the futures foundation
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Volume 17, No. 6, December 2017

FUTURE NEWS

TO CONNECT, TO INFORM AND TO INSPIRE

IN THIS EDITION

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WE AREN'T BUILT TO LIVE IN THE MOMENT

by Martin Seligman and John Tierney

> *A more apt name for our species would be Homo prospectus.*

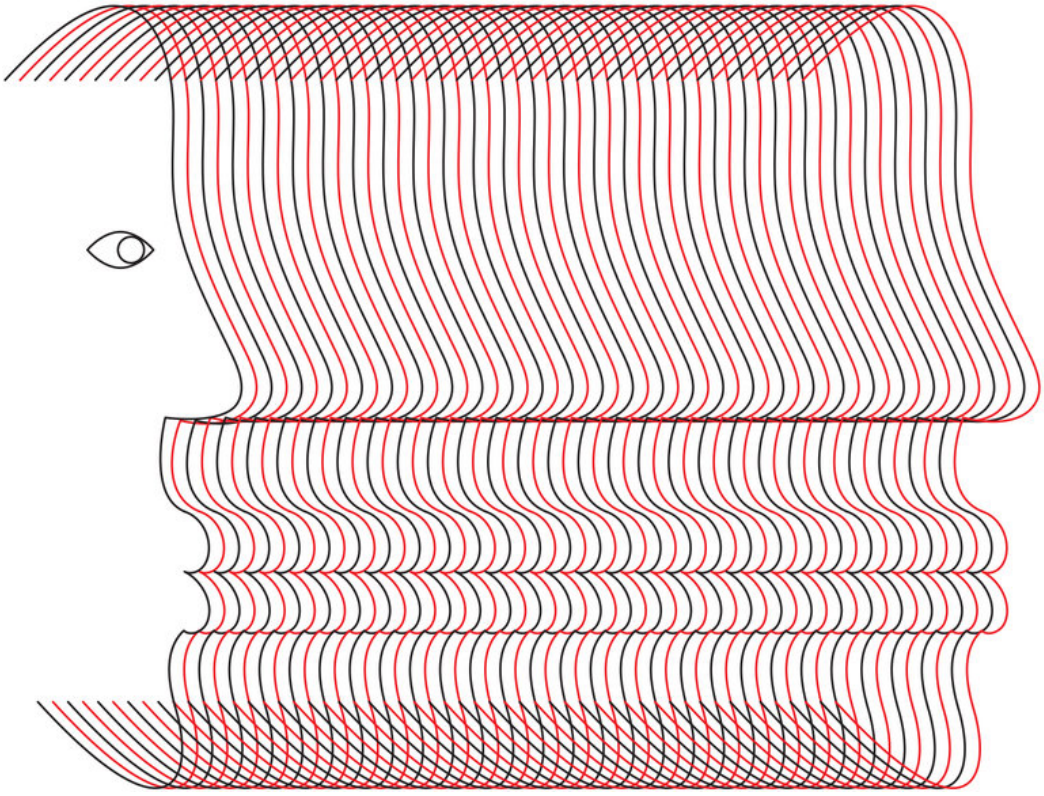

image by Maxwell Holyoke-Hirsch

We are misnamed. We call ourselves Homo sapiens, the "wise man," but that's more of a boast than a description. What makes us wise? What sets us apart from other animals? Various answers have been proposed — language, tools, cooperation, culture, tasting bad to predators — but none is unique to humans.

What best distinguishes our species is an ability that scientists are just beginning to appreciate: We contemplate the future. Our singular foresight created civilization and sustains society. It usually lifts our spirits, but it's also the source of most depression and anxiety, whether we're evaluating our own lives or worrying about the nation. Other animals have springtime rituals for educating the young, but only we subject them to "commencement" speeches grandly informing them that today is the first day of the rest of their lives.

