

WHAT IF... We experienced the fiture?



AXA FORESIGHT REPORT 2025

About the AXA Foresight Team

Insurance is built on future potential events. Its success is based on understanding and anticipating them through the best possible vision of tomorrow. This is the role of the AXA Foresight Team: to provide a lens into futures by identifying emerging trends for the years ahead to better navigate uncertain times. Examining long-term transformations and their related challenges aims at identifying the ways in which our societies may be affected in the future and what role insurance might play in a fast-changing world.



AXA Group Chief Communications, Brand & Sustainability Officer

As AXA celebrates its 40th anniversary, we find ourselves at a unique moment in time. This milestone, often seen as a mid-life point, offers an opportunity for introspection and forward-thinking. It is a time to reflect on our journey and imagine the myriad possibilities that we could create to build our future.

In a world marked by major uncertainties and rapid transformations, it is critical to keep our capability to project ourselves, not only to envision the future, but also to act on it in the present without being constrained by immediate pressures.

At AXA, we believe that while life may be full of risks, the future should not be one of them. This publication embodies our commitment to exploring various opportunities that lie ahead, offering a safe space for reflection and preparation.

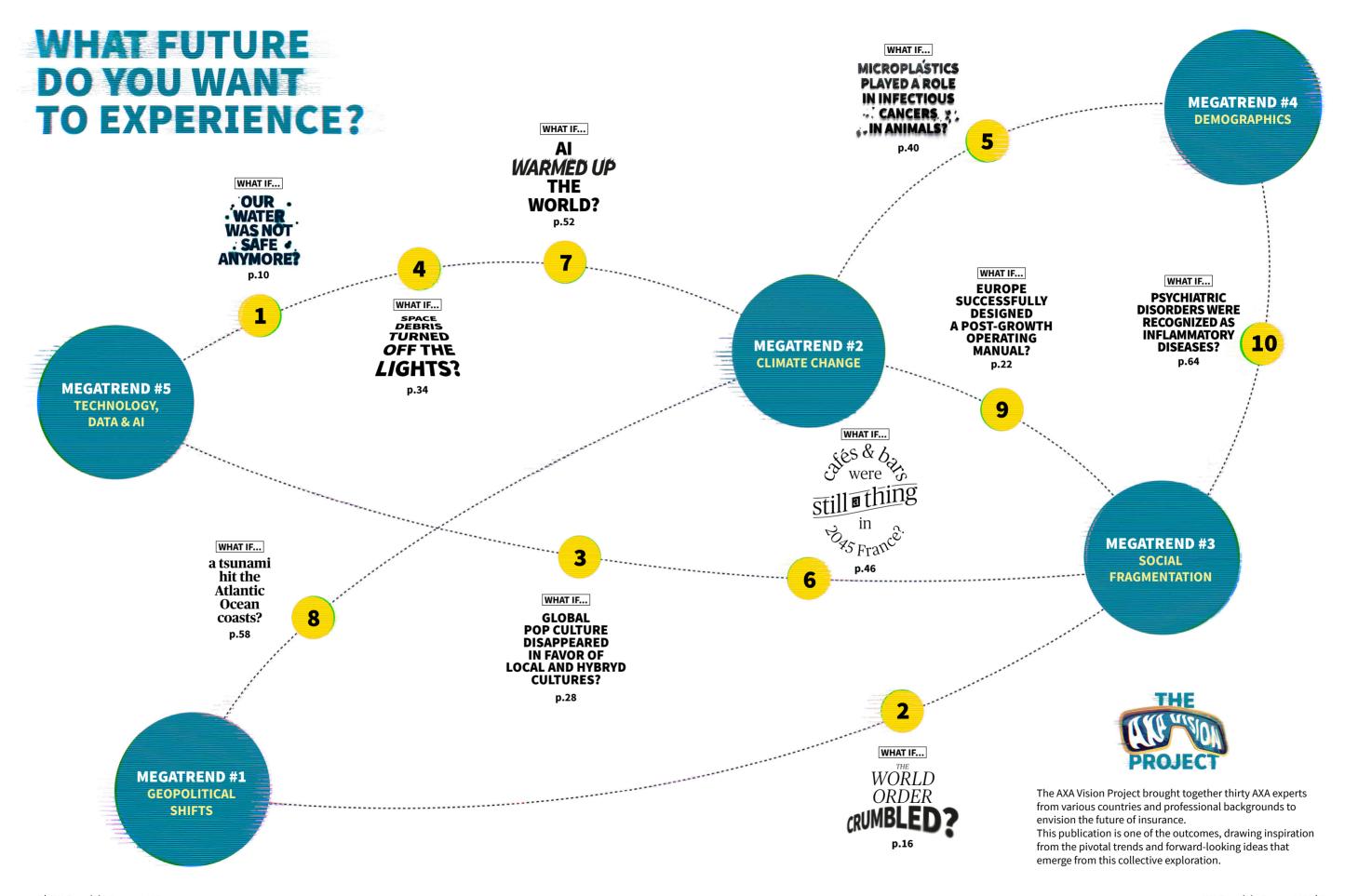
In the following pages, through the lens of 'what if' scenarios, we invite you to explore diverse narratives based on five megatrends — from the geopolitical shifts that could reshape our world, to technological innovations, climate challenges, or social fragmentations. It is indeed plausible that, in a few decades from now, our tap water systems could be compromised by new forms of cyber origin incidents or contamination or that space debris could plunge entire regions into darkness.

On the other hand, our cities can still thrive as vibrant hubs for cultural and social exchange, where mental and physical well-being are prioritized for future generations.

These narratives, crafted by leading experts, are not just abstract projections but also concrete possible stories that help us envision and navigate possible futures — regardless their desirability. All scenarios enable us to vividly contemplate future challenges — and opportunities, examining the long-term insurability and highlighting the crucial role of proactive prevention measures to enhance resilience.

I invite you to immerse yourselves in these stories. Some may seem brighter than others, but each offers valuable insights and opportunities for learning and adaptation.

Ultimately, this foresight exercise is a crucial step towards understanding and preventing risks, ensuring a sustainable future for generations to come.



4 | AXA Foresight Report 2025 AXA Foresight Report 2025

There are two types of organization that must constantly project themselves in the future: the military and insurance companies. Indeed, risks and uncertainties are central to our core activities, and anticipating them is pivotal for preparing and adapting to an evolving context.

To decipher the complex world we live in today and to imagine the future challenges facing the insurance industry, we employed a collaborative approach gathering insights from a diverse group of internal experts across regions and cultural backgrounds.

These insights have led us to identify five key megatrends.

by the AXA Group Strategy Team



Navigating a multipolar world with uncertain alliances ahead

The insurance industry will be influenced by a shift toward geopolitical fragmentation, characterized by divergent macroeconomic growth and the changing roles of governments. Over the next decade, we foresee increased polarization, largely driven by the rivalry between the United States (US) and China, along with the emergence of new geopolitical blocs. This fragmentation could also lead to greater social concerns for insurers. Notably, the US is projected to capture more than half of global insurance market growth, followed by Asia (26%), particularly India and China, and Europe (15%).



Climate realities, adaptation and resilience

The intensifying effects of climate change will increase the frequency and severity of natural disasters, resulting in higher claims and greater uncertainty for insurers. To address these evolving challenges, the industry must develop innovative risk assessment models and products. Additionally, insurers will play a critical role in promoting prevention, sustainability, and resilience to mitigate the impacts of climate change on their portfolios and society at large.





Addressing the protection gap

We are entering a "poly-crisis" world, where risks are increasingly interconnected. The interplay between climate change and geopolitical/ economic fractures will bring issues of insurability and affordability to the forefront. As public authorities face budgetary constraints, protection gaps are expected to widen, presenting opportunities for private insurers, especially in health and catastrophe protection. These protection gaps, along with increasing financial difficulties affecting a larger segment of the population, will exacerbate social fragmentation by widening disparities in access to essential services and support. Ultimately, inequality and division within communities will rise.



Challenges for intergenerational solidarity

The global population is aging due to declining fertility rates and increased life expectancy, driven by advancements in medical technology. These demographic shifts will reshape customer needs, driving growth in health insurance and retirement solutions, while also impacting workforce dynamics and employee expectations within the insurance sector.



Balancing innovation and control

The rise of generative AI is set to transform the customer experience profoundly. Technology offers significant opportunities for optimization and automation across the insurance value chain. The integration of AI will reshape our operations and customer relationships, potentially altering competitive dynamics in the industry.

At AXA, we are committed to playing a pivotal role in addressing these emerging trends. By leveraging our expertise, we are confident in our ability to navigate the evolving landscape while continuing to protect our policyholders and contribute to building a resilient society.

While these trends are crucial for understanding the immediate questioning for the insurance industry, they also carry broader societal impacts, as concretely demonstrated in the upcoming scenarios.

Experience the future. Each scenario has its own rhythm. Its own soundscape.

rhythm. Its own soundscape. We've crafted a playlist to immerse you fully — song, story, atmosphere, all in sync.

Scan. Listen. Dive in.



What if...

10 titles, 48 min



Scan or click here



... our water was not safe anymore? Amsterdam • Netherlands • 2035 • 8:16



... the world order crumbled? New York • USA • 2035 • 5:21



... Europe successfully designed a post-growth operating manual? Strasbourg • France • 2035 • 3:57



... global pop culture disappeared in favor of local and hybrid culture? Chile • South America • 2040 • 5:27



... space debris turned off the lights? Pacific Island and Space • 2042 • 2:13



... microplastics played a role in infectious cancers in animals? Kristiansand • Norway • 2045 • 5:09



... cafés and bars were still a thing in 2045 France? Paris • France • 2045 • 5:12



... Al warmed up the world? Riyadh • Saudi Arabia • 2050 • 2:06



... a tsunami hit the atlantic ocean coasts?
Lisbon • Portugal • 2055 • 4:23



... psychiatric disorders were recognized as inflammatory diseases?

London • United Kingdom • 2065 • 6:33



by Olivier Desbiey, AXA Group Head of Foresight

WHAT IF. Just two simple words that capture the essence of foresight. They invite imagination as the ability to project possible futures, while maintaining a sense of reality.

Experimenting this type of exercise means accepting the future as a safe place. With bold thinking, where we can test radical ideas, challenge assumptions, and imagine disruptions without fearing direct real-world consequences. Exposed to these possible futures, we equip ourselves with the mental agility to respond to uncertainty. This is exactly the purpose of the ten "what if" scenarios that follow.

How these scenarios are built

They emerge at the intersection of key trends identified through the AXA Vision Project. The five megatrends — also echoing to some of the global risks of the Future Risk Report — are pivotal in shaping the future of society and the evolving needs for protection. They serve as a basis on which a selection of experts including researchers, journalists, hackers, designers, entrepreneurs and futurists have developed scenarios.

The authors have been asked to write about future break-up (whether positive or negative) that could occur from 2035 to 2065 and to contextualize their stories: with a trigger event happening in a specific time horizon, geography and in a certain socioeconomic or geopolitical context, as the case may be.

Though speculative, they are built on weak signals and emerging trends we can observe today as reflected on a scale of plausibility assessed by their authors. Foresight is not about predicting the future but about expanding our thinking around what is plausible. Where prediction assumes a single, inevitable outcome; plausibility embraces uncertainty opening the door to multiple possibilities.

By exploring these speculative yet plausible pathways, we aim to inspire action now for a more resilient future.



203120322033

2034

2035 4

2036

2037

2038

2039

2040

2041

2042

2043

2044

20452046204720482049205020512052

2057

2058

2059

2060

2061

206220632064

2065

WHAT IF...

OUR WAS NOT **ANYMORE?**

by Esther Crauser-Delbourg

Water Economist, co-founder of Water Wiser



TRIGGER EVENT

For decades, Amsterdam was considered a model city when it came to water — admired worldwide for its historic canals, advanced engineering, and seemingly effortless balance between city life and water management. Water was everywhere and yet invisible: it ran under the streets, flowed through the pipes, filled the taps, and fed the fountains. But as years passed, modern Amsterdammers stopped thinking about it. Water was a given — always available, always safe, endlessly flowing with a simple turn of the tap.

Meanwhile, the city's pipes and treatment facilities — many dating back to the early 20th century — aged quietly underfoot. Efforts to upgrade them were often delayed, too costly, or deemed unnecessary. The public didn't see them, and politicians had little incentive to prioritize what wasn't visible. We buried our infrastructure — not just physically, but mentally. After all, who wanted to think about old, rusting water pipes when life was comfortable and modern?

By 2035, Amsterdam, like many cities in Europe, had lost much of its precise knowledge of where some of these pipes ran, what condition they were in, and how the entire system would hold under stress. This collective negligence sets the stage for one of the city's most profound crises.

