Whereas a prediction is a *definitive* statement about a future event (for example: "In 2024, Mr. X

will be Vladimir Putin's successor"), a forecast is a *qualified* statement about a future condition (for example: "If Vladimir Putin does not breach the Russian constitution, there will be a new Russian leader in 2024"). The forecast's qualifiers represent the level of uncertainty in the judgement. Foresight "is … a distinct process of monitoring prospective oncoming events, analyzing potential implications, simulating alternative courses of action, asking unasked questions, and issuing timely warning to avert a risk or seize an opportunity."[7]

Hence, foresight is less about products, more about process. Once decision-makers have accepted the fact that the future is not static—given that it can be partly influenced by their decisions—they can better understand that predicting the future is meaningless. Anticipatory governance draws upon a host of proven foresight methods and scenario planning instruments. These can be used whenever quantitative methods and the extrapolation of existing data and past experiences are not sufficient to allow robust, forward-looking decision making.

Foresight analysts roughly distinguish three types of future scenarios: normative, explorative, and disruptive. While explorative scenarios are open-ended inquiries into the space of the possible (What could happen?), normative scenarios are bound by pre-definitions (What should happen?). Disruptive scenarios, in contrast, take an event or a non-linear development as a starting point to analyse the impact on societies or other systems, asking the question: Are we prepared?

All three scenario techniques have one thing in common: they are based on a thorough analysis of a wide range of key drivers and their interplay—e.g., global or mega trends, intervening factors and actors, and, most importantly, weak signals of change that have the potential to morph into key drivers over time (often defined as "unknown unknowns").

But a thorough analyses of key drivers of change is only one side of the coin. Equally important is their flipside: deeply ingrained belief systems and mental models. Challenging our hardwired key assumptions about how the world functions (heuristics) is even more important (and challenging) than looking at factors of change.

Why is challenging our key assumptions so important? Because if the map is wrong, even the best staff and equipment cannot navigate us through *terra incognita*. In the words of American writer Ursula K. Le

Guin: "There are no right answers to wrong questions." Avoiding intellectual shortcuts, habitual pitfalls, heuristics, and mental shotguns are probably the hardest challenges of all when thinking systematically about the future.

The art of foresight, therefore, is to connect the data points of today with the trends, drivers, and key factors of change of tomorrow—and to separate the wheat from the chaff. Analysts must also accept the fact that the future may not be a linear projection of the past but may well be an abrupt discontinuity which triggers a completely new path forward (disruptive vs. incremental change). To overcome linear thinking, to fight the human brain's default settings, to bypass cognitive biases and humans' unfamiliarity with thinking structurally about the future, foresight must be heavily methodology-driven.

Cognitive biases and "formation professionelle"
Our analytic judgement about the present and our assumptions about the future are firmly anchored in our past experience. Cognitive biases such as groupthink have a huge impact on our perceptions and determine how we interpret data. Our worldview is the product of our upbringing and socio-cultural environment. It reflects our education ("formation professionelle") as much as it does our institutional roles and affiliations.

Unconsciously, we have developed patterns that help us to navigate our daily lives; they ensure that we do not have to analyse each and every situation from scratch before we can make a solid decision. Based on past experiences, our brains simply need to recognize familiar patterns and analogies to be able to make a quick and adequate judgment. Ten thousand years ago, this brain function helped *Homo sapiens* to survive in a hostile environment—and this is why "fast thinking" takes place in the oldest area of the human brain: the limbic system. It functions best in linear contexts in which A logically leads to B.

But the limbic system does not serve us well in non-linear, complex environments—i.e., the VUCA world. Today, there is a good chance that the natural reflex of the limbic brain produces inadequate responses. Analysts need to be aware of these mental traps before they start an analytical process. To really understand what is going on in a complex system, one deliberately needs to understand and analyze it—a cognitive process dubbed "slow thinking" by psychologist Daniel Kahneman.[8]

From insight to foresight: A four-step methodological approach

Step I: Key Assumption Check—challenging common wisdom and truisms
Usually, a foresight process consists of a four-step process: questioning common wisdom (Key Assumption Check), followed by the identification of key drivers of change (structured brainstorming), the generation of multiple plausible narratives of the future (scenario generation), and a scenario transfer, including the establishment of an early warning system to track future developments (indicators).

Before starting a foresight process, people need to get acquainted with the fact that the future might not be a linear projection of the present or the past. This is easier said than done because it requires people to move beyond their comfort zones, question the very foundations of their belief systems, and acquaint themselves with the possibility that their analysis might be outdated.

The first step is devoted to the so-called "Key Assumption Check." A Key Assumption Check is a systematic effort to make explicit and to question the assumptions that guide an analyst's interpretation of evidence and the reasoning underlying any particular judgment or conclusion.

A Key Assumption Check exercise is probably one of the most effective tools in a foresight exercise. It literally swipes away long-held beliefs and thereby levels the playing field among the analysts. Going through a Key Assumption Check, workshop participants immediately understand that "an organization really begins to learn only when its most cherished assumptions are challenged by counter-assumptions."

To kickstart a Key Assumption Check, participants of a scenario exercise would be asked to collect as many commonly accepted assumptions as possible. The group then challenges these assumptions by critically examining them, asking the following questions:

- Why am I confident that this assumption is correct?
- Could the assumption have been true in the past but no longer today or in the future?
- Under which circumstances might this assumption be untrue? Is there any inconsistent data which might falsify the assumption?

- If the assumption turns out to be invalid, how much impact would this have on my analysis?

After a thorough examination, the assumptions are categorized as "solid" (true without caveats), "correct with some caveats," "unsupported," or "questionable." Experience shows that about one third of commonly held assumptions need to be revised or fall apart completely under thorough scrutiny. They then become so-called "key uncertainties" and play a decisive role in the ongoing scenario process.

Step II: Structured brainstorming—everybody is ignorant, only on different subjects

The underlying premise of a group exercise is that the whole is greater than the sum of its parts. But such coherence can only be achieved if good group dynamics are achieved. Behavioral group aspects play an important role for the success of a scenario exercise and are often underestimated. Addressed well and early on, they can become key success factors. As a rule of thumb, three ingredients need to be considered before starting a foresight exercise:

- Group heterogeneity. The more heterogeneous a group of foresight analysts, the better is their "seismic sensitivity," i.e., their ability to detect "weak signals of change," to differentiate these from "noise," and to include new drivers of change into their systemic thinking.[9]
- Role of hierarchy and seniority. Hierarchy and seniority need to be levelled, because the role of organizational leaders often is to defend the status quo and retain mainstream thinking—not to challenge it. In foresight processes, therefore, the primary role of hierarchy and seniority is to give space and legitimacy to what is essentially a challenge to current strategic thinking.
- Early involvement of decision-makers. Thinking strategically is per definition the domain of politics. Early involvement of decision-makers eases their buy-in to the process and its outcomes—especially if it involves external experts unknown to them.

To overcome the negative aspects of group dynamics, yet at the same time to tap into the wide and fragmented knowledge of a heterogeneous

group of experts, a specific technique of brainstorming has been proved useful—structured brainstorming.

Brainstorming is a well-established method to stimulate creative thinking, but it has its limitations in hierarchical contexts. To tease out non-aligned opinions, flag raw ideas, boost the value of unfamiliar concepts, and integrate fresh thinking of younger members of the group, brainstorming sessions need to be freed from hierarchy and social frictions. Brainstorming sessions, therefore, should follow a few simple guidelines. Counter-intuitively—but most importantly—they need to be conducted in silence, at least during the initial stage. If conducted openly, all formal and informal, conscious and unconscious patterns of social groups are at play again—obstructing the basic aim of a brainstorming exercise: to come to new, sometimes surprising findings.

To familiarize workshop participants with systemic thinking, it is helpful to introduce an analytical framework. Whereas the STEEP, PEST, or PESTLE analytical frameworks are commonly known, the STEMPLE-Plus framework covers a wider analytical horizon. STEMPLE-Plus includes the following factors of societal change (with a few illustrative examples for each factor):

- **Social**. Demography, migration, social cohesion, wellbeing
- **Technological**. Digitization, automation, internet of things, industry 4.0
- **Economic**. Macroeconomic performance, investments, recessions/booms
- **Military/Security**. War, tensions, terrorism, security architecture, securitization of sectoral policies
- **Political**. Regime change, political culture and climate, polycentrism, international order
- **Legal/Normative**. Legislation and constitutional issues; norms, standards, and regulations
- **Environmental**. Natural resources, climate change, biodiversity, desertification, sustainability
- **Plus other (soft) factors**. Psychological (anti-globalization, xenophobia, populism, nationalism); cultural (values, religion, habits)

With this analytical framework as backdrop, participants of a foresight and scenario exercise are asked to silently write down on sticky notes as many ideas as they can to answer the research question (for instance: "Within the next five years: What are all the forces, factors, trends, and events that will influence the succession of Vladimir Putin?").

After about ten minutes, workshop participants usually find it more difficult to keep generating new ideas because they have produced all obvious answers (available knowledge). Workshop facilitators then collect the sticky notes and read them out aloud before putting them up randomly on a whiteboard. Participants are now asked to associate freely with what they hear and write new ideas on more sticky notes. The goal is to motivate workshop participants to come up with ideas they would otherwise not express in an open discussion: gut feeling, hearsay, notions—i.e., the weak signals they might have come across in their various professional contexts but could not yet explain.

Usually, a group of about fifteen participants produce between 200 and 250 sticky notes. Once the production stage comes to an end, up to five group members are asked to step up to the whiteboard. Their task is to arrange the sticky notes according to affinity groups (not categories); again, they are not allowed to talk to each other. If they disagree over the right position of a sticky note, they are allowed to duplicate it and to put them into different affinity groups. Outliers should be kept separately and should not be forced into an affinity group; they might be the seed of an upcoming new trend or a wildcard. The end product is a system of about ten to fifteen overlapping affinity groups assembled in a huge word cloud. Once the cloud of affinity groups is completed, a second group is asked to refine the product (in silence) and (after a short discussion) to assign labels to each affinity group. These labels then become the drivers in the subsequent Multiple Scenario Generation exercise.

In an ensuing group discussion (ideally supported by a System Dynamics analysis), workshop participants cluster these drivers into high-impact and low-impact drivers. Those with a high systemic impact are called "key drivers" and are used for the scenario building process.[10] Another selection criterion for key drivers is a high degree of uncertainty on how these drivers might change over the examination period. There should be also be an emphasis on including as many STEMPLE-Plus factors to cover as many different aspects of societal change as possible.

Step III: Plausible alternative futures—developing narratives of change
To develop narratives of plausible futures, two different methodologies
are widely applied within the foresight community: the so-called Multiple
Scenario Generation method (MSG)[11] and the Morphological Box
technique. MSG is a repetitive process of combining two critical drivers to
develop four distinct scenarios per iteration. A Morphological Box allows
the deconstruction of complex systems within a single matrix.[12]

Both methodologies are fed by the key drivers generated during the
Structured Brainstorming exercise. Reducing the number of key drivers is
key—not only to keep the process manageable but more importantly to
force workshop participants to focus on highly active systemic drivers,
i.e., those with the capacity to influence complex systems (instead of
being influenced by others). Key drivers must be mutually exclusive and
properly defined.

Multiple Scenario Generation. With five key drivers (A–E), ten different
combinations of two-by-two matrices can be arranged. To define the range
of plausible developments, key drivers are defined along a bipolar
spectrum. An example: If "Mass Migration" is identified as a key driver
for a society's development, this phenomenon needs to be defined in
qualitative terms to harmonize a group's understanding of the underlying
concept and bound the range of uncertainty that analysts must deal with in
their scenarios. It is, therefore, important to come up with the most telling
description for each key driver. In this example, extreme trajectories of
mass migration could be described as "high/low" (static description),
"decreasing/increasing" (dynamic description), "controlled/chaotic"
(qualitative description), "legal/illegal" (legalistic description),
"human/inhuman" (normative description), etc. Finding the right edge to a
key driver's impact on larger systems, it is of high importance to
accurately define its spectrum of plausible future trajectories.
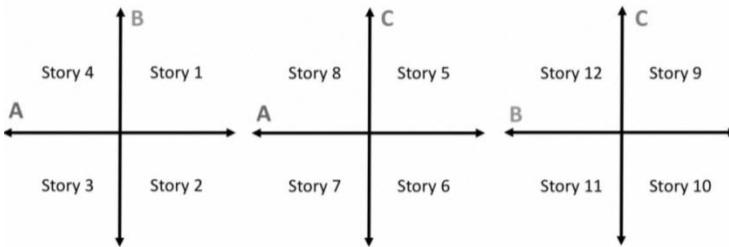
Fig. 1: Multiple Scenario Generation

If—as in this example—all five key drivers qualify with a bipolar spectrum of plausible outcomes, the combination of key drivers A to E will lead to forty different scenarios. Only those combinations will be used to generate full-fledged scenarios which are logically consistent and promising enough to generate new insight.

Each of the scenarios receives a "sticky" title (popular are movie or song titles) to enable readers to immediately grasp the gist of the scenarios, a few bullet-points to describe the main features and characteristics of each scenario and, most importantly, an answer to the "So What" question—i.e., what are the consequences of each scenario for policies and policy-makers (i.e., risk, opportunity, preparedness)?

Morphological Box (or Zwicky box). If topics are highly complex and more than five key drivers need to be considered, the Morphological Box methodology allows for a more comprehensive scenario building process than the MSG methodology.

General Morphological Analysis (GMA) is the study of forms or patterns and how they create a whole by connecting different parts of an object. Depending on how they conform, they represent a whole ("Gestalt"). Objects in question could be physical (organism or ecology), social or organizational (institution or company), or mental (ideology or vision). GMA was developed by astrophysicist Fritz Zwicky as a method for structuring and investigating the total set of relationships contained in multi-dimensional, non-quantifiable, complex systems.

GMA allows for a more systemic approach to scenario building than MSG because analysts deal with all drivers and their plausible future deviations (morphs) at once—not in a fragmented way, as demanded by the MSG methodology.

Parameter A	Parameter B	Parameter C	Parameter D	Parameter E	Parameter F
Condition A1	Condition B1	Condition C1	Condition D1	Condition E1	Condition F1
Condition A2	Condition B2	Condition C2	Condition D2	Condition E2	Condition F2
Condition A3	Condition B3	Condition C3		Condition E3	Condition F3
Condition A4	Condition B4	Condition C4		Condition E4	Condition F4
Condition A5		Condition C5		Condition E5	
				Condition E6	

Fig 2: Morphological Box

After analysts identify the most important parameters determining a system or a problem (key drivers), they have to define and list the range of plausible future conditions for each parameter—i.e., mutually exclusive characteristics and variations that define a system and determine its behavior.

Scenarios are constructed by combining logically consistent parameters with each other, with each configuration marking a possible formal solution to the problem (alternative future). Because of the sheer number of possible combinations—a Morphological Box with five key drivers A–E and four variations produces 1,024 possible combinations—a consistency check needs to be done beforehand: that is, an examination of the internal relationships between the field parameters to weed out configurations that contain mutually contradictory conditions. In a consistency check—which is often supported by computer software—three types of inconsistencies need to be assessed: purely logical contradictions (nonsense), empirical constraints (has never been observed), and normative constraints (will socially or politically not be accepted). In a typical morphological field, up to ninety percent of theoretically possible combinations can be reduced through a thorough consistency check.

The rest of the process is similar to the MSG methodology: Experts develop scenarios by combining highly consistent key drivers and all possible variations. The ultimate goal is not only to come up with risk and opportunity scenarios but—if at all possible—to also generate counterintuitive ideas, i.e., scenarios that lead into hitherto unknown territory. It's the latter category—counterintuitive scenarios—that open up space or bypasses for decision-makers that would otherwise not have been detected.

Step IV: Scenario transfer—impact assessment, tracking and tracing
Foresight aims at generating a holistic view of systems or emerging problems to enable policymakers to better understand the dynamics and volatility of change, the uncertainties and interdependencies of drivers, and the complexities and ambiguities within societies.

But in the world of policymakers, Futures Studies and scenarios are not of much use. This is because foresight and politics follow different logics: whereas foresight and scenario development are analytical processes, politics is driven by a completely different rationale—it is

geared towards the question of what is in the interest of actors and stakeholders.

In short: while foresight and scenario planning are apolitical, analytical, sense-making processes, a political process is guided by domestic, normative, and personal considerations. To be able and willing to assign financial resources, invest political capital, or even risk their personal credibility, policymakers need evidence that foresight will produce better results than muddling through—in other words, to assess how likely the emergence of a high-risk or an opportunity scenario is before they make their choices.

Step IV of a foresight and scenario planning exercise—the so-called "scenario transfer"—aims at connecting these two rationales. To start a scenario transfer and spur thinking about implications and policy options, observations and recurring themes (patterns) from a foresight and scenario workshop should be formulated as hypotheses. Policymakers can then start a debate about the robustness of current policies and instruments.

Hence, decision-makers need a transmission belt to make use of scenarios in their daily work. To be able to react timely to developments, they need an early warning tool that helps them to detect scenarios unfolding in the real world. It is therefore essential to underpin critical scenarios with a set of distinct indicators—observable phenomena that can be collected, reviewed, and evaluated over time. Indicators enable policymakers to track events, spot emerging trends, separate relevant information from noise, and avoid surprise.

To fulfill all these criteria, indicators need to be "hard." That is to say, they should ideally be measurable signposts that point to the emergence of a single plausible scenario, not others. Practice shows that setting up lists of indicators can become a quite cumbersome task. But to be of use for policymakers, the development of indicators and "policy incubators" (workbenches for strategy elaboration) is indispensable.[13]

Epilogue: Thinking the unthinkable and reconsidering institutional frameworks

Business-as-usual will no longer do; this is all too obvious. If political leaders want to stay behind the wheel, they need to better understand the fundamental drivers of change in our VUCA world. Only then will they be

able to develop realistic policies and formulate robust strategies to promote or—if necessary—defend them.

Based on Leon Fuerth's experience as national security advisor to Vice President Al Gore, a combination of the following measures could significantly improve political decision-makers' ability in anticipatory governance and early warning:

- Inter-departmental integration of strategic forward engagement methods in the policy planning process
- Introduction of horizontal budget lines, geared towards inter-departmental, long-term future objectives rather than to departmental concerns
- An intra-governmental network for orchestrating and implementing holistic governance approaches
- Systematic, comprehensive impact assessment of policy, based on a range of time horizons and policy alternatives (ex-ante, ad interim, ex post)
- A monitoring and feedback system that continuously questions requirements, expectations, and political performance, creating a self-learning system

Yet Futures Studies can never be a substitute for political decision making. Rather, it may be thought of as a reframing process that allows for a deeper understanding of major drivers of societal change, interpreting weak signals of change, and thereby considering plausible alternative futures.

In this way, anticipatory governance can improve not only political performance at all levels, but also help consolidate the legitimacy of state institutions and democratic processes. Without a better understanding of the future and management of change, the risk exists that the floodgates will be thrown open to populism, extremism, and fear-driven debate.

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CHAPTER 26: FORESIGHT AS A RIGOROUS AND SYSTEMATIC IMAGINING PROCESS

by Peter Padbury

Introduction

Humans have an amazing capacity to imagine the future, and most foresight tools use this capacity but don't fully utilize or explicitly support it. The Horizons Foresight Method puts this power to model and visualize at the centre of the foresight process. This paper describes some of the unique features of the method, outlines its steps, and discusses some of the practical issues that arise when using it.

There are many tools in the futurist's toolbox[1] and many good foresight methods.[2][3][4] At Policy Horizons Canada we use a variety of methods depending on the purpose of each foresight study. The Horizons Foresight Method is a strategic foresight method that was designed to help government policy analysts and decision-makers explore how complex systems could evolve and challenges and opportunities that could emerge. It provides a *context* for medium-term policy development and vision building. The objective is *not* to predict the future, but to prepare strategies, policies, and programs that are robust across a range of plausible futures. It gives policymakers an overview of the policy landscape they confront so they can solve the problem as it will be, rather than as it was.

The method was developed using a trial and error approach over decades. I was initially inspired by Elise Boulding's workshop with several hundred participants at a World Futures Society conference. She used a simple guided imaging process to help participants imagine a world of peace. Then she asked each person to describe their vision to the other people in their small group. I was intrigued by the level of detail (and enthusiasm) that participants used to describe their vision. Then she took people through a second round of imaging in which she asked everyone to take the best ideas from the first round of imaging and build a new, more integrated vision. The results were richer and far superior to a group brainstorm on a flipchart! As I opened my own futures practice, I learned that a more rigorous and systematic process was needed in a public policy

setting. More "scaffolding" was needed to help people build more complex mental models and look into the future.

Uniqueness of the method
Try a little experiment: Take a few deep breaths, relax and then observe the way your mind answers this question: How many windows in your kitchen? If you are like most people, you can "see" your kitchen in your mind. You look around and count the windows. You can walk around the kitchen and even renovate your kitchen in your imagination. This is the capacity we are utilizing at each step in this method.

Our amazing capacity to imagine: The neuropsychologist Karl Pribram said we can learn a lot about our mind by observing it in action. He described mental processes as having a holographic/contextual quality.[5] The human imagination can reconstruct an image from the past or replay "mental movies" of events or experiences. We can also create images and models of completely new ideas in our minds. For instance, humans use this capacity when we confront a difficult decision and we run "mental movies" to explore alternative strategies.

We build models in our heads and use them in mental simulations: Over the years, many foresight practitioners[6][7] have talked about the central role of mental models in foresight but have not explicitly brought them into the process. A branch of cognitive science explores the role of mental models in thinking.[8] According to this set of theories, "the mind constructs small-scale models of reality that it uses to anticipate events, to reason, and to underlie explanation… Mental models have a structure that corresponds to the structure of what they represent. They are akin to architects' models of buildings, to molecular biologists' models of complex molecules, and to physicists' diagrams of particle interactions… *Everyday reasoning depends on the simulation of events in mental models.*"[9]

Policy analysts, managers, and leaders usually have well-developed mental models of the systems they manage. They use these models to run movies in their heads to explore how a given action could play out within the system so they can test ideas, develop strategies, and make decisions. The Horizons Foresight Method makes explicit use of this capacity.

There are many reasons to work directly with people's mental models. Surfacing and examining the mental models of key stakeholders helps us

understand how people think a system works. We can combine models from different people's perspectives to get a more complete picture of the system. When people participate in a foresight study (or read one) they build a new, more comprehensive mental model or strengthen old models. When we examine our mental models and make them more explicit, we improve the quality of our analysis, strategy, and decision-making. While most participants are unaware of this aspect of their mental lives, they are happy to work with it.

Ways to support more complex imagining

Most people practice an embryonic version of foresight daily using unconscious versions of extrapolation, impact assessment, and scenarios on simple problems in our minds. But our capacity to imagine the evolution of complex systems is weak. We can strengthen our capacity to do more rigorous imagining and foresight in the following ways.

