

FUTURE NEWS

TO CONNECT, TO INFORM AND TO INSPIRE

IN THIS EDITION

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SIX PROBLEM-SOLVING MINDSETS FOR VERY UNCERTAIN TIMES

by Charles Conn and Robert McLean



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the authors of *Bulletproof Problem Solving: The One Skill That Changes Everything* (Wiley, 2018).

1. BE EVER-CURIOUS

As any parent knows, four-year-olds are unceasing askers. Think of the never-ending “whys” that make little children so delightful—and relentless. For the very young, everything is new and wildly uncertain. But they’re on a mission of discovery, and they’re determined to figure things out. And they’re good at it! That high-energy inquisitiveness is why we have high shelves and childproof bottles.

When you face radical uncertainty, remember your four-year-old or channel the four-year-old within you. Relentlessly ask, “Why is this so?” Unfortunately, somewhere between preschool and the boardroom, we tend to stop asking. Our brains make sense of massive numbers of data points by imposing patterns that have worked for us and other humans in the past. That’s why a simple technique, worth employing at the beginning of problem solving, is simply to pause and ask *why* conditions or assumptions are so until you arrive at the root of the problem.

Natural human biases in decision making, including confirmation, availability, and anchoring biases, often cause us to shut down the range of solutions too early. Better—and more creative—solutions come from being curious about the broader range of potential answers.

One simple suggestion from author and economist Caroline Webb to generate more curiosity in team problem solving is to put a question mark behind your initial hypotheses or first-cut answers. This small artifice is surprisingly powerful: it tends to encourage multiple solution paths and puts the focus, correctly, on assembling evidence. We also like thesis/antithesis, or red team/blue team, sessions, in which you divide a group into opposing teams that argue against the early answers—typically, more traditional conclusions that are more likely to come from a conventional pattern. Why is *this* solution better? Why not *that* one? We’ve found that better results come from embracing uncertainty. Curiosity is the engine of creativity.

2. TOLERATE AMBIGUITY—AND STAY HUMBLE!

“ We have to be comfortable with estimating probabilities to make good decisions, even when these guesses are imperfect. Unfortunately, we have truckloads of evidence

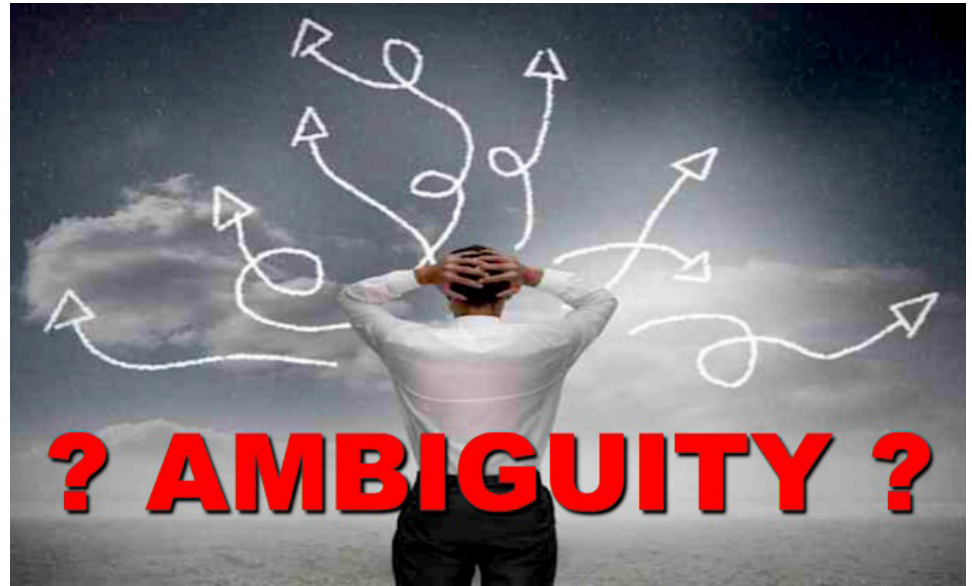


Image source: Wikipedia

When we think of problem solvers, many of us tend to picture a poised and brilliant engineer. We may imagine a mastermind who knows what she’s doing and approaches a problem with purpose. The reality, though, is that most good problem solving has a lot of trial and error; it’s more like the apparent randomness of rugby than the precision of linear programming. We form hypotheses, porpoise into the data, and then surface and refine (or throw out) our initial guess at the answer. This above all requires an embrace of imperfection and a tolerance for ambiguity—and a gambler’s sense of probabilities.