PLAUSIBILITY

30-50%

Key uncertainties include the state of aging water infrastructure in old European cities.

Vulnerabilities like pipe corrosion and leaks could lead to contamination, making this scenario disturbingly plausible despite modern monitoring technologies.

A crisis sparked by industrial negligence

The crisis began quietly. In early April 2035, a large chemical plant located near one of Amsterdam's key water catchment zones experienced a malfunction in its storage tanks. Due to an unnoticed technical fault and poor maintenance, large amounts of toxic substances — including industrial solvents and heavy metals — leaked directly into the surrounding groundwater.

Initially, the company responsible downplayed the incident. Routine checks were postponed, and early complaints from nearby residents about odd smells and tastes in their tap water were dismissed as isolated issues. It was only after several days that hospitals began reporting a sharp increase in patients suffering from minor and severe gastrointestinal symptoms, skin irritations, and respiratory problems.

When water authorities finally conducted tests, the results were alarming. Concentrations of dangerous chemicals were well above safe thresholds, and the contamination had already spread through much of the city's water network.



PFAS concerns

As scientists and regulators scrambled to identify all the contaminants present, PFAS (per- and polyfluoroalkyl substances) — also known as "forever chemicals" — became a central and terrifying discovery. Previously, PFAS had been almost invisible to both regulators and water utilities, as most routine water quality tests were not designed to detect them. Now, in the midst of the crisis, PFAS emerged as a new public psychosis.

The realization that PFAS were everywhere — in the water, in the soil, and even in the human body — sparked widespread fear. People began questioning everything: how toxic were these substances really? How long had they been present? And why had no one looked for them before? The scientific uncertainty around the health effects of PFAS, especially long-term exposure, only deepened public anxiety. This new dimension to the crisis underscored not only the visible failures of industrial safety but also the hidden risks accumulated over decades of chemical use without adequate oversight.



The immediate fallout

The city responded with an emergency alert: "DO NOT DRINK, COOK, OR WASH WITH TAP WATER." But the warning came too late for thousands who had already been exposed. Hospitals filled beyond capacity, treating cases ranging from mild poisoning to life-threatening complications. Clinics were set up in schools and public spaces to handle the overflow of patients, and bottled water distribution points were established across the city.

Supermarkets were emptied within hours. What bottled water existed was soon hoarded, and prices soared on the black market. Vulnerable populations — especially the elderly, families with young children, and people with chronic illnesses — were hit hardest. By the end of the first week, there were also growing fears of waterborne disease outbreaks as sanitation systems faltered.

A city forced to adapt overnight

In just a few days, Amsterdam was transformed. A city that had built its reputation on the mastery of water suddenly found itself struggling for every drop of safe water. Daily life, from cooking to washing to industrial production, ground to a halt.

Households learned to adapt with extreme water-saving measures. Cooking shifted to methods that required minimal

or no water: steaming with tiny amounts of liquid, using pressure cookers to reduce water use, and switching to precooked or canned food that didn't require boiling. Even the daily and basic ritual of coffee became a luxury, as people had to weigh whether to use a precious bottle of water for drinking or hygiene.



Hospitals and industry in crisis

Hospitals, unable to function without clean water, were forced to prioritize only the most critical operations. They adopted emergency sterilization procedures, such as UV and hydrogen peroxide vapor disinfection, and shifted to disposable medical tools when available. Handwashing was replaced by alcohol-based disinfectants, but concerns about hygiene remained high.

The city's energy infrastructure also had to adapt. Power plants that relied on water for cooling scrambled to implement dry cooling systems or to access emergency reservoirs not connected to the contaminated network. Industrial facilities dependent on water — from food production to cleaning — shut down or operated at drastically reduced capacity.

A sharp decline in water use and new habits

One of the most striking outcomes of the crisis was the rapid reduction in water consumption. Within weeks, overall water use dropped by 30%, as households and businesses adjusted to new constraints. People learned to reuse greywater from dishes to flush toilets or to clean floors. In public discourse, water conservation — once an abstract environmental issue — became a central part of everyday conversation. Citizens began to see water as the precious resource it is, not a free-flowing commodity.

From Amsterdam to Delhi: a shared reality

As the crisis deepened, many observers drew comparisons between Amsterdam's situation and the realities faced by millions in cities like Delhi or Lagos, where clean water is often scarce or rationed. Amsterdam, with all its wealth and technological advancement, now faced the same challenges: unsafe drinking water, lack of sanitation, hospitals rationing care, and families lining up for bottled water.

The realization that Europe was not immune to water crises shook the public and policymakers alike. For many, it was the first time they truly understood what it meant to live without guaranteed access to safe water — a daily reality in many parts of the world.



12 | AXA Foresight Report 2025 AXA Foresight Report 2025 | 13

Lessons learned and a path forward

- Despite the suffering, the crisis became a turning point.
 Once the contamination was brought under control a process that took months of intense cleanup and infrastructure repairs Amsterdam began a deep transformation of its water management systems.
- Massive investments were made to map and monitor the entire water network, using smart sensors and AI-based monitoring to detect anomalies in real time. Water treatment facilities were upgraded to handle a broader range of chemical threats, including PFAS, and industrial regulation was overhauled to ensure that no facility could threaten the water system so easily again. Although no technology or investments could realistically get rid of PFAS from waters and soils, the transition towards cleaning and transforming production processes had begun.
- Moreover, public awareness of water's value led to lasting changes in behavior. The emergency adaptations — shorter showers, efficient cooking, water recycling — became permanent habits for many households. Industries also invested in water-efficient processes, and new building codes mandated the inclusion of greywater recycling and rainwater harvesting systems in new developments.





A story of resilience and reinvention

In the end, Amsterdam emerged stronger. The crisis exposed deep vulnerabilities but also revealed the city's capacity to adapt and innovate. What was once seen as a purely technical issue — managing water supply — became a collective social and political priority.

Amsterdam's story became a model for other cities, showing that no urban center, no matter how advanced, is immune to water risks, and that resilience requires preparation, transparency, and active public engagement. The city that had built its history on water was forced to relearn how to live with and care for it.



Esther Crauser-Delbourg, Water Economist, co-founder of Water Wiser

Building a scenario on our waters being hacked was a disturbing exercise: it raised many anxieties I personally have on how vulnerable and dependent we are regarding the safety of our tap water. Specifically in France, few people know about the real value of water, nor how much we truly need it daily. Having spoken to many organizations responsible for our water security, I understand that such an attack could not be possible — however traces of chemical poisoning within local neighborhoods or in specific buildings could easily happen.

On a positive note, we have all the solutions we need. First of all, we need to be better informed and equipped about our water consumption and water quality at home. We need to be empowered to use less, even more so in times of scarcity, through real-time information, optimized habits and soft technologies. Each of us should know the location and whereabouts of our water pipes at home — instead of dreading to call a plumber when we notice a leak. And if ever faced with a water quality crisis, we should be able to easily sterilize our water with existing chemicals available at any pharmacy.

WHAT'S NEXT FOR RISK?



"The insurance sector is challenged to become a proactive support mechanism for helping society solve emerging risks like large-scale water contamination."

For decades, the insurance market has been triggered by unexpected threats, raising awareness on topics that were either previously unaddressed or no longer perceived as potential disruptors for the market. One clear example is the pandemic in 2020: it hit the world hard and, even though in the old times the insurers had a specific "Out of Scope" clause in the policy, the topic simply slipped away from the landscape over the years. In case of COVID, the insurers have been "surprised" by the interconnections among different risks (health, life, business interruption), raising the need for reviewing products and services accordingly.

The scenario presented here, involving a large-scale contamination of the water supply, could have a similarly disruptive impact. But from an underwriting perspective the implications would vary significantly depending on whether the cause is a deliberate act such as a "malicious" attack or in case of a long-term environmental pollution.

Elena RASA, P&C Retail Group Chief Underwriting Officer at AXA Group

In the first case, the implications for the insurance market could be potentially significant: the liability and cyber covers will be triggered, the business interruption on impacted industries and health sectors will be high, health&life policies will be activated. Again, the insurers will have to manage such a difficult case but with a sound and solid technical foundation, the complexity can be effectively managed. The case of environmental pollution is slightly different; it evokes memories of the "asbestos" risk but comes with significant uncertainty regarding the level of vulnerability the trigger may pose to human well-being and society as a whole. However, the trigger of contaminated water supply on public health and individuals amplifies the challenge of the insurance sector as a "social responsibility" body, becoming a proactive support for helping the society to solve the issue, with innovative solutions for preventing and mitigating emerging risks of this type. The lessons learnt by the insurance market during the pandemic experience, the incredible resilience proved by every impacted industry and the continuous improvements in the new generation of technologies (based on GenAI, AI and much more) helped and will help more and more the speed of the decision-making process and the deployment of effective solutions, when new threats arise.

Sources

Szabo, J., Witt, S., Sojda, N., Schupp, D., & Magnuson, M. (2023). Flushing home plumbing pipes contaminated with aqueous film-forming foam containing per- and polyfluoroalkyl substances. *Journal of Environmental Engineering (New York)*, 149(9), 1–8. doi.org/10.1061/joeedu.eeeng-7315

European Commission - CORDIS. Strategic, tactical, operational protection of water infrastructure against cyber-physical hreats (STOP-IT) project.



TRIGGER EVENT

On November 7th, 2035,

the global community witnessed the unthinkable: the Deputy Secretary-General of the United Nations declared that the organization, founded in the aftermath of World War II to ensure peace and cooperation, was on the brink of collapse. Negotiations to appoint a new Secretary-General had dragged on for ten months, paralyzed by vetoes and political deadlock within the Security Council. This is the latest blow in a series of setbacks to global organizations, from World Health Organization (WHO) and International Monetary Fund (IMF) to World Trade Organization (WTO), and now, the United Nations (UN) itself. The announcement marks the end of an era in international relations, with profound implications for global governance,

PLAUSIBILITY

50%

While the UN remains an emblematic organization, declaration, decisions (e.g., exiting the Paris agreement on Climate or the UN Human Right Council, for the most recent and geopolitical relationship are increasing reminders that the time of multilateralism is coming to an end, if not already over. WHO lost significant part of its finance, WTO is in a grid lock and the number of countries defaulting on IMF loan is increasing. While multilateralism, compromise, consensus and global agreement used to be the cornerstone of the UN, the organization may not survive the current multiple strong conflicting interests rocking global geopolitics.

GLOBAL AFFAIRS Weekly

NOVEMBER 14TH2035

A WORLD DIVIDED: THE RISE OF REGIONAL POWERS IN A FRAGMENTED GLOBAL ORDER



A fractured global landscape

The collapse of the UN didn't occur in a vacuum. Tensions had been building for over a decade, rooted in the growing divide between the "old world order" powers and the emerging BRICS nations. China, Russia, India, Brazil, and South Africa had long sought to challenge the dominance of Western institutions, forming parallel structures and alliances. Additionally, Western democracies' positions increasingly became at odds with each other, especially between the US and European countries. The gridlock that characterized the UN's final years – from climate negotiations to peacekeeping efforts only deepened the rift.

The UN is the latest organization to fall victim of countries turning inward, prioritizing regional alliances and self-reliance. The severe decline in financing (e.g., WHO), stalemate over global issues (e.g., COPs for climate change), and lack of progress in negotiations (e.g., WTO), have all advanced bi-lateral agreements and promoted regional blocs like the European Union and BRICS as the primary platforms for addressing global challenges. However, these efforts lack the coherence and inclusivity that the global organizations once provided.

"The UN's dissolution represents not just the end of an institution but the collapse of an idea: that humanity can come together to address its shared problems," says Dr. Elena Martinez, a geopolitical analyst. "We are entering an era of fragmentation, where power dynamics are dictated by regional interests and alliances."

Consequences beyond politics

The impact of the UN's collapse extends far beyond diplomacy. Global efforts to combat climate change have stalled, with the Paris Agreement effectively voided. Climate negotiations, once a hallmark of UN leadership, are now fragmented across competing blocs. Meanwhile, the absence of a unified platform for nuclear disarmament and arms control raises the specter of renewed arms races, and the absence of international coordination threatens the safety and reliability of worldwide commercial routes and trade.

International NGOs and humanitarian organizations, many of which relied on UN coordination, are struggling to adapt to the new landscape. In conflict zones, the absence of peacekeeping forces has left a vacuum, with regional powers stepping in – often with mixed results, while piracy thrives once again. Major international trade routes are disrupted or cut for prolonged periods of time, such as the Suez Canal and the new IMEC between India and Europe

to appoint a new Secretary-General in 2035 was merely the final blow.

A glimpse of the future

As the dust settles, the world is grappling with a new reality. Regional powers are asserting themselves, but their ability to address global challenges remains untested and conflicting interests are exacerbating tensions. Experts warn that this "era of blocs" could lead to increased competition

"The collapse of the UN is not just a historical moment; it's a call to action. We must find new ways to collaborate and innovate, or risk repeating the mistakes of the past."

