- Technological innovations



9 INNOVATIONS AND TRENDS SHAPING 2024

The way we work, learn, travel and live is set to be transformed in 2024, with exciting advances in everything from artificial intelligence, human longevity, farming, sustainability, social identity and hybrid working to the makeup of our cities. Here is how these changes may shape your world.

WORDS BY KATHRYN CHUNG

1 TECHNOLOGY ARTIFICIAL INTELLIGENCE

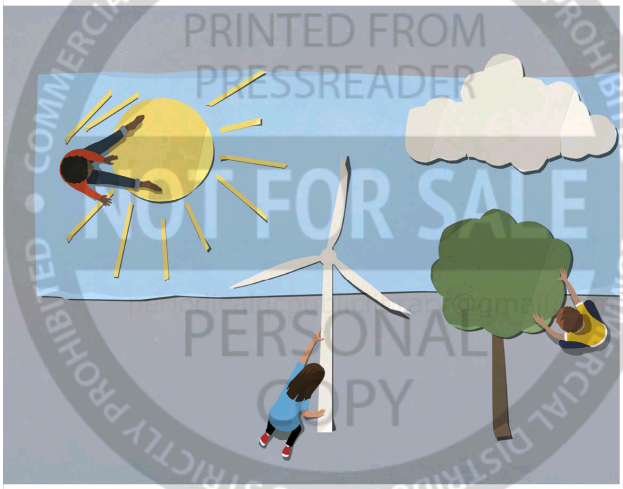
When we take stock of the technological advancements over the past year, the area that has dominated the conversation is undoubtedly artificial intelligence. It was just November 2022 when ChatGPT – the now ubiquitous AI chatbot – launched, and since then, the development of AI technology has increased at a breathtaking pace, with the global AI market valued at around $US200 billion.

The applications for AI have spread across practically every industry and some say it has the potential to be as disruptive as the Industrial Revolution. The Beatles have released their last song featuring the original four members with the help of AI, celebrities have sold off their likeness so Meta can create virtual 'buddies' that you can interact with, and fashion retailers are using AI quizzes to create personal stylists for online shoppers.

It is not hard to imagine a near future where AI is intrinsic to our everyday lives, and depending on how you look at it, could push humanity forward or lead us down an irreversible path with troubling repercussions. In June 2023, The Pew Research Center shared predictions on the future of the tech from 305 experts. Some of the biggest concerns centred around the fear it could "enable blanket surveillance of vast populations" and "undermining democratic systems with deep fakes, misinformation and harassment".

Governments are preparing for these problems by putting together regulatory frameworks and AI task forces. This year, US President Joe Biden issued an executive order on the "safe, secure, and trustworthy development and use" of AI, and the European Union is pushing its AI Act to ensure "safe, transparent, traceable, non-discriminatory and environmentally friendly" AI systems.

Healthcare is another promising area. Lauren Wilcox, a Senior Staff Research Scientist and Group Manager at Google Research, points to "AI-aided diagnosis, treatment, and management of conditions" as one of the key advancements. "These solutions will improve the health of our population when they augment rather than replace human interaction, and when they are coupled with innovations that enable citizens to manage the cost and complexity of care and meet everyday needs that enable prevention of disease, such as healthy work and living environments, healthy food, a culture of care for each other, and access to healthcare," she said.





3 MOVEMENTS LIQUID SOCIETY

Rigid lines of identity are being chipped away, as younger generations embrace new freedom for how they define themselves. "Identity is not something that is achieved or constant, but rather a convergence of markers that are fluid, flexible, contextual and multidimensional – worn interchangeably," state Sarah Owen and Tully Walter in SOON Futures' Future Forecast 2024 report. Digital nomads are forgoing the nine-to-five for globetrotting lifestyles, couples are redefining relationships with terms like 'ethical non-monogamy' and people are choosing new forms of self-expression with gender-fluid fashion and makeup.

2 FOOD REGENERATION

Recently, the issue of food insecurity has shifted towards nutrition insecurity, as poor nutrition is linked to chronic health conditions such as diabetes, obesity and heart disease. "Feeding a growing population is a bit of a red herring, because we produce far too many calories already," explains Tim Williams. "That's not really an issue. The issue is the quality of those calories. The quality of the food that's produced. And so a lot of the industrialisation of farming just produces empty calories."