The real world is highly uncertain. Reality unfolds as the complex product of stochastic events and human reactions. The impact of COVID-19 is but one example: we address the health and economic effects of the disease, and their complex interactions, with almost no prior knowledge. We have to be comfortable with estimating probabilities to make good decisions, even when these guesses are imperfect. Unfortunately, we have truckloads of evidence showing that human beings aren’t good intuitive statisticians. Guesses based on gut instinct can be wildly wrong. That’s why one of the keys to operating in uncertain environments is epistemic humility, which Erik Angner defines as “the realization that our knowledge is always provisional and incomplete—and that it might require revision in light of new evidence.”

Recent research shows that we are better at solving problems when we think in terms of odds rather than certainties. For example, when the Australian research body Commonwealth Scientific and Industrial Research Organisation (CSIRO), which owned a core patent on the wireless internet protocol, sought royalties from major companies, it was initially rebuffed. The CSIRO bet that it could go to court to protect its intellectual property because it estimated that it needed only 10 percent odds of

success for this to be a good wager, given the legal costs and likely payoff. It improved its odds by picking the weakest of the IP violators and selecting a legal jurisdiction that favored plaintiffs. This probabilistic thinking paid off and eventually led to settlements to CSIRO exceeding \$500 million. A tolerance for ambiguity and a willingness to play the odds helped the organization feel its way to a good solution path.

To embrace imperfectionism with epistemic humility, start by challenging solutions that imply certainty. You can do that in the nicest way by asking questions such as “What would we have to believe for this to be true?” This brings to the surface implicit assumptions about probabilities and makes it easier to assess alternatives. When uncertainty is high, see if you can make small moves or acquire information at a reasonable cost to edge out into a solution set. Perfect knowledge is in short supply, particularly for complex business and societal problems. Embracing imperfection can lead to more effective problem solving. It’s practically a must in situations of high uncertainty, such as the beginning of a problem-solving process or during an emergency.

3. TAKE A DRAGONFLY-EYE VIEW

Dragonfly-eye perception is common to great problem solvers. Dragonflies have large, compound eyes, with thousands of lenses and photoreceptors sensitive to different wavelengths of light. Although we don’t know exactly how their insect brains process all this visual information, by analogy they see multiple perspectives not available to humans. The idea of a dragonfly eye taking in 360 degrees of perception is an attribute of “superforecasters”—people, often without domain expertise, who are the best at forecasting events.

Think of this as widening the aperture on a problem or viewing it through multiple lenses. The object is to see beyond the familiar tropes into which our pattern-recognizing brains want to assemble perceptions. By widening the aperture, we can identify threats or opportunities beyond the periphery of vision.

Consider the outbreak of HIV in India in the early 1990s—a major public-health threat. Ashok Alexander, director of the Bill & Melinda Gates Foundation’s India Aids Initiative, provided a brilliant example of not just vision but also dragonfly vision. Facing a complex social map with a rapidly increasing infection rate, he widened the problem’s definition, from a traditional epidemiological HIV transmission model at known “hot spots,” to one in which sex workers facing violence were made the centerpiece.

This approach led to the “Avahan solution,” which addressed a broader set of leverage points by including the sociocultural context of sex work. The solution was rolled out to more than 600 communities and eventually credited with preventing 600,000 infections. The narrow medical perspective was sensible and

expected, but it didn't tap into the related issue of violence against sex workers, which yielded a richer solution set. Often, a secret unlocks itself only when one looks at a problem from multiple perspectives, including some that initially seem orthogonal.

