the futures foundation
engaging all Australians in creating a better future...

Volume 21, No. 2, April 2021

FUTURE NEWS

TO CONNECT, TO INFORM AND TO INSPIRE

IN THIS EDITION

HOW DO CHILDREN, FUTURISTS AND INNOVATORS SEE THE WORLD?

by Bruce Cuthbertson

SENSEMAKING: CURIOSITY, EXPERIMENTS IN METAPHOR AND LEARNING TO BE UNCOMFORTABLE

Children, futurists, innovators and visionary leaders jointly share a particular attribute, which is to see the world with wide open eyes and a sense of wonder and curiosity. Even underneath that, they share a disposition of being receptive to how things might be connected, to possibility.

Most of us, as we age, refine our sense of how the world works, how things are connected. As we transition from childhood, our many biases start to develop and those biases increasingly steer how we learn and interpret meaning in the world, as well as how we make decisions. We become subconsciously selective in what information we pay attention to.

> *A child is a small scientist who tries out all kinds of ways of using the world. – Don R. Swanson*

Children develop language and understanding by experimenting with context. This process involves play with possibility and imagination. It's not hard to recognize the exploration going on as a toddler sees the similarities between a hat and a pot and then puts a pot on her head. The imagination runs with possibility because the norms of society and context and meaning haven't yet been formed.

Much of this starts with associative thinking or recognizing patterns in a non-linear way and forming those associations and connections into a synthesis of the whole, in an elegant and simple picture of what might or could be.

BECOMING UNCOMFORTABLE

For children, this happens naturally because their context is wide open, leaving them receptive to making interesting and unusual associations. For the futurist, innovator and visionary leader, it's learning how to let go of his or her conceptions, biases and expertise that have built up over a lifetime.

Or rather, she learns how to set aside those biases and preconceptions intentionally. It's learning to unlearn, to see the world with fresh eyes. It's to open the mind to possibility and become receptive to it. This process leads to adopting a beginner's mind, which in turn establishes a learning mindset.

A child's creative play is often driven by experiments with metaphors.

Some people will automatically assume that because children are so easily able to be receptive that this is just child's play, that it's easy.

It's not easy at all. It's difficult to recognize our own biases and preconceptions and then choose to step away from ourselves and challenge our own views. We can make it easier by pursuing new experiences that take us out of our routines and normal lives and that make us uncomfortable.

Let's start by looking at how associative thinking works, how kids create context and understanding through imaginary play and wonderment and how the scientific method narrows our perspective as we age.

WHAT IS ASSOCIATIVE THINKING?

Generally, associative thinking is a term that we use to talk about non-linear thinking. Cognitive psychologists Amos Tversky and Daniel Kahneman explain that our brains are wired to make decisions on very little information. They called it, "Type 1 thinking," by which we're wired to make associative connections and quick decisions, with little analysis. Kahneman won a Nobel prize in economics for their joint work in decision making and cognitive biases. Unfortunately, Tversky died in 1996 and was unable to share the honor.

Kahneman refers to Type 1 thinking as our lazy mode of thinking or thinking fast. According to Kahneman, this so-called "fast thinking" is our de facto thought system and helps us survive in an unforgiving world. He also explains that the other type of thinking, "thinking slow," (Type 2 thinking) takes a lot more focus and hard work and is based on making decisions by slow methodical analysis.

MAN'S SURVIVAL: METAPHOR AND THE SCIENCE OF BEING WRONG

Associative thinking uses a form of metaphor to make quick connections. For example, we may jump at the peripheral sight of a stick and do so repeatedly, as we associate the stick with a snake. This hard wiring has caused us to look stupid and waste energy every time we jump, 99 times out of 100. But the 100th time we jump, when it turns out to be a snake, we've avoided being bitten.

The metaphor occurs because we substitute one thing (a snake) for something else (a stick) in our minds and make that conclusion with almost no analysis or revving up the mind's engine to do the hard work of decision making, which by the time we've made a decision, we'd be dead if it was a snake.

A metaphor is inherently a false statement. It is a narrative, which ultimately is a substitute for reality and fact.

We recognize the pattern of a snake in the few data points we observe in a fraction of a second in the stick. In that split second, we react. It takes a longer amount of time to analyze the data closer and determine that it wasn't a snake after all. Even though that lag may only be a couple seconds, it was the difference between life and death for primitive man.

This mode of thinking is a key piece of our survival wiring and isn't exclusive to humans. Many animals carry this same reflexive-like trait.

https://bigthink.com/endless-innovation

OUR LIMITLESS ABILITY TO RECOGNIZE PATTERNS

In today's world, we use this trait without thought to make quick decisions all the time without doing any sort of deeper analysis. This can lead to making bad decisions over and over, and these decisions can make us look just as foolish as when we jumped at the sight of a harmless stick.

The pattern we recognize is a narrative of all the data we gather and the sense we make of it. In the case of the snake and the stick, the narrative is wrong, but we're alive because of it. It's helped in man's evolutionary survival.

Associative thinking is an undirected process of recognizing connections and links between things; it's a process of discovering new metaphors and creating new narratives. We begin life with an unharnessed creative ability to make new connections.

We have an almost limitless ability to discover new patterns, to create new metaphors and to create relationships among things to alter our perspective and understanding of the world.

This, of course, can lead to unimaginable innovations and works of human creativity.

As we age, however, we become attached to certain narratives and find it harder to break free.

Don Swanson
University of Chicago archives

METAPHORS AND THE PATH TOWARD DISCOVERY

A metaphor is inherently a false statement. It is a narrative, which ultimately is a substitute for reality and fact.

> *The appeal of the metaphoric act lies both in its resemblance to the truth and in the presence of error. – Don R. Swanson*

This narrative, the metaphor, points us toward an underlying truth and propels us on a creative journey to discover truth.

Don R. Swanson, born in 1924, was an information scientist and a former dean of the University of Chicago Graduate Library School. He received a PhD in theoretical physics at U.C. Berkeley and recognized the idea that the discovery (or innovation) process lies in finding links between distinct areas of knowledge and fields, which he called finding "undiscovered public knowledge."

This method prefaced aspects of complexity theory that draws connections or insights from interdisciplinary thinking, such as between theoretical physics and economics, to approach problems or develop theories from broader and more open perspectives.

Swanson was also interested in the process of metaphor as an exploration toward inquiry and understanding.

Swanson said, "A metaphor is a peremptory invitation to discovery. What is discoverable are the various allusive ties, or common attributes, between the metaphor and the underlying truth to which it points."

The more associations and allusions the metaphor packs into a single word or short phrase or symbol, the stronger its narrative will be. Imagine all the data points connecting the idea of a snake to a stick. Additionally, the quicker we are to grasp all these associations, the stronger the metaphor.