Williams is a New Zealander based in the UK who works as an educator, advisor and coach in agroecological and regenerative farming systems. He's seen first hand the ways in which regenerative agriculture has exploded in the past few years. "Four years ago, I stood up in front of a room full of farmers and landowners in Cornwall and talked about regenerative farming and no one really knew what it was," he recalls. "Now it's one of the hottest topics in farming, especially here in the UK."

Regenerative farming is an holistic approach that draws from indigenous knowledge that focuses on enriching soil health and enhancing biodiversity, through methods such as rotational grazing of herds and increasing plant and animal diversity. It's being supported by a new government policy in the UK that will pay farmers to "adopt and maintain sustainable farming practices".

In 2023, the US Government pledged funding for "climate-smart" farming practices. Biodiversity represents an opportunity for farmers to diversify their business, as they're not only farming one type of animal, but different species and crops together. Williams points to Central Otago's Royalburn Station as a promising case study for this, as the farm produces beef, lamb, eggs, produce and grains. "The challenge is developing the skill base of the people to be able to manage it, moving ... to a more complex system that encourages people back onto the land." Williams says he is already seeing these kinds of models succeed in the UK.



4 HEALTH LONGEVITY

Some scientists are eyeing a future where ageing is not an inevitability, but rather something that we can treat and manage like a disease. People are living longer than ever before, with the global average life expectancy having increased by almost 23 years over the past 60 years, according to the UN.

Meanwhile, research into longevity science is picking up pace. In January 2023, Australian-American biologist David Sinclair and his colleagues of the Sinclair Lab at Harvard Medical School published a study demonstrating how the loss of epigenetic information in mice accelerates the hallmarks of ageing. "This is the first study showing that we can have precise control of the biological age of a complex animal; that we can drive it forwards and backwards at will," he said.

One of the key messages that researchers want to get across is that longevity science is not just about extending life, but extending the quality of life – working towards a future where people not only live longer, but do not suffer from age-related diseases like cancer, dementia or heart disease.

While much of longevity science is at the research and development stage, some are already delivering treatments to market. Tally Health, an anti-ageing startup led by Sinclair, offers DNA tests to assess biological age. Current users have to fork out $US129 a month for a subscription which provides tests and daily supplements. As research continues to ramp up, one important question to keep in mind is the financial barrier. If it is possible to live longer and in better health, will this only be an option for the rich? Time will tell.

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5 LIVING CLIMATE CONSTRUCTION AND BRANDED CITIES

By 2050, the UN projects that 68 per cent of the world's population will be living in urban areas, a jump up from 56 per cent in 2022. With the pressures on housing and the impacts of climate change already being felt, what will the future of urban living look like?

Leaders in Saudi Arabia are hoping to create a 'revolution in civilisation' with their new city project, called The Line. Designed to run on 100 per cent renewable energy, the futuristic and compact city will be built in a straight line measuring 170km, built up to 500m above sea level. Its vertically layered communities will be designed so that all the daily essentials are reachable within a five minute walk, while a high-speed rail will let residents travel from end to end in just 20 minutes.

With climate-related disasters like flooding and cyclones now regular across the world, future cities are being built with much more resilience. Architecture firm Effekt is addressing these challenges with resilient design in Denmark. Their 'Harbour of the Future' project in the town of Middelfart is set to build a new district that will serve as "a laboratory for future urban development". Their 'climate harbour' will act as a protective barrier against rising seawater, while also functioning as an urban public space.

As governments respond to the financial pressure of increasing urbanisation, some experts predict that 'branded cities' will become much more common. The Hellenic Republic has partnered with Volkswagen to convert the island of Astypalea into a "future laboratory for smart, sustainable mobility" by introducing electric cars and ridesharing services.

For optimists, the Volkswagen and Astypalea initiative represents a positive aspect of branded cities, one where brands can improve citizens' lives with better connectivity, mobility and green solutions. Yet the integration of corporate entities into city planning could come with darker consequences.