The secret to developing a dragonfly-eye view is to “anchor outside” rather than inside when faced with problems of uncertainty and opportunity. Take the broader ecosystem as a starting point. That will encourage you to talk with customers, suppliers, or, better yet, players in a different but related industry or space. Going through the customer journey with design-thinking in mind is another powerful way to get a 360-degree view of a problem. But take note: when decision makers face highly constrained time frames or resources, they may have to narrow the aperture and deliver a tight, conventional answer.

4. PURSUE OCCURRENT BEHAVIOR

Occurrent behavior is what *actually* happens in a time and place, not what was potential or predicted behavior. Complex problems don't give up their secrets easily. But that shouldn't deter problem solvers from exploring whether evidence on the facets of a solution can be observed, or running experiments to test hypotheses. You can think of this approach as creating data rather than just looking for what has been collected already. It's critical for new market entry—or new market creation. It also comes in handy should you find that crunching old data is leading to stale solutions.

Most of the problem-solving teams we are involved with have twin dilemmas of uncertainty and complexity, at times combined as truly “wicked problems.” For companies ambitious to win in the great unknown in an emerging segment—such as electric cars or autonomous vehicles, where the market isn't fully established—good problem solving typically involves designing experiments to reduce key uncertainties, not just relying on existing data. Each move (such as buying IP or acquiring a component supplier) and each experiment (including on-road closed tests) not only provides additional information to make decisions but also builds capabilities and assets that support further steps. Over time, their experiments, including alliances and acquisitions, come to resemble staircases that lead to either the goal or to abandonment of the goal. Problem-solving organizations can “bootstrap” themselves into highly uncertain new spaces, building information, foundational assets, and confidence as they take steps forward.

Risk-embracing problem solvers find a solution path by constantly experimenting. Statisticians use the abbreviation EVPI—the expected value of perfect information—to show the value of gaining additional information that typically comes from samples and experiments, such as responses to price changes in particular markets. A/B testing is a powerful tool for experimenting with prices, promotions, and other features and is particularly useful

for digital marketplaces and consumer goods. Online marketplaces make A/B testing easy. Yet most conventional markets also offer opportunities to mimic the market's segmentation and use it to test different approaches.

The mindset required to be a restless experimenter is consistent with the notion in start-ups of “failing fast.” It means that you get product and customer affirmation or rejection quickly through beta tests and trial offerings. Don't take a lack of external data as an impediment—it may actually be a gift, since purchasable data is almost always from a conventional way of meeting needs, and is available to your competitors too. Your own experiments allow you to generate your own data; this gives you insights that others don't have. If it is difficult (or unethical) to experiment, look for the “natural experiments” provided by different policies in similar locations. An example would be to compare outcomes in twin cities, such as Minneapolis–St. Paul.