A more apt name for our species would be Homo prospectus, because we thrive by considering our prospects. The power of prospection is what makes us wise. Looking into the future, consciously and unconsciously, is a central function of our large brain, as psychologists and neuroscientists have discovered — rather belatedly, because for the past century most researchers have assumed that we're prisoners of the past and the present.

Behaviorists thought of animal learning as the ingraining of habit by repetition. Psychoanalysts believed that treating patients was a matter of unearthing and confronting the past. Even when cognitive psychology emerged, it focused on the past and present — on memory and perception.

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But it is increasingly clear that the mind is mainly drawn to the future, not driven by the past. Behavior, memory and perception can’t be understood without appreciating the central role of prospection. We learn not by storing static records but by continually retouching memories and imagining future possibilities. Our brain sees the world not by processing every pixel in a scene but by focusing on the unexpected.

Our emotions are less reactions to the present than guides to future behavior. Therapists are exploring new ways to treat depression now that they see it as primarily not because of past traumas and present stresses but because of skewed visions of what lies ahead.

Prospection enables us to become wise not just from our own experiences but also by learning from others. We are social animals like no others, living and working in very large groups of strangers, because we have jointly constructed the future. Human culture — our language, our division of labor, our knowledge, our laws and technology — is possible only because we can anticipate what fellow humans will do in the distant future. We make sacrifices today to earn rewards tomorrow, whether in this life or in the afterlife promised by so many religions.

Some of our unconscious powers of prospection are shared by animals, but hardly any other creatures are capable of thinking more than a few minutes ahead. Squirrels bury nuts by instinct, not because they know winter is coming. Ants cooperate to build dwellings because they’re genetically programmed to do so, not because they’ve agreed on a blueprint. Chimpanzees have sometimes been known to exercise short-term foresight, like the surly male at a Swedish zoo who was observed stockpiling rocks to throw at gawking humans, but they are nothing like Homo prospectus.

If you’re a chimp, you spend much of the day searching for your next meal. If you’re a human, you can usually rely on the foresight of your supermarket’s manager, or you can make a restaurant reservation for Saturday evening thanks to a remarkably complicated feat of collaborative prospection. You and the restaurateur both imagine a future time — “Saturday” exists only as a collective fantasy — and anticipate each other’s actions. You trust the restaurateur to acquire food and cook it for you. She trusts you to show up and give her money, which she will accept only because she expects her landlord to accept it in exchange for occupying his building.

The central role of prospection has emerged in recent studies of both conscious and unconscious mental processes, like one in Chicago that pinged nearly 500 adults during the day to record their immediate thoughts and moods. If traditional psychological theory had been correct, these people would have spent a lot of time ruminating. But they actually thought about the future three times more often than the past, and even those few thoughts about a past event typically involved consideration of its future implications.

When making plans, they reported higher levels of happiness and lower levels of stress than at other times, presumably because planning turns a chaotic mass of concerns into an organized sequence. Although they sometimes feared what might go wrong, on average there were twice as many thoughts of what they hoped would happen.

While most people tend to be optimistic, those suffering from depression and anxiety have a bleak view of the future — and that in fact seems to be the chief cause of their problems, not their past traumas nor their view of the present. While traumas do have a lasting impact, most people actually emerge stronger afterward. Others continue struggling because they over-predict failure and rejection. Studies have shown depressed people are distinguished from the norm by their tendency to imagine fewer positive scenarios while overestimating future risks.

They withdraw socially and become paralyzed by exaggerated self-doubt. A bright and accomplished student imagines: If I flunk the next test, then I'll let everyone down and show what a failure I really am. Researchers have begun successfully testing therapies designed to break this pattern by training sufferers to envision positive outcomes (imagine passing the test) and to see future risks more realistically (think of the possibilities remaining even if you flunk the test).