"We are only in the very nascent stages of corporations being given the keys to our cities' futures, but if the democratic imperative is not embedded into the systems they are establishing from the start, it may be impossible to readjust the balance of power," says the LS:N Global report, Branded Cities. "When Amazon announced it was looking for a location for a second North American HQ it had more than 230 cities vying for its attention ... Newark, New Jersey, has offered tax breaks worth $US7 billion to lure the e-tail giant. Such a contest, complete with taxpayer-funded incentives, illustrates just how much influence the world's largest corporations can exert, especially over cash-strapped City Halls struggling to balance the budgets for schools, hospitals, pensions and more."





6 SUSTAINABILITY CIRCULARITY

Circularity has become much more than a buzzword in the sustainability space, as forward-thinking companies gain momentum while governing bodies put this sustainable ethos into concrete policy. As part of its Circular Economy Action Plan, the EU introduced new rules for the battery and textile industries, which include requiring batteries to be made with minimum levels of recycled content, and the proposed plan to extend the textile producer's responsibility across the full life cycle of a product. Some 92 million tonnes of textiles waste are dumped in landfill every year, according to Global Fashion Agenda.

Innovations are already happening across the textile industry to make this shift towards circularity, and today, it is not uncommon to see recycled fabrics on the racks at many clothing stores. The New Cotton Project is a three-year initiative which has seen big players like Adidas and H&M joining forces with scientists and start-ups to turn textile waste into a 'new cotton' fibre.

Rewoven is aiming to show South Africa as a leader in this circular textile space. The textile recycling start-up sources textile waste from the likes of garment companies and hospitals and repurposes the material into filling material for upholstery, disaster relief blankets and carpet.

Other innovators are looking at pollution as a potential resource, turning carbon pollution into products like soap, fuel and concrete. Dubbed 'carbontech', this industry could utilise billions of tons of CO_2 and become a trillion dollar market by 2030, according to a study by the University of Michigan's Global CO_2 Initiative.



7 WORK HYBRID FUTURE

The global pandemic saw a major disruption to our working habits, with millions around the world working from home. While many businesses are now encouraging their workers back to the office, the remote model has not gone away. A report by Deloitte published in 2023 noted that while businesses are pushing for a return to the pre-pandemic working model, employees want more flexibility.

"Many workers now consider the ability to work remotely as an inalienable right," notes the report, citing research that two-thirds of workers globally would consider looking for a new job if their employer wanted them back in the office full-time. According to the Deloitte 2023 Global Human Capital Trends report, leaders who have embraced a future-workplace approach such as remote and hybrid models, have reported benefits to worker engagement and wellbeing.

Yet cultivating a workplace culture is seen as the biggest barrier in these new models. A hybrid model, where employees split their time working from home and in the office, seems to be the most viable solution. Tech companies like Meta, Nvidia and Microsoft are rolling out new metaverse-like platforms to encourage more seamless collaboration for their remote workforce.

Forbes writer Bernard Marr points out: "Whether or not we are ready to start wearing virtual reality headsets in order to work collaboratively ... remains to be seen. But aspects of the metaverse experience – such as avatars and persistent, multi-purpose environments are likely to play an increasingly prominent role in our working lives."

8 EDUCATION LIFELONG LEARNING

Education is no longer a box to be ticked, but a lifelong pursuit that is continuing long into our working lives.

Gaile Mikalauskaite, a Senior Analyst at Euromonitor International, notes that "future jobs will be focused on solving unstructured, complex problems. For these reasons, employees will need to possess a well-rounded combination of hard and soft skills, such as critical thinking, problem-solving and creativity, to succeed in the workplace."

New methods of education are also continuing to develop. The global e-learning market is projected to reach $US462.6 billion by 2027, a major leap from $US245.5 billion in 2022. Eric Debétaz of EHL Education Consulting notes the growth of dopamine-driven learning by way of gamification. "Research shows that gamification creates dopamine in your brain, which makes learning more pleasurable and enjoyable, as well as rewarding," he says. "Gamification increases the chances of the practical application of educational concepts, as it promotes students using their imagination to solve problems or complete tasks."

Educators are also having to adapt to shortening attention spans among Gen Z and Gen Alpha. "Nano learning is gaining popularity. Complex topics are broken down into bite-sized pieces to be more easily digestible," explains Debétaz.