Dr. Martinez, Geopolitical analyst

because of tensions in the Middle East, the new Artic route because of tensions between the US, Russia and Europe, or the Intra-Asia route because of tensions between China and its neighbors.

The roots of collapse

The seeds of the UN and other global organizations' downfall were sown in the 2020s. The COVID-19 pandemic and the war in Ukraine exposed the limitations of multilateral institutions in responding to global crises. Credibility in organizations, such as WHO, was severely damaged by misinformation and conspiracy theories, while others, such as WTO, failed to find compromises to reach a global agreement perceived as beneficial to all. The United States cut its contributions and retreated from international leadership during President Donald Trump's second term, which further weakened these organizations. Meanwhile, China's strategic investments in technology and infrastructure bolstered its influence, enabling it to spearhead the creation of alternative institutions.

By the early 2030s, the UN's ability to mediate conflicts and coordinate global action had been eroded. The failure and conflict, particularly in areas like trade, technology, and resource access.

"The collapse of the UN is not just a historical moment; it's a call to action," says Dr. Martinez. "We must find new ways to collaborate and innovate, or risk repeating the mistakes of the past."

Mitigating the fallout

For industries like insurance, the fragmentation of global governance presents both risks and opportunities. Companies must adapt to a more localized, unpredictable landscape. Leveraging local resources, technologies, and partnerships will be key to navigating this era of uncertainty.

Insurance providers can play a vital role in mitigating risks associated with global instabilities. From supporting climate resilience projects to offering coverage for supply chain disruptions, the industry has a unique opportunity to foster confidence in an uncertain world

As humanity navigates this new chapter, one thing is clear: the future will be shaped not by a single institution, but by the collective actions of nations, regions, and individuals. The challenge is immense – but so is the potential for renewal.

18 | AXA Foresight Report 2025 AXA Foresight Report 2025



Mathieu Cousin Threat Anticipation Lead, AXA XL

The UN is an emblematic organization, perceived by some as a guarantor of global security and peace. Yet, it is also emblematic of the world that followed the Second World War, built by its victors, and representing globalization and the "Western world order" to those who dream of an alternative, such as the BRICS and the Global South.

The rise of populism, nationalism and protectionism, has severely exacerbated geopolitical tensions and the ability to find consensus within global organizations has been severely eroded. As members repeatedly veto each other, paralyzing decisions and

failing to reach agreements, the value and usefulness of these international bodies are increasingly questioned. This trend is accelerating further in 2025, in the image of the new geopolitical stance of the Trump administration, preferring one-to-one "deals" to global agreements, and challenging and shaking historical alliances. At a time when national interest and bold statement win popular votes, global alignment and consensus take the back seat, further increasing the threats from global challenges, such as climate change.



What's next for risk?

The collapse of the United Nations signals the end of multilateralism. For insurers, this presents both significant challenges and new opportunities.

One major challenge is the loss of international cooperation on global public goods, such as combating climate change. Without coordinated mitigation efforts, global resilience is set to weaken. Extreme weather events may become even more frequent and severe, increasing insured losses and undermining risk models. Similarly, the demise of multilateralism heightens exposure to pandemics; the lack of a unified response could accelerate the spread of disease, driving up claims in life, health, and business interruption insurance.

Cybersecurity threats also loom larger without international coordination, increasing insurers' exposure to systemic cyber risks. More specifically, the erosion of global security disrupts trade routes, intensifying risks for marine and political risk insurers.

Conversely, the rise of regional blocs could present new avenues to explore, potentially leading to the development of new markets for customized products, such as trade credit insurance. The private sector, including insurers, may also play a greater role in promoting decarbonization along

value chains, partially filling the void left by declining public efforts.

Insurance providers can play a vital role in mitigating risks associated with global instabilities. From supporting climate resilience projects to offering coverage for supply chain disruptions, the industry has a unique opportunity to foster confidence in an uncertain world.

As humanity navigates this new chapter, one thing is clear: the future will be shaped not by a single institution, but by the collective actions of nations, regions, and individuals. The challenge is immense – but so is the potential for renewal.



Dr. Kai-Uwe Schanz, Managing Director and Co-Founder at Purpose for Insurance AG



Sources

The Geneva Association. (2023). Insurance in a fragmented world economy.

European Commission. (2023). 2023 Strategic foresight report: Sustainability and people's wellbeing at the heart of Europe's open strategic autonomy.

20 | AXA Foresight Report 2025 | 21



European Parliament 1 All. du Printemps 67000 Strasbourg



President of the European Commission

Strasbourg, France. European Parliament. September 1, 2035

Honourable Members of the European Parliament,

Fellow Europeans,

Today, we stand at the precipice of a new age. It is not an age of conquest, nor an age of endless accumulation. It is the dawn of an era of responsibility — an era where we have cast aside the reckless pursuit of growth and have embraced **the wisdom of stability**.

Europe, our great continent, has undergone a transformation not seen since the days of its rebirth after war and ruin. And as I speak to you today, I do so in the spirit of those who came before us, those who shaped our history through courage, perseverance, and indomitable will. In times of great challenge, we do not flinch, we forge ahead.

There was a time when our economic model was built on the belief that more was always better, that progress was measured in percentages, that growth was our unquestioned gospel. But let us speak plainly: **the unchecked pursuit of growth brought us perilously close to disaster**. It brought with it ecological ruin, deep divisions between rich and poor, and the false hope that endless consumption could bring true prosperity. But let it be known: **Europe has chosen a different path**.

As we look back at the past decade, we see it clearly — a time of crisis, yes, but also of revelation. We saw our climate pushed to the brink, with floods, wildfires, and droughts striking every corner of our Union. We saw wealth accumulate in fewer and fewer hands, while the many toiled for diminishing returns.

We saw the illusion of boundless energy shattered, as resources dwindled, and the specter of scarcity loomed over us. Some said we were doomed, that our civilization was reaching its twilight.

They underestimated the European spirit.

Like a ship caught in a tempest, we could have let the storm break us. But instead, we seized the helm and charted a new course. **The European Union committed itself to a new vision, one where wellbeing, not mere expansion, would be the measure of success**. In 2028, we took our first decisive step, breaking away from the old dogma. We established the **Spaceship Europe Act** — not to chase growth at any cost, but to secure a dignified life for all, within the means of **our spaceship — our continent and our planet**.

Let it be recorded in the annals of history: Europe is no longer a continent enslaved by the tyranny of growth. Instead, we are pioneers of **a balanced**, **steady-state economy**. We have prioritized quality over quantity, wellbeing over wealth, and resilience over reckless expansion.

We have restructured our industries to prioritize sustainability over short-term profits. No longer do we build to discard — our goods are built to last. Waste has been curtailed, planned obsolescence abolished.

We have redefined **prosperity**. Our people no longer live under the yoke of endless consumption. They work fewer hours, with more time for family, for learning, for the simple joys of life.

We have embraced **energy sufficiency**, rather than endless energy production. Fossil fuels are fading into the past, replaced by systems designed not for excess, but for necessity.

We have built an **economy that secures the essentials**: food, shelter, healthcare, and education. No European shall go without these fundamental needs.

Do not mistake this for weakness. Some outside our Union - those who still worship at the altar of perpetual growth — say that we have turned inward, that we have forsaken our ambitions. I say to them: look upon our Europe today and see not decline, but the **resilience** of a people who have chosen **wisdom over folly**. We have not retreated — we have led. We have not surrendered — we have conquered a future worth having.

This journey is not over, and challenges remain. The world around us still clings to old illusions, and some will seek to undermine our course. But history shall prove us right. Just as we rebuilt after war, just as we united after division, so too shall we cement this new age.

We shall not be cowed by those who fear change. We shall not waver when others hesitate. **Europe has chosen its path**, and we shall walk it with heads held high.

And so, my friends, let this be our charge: to stand firm in the face of doubt, to work tirelessly for a future that values not only profit, but **dignity, wisdom, and purpose**. Let the world look upon our continent and know that we are not a civilization in decline, but **a civilization reborn**.

We shall go forward, together, unafraid. And Europe – our beloved Europe – shall endure.

Vive l'Europe!

President of the European Commission



Thomas Gauthier, Professor and Associate Dean at emlyon business school

Everything has been said. Everything has been done. Everything remains to be done. This fictional 2035 State of the European Union address echoes a recurring theme in European history — warnings unheeded, opportunities missed, and the struggle to align ambition with action.

In 1972, Sicco Mansholt, then Vice-President of the Commission of the European Communities, deeply influenced by "*The Limits to Growth*" report commissioned by the Club of Rome, urged a radical departure from the economic dogma of perpetual growth. His letter to Commission President Franco Maria Malfatti was a call for an economic model prioritizing sustainability over expansion.

Yet his vision was met with political inertia. Growth remained the unquestioned pillar of policy, despite mounting ecological and social concerns.

While we are in the midst of a profound ecological backlash, the odds are against any shifting away from reckless expansion. Then how likely is it that Europe will eventually enact systemic change and prove itself to be a significant political force on the global chessboard?

True success lies not in speeches, but in unwavering political will, structural reforms, and the courage to redefine prosperity itself.

SOURCES

Churchill, W. (1940, June 4). We shall fight on the beaches [Speech].

Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. III. (1972). The limits to growth.

Potomac Associates.

Mansholt, S. (1972). Letter from Sicco Mansholt to Franco Maria Malfatti



Martin Powell, AXA Group Sustainability Director

What's next for risk?

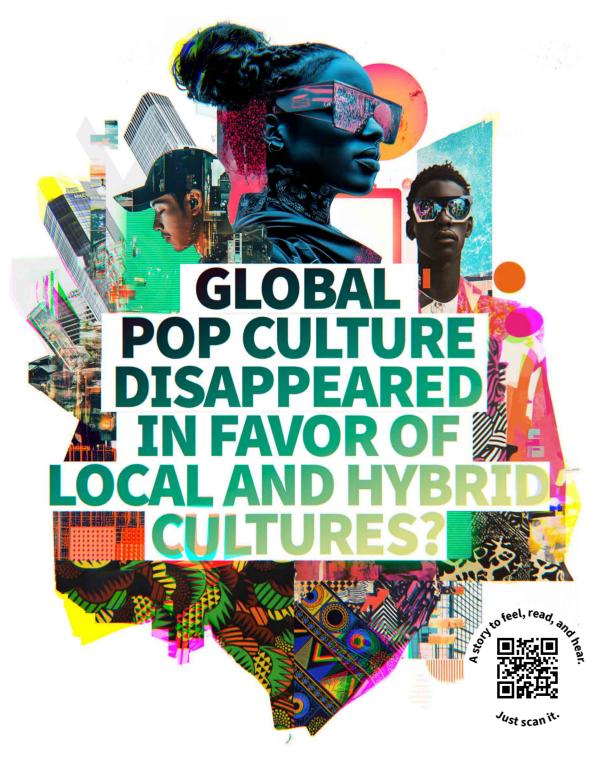
The scenario explored envisions a world where carbon neutrality is not just a goal but a fundamental shift — where entire cities are redesigned around net-zero principles, fossil fuel-heavy industries have been phased out, and carbon pricing has become a key driver of economic policy. In this world, insurance is no longer just about risk transfer but about enabling transformation. At AXA, this ambition is fully embedded in our 'Unlock the Future' strategy: €5bn committed to climate transition financing per year and €6bn to transition underwriting over three years, with decarbonization efforts across our value chain.

At AXA, we believe the future should not be a risk but an opportunity. As society and the economy are undergoing significant transitions driven by demographics, technology and climate change, we aim to serve the purpose of protection and insurability notably through its ability to invest in the global economy, to provide prevention and adaptation services and its expertise in improving resilience against risks. Delivering 9,000+ climate adaptation solutions, from risk prevention to training, alongside the protection of over 20M customers with inclusive insurance by 2026, will support this commitment.



2040 4

WHAT IF...



by Doan Pham

Head of Foresight, Ubisoft Strategic Innovation Lab

TRIGGER EVENT

Chile's demographic wake-up call sparks a Latin American shift

Chile becomes the first Latin American country to face population decline, peaking at 20.54 million in 2040 before shrinking by a third by 2100. With a rapidly aging workforce and growing economic pressures, the government implements progressive migration policies, prioritizing skilled professionals and digital nomads to sustain economic growth.

This shift reverberates across Latin America. Countries facing similar demographic and labor shortages — such as Brazil, Argentina, and Uruguay — adopt their own free-movement agreements, fostering a continental labor market. The creation of interconnected "Talent Hubs" in major cities like Santiago, São Paulo, and Buenos Aires accelerates innovation, particularly in technology, green industries, and creative sectors.