Most prospection occurs at the unconscious level as the brain sifts information to generate predictions. Our systems of vision and hearing, like those of animals, would be overwhelmed if we had to process every pixel in a scene or every sound around us. Perception is manageable because the brain generates its own scene, so that the world remains stable even though your eyes move three times a second. This frees the perceptual system to heed features it didn't predict, which is why you're not aware of a ticking clock unless it stops. It's also why you don't laugh when you tickle yourself: You already know what's coming next.

"The point of memory is to improve our ability to face the present and the future.

Behaviorists used to explain learning as the ingraining of habits by repetition and reinforcement, but their theory couldn't explain why animals were more interested in unfamiliar experiences than familiar ones. It turned out that even the behaviorists' rats, far from being creatures of habit, paid special attention to unexpected novelties because that was how they learned to avoid punishment and win rewards.

The brain's long-term memory has often been compared to an archive, but that's not its primary purpose. Instead of faithfully recording the past, it keeps rewriting history. Recalling an event in a new context can lead to new information being inserted in the memory. Coaching of eyewitnesses can cause people to reconstruct their memory so that no trace of the original is left.

The fluidity of memory may seem like a defect, especially to a jury, but it serves a larger purpose. It's a feature, not a bug, because the point of memory is to improve our ability to face the present and the future. To exploit the past, we metabolize it by extracting and recombining relevant information to fit novel situations.

This link between memory and prospection has emerged in research showing that people with damage to the brain's medial temporal lobe lose memories of past experiences as well as the ability to construct rich and detailed simulations of the future.

Similarly, studies of children's development show that they're not able to imagine future scenes until they've gained the ability to recall personal experiences, typically somewhere between the ages of 3 and 5.

Perhaps the most remarkable evidence comes from recent brain imaging research. When recalling a past event, the hippocampus must combine three distinct pieces of information — what happened, when it happened and where it happened — that are each stored in a different part of the brain. Researchers have found that the same circuitry is activated when people imagine a novel scene. Once again, the hippocampus combines three kinds of records (what, when and where), but this time it scrambles the information to create something new.

> *"The main purpose of emotions is to guide future behavior and moral judgments.*

Even when you're relaxing, your brain is continually recombining information to imagine the future, a process that researchers were surprised to discover when they scanned the brains of people doing specific tasks like mental arithmetic. Whenever there was a break in the task, there were sudden shifts to activity in the brain's "default" circuit, which is used to imagine the future or retouch the past.

This discovery explains what happens when your mind wanders during a task: It's simulating future possibilities. That's how you can respond so quickly to unexpected developments. What may feel like a primitive intuition, a gut feeling, is made possible by those previous simulations.

Suppose you get an email invitation to a party from a colleague at work. You're momentarily stumped. You vaguely recall turning down a previous invitation, which makes you feel obliged to accept this one, but then you imagine having a bad time because you don't like him when he's drinking. But then you consider you've never invited him to your place, and you uneasily imagine that turning this down would make him resentful, leading to problems at work.

Methodically weighing these factors would take a lot of time and energy, but you're able to make a quick decision by using the same trick as the Google search engine when it replies to your query in less than a second. Google can instantly provide a million answers because it doesn't start from scratch. It's continually predicting what you might ask.

Your brain engages in the same sort of prospection to provide its own instant answers, which come in the form of emotions. The main purpose of emotions is to guide future behavior and moral judgments, according to researchers in a new field called prospective psychology. Emotions enable you to empathize with others by predicting their reactions. Once you imagine how both you and your colleague will feel if you turn down his invitation, you intuitively know you'd better reply, "Sure, thanks."

If Homo prospectus takes the really long view, does he become morbid? That was a longstanding assumption in psychologists' "terror management theory," which held that humans avoid thinking about the future because they fear death. The theory was explored in hundreds of experiments assigning people to think about their own deaths. One common response was to become more assertive about one's cultural values, like becoming more patriotic.