CHILD'S PLAY: TO INVENT IS TO UNDERSTAND

"The appeal of the metaphoric act," said Swanson, "lies both in its resemblance to the truth and in the presence of error."

The narratives we use to make sense of the world, the patterns we recognize, are, at the core, just metaphors. They are associations that we link together in and through understanding.

Swiss psychologist Jean Piaget famously said, "To understand is to invent."

Swanson turned Piaget's statement around. He said, "To invent is to understand." To connect associations together is to invent, to go on a conjectural journey toward an underlying truth or understanding.

The narrative we create about the world for ourselves is our invention, but it also provides our understanding. It's the basis for learning.

> *As we age, the narrative (fantasy) blends in with reality and we forget that it is a narrative.*

A child's creative play is often driven by experiments with metaphors. He picks up a stick and calls it a sword; she puts a pot on her head and calls it a hat; he wears dad's shoes and calls them moonboots. The child lives through a creative narrative of the world, a fantasy.

"A child is a small scientist who tries out all kinds of ways of using the world," said Swanson.

As we age, our metaphors of the world become refined. We even lose sight of them. The narrative (fantasy) blends in with reality and we forget that it is a narrative. We become fully attached to it. This happens due to the scientific method. Our brains are constantly processing and refining our understanding.

The scientific method is this refining process. We develop hypotheses about the world and against those hypotheses, we compare our observations and subsequently make adjustments to our views. This back and forth process is ongoing and over time, we refine our understanding. The real world clashes with our understanding of it and we discard erroneous ideas (hypotheses) along the way.

As we grow up and even as we continue to age, we reshape our ideas about the world over and over. Our understanding often narrows and becomes more precise *and more ingrained*. And if it becomes more ingrained, it likely becomes more simplistic. We can become set in our ways and see the world through a fairly narrow lens.
Through this calculus of understanding, we develop what we perhaps think of as an objective perspective on reality. Reality has to hold water for us. At the same time, we should be cognizant that reality is a subjective and fluid state. Objectivity doesn't exist.

The norms of society are built on agreed-upon realities. But, as science has shown us, we're continuously revising and honing our belief systems as we develop and test new hypotheses about the world. This refinement as we grow up provides a sense of stability in our understanding of things. But every once in a while, some new bit of information changes our perspective significantly. These might be called Aha! Moments, when the organization of our understanding restructures itself.

Your brain has been trained to think in certain ways and it's not easy to get it to think differently.

Insights are moments when we are able to break from a previous understanding and arrive at a new understanding. One narrative is destroyed as a new one is created by forming associative links between our thoughts in a new pattern. I won't delve too deeply into innovation here, but oftentimes, innovation is recognizing a new use for an existing or slightly modified technology to solve a novel problem. For a basic example, a screwdriver is primarily used to drive screws into wood or other materials. But it also can be used to pry something open or as a chisel or even to dig a hole. For an in-depth view on this topic, take a look at W. Brian Arthur's book, *The Nature of Technology.*

JUST BECAUSE CHILDREN CAN DO IT DOESN'T MAKE IT EASY

For futurists, innovators and visionary leaders, this ability to break free from the prevailing narratives and norms of the world leads to a secondary ability to see how things might be and how new associations might form and provide a new perspective to look on the way of things. This is how children play with associations toward creating context and understanding.

When we read articles and books on creativity that suggest we emulate the discovery processes that young children go through, we can easily underestimate the seriousness and challenge of that process.

Looking into the future is a process and commitment to question our assumptions repeatedly.

We might dismiss child's play as overly simplistic.

It might seem easy to adopt a child's playfulness and openness to the world. But it's not necessarily so.

You have a lifetime of biases and beliefs that have built up and made you into the person you are. Your brain has been trained to think in certain ways and it's not easy to get it to think differently. You have refined your understanding of the world over years and decades.

Looking into the future or becoming visionary is a process and commitment to question our assumptions repeatedly. To open our minds, we have to want to adopt a mindset of change and be open to where it might lead us.

METAPHOR AND PLAY: ONE FUTURIST'S EXPERIMENTS AND WORKSHOPS WITH PLAY

I recently talked to futurist Yesim Kunter, who runs workshops on play and creativity for adults in the UK. She used to be a futurist at Hasbro and then built a consulting practice in helping executives and others to learn to experiment with play as a means to see the world and possibility differently, to break closed mindsets.

She takes people from a range of backgrounds and they become equals and leave behind their roles, positions and professional personas in her workshops.

"You want to break their understanding of certain things so that they can actually creatively become more open for the next project," said Kunter. "We give them a whole day play workshop, starting with really simple things doodling and playing with colors or making up stories, and slowly

creating these metaphoric worlds. That's what I call it, metaphors, where they can actually play and be in a completely unknown territory."

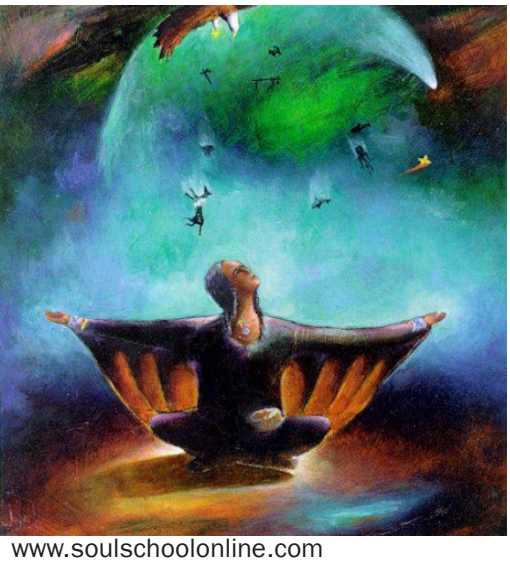
She continued: "They look at abstractions and they give meaning to them because for them, everything is new. It's like they are trying to make meaning and sensemaking and they're playing for us, but they're serious. They're working actually."

In some ways, we're returning them to childhood when context and meaning were more open and they have to go through a process of reorienting to the environment.

> *Too often, we try to appear as if we know everything in our professional lives instead of embracing a position of questioning or of not knowing.*

This process of taking someone out of their comfortable offices, stripping away their professional identity and role and putting them into an entirely new situation and environment, where they may feel uncomfortable, does remarkable things in helping a person break from some of the biases and behaviors of their day-to-day lives.

In Kunter's workshops, this is built around play and experimentation. There are other ways to provide this sort of shock and reorienting of someone's mindset.



www.soulschoolonline.com

SHEDDING OUR CLOTHES, BECOMING UNCOMFORTABLE AND REORIENTING: VISION QUESTS, TRAVEL, VOLUNTEERING

In the 1970s, vision quests and other rituals drew upon the journey of leaving society behind, going into the woods and experiencing an awakening process. Some authors and books on these ideas and practices became bestsellers, such as Carlos Castenada's *The Teachings of Don Juan*. In *Star Wars*, Luke Skywalker goes on this same journey.

