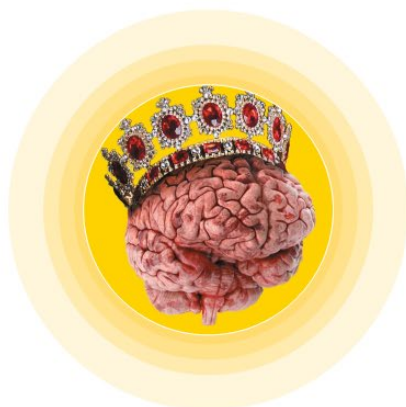


HORIZON SCANNING

Emerging issues for EU policymaking

Issue 7

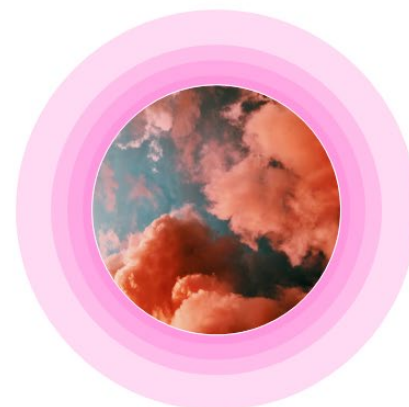
This is the seventh report from the ESPAS horizon scanning process which looks at “signals of change” – emerging trends and issues – that may appear marginal today but could become important for the EU in the future. From the list of 14 signals of change presented below, three emerging issues were perceived as potentially most impactful by policymakers:



NEUROETHICAL WORLD



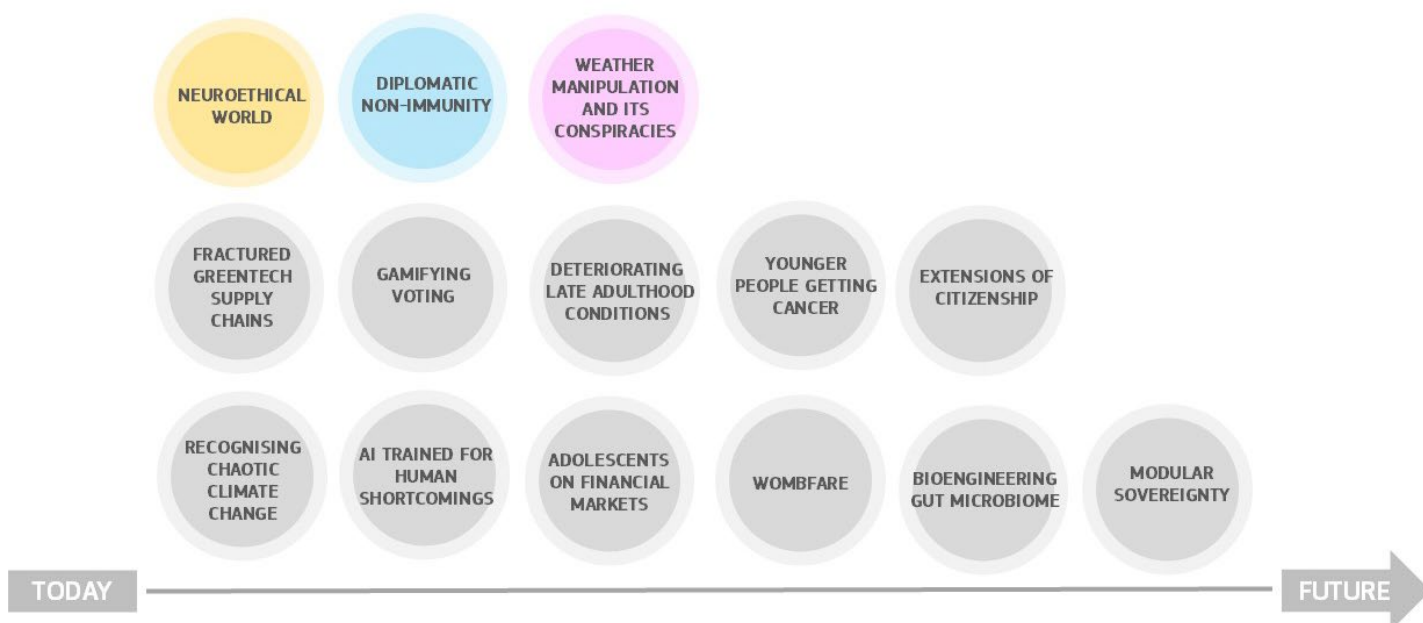
DIPLOMATIC NON-IMMUNITY



WEATHER MANIPULATION AND ITS CONSPIRACIES

The European Strategy and Policy Analysis System (ESPAS) launched the horizon scanning process, led by the Joint Research Centre and the European Parliamentary Research Service, in 2022. The signals of change were identified and developed via a series of workshops with participants from across the EU institutions and bodies looking at recent developments in multiple domains. The assessment of the most impactful signals was done through a survey followed by a prioritisation workshop, which explored the issues in more depth – a summary of this evaluation is presented on the following pages. The signals should be considered as new lenses for a different perspective on the challenges and opportunities the EU is facing now and in the coming years.