But there's precious little evidence that people actually spend much time outside the lab thinking about their deaths or managing their terror of mortality. It's certainly not what psychologists found in the study tracking Chicagoans' daily thoughts. Less than 1 percent of their thoughts involved death, and even those were typically about other people's deaths.

Homo prospectus is too pragmatic to obsess on death for the same reason that he doesn't dwell on the past: There's nothing he can do about it. He became Homo sapiens by learning to see and shape his future, and he is wise enough to keep looking straight ahead.

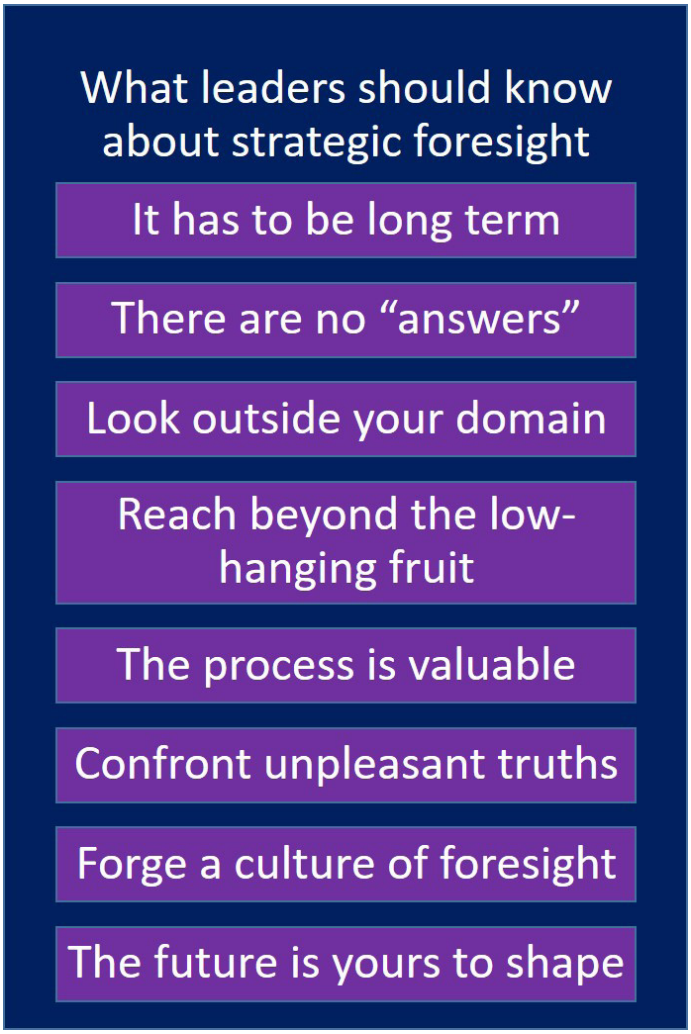
Martin E.P. Seligman is a professor of psychology at the University of Pennsylvania, and one of the authors, along with Peter Railton, Roy F. Baumeister and Chandra Sripada, of "Homo Prospectus," on which this essay is based. John Tierney writes the Findings science column for The New York Times.

FUTURISTS IN ACTION

8 THINGS LEADERS SHOULD KNOW ABOUT STRATEGIC FORESIGHT

by John Mahaffie

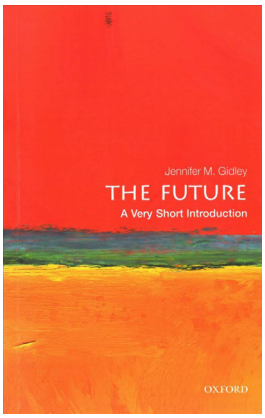
Today's leaders are pressed to focus on strategic foresight and many are responding. But it's not always clear what strategic foresight means. What do leaders need to know?