- *Surface and test assumptions.* Assumptions (i.e. what we believe to be true) are a useful focus for foresight. Every decision has an (often implicit) image of the future and a related set of (often unexamined) assumptions that support the decision. Assumptions are the foundation for inference, reasoning, and thus policy analysis and decisions. If you state several assumptions about a system, most people will use them to build a mental model instantly and then test it against their own mental model of the topic. A productive dialogue is easier when assumptions and related mental models are clear. It turns out that assumptions provide a very concise way to communicate findings, especially to senior managers who don't have time to read a 50-page report. At the beginning of the Horizons Foresight Method we surface the assumptions that are shaping public policy on the issue. Then, at the very end of the study, we test those assumptions for robustness across the range of plausible scenarios. If an assumption proves to be vulnerable or uncertain then we propose more credible planning assumptions that are robust across the range of plausible futures.
- *Focus on the system.* For many people, talking about the future feels like staring into the fog. Some kind of structure is helpful. In most cases, putting the system at the centre of the study will make it easier and maximize strategic insight. The Horizons Foresight Method surfaces participants' mental models of the system and then draws a simple system map with nodes and relationships.

Each node is a window or a lens into some part of the system that is changing. This diagram helps focus attention and structures the dialogue at each step in the process. The participants run mental simulations to visualize how the system could evolve under different conditions at each step. The focus on the system allows participants to actually see what plausible futures could look like. Working with a system model that is grounded in current reality but evolves under plausible conditions is key to creating useful foresight.

- *Use graphics at each step in the process.* We often experience mental modeling as a verbal process—as questions, statements, and stories in words in our head. But if you observe your own mind closely, you will often find there is an underlying visual process. Surfacing and describing mental models can be very challenging if it is done as an analytical process using words rather than graphics. Humans can keep only five to seven things at a time in working memory, which makes dialogue and progress on complex topics difficult and frustrating. Using graphic tools to capture the important information at each step can help the group develop a shared understanding. For instance, the communications challenges are reduced when participants can point to a drawing to talk about how and where a change driver impacts a system.
- *Explore multiple sources of uncertainty in a systematic way.* The Horizons Foresight Method uses the knowledge and visualization capacity of participants to explore five sources of surprise that contribute to uncertainty in the future behaviour of a system:
  - Surprises coming from the places we are not looking: Scanning can help.
  - The cascading (third, fourth and fifth order) impacts of change as it rolls across the system: Cascade diagrams provide the scaffolding to see how change evolves over time.
  - Changes interacting with each other at the same time: Cross-impact analysis is useful.
  - Lack of awareness of the pathways through which change could flow: System mapping can help.
  - Lack of imagination as to how unexpected patterns of change could emerge: Scenarios embodying different models of change can help.

Looking at each of these sources of surprise in a systematic way provides useful information to reduce uncertainty and understand how the system could behave and evolve.

- ***Immerse participants in the possibilities of the future.*** Most people are focused on the expected future and are less aware of the weak signals or disruptive changes that could impact their policy domain, especially changes coming from beyond their silo or area of responsibility. In a foresight exercise, participants need to be familiar with all the significant (social, technological, economic, environmental, and governance—domestic and international) changes that could disrupt the system. For instance, if you are doing a study on the future of healthcare and the participants do not have a very good grasp of the possibilities of artificial intelligence and synthetic biology, you may be wasting your time. In the Horizons Foresight Method, this information is gathered through scanning and interviews and then presented to participants and users as insights about plausible disruptive changes—ideally with short videos or other kinds of experiential processes that allow the user to see "the evidence" in its current emergent state.

- ***Use guided imaging to support visualization.*** The Horizons Foresight Method uses guided imaging[10]—a visualization technique that helps participants surface their mental models of the system and explore how it could evolve in the future. The guided imaging is customized to the problem. In a study, the first guided imaging exercise provides some "scaffolding" to help participants explore and share their thoughts. It can take ten or fifteen minutes. But as participants develop more complex mental models of the problem, less instruction is needed. Many people worry that senior management does not want to look silly and will not participate. It is true that one person in twenty may resist. Just tell them to contribute as they feel comfortable. When they see others doing it, they usually join in. Most people are really intrigued by what they and others see. One of the most senior public servants I worked with told everyone that it really helped him do his job. That made my job easier.

Steps in the Horizons Foresight Method

This process is fluid, dynamic, and iterative. Each step builds a better understanding of the system, how it could evolve, and the surprises that could emerge. At each step, a large amount of information is gathered,

considered, filtered, and then edited to focus attention on the essential building blocks. Simple diagrams and other visual tools provide scaffolding to enable participants to share their models and facilitate dialogue at every step in the process. Below, the method is presented as a linear process. Following the steps is a useful discipline, especially for beginners, but in practice it is common to move back and forth among the steps as understanding of the system grows.

Step 1: Frame the problem. What is the study about? Who is it for? What do they need to know? There is often pressure to frame the topic of a foresight study in very narrow terms. People think it will be easier and faster to do a small, contained study. However, a narrowly defined study may only help you understand the expected future. Generally speaking, you should include the "external" systems that are the context for your topic. For instance, some people may think the future of banking is largely about new technologies. A rigorous study could include the future of national and international regulation, international trade in services, the evolving digital economy, and geopolitics. The framing of the problem may change as you learn more about the multiple pathways through which drivers could impact the system. Recommended steps:

- Identify the issue or focus of interest as an evolving system. Be sure to consider the larger context for your topic—the system(s) shaping it.
- Prepare a simple domain diagram of the related systems that could influence your problem. Brainstorm potential ideas and then do affinity mapping if necessary, to ensure the domains are at the same level conceptually. This is a first pass at what is "in" or "out."
- This initial framework will assist with scanning. Allow it to evolve over the study.

Step 2: Surface current assumptions. Identify the current, commonly held assumptions about the issue and its system. These are the core assumptions that are shaping public policy on the issue today. Most participants and readers find this to be an extraordinarily useful step. The current assumptions can be found "buried" in public policy documents and in the ongoing policy dialogue. These assumptions are collected at the outset of the Horizon process through interviews and research, and later tested for robustness at Step 7 in the process.

- Use research, interviews, and group discussions to identify the "current assumptions" buried in the ongoing public dialogue and in key policy documents.
- Identify key trends people assume are true.
- Summarize key assumptions and trends as a description of the expected future.

Step 3: Scan for weak signals. Great scanning provides the evidence for insightful foresight. Scanning identifies changes in the domestic and international environments that could have significant implications for the issue and the system. It is an organized process that searches for weak signals—signs that something new is occurring that could disrupt the system in unexpected ways. Clusters of related or confirming weak signals that appear to have significant potential for disruption are further developed into an "insight paper." Often, the disruptive change comes from places where analysts are not looking. But the changes may be known to frontline workers, early adopters, critical thinkers, visionaries, stakeholders, etc. Scanning involves literature reviews and then interviews which try to surface and probe the mental models of people who have knowledge of, or experience with the system.

Many organizations focus their attention and scanning on the *expected future*—that is, the *high probability, high impact* trends that could disrupt their operations. These trends are often in the media and part of the everyday public and policy dialogue. It is important for organizations to identify such trends, and many organizations are very good at it. However, those who focus exclusively on trends risk being blindsided. Trends are based on data. All data is in the past. Trends may be unreliable if the underlying system is changing in fundamental ways.

Weak signals that are perceived to have *low or unknown probability* are often discounted or ignored. Policy analysts see them as tomorrow's problems or as lying beyond the scope of the study or the mandate of the organization because they cannot see the pathways through which the weak signals disrupt their system. These low or unknown probability, but potential high impact developments are the ones that scanning should target and explore.

- Research literature from a very wide range of sources including social media and then conduct interviews with a diverse range of people who know the issue and its system.

- Surface the mental model(s) that interviewees have of the system. Ask what weak signals they see. Ask them "what if" questions to explore how they think the system could evolve and the challenges that could emerge. Ask about preferred futures.
- Build a database of weak signals, insights, trends, challenges, opportunities, and visions.
- Discuss the weak signals and trends with team members and stakeholders on a regular basis to develop a shared understanding of the various forces shaping the system.

Step 4: Develop a system map. The map captures the essential structures and processes in the system. If you were offering a verbal description of the system what are the essential pieces people need to know. These maps can range from simple process diagrams to complex causal loop diagrams depending on the nature of the system. It is usually not a map of stakeholders. The ideal map has ten or fewer nodes, although many more nodes are possible if you have the time and need. Often, this is the most difficult step in the process. It requires that we generalize and get to the essential pieces. For example, in a study on the future of the economy, we realized that eight emerging technologies were shaping an on-demand global digital economy. The system map was a smart value chain, with regions for design, production, delivery, workers, firms, etc. It was a simple but powerful image, with very broad implications.

- Develop a system map including key nodes and relationships.
- The study participants, stakeholders, and invited experts each draw a picture of their mental model of the system. An attempt is made to develop a group system map that includes the elements where participants think significant change is possible.
- Several iterations are often useful.
- Update and allow it to evolve over the study.
- Use the map to explore where disruptive change could occur. Do further scanning for weak signals if needed.

Step 5: Select change drivers. All the weak signals, insights, and trends from the scanning phase are reviewed. Those that appear to have a significant, disruptive impact on at least one of the elements in the system map are chosen for further filtering. Typically, between five and ten candidates with the most strategically interesting impacts are processed further. At this stage, cascade diagrams are used to explore the potential

second, third, fourth, and fifth order impacts of the drivers over time, and cross-impact analysis is used to explore how the various drivers could interact with each other (at the same time) to add new information about how the system could evolve and help shape and choose the most useful and impactful drivers.

- Examine all the weak signals, insights, and trends from scanning to identify potential change drivers. A useful change driver disrupts at least one system node on the system map in a surprising way. Choose five to ten of the most strategically interesting ones.
- Do cascade maps to see second to fifth order consequences over time for each chosen driver.
- Do cross impact analysis to explore surprises from driver interactions at the same time.
- Choose five to ten drivers that have strategically interesting impacts on the system.

Step 6: Develop system-based scenarios. In this scenario method, the elements in the system map become the windows or lenses in the scenarios. They allow users to "see" what the system looks like in the future given different conditions. They provide a rigorous analysis of how the system could plausibly evolve. I have found that end-state scenarios (i.e. a snapshot in time) rather than developmental scenarios (a coherent narrative over time) are far easier to do well. Systems can demonstrate a variety of surprising behaviors as the drivers roll across the system including: non-linear behavior (where change is not proportional to the stimulus), self-organizing behavior (where new structures or processes emerge), emergence (where completely new patterns emerge), adaptation, cascading, diffusion, and dissipation. If it seems strategically useful, one or more of these change models can be incorporated into the scenario logic for each scenario.

- Agree on a scenario logic. The typical scenario logics are a) muddling through, b) gradual decline in the system, c) gradual progress, and d) transformation where a crisis drives a visionary change. It should be noted that these scenarios are not black and white. To be credible all the scenarios include both positive and negative developments.

- Deduce the value of the drivers. In each scenario, the state (or value) of each driver is deduced from the scenario logic. Plausibility in the timeframe is a key requirement. This material describes what the external world looks like and provides a context for the next step.
- The state of each system element or lens is deduced from all the preceding steps. At this point the participants can see what the system could look like under the given conditions.
- It is common to edit all this material for internal coherence and plausibility where needed.
- At this point you have four vivid word pictures of how the system could plausibly evolve.

Step 7: Identify challenges and test assumptions. Guided visualization is used to immerse participants and non-participants (who did not participate in the study) in the scenarios to explore the implications. People are asked to imagine they are in their current roles/jobs. They are asked to identify challenges and opportunities for which current policies and institutions are not prepared. Finally, the current assumptions (from Step 2 above) are tested against each scenario for their robustness. Weak assumptions are rewritten to be more robust.

- Ask the participants in the guided imaging exercise to close their eyes and relax. Read the essential elements of a scenario to them. Ask them to walk around that future and explore the changes. Ask them to note any unexpected changes they see, as well as the challenges and opportunities that current policies and institutions are not prepared to address. Ask them to report back to the group. Capture this information for the study report. Depending on the complexity of the scenarios and the size of the group, this exercise can take two to four hours to do all four scenarios.
- Ask participants and non-participants to assess the robustness of the current assumptions captured in Step 2 above. Ask them to classify the current assumptions as either: a) Vulnerable—The assumptions are out of date and should be revised; b) Uncertain—More research is needed; or c) Credible—The assumptions appear robust across the range of futures. The various groups can propose new, more robust, planning assumptions to replace the vulnerable ones.

Step 8: Build credible visions of preferred futures. All the above activities provide an informed foundation for rigorous vision-building. By this time, participants have a good understanding of the system, the ways it could evolve, and the potential challenges and opportunities that could emerge. This step can take hours or months depending the level of detail required and can involve other tools from the design world.

- Use the original system elements (or revise them if needed) in a guided imaging exercise to help participants describe their preferred future(s). Share the results with the group to fertilize people's thinking and repeat the guided imaging to develop a more integrated vision.
- Edit and revise the vision with different groups to ensure it respects the new planning assumptions, addresses the challenges and opportunities on the landscape, and is desirable and feasible.
- Develop a detailed description of this preferred future so people can "see" the key changes and innovations.

Results and benefits of the method

1. *Clarifies planning assumptions*. Assumptions play a central role in planning, policy, and decision-making. The Horizons Foresight Method is able to systematically test the robustness of the assumptions that policy analysts and decision-makers are using to shape our future.
2. *Identifies emerging policy challenges and opportunities.* Looking ten to fifteen years down the road, the process identifies real issues that current policies and institutions are not ready to address and thus gives governments time to prepare for disruptive changes and take advantage of opportunities.
3. *Develops more robust policy and strategy.* Foresight provides a context for policy development and planning that enables governments to ensure that proposed policies are robust across the range of plausible futures.
4. *Helps individuals and organizations prepare and rehearse for change*. The process strengthens the assumptions and mental models of all participants. It helps analysts and decision-makers imagine the future and rehearse for the challenges that lie ahead.
5. *Provides a foundation for vision-building*. Credible visions can be a very powerful tool in policy development. Visions that ignore the current and emerging challenges and opportunities on the landscape have very little value.

Who should be involved

There is value in engaging stakeholders and many others in this kind of process. One of the big challenges with engaging outsiders is that they tend to focus on what they know (the expected future) and what they want (their interests). Useful foresight requires that they be aware and ideally knowledgeable about the possible disruptive forces that lie ahead—weak signals and trends that could disrupt the system. If these disruptive forces are ignored or misunderstood, you may be wasting your time. Clearly, it is difficult to develop deep understanding in short workshops. It takes hours and sometimes days to develop a basic understanding of a potential driver like artificial intelligence or blockchain.

One of the ways to solve this dilemma is to run parallel processes. When Horizons uses this method to conduct a foresight study, there is a core team who act as caretakers of the process. The core team is aware of the tools, concepts, and what can usefully be achieved in foresight. They do the study and systematically seek input from others. In a major study, hundreds of thoughtful people are interviewed during the scanning phase to surface their mental models of the system, in order to understand how different parts of it work and how it could evolve. Then, one or more groups of external participants and stakeholders are invited to do a short, customized version of the process in order to benefit from their knowledge and the collective interaction of their mental models as input to the study. Given the pressures to digest a huge amount of information about the whole system, the external participants can seldom commit the time needed for an entire study, so the core team does most of the work. The short workshops help the core team fill in knowledge gaps, explore new viewpoints, and identify missing ones.

The knowledge and personal qualities of the team, interviewees, and participants can make a huge difference in the success or failure of a foresight study. The following personal qualities can be used to screen potential participants and improve the chances of success:

- Participants and stakeholders are knowledgeable about one or more parts of the system and represent diverse views or interests.
- They have good group skills.
- They are curious and open to other views and learning new things.
- They are creative and comfortable with thinking outside the box.
- They have a high tolerance for ambiguity and uncertainty, as it takes time for a group to bring the pieces of the puzzle together.

Time it takes to do a study

Since the core team understands the Horizons Foresight Method, a foresight study on a complex public policy issue can take two to twelve months, where half of that time is spent scanning and conducting interviews to identify potential disruptive changes. In parallel, if a dry run is being done with external participants, it is possible to go through all of the steps with them in two or three days—often spread over a week or two to give participants time to digest and reflect on what people are saying.

Getting buy-in from those not involved

In foresight projects, it is common for the people who are directly involved in the study to be fully committed, but non-participants can be resistant to the results. Horizons uses several ways to engage non-participants in the process. Interviewing senior people to collect their understanding of the system is a useful way to involve them if their time is limited. Often they will then be interested in the report, because they want to see what you did with their insights. After the study is complete, Horizons designs exercises for groups to immerse them in the study and benefit from their insights and feedback. Generally, the best way to communicate the written report is to take readers through the process in a way that allows them to construct their own mental models and see the future for themselves.

Conclusion

There are many useful approaches to foresight. The Horizons Foresight Method has been designed to address the kinds of uncertainty and complexity that arise in public policy settings. At each stage in the process, the Horizons Foresight Method provides scaffolding to help individuals surface and share their own mental models and to construct a collective model of the system and how it could evolve. What is unique about the Horizons Foresight Method is its emphasis on utilizing the amazing capacity of our minds to visualize and run simulations at every step in the foresight process. Most participants report that the process leaves them feeling better prepared to deal with a rapidly changing policy environment.

The Horizons Foresight Method focuses on the essential steps to help individuals and groups do useful and strategic foresight. The main results (robust assumptions, plausible futures, and emerging challenges and

opportunities) have enormous value in forward-looking policy and planning processes.

This article is based on a training course with facilitator's guides that is available in the learning resources section of the Policy Horizons Canada website at www.horizons.gc.ca. The method was developed over many years by Peter Padbury with assistance and input from many people at Integrated Studies at University of Waterloo, Studies of the Future at University of Houston, Global Affairs Canada, and Policy Horizons Canada, but especially Steffen Christensen, Marcus Ballinger, Duncan Cass-Beggs, Wendy Shultz, Peter Bishop, Oliver Markley, George Francis, Sally Lerner, Robbie Keith, and Colin De'Ath.

Peter Padbury

Over his career, Peter has led hundreds of foresight workshops and studies that developed vision, policy, and strategy with Canadian federal government departments, NGOs, businesses, and UN agencies on a wide range of themes from the future of primary healthcare in Asia to the future of the UN Security Council. Since 2008 he has played a leadership role in building a foresight centre within the Canadian federal government called Policy Horizons Canada. He has had extended work assignments in Costa Rica, Brazil, Indonesia, Thailand, Holland, New York, and Geneva, and work-related travel in over 50 countries. Peter has an MSc in Future Studies from University of Houston (with a focus on participatory foresight methods). He has been on the board of directors of several organizations and is a founding member of the Association of Professional Futurists. He can be reached at ppadbury@hotmail.com.

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¹⁰ See work by Oliver Markley on guided imaging at www.inwardboundvisioning.com.

VOLUME 4: DIRECTIONS AND OUTLOOKS

INTRODUCTION TO VOLUME 4: DIRECTIONS AND OUTLOOKS

by Richard Slaughter

The idea that our time in the early 21st century is, in certain significant respects, different from all that has gone before is obvious to some and doggedly contested by others. After all, one of the hidden purposes of affluent consumerism is to keep large numbers of people from thinking too hard or too long about what is "really going on." Yet at some level there's growing evidence that many people do see more clearly than they're given credit for.

One way to find out is to ask them. Which is what social researchers Richard Eckersley and Melanie Randle did. They went beyond local sources to survey people's perceptions of future threats to humanity in four Western nations: the US, the UK, Canada, and Australia. Among the results was the startling fact that "overall, a majority (fifty-four percent) rated the risk of our way of life ending within the next one hundred years at fifty percent or greater, and a quarter (twenty-four percent) rated the risk of humans being wiped out at fifty percent or greater." Armed with these results the researchers also considered why such perceptions mattered. One of the most profound was that "the findings are strikingly at odds with orthodox conceptualisations and measures of human progress and development, which generally show continuing improvement in the human condition." At the same time the researchers found "little sign of anything like the paradigm shift in politics that the survey results suggest is necessary."

Given that the "official future" is so fundamentally out of sync with large numbers of people in these societies where does that leave the search for more humane and sustainable futures?

The following papers provide substantive and decidedly non-trivial answers to that vital question. The first, by Ziauddin Sardar and John Sweeney, provides a stimulating account of what they call the "three tomorrows of post-normal times." Building on earlier work the authors seek to abandon linearity in favour of "complexity, chaos, and

contradictions." The stories they want to explore are intended to invoke imagination and creativity by emphasising dynamism, diversity, and contradiction within the forward view. Their "three tomorrows" are comprised of an extended present that merges into what they call "familiar futures" and then further forward to "unthought futures." They contend that each of these "has a particular type of uncertainty and ignorance attached to it." Furthermore, each tomorrow suggests a specific set of issues and questions. In summary the approach serves as a "tool of critique" for exploring critical futures and for appreciating the deeper complexities hidden within alternative futures.

The paper by Sam Alexander and Joshua Floyd strongly supports the need for new stories and new ways of thinking about the challenges ahead but it explores a very different subject: the role that fossil energy plays in our current overextended "carbon civilisation." Such energy is "not just another resource or commodity; it is the key that unlocks all other resources and commodities." This evokes a key point made by Richard Eckersley and Melanie Randle, namely that the official story of energy abundance and continued economic growth is little more than a convenient fiction. Rather than seek simple solutions, however, the authors attempt to "broaden the discourse on energy" and to show that there are, indeed, other alternatives. Among these are economic strategies involving "energy descent" and social strategies such as voluntary simplicity. We should, in their view, "be choosing to leave fossil fuels before they leave us." It would make far more sense if we were pursuing "futures of reduced energy availability and ways of life characterised by energy sufficiency." But as things stand, "that requires thinking the unthinkable: transcending the growth imperative."

The last section of Volume Four poses a key question. Given all the topics and issues that have been covered in KBFS 2020, we asked: where now for Futures Studies and applied foresight? Remarkably few ready answers came to our attention. It therefore fell to us to consider possible answers. The paper by Andy Hines addresses this question by exploring how the field could be professionalised. His review of various proposals suggests that at least three distinct benefits can be envisaged, namely: providing a focus for continuing to develop the field, aiding credibility, and attracting talent. After asking if Futures Studies is best considered a field, a discipline, or a profession Andy takes a more detailed look at some of the specific criteria that have been put forward. Enabling these involves processes of self-constitution within the field and active involvement in

successful interactions beyond it. From here the author distils a concise action agenda for putting many of the most promising suggestions examined here into practice.