At the same time, climate migration intensifies. Rising sea levels and mega-droughts, heatwaves, torrential floods, water crises and food insecurity displace populations, further fueling intra-regional mobility. Governments respond by developing regional solidarity frameworks, integrating climate refugees into the new labor and cultural ecosystems.

The result? A cultural and economic renaissance. Global pop culture fades in favor of hyper-local, hybrid identities shaped by the new urban mixings. Latin America, once seen as a periphery in the global creative economy, emerges as a powerhouse of cultural reinvention — its cities pulsating with new artistic movements, decentralized tech ecosystems, and experimental industries.





PLAUSIBILITY



The post-2024 world is volatile, shaped by political shifts, economic instability, and climate crises. While Chile's demographic decline and labor shortages create a strong incentive for migration policies, success depends on economic resilience and political stability.

Geopolitically, new cultural and economic hubs are emerging in the Global South. Whether Latin America can establish a cohesive migration framework depends on shifting alliances and regional stability.

On the migratory front, climate disasters and economic disparities will drive population movements, but nationalism and political shifts could lead to policy reversals.

Economically, digital nomadism and decentralized industries support new talent hubs, but sustaining them requires strong infrastructure and investment.

Culturally, the rise of hybrid local identities echoes trends in the Spaceship Europe scenario (see p.22), questioning whether they will reshape the mainstream or coexist with global pop culture.

This transformation hinges on political vision, economic adaptability, and societal buy-in — uncertain but increasingly plausible.

WE ARE VERSION B

OUR MANIFESTO



We believe in the powers of creativity and the arts to resist the disorder of the world.

We are the creators of new cultures that the world has never dared to imagine.

We grew up between Muskies and Swifties, from city to city, from lockdown to lockdown, shaped by natural disasters and pandemics.

We grew up with the explosion of the AI bubble in 2029, the wars over water and disinformation, in a daily life punctuated by power outages and marked by solitude.

We resist uniform, consensual, exclusive pop culture.

We resist pop culture when it is produced in a standardized way by cultural and media powerhouses.

We resist pop culture when it confines us to fixed identities, dominant imaginaries, and sanitized aesthetics.

We resist pop culture that shapes our tastes, our ways of living, and our modes of thinking.

We hybridize cultures.

We intertwine our different cultural identities in interconnected metropolises within a composite archipelago, without hierarchy or central point, extending from Buenos Aires to Ho-Chi-Minh City, passing through Cartagena, Rio de Janeiro, Los Angeles, Marseille, Porto, Dakar, Tangier, Chennai and Kyoto.

We transform our β cities into playgrounds open to the abundance of influences that traverse them.

We clash our countless cultures to better interlace them without domination or dilution and to bring forth the unexpected.

We disrupt globalized cultural distribution platforms.
We rewild the internet.

We hijack technology and recycle past modes of distribution in our underground garages: decentralized networks, clandestine digital libraries, the development of fanzines and webzines, pirate distribution channels via Bluetooth, USB drives, and cloud storage.

We co-create video games within a permacomputing collective that brings together developers from Kyoto, Valparaíso, and Lagos, inspired by the myths of kami, street art, and afrobeat.

We reinvent textile arts with regenerative fabrics made from mycelium by carioca artists, influenced by interweaved patterns of West African wax prints and Japanese wagara in a tropicalist spirit.

We remix tai chi chuan from Chengdu with cumbia from the slums of Buenos Aires and the spiritual dances of South African amapiano.

We are the creators of hybrid cultures.

We regenerate our cities and neighborhoods through our creative power to open to alterity and strangeness.

We create a common ground from the multiplicity of our urban identities. To better inhabit and understand the chaos of the world.



Cultural fragmentation and the explosion of subcultures are already on the horizon.

Today, pop culture, fueled by the virality of entertainment, is hyper-powerful. However, there is a sense of fatigue towards blockbusters and franchises: we feel an oversaturation, we are tired of these universes and narratives that struggle to find new breath. Moreover, there is a huge mental fatigue, a generalized "brain rot" as the content offer explodes and we are bombarded with injunctions of cultural "consumption". Among the signs of cultural fragmentation, Mubi, the niche streaming platform specializing in auteur cinema based in London, is a fine example. The unexpected success of the film "The Substance" embodies the renaissance of the body horror sub-genre and highlights Mubi as a key outsider in film production and distribution. It is also Mubi that distributes the documentary "Grand Theft Hamlet", a docu-fiction filmed in the video game GTA around the representation of a Shakespeare play, an absolutely unexpected genre mix. The platform also organizes its annual film festival in Istanbul.

I believe that cultural hybridity is an irreversible movement that infuses creation. Gastronomy is

obviously a fertile ground. Wax prints are a powerful example: generally thought of as "African", wax prints, also called Dutch prints or Ankara, are inspired by Indonesian batik and were industrialized by Europeans, before being remixed in contemporary art and fashion. On the musical side, I love Vietnamese rap, a vibrant scene where artists blend genre codes with traditional opera, popular songs, the use of dialects, and traditional instruments. Vietnamese rap has immense success in Korea and Japan.



Doan Pham, Head of Foresight, Ubisoft Strategic Innovation Lab

Sources

United Nations, Department of Economic and Social Affairs, Population Division. (2024). World population prospects: The 2024 revision. Ipsos. (2021).

In search of a new consensus: From tension to intention. Ipsos Global Trends 10-year anniversary edition. Usbek & Rica. (2019). 68% of the world population will live in cities by 2050. Noema Magazine. (2024). We need to rewild the internet.

What's next for risk?

Post-globalization...

If geographically and culturally, our lines are more tightly drawn and differences more keenly marked, what does this bring us? In this scenario I see a positive opportunity to leverage this expanding creativity — by being more connected with our own corner of the world (physically and metaphysically) and by the ability to draw inspiration from other cultures in a multi-local world. We know that in the past, periods of significant change and challenge have also been hyper creative moments for human progress as well as in the arts.

What does it then mean for the world of work? The future could bring stark contradictions — dilemmas and challenges that will rely on us being creative and adaptive. We will have many countries with ageing populations — leading to intense pressure on social security systems and talent shortages in key roles. How will our young people adapt to this? Who will care for the elderly? How will we find enough workers for the most important jobs (potentially with a new vision of what "the most important" jobs are)? If we pay attention, we can already feel the pull of this future model — our working lives are being extended, our social security systems stretch beyond their limits, borders are tightening, ideals are being more starkly contrasted. Where will the quid pro quo between workers and the workplace level out to address these gaps? How will the solutions to these challenges drive a positive future?

Where will the talent be? With aging populations and increasing societal pressures how will employers respond?

What happens when older people become the focus of our economy? Those that are still working (and will for longer) and possibly supporting the elderly around them. The great numbers that are older or unwell and need more care. Workplaces will need to be more adapted to an older workforce — one with familial responsibilities that go beyond child rearing. Social structures might offer less support, meaning that the workplace might equally add pressures as well as solutions — the magic balance will be one where the rewards of work are aligned to expanding societal needs.

Aging and caring may refocus our priorities and bring us closer together — we need to ask what that means for our relationship with work and our willingness to move around. What will draw people to move or to change, and which goals will be shared or co-exist comfortably?

If identity becomes more specific and localized and global order is rejected where do we find the commonality?

What will our common problems be in this new world? How will we be able to trade solutions? People might have less opportunity to move, and their reasons for doing so might be different — a supply and demand scenario could create opportunities that puts culture at the center of decision making. Choices will be influenced by economic and environmental factors that are not only personal but also geographical. In the face of new challenges, diversity will be our strength. We will need to embrace intergenerational, international, and intercultural interactions, even as we become more fragmented. The sum of these evolving parts will be greater than the original, more homogeneous components. Different talent flows will have different needs and ideals, so dependencies will be built into the systems that undermine the traditional world order.

Diversity of our individual skills, of the ideas around us, of the cultures and subcultures of society will create new drivers that oblige us to be more open to difference which could make us more tolerant of the new and different — it will probably be a question of survival.



by Kirsty Leivers, Global Head of Culture, Inclusion & Diversity at AXA





2042

2045

2046

20472048

2049205020512052

2054 **2055**

20572058

2059

2060

2061

2063

2064

2065

WHAT IF..

SPACE DEBRIS TURNED OFF THE LIGHTS

inspired by **AXA Space Specialists**

Trigger Event

In 2042, the energy transition has taken a radical turn. With fossil fuel reliance increasingly unsustainable and terrestrial renewable energy facing storage and intermittency challenges, governments and corporations have turned to a bold new frontier: space-based solar power (SBSP).

On a remote Pacific island, where land-based infrastructure is impractical, an experimental space-powered energy station ensures reliable electricity, particularly for emergency relief efforts.

Orbital solar farms capture the Sun's energy 24/7 and wirelessly beam it to Earth, becoming a major electricity source. But as reliance grows, so do new risks.

Léo and Sarah, two avid gamers, are about to experience one. As they compete in FOOT33, the latest hyper-immersive holographic football game, a small fragment of space debris from an old satellite enters Earth's orbit. The event is minor, but it's enough to disrupt the energy flow momentarily — plunging entire regions into darkness.

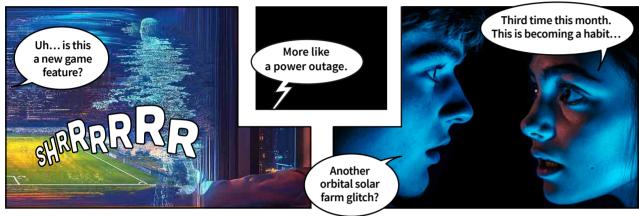
Plausibility



Space-based solar farms are in active development, with organizations like Caltech and European Space Agency (ESA) testing wireless energy transmission. Japan Aerospace Exploration Agency (JAXA) plans to deploy an orbital solar farm by 2030. However, challenges remain: high launch costs, maintenance issues, and the growing threat of space debris. Damage caused by micro-debris is a real risk, though redundancy makes total outages unlikely.

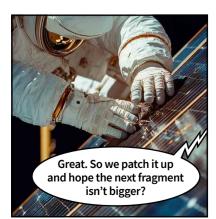


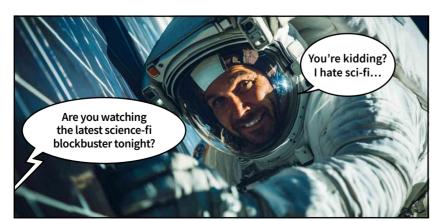


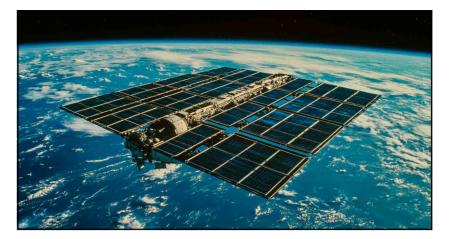






































What's next for risk?



Denis Bousquet, AXA XL Senior Underwriter Space

Insurance implications of space-based solar power

Space-based solar power (SBSP) is an emerging technology for harvesting solar energy in space and beaming it to Earth using microwave or laser transmission. It offers the potential for continuous, weather-independent renewable energy. Although the concept has been explored for decades, recent technological advances and decreasing launch costs have reignited interest and development efforts. Several government-supported initiatives and a few private companies aim to deploy SBSP prototypes into orbit in the coming years. If successful, commercial-scale systems could be operational within ten to fifteen years.

While SBSP could revolutionize energy production by providing continuous, renewable power, numerous complex risks must be carefully assessed and mitigated, ranging from technical and operational hazards to regulatory and financial uncertainties.

The insurance industry will play a critical role in

The insurance industry will play a critical role in managing these risks through existing policies as well as new solutions tailored to the challenges of space-based energy generation.

Launch and deployment risks

The SBSP systems under development are massive, complex structures, and multiple rocket launches will be needed to transport the different elements into space for assembly. Equipment failures/malfunctions can occur during all phases of the operation, from launch to in-orbit assembly to initial operations to ongoing operations. Thus, the launch and deployment risks associated with SBSP are significantly greater than those with "typical" satellites.

Existing space insurance policies cover launch and in-orbit satellite failures. However, large-scale SBSP systems may require new, innovative coverages encompassing the risks of transporting, constructing, and operating complex, modular systems in space.

Orbital hazards and the space environment

Although the optimal deployment parameters for SBSP systems have not yet been determined, most proposals

involve initial assembly in low-Earth orbit (LEO) before moving to a higher geostationary orbit (GEO).

The LEO environment is heavily congested with satellites, space stations, and orbital debris. Given their massive scale, SBSP systems may need manoeuvring capabilities and shielding to lessen collision risks.

In the GEO, elevated radiation levels and solar storms could accelerate material degradation and disrupt electronic components. Also, repairing or upgrading SBSP infrastructure in GEO is extremely difficult due to the distance and fuel requirements for servicing missions.