John Mahaffie is a US based foresight practitioner, part of the Leading Futures group

1. It has to be long term. For true clarity on your future, you need a view that goes at least five or ten years out. You need to see past immediate concerns and explore and envision real change.
2. There are no "answers." The future is uncertain, with a range of potential outcomes. So strategic foresight doesn't mean prediction, it means clarifying patterns of change and modeling potential outcomes and choices.
3. You have to look beyond your usual domain. New challenges and undiscovered opportunities will often come from outside your sector or market.
4. You need to reach beyond the low-hanging fruit. The actions you can take now to fix things and keep going are obvious, whether or not you are able to accomplish them. They are the low-hanging fruit. Addressing bigger challenges and opportunities, and forging a successful future, means reaching beyond the low-hanging fruit to bigger systems that will need to change.
5. The foresight process itself is valuable. Wider participation in the processes of strategic foresight strengthens organizational foresight, agility, and learning. You need others' inputs, and you need others to be a part of innovation and decision making. And everyone benefits from the time spent learning, exploring, and imagining.
6. You must confront unpleasant truths, not just hopes and dreams. That means "what ifs" that include catastrophic or transformational change. From those scenarios can come fresh thinking about a positive path forward.
7. Success means forging a culture of foresight. Strategic foresight can't be a once-in-a-while activity. Organizational habits of mind and action should stand on a base of clear and regular thinking about the future.
8. The future is yours to shape. Finally, the future is not inevitable. You can and must shape it yourself. Don't wait for it to happen to you.

The Future:
A Very Short Introduction
by Jennifer Gidley



Book Review

by Charles Brass – Chair, futures foundation

The 'very short introduction' series published by Oxford University Press began in 1995 and now comprises more than 500 approximately 30,000 word volumes on themes from accounting to Zionism. One of the latest titles is "The Future" written by Australian futurist academic, Dr Jennifer Gidley.

In its six chapters Gidley traces a 3,000 year history of futures, which she links to the human quest to 'understand and tame our world' (p14) largely through measuring and controlling time. She describes mankind's attempts to 'steer a course between the extremes of Malthusian doomsday catastrophes and the panorama of Cornucopian techno-optimism' (p4).

However, notwithstanding the contributions of Zarathustra, Cicero, the oracles at Delphi, St Augustine, Nostradamus, HG Wells, Jules Verne and many others briefly acknowledged in the book Gidley acknowledges that the formal study of the future has a perhaps 50 year history (though the word seems to have been first used in the fourteenth century). To ensure readers are reminded of the full history, Gidley includes a 6 page appendix acknowledging everyone from The Sybils (early oracles) to Jan Pietersen, author in 2000 of a book entitled "Global Futures" as part of the Global Futures Timeline.

"Right from the first page, Gidley acknowledges that there is no such thing as 'the future'

Right from the first page, Gidley acknowledges that there is no such thing as 'the future', rather what is out there is 'a multitude of possible futures' (p2) and she recognises that changing the thousands of years humans have devoted to 'predict, control and understand the future'(p2) requires 'an evolution of human consciousness' (p2).

Gidley charts the beginning of the 50 year history of the study of the future as beginning with the man who coined the word 'futurology' just after the second world war – German Professor Ossip K. Flechtheim, but acknowledged that contemporaneously in France philosopher and educator Gaston Berger coined the term 'prospective' when he set up arguably the first futures studies centre – the Centre Internationale de Prospective in Paris. Continuing the French tradition, Bertrand de Jouvenal first published the longest lived futures research journal – Futuribles – in 1960.

In the West, futures studies is most commonly associated with the USA where Gidley notes that Herman Kahn and the RAND Corporation developed the first scenario planning methodology (followed successfully by Pierre Wack at Royal Dutch Shell and more recently Peter Schwartz at the Global Business Network).