The final article, by Richard Slaughter, outlines elements of a life philosophy as applied to the framing and articulation of futures work in the early 21st century. It suggests that dominant modes of understanding and development since the mid-20th century have failed to appreciate "the richness and complexity of life in all its forms." It briefly tracks the early roots of the present global emergency which include widespread failures to acknowledge the reality of non-negotiable limits to growth as described from the early 1970s on. Views from the UK, Bermuda, and finally Australia reveal many of the implications for society, culture, and especially education of the increasingly problematic trajectory humanity has embarked upon. Depth immersion in futures work, including within several university settings, provides clear evidence for the active role of hope and the vast potential of positive human agency. Within this view are many strategies for finding "ways forward during impossible times." The paper ends with a brief overview of key insights and sources of inspiration and meaning. It concludes that "the purpose of futures work cannot be to further assist the economic growth machine on its rush to oblivion." Rather, futures "needs to go beyond the humdrum, the conventional, and the search for strategic advantage in the here-and-now. It needs a planetary, civilisationally coherent vision. It needs to be transformational in spirit and in deed."

Part 1: 21st Century Outlooks and Risks

CHAPTER 27: PUBLIC PERCEPTIONS OF FUTURE THREATS TO HUMANITY: WHY THEY MATTER

by Richard Eckersley, Melanie Randle

Introduction

There is growing scientific evidence that humanity faces a number of threats that jeopardise our future. Public perceptions of these threats, both of their risks and of reactions to them, are important in determining how humanity confronts and addresses the threats. This paper is based on a study that investigated the perceived probability of threats to humanity and different responses to the threats (nihilism, fundamentalism and activism), in four Western nations: the US, UK, Canada and Australia. Overall, a majority (fifty-four percent) rated the risk of our way of life ending within the next one hundred years at fifty percent or greater, and a quarter (twenty-four percent) rated the risk of humans being wiped out at fifty percent or greater. The responses were relatively uniform across countries, age groups, gender and education level, although statistically significant differences exist.

Almost eighty percent agreed "we need to transform our worldview and way of life if we are to create a better future for the world" (activism). About a half agreed that "the world's future looks grim so we have to focus on looking after ourselves and those we love" (nihilism), and over one-third that "we are facing a final conflict between good and evil in the world" (fundamentalism). The findings offer insight into the willingness of humanity to respond to the challenges identified by scientists, and warrant increased consideration in scientific and political debate.

A defining moment in history?

Scientific evidence and concern are mounting that humanity faces a defining moment in history, a time when we must address growing adversities or else suffer grave consequences. Reputable journals have canvassed the possibilities, including special issues of *Scientific American* (The end, 2010) and *Futures* (Human extinction, 2009). Most focus today is on climate change and its many, potentially catastrophic, impacts; other threats include depletion and degradation of natural resources and ecosystems; continuing world population growth; disease pandemics;

global economic collapse; nuclear and biological war and terrorism; and runaway technological change.[1] Threats not linked to human activities are a supervolcanic eruption and an asteroid collision.

Many of these threats are not new; scientists and other experts have warned of the dangers for decades. Nevertheless, the evidence is growing stronger, especially about climate change, and never before have their possible impacts been so powerfully reinforced by actual events, including natural disasters and calamities, and their sustained and graphic media coverage.

Not surprisingly, surveys reveal widespread public pessimism about the future of the world, at least in Western countries, including a common perception of declining quality of life, or that future generations will be worse off.[2] [3] [4] However, there appears to have been little recent research into people's perceptions of how dire humanity's predicament is, including the risk of the collapse of civilisation, or human extinction. These perceptions have a significant bearing on how societies, and humanity as a whole, will deal with potentially catastrophic futures.

One such study is a 2004 international web survey, which found forty-five percent of six hundred respondents believed humans would become extinct.[5] However, the timeframe here was long: many felt this would happen within five hundred to one thousand years, and some in five thousand years or more. A 2005 survey of one thousand Australians asked which of two scenarios of the world in the 21st century more closely reflected their view.[6] The optimistic scenario was: "By continuing on its current path of economic and technological development, humanity will overcome the obstacles it faces and enter a new age of peace and prosperity." The pessimistic scenario was: "More people, environmental destruction, new diseases and ethnic and regional conflicts mean the world is heading for a bad time of crisis and trouble." Two thirds of respondents (sixty-six percent) chose the pessimistic scenario, less than one quarter (twenty-three percent) the optimistic scenario. Compared to an earlier survey in 1995, pessimism had increased.

A 2011 study on "the Global Megacrisis" includes a bibliography and proposes four scenarios for how humanity deals with the multiple and interconnected threats posed by climate change and other critical issues.[7] Sixty "smart and thoughtful people" rated the relative probabilities of each scenario:

- ***Decline to disaster*:** World fails to react. More global warming, widespread energy and water shortages, economic depression, conflict, etc. Loss of civilization in many parts of the world (twenty-five percent average probability).
- ***Muddling down:*** World reacts partially, but problems continue to outdistance policies and technologies, ecological damage continues, increased poverty and conflict (thirty-five percent).
- ***Muddling up:*** World reacts out of need and the help of information technology/artificial intelligence. Policies and technologies gain on problems. Disaster avoided but some disorder and disappointment (twenty-eight percent).
- ***Rise to maturity:*** Ideal transition to a humane and responsible global order (twelve percent).

How people react to the possibility of catastrophic futures (as distinct from their perception of their likelihood) will also shape how effectively humanity deals with the grave dangers. People can respond in very different ways to the same perception of threat, including apocalyptic suspicions about the 21st century.[8] [9] The responses include: nihilism (the loss of belief in a social or moral order; decadence rules), fundamentalism (the retreat to certain belief; dogma rules), and activism (the transformation of belief; hope rules). The categories make sharp distinctions between responses to highlight their differences and significance. In reality, the categories are fuzzy, reflecting tendencies or deviations from the norm, with subtle to extreme expressions. They are not mutually exclusive responses, but can overlap, co-exist and change over time in individuals and groups.

This paper is based on an investigation into the perceived probability of future threats to humanity, specifically whether "our existing way of life will end," and whether "humans will be wiped out," within the next one-hundred years.[10] The study also examined the level of agreement with three pairs of statements reflecting strong and weak nihilistic, fundamentalist and activist responses (while fundamentalism includes secular forms such as neoliberalism or market fundamentalism, the statements focused on religious fundamentalism). It also assessed the association between global fears and levels of personal concern with a range of global or societal and personal issues. The questions comprised one part of a large survey of representative samples, conducted in 2013 and totalling 2,073 people, in the US, UK, Canada, and Australia.

Probability of threats to humanity

Participants were asked: "In your opinion, how likely is it that our existing way of life will end in the next one-hundred years?" and "In your opinion, how likely is it that humans will be wiped out in the next one-hundred years?" Answer options were presented on an 11-point scale from 0 ("no chance, almost no chance") to 10 ("certain, practically certain"). The percentages of participants who believe there is a fifty percent chance or greater that (1) our existing way of life will end and (2) humans will be wiped out are presented by country at Fig. 1 and by age group at Fig. 2 (note: common generational labels have been used for age groupings, however differences could reflect age and/or cohort characteristics). The asterisks (**) in Fig. 1 and Fig. 2 indicate significant differences between groups at the 99 percent level ($p < 0.01$)

Overall, fifty-four percent of respondents believe there is a fifty percent or greater chance of our way of life ending (mean score of 4.73 on an 11-point scale of 0-10, or a forty-seven percent chance it will happen), and twenty-four percent believe there is a fifty percent or greater chance that humanity will be wiped out (mean score 2.47, or a twenty-five percent chance it will happen). Almost three quarters believe there is a thirty percent or greater risk of our way of life ending; thirty percent that the risk is seventy percent or more. Almost four in ten believe there is a thirty percent or greater danger of humanity being wiped out, one in ten that the danger is seventy percent or more.

Opinions were similar across countries and age groups, but statistically significant differences were found in perceived risk that humanity will be wiped out, with higher concern in the US than in the UK (Fig. 1), and higher in the youngest age group than in the oldest (Fig. 2). Few differences were found when other socio-demographic groupings were compared. For example, women were slightly less concerned than men that humans would be wiped out. No significant differences were found on other socio-demographic characteristics such as level of education.
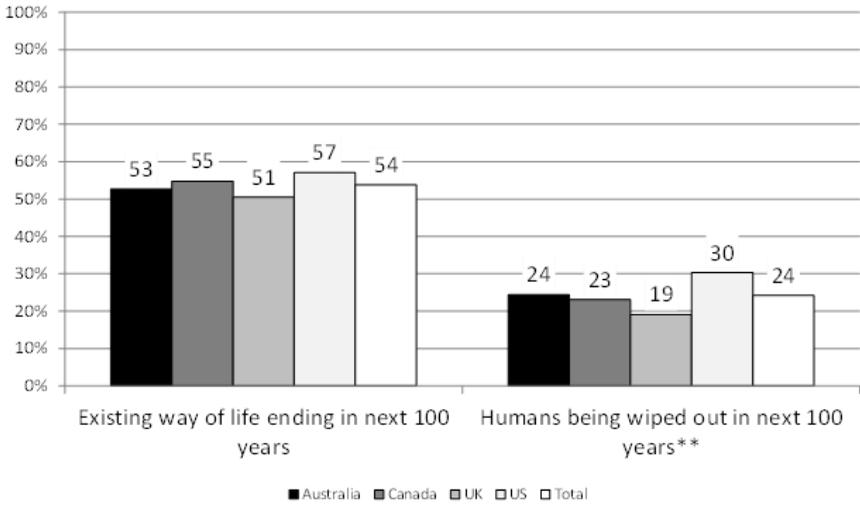
Fig. 1. Proportion believing there is a fifty percent or greater chance of our way of life ending and humans being wiped out, by country.
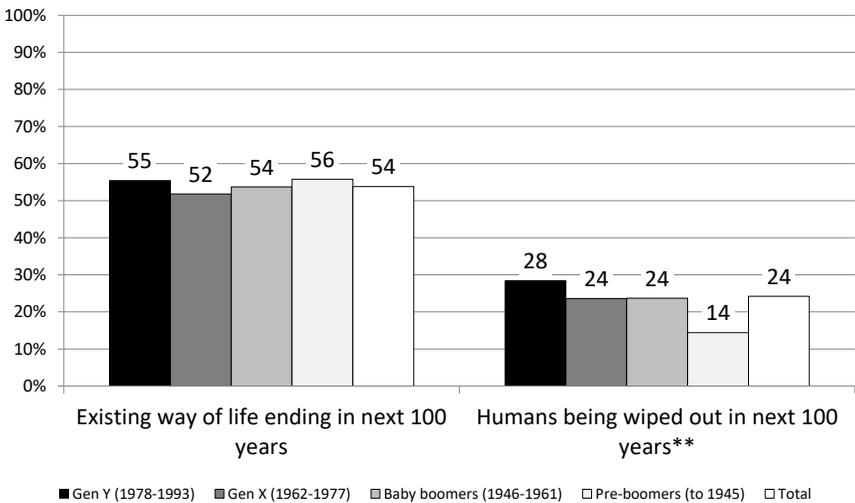

Fig. 2. Proportion believing there is a fifty percent or greater chance of our way of life ending and humans being wiped out, by generation.

Beliefs about, and response to, the future
Participants were presented with six statements (reflecting strong and
weak nihilist, fundamentalist and activist responses to the future, drawing
on the analysis cited above[11][12]) and asked to indicate the extent to which
they agreed with each statement. The statements were:

Nihilism
- Strong: The world's future looks grim so we have to focus on
  looking after ourselves and those we love.
- Weak: We should enjoy the life we have now, and not worry
  about what might happen to the world in the future.

Fundamentalism
- Strong: We are facing a final conflict between good and evil in
  the world.
- Weak: We need to return to traditional religious teachings and
  values to solve global problems and challenges.

Activism
- Strong: We need to transform our worldview and way of life if we
  are to create a better future for the world.
- Weak: Hope for the future rests with a growing global movement
  that wants to create a more peaceful, fair and sustainable world.

The highest level of agreement (indicated by the percentage of people
who answered "agree" or "strongly agree" with the statement) was with
the two "activism" responses: seventy-eight percent (strong) and sixty-
eight percent (weak). Agreement with strong fundamentalism was thirty-
six percent; weak fundamentalism, thirty-five percent; strong nihilism,
forty-eight percent; and weak nihilism, thirty-four percent. Agreement
with the strong and weak fundamentalism and strong nihilism statements
was positively correlated with higher perceived risks of our way of life
ending and humans being wiped out. Agreement with the weak nihilism
statement was positively correlated with the perceived risk that humans
would be wiped out, but not with the risk that our way of life would end.
Agreement with the strong activism statement was positively correlated
with the perceived risk of our way of life ending, but agreement with
weak activism was not, and agreement with neither statement was
correlated with the risk of humans being wiped out.

The US scored significantly higher agreement than the other three
nations on both fundamentalism options, while Canada rated especially

high on weak activism. Nihilism tends to fall with age, and fundamentalism (and weak activism) to rise with age. Responses to each pair of statements were positively correlated with each other for both fundamentalism and activism, but not nihilism (suggesting weak nihilism is capturing more than nihilistic inclinations).

Societal and personal concerns and perceived stress
Respondents were asked how concerned they felt, in their everyday life, about twenty-three global or societal issues. They were also asked, thinking about their own personal future, how concerned they were about nineteen personal issues. The detailed findings are reported in another paper.[13] On average, forty-nine percent were moderately or seriously concerned about the personal issues, with health, wellbeing and financial concerns topping the ranking. Country differences were small, but generational differences were substantial, with concern declining with age for most items. In terms of societal issues, an average of forty-one percent were moderately or seriously concerned, with social and moral issues ranking ahead of economic and environmental matters. Americans were the most concerned with societal issues and Australians the least. Societal concerns increased with age.

The significance of these findings to this paper lies in the positive correlations between perceived risks to humanity and average levels of concern about different issues. The study found positive correlations between average level of concern about societal issues and the belief that our existing way of life will end in the next one-hundred years and that humans will be wiped out in the next one-hundred years. Average levels of concern about personal issues were also correlated with these beliefs. A positive correlation was found between average concern with societal and personal issues. Consistent with its significantly higher perceived risk to humanity compared to other countries (Fig. 1), the US scored a significantly higher average level of concern across all societal issues.

The study also asked respondents about how often they thought or felt about a range of items in the past month to assess their level of personal stress. Borderline positive correlations were found between perceived personal stress and the belief that our existing way of life will end in the next one-hundred years, and stronger positive correlations between perceived personal stress and the belief that humans will be wiped out in the next one-hundred years. Small positive correlations were found between perceived personal stress and average level of concern about societal issues, and medium to strong positive correlations between

perceived personal stress and average level of concern about personal issues. These findings strengthen the validity of the results on perceptions of global threats.

Why future perceptions matter, personally and politically
How people rate the risk of catastrophic futures for humanity and how they respond to these perceptions have an important bearing on how humanity confronts these threats. Our study of four developed nations – the US, UK, Canada and Australia – found that over half of respondents rated the risk of our current way of life ending within a century at fifty percent or more; a quarter rated the risk of humanity becoming extinct within a century at the same level. These are surprisingly high probabilities for such extreme historical events. However, the survey findings, taken together, make up an internally consistent and compelling story, as indicated by:

- The relatively high level of agreement with three pairs of "apocalyptic response" statements – nihilism, fundamentalism, and activism (with seventy-eight percent and sixty-eight percent endorsing strong and weak activism, respectively).
- Increased agreement with strong nihilist and fundamentalist responses to the future amongst those who perceive a greater risk to humanity.
- The positive correlations between perceived risk to humanity and levels of concern over societal and personal issues, and levels of perceived personal stress.
- The differentiating characteristics of the US, with its significantly higher proportion of people perceiving serious risk to humanity, greater agreement with fundamentalist responses, and greater concern over societal issues.
- The consistency of findings (significant differences notwithstanding) across countries and across age, sex and education groupings, given that the issues transcend common demographic differences.

Furthermore, the survey findings are consistent with other studies of public perceptions of the future, as discussed in the introduction, and also revealed in more recent social surveys:

- A 2015 paper investigated "societal unease," defined as a latent concern among citizens in contemporary Western countries about the precarious state of society.[14] This concern arose from the

"perceived unmanageable deterioration" of five fundamental aspects of society: distrust in human capability to improve things, loss of ideology, decline of political power, decline of community, and socio-economic vulnerability.

- A 2016 survey of twenty-two developed and developing countries shows that people around the world believe "the system" no longer serves them, and that life is getting worse.[15] Across the countries, an average of fifty-seven percent believed their country was in decline; sixty-four percent said traditional parties and politicians did not care about them; sixty-nine percent believed the economy was rigged to advantage the rich and powerful. More believed their generation had a worse life than their parents' generation, and that life for today's youth would be worse than that of their parents, than believed life was getting better.

- A 2016 survey of trust in twenty-eight countries, both developed and developing, found that trust had become a deciding factor in whether a country can function.[16] Corruption, globalisation and technological change were weakening trust in global institutions; there was growing despair about the future and a lack of confidence in the possibility of a better life for one's family. Two thirds of the countries were now "distrusters," with less than fifty percent of people trusting the major institutions of government, business, media and NGOs. Across the countries, only fifteen percent believed the present system was working; and more than two thirds did not have confidence that current leaders could address their country's challenges.

- In a 2018 global poll, people were asked: "Generally speaking, would you say things in this country are heading in the right direction, or are they off on the wrong track?" [17] Globally, the average ratio was sixty percent "wrong track" to forty percent "the right direction." But results varied widely: China did best with only eight percent opting for "wrong direction"; at the other end of the rankings, in Brazil eighty-eight percent made this choice. In Western nations, the proportions ranged from about fifty to seventy percent "wrong direction." Top concerns globally were: financial and political corruption, unemployment, poverty and social inequality, crime and violence, and healthcare.

Our study and the surveys cited above are about subjective perceptions, not objective realities. The findings are strikingly at odds with orthodox conceptualisations and measures of human progress and development, which generally show continuing improvement in the

human condition.[18] [19] Nevertheless, they are consistent with wider scientific analyses (which acknowledge the importance of the subjective); these suggest progress as currently defined is coming at increasing costs to quality of life and the natural environment.

It is true that the findings do not necessarily represent informed assessments of the specific risks. Rather, they are likely to be an expression of a more general uncertainty and fear about the future and a lack of faith in the "official future," which is constructed around notions of material progress, economic growth and scientific and technological fixes to the challenges we face.[20] This loss is important, yet barely registers in current debate and discussion. We have yet to understand its full implications.

The association between threat and response is not simple and linear; there is a dynamic relationship between future expectations, current social realities and personal states of mind.[21] As already noted in the introductory section, people can respond differently to perceptions of threat.[22] Nihilism, fundamentalism and activism all offer benefits to our personal wellbeing and resilience: nihilism through a disengagement and distraction from frightening possibilities and prospects; fundamentalism through the conviction of righteousness and the promise of salvation; and activism through a unity of purpose and a belief in a cause. Yet only activism will allow us to deal constructively with global threats.

At best, the high perception of risk and the strong endorsement of an activist response could drive a much greater effort to confront global threats. At worst, loss of hope and fear of catastrophic futures erodes people's faith in society, affecting their roles and responsibilities as well as their relationship to social institutions, especially government.[23] [24] It can deny us a social ideal to believe in - something to convince us to subordinate our individual interests to a higher social purpose. This drives us back on our own personal resources, reinforcing the self-focus and social alienation of other cultural qualities such as increasing materialism and individualism.

Bleak expectations of humanity's future are likely to affect people's health and wellbeing beyond the direct impacts of specific disasters, as suggested in this study by the positive correlations between personal stress and perceived risks to humanity and global concerns (although the evidence is largely correlational and conjectural). For example, a sense of coherence – seeing the world as comprehensible, manageable and

meaningful – is associated with wellbeing.[25] Also, people become more stressed and more vulnerable to stress-related illness if they feel they have little control over the causes, do not know how long the source of stress will last or how intense it will be, and interpret the stress as evidence that circumstances are worsening.[26] A positive (reinforcing) feedback can come into play: as our health and wellbeing, and our morale and vitality, decline, it becomes less likely we will have the resolve and resilience to address the challenges we face.[27]

There is a deeply mythic dimension to this situation. Humans have always been susceptible to apocalyptic visions, especially in times of rapid change; we have also needed utopian ideals to inspire us.[28] Our visions of the future are woven into the stories we create to make sense and meaning of our lives, to link us to a broader social or collective narrative. Historians and futurists have emphasised the importance of confidence and optimism to the health of civilisations and, conversely, the dangers of cynicism and disillusion.[29]

Conclusions

There is growing scientific evidence that humanity faces serious risks of a catastrophic coalescence of environmental, social, economic and technological threats within the next one-hundred years. Despite growing political action on specific issues like climate change, globally the scale of our response falls far short of matching the magnitude of the challenges. Closing this gap requires a deeper understanding of how people perceive the risks and how they might respond. Relatively little research has been done on the extent to which we see civilisation, and even humanity itself, as endangered. This study has found that people in four developed nations rate this risk as surprisingly high, especially given what is at stake.

The topic of this paper is largely neglected and underestimated outside Futures Studies. Economics and political science focus on the socio-economic and socio-political dimensions of the near future; environmental sciences focus on biophysical impacts; and health research focuses on individuals and their personal situations. The psycho-social dynamics of the far future warrant more consideration in scientific research and political debate.

Politics has rarely, if ever, been about people's deep desires for a better life and concerns about the future. Increasingly, elections are manipulated through the use of sophisticated marketing tactics and social media to focus on a few, often contrived, issues. Trust in government and

other official institutions has eroded. As this disconnect deepens and governments become more detached from the electorate, political incompetence and corruption grow; critical pathways for translating personal choices and preferences into social outcomes are closed off.

These dangers have been graphically demonstrated in Western democracies in the years since our survey. However, there is as yet little sign of anything like the paradigm shift in politics that the survey results suggest is necessary. Instead, politics risks becoming, not fundamentally different, but more dangerously extreme; it has an inherent tendency to do this. We need to strive to ensure that today's political turmoil is only a prelude to the demise of the "official future," and the emergence of a more humane and sustainable vision of where, as societies and as a species, we want to go.

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CHAPTER 28: THE THREE TOMORROWS OF POSTNORMAL TIMES

by Ziauddin Sardar, John Sweeney

From dialogues to polylogues

As we, and others, have argued elsewhere, Postnormal Times (hereafter PNT) demand that we get away from linearity and focus our attention on the interconnections amongst complexity, chaos, and contradictions.[1] Moreover, all stories we tell about the future(s) ought to emphasize their dynamic and mind-bogglingly diverse nature, chaotic potential, and contradictory possibilities while invoking imagination and creativity. This is why we, as well as others, prefer to speak of "global weirding" rather than "global warming," and Futures Studies must do better at not just engaging but embracing the truly weird, if only to remain relevant in the wake of the changes to come.