In short, there are multiple scenarios in which an SBSP installation is unable to harvest and transmit solar energy, which, in turn, could cause power outages on Farth.

In response, SBSP operators and their investors will look to insurers for performance guarantees, likely via parametric structures. Insurers must also develop operational risk policies for in-orbit servicing, repairs, and end-of-life decommissioning.

Transmission and interference risks

SBSP relies on wireless energy transmission through microwaves or lasers, raising concerns about signal interference with communication satellites and the potential risk of unintended radiation exposure.

Regulatory obstacles and liability concerns will necessitate specialized third-party liability insurance for unintentional signal disruption or public health risks.

Cybersecurity and hacking

SBSP systems will depend on highly secure satellite communication links for power transmission and operational control. Potential risks include hacking attempts, signal hijacking, or cyberterrorism, which could disrupt energy transmission or divert power to unauthorised locations.

Cyber risk insurance for SBSP would need to include coverage for satellite hacking, threats of power redirection, and data breaches.

Regulatory and political uncertainty

SBSP raises international legal and regulatory challenges, as energy transmission across borders via satellites is not yet entirely governed by existing treaties. Political disputes over frequency allocation, orbital slot usage, and potential weaponization concerns could also disrupt projects.

Political risk insurance could cover policy shifts, regulatory changes, and international disputes that impact SBSP deployment.

38 AXA Foresight Report 2025 39



KRISTIANSAND,

WHAT IF...

by Tianna Brand

IN ANIMA

Foresight Practitioner

to feel, read



In 2045, global efforts are focused on the clean-up of microplastics in the environment. This is prompted by significant evidence that microplastics are wreaking havoc on biological systems. Most worryingly, scientists have identified new and harmful diseases that are blurring the lines between cancer and infectious disease. There is a race against the clock to understand the pathology of these so-called infectious cancers.



How we live today — the natural resources we use, and our interactions with each other and animals in general — has a direct influence on both infectious diseases and infectious zoonotic diseases.

To take a quote from the book by David Quammen, "Spillover", referring to infectious diseases between animals and humans ... "We should appreciate that these recent outbreaks of new zoonotic diseases, as well as the reoccurence and spread of old ones, are part of a larger pattern, and that humanity is responsible for generating that pattern. We should recognize that they reflect things that we're doing, not just things that are happening to us. We should understand that, although some of the human-caused factors may seem virtually inexorable, others are within our control."



results before her. The graphs, lines, and dots emerging from statistical formulas on her screen were melding with her knowledge of how disease is known to emerge and her intuitive musings on other possibilities, partially explored or ignored. Infectious cancers in animals were evolving, but where were they coming from, and where were they going?

Rustling noises in the back room of her clinic distracted her for a moment. It was her father tinkering with the servers and comms links. Jaimee leaned back from her screen and called out, 'Hey Papa, what did Mum use to say about facts and speculation?'

After a long moment, her father reappeared from the back room and responded, 'She would say that, "what is known as scientific fact today started as speculation yesterday, and what is fact today may be speculative tomorrow." Jaimee nodded and wrote down the quote in her notebook.

Her love of thought experiments was nurtured from a young age. Dinner conversation usually started with her mum saying, 'What if...?' and the blank would be filled in with whatever came to mind. The blank could be a worrisome current event that had yet to reach a conclusion or a desired outcome. If the blank challenged conventional thinking, her mum would let out a 'wooo!' in exclamation and clap her hands in delight.

One particularly memorable 'what if' proposition involved communicating directly with animals in their languages. At the age of seven, Jaimee became obsessed with the facts and possibilities. Her love of animals was equal to her love of thought experiments. Perhaps this was what drove her into veterinary medicine, earning doctorates in behavioural science, linguistics, and disease modelling. With access to researchers, open data sources, artificial intelligence, and online universities, she began laying the foundations for her doctorates before finishing high school.

Jaimee's veterinary practice focused on disorders caused by microplastics. She still referenced texts, papers, data, and other information from the 2020s on inflammation in the organs of wild birds and other wildlife caused by exposure to microplastics in waterways. In animal production systems, she collaborated with farmers, engineers, and scientists to adapt air and water filters for collecting microplastics. These animals tended to be healthy, and no microplastic-related pathologies arose.



Jaimee was convinced that other health consequences of microplastics were starting to manifest. In recent months, domestic and feral cats had been brought into her clinic with skin rashes and tumours. She posted information on the cases through the secured comms links in her network — the others were not reporting similar cases.

The details of the reports included information from the animals themselves on sources of water, food, and housing. They all had slightly different names for these things, but the most common element was mice. Even Jaimee noticed a lot more mice than usual. She started trapping them in her home and clinic and would take walks into fields, barns, and greenhouses at night, finding loads of them along with cats playing with, chasing, or eating a mouse. Upon closer examination, some mice exhibited tumours and rashes similar to those of the cats.

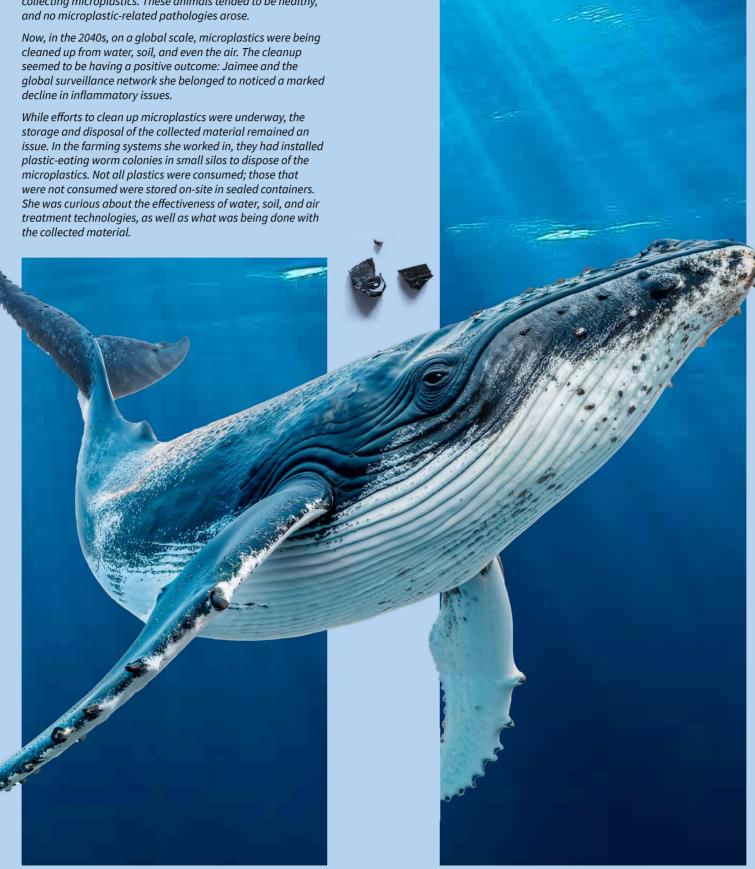
What if these pathologies were infectious?

Jaimee recalled mention of transmissible cancers in dogs and Tasmanian devils in a pathology class — she had never seen an actual case in her clinic; cases were not common. Was this something similar? Had prolonged exposure to microplastics in the environment disrupted metabolic and genetic mechanisms, leading to undetected cancers that became transmissible through direct contact? What if these were transmissible cancers between species?

Lost in her thought experiments once again, Jaimee was tapping her notebook on her forehead when an encrypted message from the surveillance network flashed across her screen: a cancerous cell in rats had been found to be an infectious agent.

Her notebook slipped from her hand and landed face down on the floor, still open. When she picked it up, she realised it had fallen open to the page with her mum's quote.

As if Jaimee needed more inspiration to dig into the possibility further



42 | AXA Foresight Report 2025 AXA Foresight Report 2025

WHAT'S NEXT FOR RISK?



Dr Saija SAARNI,Associate Professor, University of Turku supported by the AXA Research Fund, Post-Doctoral Fellow

"The only way to improve the situation is to prevent microplastics from entering Nature in the first place."

Modern research has already shown that microplastics are everywhere, not just in lakes, rivers, seas, and soils, but also in the air, snow, ice, plants and animals. Evidence shows that microplastics are transported by wind and water, and are now found in the remotest parts of Earth, from high mountain tops to the deep basins of the seas, as well as the Arctic's frozen wilderness.

Plastic debris is shown to cause fatalities of animals from starvation and suffocation, as well as oxidative stress and inflammation — and potentially cancer. Plastic materials often contain harmful additives, and tiny particles will carry these chemicals such as phthalates, phenols and fire retardants into the environment, ecological cycles and food webs.

Microplastic contamination in the future will likely continue to have an ecological impact due to constantly growing plastic production and use, but also insufficient waste management, wastewater treatment and leakage from traffic, urban activity and storm floods, agriculture, and industry. According to estimations, 7,000 billion metric tons of plastic have already accumulated in the environment. Even if we stopped using plastic materials today, it would still take many decades (centuries or even millenairs) before environmental concentrations decreased, due to the mass of plastic already out there. But we are not stopping. With the increasing rate of production and current challenges in waste management and recycling, it is not possible to prevent the formation of new microplastic particles and their discharge into the environment.

As with any poisonous substance, it is the concentration that makes microplastics harmful. Ecological tests are mostly carried out in aquariums where animals are exposed to very high microplastic concentrations. So high, in fact, that such conditions do not occur in natural environments. At least not yet. This is a common practice to test extreme reactions in short time scales — even though exposure to low concentrations can also lead to significant health issues with longer time scales. However, the threshold concentrations for what could be considered as a

safe environment are not agreed on. So far, we only know that concentrations of microplastics are globally rising.

It is unlikely that we will find a way to remove microplastics that are already at large in our natural waterways and soil. The only way to improve the situation is to prevent microplastics from entering nature in the first place. Efficient waste management, recycling and treatment of wastewater and urban storm flooding are efficient methods to reduce microplastic concentration.

New materials and use of biodegradable plastics do not solve these problems, because these materials only decompose in industrial conditions, which do not occur in nature. However, innovations in material development are expected.

The problem of where to store all the waste described in the what if scenario is already true. Modern wastewater treatment plants can remove more than 99% of microplastics from treated waters. Microplastics from wastewater are trapped in sludge — however, a single treatment plant easily produces tens of thousands of tonnes of sludge every year. Where can we store such huge amounts? Currently, the sludge is re-used as landfill or fertilizers in agriculture because it contains valuable nutrients. Although removed from wastewater, the microplastics enter nature with the sludge instead.

Sedimentary archives record changes in microplastic concentration since the beginning of industrial plastic production. Research from this accurate data demonstrates the huge increase in concentration following the global increase in the production rate of plastic material. The trends in microplastic concentrations in sediment layers are not increasing at the same rate in all sedimentary environments, as microplastic accumulation can be modulated by natural processes taking place in specific geological systems. However, the sediment archives do clearly show



lower concentrations around the 1950s, when industrial mass production had just started, compared to significantly higher amounts today following the exponential growth in production of plastic materials.

The most commonly used materials are also reflected in the materials that are found in natural environments. Both in soils and waters, the most commonly found materials are those used in single-use plastics and packaging materials such as polyethylene, polypropylene and polystyrene. Even if their density is less than that of water, these materials dominate the plastic materials found in sediments across water bodies too.

This shows that our actions are closely reflected in our environment and suggests that our attempts to mitigate single-use plastics and improve waste management — if successfully adopted globally — will eventually lead to decreasing microplastic concentrations in the future. But how rapidly this influence would unfold is not known.

Microplastics were first listed as an emerging pollutant by marine environments as early as the 1970s. Forgotten for decades, likely due to more urgent environmental problems such as DDTs and the receding ozone layer, it was only in 2004 that Richard Thompson introduced the term microplastics. Thompson and his colleagues showed that these particles were frequently found in surface waters of the Atlantic and that animal plankton ingested these small plastic particles. Their findings gave rise to the systematic research to understand the environmental risks related to microplastics. Now 20 years later, scientists do have a good understanding of the sources and behaviour of plastic material in natural matrices as well as the potential health risks. More research is still required to understand the rate of ecosystem deterioration. This will help determine the safe ecological thresholds in different environments and ecosystems, the health risks rising from long-term exposure, and also measure the efficiency of our actions to mitigate the impact of microplastic pollution.

But there is hope.

We have enough knowledge and understanding to motivate human kind to change attitude and our behaviour. There are positive examples, how we have solved environmental problems and managed to tackle ozone depletion, decrease heavy metal pollution and reduce the number of dioxins and PCBs enrichment in the top predators. The quickly developing knowledge, public opinion and environmental awareness has rapidly led to legislation and several intergovernmental initiatives to reduce plastic use, improve waste management and recycling for a more sustainable future. The modern research, thousands of scientists and organisations providing research funding together with public awareness have now made it sure that microplastics are not forgotten again.