Gidley justifies human interest in the future in this way:

> *By understanding how humans in the past have storied and framed the future, we can gain a deeper appreciation of the significance of futures thinking. If we explore 'the past of the future' and its links with 'present-day futures' we will be better prepared to create wiser futures for tomorrow.*

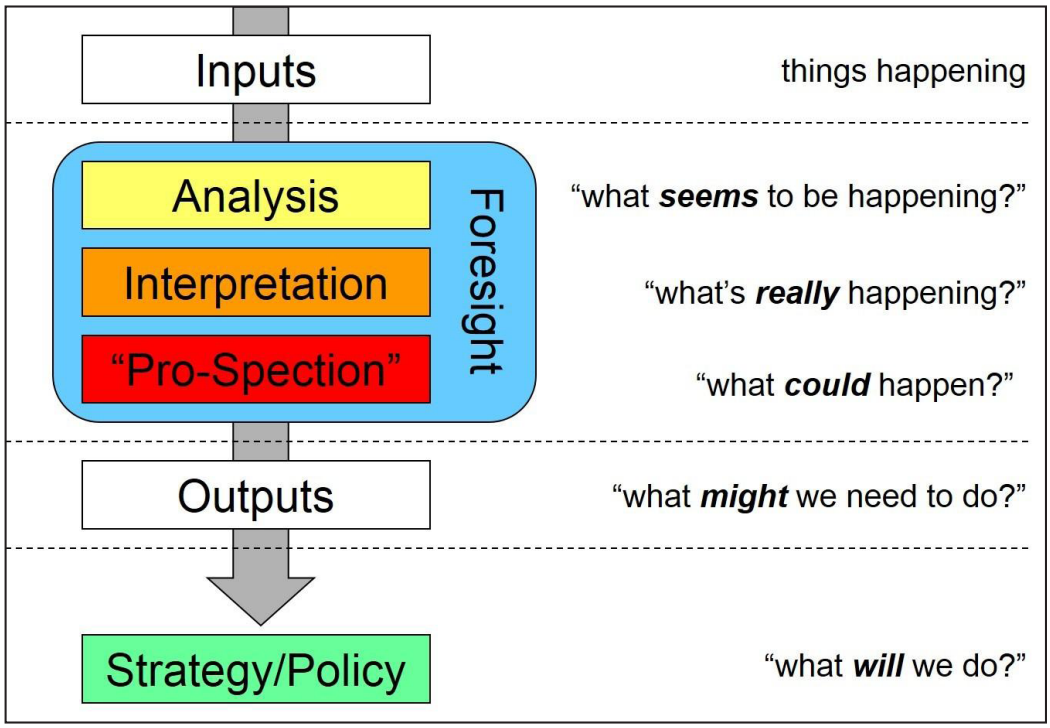
and links it to our evolving understanding of human consciousness. It is to this three thousand year evolution that her first chapter is devoted.

The second chapter more explicitly explores the evolving recognition that (despite our best efforts) the future cannot be predicted, and hence acknowledging multiple alternatives is a better way to effectively engage with the future. Over 20 pages Gidley explores the development of this way of thinking about the future, culminating in what she calls the "Swinburne Approach" since it was largely developed by Joseph Voros as part of the

> *"The future has been prophesised, divined, imagined, colonised, feared, forecast, strategized and created.*

Swinburne University Master of Strategic Foresight course. It represents a generic foresight process graphically as:

GENERIC FORESIGHT MODEL



(p60)

Chapter 3 looks in more detail at the evolution of academic scholarship in futures studies, focussing particularly on foresight luminaries such as Johann Galtung, Eleanora Massini, Elise Boulding and Sohail Inayatullah. It pays particular homage to the Integral Futures concept developed by Richard Slaughter out of the ideas of contemporary American philosopher Ken Wilber. Gidley also acknowledges the practical work of organisations such as Stewart Brand's "The Long Now Foundation" which has developed, amongst other things, a 10,000 year clock.