Polylogues—coined in 1977 by Kristeva, who has a book with the same name—require the creation of new physical and mental spaces where diversity, pluralism, and contending perspectives are present on their own terms but are also deeply invested in engaging others in creating and sharing information and knowledge. In addition to finding better and more egalitarian ways to share what and how we know, we must continuously seek out collaborative and dynamic means to craft and share our stories. As Latour points out, "storytelling is not just a property of human language, but one of the many consequences of being thrown into a world that is, by itself, fully articulated and active. It is easy to see why it will be utterly impossible to tell our common geostory without all of us—novelists, generals, engineers, scientists, politicians, activists, and citizens—getting closer and closer within such a common trading zone."[2] Latour's "common trading zone" is precisely what we seek in our invocation of Kristeva's polylogue, and we believe this notion is sorely lacking in much, if not most, of ongoing discourses on the present and futures.

Establishing such zones through the formation of event- or issue-specific polylogues will not be an easy task, especially as this endeavor demands that we rethink deeply held traditions, practices, and customs of knowledge sharing and production. As such, any analysis of the present

and futures also needs to acknowledge that many things we take for granted, including a variety of complex systems, are going to (continue to) get weird. It might be true that there is no such thing as an historical possibility, but, in our estimation, this is very much a future(s) fact.

Normalcy, postnormalcy, postnormal creep, and burst
The first weird fact that we must acknowledge is that normalcy and postnormalcy both overlap and exist side by side. Not all systems are affected in the same way and to the same extent by complexity, chaos, and contradictions (hereafter 3Cs): "the forces that shape and propel postnormal times." Equally, not all systems are inherently postnormal and will not become postnormal in the same way. For example, isolated communities, structures, and organizations that are self-sufficient and not connected to the global economy and international system can and might be more resilient in the wake of climate change. However, many normal systems will not continue to operate normally in PNT—sooner or later, the 3Cs will have a direct or indirect impact on them. Moreover, there are some systems that are already postnormal, such as science, intelligence, privacy, and other networked systems looming with postnormal potentiality—such as our cars and refrigerators. When one stops to reflect on the changes all around us, things can certainly feel postnormal. For generations born into this milieu, however, postnormal will be normal—the world as they know it and inhabit it.

With that said, the notion of normalcy itself is somewhat weird, especially in PNT. This normalcy does not conform to accepted definitions: standard, common, conventional, usual, regular, and natural. Rather, as Rao points out, it is a decidedly "manufactured normalcy."[3] It is manufactured in the sense that such norms have been developed by powerful international institutions and organizations, including the media and technology companies, that function by relying on market forces, internal, unquestioned assumptions, and subtle manipulation to generate ideological and consumer desires and dreams. But more importantly, it is manufactured by our reactions to and perceptions of change—both past and present. As Rao notes, when people are faced with new technological experiences they put all their effort into maintaining a "familiar sense of a static, continuous present." Indeed, we change our mental models and behaviors in an attempt to overlook or ignore the changes that are taking place in front of our eyes. We look back to create stories and metaphors that relate the new changes we are experiencing to something we already know and understand. As Rao elucidates, the manufactured normalcy field (hereafter MNF) is a means of reorienting our perceptions of what is and

is not normal, and as a field that expands and contracts relative to our individual or communal focus, the MNF is shaped by the forces of ignorance and uncertainty.

Normal phenomena move towards postnormalcy through the process of postnormal creep (hereafter PNC): when systems become interconnected and complex, when social media, 24-hour television and other forms of technologies are used to generate positive feedback, chaos emerges, sometimes rapidly, and things get weird. A number of scholars have noted the diffuse ways with which information and communication tools accelerate social protest, of which the uprisings in the Middle East and North Africa, commonly known as the "Arab Spring," and recent protests in Baltimore, Ferguson, and other cities in the US leading to the emergence of the #blacklivesmatter movement, are clear examples of how communication technologies can hasten PNC.

Although the forces driving PNC can be powerful, not all embrace the flows of such strong currents. There are some who cannot see, or rather who ignore or refute, the emergence of PNC and cling to manufactured normalcy in the face of the weird. They suffer from Postnormal Lag (hereafter PNL): a perceptual condition of denial. An obvious example is climate change deniers. In psychology, the concept of abnegation explains how one continues to deny something—in this case one of the greatest threats facing the world—even in the face of overwhelming evidence. With abnegation as with PNL, one chooses, perhaps consciously, not to know. Thus, PNL is a disavowal—one that can only be overcome through postnormal burst (hereafter PNB): when the system goes totally postnormal and there is no place to hide.

The three tomorrows of the Postnormal Times framework
In the three tomorrows of Postnormal Times (hereafter 3T) framework, we need to consider that the present is dynamic and networked and consists of manufactured normalcy and systems that are pregnant with the potential to go postnormal: in other words, the present is complex, pluralistic, and partly postnormal—all of which has to be introduced right at the beginning of our exploration of the future. But the present is not simply the now. The present is "extended" because many empirically observed trends are deeply embedded in the now and will manifest themselves in the coming years. This Extended Present is the first tomorrow; as a common term in Futures Studies, it is what most people mean when they talk about "the future." As we see it, the Extended Present is dominated by and populated with trends (global, regional, and local) and emerging

issues or weak signals that cannot be averted; they simply expand and extend the present to cover the next five to ten years, although the temporal particularities are elastic in relation to the thematic context. In other words, the future represented by the Extended Present has already been largely colonized. Here the best we can do is use the lens of PNT to identify systems that may be creeping towards postnormality, or on the verge of PNB. To suggest that the Extended Present is already colonized smacks of determinism—something that is anathema to Futures Studies, which is also rather averse to predictions. However, the fact remains that a variety of trends and phenomena are embedded in the Extended Present and are foreseeable, although perfect knowledge of what might be ahead remains impossible.

After the Extended Present comes the familiar future(s), which can and might extend from ten to twenty years but, regardless of time horizon, seems familiar because it is mediated by images and imaginings of the future(s)—from data-driven projections to science fiction. Trends embedded in the Extended Present along with images from advertising, corporate visions, popular "futurology" and science fiction novels, films and television shows are extrapolated and projected to create a picture of the future that is all too familiar. Inayatullah's notion of the "used future" resonates with the intended scope of the Familiar Future(s), which is meant to explore and challenge extant imaginings for what might lie beyond the Extended Present.[4] By inherently pluralizing the future(s) through a double reading, the familiar future(s) is simultaneously meant to be both singular and plural. It is singular (Future) in the sense that it aims to find what is familiar amongst a range of complex possibilities and plural (Futures) in the sense that it engages with alternative, and at times divergent, imaginings.

Beyond the familiar future(s) lies the unthought future(s), a horizon of pure possibility that extends beyond the next twenty years. The unthought future(s) is not unthinkable but rather a horizon where something always remains unthought, which is to say that it is populated with seemingly infinite alternative futures—each necessitating their own polylogue to begin to explore the divergent perspectives surrounding them. Although there are seemingly innumerable data sets about these worlds—from demographic to economic projections—there are few, if any, models that can provide adequate insight into what might transpire in this tomorrow. Thus, as Sardar observes, collaborative creativity and "ethical imagination[s]" are not simply the best tools for constructing scenarios in this tomorrow, "they are the only tools." Furthermore, the unthought

future(s) is not simply something that is not expected or anticipated; rather, it is something outside the framework of conventional thought— something that does not allow us to focus on or think about it. On the other hand, the unthought can also be an opportunity so uncommon that it appears utterly unreachable. As such, the unthought is not just limited to the unthought future(s); it can and might exist in the Extended Present and Familiar Futures. But, it is only in the unthought future(s) where full implications are brought to bear and we are forced to confront it head on. In order to locate our method within the broader field of Futures Studies and strategic foresight, we have adapted, or rather mutated, the well-known futures cone to show the relational dynamics between each horizon. Figure 1 shows the perceived relationship between each of the three horizons. In this image, the thickness and trajectory of the lines within each horizon symbolizes perception, the degree to which one has the capacity to see trends emerge, persist, and/or be disrupted; and potentiality, the capacity for something to move from mere possibility towards actuality.
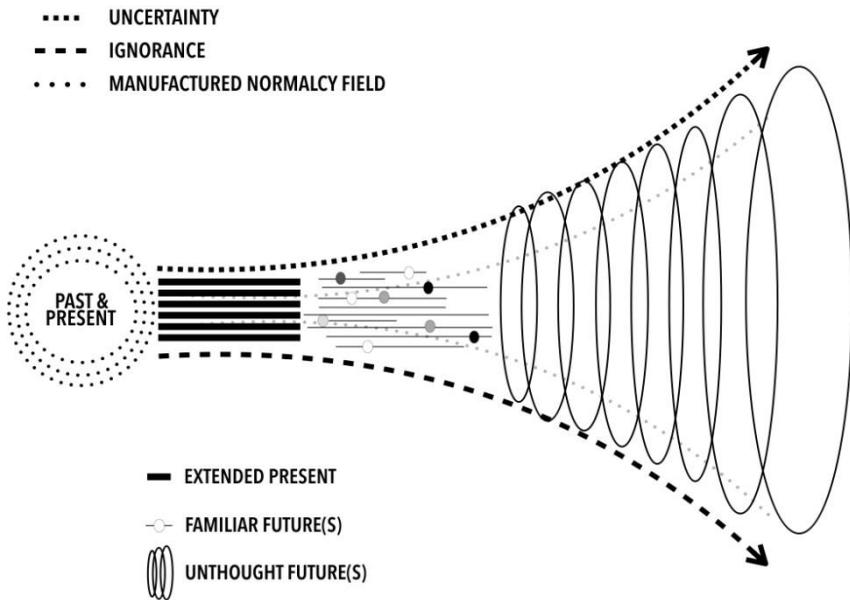

Fig. 1. Three Tomorrows of Postnormal Times

Although this two-dimensional image suggests separation, the 3Ts are not isolated entities but deeply interconnected spatial and temporal zones

of actual and perceptual phenomena that have a dramatic effect on the here and now. The familiar future(s) is an integral part of the Extended Present; and both contain a great deal of unthought future(s). It is also important to emphasize that any event or phenomenon from the furthest horizon has a real potential of having an impact on the here and now. In PNT, what seems unthought becomes part of tomorrow's everyday life. As such, the exploration of the future(s) in this framework has to involve and engage with all 3Ts simultaneously. Moreover, there are systems and phenomena with the potential to go postnormal in all three, which means that we should be able to examine the contextual components in each tomorrow that may be exhibiting PNC or be on the verge of a PNB.

Ignorance, uncertainty, and the menagerie of postnormal potentialities

Each tomorrow has a particular type of uncertainty and ignorance attached to it. When complexity, chaos, and contradictions come together, it should not surprise us that uncertainty is the result. The most basic variety of uncertainty emerges when the direction of change is known but the magnitude and probability of events and consequences cannot be estimated. This is the situation we find within the Extended Present, where the future is largely colonized and certain trends are deeply embedded. We have a limited set of possible alternative futures, at least one of which could come to fruition. We call this Surface Uncertainty, which can be managed to some degree with adequate knowledge and foresight tools. In the Familiar Future(s), we are presented with a broad range of alternatives and a plethora of possible futures. As such, we can say little about the general direction of change; and even less about the emergence of postnormal phenomena when complexity, chaos, and contradictions come together. But we do know that many of these futures are simply a projection of common images and imaginaries of the future. Managing the resultant uncertainty presents us with a complex, not to say wicked, problem, but we can still grasp it to some extent. We call this Shallow Uncertainty. Finally, the unthought future(s), where anything can happen and nothing is known, presents us with Deep Uncertainty. Here, we are not only unaware of the direction, dimension, and impact of change; we are also incapable of knowing what is happening to the system because our worldview or epistemology is totally inadequate. These three varieties of uncertainties are entrenched in an environment where change is accelerating and new innovations, processes, and social and political relations are constantly transforming the emerging landscape.

Each type of uncertainty is associated with a particular category of ignorance. The simple or plain ignorance can be defined as the absence of knowledge; it relates to those items or phenomena that we do not comprehend. This is the ignorance we may encounter in a complex or contradictory situation, which may be overcome by understanding the complex networks involved, or appreciating the simultaneous "truths" of actors with contradictory demands (for example, a government that needs development and a community that wants to preserve its environment, land, and heritage). This is the dominant variety of ignorance in the Extended Present: it can be overcome, and Surface Uncertainty reduced, through learning, research, appreciating the viewpoints of others, and asking the right questions. The Familiar Futures present us with a deeper level of ignorance, associated with Shallow Uncertainty, when we do not even know what questions to ask. But it also has another dimension: the answers to any pertinent questions, if we could ask them, can only be found over the horizon. We call it Vincible Ignorance: it cannot be overcome in the present by learning as there is nothing to learn, but it creates an awareness of what we do not know and must seek to know in the future. Associated with Familiar Futures, it generates Shallow Uncertainty, which could also be transformed into Surface Uncertainty in the future. Then, of course, there are Donald Rumsfeld's "unknown unknowns: the ones we don't know we don't know." It is related to the Deep Uncertainty of the unthougtht future(s) and is categorized as Invincible Ignorance.

The unthought lies beyond our imagination; we are unable to think about things that lie outside our imagination which is determined by and limited to our worldview and frameworks of our assumptions and axioms, and often because we do not have a language to deal with such thought. Invincible Ignorance is thus "the ignorance of our ignorance, the in-built ignorance of the potential risks of recent developments" that "requires radically new ways of thinking." In other words, Invincible Ignorance cannot be overcome by our conventional tools as it is connected to the unthought parts of our own worldview; it is the ignorance that compels us to action with a false sense of confidence in existing paradigms and modes of knowing, being, and doing. We can only grapple with Invincible Ignorance by questioning our axioms, by critiquing our basic and long cherished assumptions, and by totally rethinking our worldview.

The three levels of uncertainty and ignorance enable us to begin to understand and chart the degree of actual and perceptual postnormalcy surrounding a particular issue, system, or horizon. In the Extended

Present, we attempt to reduce Surface Uncertainty by processing the available information to produce hypotheses that could throw some light on what we are seeing. If available information is not enough, we will have to determine if gathering more data will help or not. If uncertainty continues to increase, it would be an indication that we are moving towards Vincible Ignorance of Familiar Futures: we would now have to determine what lines of inquiry could possibly produce appropriate knowledge and the time horizons involved in acquiring that knowledge. Finally, if the situation has reached a chaotic stage, we know we are dealing with Deep Uncertainty of Unthought Futures. We now have to consider if it is our paradigm itself that is failing us, which would indicate the presence of Invincible Ignorance. The most appropriate action now is to work towards an alternative, better paradigm.

However, all three horizons—Extended Present, Familiar Futures, and Unthought Futures—include systems and sub-systems that are either on the verge of PNB or, at the very least, showing signs of PNC. Much of our uncertainty, and hence ignorance, is associated with the emergence of postnormalcy. So, apart from grasping the uncertainty and ignorance associated with each horizon, our exploration of futures, and any forecasts, scenarios, and visions based on it, must also grapple with the postnormal potentialities inherent to all three horizons.

Postnormal phenomena are most evident and most easily seen in the Extended Present. It is like a Black Elephant in the room, which either no one can see or everyone chooses to ignore. Or, if its presence is recognized, no one is actually able to tackle it. A Black Elephant, notes Vinay Gupta, "is an event which is extremely likely and widely predicted by experts, but people attempt to pass it off as a Black Swan when it finally happens. Usually the experts who had predicted the event—from the economic crisis to pandemic flu—go from being marginalized to being lionized when the problem finally rears its head."[5] In line with Gupta's concept, Markley argues for using Type II Wild Cards that are "high probability and high impact as seen by experts if present trends continue, but low credibility for non-expert stakeholders."[6] Black Elephants are a sort of known unknown, especially as the chasm between expert and public opinion adds complexity and uncertainty to the issue. Normally, events with high postnormal potential require collective, global action—as was the case in remediating 2014's Ebola pandemic. Black Elephants capture the postnormal dynamic of the Extended Present, and they are decidedly contextual and ought to be situated and/or articulated from more than one perspective, if only to capture the contradictions inherent to their

emergence. Finally, Black Elephants indicate that PNL is present, and perhaps dominant, within a particular system.

In contrast to the Black Elephants of the Extended Present, Black Swans in the Familiar Futures are not perceptible or articulated, even by experts; they appear as "outliers" and come "out of the blue," as Taleb notes; they are "very fragile to miscalculation, with a general severe underestimation mixed with an occasional severe overestimation."[7] Black Swans are fundamentally unknown unknowns; and, in contrast to Black Elephants, Black Swans can and might be positive, which is to say that their impact might illuminate previously unimagined opportunities, which is what suits them for the complex dynamics of the Familiar Future(s). Indeed, it has been argued that Black Swans are responsible for some of the greatest societal changes of history. However, they can equally be negative and serve as a signal for emerging PNC or PNB. As such, dealing with Black Swans requires a higher level of analysis.

Postnormal phenomena are not easy to foresee in the unthought future(s) but, of course, they are there. We represent the postnormal potentiality of the unthought future(s) with Black Jellyfish. Like Black Elephants and Black Swans, Black Jellyfish are "high impact," but they are "normal" phenomena driven towards postnormalcy by positive feedback—or increasing growth leading towards systemic instability. Why jellyfish? Climate change is having a dramatic effect on the world's water systems. Rising oceanic temperatures and acidity levels are creating perfect conditions for jellyfish blooms, which have forced shutdowns at coastal power plants around the world, including nuclear reactors. Epitomizing the weirding inherent to unthought futures, jellyfish are also known for undermining the world's largest military and fostering political unrest. Demonstrating how small things can have a big impact when driven by positive feedback, jellyfish blooms provide us with the ideal representation of postnormalcy in the unthought future(s).

In Rumsfeld's accounting, Black Jellyfish are unknown knowns— things we think we know and understand but which turn out to be more complex and uncertain than we expect. In centering our concept on the escalation of jellyfish blooms, we aim to draw attention to scale: in unthought futures we need to examine small things and imagine their impact on larger scales and upon multiple overlapping systems over time. Black Jellyfish are all about how normal situations and events become postnormal; how they mutate, through PNC, by becoming interconnected, networked, complex, and contradictory. In this sense, Black Jellyfish

resonate deeply with Molitor's seminal work on emerging issues analysis,[8] and we envision Black Jellyfish as decidedly "catalytic events" that herald unthought possibilities. Although we do not believe that they all must follow the famed S-curve model of change; that is useful for charting the impacts of a single event or impact but does not enhance our radar/sonar for identifying new elements in the territory that have either arisen since the map was drawn, or are in motion.'[9]

Collectively, we call Black Elephants, Black Swans, and Black Jellyfish the Menagerie of postnormal potentialities (hereafter Menagerie), which aims to focus our attention on the postnormal potentiality of the 3Ts—simultaneously. The Menagerie, however, should not be seen as an assortment or range of purported wild cards. Writing on the critical importance of introducing disruptive examples within foresight consultations, Barber contends, "designing a Wildcard that expands the client's perspectives will provide an essential framework that will enable many other foresight methods and tools to be leveraged beneficially."[10] While we believe that modeling postnormal potentialities is crucial to robust, and ultimately useful, foresight, we shy away from using "wild card" as this designation situates one squarely within the confines of risk management. If anything is true in PNT, it is that our command-and-control impulses will only serve to heighten our ignorance and entrench uncertainty, and that we cannot manage risk but rather only our perceptions of risks—from "inevitable surprises"[11] to things that remain unthought. In PNT, the rules of the game have changed such that all cards have the potentiality to be wild. As such, we must, as Miller contends, become Futures Literate and enhance "the sophistication of our anticipatory systems" by using "the future to question, unpack, invent what is going on and what is doable now."[12] As an ensemble aimed at challenging deeply held convictions, illuminating entrenched contradictions, and enlivening novel considerations, we believe our Menagerie does just that.

Working with 3T

The 3T framework has three specific functions: to aid our exploration of alternative futures, with an emphasis on plurality and postnormal potentialities; to critique existing projections and extrapolation; and to structure and shape policies that are specifically geared to navigating postnormal times. It helps if we frame a set of specific questions for each horizon:

Extended Present

- What trends are embedded in the Extended Present?
- What do we not know? (plain ignorance)
- What are the surface uncertainties of the Extended Present?
- What are the obvious dangers we are ignoring?
- Are there elements of the Extended Present displaying PNL?
- What issues/things are people afraid of, embarrassed about, and/or uncomfortable to talk about? In other words, what Black Elephants are staring us in the face?
- What polylogues do we need to explore the impacts of potential Black Elephants?

Familiar Futures

- What imaginings of the future and trends are "pulling" us towards this horizon?
- What do these Familiar Futures reveal to us about what we might need to know—vincible ignorance?
- What do we understand to be the shallow uncertainties of these Familiar Futures?
- Are there elements of these futures with postnormal potentialities?
- What do people think would never happen? In other words, what are the Black Swans?
- What polylogues do we need to explore the impacts of potential Black Swans?

Unthought Futures

- What axioms and assumptions are made into projections and forecasts on this horizon?
- Can we consider these axioms and assumptions to be valid in the face of Deep Uncertainty and Invincible Ignorance?
- What elements of the Unthought Futures contain postnormal potentialities?
- What might quickly escalate into something with an extreme impact? In other words, are there any Black Jellyfish showing signs of PNC?
- Are conditions ripe for PNB?
- What would need to happen to foster PNB?

- What polylogues do we need to explore the impacts of potential Black Jellyfish?

Shaping policy to cope with PNT requires an appreciation of the 3Ts' spatio-temporal simultaneity. It also needs some understanding of the ignorance and uncertainty associated with each horizon, as well as an appreciation of the contextual elements, which could be whole systems or subsystems, with the potential of going Postnormal—what we have identified as Black Elephants, Black Swans, and Black Jellyfish. Any policy that aims to deal with future possibilities must take all this into account. Collectively, the three varieties of ignorance and uncertainties and the Menagerie point towards PNC: the process through which normal things and events become chaotic and go postnormal.

To examine PNC, decisionmakers and policymakers have to study the complexity of a system, examine whether the system is interconnected, study whether it displays obvious contradictions, and identify potential avenues of positive feedback: if these four factors are present, it is likely that the system will become postnormal. Within many systems, there are institutions and structures that are already so complex and networked that they can go postnormal anytime, such as financial markets and infectious diseases. In general, PNC develops in three phases:

- In phase one, the system is complex and interconnected but functions normally. That however does not mean that it will continue to function as usual. Any small change or perturbation in the system, which can emerge by ignoring certain levels of ignorance or overlooking uncertainty, can rapidly produce consequences that cannot be controlled and that usher postnormalcy. A Black Elephant or a Black Swan could also be present in the system.
- In phase two, positive feedback emerges, and possibly a postnormal potentiality has been activated, and the system begins to show signs of chaos.
- Phase three is reached when chaos takes over and the system becomes postnormal. We need different policies to deal with each phase.