5. TAP INTO COLLECTIVE INTELLIGENCE AND THE WISDOM OF THE CROWD

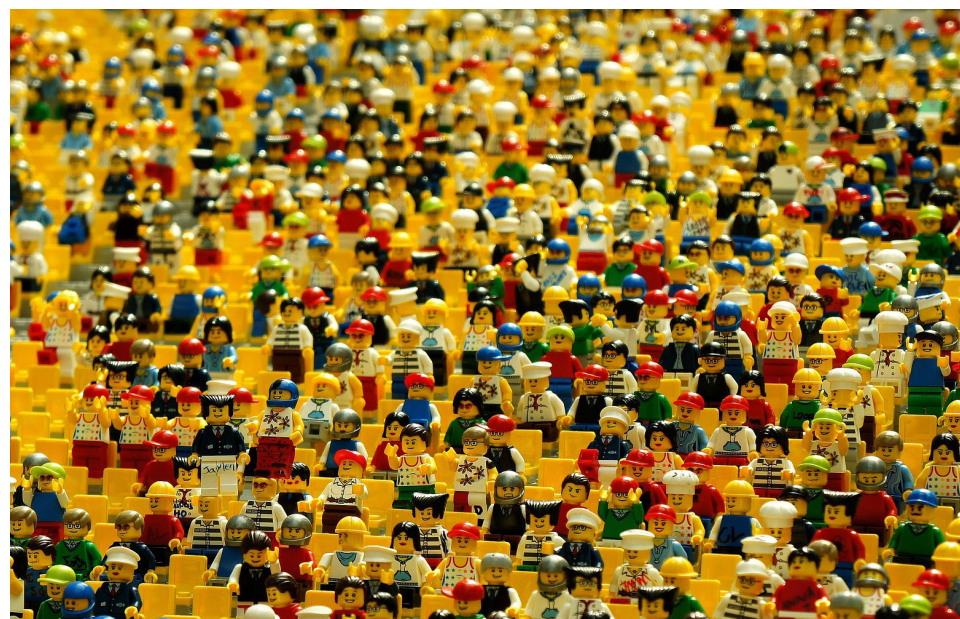


image source Phys.org

Chris Bradley, a coauthor of *Strategy Beyond the Hockey Stick*, observed that “it's a mistake to think that on your team you have the smartest people in the room. They aren't there. They're invariably somewhere else.” Nor do they need to be there if you can access their intelligence via other means. In an ever-changing world where conditions can evolve unpredictably, crowdsourcing invites the smartest people in the world to work with you. For example, in seeking a machine-learning algorithm to identify fish catch species and quantities on fishing boats, the Nature Conservancy (TNC) turned to Kaggle and offered a \$150,000 prize for the best algorithm. This offer attracted 2,293 teams from all over the world. TNC now uses the winning algorithm to identify fish types and sizes caught on fishing boats in Asia to protect endangered Pacific tuna and other species.

“ It's a mistake to think that your team has the smartest people in the room. They aren't there. They're invariably somewhere else. Nor do they need to be there if you can access their intelligence via other means.

“The broader the circles of information you access, the more likely it is that your solutions will be novel and creative.

Crowdsourced problem solving is familiar in another guise: benchmarking. When Sir Rod Carnegie was CEO of Conzinc Riotinto Australia (CRA), he was concerned about the costs of unscheduled downtime with heavy trucks, particularly those requiring tire changes. He asked his management team who was best in the world at changing tires; their answer was Formula One, the auto racing competition. A team traveled to the United Kingdom to learn best practice for tire changes in racetrack pits and then implemented what it learned thousands of miles away, in the Pilbara region of Western Australia. The smartest team for this problem wasn't in the mining industry at all.

Of course, while crowdsourcing can be useful when conventional thinking yields solutions that are too expensive or incomplete for the challenge at hand, it has its limitations. Good crowdsourcing takes time to set up, can be expensive, and may signal to your competitors what you are up to. Beware of hidden costs, such as inadvertently divulging information and having to sieve through huge volumes of irrelevant, inferior suggestions to find the rare gem of a solution.

Accept that it's OK to draw on diverse experiences and expertise other than your own. Start with brainstorming sessions that engage people from outside your team. Try broader crowdsourcing competitions to generate ideas. Or bring in deep-learning talent to see what insights exist in your data that conventional approaches haven't brought to light. The broader the circles of information you access, the more likely it is that your solutions will be novel and creative.

6. SHOW AND TELL TO DRIVE ACTION

We started our list of mindsets with a reference to children, and we return to children now, with “show and tell.” As you no doubt remember—back when you were more curious!—show and tell is an elementary-school activity. It's not usually associated with problem solving, but it probably piqued your interest. In fact, this approach is critical to problem solving. Show and tell is how you connect your audience with the problem and then use combinations of logic and persuasion to get action.