Similarly, Outward Bound became popular for putting teenagers in touch with nature through individual and team building exercises away from the norms of the classroom.

When we travel or move to a new locale, we likewise adopt this open-minded persona to be receptive to possibility and change.

Executives who spend time volunteering at a local homeless shelter or other volunteer activity can leave their status and professional roles behind and adopt a beginner's mind and learn to see the world from different perspectives. It strips away the positions and roles of the workplace and they are able to reconnect with that person inside themselves, underneath it all.

In all these instances, we're shedding the clothes we may have been wearing for years.

BREAKING PATTERNS

It's possible that some people may be more adaptable and have greater neural plasticity in the way their brains work.

For example, people who have a strong sense of empathy are more easily able to step outside of their biases and see the world from other people's points of view. They are more receptive to the experiences and emotions in other people.

Buddhists train to become detached from the self, to let go of their attachments to the body, to the material world, to their thoughts, to existence.

To consider another perspective, some people go to therapy to unlearn behaviors that have become destructive to them, or to rebuild a perspective on the world after going through grief or loss.

Buddhists train to become detached from the self, to let go of their attachments to the body, to the material world, to their thoughts, to existence. The process of unlearning is not different. It's about learning to break our attachments to some of our beliefs and biases in order to open our minds to possibility.

SENSEMAKING WITH A BEGINNER'S MIND

All these approaches share a particular method of leaving our professional roles behind and entering a new environment that's foreign to us, where we are forced to learn again, to engage in new ways and see things from a fresh perspective. And we emerge from that experience changed in some way, with perhaps some muscle memory in being able to adopt a beginner's mindset when facing a problem or thinking about the possible.

Joseph Campbell might call this a version of the Hero's Journey, where we engage in a quest and are forced to reckon with our inner selves in order to change (through death and rebirth) and come out the other side to return to the world anew.

If someone asked me how they could become better at sensemaking, I'd suggest they seek out an experience in an environment they've never experienced before, where the comfortable clothing of their daily lives will be shed and they can learn to embrace a new perspective. This creates the context for a beginner's mind, which triggers their learning mindset.

What futurists, innovators, visionaries and children share is this ability to be open, to approach the world as beginners and be unafraid to do so.

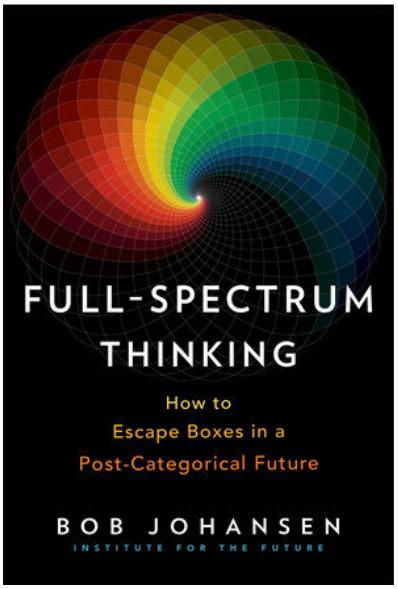
Too often, we try to appear as if we know everything in our professional lives instead of embracing a position of questioning or of not knowing. After all, we feel the pressure of our positions. If we are Senior VPs, we feel we should have the answers, that we should know more than the Associate VPs. But perhaps not. Perhaps it's more important to know how to be flexible and receptive, to experiment as a means to gain new insights.

For myself, I'm eternally curious and ever appreciate what I don't know and still have an opportunity in my life to learn.

Bruce Cuthbertson describes himself as a Humanist | Learner | Corporate Strategist | Essayist | Futurist and a version of this article was originally published here: https://www.linkedin.com/pulse/how-do-children-futurists-innovators-see-world-bruce-cuthbertson/ and is reproduced with permission.

Book Review

by Alireza Hejazi



Full-spectrum Thinking
by Bob Johansen

Full-spectrum Thinking is about envisioning, comprehending, and improving what is to come. It is a reminder of the fact that the future is uncertain and there is no room for absolute speculations. The good news is that individuals and groups can learn and practice 'foresight' as a skill. This book informs readers that specialists will get an upper hand if they learn full-spectrum thinking. A foresight approach that operates by identifying patterns, looking for clarity, and refuting certainty helps practitioners grasp a realistic understanding of what is ahead. *Full-spectrum Thinking* attempts to shape a full-range mind setting by which making sense out of ourselves, the universe around us, and the future becomes possible. It provides a context for futuring and inspires readers to think about the future as widely as possible in light of uncertainty.

Johansen (2020) is a professional futurist at the Institute for the Future (IFTF) in Silicon Valley. He has led many foresight projects for a wide range of companies, including Procter & Gamble, Kellogg's, Disney, Intuit, Wal-Mart, Syngenta, GlaxoSmithKline, and United Rentals. He is the author or co-author of twelve books, including *The New Leadership Literacies*, *Leaders Make the Future*, *Get There Early*, and *The Reciprocity Advantage*.

Keeping the "full-range leadership" model in the back of his mind, he likely decided to name his new book *Full-spectrum Thinking*. His book is an extensive discussion of human's "ability to seek patterns and clarity across gradients of possibility—outside, across, beyond, or maybe even without any boxes or categories—while resisting false certainty." It is the trilogy of futures thinking embracing mindset, literacies, and skills. It links 'foresight' to 'action' by building the bridge of 'insight' between them.

The book is an outstanding legacy of Johansen reflecting the mental model he has applied to his foresight projects through years of service at IFTF. Johansen pursued three goals by writing this book. He intended to:

1. Help people think about the past, the present, and the future as broadly as possible.

2. Improve organizations' capacity for identifying and evaluating emerging business opportunities.

3. Bring up a wider possibility of thinking about alternatives in decision-making.

Full-spectrum Thinking is structured in three parts and eleven chapters. Each chapter unfolds a facet of the discussion. In a nutshell, full-spectrum thinking deals with pattern recognition. It is a nonlinear process that fosters our thinking ability and enables us to go beyond conventional thinking patterns and rigid lines of thought. It encourages us to think dynamically, break simplistic though designs, and consider full spectrums of possibility in thinking about the future.

The first part of the book describes the main ideas and principles of full-spectrum thinking. It teaches how futures thinking can set us free from categorical thinking and limited thought models. The second part of the book introduces the emerging tools, networks, and digital citizens who will expand full-spectrum thinking in a universal range. The third part of the book reminds us that the future has already begun. Through examples of broader spectrums, it tells us how we can benefit from the growing rate of uncertainty and use full-spectrum thinking to create value for our groups and ourselves.