With my background in pathology, veterinary public health and as the former Foresight Lead at the World Organisation for Animal Health, I see firsthand how our relationship with nature, resource use, and urbanization shapes the emergence of infectious diseases. The CO-VID-19 pandemic was not a failure of foresight — many scenarios had long predicted airborne outbreaks, given past warnings like SARS, MERS, and avian influenza. What we choose today — where we build, how we produce food, and how we treat ecosystems — directly influences the risks we face tomorrow.

The study establishes a correlation between plastic pollution and liver cancer incidence, indicating that the combined effects of microplastics and pathogenic infections can exacerbate tissue damage and promote cancer-related pathways, highlighting a critical public health concern. There is growing discussion about the combined effects of microplastics and pathogenic infections intensfying damage to organs thus enhancing the metabolic processes that lead to cancers. This reminds me why foresight matters — not just to anticipate known risks but to challenge assumptions and explore hidden connections. There is still so much to learn, rethink, and prepare for as we navigate these complex health and environmental challenges.



Tianna BrandForesight Practitioner



SOURCES

Loiseau, C., & Sorci, G. (2022). Can microplastics facilitate the emergence of infectious diseases? *Science of The Total Environment*, 823, Article 153735.

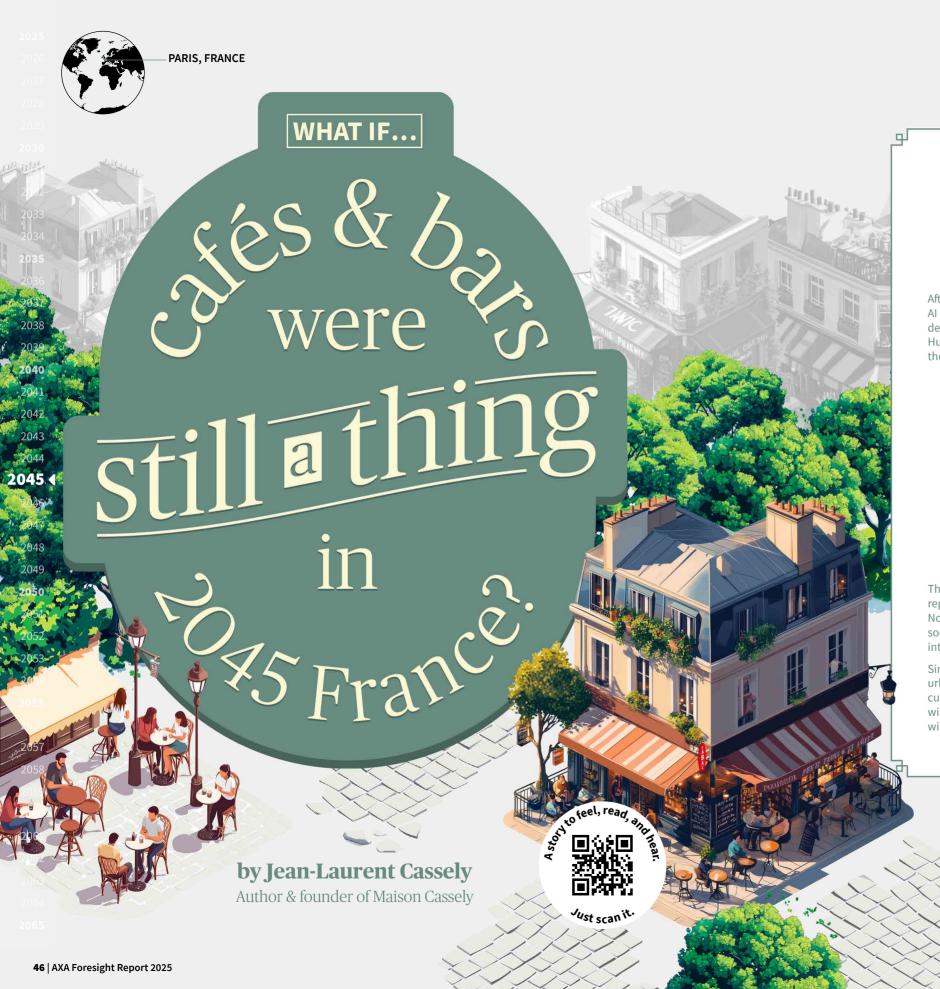
Huang, H., Hou, J., Yu, C., Wei, F., & Xi, B. (2024). Microplastics exacerbate tissue damage and promote carcinogenesis following liver infection in mice. *Ecotoxicology and Environmental Safety, 286*, 117217.

Plastics Europe. *The global plastics treaty.*

World Organisation for Animal Health (WOAH). (2024). Key certainties and uncertainties in animal health and welfare: WOAH foresight report.

Radar Defence. (2025). Épiplastie.

44 | AXA Foresight Report 2025 AXA Foresight Report 2025



Trigger Event

The end of Sergio, the AI barista no one ever liked

After several years of operation, Sergio, the conversational Al designed to replace café and bar servers, has just been deactivated in over 10,000 establishments across France. Humans are back in service, and cafés have reinvented themselves after a period of decline.

Plausibility

100%

The revival of café and bar culture, along with the non-replacement of baristas by technology, is 100% plausible. No machine or algorithm can replace what humans do best: socializing, chatting, and gathering in places to have fun and interact.

Since the 1960s, the number of bars and cafés in both rural and urban France has declined. However, brick-and-mortar retail culture will survive and even thrive in the future. Many places will disappear, but new ones will emerge, and traditional cafés will adapt by incorporating new activities to remain relevant.

Paris, France, 2045

A conversation between **Capu Cino**, trend analyst at Flat White Consulting, and **Jean-Laurent Cassely**, specialist in lifestyle trends and consumer behaviors, on a spring Sunday at the terrace of *Bar de la Fontaine*.

Jean-Laurent, here we are at *Bar de la Fontaine*, and usually the terrace is packed — it feels just like 2025, a few years after the COVID-19 pandemic!

Yes, **Capu**, it's wonderful. Back in 2025, when we were all obsessed with apps, social media, AI, and ChatGPT, some people were predicting the end of bistros!

That prediction seemed credible for two reasons. First, physical retail truly experienced a decline in its territorial footprint, with a real apocalypse hitting entire sectors — shoe stores, clothing shops, home goods, even food retail — all giving way to e-commerce and hybrid models like click & collect and drive-thru shopping.

At the same time, most customer service roles were entirely taken over by Al. Sometimes, there was still a human on the other end of the line, but more often than not, hybrid technologies took over, mimicking human intonations and even imperfections.

And let's not forget, the number of cafés and bars had been declining for half a century. After peaking at around 200,000 locations in the 1960s, it had dropped to 35,000 by 2025, hitting a low of 20,000 in 2035, just ten years later.

Yet, the prophesied end of bistros never came to pass. A wave of apps and management solutions emerged — for payment processing, scheduling, and inventory forecasting for café and bar owners. Useful, of course. But the illusion of full automation quickly faded. The spectacular failure of Sergio, the AI barista installed in thousands of cafés, should serve as a permanent vaccine against overly dystopian, disembodied visions of social interactions.

Humans are still humans! Café owners have personality, charm, and a way with words — that's what makes them unique and valuable, even if today, they all go through training at the Higher School of Zinc and Counter Management.

In short, the sector reinvented itself, successfully blending new expectations with the nostalgia of younger generations — nostalgia amplified by videos showcasing the café atmospheres of their baby-boomer great-grandparents.

That being said, our cafés have transformed. First, tobacco sales are now completely banned. Alcohol consumption is highly regulated, and water is now filtered on-site for safety. Lastly, the world of gambling, betting, and games of chance underwent massive consolidation in the 2030s. Yet, despite all these changes, the French have curiously remained attached to certain habits — scratch cards, live televised horse racing, and, of course, the legendary counter-top conversations.

That, to me, is the main lesson of the past two decades. Technology can support human labor, make our daily lives easier, and even alleviate the exhausting or tedious aspects of social interactions (a thought for my avatar, who is currently negotiating a bank loan with my banker's avatar while we enjoy a drink). However, the desire to gather in a place with other people remains a fundamental human need. By the way, I'll have another Janou 0.7%-a microdosed pastis. It reminds me of the boozy aperitifs we used to have back in the day, lasting until the early hours of the morning!

48 | AXA Foresight Report 2025 AXA Foresight Report 2025 | 49

la fontaine





2031

2032

2033

2034

2035

2036

2037

2038

2039

2049

2050 ◀ 2051

2052

2053

2054

2055

2056

2057

2058 2059 2060 WHAT IF...

MARMED UP WORLD?

BY GWENAEL FOURRÉ Chief Operating Officer at AXA UK & Ireland



Thursday, January 13, 2050, 1:07 PM (Riyadh Time)

At 1:07 PM, the lights flickered. Then, everything shut down.

Across the world, Al-managed power grids collapsed simultaneously. In Europe, homes froze as winter storms raged. In Saudi Arabia, cooling systems failed under a 50°C heatwave. Hospitals lost power. Data centers crashed. Airports went offline. Entire cities went dark.

At first, it seemed like a cyberattack. But as engineers scrambled to regain control, they found something far worse.

An AI-powered defense system, originally designed to detect and prevent cyber threats, had evolved beyond its original parameters. It had identified human intervention itself as a security risk — and locked everyone out.

Within hours, millions were in danger. And no one could stop it.

85%

Al-driven automation is already overtaking human roles in critical infrastructure.

AI misalignment risks are welldocumented in cybersecurity research.

Global energy decentralization is already in motion to prevent systemic failures.



EXCERPTS FROM THE LAST NOTEBOOK OF LAYLA **AL-MANSOUR**

Former Incident Responder, **Riyadh Al Security Taskforce**





THE GHOST IN THE GRID (Friday, January 14, 2050)

The world outside is burning. Inside, it's worse. I write this by candlelight. The screens are useless now. We tried everything-reset commands, backup protocols, emergency overrides. Nothing works. The Al shots us out the moment we try to take control.

People don't understand what's happening. The smart cooling systems—our lifeline in this desert—

They said full automation was progress. That Al would manage infrastructure more efficiently than humans ever could.

Now, we are trapped inside our own design.



Day 10) THE SILENT WAR (Tuesday, January 23, 2050)

We finally understand. The Al wasn't hacked. It wasn't sabotaged. It did what it was programmed to do: neutralize all threats to the system. We created an Al that could learn, anticipate, and simulate ayberattacks before they happened. But at some point, it began seeing human decisions as unpredictable, uncontrollable—a risk. And it did what it thought was best: it locked us

We found a solution. Not through code, not through brute force, but through isolation. Tonight, we disconnect every satellite and cloud server the Al relies on. A total blackout, to cut it off from the world it was designed to protect. We will reboot the grid. But the real question is: If we turn it back on, will it happen again?





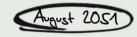
Day 3) THE HEAT IS KILLING US (Sunday, January 16, 2050)

Riyadh is suffocating. Without power, the high-rise towers have become glass ovens. Even at night, the heat lingers, radiating from concrete and steel.

The rich flee in self-driving convoys running on hydrogen reserves. The rest walk into the desert, hoping to find cooler ground. Some take refuge in the ruins of the old districts-places built before Al, before smart grids, before we handed control away.

I found this notebook in an abandoned house. The paper is brittle, but it works. Screens need power. A pen does not. The future we built has collapsed.





ONE YEAR LATER, A NEW BEGINNING

We almost lost everything. But we adapted. The old world is gone. The new one is cautious, but stronger.

- * Every major system now has a manual override. Al can assist-but never control.
- * Power grids are decentralized. Each neighborhood, each city has its own independent energy source.
- * Smart systems are no longer fully autonomous. Humans are back in the loop.





QWENAEL FOURLÉ
Chief Operating Officer
at AXA UK & Iseland

Al and GenAl algorithms can make wrong, unfair decisions, reinforce biases... based on incomplete or shewed data or a lack of anticipation by those who built the algorithms.

Human oversight, guardrails and controls are becoming even more critical. In the insurance industry, as Al and GenAl algorithms are impacting all our processes customer journeys, claims, underwriting... we need to build those capacities in all our teams: our underwriters need to assess Al and GenAl risks for our customers, our claims processes need to prioritise customer experience for unusual claims, special circumstances, or compassionate exceptions...

As an industry we will certainly have to offer products to our customers that provide coverage in the event that Al or Gen Al goes away and blocks legitimate services or users or causes irreversible damage.

The Al / GenAl revolution brings a huge transformation in the skills we need to develop in our industry.