The show-and-tell mindset aims to bring decision makers into a problem-solving domain you have created. A team from the Nature Conservancy, for instance, was presenting a proposal asking a philanthropic foundation to support the restoration of oyster reefs. Before the presentation, the team brought 17 plastic buckets of water into the boardroom and placed them around the perimeter. When the foundation's staff members entered the room, they immediately wanted to know what the buckets were for. The team explained that oyster-reef restoration massively improves water quality because each oyster filters 17 buckets of water per day. Fish stocks improve, and oysters can also be harvested to help

make the economics work. The decision makers were brought into the problem-solving domain through show and tell. They approved the funding requested and loved the physical dimension of the problem they were part of solving.

Rookie problem solvers show you their analytic process and mathematics to convince you that they are clever. That's sometimes called APK, the anxious parade of knowledge. But seasoned problem solvers show you differently. The most elegant problem solving is that which makes the solution obvious. The late economist Herb Simon put it this way: "Solving a problem simply means representing it so as to make the solution transparent."

To get better at show and tell, start by being clear about the action that should flow from your problem solving and findings: the governing idea for change. Then find a way to present your logic visually so that the path to answers can be debated and embraced. Present the argument emotionally as well as logically, and show why the preferred action offers an attractive balance between risks and rewards. But don't stop there. Spell out the risks of inaction, which often have a higher cost than imperfect actions have.

The mindsets of great problem solvers are just as important as the methods they employ. A mindset that encourages curiosity, embraces imperfection, rewards a dragonfly-eye view of the problem, creates new data from experiments and collective intelligence, and drives action through compelling show-and-tell storytelling creates radical new possibilities under high levels of unpredictability. Of course, these approaches can be helpful in a broad range of circumstances, but in times of massive uncertainty, they are essential.

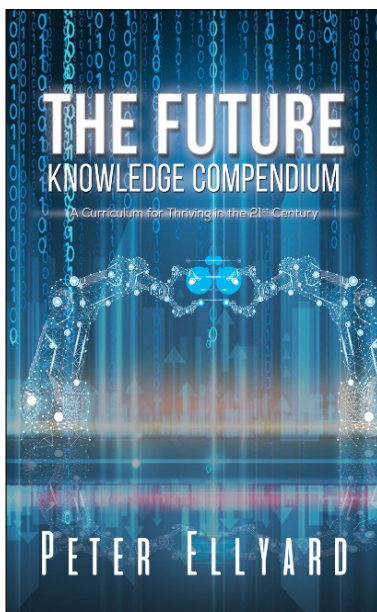
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Book Review

by Charles Brass – Chair, Futures Foundation

The Future Knowledge Compendium A Curriculum for Thriving in the 21st Century

by Johanna Hoffman



“We will either shape the future or the future will shape us.”

Given the title (and subtitle) of this book the first surprise comes before it is even opened – it is only 257 pages long. The second surprise comes when you read it and find its messages both compelling and engagingly written. This is not the first book Peter Ellyard has written about creating the future (beginning with *Ideas for the New Millennium* in 1998 and including *Designing 2050* – pathways to sustainable prosperity on spaceship earth, written in 2007) and each has introduced aspects of his comprehensive intellectual approach to thinking about the future. This book summarises and extends all his previous scholarship.

Ellyard very effectively introduces his own book, in two different ways:

“...it is most amazing to find that education organisations everywhere, which after all are all dedicated to giving us the knowledge and skills to maximise our capability to be more future successful, have not sought to develop and place into their curricula concepts and tools their students could use to shape the future. This book

offers a basic curriculum that might be considered to fill that void.: (p 18)

and

“This book is possibly the first time anybody has attempted to create anything like an integrated curriculum for understanding the 21st century and for thriving in it.” (p 256).