At the micro level, the book teaches readers how to use foresight methods. For example, it helps readers learn the 'Foresight-Insight-Action' model and use it to make a small

change to generate a bigger transformation. It informs readers of tiny tweaks that they can make to get better results by applying foresight methods. As an example, when we face a highly uncertain future, we may use strategic foresight to think in this order: now, future, next. Instead of 'Foresight' to 'Insight' to 'Action,' foresight practitioners may start from Action, then jump out to Foresight, and then come back to Insight for developing strategies and adopting innovative measures.

The third chapter is one of the key parts of the book. It teaches readers how to use futures thinking. Johansen uses VUCA (volatile, uncertain, complex, and ambiguous) as an umbrella term to describe the future world. Inspired by his experience at the Army War College, he offers a positive definition of VUCA. He writes, "Volatility yields to vision, uncertainty yields to understanding, complexity yields to clarity, and ambiguity yields to agility." In his view, both the negative and positive forms of VUCA shape the future. Referring to his experience, he believes that VUCA is a useful concept to initiate discussions on alternative futures.

At the macro level, the book opens readers' minds to higher levels of thinking by breaking old paradigms and providing a context for thinking in new ways. Studying *Full-spectrum Thinking*, we comprehend how categorical thinking prevents us from understanding the bigger picture.

According to Johansen, categories lead us to certainty and categorical thinking blinds us to the alternatives. The problem with categorical thinking is that it prevents us from identifying the spectrum of possibilities that the universe offers us. The biggest danger with categorical thinking is that it has an inflexible focus on separate societies, countries, or cultures. Johansen attempts to break the bad habit of rigid categorical thinking in everyone who reads his book.

Reading *Full-spectrum Thinking* one may find out that Johansen advocates a globalist perspective of the future. In his view, diversity correlates with innovation and as societies move forward, nationalism and globalism will combine. Looking into the next decade, he makes some assumptions including a wide spectrum of individual augmented people and superminds that will be commonplace in organizations and societies. He thinks that the group economy will make individuals, organizations, and societies more inclusive.

Johansen's desire for meaning and purpose is admirable. The final chapter of the book is a pearl of wisdom. Through an insightful discussion, Johansen explains what faith in the future is and is not in that chapter. He writes, "As with strategy, faith requires directional clarity but great flexibility in how faith is lived out. Faith shapes the kind of future we can imagine." He warns about confusing faith with certainty. According to Johansen, to inspire faith in people is to empower them humbly. Contrary to faith, hindsight locks certainty. Certainty is the inflexible categorization that freezes the truth. *Full-spectrum Thinking* is a useful guide to map the spectrums of meaning-making.

Johansen warns that information is not the same as meaning. One of his forecasts is that a body-hacking mindset will be linked with meaning-making. Based on that assumption, he estimates that self-knowledge of our nervous system will make the process of meaning-making more comprehendible. The best advice that Johansen offers to leaders through his book is that they need to perform best at the edge of their competence, not just in their areas of expertise. In his view, future leaders will need to strengthen themselves in a multidisciplinary manner to avoid categorical thinking and serve their communities in a full-spectrum scale. This requires them to plant and nurture the seed of hope for better futures in the hearts and minds of their followers.

Conclusion

The biggest achievement of *Full-spectrum Thinking* is that it helps readers consider a diverse range of cultures, values, and beliefs across different societies and nations. It encourages policymakers to think of distributed governance. It encourages globalism and regionalism simultaneously. *Full-spectrum Thinking* provides a cross-culture approach by which all nations can invest intellectually in what they have in common and may use it to shape better futures for all. It encourages people to avoid labelling each other by their faith, colour, nationality, or any other differentiation than can potentially lead to the widening gaps among societies and nations. It is a call to futures consciousness and unity.

FUTURISTS IN ACTION

CORPORATE FORESIGHT IN AN EVER-TURBULENT ERA

by By Alex Fergnani, Andy Hines, Alessandro Lanteri and Mark Esposito

Nobody knows what the future holds in store. How, then, should businesses prepare for the mind-boggling array of scenarios that might arise in the coming years? It turns out there are ways to reduce the risk of being mauled by the savage beast of the unexpected, as this intriguing article explains.

Corporate foresight; the capability of an organisation to interpret changes in the business environment, outline and evaluate plausible future based on these changes, and to use that information for sustainable competitive advantage.

Foresight as an indispensable firm capability

Recent global developments have led many firms to be more attentive to potential surprising future events. As a result, they are devising new business models and product lines that allow them to perform well even in the midst of disruptions or crises. Exploring the future is becoming an intrinsic part of business intelligence. However, this practice is not new. More and more corporations are systematically looking into the future to change their current offerings and make them more "future-prepared", with varying degrees of success. The Mercedes Benz S-class, for instance, had prototypes of customisable perfume generators, air balance ionisation, and massage functions. It was one of the many products that emerged from Daimler corporate research on the future of mobility and its implications for the automotive industry – work that has being going on since 1979.

At Philips, a similar research unit has been scanning since the 1990s for potential societal discontinuities that could change consumption patterns in the future. Among the many prototypes envisioned and developed by this unit was Ambilight, an LCD screen that projects its light beyond the television and onto the wall, allowing the user to enjoy a movie-theatre-level experience at home.

Efforts like these comprise *corporate foresight*, the capability of an organisation to interpret changes in the business environment, outline and evaluate plausible future based on these changes, and to use that information for sustainable competitive advantage. Using corporate foresight, organisations can reconfigure their strategy based on the analysis of business opportunities suggested by future possibilities.

We have seen an upsurge in interest in, and implementation of, foresight in organisations all over the globe. Companies have begun recognising that the VUCA (volatile, uncertain, complex, and ambiguous) world is not an anomaly but a consistent feature of the business environment. Corporate foresight is increasingly relevant, because it offers a response to this environment; it systematically analyses contrasting signals of change that make the environment erratic. It synthesises them into plausible futures that, in turn, can be used to derive strategic guidelines and options. In other words, it decomposes the VUCA world into future states that can be anticipated and prepared for.

Leading firms globally are embedding the use of foresight in their organisational routines. UPS uses foresight, building and regularly revising ten-year scenarios to aid its corporate strategy and to sense innovation opportunities. Shell has been using foresight, regularly creating tiered future scenarios since the 1970s to support decision making. Disney has been using foresight since 2012, establishing 15 teams across 10 geographical regions, specifically tasked with analysing the emergent opportunities for the company by exploring the futures of talent, consumers, childhood entertainment, government, and wellness. It has been transforming the company culture and allowing it to face the rapidly changing environment of the entertainment industry.

What these firms and many others have in common is that they use corporate foresight to complement strategic management in order to respond to the uncertain dynamics of doing business today. Corporate foresight is a procedural component that affects and reshapes the *modus operandi* behind ordinary activities of the firm and improves the chances for long-term survival and success.