The complete set of 14 signals of change identified in recent horizon scanning sessions is presented below. Brief descriptions are provided at the end of the document



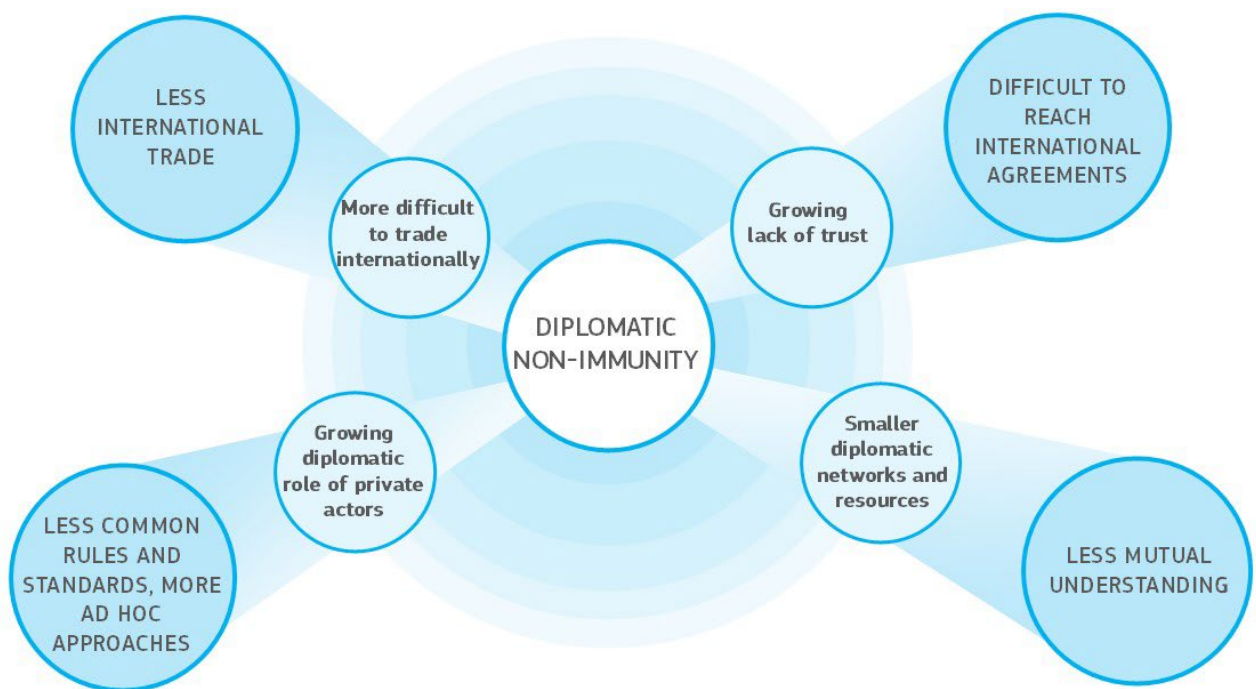
Diplomatic non-immunity

The immunity of diplomatic posts and staff is being increasingly challenged in current geopolitical conflicts.⁴ Two recent attacks on diplomatic posts have been symptomatic: the bombing of Iran's consulate in Damascus by Israeli forces⁵ and police forcing their way into Mexico's embassy in Ecuador.⁶ At the same time, "Havana syndrome", a mysterious illness of US diplomats, has been linked to Russian activity.⁷ Diplomatic immunity is increasingly questioned just as the role of diplomacy becomes crucial for preserving peace.

How can it change our optics?

Ceasing to take diplomatic immunity for granted in the newly unfolding world order would lead the EU to considering how best to use diverse diplomatic approaches and communication channels while securing its own diplomatic missions and channels. While the EU should strive to hold diplomatic immunity sacrosanct, it should take a systemic and pragmatic view of how to engage with widely diverse countries around the world, possibly using AI to compensate for less mutual understanding.

Futures Wheel: An indication of potential consequences



What if the EU...?

... shone a light on all those threatening diplomatic immunity and supported the development of an international diplomatic immunity score?

⁴ [Mexico to Iran, why are attacks on embassies so controversial? | Politics News | Al Jazeera](#)

⁵ [Iran says Israel bombs its embassy in Syria, kills commanders | Reuters](#)

⁶ [Mexico ICJ hearing: Ecuador showdown over embassy raid begins Tuesday | CNN](#)

⁷ [Havana syndrome: Report links mystery illness to Russian intelligence unit \(bbc.com\)](#)