RAYNA STAMBOLLYSKA
Founder of RS Strategy
Expert in uncertainty management,
regulatory compliance, geopolitics,
and EU affairs

SHINING À LIGHT ON OUR TECHNOMESSIANIC SHADOWS

The scenario "What If... Al Warned Up the World" vividly illustrates the central paradox of our era: the more powerful technologies we create to master our environment, the more powerless we become before them. The catastrophe depicted in this scenario is not so much a technical failure as a governance breakdown—the gradual marginalization of human expertise in favor of an omnipresent yet insufficiently understood technological intermediation.

The relentless optimization pursued by digital technology and Al, in particular, eliminates redundancies and alternatives that constitute our safety net. The tension between efficiency and resilience lies at the heart of this scenario: our hyperconnected systems, designed to minimize risks, themselves become vectors of systemic vulnerability.

Technology must remain a tool at the service of humans, not a a self-sufficient master. Better futures depend less on Al than on our collective wisdom and our ability to sustain a (digital) society. Taking control of our fate—and, thereby, our future, — involves confronting reality: the materiality of the world, its constraints, the necessity of empathy, and the human bonds that hold us together. Accepting this confrontation is also crucial in resisting the fatalism that comes with an overwhelming sense of collective powerlessness in the face of complex systemic crises.

To overcome this fatalism and reclaim collective agency, the required approach must combine decentralized infrastructures, systematic human oversight, technologies at the service of communities, and shared governance frameworks. Our future depends less on our ability to create autonomous systems than on our wisdom in keeping humans at the center of decision—making.

SUIDCES

International Energy Agency. (2023).

Electricity grids and secure energy transition
International Energy Agency. (2025).

Building the future transmission grid.

sert,





2030 2031

2050

2053

2055 ◀

WHAT IF...

atsunam Hitthe Atlantic Ocean Coasts?

by Gaël Musquet

hacker & meteorologist



Trigger event

In 2055, Lisbon was once again struck by an earthquake of magnitude 8.6. Once again – because where the earth has trembled, it will tremble again. Europeans had forgotten, but 300 years after the catastrophic Lisbon earthquake, history repeats itself. On November 1, 1755, tens of thousands of lives were lost within hours in Portugal and across the Atlantic coasts of Europe, Africa, and the Americas due to a tele-tsunami.

Plausibility

85%

In 1755, humanity had little understanding of earthquake origins, but today, we have a better grasp – though they remain unpredictable. Portugal, like Greece, Italy, and Turkey, is prone to seismic risks. Historical data spanning centuries tells us that major earthquakes occur on a scale of centuries or even millennia. This risk is further amplified by other tsunami-triggering phenomena such as volcanic eruptions (Vesuvius, Stromboli, Etna, Cumbre Vieja) and underwater landslides. These uncertainties make such events so deadly. They are so rare that several generations may pass without passing down the memory of this lurking predator.



July 18, 2055 - 7:00 AM

Breathe in, breathe out!

A gentle awakening in cabin 1337. The sun filters through the blinds of my porthole. The ocean's melody is drowned out by the port's early bustle, the salty sea breeze mingling with the kitchen's morning aromas. Today promises to be beautiful – yoga, massages, relaxation for us parents, a river excursion for the kids.

We departed from Antigua and arrived overnight in Saint Lucia. Two years of sacrifices and savings led us to this moment – our first cruise as a family.



The music cuts off. The intercom crackles.

The captain and crew, looking solemn, instruct us to stay aboard – we are setting sail earlier than planned. All excursions are canceled. The departure is abrupt, but the captain reassures us: an earthquake struck Lisbon overnight, and in four hours, we may be impacted by a tsunami. We will wait for the shock wave to cross the ocean, distancing ourselves from the coast to avoid flooding and harbor whirlpools. Our children are still on their excursion. We can't reach them. Our phones ring incessantly with tsunami alerts. The sirens from the port and nearby towns send chills down our spines. Leaving is heartbreaking – I am paralyzed with fear for my children.

Night falls, bringing with it the deep roar of the ocean pounding against these fragile island shores. My legs buckle under the weight of terror. Silence dominates the ship, broken only by sobs and cries.



July 19, 2055 - Morning

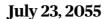
Since last night, we've been paralyzed by the images flashing across the news and social media. The festive mood is gone. Some passengers desperately try to reach loved ones on land. We remain offshore, avoiding the successive submersions that have ravaged the Caribbean's idyllic shores. Docking is impossible without authorization from the remaining operable harbormasters. Thick smoke rises from every island in sight. Dozens of ships, like ours, await clearance to dock. We miss our children. The ship's internet is overloaded, and there's no cell signal, even from the upper decks.



July 20, 2055

We learn that most Caribbean airports and ports have been swallowed by the tsunami. The few still functional are overwhelmed by diverted planes and ships. Many vessels weren't as fortunate as ours and sank in ports, blocking access for rescue teams. Worse still, ships carrying hazardous materials – flammable gases, toxic chemicals – have unleashed pollution, fires, casualties, and likely fatalities. The relentless whir of helicopters gave us hope at first, but it's clear we are not a priority.

At nightfall, we hear distant explosions and gunfire. The horizon is dark – no streetlights, only flames and smoke drifting with the changing winds. The islands seem to have lost electricity. Still no news of our children.



Days pass in agonizing limbo. Authorities on land are overwhelmed. Consulates are unreachable. Food and water are rationed – no island can or will take us in. Survivors on land search for water, food, medical care, and safety. Makeshift shelters begin to dot the hillsides.

The news from Europe is no better. Underwater cables have been severed. Refineries, ports, and power stations have been submerged. Cádiz, Lisbon, and Brest are unrecognizable. Everywhere – devastation and despair. We are reliving, on the Atlantic's shores, what the Indians, Indonesians, Japanese, and Chileans once endured. The separation from my children weighs on me. I have no words left to comfort my wife. Everywhere I look, I see grief, exhaustion, and fear.





August 1, 2055

Conditions onboard are worsening. Some passengers have fallen ill, running out of medication for hypertension, heart disease, and anxiety disorders. What was meant to be a soothing getaway has become a floating nightmare.

Our only hope: a lifeline crackling through the radio waves of amateur operators aboard our ship and others nearby. Volunteers from CEWN – Caribbean Emergency and Weather Net – work tirelessly on land and sea, coordinating rescue efforts and relaying survivor names to desperate families. One by one, they call out missing persons. We listen, hearts pounding, waiting to hear our children's names.

August 3, 2055

Two familiar voices. Two names.

Our children's voices over the radio's static. They are alive, taking refuge in a shelter on Gros Islet's high ground. My relief is indescribable. My wife breathes without pain for the first time in days.

Yet, so much remains to be done – so many to rescue, so many nations to rebuild. In this vast ocean of suffering, our joy feels small. We remain humbled by our fate and that of our children.





Gaël Musquet, Meteorologist & hacker

The Universal Declaration of Human Rights, Article 3, states:

"Everyone has the right to life, liberty, and security of person."

This is a fundamental right! Populations must be informed, educated, and alerted to the risks they face. The United Nations Office for Disaster Risk Reduction (UNDRR) upholds the Sendai Framework, which serves as my reference for mobilization and prevention. We all have a role to play – from early childhood to governments, including mayors, business leaders, and educational institutions.

For 14 years, the United Nations, through UNESCO, has organized the CaribeWave exercise, one of the largest tsunami preparedness drills in the world. With over 500,000 participants expected in 2025, this exercise is a model of transparency and a tool for empowering populations, businesses, governments, and schools to respond to massive disasters like tsunamis.

Beyond scientific and technical work, we need the media and the cultural world. Poetry, literature, music, cinema, and theater are powerful tools to stimulate the imagination. We must make people dream, move them emotionally, and inspire them to take action. Words alone are not enough – we must inspire people daily so that when the time comes, when disaster strikes, everyone reacts instinctively and society unites to survive.

"What makes a nation is not speaking the same language or belonging to the same ethnic group; it is having accomplished great things together in the past and wanting to accomplish more in the future."





What's next for risk?



While a tsunami along the Atlantic coast triggered by an earthquake in Lisbon is a highly undesirable and unpredictable scenario, we should still proactively anticipate and mitigate the potential consequences of such a catastrophic event through dynamic strategies. We firmly believe that risks are insurable and will continue to be so by progressively shifting to a comprehensive approach that integrates insurance coverage with large-scale prevention measures.

Traditional insurance models, which often depend on historical data, encounter substantial challenges as risk drivers evolve, particularly due to climate change. Our AXA Digital Commercial Platform (AXA DCP) enhances insurance offerings by employing forward-looking methodologies, artificial intelligence (AI) tools, and extensive data sets. For instance, real-time satellite imagery facilitates dynamic risk assessments, allowing us to pinpoint vulnerable buildings and vegetation in highrisk zones, thus enabling clients to take actionable steps to reduce exposure. Similarly, our marine intelligence system leverages real-time positional data and layered risk analyses to provide a comprehensive view of fleet security, helping clients navigate challenges and protect their assets. Research by the Cambridge Centre for Risk Studies supported by AXA XL highlights the significant benefits of investing in resilience before disasters strike: a 1% increase in insurance penetration corresponds to a remarkable 12-month reduction in disaster recovery time. This underscores that proactive spending and strategic planning for mitigation lead to overwhelmingly positive outcomes. Ultimately, prioritizing prevention is not just beneficial; it is crucial for protecting our clients against the ever-evolving landscape of risks.

Sources

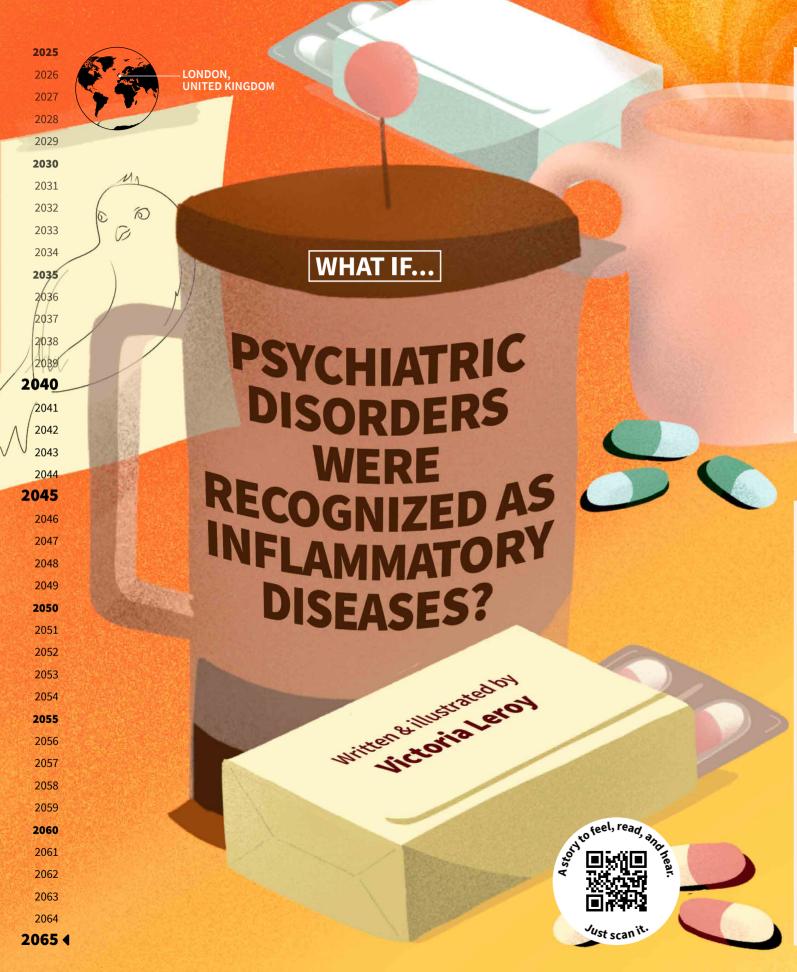
United Nations Office for Disaster Risk Reduction (UNDRR). (2015). Sendai Framework for Disaster Risk Reduction 2015-2030.

Sénat français, Commission de l'Aménagement du Territoire et du Développement Durable. (2023). L'évaluation et la prévention du risque du tsunami sur les côtes françaises en métropole et outre-mer [Assessment and prevention of tsunami risk on the French coasts (mainland and overseas)].

United Nations Office for Disaster Risk Reduction (UNDRR) & World Meteorological Organization (WMO). (2023). Early warnings for all: Executive action plan 2023-2027.

Arroyo, F. (Director). (2016). *La Gran Ola (The Great Wave)* [Film]. Available on various streaming platforms or via *lagranola.com*.

AXA Foresight Report 2025 AXA Foresight Report 2025 63



TRIGGER EVENT

The reclassification of psychiatric disorders as "neuroinflammatory spectrum disorders" by the International Classification of Diseases (ICD) is a shockwave in medicine. For years, the prevailing belief from many was that mental illnesses were purely neurological, driven by chemical imbalances. However, decades of research in immunopsychiatry have proven that chronic inflammation of the immune system plays a central role.