However, as corporate interest in foresight is increasing and many firms are starting to get acquainted with the concept, they are using it in a piecemeal, rather than integrated, fashion. This article provides an account of how foresight can be successfully implemented. We organise this account according to three related themes: what corporate foresight is and is not; what the benefits of corporate foresight are; and guidelines on how to start with, and be proficient at, corporate foresight.

What corporate foresight is and is not

Corporate foresight is a set of capabilities guided by systematic methods to explore the futures of the business environment and the implications for the firm. Traditional corporate planning is also concerned with the future, but corporate foresight differs from corporate planning in a substantial way. Better yet, corporate planning and corporate foresight are complementary (see table 1).

Table 1. Differences between corporate planning and corporate foresight

	Corporate planning	Corporate foresight
Epistemology	The future is predetermined and predictable	The future is open to possibilities and can be shaped
Outcome	Single-point estimate	Complex scenarios
Time horizon	Short-term future (1-5 years)	Long-term futures (5-50 years)
Involvement	Upper management	Participatory
Prioritised interests	Interest of shareholders	Interests of a variety of stakeholders
Methodology	Variation in mathematical models, contingency planning, decision trees	Scenario planning, roadmaps, Delphi surveys, backcasting, causal layered analysis, etc.

At the most basic level, corporate foresight activities can be organised into three sequential stages, or components: *scanning, futuring*, and *reconfiguring*. Corporate foresight methods can be categorised under these three foresight components (table 2), and used in a modular fashion according to context.

Table 2. Main corporate foresight methods for each foresight component

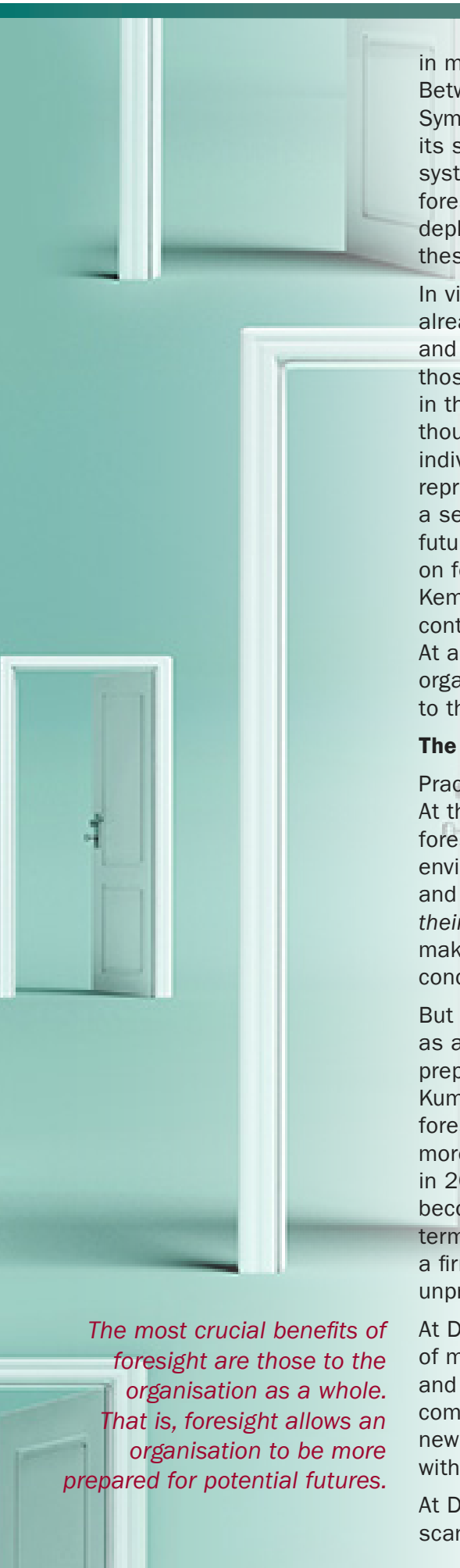
Foresight Component	Foresight methods
Scanning	Future wheel, environmental scanning, horizon scanning, emerging issues analysis, futures triangle
Futuring	Scenario-planning methods (2x2 matrix, Shell approach, Manoa method, scenario archetypes, etc.), causal layered analysis, future persona, futures triangle 2.0, science fiction prototyping
Reconfiguring	Backcasting, roadmapping, policy stress testing/wind tunneling

Several companies do some forms of *scanning*. Scanning is referred to in many ways, e.g. horizon scanning, environmental scanning, trend analysis, trend spotting, looking at the fringes, etc. It generally involves detecting patterns and trends in the business environment that can point to change, discontinuities, or disruptions that could impact the future of the firm. But scanning is not enough; it is just the first component of foresight. It is followed by the second component, *futuring*, when a firm creates and analyses plausible futures synthesised from the information emerged from scanning. Finally, there is the third component, *reconfiguring*, when the firm uses information about these futures to guide systematic strategic change. Only when *scanning, futuring* and *reconfiguring* are implemented together and in sequential order, can we say that a firm is practising corporate foresight in full.

Scanning; it generally involves detecting patterns and trends in the business environment that can point to discontinuities or disruptions that could impact the future of the firm.

A proficient corporate foresight capability, including these three components and no less, can help companies to maintain competitive advantage over the long term. Shell, for instance, not only scans the environment, it also uses the scanned material to build several plausible futures: global scenarios to depict the futures of energy at the global level, 'focused' scenarios to depict the reverberation of the global scenarios at the local level, and project scenarios to depict the relevance of the global and focused scenarios on specific projects. This multi-futured approach allows Shell to have multi-pronged options for further investment and to be prepared for any eventuality, including potential impending risks such as pandemics and political impasses.

Using only scanning procedures might limit the firm to less-sophisticated exploration of the future, more akin to prediction. In the late 90s, Nokia used environmental scanning to look for potential technological discontinuities in the business environment. The information gathered via scanning spurred the firm to project that mobile phones would soon include functions from digital industries such as MP3, GPS, internet browsing, office suites and games. Nokia then used roadmaps to determine technological developments that would allow the company to lead in that space. This eventually led to the development of the Symbian operating system and a new series of phones (the N-series) But since the company didn't explore possible futures, it didn't take into account a possible scenario: the emergence of the online app market. This gave leeway to new market players in this space, such as Apple and Google. As the company had gambled on a single future, that of the multifunctional digital industry embedded



in mobile phones, it wasn't prepared for additional future possibilities. Between 2008 and 2010, from the position of market leader, Nokia's Symbian market share dropped from 52 percent to 32.6 percent, and its smartphone sales were matched by those supporting the Android system. This downfall might have been avoided with a comprehensive foresight approach, including the creation of plausible futures and the deployment of strategic reconfiguration based on information from these futures.