What can we do when a system is exhibiting PNC? In phase one, the best option is to simplify the system: complexity condemns us to limited and uncertain knowledge and the need for simplification. In our globalized world, there are no closed systems; all systems are open and open to

interconnection. But even open systems have (unnecessary) interconnections that can be reduced, which would lead to a decrease in their complexity. Here we need to be aware of sensitive dependency: any intervention such as a badly thought policy, protest, conflict, act of gross injustice, degrading effect on the environment, can accelerate the system towards postnormalcy. Moreover, we also need to identify specific elements of the system with postnormal potentiality—what are the Black Elephants in the room that have to be urgently addressed? In our globalized world, all national governments are complex, interconnected systems, with Black Elephants sitting on the tipping point towards postnormalcy. The recent attention towards migrant crises in Europe and Asia speak directly to this point. In phase two, when positive feedback has kicked in, we need to pay attention to attractors enhancing the positive feedback. In any dynamic system, there will be a number of factors— policies, contradictions, campaigns, protests, conflicts, digital media, new technologies, social change, power shifts—which create and enhance positive feedback and towards which the system tends to evolve regardless of the initial conditions or rights and wrongs of a particular issue.

To prevent the system from going postnormal, we need to identify, and if possible block, the avenues of positive feedback, unpack systemic interconnections, and identify the contradictions. There is a legitimate sense of urgency; but this should not mean an unthought reaction. The emphasis should be on deeper analysis, an integration of plurality and diversity, and quality. This requires both simplification as well as complexification at the same time. We need to "complexify" because complex systems can only be handled by other complex systems. Moreover, all of this has to be undertaken in the context of Vincible Ignorance and Shallow Uncertainty. This requires, notes Stirling, "a more rigorous approach to assessing incomplete knowledge, avoiding the temptation to treat every problem as a risk nail, to be reduced by a probabilistic hammer. Instead, experts should pay more attention to neglected areas of uncertainty as well as deeper challenges of ambiguity and ignorance."[13] There is nothing we can really do when the system reaches phase three except perhaps to continue to resolve the contradictions in the system and try to reduce positive feedback as much as possible.

Shaping postnormal policy (hereafter PNP), that is, policy that enhances our ability to navigate PNT, is not about management and control; these notions are redundant and even dangerous in PNT. Rather,

PNP's aim is to be aware of our ignorance in its three varieties, to understand the complexity and uncertainties involved, to anticipate postnormal potentialities, and thus to chart a viable, even if unpalatable, way forward. The function of a conventional policy is to guide decisions to produce predefined rational outcomes, and the whole process assumes a linear cause and effect relation between policy and outcome. PNP, on the other hand, does not offer the luxury of such an assumption, and its main function is to deal with, and if possible prevent, PNC, to draw attention to the practical complexities that confront us with not just essential questions but also with fundamental challenges, and thus assist us in charting and navigating postnormal futures. While we believe that there are a few examples of innovative policy initiatives, such as the extension of legal rights to the Whanganui River or the proliferation of guardians of future generations, we have yet to see PNP emerge.

3Ts' place in the futures field
While Futures Studies emphasizes alternatives, many methods of futures and foresight seldom incorporate pluralism and diversity intrinsically in their frameworks, and few, if any, emphasize the dynamic and merging nature of futures possibilities, or highlight the ignorance and uncertainties we constantly confront. The 3T framework offers a multi-layered approach that can serve as a useful tool of critique and exploring critical futures, or for "critical complexification" of alternative futures. 3T can also serve as an analytical tool for situating and contextualizing trends, emerging issues, and imaginings of the future(s), including complex, horizon-specific forecasts, and we believe it can be complementary to many, if not most, other futures methods and research, including the Three Horizons approach.

From scenario modeling to visioning and backcasting to cross-matrix analysis, 3T can amplify how ignorance and uncertainty are analyzed, framed, and/or mapped. We have designed the 3T framework to be both digestible and pluralistic; as such, it locates the future within the context of simultaneous alternatives that are both distant and ever present. It emphasizes complexity and draws our attention to ignorance and uncertainty at each step. 3T aims to consistently focus on the unthought, forcing us to ask associated questions, as well as challenging our assumptions, values, and basic axioms. And finally, it attempts to provide a space for us to articulate postnormal potentialities—Black Elephants, Black Swans, and Black Jellyfish; to focus on resistance, both in the sense of the contradictory resistance of a particular context (i.e. not to see the challenges ahead), and in the sense of building a resistance to such short-

sightedness. Although adapting to and taking advantage from coming changes is at the heart of foresight, we also believe that a critical aspect of 3T centers on that which we must sustain—and a host of indigenous and native peoples continue to embody this ethos. As such, our approach must be both radical and modest to be realistic and efficacious. And creativity and imagination, as Montuori has argued, must move from the individualistic/atomistic view of modernity towards a more contextual, collaborative, complex approach—breaking with the mythology of genius and inspiration that informs philosophy, ethics, and action.[14] This is the direction the 3T framework ultimately takes us in—towards the unthought.

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CHAPTER 29: ENERGY DESCENT FUTURES

by Samuel Alexander, Joshua Floyd

Introduction

It is not necessary to resort to energy determinism or crude reductionism to insist on the fundamental role energy has played, and continues to play, in shaping the rise (and demise) of human civilisations. Energy is not just another resource or commodity; it is the key that unlocks access to all other resources and commodities, thereby giving shape to the physical boundaries within which human societies must take form. In other words, a society's energetic foundations delimit the socioeconomic forms that it may take. This is simply to concede that a particular form of society cannot emerge without sufficient energy supplies in the appropriate forms to support it. And further, that a society must be able to meet its *ongoing* energy demands if its specific socioeconomic form is to persist. If it cannot, the society will transform or be transformed, voluntarily or otherwise.[1]

Today we live in a world fundamentally shaped and enabled by access to energy-dense fossil fuels: coal, oil, and gas. We could call this carbon civilisation—defined further below. In its globalised form it is historically unrivalled in its degree of societal complexity. Never have human societies had such advanced technologies, such diversity in social roles, or so many administrative and bureaucratic institutions governing the flow of information, money, and commodities—all of which depend to varying degrees on the energy surpluses provided by fossil fuels.[2]

One of the central questions of our age then is what might become of carbon civilisation as these finite fossil fuels deplete, or as we voluntarily give them up in response to climate change. What would a post-carbon civilisation look like? The dominant energy narrative tends to acknowledge the need to transition away from fossil fuels but assumes that alternative energy sources, such as renewables or nuclear power, will be able to replace the energy foundations of carbon civilisation without fundamentally reshaping the form of life we have become accustomed to in the most developed regions of the world. More specifically, it is assumed that post-carbon energy sources are consistent with a complex, globalised economy that is structurally designed or required to grow

without limits. In short, it is widely assumed that energy will be even more abundant in the future than it is today.

In contrast, the alternative energy narrative we outline in this chapter maintains that we should be preparing for futures not of energy abundance, but rather of reduced energy availability, futures in which viable ways of life are characterised by energy sufficiency.[3] With respect to the most energy intensive societies, this means planning for what permaculture theorist and practitioner David Holmgren calls "energy descent." While acknowledging a range of uncertainties about how humanity's energy futures will unfold, we argue that the plausibility and even the likelihood of energy descent futures implies that planning and preparing for such futures is the most prudent course of action.

The implications of this alternative narrative are profound, yet rarely addressed in the dominant discourses around energy. Our goal presently is to broaden the discourse on energy futures. Although we cannot provide comprehensive answers in the space available, we hope at least to provoke thought about new questions, with the aim of unsettling some assumptions about energy futures. Such an act of unsettling can prepare the way for developing perspectives on energy futures that better equip humanity to find viable pathways for navigating the emerging global challenges.

What is carbon civilisation?
Just as the bird's nest, the badger's lodge, and the bees' hive require investments of energy for their construction and maintenance, so too with human settlements. Taken to the extremes of scale and intricacy, settlements in the form of cities constitute humanity's most energy-intensive creations. In fact, cities might be viewed as meta-creations that enable the emergence and development of other expressions of human creativity, and this creativity, as with all life, depends on energy, in requisite forms and quantities, for its sustenance and development.

A hunger for energy is woven particularly deeply into the nature and condition of modern humanity. We fell the forests and mine the landscapes to construct our dwellings and build our roads. In much of the world, heating of houses and water relies on combustion of wood, gas, oil, or coal. Electricity, like a god, gives us light and it powers our abundance of convenient appliances and machines. Oil takes us where we desire to be and back again without effort. Meanwhile, the expansion of energy harvesting and use that allows large-scale societies to grow inevitably generates new problems. In turn, responses to such problems typically

drive further energy demand. The processes by which large-scale societies take form and evolve are both enabled and constrained by their energetic foundations.

Consider the image of a metropolis at night, as seen from an aeroplane window, to highlight the practical implications of the energy surpluses provided by fossil fuels. The aircraft itself is entirely dependent on the unique power density of oil, not simply to provide the fuel, but also to make viable the range of complex background activities on which modern aircraft depend: the mining of materials and the production of plastics; the laying of roads and runways; the development and production of computers and communications technologies that coordinate tens of thousands of daily flights; to say nothing of the broader investment in education required to train the engineers, computer scientists, pilots, and so forth.

In this web of dependencies it is not long before one arrives at the combine harvester that plays a key role in feeding much of the population. These oil-powered machines take the Neolithic innovation of freeing up human labour for "non-food specialisation" and amplify its effects through the industrialisation of agriculture. If in the past essentially all members of hunter-gatherer societies were required to be "food specialists," in some industrially advanced societies today the proportion of the population required to be farmers has dropped to as low as two percent. During this demographic transition people were displaced from the land by machines and into the factories and offices of the built environment. It is this image of mass migration that perhaps most vividly illustrates the tight interrelationship between intensification of socio-political complexity and the urbanisation of modern life in the industrialised world.

Beneath the aircraft lie the sprawling, glowing suburbs—the defining manifestation of carbon civilisation on the ground. No previous form of human settlement has ever been more energy-intensive to produce or to maintain. Again, think through the long and diverse chains of extraction and production on which suburbia depends, not only for its creation but also to support the high-consumption ways of life widely practised there:

- The underlying energy infrastructure like oil and gas pipelines and the electricity grid.
- The mining and transport activities that siphon resources from the global periphery to the urban and suburban landscapes.

- The final consumer commodities shipped and trucked to the shopping malls, via a vast and complex network of global trade routes and practices.
- The manufacture of vehicles to transport people to and from work, leisure, and tourist activities.
- The production of houses, kitchen gadgets, plastics, computers, pharmaceuticals, appliances, and clothing.
- Food refrigeration, water heating, and space heating and cooling.
- The abundant provision of food from all around the world, no matter the season, free from blemishes due to the liberal use of hydrocarbon-derived pesticides and herbicides.

The list really has no end, because in our increasingly globalised and interconnected world-spanning economy everything seems dependent on everything else. Nothing, though, is more fundamental than the fossil fuels that make other physical transformation possible. Just look around the space in which you are reading: it may not always be obvious, but essentially every artefact you see has a history saturated with fossil energy, especially oil. This is carbon civilisation.[4]

Assumptions of ongoing energy abundance
Throughout history the *over*-use of energy has not been a prevailing problem—more often, the existential challenges that humans have faced can be viewed in terms of energy *scarcity*. Had ready access to new energy sources been available, many past societies may have overcome (or at least delayed) crises that precipitated their demise.

Even so, the provision and use of energy in previous eras caused problems too. Deforestation is not a purely modern phenomenon. The harm caused by airborne particulates from burning wood and coal has a long history. As horses became a dominant mode of urban transport, their manure in the streets became a hazard. That human exploitation of energy resources should drive environmental change is not new. This is as old as the mastery of fire, and our energy use always has and always will have consequences beyond the benefits it brings.

Nevertheless, it seems that we have now entered an age in which problems that can be characterised in terms of the *under*-use of energy are being eclipsed by dilemmas in which *over*-use is central. Granted, humans enjoy vastly disparate access to energy, with billions still living in conditions of energy poverty. Collectively though, we now face dual

energy crises that are distinct but intimately connected: first, fossil energy depletion; and second, the major contribution that combustion of these energy sources makes to climate change. Both arise from the vastly increased scale of humanity's energy use during the industrial age. As humanity's demand for energy expands, the problems attending satisfaction of this demand intensify. To the extent that conventional responses to this situation stand to further increase energy demand—including the default reliance on "technological fixes"—the dual crises perpetuate themselves.

This is the energy paradox that is coming to define our age: we expect to solve the dual energy crises with approaches that themselves demand more overall energy use.

Energy forecasting conducted within the auspices of conventional institutions typically reinforces the orthodox assumption that humanity (or the portion living in the rich world, at least) will always be able to satisfy ongoing energy demand in a timely and affordable fashion. This is not necessarily a conscious assumption. Rather, it is a consequence of the ways in which large-scale societies are constituted that the association between institutional responses to collective problems and increased demand for energy is rarely apparent. As citizens of societies that are organised by industrial economies and market capitalism, we have simply become accustomed to overcoming (or at least displacing) any immediate problem that arises and, simultaneously, to satisfying the aggregate growth in energy demand. In mainstream energy discourse the fact that fossil fuels are finite and being depleted at pace is generally dismissed as a distant concern that will be solved before it arrives. Even if such a view is by no means universal, media narratives both reflect and propagate the widespread and popular assumption that renewable energy or nuclear power will be able to replace current fossil fuel use without significant social or economic disruption, as well as match growing global energy demand into the distant future.

In support of this energy optimism, analysts point to promising advances in technology. Sure, they say, new energy demands will arise, but a clever and resourceful humanity will be able to meet them. Markets and price signals will provide the right incentives. According to this narrative, industrial capitalism will soon be global—a transition almost complete—and efficiency gains and new energy sources and conversion technologies will mean that we can avoid the worst oil depletion and climate change scenarios. Just look to history and you will see that in

recent periods, humans have always managed to satisfy growing energy demand. The future will be the same, won't it?

Peak oil, climate change, and the limits of alternative energy sources
We seek to challenge that dominant energy narrative from a range of angles and offer an alternative perspective on humanity's energy futures. First, we remind the reader that fossil fuels—currently comprising about eighty-five percent of global primary energy use—are finite, and therefore carbon civilisation, one way or another, has a time limit. Our one-off fossil energy inheritance is but a brief anomaly in the evolution of the human story, a momentary energy spike from the perspective of deep time.

Although the timing and trajectory of fossil energy depletion is subject to many uncertainties and controversies, the fact that fossil fuels are finite and subject to depletion is an undeniable geological reality. With each passing day, as the low-hanging fruit is picked, it becomes harder to increase or even maintain current net energy supply. In recent years, the large growth in US oil production due to shale oil developments using hydraulic fracturing ("fracking") has encouraged some commentators to proclaim "the death of peak oil."

Our assessment of the evidence suggests that such pronouncements are greatly exaggerated.[5] First, eventually—perhaps sooner than most think—the rate of oil production will enter a phase of net energy decline. And while oil has commanded the vast majority of attention to date in public discourse about fossil energy resource depletion, the timelines for gas and coal may not be anywhere near as protracted as is typically assumed. Alongside this, exponential growth trends (both energetic and economic) that have defined dominant conceptions of human development since the industrial revolution can be expected to end, and even reverse.[6] Second, the climate crisis is no longer of the future but of the present.[7] What only a few years ago was thought to be a sufficiently distant concern is now upon us. Compounding the challenge of maintaining energy supply in the face of fossil energy depletion, climate science overwhelmingly concludes that the burning of fossil fuels is a leading cause of anthropogenic climate change. Any adequate response to this potentially existential threat is going to require a swift and committed transition beyond fossil energy sources.

The best available science tells us that to keep the impacts of climate change within the range of human adaptation, we need to limit the

consumption of fossil fuels. The question is whether we are able to muster the wisdom to do this, and what the resultant societies might look like if we succeed. If we fail, then it seems that we will burn. According to NASA, seventeen of the eighteen hottest years in recorded history have occurred since 2001, to say nothing of the increasing regularity and severity of extreme weather events. And yet we wait.

In light of the urgent imperative to reduce carbon-based fuel combustion to mitigate climate change, it may be tempting to see the prospect of fossil energy depletion as a red herring. If fossil fuel use is incompatible with maintaining a habitable climate anyway, then why be concerned about geophysical supply constraints? Surely these must, if they come into play in time, only help with the climate imperative for decarbonising economies.

While that perspective makes sense if current fossil energy reliance is viewed in very abstract terms, it oversimplifies the complex relationship between climate change and energy resource depletion. The arrival of peak oil, if planned for, will unfold very differently than if it is not planned for. So an assumption that peak oil will necessarily be good for climate change mitigation is by no means self-evident. Furthermore, in our more pessimistic moods, the sluggish political and cultural responses to climate change to date make it plausible that peak oil transforms (or disrupts) the global economy before any serious climate response does.

Accordingly, it is not enough to say we *need* to decarbonise the global economy to mitigate climate change. That may be true, but if, in fact, the world fails to mobilise adequately in that regard then peak oil may be the energy challenge the world is *forced* to deal with.

The cursory review of humanity's situation through the overlapping contextual lenses of fossil energy resource depletion and climate disruption sets the scene for a third context of inquiry. This concerns the extent to which alternative energy sources—specifically renewable and/or nuclear energy—will be able to replace fossil fuels.[8] Can this be achieved without significant disruption? We acknowledge a range of promising technological and economic advances in the energy domain. At the same time, critical questions must be raised about whether alternative sources can seamlessly substitute for incumbent energy systems, without transformation of the wider social and cultural contexts within which they are deployed.

Unfortunately, this is an area of scholarly debate in which competing schools of thought—"renewable advocates" vs. "nuclear advocates"— hold commitments of an almost religious nature to their particular energy solution.[9] While we cannot review the intricacies of this debate here, we approach the issues with more circumspection. We know that the current knowledge basis for energy transitions is uncertain and that reasonable people can disagree.

But we maintain that this very uncertainty about the viability of fully replacing fossil fuels with alternative sources, and the knowledge humility this uncertainty demands,[10] ends up supporting the case for energy descent preparation and planning. That is, if we are not sure renewable energy or nuclear power will be up to the task of fully replacing the energy supply from fossil fuels, then we should not assume existing energy supply—and the societal complexity it enables—will be able to be maintained in a post-carbon world.

In short, it would be prudent to prepare for an energy descent future, whether one is motivated by peak oil, climate change, or uncertainty about the prospects of alternative energy sources (or all those reasons).

Another question to consider with decarbonisation is "who benefits?" We must ask distributive questions about how energy should be shared amongst the current 7.7 billion people, who, according to the United Nations, are trending towards 11 billion or more by the end of the century. This ethical dimension of the energy transition is too often marginalised or simply ignored altogether in favour of technological and market-driven solutions.

Elsewhere we have provided the evidential foundations for energy descent in much more detail.[11] For present purposes, however, our contention is that there are various reasons to think that the future may be shaped by energy descent rather than energy abundance: Fossil fuels are finite and being depleted at pace; climate change mitigation cannot be solved merely by "greening" the energy supply but also requires choosing radical demand reductions. Nuclear and renewables cannot fully or directly replace the nature and magnitude of fossil energy surpluses. Finally, distributive concerns suggest that energy-intensive societies should be reducing their energy use. Any one of these energy challenges justifies taking energy descent futures seriously. Considered together, we contend that an energy descent future is more likely than not.

Navigation notes for energy descent futures
So far our approach has been diagnostic rather than prescriptive. We believe the diagnosis supports the case for, and adaptive potential of, engaging intentionally with energy descent processes.

Drawing attention to this perspective is important because until the plausibility of such energy futures is understood and taken seriously, individuals, communities, and political processes will not be mobilised to prepare for their eventuality. A range of looming energy shocks may well arrive and societies will be unprepared for them, which is likely to bring unnecessary suffering, harm and instability. At the extreme, it potentially precipitates civilisational collapse.[12] In light of this, we will say a few words on the cultural and socioeconomic implications of energy descent, and the variety of responses available. The brief overview we present can only anticipate the much more extensive discussion that the subject both requires and deserves.[13]

In earlier sections we discussed the ways in which energy surpluses are used by societies to solve the problems they encounter, and typically also to feed growing and evolving material desires. We showed that as societies acquire and invest energy to solve problems and feed desires, they become more socio-politically complex (in the social scientific sense, of increasing social role differentiation and specialisation, with attendant expansion of the means for coordinating these roles; this tends also to be accompanied by expanded suites of technologies and related institutions). This in turn drives the need for further complexification, and hence increased energy use. Because existential problems are in fact being solved, it is widely inferred that such a trajectory of change represents a general progressive improvement in life conditions within a complexifying society—for the time being at least.

As an aside, we stress here that we do not subscribe to the view that increasing socio-political complexification constitutes a trajectory of *general* progress or improvement. Human history is not, in our interpretation, characterised by a unidirectional, largely deterministic and hence predictable pattern of change from less to more socially desirable states. We just point out that this is an interpretation that is widely held and that is a highly influential cultural characteristic of modernity.[14]

Economic growth is one prominent area of performance from which a general trajectory of progress is often inferred. Money and other financial assets—the instruments that mediate economic activity—can be viewed as

claims on the product of surplus energy. Societies allocate money to initiatives intended to solve their problems, and the expansion of physical economic activity that this stimulates and incentivises entails increased rates of energy use. This energy–economy relationship is evidenced historically by the close correlation between economic activity and total primary energy use.[15] Provided that energy surpluses continue to grow, economies have been able to grow in scale and socio-political complexity. On the surface, then, it is quite understandable why more money and more energy are overriding goals of most, if not all, contemporary economies: these are apparently required for maintaining the conditions that are interpreted as "progress," and that, as such, are widely attributed the status of being of ultimate value.

But what happens (or might happen in future) when a society finds itself with less energy to invest in economic growth and the accompanying socio-political complexification? There are two broad pathways it may follow: (1) either it tries to maintain the existing, growth-oriented socioeconomic form but will solve fewer problems due to the declining energy budget (a phenomenon typically characterisable as societal decay, recession, or collapse, depending on the speed and extent of decline); or (2) the society rethinks the range and nature of the problems it is willing to solve, and then reprioritises its investment of available energy in order to create new, less energy intensive socio-political and economic forms.