Chapter 4 (called Crystal Balls, flying cars and robots) focuses on popular conceptions (and misconceptions) about the future. Much of it focuses on the development of robots and other artificial intelligence and it muses on the possibilities surrounding the singularity and trans-humanism – a theme that is taken up in more detail in Chapter 5 which explicitly explores two contrasting futures for humanity – techno-utopian or human-centred – and is best summarised by quoting its last sentence: "the human futures terrain is vast and complex, and this chapter should be read as the beginning of a conversation that has barely begun' (p115).

Gidley's final chapter focuses on what she calls 'grand futures challenges'. These challenges include environmental trends and surprises, trends and twists in global power, socio-cultural trends and counter-trends, the gran urbanisation challenge and the grand education challenge. Each of these challenges have been discussed from multiple perspectives by different practitioners and Gidley provides a succinct but comprehensive summary of each of these.

As Gidley says in her conclusion: "The future has been prophesised, divined, imagined, colonised, feared, forecast, strategized and created. As multifaceted as humanity itself, the future can never be fully known, predicted or controlled, but it can be better understood" (p136). She deserves congratulations for helping a lay audience better understand it.

Signals in the Noise

THESE ARE THE JOBS WE'LL ALL WANT IN 10 YEARS' TIME

by Caroline O'Donoghue

Microchips are not new, but the practice of routinely implanting them in humans is. Already, biohackers are enthusiastically getting chipped, many of them undergoing the DIY surgery in tattoo parlors. With small radio frequency identification (RFID) chips implanted in their hands or wrists these citizen cyborgs can already eliminate many tedious rituals from their daily lives, like carrying a wallet or keys.

"The answer is 'coding', isn't it?" I'm telling a friend about this feature on jobs of the future, and she's exhausted already. "I'm so tired of hearing that, to get work in 2027, I must learn how to code. What if I don't have time for that?"

I don't blame her: it can feel like the only future-proof career advice is 'become a tech whiz and launch an app'. It's true that 47% of jobs could be mechanised – financial software could put accountants out of a job; artificial intelligence (AI) may replace customer service; Google is even funding a news agency where computers write the stories. But while certain industries will change, it's more about how we change with them. So, if you're looking for a job switch, consider one of these…

> *"Google is even funding a news agency where computers write the stories.*

AI PERSONALITY WRITER

The days of automated 'I didn't catch that?' responses are dwindling, and working with sophisticated AI, the English students of today could be the personality writers of tomorrow. That means devising complex responses and lifelike character profiles – your AI could be Erin from Leeds who loves hiking and Ed Sheeran. "Robots could, say, distinguish between a real and fake smile, or whether someone is stressed because they're tired or they're lying," says David Woods of London Futurists. Keeping up with automation? Look to your creativity.

CLIMATE CHANGE REVERSAL SPECIALIST

Unless you're Donald Trump, you'll accept that climate change is a threat. Currently, the focus is on preventing further damage, but soon we'll have to look at reversing it altogether. A report by Fast Future, The Shape Of Jobs To Come, says a "new breed of engineer-scientists… need to apply multi-disciplinary solutions, such as erecting giant umbrellas to deflect the sun's rays". Reversal specialists will need to rebuild ecosystems such as rainforests and ocean beds, too.

INTERNET/SOCIAL MEDIA LAWYER

With 5.8 million cybercrimes a year, and Facebook and Twitter incidents reported every 45 minutes, lawyers dealing with these will be a hot commodity. Rupinder Bains is MD of internet law firm Pinder Reaux & Associates. "We've taken on many bullying and trolling cases," she says, "and have recently succeeded in forcing Facebook to disclose details of the bullies. We were the first firm to do this, which shows the importance of social media lawyers."

Signals in the Noise

THESE ARE THE JOBS WE'LL ALL WANT IN 10 YEARS' TIME

PHARMER

Yep, that's 'farmer' with a 'p'. With global water shortages inevitable – it's predicted southern Africa alone will see a 15% decline in wheat by 2030 – the genetically modified market is about to explode. Enter the pharmer, who uses both tech and agricultural know-how to raise carefully engineered crops and livestock to improve harvest. "Crops may also be grown with beneficial chemicals – think 'cancer curing' sunflowers," says futurist Rohit Talwar. We'll also see a boom in 'vertical farming': "hydroponically-fed food grown under artificial light in multi-storey buildings to save water", according to Rohit. These are kicking off in places such as New Jersey (claimed to be the world's largest indoor vertical farm at 70,000 sq ft), Dundee and Deptford.