In view of this explanation, many managers might believe they are already practising foresight, considering in their heads impactful trends and possible scenarios of the business environment emerging from those trends. But that is not foresight either. Foresight is not a process in the minds of decision-makers; it is not a conscious or subconscious thought experiment. In its ideal form, foresight is an activity involving individuals from all levels of the organisation. Ideally, it also includes representatives of communities of interest outside the organisation, in a series of interactive, participatory and dialogic exercises where the futures are crafted and negotiated in an iterative manner. Research on foresight practices in UK-based technology firms such as Interlab, Kemitech and Mercury has revealed that foresight is an open-ended, continuous, and contextual practice of negotiations about the futures. At a bare minimum, these practices involve specialised teams in an organisation, with the role of reporting their foresight intelligence output to the organisation at large for further usage.

The benefits of corporate foresight

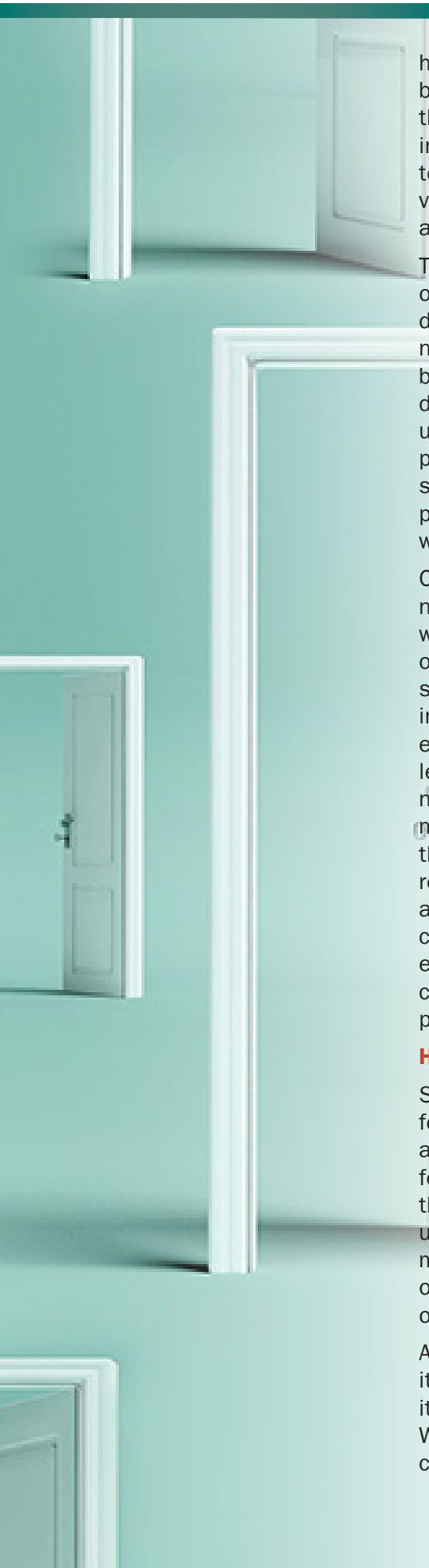
Practising foresight can bring a number of benefits to an organisation. At the individual level, it allows organisation members practising foresight to have a better grasp of the *future complexity* of the business environment, 'decomposing' it into readable chunks of information, and translating it into potential future states. This process *challenges their mental models*, the assumptions about how the future will unfold, making foresight practitioners more prepared for disruptive future conditions of the business environment, while also enhancing creativity.

But the most crucial benefits of foresight are those to the organisation as a whole. That is, foresight allows an organisation to be more prepared for potential futures. Longitudinal research by Rohrbeck and Kum has shown that firms that implemented appropriate corporate foresight practices related to their business environment in 2008 were more profitable and enjoyed a significantly higher market capitalisation in 2015 than those that didn't. Firms practising corporate foresight become more prepared for the futures, increasing their chances of long-term survival and success. This is because corporate foresight allows a firm to identify new business opportunities or spurs it to abandon unprofitable ones.

The most crucial benefits of foresight are those to the organisation as a whole. That is, foresight allows an organisation to be more prepared for potential futures.

At Daimler, corporate foresight activities investigating the futures of mobility enabled the company to see that improving the living and sleeping conditions of truck drivers could serve as a source of competitive advantage against competitors. This led to the offering of new packages such as truck insulation, larger beds and flexible seats with built-in massage functions.

At Disney, using a variety of foresight methods, such as environmental scanning, scenarios, causal layered analysis and future wheels,



helped the company to realise that consumers' requirements have been shifting towards proactive engagement and co-creation, and that the line between entertainment and education has blurred as a new industry is emerging: "edutainment". Foresight allowed the company to reconfigure its strategic positioning in the edutainment sector in a variety of segments, including parks and resorts, consumer products and studios.

This doesn't mean that a company has to bet substantial resources on every scenario envisioned. The potential prototypes that Daimler develops out of future scenarios of transport and mobility aren't necessarily marketed. Instead, they are stored in an "idea memory bank", ensuring that the firm is prepared in the event that the market dynamics change. Similarly, Sunshine, an internet bank in the UK, uses environmental scanning and scenarios and then develops and probes several potential innovations that could help the company to succeed in each generated future. These readily available incipient projects allow the company to adapt to quick changes in a fast-paced world, such as that of internet banking.

Often, new business opportunities discovered with corporate foresight not only improve the bottom line of the firm, but also promote the well-being of a society as a whole. This is due to the very nature of foresight, which takes into account the interests of a variety of stakeholders from within and outside the organisation. Tesla's foray into the electric car market was in great part due to the substantial effort of the company in practising environmental scanning, which led to the realisation that a more sustainable business model was needed for the automotive industry. Tesla saw that it could reap monetary benefit by aligning its environmentally friendly vision with the betterment of the world. At Daimler, corporate foresight was responsible for the creation of a one-way car sharing service, known as car2go, which has been successfully implemented in a number of cities internationally, substantially reducing traffic congestion. Indeed, embedded into future preparedness is the concept of *innovation*, as corporate foresight positively affects the firm's ability to innovate its products and business models.

How to start with, and be proficient at, foresight

Starting a corporate foresight process has never been easier, as foresight experts are growing in number and sharing an increasing amount of resources online. The typical way to get acquainted with foresight is to collaborate with a foresight expert in order to investigate the future of your industry. This will allow your organisation to pick up the basic methods and techniques. Alternatively, organisation members can be trained in foresight methods. Several institutions are offering online foresight courses and degrees, such as the University of Houston and the Institute for the Future.

As firms start to get acquainted with foresight, however, they often use it in a piecemeal fashion. Proficiency in foresight requires mastering its three basic components: *scanning, futuring* and *reconfiguring*. We provide guidelines on how to be proficient in each of the three components.