In 13 chapters (and 69 numbered concepts and tools) he sets out to explore six key areas:

- understanding global trends
- changing human behaviour and politics
- knowing ourselves
- shaping the future
- building and nurturing relationships
- building a liveable future
- And he sets out the twelve mindsets we all need if we are to become 21st century futurists:
 - maximise your imagination
 - be both prophet and visionary
 - be both a manager and leader of self and other
 - embody planetist values
 - build positive futures rather



Peter Ellyard was born in 1937 in Wagga Wagga, Australia. He graduated from Sydney University in 1958 in agricultural science. He was awarded the

William Farrer Memorial Scholarship and entered Cornell University, where he completed a Master of Science in micrometeorology, and a Ph.D in biochemistry, organic chemistry and plant sciences.

Returning to Australia in 1970 he became policy specialist in environment, science and technology policy in the National Parliament's Legislative Research Service in Canberra. Peter's appointment was probably the nation's first appointment in the environment public policy field. He also worked in 1972 with the Canadian Council of Ministers of the Environment in Montreal. Peter also initiated at that time the nation's first school environmental education program, INSPECT, that resulted in the publication of two books that he co-edited, 'Bad luck dead duck' (1970) and 'What a mess less confess' (1971).

With the election of the Whitlam government in 1972 he was appointed Chief of staff of Environment Ministers. In 1976 he was invited to become the foundation CEO of Papua New Guinea's Environment department. He was CEO of South Australia's Environment Department between 1979 and 1983. In 1988 he was invited to become the CEO of Australia's Commission for the Future, a major new initiative of the Hawke government. This commenced a new career path in futures that still continues. He established his own organisation the Preferred Futures Institute after his departure from the Commission for the Future in 1991. This was renamed the 2050 Institute in 2012.

than eliminate negative futures

- embed sustainable behaviours in yourself
- understand and grow interdependence
- value questions and treasure reflection
- be a utopian realist (a concept created by sociologist Anthony Giddens)
- expand our circle of identity (expanding on a concept created by ethicist Peter Singer)
- recognise the role of and embody the six future shaping tools (which are part of his curriculum and elaborated in detail elsewhere in the book)
- build a liveable future

The philosophy that underpins the book can be neatly summarised as: "We will either shape the future or the future will shape us." (p 25) – and Ellyard is explicit that he believes not only that everyone is capable of thinking like a futurist, but that this is a necessary skill for thrival (a word he created) in the twenty first century. As he puts it: "The shaping of futures should be such a fundamental capability that we all should seek to develop it." p 256

This is a philosophy that Ellyard has promoted for decades, which is why the language of some of his concepts and tools have been so elegantly refined. He explores, for example, the

differences between **future takers** and **future makers**, and explains why both are essential. He outlines the very many fields in which future **ways** (how we do things) and future **wares** (things we produce) have yet to be developed. He talks about the need for us all to become **planetists** (another word he has coined) as part of moving beyond nationalism and modernism.

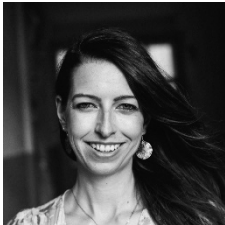
Along the way he acknowledges the pioneering work of Buckminster Fuller populariser of the concept of **Spaceship Earth**; and Garrett Harden who has described the way we will all need work together in the future as being characterised by "**mutual coercion, mutually agreed upon**".

Ellyard concludes the book in this way: "As the 21st century unfolds before us we will increasingly recognize that we have no choice but to collaborate and share the responsibility of shaping humanity's future on Planet Earth. This future can be what collective humanity wants it to be, a preferred future global village that we will shape and design, a global village that is as liveable as we can make and in which humanity and other species can thrive and not just survive. Humanity should not settle for anything else." (p 257) and reading, absorbing and acting upon the curriculum outlined in this important book will make it much more likely that humanity will achieve this goal.

FUTURISTS IN ACTION

WHY EVERY ORGANIZATION NEEDS A FUTURIST IN RESIDENCE

by Tanja Schindler



In our rapidly evolving world, cultivating Futures Literacy and adapting to uncertainty has moved beyond being a competitive edge; it's now a prerequisite for lasting success.