PROSTHETICS TECHNICIAN

As long as there have been legs, there have been fake legs. But mind-controlled 'smart' prosthetics are set to become more common. Anyone with an engineering background will want to bone up on... well, bones. "There will be a rise in the number of implantable devices, which will help us to navigate the world and better understand our biology," says Professor Andy Miah, chair in Science Communication and Future Media at the University of Salford. "Skills to help people adjust to these devices will become crucial." So physical disabilities will be managed very differently in 2027.

NEURO-ENHANCER

You know when you're really focused on a piece of work and totally in the zone? There'll be a pill for that, Limitless-style – and an entire industry to go with it. "It's what we call 'getting into the flow'," says David. "And there'll be drugs to get to that state more quickly. Some people might say it's cheating, but I think it'll be huge. The more we learn about the brain, the more we want it to work faster." And anyone with a psychological or pharmaceutical background is going to want to brush up on these, in David's words, "mental orgasms". Oo-er.

Signals in the Noise

THESE ARE THE JOBS WE'LL ALL WANT IN 10 YEARS' TIME

VIRTUAL REALITY (VR) DIRECTOR

A degree in film studies has rarely been a passport to riches – until now. VR is the biggest thing in tech: Facebook has invested around £1.5billion in it, and Google sells boxy VR headsets for £15. It's up to the next generation of creatives to come up with stories that people want to snap on a headset for, and turn VR from a niche interest to the 21st-century equivalent of cinema.

TIME BROKER

'Time banks' may sound like places for Doctor Who to charge her Tardis, but the concept isn't from a sci-fi novel. Time banking assumes time is more valuable than money, so if you 'deposit' an hour – say, by helping an elderly person in the community – you earn a 'time credit', with which you can 'buy' an hour of someone else's time. "Time-banking already exists [visit timebanking.org], but 'time broker' will become a serious profession as time credits become real currency," says Rohit. It feels like a no-brainer: as freelancers are expected to make up over 40% of the workforce by 2020, assigning currency to your time may be a natural conclusion.

ESPORT ATHLETE

In 2014, Amazon snapped up Twitch – which live-streams gaming – for $970million. Yep, that's almost $1billion (approx £857million) to watch people playing video games. It's a thriving mini-industry and, says Professor Miah, "As eSports rise, so do the prize money and the number of events." In 2016, the League of Legends World Championship had a prize pool of more than £3.7million. "Players are signed to world clubs, and traditional sports are looking to eSports for the next generation of athletes." Turns out all those hours spent playing Crash Bandicoot didn't go to waste.

OLD-AGE WELLNESS MANAGER

By 2030, over-65s will make up 12% of the world's population; in 2015 it was just 8.5%. So the demand for elderly-care specialists will soar, along with complex supplements and memory-enhancing drugs, according to The Shape Of Jobs To Come. An "old-age wellness manager" will, it says, bridge clients' needs for medical care, housing, transport, skills development, social care and more. And this role is predicted to create the largest number of future jobs of any sector.

5 SKILLS TO KEEP YOU EMPLOYABLE

Emotional intelligence. Because a robot doesn't know what a faux pas is, but you do.

Trendspotting. Unless you want to go the way of Nokia's 3210, you need to know when a market is changing.

Brand-building. Online presence is essential in the gig economy.

Pivoting. When digital cameras started to fade out, Fujifilm launched 'photogenic beauty' skincare. Now, they're bigger than Kodak.

Presenting. Explaining new software in a human way is irreplaceable.

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