Scanning

- *Scan widely.* Scanning for trends and discontinuities in the business environment requires looking closely into a variety of data not limited to customer satisfaction reports and market developments, but also including new patents, and blogs and magazines about the future, innovation and technology, as well as scientific publications.
- *Vary the scanning talent pool.* It is counterproductive to have a team of people from the same department doing scanning, as these individuals will be very likely to look for signals using similar sources of information which they know and consult often, given their professional expertise. It is more productive to assign scanning tasks to organisation members from different backgrounds, who will be acquainted with different sources of information and will, therefore, be attentive to different signals.
- *Decentralise scanning tasks.* It's important to involve people from different levels of the organisation in scanning procedures, and not just from the upper echelons of management, as individuals at lower levels will be relatively less constrained by the company culture and more likely to identify challenging signals in the environment.

Futuring

- *Know your methods.* Being well aware of how to use foresight methods, such as scenario planning, is important. The information gathered in the scanning component of foresight has to be translated, in a series of sequential steps, into plausible and coherent future narratives of the business environment. This analysis requires depth and rigour. The necessary skills are often acquired through experience, but a big chunk of this methodological knowledge can be picked up via collaboration with foresight experts and by reading up on relevant foresight literature.
- *Vary and integrate your methods* It's important to have a toolkit of futuring methods at one's disposal, to be able to integrate them well and most importantly, to choose the right method according to contextual needs. Foresight methods are highly modular and can be easily combined in a suitable manner according to a specific project. A foresight project aimed at looking at changes in customer values towards health products in the next ten years may require a very different set of methods from a foresight project aimed at looking at the long-term futures of fossil fuels at a national level.

Reconfiguring

- *Link foresight and strategy.* The information on plausible futures generated in the futuring process has to be ultimately translated into reconfiguration of the firm's *modus operandi*, perhaps the most important skill in corporate foresight. This can be done with systematic policy stress tests, or wind-tunnelling procedures, which help identify the implications of the futures for the firm's strategy and the gaps of the firm's current activities against all possible futures. Once the new strategy has been identified, it has to be disseminated to all necessary levels of the organisation. In the mid-1990s, British Airways undertook a massive foresight project, building global scenarios, identifying threats and opportunities for

the airline carrier business, and plotting potential corporate-level reactions. They ran a total of 28 workshops and 20 presentations within the company. This solid dissemination programme allowed learning to reach several levels of the company. The scenarios were used by the corporate strategy team to prompt new strategic thinking, by the marketing team and customer relations to envision new ways to reach customers, and by the cargo team to research new issues with relevance to the cargo segment. Cisco's corporate foresight practice, the Technology Radar, spots potential technologies and builds scenarios of what could happen if they became widespread. Cisco has been relying on the acquisition of smaller enterprises rather than internal R & D for its expansion. By assessing and filtering technological opportunities, the Radar has substantially helped acquisition decisions, an important component of the company expansion strategy, successfully translating insight from foresight into strategic choices.

- *Institutionalise foresight* Foresight is not a one-time event. For foresight to be effective, there must be a system in place that incentivises organisation members to undertake it on a regular basis and routinises it into the company culture. Incentives to spur organisation members to undertake foresight should be put in place to make it an institutionalised routine in the firm. Previously terminated foresight endeavours and the strategy reconfiguration that emerged from them should also be monitored over time for updates. Indeed, it is detrimental to create large temporal gaps between foresight projects, as interest tends to decrease between them. It is ideal to build a consistent capacity of foresight, training as many employees as possible in its methodology. At Dow Chemical, for instance, several hundred employees were trained in various aspects of foresight to enhance new business development. At Disney, it is 5 percent of the whole workforce.

Conclusion

Corporate foresight goes beyond simply satisfying future customer needs. It generates a variety of hypotheses about latent customer needs derived from the analysis of plausible future business environments. It then transforms those latencies into ready-to-market prototypes, business model reconfigurations, and intelligence to be stored in case a different future were to come into being, preparing the firm to withstand the unpredictability of the VUCA world.

As corporate foresight takes into account a wide variety of stakeholders' interests in order to formulate plausible futures, the innovations and systematic firm-level reconfigurations that emerge from foresight are often aligned to the latent needs of bettering society as a whole. Being proficient at corporate foresight means being able to see emerging futures around those latencies and their level of importance against the present business model of the firm. With corporate foresight, a firm doesn't have to stop running its present value-creation process, but it will explicitly know in which basket to put some, not all, of the eggs that were originally earmarked for the current business so as to hedge against a series of potential futures, and achieve balance between the pursuits of current and potential business opportunities.

In sum, corporate foresight has gradually and almost stealthily been gaining influence in the corporate world. As the business and global environment continues to change rapidly and often discontinuously, we feel that, one day, corporate leaders will wonder how they ever did without it.

About the authors

Alessandro Fergnani is head of scenario consulting at the strategic foresight consultancy Shaping Tomorrow and a PhD candidate in Management and Organization at NUS Business School (Singapore). Alessandro conducts research on corporate foresight, foresight methodologies, and the futures of work. His research has been published on the journals Academy of Management Perspectives, Futures, Futures & Foresight Science, Foresight, and World Futures Review, among others. Alessandro regularly gives futures and scenario plannng workshops globally

Dr. Andy Hines is Associate Professor and Program Coordinator for the University of Houston's Graduate Program in Foresight and is also speaking, workshopping, and consulting through his firm Hinesight. Andy has 30 years of professional futurist experience with companies including Kellogg Company and Dow Chemical, and consulted with Coates & Jarratt, Inc. and Social Technologies/Innovaro. His books include The Knowledge Base of Futures Studies 2020, Thinking about the Future (2nd edition), Teaching about the Future, ConsumerShift: How Changing Values Are Reshaping the Consumer Landscape, 2025: Science and Technology Reshapes US and Global Society. He is a member and former Chair of the Association of Professional Futurists.

Dr. Alessandro Lanteri is professor of Entrepreneurship at Hult in Dubai and London, teaches for Saïd Business School University of Oxford, and writes for Harvard Business Review Arabia. An expert educator, he helps executives and students navigate turbulent environments and seize the opportunities of the Fourth Industrial Revolution. He works with multinationals, governments and startups across five continents. His research has appeared on Harvard Business Review and MIT Technology Review outlets, World Economic Forum Agenda and Forbes. His latest book "CLEVER. The Six Strategic Drivers for the Fourth Industrial Revolution" became a no.1 Amazon bestseller. Homepage: www.alelanteri.com

Dr. Mark Esposito is a socio-economic strategist and bestselling author, researching the Fourth Industrial Revolution and Global Shifts. He works at the interface between Business, Technology and Government and co-founded Nexus FrontierTech, an Artificial Intelligence company. He holds appointments as Professor of Business and Economics at Hult International Business School and at Thunderbird Global School of Management at Arizona State University. He is equally a faculty member at Harvard University since 2011. He has authored/co-authored over 150 peer reviewed publications and 11 books, among which 2 Amazon bestsellers: Understanding how the Future Unfolds (2017) and The AI Republic (2019).