DECIPHERING THE MEANING OF THE FUTURE

One might wonder, with an unpredictable future, why not simply focus on the present? But, to make well-informed decisions today, we need to anticipate the possible consequences of our actions. While history classes in school have taught us to decipher the past, we are rarely prepared to envision the future or grasp its basic principles.

DEMYSTIFYING THE ROLE OF A FUTURIST

Contrary to the notion that futurists simply predict the unseen, we are more like navigators—exploring, speculating, and synthesizing the present data to anticipate potential futures and discern their implications. We balance the push from present realities with the pull towards desired futures. In essence, we not only adjust to the unfolding of time but imagine a space we would like to create. But, the journey to the future we desire is not always linear. If organizations do not actively shape their path, they risk becoming passive observers, mere NCPs - Non-Character Players, reacting to others' agendas.

A DEEPER DIVE INTO THE FUTURIST'S CRAFT

As Vice-Chair of the Association of Professional Futurists, I am often asked, "What exactly does a Futurist do?" Here's the multi-layered answer:

1. Inquisitiveness over Predictability: We don't make predictions, we stimulate thought, explore the many aspects of the future and show a spectrum of possible outcomes.
2. Bridging Today and Tomorrow: We use the insights of experts from the present and extrapolate them to imagine diverse futures - some possible, some far-fetched on the fringe.
3. Crafting Future Narratives: Throughout history, stories have shaped us. Yet, today's narratives often lack positivity. Futurists paint hopeful images of the future, next to the ones we want to avoid.
4. Charting the course: We not only stimulate discussion but also integrate cross-sectoral perspectives to sketch myriad futurescapes. The focus is on the future we want to shape.
5. Champions for a better future: Futurists are not just speculators; we are motivated and want to inspire to create a better world. By tackling long-term challenges, organizations can maintain their future relevance and take responsibility for the future yet to come.



NAVIGATING THE BUSINESS LANDSCAPE

The business environment has transformed - from traditional operations to digital shifts to an era of unprecedented volatility. Shorter innovation cycles and unforeseeable events like the pandemic highlight our over-reliance on present trends while crucial innovations in areas like medicine and technology may yet be unborn. The solution? Crafting narratives of the futures we desire, strategizing based on these visions and reverse-engineering the means to achieve them.

THE VALUE OF HAVING A FUTURIST IN RESIDENCE

So why invite a Futurist into your organization? Equipped with a unique perspective, Futurists can offset organizational myopia and promote awareness of broader industry shifts. Amidst the hustle of daily operations, a Futurist in Residence offers the strategic foresight required, empowering teams to collectively weave a narrative for a brighter future. Why not hire one full-time? Futurists thrive best when they are not tied to a single organization. To avoid business myopia, it is vital to maintain an external perspective, ensuring fresh insights and a broad view across industries.

CONCLUSION: SHAPE, DON'T TRY TO PREDICT THE FUTURE

Trying to predict and prepare for the future is passive. We must actively shape the future we desire. While no future will unfold precisely as imagined, understanding potential trajectories allows adaptability, ensuring we remain proactive, even if our dance with the future requires a few unexpected steps

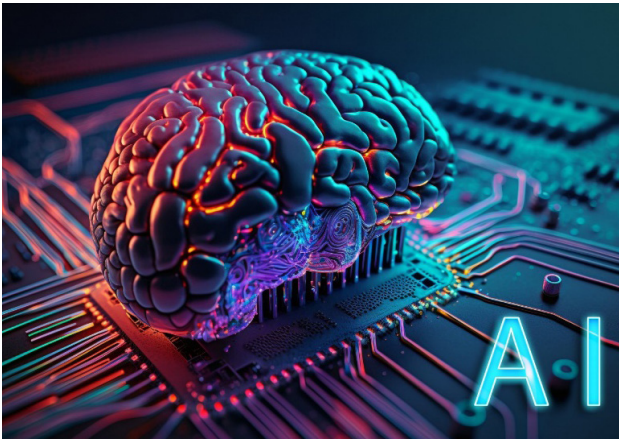
The following blog was first published on her blog on 20th September 2023 at <https://www.tanjaschindler.com/blog/why-every-organization-needs-a-futurist-in-residence> and is reproduced with permission