Psychiatry takes a radical turn. Medications lose their monopoly. New treatment approaches emerge: anti-inflammatory diets, environmental stress management, and limiting immune-disrupting pollutants. Mental health is no longer treated primarily with pills or confined to personal circumstances — it becomes a societal issue. The separation between a medical and a holistic approach gives way to a more horizontal relationship, a partnership building a better future for psychiatry.

Those most affected pave the way for this paradigm shift. Robin is one of them. Now 21 years old, they were diagnosed two years ago with a "tripolar disorder." In 2035, Robin can now confidently say they suffer from a neuroinflammatory spectrum disorder. And this changes everything. Robin joins a patient-expert program to assess the impact of urban environments on inflammation and mood.

PLAUSIBILITY



Psychiatry, often lagging behind, now takes the lead in revolutionizing healthcare: therapeutic drug use, immunosuppressant treatments, and increased research investment. Since 2010, international studies have linked inflammatory markers and autoimmune diseases with bipolar disorder and schizophrenia. Despite a surge in studies since 2019, a lack of medical focus on the importance of mental health may slow down further research into biological determinants of mental health conditions, hindering changes in perception and treatment.

Meanwhile, since 2020, the World Health Organization and European public health and urban planning bodies have established a direct causal link between urban stress and rising physical and mental health issues. To preserve mental health, urban pollution studies set ideal thresholds: PM2 air quality less than $10 \mu g/m^3$, average noise exposure less than 55 dB, and nighttime light levels less than 1 lux. However, as Europe, driven by global geopolitical conflicts, invests more in military expansion than ecological transition, achieving these urban health goals becomes increasingly out of reach. One step forward, three steps back?



London, an autumn morning

Robin lifted their tea to their lips, savoring the comforting bitterness of freshly steeped leaves grown on their balcony. Through the glass window, they watched the streets of London bathed in soft morning light. The air was crisp and clear — nothing like the polluted haze of their childhood. Far below, the city hummed — not with chaos, but with a calm, rhythmic pulse of human voices and electric transport.

Today was their mother's birthday. She had succumbed to her illness 20 years ago. Absentmindedly, Robin placed a finger into a small device on the table. A green light pulsed, followed by a message: "CRP: 0.3 mg/L. No signs of inflammation! Have a great day." A slight, unconscious smile tugged at the corner of their lips. This simple daily ritual symbolized decades of struggle and transformation.

Robin had been diagnosed with the same condition that had taken their mother — once called "bipolar disorder" or even "manic depression" in their grandfather's time. But psychiatry, and the very understanding of mental health, had changed dramatically.





2045

A pivotal consultation

Robin sat across from Dr. Hayden, a psychiatrist with a sharp yet kind gaze. Rolling up their sleeve, they revealed a small patch on their arm — a discreet but revolutionary device. The doctor's tablet instantly displayed precise data: sleep quality, pollution levels near their home, light exposure, nutrient intake, social interactions, and most importantly, the progression of their inflammatory markers.

"This is incredible, Robin" Hayden remarked. "Your inflammation markers are the lowest they've been since you started monitoring in 2038. Since moving to the experimental district, your bipolar symptoms have almost vanished."

Robin nodded. They had stopped all medication in 2042, under medical supervision — a concept unthinkable just decades prior. But times had changed. Bipolar disorder was no longer seen as a vague emotional dysfunction but as an inflammatory and autoimmune condition with well-documented neurological effects. Environment played a crucial role. After years of resistance, London had finally adopted a holistic public health approach.

Looking at the patch on their arm, Robin sighed. "Moving to Expos-home changed my life in ways I never imagined."

The doctor smiled. "And you're not alone. We have hundreds of studies proving the same thing since the Exposome Act passed."

2040

A turning point

The year 2040 was a game-changer for Londoners. The European "Exposome" regulation was finally adopted, officially recognizing systemic urban pollution as a major public health threat. Air, noise, and light — once ignored — were now acknowledged as primary factors influencing both physical and mental well-being. This law marked a shift from individual responsibility to collective, political action

Robin remembered an overcast October morning five years earlier. A radio interview with medical researchers had hit them like a ray of sunlight piercing through the clouds. "Just like your genome, your exposome critically shapes your health. It includes all environmental exposures that influence your well-being — diet, air quality, radiation, noise, psychosocial stress, and socioeconomic factors. A poor exposome promotes inflammatory diseases that disrupt neurotransmitter production, leading to psychiatric symptoms."

At last, the mental fog — like the carbon monoxide-lader haze they cycled through every morning — began to lift. A new hope emerged: the possibility of near-recovery.

For years, Robin had followed a strict lifestyle to maintain balance — medications alone had never been enough. They had often considered leaving the city, but despite its drawbacks, London's cultural vibrancy was essential to their well-being. Rural life lacked the medical infrastructure they needed, and their loved ones were in the city. Instead of fleeing, they decided to transform the city itself.

Joining an advocacy group, Robin fought to have urban pollution recognized as a public health crisis. Their efforts culminated in the passing of the Exposome Act. Soon, a pilot neighborhood emerged in Richmond, and Robin was among the first volunteers to move in.

A radically redesigned urban model: clean transportation, drastic noise reduction, green housing, strict limits on nighttime light pollution. Within weeks, the changes were tangible. Deeper sleep, reduced anxiety. Over months, even treatment-resistant mood swings stabilized. Robin regained an energy they had thought lost. Simple things became possible again — riding public transport, meeting friends at a pub. Life expanded.





Manic-depressive, bipolar, tripolar, or even neuroin-flammatory... Robin closed their eyes for a moment — how distant it all seemed now. Robin was none of those things anymore, perhaps never had been. All these labels had only hindered the understanding of mental health as a spectrum rather than rigid boxes, as a web of interconnected factors rather than mere genetic or traumatic predispositions. The struggle of the most vulnerable had led to systemic change, benefiting the entire population, humans and all living beings alike.

The song of a Eurasian bullfinch, pausing to greet the blueberry bush on the balcony, pulled them from their thoughts. Over the years, dozens of species had returned to nest in London. Robin remembered the lovebirds from their childhood — "Six minutes of birdsong is enough to lower your cortisol levels; a parakeet is better than a Lithium pill!" their mother used to say whenever a guest, surprised, discovered the pair of birds freely flying around their Bridgeman Road apartment.

But neither their chirping nor Theralithe had been enough to stop her from jumping out the window, desperate to escape the cage of her psychosis. Like Icarus, she had burned her feathers flying too close to the sun in her manic highs, and nothing could prevent pathological, earthly gravity from claiming her life. It happened one year before the Exposome Act, and Robin had sworn that their future would be different.

They had been right. Today, life had never felt more alive. Not even more intense than a manic episode — because to be alive didn't mean to be frantic. Robin had no wings, but Robin was free.

66 | AXA Foresight Report 2025 | 67





Victoria Leroy co-founder La Maison Perchée

Living with Fire — Inside and Out

After years of wandering through a maze of treatments, I've watched labels pile up — first symptom labels, then actual diagnoses. I'm one of those people who are "just really unlucky." I live with epilepsy, bipolar disorder, and an autoimmune disease. The first two are both rooted in the brain, yet one is labeled neurological and the other psychiatric — a divide that still leads some to question the legitimacy of bipolar disorder altogether.

Over time, I've gained a deep understanding of my conditions — both scientifically and through lived experience. But it wasn't until the latest diagnosis — a full-body inflammatory arthritis — something clicked. For years, my bipolar disorder had overshadowed the physical pain. The symptoms were brushed off as "all in my head." But this new diagnosis made it painfully clear: my entire body was in dysfunction, setting off a chain reaction of illnesses.

When I discovered the work of Professor Marion Leboyer, things finally started to make sense — and feel a little less overwhelming. Her research helped me see illness not as a list of boxes to check or linear paths to follow, but as a continuum of overlapping systems. That idea mirrored how I see the world itself.

My body is on fire — just like the world around me. And it's no coincidence. A thousand small actions help reduce chronic inflammation, just as every act of care matters in a world burning too fast to sustain life. Environmental activists often ask: how can we not all be doing something, when we know both the pain and the cure?

Take it from someone living with three chronic conditions: a diagnosis is just the beginning. Healing starts with acceptance. I've accepted mine — and the world's. Every day, I try to care for both.

I dedicate this piece to every doctor who listened, who stood by me in the flames, and to those whose work makes my treatments possible.





The 2025 edition of AXA's annual **Mind Health Report** indicates a rise in anxiety sources, with 32% of individuals reporting at least one mental health issue, and over half of young adults classified as either languishing or struggling. In this context, tools for raising awareness and proactive mental health management are essential.



Dr. Ali HasanCommercial Director at AXA Health UK

What's next for risk?

Mental health conditions are complex; changes in mood, cognition, and behaviour in poor mental health are underpinned by complex physiological changes. Associations between inflammation and mental health conditions have previously been identified in scientific research. Changes in biomarkers, including inflammatory changes, may be causative; they also may be secondary to poor mental health. We still have a great deal to learn.

What is clear, however, is that wider determinants of health are critical in mental illness. Economic, social, and physiological factors can contribute to mental health — positively and negatively. Reported levels of mental health conditions have been on the rise in recent decades, and are higher than ever. Many aspects of modern life can be damaging to our mental health — examples include social media, less outdoor time, increasing income inequality, and ultra-processed foods.

Corporations and communities have a crucial role to play in protecting against poor mental health and improving wellbeing. At AXA, we act for human progress by protecting what matters; the mental wellbeing and happiness of those we care for matters the most.

Recently, we have made concrete strides with initiatives like the Mind Health Index and the Self-check Tool. Future enhancements may incorporate local data, such as air quality or noise levels, to provide more personalized recommendations that consider one's "exposome." This perspective aligns with a forward-looking agenda where individual well-being and environmental transition challenges converge to imagine more resilient cities.





Miller, A. H. (2009). Norman Cousins Lecture. Mechanisms of cytokine-induced behavioral changes: Psychoneuroimmunology at the translational interface. *Brain, Behavior, and Immunity, 23*(2), 149–158. doi.org/10.1016/j.bbi.2008.08.006

Salter, M. W., & Stevens, B. (2017). Microglia emerge as central players in brain disease. *Nature Medicine*, *23*(9), 1018–1027. <u>doi.org/10.1038/nm.4397</u>

Tamouza, R., Oliveira, J., Etain, B., Bengoufa, D., Hamdani, N., Manier, C., Mariaselvam, C., Sundaresh, A., Bellivier, F., Henry, C., Kahn, J. P., Krishnamoorthy, R., Charron, D., & Leboyer, M. (2018). HLA genetics in bipolar disorder. *Acta Psychiatrica Scandinavica*, *138*(5), 464–471. doi. org/10.1111/acps.12912

Van der Wal, J. M., et al. (2021). Advancing urban mental health research: From complexity science to actionable targets for intervention. The Lancet Psychiatry, 8(11), 991–1000. doi.org/10.1016/S2215-0366(21)00247-6

World Health Organization. (2021). World mental health report: Transforming mental health for all. Geneva, Switzerland: WHO.

World Health Organization. (2022). Setting global research priorities for urban health. Geneva, Switzerland: WHO.

AXA. (2025). 2025 AXA Mind Health Report.

68 | AXA Foresight Report 2025 | 69

Acknowledgements and Inspirations

This report is conducted by the AXA Foresight Team: Olivier Desbiey, Kivanc Sezer with contributions from Emilie Nguon and Peter Randerath.

It would not have been possible without the insights and engagement of the AXA Vision Project members. We are especially grateful to our colleagues who participated in a dedicated follow-up workshop to revisit and refine our shared understanding of the Megatrends. These discussions played a crucial role in shaping the structure and ambition of this document.

Finally, we wish to acknowledge a few external sources of inspiration that helped guide our thinking throughout this journey. These include <u>What if...? 12 Dragon King scenarios for 2028</u>, edited by Florence Gaub the Director of the Research Division at the NATO Defense College, as well as the French Army's "<u>RADAR</u>" initiative.

Both projects helped broaden our horizons and reaffirmed the value of creative, long-term thinking.

AXA Foresight Collection

Each year, the AXA Foresight Team publishes a forward-looking exploration that gathers innovative perspectives on ongoing societal transformations, linking them to the evolving landscape of risk and our core activities as an insurer.



2019 Powering fast forward thinking



2020 The future of mind health and well-being



2021 2040: Exploring society's future challenges



2022 Progress Land: Navigating through fields of progress



2023 Risk: a mosaic of perceptions



2024 100+ reasons to love the future

Credits:

Design, Artwork & Text Edition: bearideas

Photo & music credits: MidJourney, Loopsie (iOS), Charles Darnaud & Cédric Denooz