Signals in the Noise

THESE ARE THE TOP 10 JOB SKILLS OF TOMORROW AND HOW LONG IT TAKES TO LEARN THEM

by Thomas Frey

Founder and Executive Chairman of World Economic Forum Klaus Schwab says technological innovation can be leveraged to unleash human potential.

50% of all employees will need reskilling by 2025, as adoption of technology increases, according to the World Economic Forum's Future of Jobs Report.

- Critical thinking and problem-solving top the list of skills employers believe will grow in prominence in the next five years.
- Newly emerging this year are skills in self-management such as active learning, resilience, stress tolerance and flexibility.
- Respondents to the Future of Jobs Survey estimate that around 40% of workers will require reskilling of six months or less.
- Half of us will need to reskill in the next five years, as the "double-disruption" of the economic impacts of the pandemic and increasing automation transforming jobs takes hold.

That's according to the third edition of the World Economic Forum's Future of Jobs Report, which maps the jobs and skills of the future, tracking the pace of change and direction of travel.

But the very technological disruption that is transforming jobs can also provide the key to creating them – and help us learn new skills.

"We have the tools at our disposal. The bounty of technological innovation which defines our current era can be leveraged to unleash human potential," says the Forum's Founder and Executive Chairman, Professor Klaus Schwab.

"We have the means to reskill and upskill individuals in unprecedented numbers, to deploy precision safety nets which protect displaced workers from destitution, and to create bespoke maps which orient displaced workers towards the jobs of tomorrow where they will be able to thrive."

Signals in the Noise

THESE ARE THE TOP 10 JOB SKILLS OF TOMORROW AND HOW LONG IT TAKES TO LEARN THEM

Half of all employees will have to reskill in the next five years.

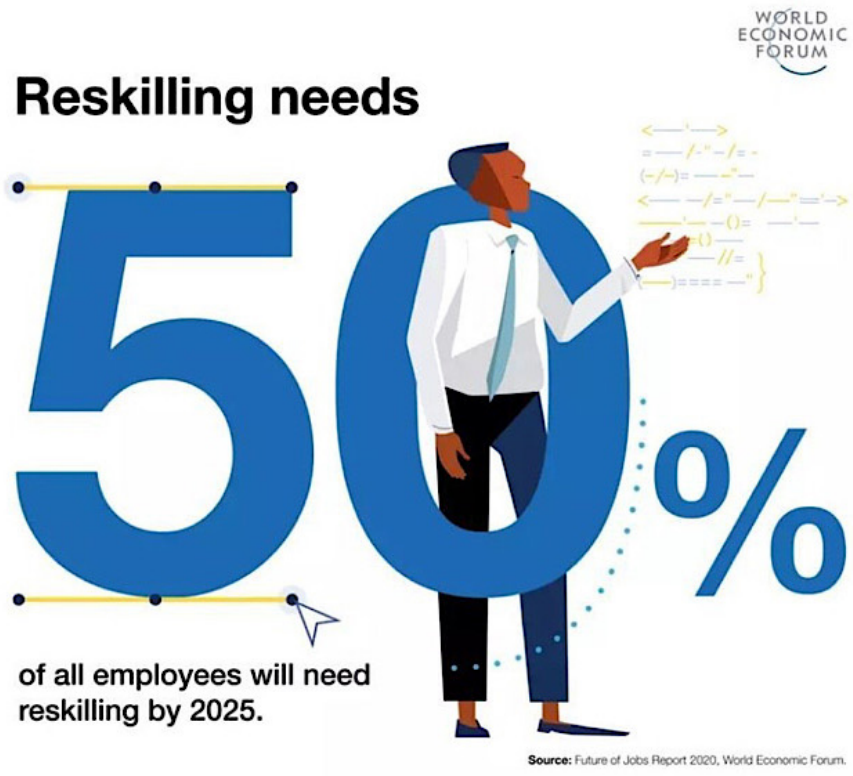


Image: World Economic Forum

The Forum estimates that by 2025, 85 million jobs may be displaced by a shift in the division of labour between humans and machines.

But even more jobs – 97 million – may emerge that are more adapted to the new division of labour between humans, machines and algorithms.

The top 10 skills

Greater adoption of technology will mean in-demand skills across jobs change over the next five years, and skills gaps will continue to be high.

For those workers who stay in their roles, the share of core skills that will change by 2025 is 40%, and 50% of all employees will need reskilling (up 4%).

Critical thinking and problem-solving top the list of skills that employers believe will grow in prominence in the next five years. These have been consistent since the first report in 2016.

But newly emerging this year are skills in self-management such as active learning, resilience, stress tolerance and flexibility.

Signals in the Noise

THESE ARE THE TOP 10 JOB SKILLS OF TOMORROW AND HOW LONG IT TAKES TO LEARN THEM

These are the top 10 skills for 2025.

Image: World Economic Forum

This year, data from LinkedIn and online learning platform Coursera has allowed the Forum to track with unprecedented granularity the types of specialized skills are needed for the jobs of tomorrow, which are in demand across multiple emerging professions.

Among these 'cross-cutting' skills are specialized skills in product marketing, digital marketing and human computer interaction.

How long will reskilling take?

The vast majority of business leaders (94%) now expect employees to pick up new skills on the job – a sharp rise from 65% in 2018.

Respondents to the Future of Jobs Survey estimate that around 40% of workers will require reskilling of six months or less, but that number is higher for those in the consumer industry and in the health and healthcare industry.

In the financial services and energy sectors, that share of workers who can be reskilled within six months is lower because they will need more time-intensive programmes.

Training will be delivered internally, according to 39% of employers. But, as Professor Schwab noted, this will be supplemented by online learning platforms (16% of training) and external consultants (11% of training).

The pandemic has accelerated the trend of online reskilling. Between April and June this year, Coursera saw a fourfold increase in the numbers of people seeking out opportunities themselves.

Employers providing online learning opportunities for their workers increased fivefold and there was a ninefold enrolment increase for learners accessing online resources through government programmes.

Some skills will take only a month or two to learn.

The platform says it could take just one to two months to acquire one of its top 10 mastery skills in emerging professions across people and culture, content writing, and sales and marketing.

It could take two to three months for learners to expand their skills in product development and data and AI. While a four-month learning programme could help people move into roles in cloud and engineering.

Such figures suggest that although learning a new skill set is increasingly accessible through digital technologies, individuals will also need the time and funding to be able to pursue new opportunities, the report notes.