It seems clear enough that rich nations (our focus herein) are in the process of choosing the former strategy—evidenced by their unremitting hunger for more energy, more (and more diverse) technological solutions, and more economic growth. This dominant strategy is selected on the assumption that more energy will be available in the future to fund the attendant increase in socio-political complexity. This is the message relentlessly pushed by mainstream energy analysts and institutions. However, the central implication of our analysis is that it would be prudent to embrace the radical alternative strategies of voluntary simplification (of the socio-political structures for organising human activity) and economic deintensification, given the likelihood of forthcoming energy descent. What, then, might such voluntary simplification look like? We sketch a view here in the broadest possible terms, and we expect to raise as many new questions as we answer.[16]

Given that sufficient rates of energy supply in appropriate forms are required for production activity within a given socio-political-economic complex, it follows that in an energy descent context voluntary

simplification would involve less overall and energy consumption. Today the outcome of this process of organised economic contraction widely goes by the name "degrowth" (which for present purposes can be considered a consequence of success in the positive development of voluntarily simplified societies and de-intensified economies).[17] But degrowth does not merely mean less of the same type of economic activity within the same system; it also means less and different, within a new system. What the new systems look like will depend in part on local context: not simply fewer SUVs, but more bikes (or less desire for transit in the first place); not just less deforestation but more reforestation; not fewer meals in the day, but different diets; and so forth, across all domains of life. In other words, not the same narratives of human identity, success, and wellbeing, but new narratives of what it means to be human.

Within such new narratives, if the social justice imperative of meeting the basic wants of all people were to be realised, the reduced material output of economic activity in a degrowth transition would need to be distributed more fairly than it is in most societies today. In degrowth, economies would not be structured to maximise economic growth and hope that wealth "trickles down." Instead economies should ensure material sufficiency for all more directly, through the creation of new distributive ground rules that do not rely on growth. Here the same social "problem" is solved, but in alternative, less energy- and resource-intensive ways, which is a key feature of what we mean by voluntary simplification.

This process of shrinking or abandoning many present economic arrangements in organised ways should not be assumed to automatically imply social hardship or deprivation, provided communities negotiate the transition mindfully. And although significant deindustrialisation would ensue, obviously some economic sectors would expand, e.g. renewable energy infrastructure. Granted, consumer affluence as we know it today may not be viable for any or for many. This clearly requires a fundamental shift in cultures of consumption and conceptions of the "good life." But once basic material wants were met and appropriate technologies developed, degrowth societies would have the freedom to turn away from limitless material advancement and instead seek happiness and meaning in life through less consumptive avenues—where, as it happens, pretty much every wisdom and spiritual tradition advises that lasting fulfillment lies.

Members of post-consumerist cultures enabled by voluntary simplification would thus have increased scope to choose the realm of the spirit, not the shopping mall, to satisfy their hunger for contentment.

Paradoxically, the shift to less consumptive pursuits might imply not an outright *rejection* of material culture but a "new materialism," in which post-materialist cultures actually pay more attention to and exercise greater care for the material realm (e.g. building things to last and taking care of them). This might be motivated by highly utilitarian concerns, such as minimising environmental impacts, resource extraction, or discarding of waste. But it can also be consistent with what might be termed spiritual motivations, a move to healing or transcending the supposed enmities between "culture and nature" and "body and mind."

The degrowth in production and consumption required by energy descent is one thing. But it is not just the *magnitude* of energy availability that shapes a society. It is also the *nature* of the energy sources, especially their power density. Assuming that a degrowth society is fully or primarily powered by renewable energy, with little or no use of fossil energy and a limited role for nuclear electricity, it follows that such a society would have to adapt to the fundamentally different nature of energy supply, as well as reduced overall availability.[18]

In order to avoid an economically crippling reliance on expensive energy storage, a degrowth society may need to adjust by storing *work*— using energy as far as possible when the sun is shining or the wind is blowing, rather than assuming that energy is always available on demand and without interruption. While modest biofuel volumes could be produced for tasks deemed socially essential (such as limited use of heavy machinery and aviation), a defining feature of a post-carbon society would be the electrification of essential energy-demanding tools and technologies and even a return to human-labour power for more tasks (including farming). Overall, of course, energy demand would have to be significantly reduced compared to rich nations today. Precise levels, though, are subject to the myriad social, political, economic, technological, and cultural characteristics of as-yet-unknown viable human futures.

In short, degrowth processes of voluntary simplification would meet genuine human wants and essential needs in sustainable ways through socioeconomic practices that are far less energy- and resource-intensive than those in industrially advanced societies today. As well as a range of institutional and structural changes (which we won't attempt to review here),[19] such degrowth societies would have to be shaped by values of material sufficiency, moderation, and frugality—simply because there would be insufficient surplus energy to meet the energy (or broader

environmental) costs of consumer lifestyles.[20]

A central change would be a decrease in hours spent working in the formal economy. This would free up increased time for participation in the informal economy at the household and community levels. In such a world, repair, recycling, and reuse would be radically embraced and practised, incentivised by the increased value of materials. Clothes might be second-hand, mended, or produced within the household and neighbourhood economies. Cultures based on rapid fashion cycles would very likely wither away and new aesthetics of sufficiency and timeless classic design might emerge. Home energy use would have to be a fraction of typical usage in rich societies. But homes would be retrofitted for energy efficiency and essential functions could be met. Permaculture gardens and food forests would reshape the urban and suburban landscapes. Car culture would enter its terminal phase as oil becomes ever scarcer, and bicycles and electrified public transport would become primary modes of transit. Regular air travel would become unaffordable, as would consumer lifestyles more generally. Infrastructure that is currently replicated across all households would increasingly be shared at the neighbourhood scale. Food and other commodities would generally be grown, produced, and traded far more locally than at present. Markets local to living places could be expected to proliferate and facilitate this trade.

This rough and incomplete thumbnail sketch seeks simply to highlight how a degrowth process of voluntary simplification points towards non-affluent, but sufficient, material living standards. By avoiding the energy inputs currently invested in the vast mediating economic structures necessary to support large-scale societies oriented towards continuous and unchecked growth, degrowth societies would thereby still have sufficient energy available to meet wants consistent with human flourishing.

Approached judiciously, we see it as entirely conceivable that sufficient surplus energy would be available to allow continued collective problem-solving on a significant scale. But problems would be solved in ways different to those that have become habitual during the industrial age. Different value systems would even produce different conceptions of the problems faced and, with this, new ways of thinking about the nature of adequate solutions. This is not to deny the necessary role of technology and engineering in navigating viable energy-descent pathways; it is only to emphasise that a techno-fix alone will be insufficient. Technologies are tools that are inevitably shaped by the cultural contexts in which they are

deployed.

How voluntary simplification unfolds defies precise forecasting. Indeed, the shape of a flourishing degrowth society is limited only by its members' shared imagination. Scarcity begets creativity. Voluntary simplification is based on an essentially *polycultural* vision, as distinct from modernity's *monocultural* vision. This is a vision where the trajectory of change will involve many of infinite possible social forms being enacted simultaneously, in response to local conditions. This diversity will be amplified by the interactions between groups pursuing viable trajectories free of the constraints of uniformity imposed by bureaucracies. In important respects, as David Fleming has pointed out, this "simplification" in fact entails a drift to greater complexity. Again, this is simplification only in the limited sense of reduction in the formal socio-political complexity—that is, institutionalised social role differentiation and diversification, and attendant means of coordination—that characterises large-scale societies.

Obviously, such "simplification" of past socio-political complexity will be experienced very differently if it is chaotically imposed upon a society as a consequence of collapse, instead of being creatively and caringly navigated into existence through deliberate intention. Degrowth by way of voluntary simplification and economic deintensification provides not just an alternative to collapse, but also the potential for prosperous descent.

Nevertheless, no matter how well justified degrowth may be as a coherent response to global crises, we acknowledge that it seems unlikely to be widely embraced by governments or civil societies. Nonetheless, we should aim for regenerative forms of social organisation that build rather than deplete the foundations on which they rely.

Conclusion

We set out to show through this critical exploration that much mainstream energy discourse is based on a series of highly optimistic assumptions about future energy supply. The improbability of conditions aligning such that all necessary assumptions are born out implies that the energy futures ahead will diverge strongly from those envisaged within this established discourse. This has potentially profound implications. The availability of energy in the right forms at sufficient rates is the lifeblood of any particular form of civilisation. Energy-related factors are fundamental to how we shape our societies and pursue our goals—yet we are making

plans based on highly implausible expectations. We've encouraged readers to treat the prospect that these expectations will *not* be realised as, at the very least, a matter of plausibility.

In the event that mainstream expectations are thwarted, the consequences could range from the disruptive to the catastrophic. This is not a case *against* optimism, but rather of channelling it in directions that lie within humanity's scope of influence. Even within the difficult circumstances that our assessment implies, there is still much good that can be achieved. Ample room remains for adjusting expectations to better reflect underlying energy and environmental realities, and to reconstitute societies.

Our critique focussed on three key issues: (1) the likelihood (or unlikelihood) of meeting growing energy demand as fossil fuels continue to deplete; (2) the size of the available carbon budget for a safe climate and the economic implications of keeping within such a budget; and (3) the degree to which alternative energy sources (renewables and/or nuclear) will be able to replace the fossil energy foundations of carbon civilisation, without significant disruption to society.

The evidence suggests that peak oil is not dead but at most in short-term remission. Ongoing fossil energy depletion is likely to cause supply disruptions. The carbon budget for a safe climate is so tight (and arguably non-existent) that decarbonising at the rate needed is inconsistent with ongoing economic growth. This means we should be choosing to leave fossil fuels before they leave us. But as we argued, that requires the unthinkable: transcending the growth imperative.

Finally, we looked beneath the gloss of promising advancements in energy sources and conversion technologies, reminding readers that alternative energy sources differ dramatically in nature from incumbent sources (intermittency, storage issues, low energy density, system cost, etc.). Considered systemically, these differences imply that the alternatives will not directly replace the fossil energy foundations of carbon civilisation. In short, we have explored the possibility that a post-carbon civilisation is most likely to be one with less energy available, not more, and hence with reduced energy *services* in the form of work, heat, lighting, and data manipulation than is currently available in rich nations. The situation is compounded if distributive questions are taken seriously. Ultimately, this means it would be prudent to be planning for energy descent futures.

In closing, we appreciate the psychological drivers for denying these conclusions and trusting instead in a cornucopian or techno-optimistic worldview. It is easier to believe that technology and markets can solve social and environmental problems without needing to rethink the underpinning structures that give rise to those problems. We posit that this means of coping with psychological dissonance, perhaps adaptive in other circumstances, is influential in the apparent "self-censoring" (consciously or unconsciously) by mainstream energy and economic analysts focused on the dominant economic and political paradigms. But critical, evidence-based thinking demands that we should not believe something merely because we wish it to be so. In our view, it is preferable to believe and act upon what is most likely to be true following an honest and frank weighing of the evidence. We have argued that this means accepting more modest visions of future access to energy services and creatively preparing for the socioeconomic implications of energy descent.

The age of energy abundance is arguably drawing to an end. The human species has created a form of civilisation the energy demands of which cannot be sustainably or fairly maintained. As Joseph Tainter maintains: "a society or other institution can be destroyed by the cost of sustaining itself." Our message, therefore, is to accept the implied energy descent futures before their consequences overwhelm us. Consider a metaphor though. For a pilot nearing the range limit of their aircraft's fuel supply, making a controlled descent in order to land safely is so natural and expected that the plane passing overhead is barely registered. It is only in the rare instance in which a pilot, in error or incapacitated, acts contrary to their passengers' and their own interests, crashing to the ground with great violence, that such an everyday occurrence as the end of an aircraft's flight suddenly galvanises collective attention. Dystopian interpretations of descent are not inherent in the concept itself. Rather, they are an entailment of cultural priorities formed around the present civilisation's dominant story of progress.

Given that the energy prospects of the old story are beginning to fade, we find ourselves in a sort of limbo, in between stories. What is required today more than anything else is a new story. Or rather, an assemblage of new stories, which together help us break through the thick crust of conventional thinking and being, thus allowing us to think and be otherwise, as pioneering citizens of a post-carbon civilisation, in a world not yet made.

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Part 2: Where Now for Futures Studies and Applied Foresight?

CHAPTER 30: PROFESSIONALIZING FORESIGHT: WHY DO IT, WHERE IT STANDS, AND WHAT NEEDS TO BE DONE

by Andy Hines

Introduction

Thirteen years ago futurist Verne Wheelwright considered the prospects for the professionalization of foresight and concluded that, "By nearly any traditional academic standard, 'Futurist' or 'Studies of the Future' [aka foresight] is not a profession. There are no professional standards, no code of ethics, no professional organization [no longer the case] and little public recognition or acceptance."[1] While there have been long-held views about the inadequacies of professionalism, the paper argues such status has value for practitioners, organizations, and society more generally. Further, given the continuing problems of uncertainty facing decision-makers and their ongoing "bounded rationality," perhaps there is never a better time for futurists to establish their expertise in helping decision-makers confront their uncertainty in the face of complexity. And given the increasingly challenging futures that may be ahead for the planet, captured by futurist Richard Slaughter as the Global Emergency,[2] the need for better foresight has perhaps never been more urgent.

This paper seeks to answer the following questions in relation to the field of "foresight" and "futurist" practitioners:

- Why professionalize?
- Where does professionalization stand?
- What needs to be done?

The purpose is to advance the progress of futurists and foresight towards professionalization. This will not solve all the problems of the field. There is much more work to be done, such as building the academic base. This focus on professionalization is not intended to suggest it is more important than other work.

Why professionalize?

Professionals have been an important feature of life for many years and many can trace their roots to pre-Enlightenment days. In the twentieth century, the professions were generally seen as a favorable force in society. Freidson emphasized the way professionals were a feature of a "complex civilization."[3] When it comes to consideration of what is unique or special about professionalism, it is usual to point to the specialized knowledge and skill which, if valued by others, becomes the rationale for a high status in society. Once granted, such status allows a professional to work with autonomy, authority over other occupational groups, and a degree of altruism.[4] Clearly, not all professions have the same status and power. It is usually those professions that provide moral authority, often disguised as technical advice, which gain most influence and whose voices will be heard. This paper suggests that Futures Studies ought to move more quickly towards professionalization so that it can exert influence with moral authority. Three principal reasons supporting professionalization are described below:

- To provide focus to field-building
- To aid credibility
- To attract talent

Provide focus to field building

Firstly, professionalization could provide focus to field building. Clearly there is more to be done to build the field than simply building the profession, such as building the academic base and developing a capacity for social foresight. In fact, it is unlikely that profession-building can be successful on its own, but rather needs to be a part of and linked to other field-building activities. The case for field building starts with a striking lack of consensus over what the foresight field should be called, what it entails, and where it stands. The issue of what to call the field has received intermittent attention over the years. There does appear to be some movement towards "foresight" as the name, based on search volume, naming of new academic programs, and the many national foresight programs emerging. Foresight is often accompanied with a descriptor, thus social foresight, corporate foresight, adaptive foresight, strategic foresight, and technology foresight.

Many thoughtful and useful definitions of foresight have been proposed but consensus has not been achieved. Beyond naming and defining, there is the question of "what's in and what's out?" The boundary question is not new. Amara lamented that "Futures Research is

currently in a state of abeyance and may well be approaching a critical crossroad. In order to survive it needs to dispense with its tendency to be 'all things to all people,' dealing with almost any activity that involves the future, and define for itself a unique and synthesizing role within a larger forecasting and planning framework."[5] If we consider medicine, or the law, or any of the established professions, all will make some claim referring to how their specialized knowledge and skills represent or "mirror" some feature of the world that occurs "naturally."[6] Therefore it is essential that futurists cohere around an initial feature of the world that they can claim is theirs.

However, the multidisciplinary nature of foresight, while a strength for practice, creates a challenge in terms of boundary-setting. Schultz observed that foresight is "inter-, trans-, and meta-disciplinary" and noted influences from philosophy, political science, history, international relations, systems science, economics, sociology, psychology, and literature.[7] Boundary-setting is also difficult because much foresight work takes place without "professional" futurists. Failure to set a boundary means permeability in terms of who can practice foresight, with or without qualifying credentials. Kuosa noted that a "futures orientation is really not 'owned' by futurists alone, which leads to fragmentation. Practically all disciplines, fields of society and forms of applied research have their own interest in the future … [and] their unique ways of producing future knowledge."[8]

So, is technology forecasting part of foresight? Operations research? Technology assessment? Strategic planning? Some scenario planners have set themselves up as "forecasters" or "scenarists" rather than futurists. Some futurists have crafted names for their work as a way to carve out a professional niche; for example, Micic coined "Future Management" as a bridge between futures research and strategic management.

Addressing the "what's in" question is important because clients seeking expertise will often look for it at its source. For example, if they are looking for strategic planning help will they turn to or even consider futurists as the central source? Will strategic planners themselves identify as futurists? Most likely futurists would agree that they have some role to play in strategic planning. But to what extent are futurists even in the conversation? Do they want to be? What will strategic planners say about it? And will clients "buy" it? A clearer bounding of the field would help determine whether futurists see strategic planning as core or ancillary to

their work, and thus inform and help clarify relationships with strategic planners and clients.

Table 1 summarizes several attempts that have been made to define the field, organized by author, the organizing principle used, and listing of the major categories or descriptors that highlight the organizing principle.

Table 1. Proposals to organize the field of foresight

Author	Organizing Principle	Major Categories/ Descriptors
Historical, evolving paradigms/perspectives		
Inayatullah (1990)	Traditions/ perspectives	Predictive, interpretive, critical, and action learning
Mannermaa (1991)	Research paradigm	Descriptive, scenario, and evolutionary paradigm
Slaughter (2004)	Traditions/ perspectives	Empirical and cultural, critical, integral
Kuosa (2011)	Paradigms	Prediction, management, and dialectic thinking
Static perspectives		
Amara (1981)	Types of futures	Possible, probable, and preferred
Linstone (1981)	Multiple perspectives	Technical, organizational, and personal
Marien (2002)	Futurist's thinking	Probable futures, possible futures, preferable futures, present changes, panoramic views, and questioning
Approaches/methods		
Hines & Bishop (2007)	Foresight approach (activities)	Framing, scanning, forecasting, visioning, planning, and acting
Von der Gracht (2010, p.384) citing Daheim & Uerz	Methodological evolution	Expert-based foresight, e.g., the Delphi; Framework-based foresight, e.g., quantitative forecasting; trend-based foresight, e.g., environmental scanning; context-based open foresight
Content		
Slaughter (2005)	Knowledge base (core elements of the field)	Futures concepts and metaphors, futures literature, futures organizations, futures methods and tools, images and imaging processes, and social innovations
Bishop & Hines (2012)	Teaching curriculum	A conceptual description of the field as taught by the University of Houston's Futures Studies program.

The table reveals that the most common approach is using paradigms or perspectives and exploring how they have evolved over time. The challenge ahead is not to select the "right" approach, but to gain agreement on how the approaches fit together and what agreement can be found around a common core.

On the academic front, while some promising developments are underway, clearly there is much work ahead. Globally there are perhaps a dozen graduate degree programs in foresight. Crucially, such programs play a crucial part in the preparation and dissemination of specialized knowledge. The statement of such knowledge in abstract terms through theories, models, and skills for practice is a distinguishing feature of a profession and part of its control of boundaries.[9] There clearly need to be further advances in building specialized knowledge of foresight. For example, Slaughter has made an elegant case for the need to build the capacity for social foresight.[10] One could argue that futurists remain on the fringes of important social debates, and that important questions about the future are routinely addressed without any reference to futurists or foresight. One could also argue that if futurists don't lay claim to foresight, someone else will. Already, many organizations do not seek the help of foresight or futurists when engaging in forward-looking work. Gavigan and Scapolo observed that over the past thirty years, much strategy and policy-planning has been conducted without using the foresight label, in some cases purposely avoiding it because it was in disrepute in planning circles.[11] Nor has the case been decisively made that foresight can deliver on its promise for those who do use it. A 2002 scenario project exploring the future of the field by the Association of Professional Futurists (APF) identified a "lifeboat" scenario in which the field proved unable to differentiate itself from others, resulting in a watered-down use of foresight that was often inadequate or even harmful.[12]

Naming, defining, and bounding are important first steps to field-building. Consensus around the questions could help to frame the core purposes, concepts, theories, and methods of the field, as well as providing a basis for clarifying who the members of the community are and ought to be.

Aid credibility

A second reason for professionalization is to aid the credibility of foresight as a professional field. Foresight, of course, is a relatively new field emerging after World War II from the military and related think tanks in the US, and along a separate path in Europe at about the same time. It moved into national planning efforts and eventually was adopted by the private sector, with Shell's use of scenario planning in the 1970s being the most well-known. The APF was founded in 2002 with a goal of creating a "credible profession, thriving professionals," noting that "we are living in critical times for our profession…. it's ours to envision the future of the profession." But introducing a new capability raises credibility issues that any novel field faces. Organizations want to know what the capability purports to do and then assess whether they believe it can do it. Since in organizations it is always easier to not do something than to try something new, legitimacy and credibility questions are inevitable. Slaughter pointed out that all fields must pass through a process of academic, professional, and social legitimation to be taken seriously.[13]

Organizations provide guidance to their members on the established ways of doing things. Their discourses, defined as structured collections of meaningful texts that include any kind of "symbolic expression requiring a physical medium and permitting of permanent storage,"[14] [15] make "certain ways of thinking and acting possible, and others impossible or costly."[16]

Those who suggest new ways of doing things, such as futurists, thus ought to assume the burden of proof that the established way of doing things is either not up to the task, or that the proposed new approach will achieve better results. They are asking clients to take on a risk. Mack embraced this notion that the burden is on the futurist by noting the need to create a safe haven for change, not simply to assume that it ought to be there. Failure to create such safety makes it less likely to overcome client tendencies towards being timid about risk.

Why should clients believe us? Establishing a profession and the work that goes along with that (common terminology, purposes, ethics, standards, best practices, etc.) would provide help to futurists in their efforts to persuade organizations to adopt foresight.

Attract talent

The third key reason to professionalize is that it is difficult to attract talented individuals into a field if there is a perceived (or real) lack of jobs and career paths. Futurist is not yet a recognized profession in the US or UK and most who have searched for jobs as a futurist can attest to the difficulty of finding them. The Princeton Review observes that: "there are two reasons to choose a major: to prepare for a specific field or job, or to immerse yourself in a subject that fascinates you." Foresight does well in the latter, but often struggles in the former. According to CIRP's 2009 Freshman Survey, 56.5% of students—the highest since 1983—said that "graduates getting good jobs" was an important factor when choosing where to go to college. And the National Center for Education Statistics in the US reports that the number of bachelor's degrees in "employment friendly" fields has been on the rise since 1970, while others have declined. Indeed, many of the students in the University of Houston's Graduate Program in Futures Studies are interested in preparing for a career in foresight, but many of those who choose not to enroll cite uncertainty around the career prospects. Simply being recognized as a profession is a beginning rather than an end. Perhaps some good news is that futurist was recently cited as "one of seven awesome jobs that people have not heard of."[17]

It is also worth noting that a values shift towards people looking for greater purpose and meaning in life bodes well for foresight. The concepts and tools of foresight are of course ideally suited for addressing the big issues facing the world, whether it be climate change, the impact of AI and automation, or economic inequality. As more people seek to address these challenges, foresight can provide a framework and tools that will attract more people into the field.