9 TRAVEL FOOD TOURISM

Of all the ways travellers like to explore, one of the most alluring has to be through our palates. It's no surprise then that food tourism is seeing a boom.

Luxury travel company Virtuoso has seen a 70 per cent increase in travellers booking trips with a food and wine focus in 2023. The latest data from Booking.com shows travellers are budgeting most of their money (34 per cent) on restaurants and dining experiences.

According to Erik Wolf, Founder and Executive Director of the World Food Travel Association (WFTA), food-loving travellers are looking to escape the big cities. He says: "We're looking for the off-the-beaten path places. No pretence. No gourmet stars."

Bonaire, an island municipality of the Netherlands located in the Caribbean, was recently named a Culinary Capital of the World by the WFTA. Coupled with the island's world-class diving and luxury resorts, it is becoming a top destination for intrepid foodies. Wolf says travellers are seeking more than just nice meals, but rather rich experiences and the stories behind what's on the plate.

GLOBAL CONFLICTS

There is one problem that not even the smartest minds have solved: the tragedy of violence and war. Sadly, the violence may continue in 2024.

In 2023, there are five conflicts that have caused at least 10,000 direct, violent deaths this year. As the UN states, a war is always a human tragedy, with the ripple effects of the conflict extending human suffering far beyond its borders. Not only is the psychological, physical and mental impact profound, war also exacerbates the global cost-of-living crisis, having a impact on food, energy and finance systems worldwide.

The world's attention has been brought to Gaza, as the murder and kidnapping of Israeli civilians by Hamas on 7 October 2023 triggered a full military response from Israel, resulting in the deaths of thousands of civilians so far. The response by world leaders has come under intense scrutiny, as nations like the US and UK walk a diplomatic tightrope in their support for Israel, while others join in the increasing calls for ceasefires.

With such a fraught and volatile situation, it is impossible to say for sure what 2024 will bring in the Middle East. *The Economist's* Gregg Carlstrom notes that "Israel could find itself stuck in a long guerrilla war, and the residents of Gaza stuck in a long displacement".

What is becoming abundantly clear is that children are caught in the crossfire of the conflict, as the World Health Organization reports that on average, a child is killed every 10 minutes in Gaza.

A humanitarian crisis is also unfolding in Sudan, as violence between the Sudanese Armed Forces and the paramilitary Rapid Support Forces rages on. Since the conflict erupted in April 2023, almost six million people have had to flee their homes, and aid organisations say people are suffering from lack of access to food, shelter, drinking water and other basic necessities.

While Ukraine continues to receive military support from global allies amid Russia's invasion, the longer the conflict goes on, the more it works in Putin's favour, explains Ivan Mikloš, former deputy prime minister of the Slovak Republic. "A slow offensive drains human resources (of which Ukraine has much less than Russia), increases the risk of a frozen conflict and raises the pressure to negotiate a compromise."

Meanwhile, closer to home, experts warn tensions between China and Taiwan may come to a boiling point after Taiwan's presidential election in January 2024.

How to talk to children about war

The impact of war is multifaceted and extends far beyond the conflict zone, deeply affecting the global community. As well as loss of life, injuries and disabilities, displacement, economic and environmental impacts, long-term repercussions can be intergenerational trauma as well as long-lasting animosities contributing to ongoing conflicts and tensions. While we all watch in horror at the events occurring around the world, recent research has shown the effects of media coverage on children, with younger children more affected by news stories with visual cues, while older children are more distressed by stories about actual threat.

UNICEF has shared advice for how to provide support and comfort to children when talking about war.

- **Figure out how they feel** UNICEF says: "Some children might know little about what is happening and not be interested in talking about it, but others might be worrying in silence." Activities like drawing can help open up a discussion with younger children.
- **Keep calm** "It is normal if you feel sad or worried about what is happening as well. But keep in mind that kids take their emotional cues from adults, so try not to overshare any fears with your child."
- **Spread compassion** UNICEF says to "avoid labels like 'bad people' or 'evil' and instead use it as an opportunity to encourage compassion, such as for the families forced to flee their homes".