Signals in the Noise

2030 PREDICTIONS: THE FUTURE

by Lakshmi Narayanan S

As we stand on the cusp of a new decade, our minds naturally drift towards the future and the possibilities it holds. The year 2030, in particular, beckons with promises of groundbreaking advancements and transformative changes across various sectors. In this article, we'll dive into the realm of predictions and envision what the world might look like in 2030. Buckle up as we embark on an exciting journey into the future.



- 1. Artificial Intelligence Takes Center**
Stage: By 2030, artificial intelligence (AI) will have permeated almost every aspect of our lives. From smart homes that anticipate our needs to AI-powered healthcare systems that revolutionize patient care, the integration of AI will reshape industries and drive unprecedented levels of efficiency and convenience.
- 2. Sustainable Living Becomes Mainstream**
Mainstream: In response to growing environmental concerns, sustainable living practices will become the norm by 2030. Renewable energy sources, such as solar and wind, will dominate the energy landscape. Green architecture and eco-friendly designs will transform our cities, while sustainable transportation options will be widely accessible, reducing our carbon footprint.
- 3. Advancements in Healthcare:** The healthcare landscape in 2030 will witness remarkable breakthroughs. Personalized medicine based on individual genetic profiles will lead to more effective treatments and targeted therapies. AI-powered diagnostics will enhance early detection of diseases, saving countless lives. Telemedicine and remote patient monitoring will become commonplace, providing access to quality healthcare for all.
- 4. Connectivity Everywhere:** The advent of 5G technology will bring unprecedented connectivity and data transfer speeds in 2030. This will fuel the growth of the Internet of Things (IoT) and enable seamless communication between devices. Smart cities will emerge, with interconnected infrastructure optimizing energy consumption, transportation systems, and public services.
- 5. Workforce Transformation:** Automation and AI will reshape the workforce landscape by 2030. While some traditional jobs may become obsolete, new opportunities will arise in emerging industries such as robotics, data science, and augmented reality. Lifelong learning and upskilling will be essential as individuals adapt to the changing job market.

Signals in the Noise

2030 PREDICTIONS: THE FUTURE

6. Transportation Revolution: The way we move from one place to another will undergo a significant transformation. Electric and autonomous vehicles will dominate the roads, reducing traffic congestion and emissions. Hyperloop technology will revolutionize long-distance travel, enabling high-speed transportation at unprecedented efficiency.

7. Space Exploration and Colonization: The 2030s will witness significant strides in space exploration. Private space companies will collaborate with government agencies to establish sustainable lunar bases and embark on manned missions to Mars. The colonization of other celestial bodies will become a tangible reality, expanding the horizons of human civilization.

8. Augmented Reality and Virtual Reality: The lines between the physical and digital worlds will blur as augmented reality (AR) and virtual reality (VR) technologies advance. AR will enhance our daily lives, overlaying digital information on the real world. VR will revolutionize entertainment, education, and training, transporting us to immersive virtual environments.

9. Sustainable Agriculture and Food Systems: With a growing global population, sustainable agriculture will be paramount in 2030. Vertical farming, hydroponics, and advanced agricultural technologies will ensure efficient food production with minimal environmental impact. Innovations in food science will lead to alternative protein sources and personalized nutrition.



10. Cybersecurity and Privacy: As technology advances, so will the need for robust cybersecurity measures. By 2030, enhanced encryption, biometric authentication, and AI-powered security systems will protect our digital identities and safeguard sensitive information. Stricter privacy regulations will ensure data protection and transparency.

While these predictions offer glimpses into the future, it's important to remember that our collective actions and decisions today will shape the world we step into in 2030.



Laksmi Narayanan S is a video editor, graphic designer and social media marketing guru. This article was originally published on Frameless and is reproduced with permission.