This section suggests that the professionalization of foresight would provide at least three benefits to the field and its practitioners by providing focus to field-building, aiding credibility, and attracting talent. The next section looks at the current state of professionalization.

Where does professionalization stand?

Any new field faces the issues of credibility and acceptance by demonstrating to others that, in seeking to make complex decisions when they are ignorant, those with knowledge and skills can provide satisfaction. Organizations want to know what the capability purports to do and then assess whether they believe it can. What is it, what can it do,

and do we believe it can do it? This raises legitimacy and credibility questions. Why should we take the risk of change?

Foresight is no different in facing questions about legitimacy. Table 2 provides an analysis of where foresight stands, based on how it measures up to standard definitions, from least to most complex.

Table 2. Where does foresight stand?

Definition (Cambridge Online Dictionary)		Meet the criteria
Capability	The ability to do something	Yes
Field	An area of activity or interest	Yes
Discipline	A particular area of study, especially a subject studied at a college or university	Maybe; dozen or so graduate degree programs globally
Profession	Any type of work that needs special training or a particular skill, often one respected because it involves a high level of education	No

A literature review suggests that foresight meets the capability test even with debate over what the "something" it delivers is. It also meets the definition of a field, but with some dissension. Marien, for instance argues, "for those who persist in proclaiming that there is a 'field,' I simply ask that you tell me who is in it, and who is not, and why."[18] Whether foresight is a discipline is a trickier. As we indicated above, there are a dozen graduate degree programs globally and at least two dozen universities offering a course or courses in Futures Studies; the numbers could be more or less depending on how one defines a foresight course. It is not clear whether the numbers represent sufficient critical mass for a discipline.

Table 2 submits that foresight has not yet met the criteria of a profession. But other professions have been in similar positions at this point in their development. Henshel explored this question thirty years ago and found that the "marginal respectability" of foresight at that time was very similar to that of the social sciences in their early years. Sociology began with the rather grandiose claim that it was going to create a science of society using natural science methods, but eventually settled for a much smaller piece of the pie. Henshel suggested that foresight may also have been guilty of grandiose claims that oversimplify the study of the future.[19]

The continuing confusion around what foresight is and what professional futurists are makes it difficult to determine whether the field is growing or not. It is nearly impossible to quantify the number of futurists in the world, primarily due to the lack of an agreed-upon definition.

Table 3 provides a view on the state of professionalization drawing on Hodson and Sullivan[20], Freidson[21], Gold and Bratton[22], and Wheelwright.[23] Wheelwright surveyed 300 random participants from the World Future Studies Federation, the World Future Society, and University of Houston Futures Studies program alumni. The survey questions mixed a focus on individual practice and the field. The analysis, drawing upon my work and subsequent vantage point as Chair or Board Member of the APF (Association of Professional Futurists) through 2010, and the literature review, provides a judgement of yes but mostly no in regard to whether foresight meets the criteria for professionalization.[24] [25]

Table 3. Foresight and professionalization criteria

Hodson & Sullivan	Freidson	Wheelwright	Does foresight meet it?	What to do (#s refer to action items in Conclusion)
Specialized knowledge	Specialized work that is grounded in a body of theoretically based, discretionary knowledge and skill that are given special status	Theory and intellectual technique	Yes; 57% agree their practice meets this criterion; Slaughter codifies a knowledge base	#1 and #3 Could update and spread knowledge base, working towards a competency model and standards
Autonomy	Exclusive jurisdiction created and controlled by occupational negotiation	Autonomy	No; only 30% agreed they had autonomy in using their knowledge vis-à-vis clients	#1 Discuss whether this is an appropriate goal

Hodson & Sullivan	Freidson	Wheelwright	Does foresight meet it?	What to do (#s refer to action items in Conclusion)
Authority over other subordinate occupational groups	A sheltered position with labor markets based on qualifying credentials of the occupation	[Addressed in "Autonomy"]	No; futurist is not listed as an occupation by the US Bureau of Labor Statistics or the UK Office for National Statistics	#4 and #5 Advocacy as part of public relations campaign
A degree of altruism	An ideology that asserts a commitment to doing good and delivering quality	Social values	No; not yet agreed as a field, but 65% agree in their individual practice	#4 and #5 Could fit with efforts to develop ethics
	A formal training program to provide qualifying credentials		No; Hines notes failure to agree on certification; still the case today	#2 and #4 Building some sort of certificate/ certification process
Sense of community and commitment			Yes; 66% agree	#1, #3, and #4 Could further improve collaboration among various groups
		Ethics	No; 61% agree on need; APF and WFSF have not adopted a code of ethics	#5 Craft the code; either one organization proposes and others decide; or create it collaboratively
		Standards	No; 62% agree on need; Slaughter's call for professional standards not yet addressed	#3 and #4 Evaluation of field could suggest how much works needs to be done here
		Professional association	Yes, APF founded in 2002; 54% agreed on need at the time,	Expand APF's scope; decide whether it wants to drive

Hodson & Sullivan	Freidson	Wheelwright	Does foresight meet it?	What to do (#s refer to action items in Conclusion)
		A new name	before the APF was founded No; 41% preferred not to be identified as futurists	professionalization #1 One of central questions

Table 3 suggests there is work to be done.

What needs to be done?

According to Dietrich and Roberts, the starting point for professionalism is that clients are "incapable of pre-thinking all the issues involved with a decision because of the complexities involved."[26] This provides the core requirement and an economic basis for professionalism since clients faced with ignorance and "information asymmetry" seek the services of those they recognize as experts. Such recognition, as a favorable response to services offered, highlights the relational and socially constructed features of professionals and their work.

It is still an open question as to whether foresight, as a relatively new capability and field facing credibility challenges, can help clients effectively deal with ignorance and information asymmetry regarding the future. A social constructionist approach provides a useful perspective for guiding a process of building credibility over time: it suggests that meaning is collectively constructed through language and dialogue. It's not about finding the right answer, but about negotiating and constructing shared meaning together. It is further suggested that through such processes of interaction, meanings are made between people and such meanings become embedded into ongoing ways of talking and acting, which may in turn become accepted versions of reality. However, whatever meanings are made, the accepted facts or truths about the world that they rely on are always "highly circumscribed by culture, history, or social context." In other words, for such meanings to continue to remain acceptable is dependent on the day-to-day workings of social process, and their validity serves a function within a particular historical and cultural context. Therefore, for foresight to become recognized as meaningful, there is a requirement for many conversations among futurists themselves, but also with clients and the public, that produce a succession of positive

and valued interactions over time, because such work satisfies particular needs, desires, and interests within a particular situation. Fuller and Loogma (2009, p.78) note that "foresight, as a concept and as practice, is a social construction."[27]

In other words, the boundaries of foresight will not somehow be "revealed," but, in social constructionist terms, must be proactively developed as part of an ongoing dialogue process among futurists and between futurists and clients. As the field has been wrestling with these questions, clients have been left with what Shotter calls a "chaotic welter of impressions."[28] He advises avoiding a "Neo-Darwinian struggle" for the correct view or approach, but rather creating "a continuous, non-eliminative, multi-voiced conversation." This suggests it may be most beneficial for futurists to first seek consensus among themselves on the questions of naming, defining, and bounding as well as on the key canons of the field, before engaging with clients in a significant way.

As Henshel observed, foresight is travelling down a path that other fields have traversed before it. The current wide range of views about what to call it, how to define it, and how to bound and describe it (see Table 2) can be viewed as a natural, though not inevitable, stage in the social construction of the profession. The literature review revealed a significant opportunity for improving this dialogue by including more of the client perspective. This may require incentivizing practitioners to share their client experience and to capture the learning from these dialogues in texts, then sharing those texts and integrating them into an overall discourse about professionalizing. But practitioners, struggling to make a living, arguably have an incentive to keep client dialogues private as a competitive advantage. They may see little gain in sharing with the field at present.

There will be a need to create forums to host this sense- and meaning-making process which can build the discourse about what foresight is and what it offers. While the question has been occasionally addressed by the field, it has yet to catalyze towards consensus. There is no guarantee of consensus, and attempts to enlarge the conversation could be perceived as a power play or insult or encroachment upon one's "defined turf."[29] These challenges suggest a need for research to identify potential approaches for engaging the field and its stakeholders in this dialogue.

Steps in building the field towards a profession could benefit futurists and clients, and their firms, in a way that creates reinforcing feedback loops. One might argue that the problem has been an inability to achieve "critical mass" to ignite this process.

Conclusion: A proposed action agenda
Five items are offered as projects to create focus and impetus for action towards professionalization (as reflected in Table 3). The first three are aimed at foresight building its own discourse, with the aim of developing a more coherent proposal to share with clients and the public. It could then be modified as appropriate. An argument could be made for bringing in external perspectives sooner; the suggestion here is for the field to get its house in better order first and then go external. Armed with the input, then a public relation campaign makes sense.

The five agenda items are:

1. Design a "Building the Profession" project to identify potential approaches for naming, defining (competencies), and bounding the field (NOTE: this has been done).
2. Create a "Learn from other fields" project.
3. Assess the state of foresight.
4. Incorporate client and public input on professionalization.
5. Design potential approaches for a public relations campaign to promote awareness of foresight.

1. *Design a "Building the Profession" project* to identify potential approaches for naming, defining (competencies), and bounding the field and evaluating outcomes. The APF is a logical initiator and convener for this project, which could provide a design for how to approach and talk about these vital issues for the field. It would aim towards eventually gathering stakeholders for dialogue, potentially combining publications, meetings, conferences, etc. [NOTE: Since the writing of the original article upon which this is based, the APF indeed launched a "Futures of Foresight" project that produced a Foresight Competency Model.]

2. *Create a "Learn from other fields" project*. The research for this paper frequently went outside the foresight literature to social constructionism, organizational development, organizational learning, narratives and discourse, and institutional theory among others. While foresight prides itself on including multiple disciplines and perspectives in carrying out its

project work, there is an opportunity to expand the application of this multidisciplinary perspective to looking at itself as a field. Along those lines, a project to explore how other new fields have dealt with professionalization, including the questions identified here, could be initiated.

3. *Assess the state of foresight*. This project would look for patterns in adoption and use of foresight. A place to start on the demand or client side was raised by Coates in mapping the landscape of science and technology foresight and looking for patterns among industries or sectors. It did not identify whether particular sectors or fields had used foresight to a greater extent than others. To do this properly would require gathering input from individual futurists and firms and sharing them with the field. Researching and discussing these questions among the foresight field could lead to adjustments in the publicizing as well as the dialogue and activities of the integration process. Case studies could be an effective mechanism to broaden insights into the patterns that govern foresight adoption, rejection, or ignorance.

An excellent head start is available on the supply side from Slaughter's State of Play in the Futures Field research program. It addresses the field as a whole, rather than professionalization specifically, but nonetheless has valuable lessons and building blocks for a more focused look at professionalization. A team of researchers characterized where foresight is being used, the interests or purposes behind that work, and what methods are being used. Interestingly, the program found more work being done with government agencies and research institutes than with private firms, closely followed by universities and nonprofits. Professional foresight can cut across these categories, but the numbers suggest purely commercial foresight is perhaps relatively under-represented. It found "that about half of the activity scanned appears to be conventional, routine and basically concerned either with maintaining the status quo or at least not significantly challenging it," compared to progressive or civilizational foresight.[30] This raises an important issue for the professional agenda—is there an appropriate balance of these interests? It also found that conventional methods (linear and systematic) are vastly over-represented compared to post-conventional methods (critical and integral). Again, an excellent issue for professionalization to discuss in terms of an appropriate balance.

The research program aligns with Slaughter's call that "deeper insight into 'what's actually going on' requires more detailed case studies." It noted the role of the Association of Professional Futurists in trying to build the credibility of the field, and the importance of the credibility issue.

4. *Incorporate client and public input on professionalization*. The first three items are aimed at helping the field develop a more coherent story about what it is and what it offers to clients and the public. This item brings in the perspectives of clients and the public. Where #3 above focused on case studies to build an understanding of how foresight is being used, this item would focus more on the "why" than the "how." It would most likely use surveys and interviewing to gain the deeper insights.

5. *Design potential approaches for a public relations campaign to promote awareness of foresight.* A public relations campaign could be designed to raise awareness of foresight capabilities with the goal of stimulating dialogues with potential clients. But how to go about it? What have other fields done? What particular points might be most useful to promote? A useful first step would be to gather data around the current degree of awareness of foresight in organizations and the public-at-large, which could build off of the previous items.

This item is last because the field would benefit from clarifying its discourses before going public. This position is not meant to suggest that current publicizing efforts stop, but that it might be more useful to invest time and resources in building the discourse first. Jumping into a public relations campaign, for example, without addressing foundational theoretical questions could reinforce the current confusion among clients and the public about foresight and drive them elsewhere for answers.

As noted earlier, professionalization will not solve all the problems of the field, but should be viewed as a part of the field's overall development. These items could be crafted as projects or initiatives. If guided by a social constructionist perspective, it could avoid the unproductive possibilities of competing stakeholders putting forth and arguing for hard-and-fast positions—and thus would be aimed at discovery rather than argumentation. There is a lot to be done, but if professionalization is indeed a preferred future, there is no time like the present to get started.

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CHAPTER 31: FUTURES STUDIES AS A QUEST FOR MEANING[1]

by Richard A. Slaughter

Introduction

This paper reflects on four decades of activity in the futures arena. Overall, it tracks a process of deepening insight and growing appreciation for the richness and complexity of life in all its myriad forms. Coupled with this is what I have come to regard as our inescapable responsibility for being active in ways that protect and nurture our natural and cultural heritage, both of which are under sustained and ever deepening threat. To do so we need to recover a clear perception of how extreme and abnormal our present situation vis-à-vis Planet Earth really is. This entails removing the veils from our eyes, setting aside convenient fictions, and gaining the courage to face reality. This view can also be framed as "finding ways forward in impossible times." It is a kind of subtext for the kind of Futures Studies (FS) I've pursued. It begins with an overview of early influences and experiences, summarises some core learnings, provides examples of the kinds of "depth appreciation" that prefigure long-term solutions to the global emergency, and concludes with the purpose of futures work.

Overview

For some years a narrative has emerged concerning the post-war baby boom generation. It identifies a sense of relative disadvantage being experienced by later generations in that their life chances appear significantly reduced. This is a question of social justice that deserves to be widely explored and discussed. At the same time, however, a far larger—and perhaps even more significant—issue is that what was earlier thought to be the unstoppable arrow of human progress itself began to falter in the late 1960s and '70s. Two of many possible indicators of this shift are the treatment handed out to Rachel Carson after the publication of *Silent Spring* in 1962 and the emphatic rejection of the first *Limits to Growth* report in 1972. These and related works offered timely warnings that the human species needed to wake up to the global consequences of its own success. But business-as-usual prevailed, and still does.

As with many others, my career as a futurist has occurred as the dimensions of what has become a global emergency slowly began to

impose non-negotiable costs upon human societies everywhere. It has been difficult to stay positive, to always be searching for solutions, ways forward. But this is what anyone involved in futures work of any kind must now confront. Hence the search for meaning outlined here cannot possibly be a singular one. It's an unavoidably collective challenge facing all who care about the world and are determined to resist its steady descent into chaos.

View from "year zero"

I was born late in 1945, or "year zero" of what is often referred to as the "Anthropocene" (human era). World population was a little over 2 billion—which is less a third of the present 7 billion. It was the end of World War II and the first nuclear bombs had fallen upon Japan. Cars were uncommon in the terraced streets where I grew up. Television was non-existent and telephones were heavy Bakelite blocks with circular dials and long twisted cords attaching the handset to the base. My grandmother's tiny house was lit by gas. My father walked to work and my mother cycled everywhere. Although Portsmouth was pockmarked with bombsites and damaged buildings, I was spared the rigours of post-war reconstruction. During the 1950s and '60s, however, annual GDP grew by four to six percent. Global industrial production tripled in the twenty years from 1950 to 1970 (Higgs, 2014, 111). Although it was far from obvious in post-war Britain, humanity was poised at the start of a historically unprecedented period of growth and development. Like many others, I've benefitted from that process, but the overall costs have now exceeded what anyone could have possibly imagined—to take but one example, half of the world's wild animals have been lost since 1970.[2] While most governments, organisations, and individuals seem to take such vast shifts and changes in their stride, a clear-eyed look at the process suggests that they have bequeathed us a truly abnormal and unsustainable world. Yet nothing of this dire future could be detected in post-war working class Britain.

Perhaps in response to the greyness of the later 1940s and early 1950s, my parents did all they could to expose me to a range of experiences. It was not long before I became immersed in young peoples' literature—both fiction and non-fiction. Then, as a teenager with a voracious appetite for reading and experience something started to shift. I began wondering why "the future" appeared to bear increasingly negative connotations. Much later on I encountered the view that the future might be seen as "a disaster that had already happened."[3] Leading British science fiction author Brian Aldiss provided another clue during a 1980s SF convention

in Brighton when he described the main ethos of the genre in just four words: "hubris clobbered by nemesis." I felt that to be a very astute and pointed summation. If, however, you read enough dystopias—and I was reading many at that time—then at some point your enthusiasm for their warnings and disasters can wane. Something was missing or in some way out of balance. So, unconsciously at first, I began to seek out and explore different options. Eventually I realised that I was being drawn into *a different engagement with the present*. The drivers of dystopia were not hidden. They were out there in the world for all to see. What might this mean?

I found myself at the beginning of a long period of learning about the world and why it appeared to be under such pervasive—but ill defined—threat. Coming to that view in the 1960s meant that there were few reliable sources and even fewer ready-made guidelines. Without appropriate maps you basically stumble across helpful material and, from time to time, meet inspiring people. If the dystopias were an irritant or starting point then Leach's 1967 Reith Lectures *A Runaway World?* provided the first real evidence of what was happening. Its cover captured it: "Men have become like gods. Isn't it about time that we understood our divinity?"[4]

Bermuda to Lancaster

Not long afterwards I found myself living and working in Bermuda. The six years I spent there provided a further awakening and radicalising experience that sent me back to study and then into FS. I became friendly with David Wingate, the local government conservation officer. He opened up the natural world to me in ways that had previously been out of reach. Through him I also discovered the work of the early American conservationists—people such as J.J. Audubon, Henry Thoreau, Aldo Leopold, and John Muir. From people such as these I discovered expressions like "In wilderness is the preservation of the world" and the stewardship ethic they embodied. They provided a vital perspective and backdrop to more contemporary material. I was fortunate to discover Lewis Mumford at this point. His well-grounded and historically informed critique in *The Pentagon of Power* became a foundation for much of my early thinking. A section of one chapter on "the removal of limits" should be required reading for virtually everyone.[5] It addresses some implications for humanity around the fundamental dilemma of growth and, in so doing, brings much that is contested in our contemporary world into sharper focus.

Bermuda demonstrated in very real and concrete ways what happens when human beings lose sight of natural process and what is now called "the big picture" in pursuit of short-term anthropocentric—i.e. economic—ends. Primeval Bermuda had been obliterated under a relentless tide of twentieth-century development. I began to see it as a microcosm of a global process. The cycles, characteristics, and limits that apply in nature were and are being progressively marginalised and diminished under the pressure and the weight of implacably growing human demands. Understanding this mismatch between human perception and environmental reality became one of the enduring themes of my life and work. The publication of the first *Limits to Growth* (LtG) study in 1972 brought all this together and it helped me to get serious about returning to university. At Lancaster I was fortunate to find a program in the School of Independent Studies that allowed people like myself to help design a large part of their degree program. Mine had the rather grandiose title of *Science, Technology and the Human Future*.[6] That's when I discovered a group of people, and even a few organisations, that focused on alternative futures. I felt I had finally found a home of sorts. Wider acceptance and career "success," however, would be a harder road and would take many more years to accomplish.

Australia
At the time there was no work for a freshly minted futurist anywhere in the UK. Thus it was with a very heavy heart that, after several years of uncertainty, I found myself living and working in far-away Australia. Things here were tough at first but when I landed a job at Melbourne University, new opportunities quickly opened up. The five years I spent there from 1989 to 1994 were certainly productive. I was able to design and teach course units on Futures in Education, develop greater skill at public speaking and start to publish in professional journals and through mainstream publishers. As things turned out I was both fortunate and unfortunate at the same time. On the positive side Professor Hedley Beare gave me his unlimited support including collaborating to write *Education for the Twenty-First Century* in 1993. The book was widely read and its basic message received strong support from the profession. Unfortunately, however, I also had a Head of Department (HOD) who actually wrote in a formal assessment that my area, i.e. FS, had only "a tenuous connection with education." It was not the first clash of paradigms and personalities that I'd experience but it was the beginning of the end for that phase. After five short years I was out of a job.

At the time it felt like a disaster. But then, as I took stock, a welcome shift of perspective occurred. A period of sustained in-depth personal work (partly inspired by a humanistic psychology group known as All One Voice) proved life changing. I found that it was possible to thrive working independently. I ran research projects, edited a professional newsletter, facilitated workshops, and dipped into small-scale publishing. During this period I also published several well-received books. Perhaps the most well-known was a multi-volume project called the *Knowledge Base of Futures Studies* (KBFS). This went through several editions and was later rendered into CD-ROM and USB formats that are still used in some universities.

Throughout this whole time I returned frequently to visit family in the UK and my sons visited me in Melbourne. This period of living and working independently lasted for several years. Then in 1998, having recently moved to Brisbane, I received a call from my close friend, Adolph Hanich, who'd been working in the Vice Chancellor's office at Swinburne University. To cut a long story short, he and I collaborated on a proposal and were later invited to set up the Australian Foresight Institute (AFI). So in mid-1999 I turned around, went back to Melbourne and got to work. I also took on the presidency of the World Futures Studies Federation (WFSF), which augmented the profile of the new position. After a year working on course development and accreditation, in 2000 the first graduate students enrolled. The local and international feedback was encouraging. All up I spent five very active and productive years at Swinburne. At one point—while I was writing *Futures Beyond Dystopia*—I remember wondering how long I could go on working six and a half days a week! I then left the institute in the capable hands of Peter Hayward in 2004 when I decided to leave.

I feel fortunate to have been able to work in an underappreciated domain of enquiry and action that never, at any time, promised or delivered a conventional career. Yet it has provided me with an uncommon level of satisfaction. The key thing, however, is not so much what FS might mean to one personally but, rather, what it suggests collectively. For what was achieved during the early years at the AFI was what entrepreneurs call "proof of concept." That is, we demonstrated conclusively that the domain of Futures Studies and Applied Foresight had multiple uses and applications. Our suggestion that "foresight refreshes strategy" was never contradicted. There's a simple reason for this: it made—and makes—a great deal of human, cultural, and organisational sense. I will now summarise a few of the core learnings that

have emerged from my immersion in the futures arena and, as will become clear, various other fields as well.

What I have learned

Foundations

In postmodern conditions some highly influential arguments have been advanced for viewing the world as being in a constant state of flux and social relationships as fluid and changeable. There's some truth in this. At the same time, however, it's vital to have some reliable points of reference amongst all the flux and upheaval around us. The world is certainly not static, and probably never was. But we need some things that we can rely on over the long haul. Appreciation for beauty might be one and the love for one's family another.

Within the domain of framing ideas and beliefs it is both possible and desirable to have something similarly reliable to hold onto. Wilber's four quadrants provide one relatively simple strategy for achieving this. It is based on taking up the notion that the world can be viewed through four "windows" or frames of reference. These are:

- The individual interior world known only to ourselves
- The collective or shared interior world of culture, society, language, and so on
- The exterior individual world of measurable behaviour and competence
- The exterior collective world of physical evolution, ecologies, cities and so on.

I should add here that there are very many sources and resources available to provide us with key understandings in each of the above. For illustrative purposes only I will name four—one in each area—which I've found useful.

On the individual interior domain I found Wilber's work on *Integral Psychology* (Wilber, 2000) valuable.[7] It brings together a great deal of research and practical know-how about developmental states and stages that all human beings pass through and experience. As such it provides a map of the human interiors that helps us to understand different dimensions of the self. This, in fact, is the domain that's almost universally overlooked by futurists as by many others. Then, in the collective interior domain, there's a source that's remained current and

helpful over half a century—the *Social Construction of Reality*.[8] The book reveals a lot about how societies operate and how they deal with the central issue of legitimation. For me this is central to understanding why societies operate as they do. The book nails some central realities that help us to understand current events. One of them is an idea attributed to Marx, namely that we are indeed the "authors" of our societies but tend to forget our authorship.

It's more difficult to identify a single source to illuminate the domain of the exterior individual. But my choice goes to Joanna Macy for her book *Despair and Personal Power in the Nuclear Age* as it shows how it's possible to move from despair towards empowered action in virtually any situation.[9] As such it supports a vital and often overlooked capability during increasingly challenging times. It means that the onset of dystopia is not necessarily a legitimate cause for depression and despair. Finally, within the domain of the shared exterior world, a single text that outlines a reliable framework situating human life nested as it truly is within a dynamic global context is *Global Change and the Earth System*.[10] Its sub-title is "A Planet Under Pressure" but I've often thought of it as "The Story That Connects." I've often referred to this valuable source when confronted with the complexities, confusions, and denials that are constantly highlighted in the media.

These examples are indeed just that and I'm fully aware that no two people would choose the same sources. Yet a conscious search for their equivalents does, I suggest, provide valuable insight and support for anyone seeking a balanced view of the world and their place within it.

Self-knowledge
During a trip to Delphi, Greece, I saw two ancient inscriptions in the Temple of Apollo. One said "Know thyself" and the other "Everything in moderation." (To which the modern wit may add "including moderation!") Of the two the first is most vital since without self-knowledge we inevitably flounder and simply cannot function properly. Having the right mentors is also helpful as they not only help resource us for life tasks but also give us that rarest of gifts—honest feedback. Learning to hear and accept that is one of the most vital skills.

As we go through the process of discovering, accepting, and integrating the many layers of the self, so we open to our own partiality, our games, our appetites and weaknesses. We also become aware of our projections and learn how to take them back. At some point we stop being

the centre of the universe and realise that we are all merely threads in a vast and ancient tapestry, the boundaries of which lie forever beyond us. From such insights come capability and modesty. In a futures context this means that we are open to others. We can hear and know them because we've sufficiently stilled the cacophony of ego. A certain modesty is essential. In a field such as Futures Studies and Applied Foresight, which deals with huge, world-spanning issues, it's vital to express ourselves in ways that are clear yet also understated.

Disappointments and failures

To be a futurist is clearly not an easy choice, especially if one elects, as I have, to quite deliberately *not* work for the already rich and powerful. Herb Kemph's book *How the Rich Are Destroying the Earth*[11] and Kerryn Higgs' superb *Collision Course*[12] have confirmed this decision beyond any possible doubt. Kemph exposes the regressive influence of the very rich on less well-off social strata. Higgs details the way that over several decades corporate interests have, in pursuit of their own limited interests, effectively derailed many of humanity's attempts to come to grips with what is now an inescapably dire situation.

This choice means that one may well choose to forego significant opportunities and income, and at times to "hoe a lonely furrow." So it's vital in this context to stay connected to those people and sources of energy and insight that can provide support when it is needed. I don't believe in the "lone futurist" any more than I do in the "lone genius." *We are all and always part of a collective, whether we acknowledge this or not.* None of us is self-sufficient. When a crisis comes or we run out of personal resources, we need to know who or what to turn to and how to recover. This is very personal and specific from one individual to another. But it also has a strong bearing on how we can not only view, but also *positively utilise*, dystopias and negative depictions of futures. The upshot is that while a conventional view tends to deny or avoid both, I see them as powerful drivers of human motivation and purpose.[13]

On many occasions I've turned to family, friends, mentors, organisations and, occasionally, to the wisdom traditions themselves. Just to take the latter, during my fruitless search for work following my PhD I remember being greatly inspired by Huxley's *The Perennial Philosophy* and E.F. Schumacher's *A Guide for the Perplexed*. It's from Schumacher that I came across the proposition that "at the human level there is no upper limit." That's truly inspiring if you're in the mood to accept it. Another example would be when I came across Wilber's *Sex, Ecology,*

Spirituality.[14] Then there are the works of Seneca that convey an almost timeless wisdom that reaches across the centuries.[15]

Managing success

It's just as necessary to know how to deal with success as it is with the challenges of getting there. Being successful can mean many things but it does not actually make one more important or less likely to make mistakes. In fact, success can feed the ego in ways that are counterproductive. It has sometimes been noted that the higher you rise in any organisation the less feedback you are likely to receive. Here's where you find ivory tower academics, know-all executives and bosses, and those individuals who are beyond caring about ordinary people. Part of the self-knowledge required, therefore, is to stay open, be alert to the traps of ego, and take active steps to compensate for the loss of informal feedback. One way to do this is to ensure that there are plenty of opportunities for informal interactions. Another is to be a good listener and to demonstrate a true interest in other people and what they have to say.

Hedley Beare became a mentor and model for me in part because he always remained modest, he sought to resolve conflicts honestly, and he never stinted at promoting and supporting his colleagues regardless of their level in the organisation. The success of our book *Education for the Twenty-First Century* was due, in no small part, to his standing in the profession, the respect in which he was held by everyone. It was also due to the way we collaborated. For example, we each drafted successive chapters. We then passed each chapter to the other person with a completely free hand to add to, subtract from, or rewrite it as required.

To be successful can involve becoming well known. Other professionals, sometimes from the media, will turn up and ask for your help or your views. You're likely to be invited to take part in radio and TV programs. So, it's worth working on developing some of the necessary skills. One of these is careful preparation. I've never skimped on this because when getting ready for one occasion you're also doing the same for others yet to come. It's easier to relax when you are in the spotlight knowing that you know what you need to know for that occasion.

My guide to many of these issues is Wendell Bell whom I am proud to know as a colleague and friend. Like Hedley, he has always been generously supportive and encouraging. When we ran into occasional differences they did not need to be argued or even resolved. They were simply accepted as part of the rich process of communication. Wendell

embodies the spirit of generosity and it is from him that I saw that the best way to enjoy the gifts of a bountiful universe is to respect other people and pass them on.

Being productive

By 1975, the year I left Bermuda, I began to be aware of what appeared to be some sort of "inner sense" or "compass." As long as I paid due attention this slowly became an increasingly reliable guide. I'm not suggesting it was infallible, detailed, or provided explicit directives. It was more embedded and intuitive than that. But I've never doubted my life's direction and I've never had to search for topics to study, explore, or write about. Over time they just seemed to emerge naturally from the process of living, reflecting, interacting with others, and being aware. My PhD was an exception. It took a year to plan and another three years full time to write. But it taught me a lot about how to think and write about complex issues. I would be less than honest if I said that I'd not enjoyed the occasional comments I've received about being productive. It's always good to be recognised. Yet, at the same time, there are few things that return greater satisfaction than being able to externalise, and find language and action for, the impulses and insights that seem to emerge from within. The goal has always been to try to write/speak/teach about difficult or complex topics in as straightforward and comprehensible a manner as possible.

The process of coming to write *The Foresight Principle: Cultural Recovery in the Twenty-First Century* is a case in point.[16] I remember emerging from my collaboration with Hedley Beare with a strong sense that some themes of that book deserved further elaboration. Broad notions of foresight and of wisdom seemed to grow and interact over the next year or two and, in a profound sense, to spark off of each other. The energy from that process enabled me to sit down and write a first draft of the book in only a few weeks. Writing *The Biggest Wake-Up Call in History* was different again. Initially the impulse and drive to begin was strong but unfocused. Then as I gave more time and thought to the material the way forward became clearer. I had a false start that I had to abandon. At which point the structure of what became Part One became clearer. I wrote that over about another year and sent out the draft manuscript to some dozen or so colleagues and friends. The feedback I received was invaluable as I was then able to correct mistakes, reshape some sections, and add new material. With this completed Part Two was much easier to write. It seemed to flow into a logical and achievable structure that led to a positive conclusion. Two brief points are relevant here. First, the process of

intuitive inner awareness and guidance was central. Second, the eventual work was significantly improved and shaped by subjecting it to external review and evaluation.

The most productive outcome of my career followed from the invitation I received in 1999 to set up the Australian Foresight Institute (AFI) at Swinburne University in Melbourne. The story of how it happened has been told elsewhere. What I will say here is that the chance to create it and then to see it succeed more than made up for the challenging times that my family and I had experienced early on, as well as the various disappointments that I experienced through a highly "discontinuous" and uneven career. But it was only after I left full-time formal employment that the last part of the puzzle fell into place.

Getting to the heart of things

When an earlier draft of this paper was being written the world was in uproar due to the resurgence of radical Islamism in the Middle East and the emergence of the first large-scale Ebola pandemic. Both singly and together they were seen as threats to the current world order. Yet even then that very "order" was scarcely informed at all by the kind of high-quality foresight capability that I've pursued throughout my working life. It's vital, however, to keep on pushing the boundaries and to produce new and original work. I was then working with a talented younger colleague on a special issue of *Foresight* on the topic of "Descent Pathways."[17] It addressed the fundamental dilemma that mainstream society and its major institutions have consistently avoided over recent decades: that is, the imminent collapse of a global system based on fallacies and contradictions.

As the early dystopias made clear, the continuation of heavy trends in the wider world lead to ecocide, a population crash of vast proportions, and the disintegration of our world-spanning civilisation. I have taken the view throughout that technology, cast by many in the role of saviour, is only marginally helpful. For example, there's powerful evidence that the much-heralded "digital revolution" has been drastically over-sold and, as currently constituted, can never deliver the spotless high-tech future that had been envisaged earlier. While it has led to some useful innovations its overall costs and penalties are far, far higher than its advocates will admit.[18] *The real issues at stake in the early twenty-first century are, however, not technical in nature. They are really about who we are, how we see the world and each other, and how our needs are expressed and fulfilled.*[19] Central too are the kinds of worldviews and values that drive

us; also how we respond to a world slipping ever more deeply into systemic crisis and dysfunction. While many people are focused on the external aspects of this process, the internal and intangible dimensions I mentioned above are at least as significant.[20]

So far as I'm aware I may have coined the phrase "the dialectic of foresight and experience" some years ago without really intending to. It simply emerged during the process of teaching, thinking, and writing. I and many others have suggested that the human capacity to think ahead, plan, evaluate, and act in future-conscious ways is a gift of inestimable value that can, in turn, be built up into a widespread set of social capabilities. At present, however, it is clear that the "experience" part of this formulation is well ahead. It is far more influential than foresight *per se*. This means that currently we only respond to danger when it is bearing down upon us and few alternatives remain. The fact that this is not a new problem, but rather a deeply embedded and longstanding aspect of human nature, is evidenced by the fact that Machiavelli wrote about foresight and experience four centuries ago in *The Prince*. He suggested that "when trouble is sensed well in advance it can easily be remedied; if you wait for it to show itself any medicine will be too late because the disease will have become incurable." [21] Such comments clearly still ring true today.

I've written extensively about the dangerous prominence of two near-universal practices that stand in our way: chronic human denial and future discounting. Yet at the same time I've become aware of a rather different way of approaching—and perhaps changing the nature of—a dynamic that puts our collective futures at ever greater risk. It has to do with removing the habitual filters or blinders that metaphorically cover our eyes, and learning to see more deeply and, I would argue, more productively into the world around us. The suggestion here is *qualitatively different readings of the world can be achieved* that support more productive, engaged, and life-affirming outlooks. This is the last piece of the puzzle that I mentioned earlier. It can best be made clearer by reference to some brief examples drawn from different areas: music, art, and aspects of the natural world.

Music: Chopin
Not long ago I accompanied some friends to a documentary feature on Chopin. I was not sure quite what to expect but was not disappointed. Inevitably there were aspects of a biopic outlining the composer's life path. But by far the more interesting sections occurred when several pianists who knew his work well and had played much of it many times

spoke about the music. For most people perhaps, myself included, listening to music is something you might do for relaxation or enjoyment without ever attempting to reflect deeply upon it or render the experience into words. But listening to several people who had immersed themselves in Chopin over a period of years made it clear that there was a deeper dimension that could be known and experienced only if one were willing to put in the time and effort to do so. One might even say that there are multiple dimensions to such music that can be accessed by those attuned to what it is conveying. This brought to mind Schumacher's point about what he called "adequateo" which, simply put, means that there has to be something in the "receiver" that is adequate to that which is to be known. This appears to be a universal principle.

Art: Breughel the Elder's Netherlandish Proverbs
In Berlin's Gemäldegalerie there hangs a work by Jan Breughel the Elder that makes very little sense at first sight. On the left is a rather odd-looking cottage with an inverted globe suspended high up on a wall. Behind it there's a field and a small tower next to a river flowing into a distant sea. On the right-hand side are smaller and less durable structures. The entire scene is populated by scores of people, most of whom appearing to be carrying on without any reference to those around them. It's also packed with incidents too numerous to describe. There's no clear narrative, so what is going on?

The painting is dated 1569 and nowadays goes by the title of *The Netherlandish Proverbs*. There's good evidence that Breughel's intention here was to illustrate what he called "the world's follies"—and there are over one hundred of them on show. There's a man carrying light out into the sun (a futile waste of time), another confessing to the devil (giving secrets to an enemy), and still another casting roses (pearls) before a pig (wasted effort). The entire tableau is nothing less than a catalogue of human folly as viewed from Northern Europe during the sixteenth century. Indeed, although the figures are painted with Breughel's usual attention to detail, they are not individuals as such but rather symbolic entities that, like puppets, carry meanings beyond their appearance. This could all be rather dire, except that the artist's dry wit also pervades this display of oddity and perversity. It's the very same humour that led him to paint a scene of Icarus, the boy who flew too close to the sun and fell into the sea. In the painting, a ploughing scene dominates the picture and the eye is drawn to a ship out at sea. Only by close attention can you find a pair of tiny legs visible in the mid distance just as the boy disappears. The world barely notices his sacrifice.

Fig. 1. The Netherlandish Proverbs

Source: Jan Breughel the Elder, *The Netherlandish Proverbs* (1569)*, ©* Staatliche Museen zu Berlin, Gemäldegalerie, photo: Jörg P. Anders.

The point here is that read literally such paintings make little or no immediate sense. *The Netherlandish Proverbs* appears to be a jumble of figures distributed across an unreal, slightly nightmarish landscape. But probe a little deeper and whole worlds of symbolic meaning begin to emerge. Most of the proverbs illustrated here remain comprehensible four and a half centuries later. They also provide a view into the inner worlds of people and Netherlands culture at that time. To put it briefly, an artefact such as this is a kind of symbolic palimpsest. One can metaphorically "dive" into it and extract as much meaning as one has time and patience for. Much the same can be said for the entire world of art. The pigment on the surface of a canvas is the least part of what a picture can mean.

Aspects of the natural world
One of the things that inspired me while living for six years within Bermuda's remote and restricted twenty-square-mile area was a growing sense of the boundlessness and complexity of nature at different scales. To shift from seeing the islands merely as a convenient platform for the usual human activities to seeing it as a node in a vast global system that possessed different characteristics and meanings for different species

brought whole new worlds into view. This was particularly true during the annual bird migrations when uncommon species used the islands for rest and recuperation. By the same token I also realised that, at that time, I had little or no understanding of what occurred each day within a single leaf. Human beings operate in a restricted space within the vast and complex arenas of macro and micro worlds. Yet we tend to become aware of them only when something piques our interest for a time or, more likely, goes wrong. Then, for a brief moment, some little-regarded organism or shift of naturally occurring background forces swims into view for as long as it takes for the crisis to pass. Then it is back to the everyday myopia of business-as-usual.

As the years have passed and my vision, my sense of the world, has grown a little clearer, I've come to see business-as-usual as a convenient but highly dangerous illusion. In comparison with all previous times and eras of human history we have to accept, I think, that the primary fact of our own time is that it is highly abnormal, systemically unstable and hence utterly unsustainable. It follows that many cultural and human habits that may once have appeared "normal" need to be set aside. We've grown too powerfully dominant to continue thinking of ourselves in isolation. Nor can we afford our habitual unreflective recourse to short-term thinking and simple denial. What we can do, however, is to *deepen our sense of the natural world and natural process*. The point is not to worship or idealise them but to reinvigorate ourselves, to refresh our vision of connectedness, of what the world is and what is possible within it. A couple of examples will hopefully make this clearer.

A few years ago I came across a 3–4,000 word essay by Rick Bass simply called *The Larch*.[22] In that short space the author manages to convey a strong sense of what might be called the "true nature" of the larch species. Further, he also evokes quite powerfully the origins of his own sense of understanding and wonder at this form of life—its role in the landscape, how it grows, how and why it stands tall, how it responds to wind and fire, how even in its decay it hosts myriad life forms. This is very long way indeed from "tree hugger' romanticism. Rather, it conveys the essence of lived reality, lived experience. Having read this account you could not help but see a stand of larches very differently. Much the same can be said of Richard Powers' more recent novel, *The Overstory*, which takes a magisterial view of trees and forests in the context of deep time.[23]

A final example came from a paper presented by James Butler during a Brisbane Ornithology conference in early 2014.[24] It dealt with the songs of several species of *Maluridae*, or fairy wrens. These diminutive and brightly coloured birds are relatively common along the eastern coastal areas of Australia and are therefore superficially familiar to many people. I must confess that, although I've heard it many times, I'd never given much thought to the songs of the Superb Blue Wren. A popular field guide describes them as a "vigorous trill, beginning squeakily, but quickly strengthening into a strong downward cascade of louder, less sharp musical notes." I had no idea that these songs had been recorded and analysed. Nor was I aware of their complexity, their functions, and the very specific biological apparatus that makes them possible in the first place. Finally I did not appreciate that the species had been around for at least a million years.[25] In other words, my mind was opened to a whole realm of reality that I'd previously grasped only superficially and, in all honesty, not really understood at all.

Conclusion: The purpose of futures work
To summarise, in this quest for meaning I've learned several things. First, our views of reality, on the whole, are too simple, superficial, and self-focused. They have allowed humanity to slip into a costly and disturbing trap. This means that within any credible forward view there are very tough times indeed ahead. Over the last few hundred years Western civilisation has been characterised by a near-exclusive focus on instrumental power and a doggedly utilitarian approach to the natural world. These tendencies have allowed us to misconstrue our place in that world and to overlook the realities and processes that make our lives possible. While economists, corporate executives, and right-wing commentators everywhere like to discourse endlessly about what they call "prosperity" or "free markets" the truth that they have repressed or avoided is that the global system, or earth economy, is primary. It always has been and always will be. The human uses of that world throughout history are secondary and derivative. As such they are indeed subject to conditions and limits. Ignoring these is simply an exercise in delusion and self-deception.

During the twentieth century the deliberate and systematic creation of what was called "progress" looked compelling for a while, and particularly during post-war reconstruction. I know this viscerally because I absorbed aspects of that vision of a better future back in 1951 at the [Festival of Britain](#) in London. Yet over my lifetime "progress" carved out a particularly vicious and destructive pathway. It morphed into an all-out

assault on natural systems for short-term gain. Today it operates through a blind and insidious market-led ideology. This, in turn, propagates a form of unthinking consumerism that works against humankind's best interests by liquidating the planet's precious cargo of flora and fauna in order to sustain itself. Corporate interests in the US and then around the world successfully embedded ways of thinking and operating that brought vast wealth to some and temporarily higher living standards for others. The world's poor, of course, remained poor. With calculated deliberation those same interests undermined and destroyed countless initiatives that sought less damaging pathways into the future. The well-researched and, as it happened, remarkably accurate concerns articulated over four decades by the *Limits to Growth* team and others were pilloried and marginalised. Humanity (or at least some of the most powerful members of it) did not want to know about the long-term implications of exponential growth. So the process of "wild globalisation" continued on its reckless collision course with the planet.[26] Currently what Zuboff has called "surveillance capitalism," along with the tertiary economy of financial speculation and manipulation of abstract value, contribute further dimensions of uncertainty and risk.

On the other hand, what I have discovered during this quest for meaning is a richer view in which human perceptions are deepened and extended such that they begin to see and appreciate what lies beneath the surface. Music, art, and the natural world are but three dimensions of this deeper reality. There are obviously many more. Each is effectively infinite and as such has unlimited riches to bestow upon us if only we are willing to slow down and regard them with humility and care. I take the view that looking upon the world with fresh eyes, does, in fact, open up new options, refresh and renew our vision, illuminate pathways beyond dystopia. Properly understood and widely enacted, such well-grounded visions nourished by depth perception and renewed sources of motivation can, at least in principle, move us beyond the present impasse to new worlds of meaning and purpose. One of the most striking and coherent expressions of this view appears in Herman Hesse's book *Siddhartha,* where he wrote that "meaning and reality are not hidden somewhere behind things, they are in them, in all of them."[27]

It follows that the purpose of futures work cannot be to further assist the economic growth machine on its rush to oblivion. Futures work needs to go beyond the humdrum, the conventional, and the search for strategic advantage in the here-and-now. It needs a planetary, civilisationally coherent vision. It needs to be transformational in spirit and in deed. We

might say that its core purpose is to help us all to live within a deeper, richer, and unbounded present. Within that greatly expanded arena vital projects can emerge, be socially sanctioned and resourced, and take their rightful place. That is to say, for example, that cultural healing, energy transition, and large-scale ecological restoration can finally move from the contested margins. They are all part of a multi-hued and mainstream project to take back stewardship of the world for future generations.

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