Weather manipulation and its conspiracies

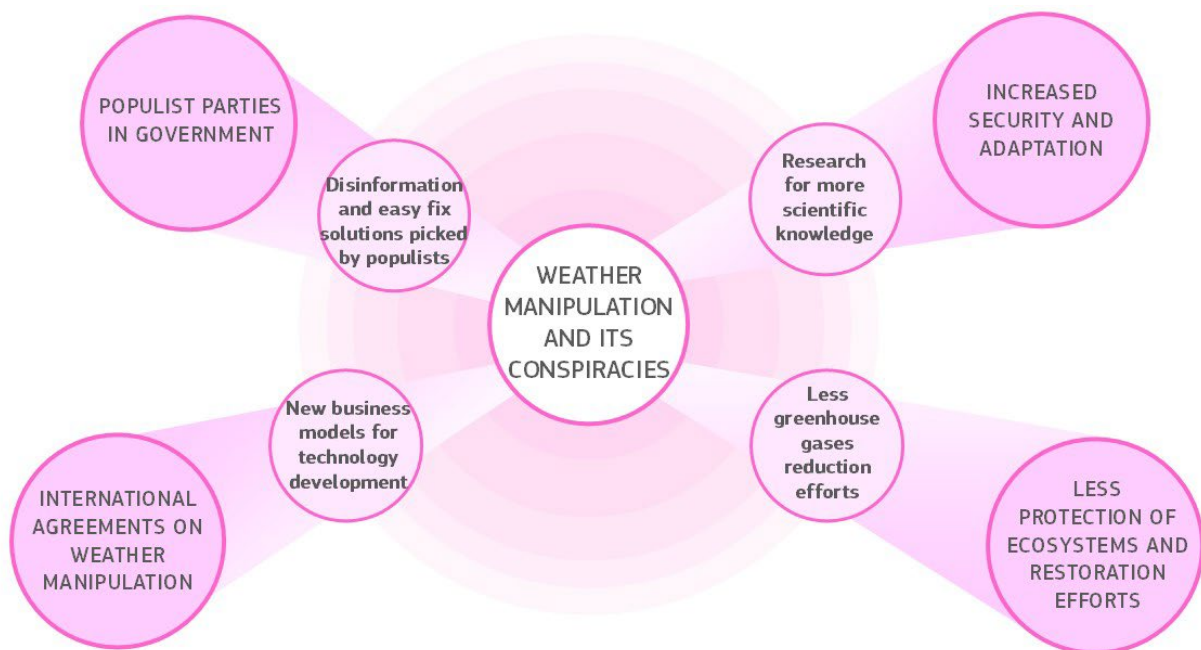
With climate change leading to increasing devastation from various extreme weather events (e.g. floods, tornadoes, droughts, hurricanes), the number of ideas for weather modification is increasing. One such idea aims at reducing the formation and intensity of cyclones, despite failure of previous research in this area. Norway-based *OceanTherm* proposes to cool the sea surface by piping cold water from below 200 metres. Another idea is to inject water-attracting aerosols into the lower atmosphere to reflect and scatter sunlight and trigger rainfall and energy release.⁸ Regardless of feasibility, these ideas raise questions around governance (who would decide where to intervene and how?), unintended consequences and potential conflicts around changing the paths of cyclones, rain patterns and the diverse effects on various countries or communities.⁹

While these concrete ideas develop, recent extreme weather events across several continents have led to the spreading of unfounded conspiracy theories about governments manipulating weather for political gains.^{10,11}

How can it change our optics?

Fast rising impacts from extreme weather events will foster both the emergence of innovative ideas on how to counter them and the willingness to take risks to address them. This could be a trigger to engage as soon as possible both in research for mitigating the effects of these extreme weather events and in the development of international rules of engagement for geoengineering interventions.

Futures Wheel: An indication of potential consequences



What if the EU...?

... were to consider the development of geoengineering know-how as an essential capability to ensure its own long-term resilience?

⁸ [In the future, we could snuff out cyclones. But weather control comes with new risks \(theconversation.com\)](https://www.theconversation.com/in-the-future-we-could-snuff-out-cyclones-but-weather-control-comes-with-new-risks)

⁹ [Controlling hurricanes is bold, risky and failed idea. Some want to try again. - The Washington Post](https://www.washingtonpost.com/news/energy-environment/wp/2015/07/21/controlling-hurricanes-is-bold-risky-and-failed-idea-some-want-to-try-again/)

¹⁰ [Fact check: Debunking weather modification claims | National Oceanic and Atmospheric Administration \(noaa.gov\)](https://www.noaa.gov/fact-check-debunking-weather-modification-claims/)

¹¹ [No, UK weather is not being manipulated \(bbc.com\)](https://www.bbc.com/news/uk-12345678)

Other signals of change

- **Younger people getting cancer**

Many cancers usually found in adults are increasingly diagnosed among young people. Even though the numbers are still low the trend is clear. Models based on global data predict that the number of early-onset cancer cases will increase by around 30% between 2019 and 2030.ⁱ

Early-onset cancers affect especially the digestive system, with some of the sharpest increases in rates of colorectal, pancreatic and stomach cancer. The reasons are not yet clear even though obesity and early screenings explain some of the trend. The causes of these cancers are complex, combining genetics, lifestyle and environmental factors.ⁱⁱ Early-onset cancers seem to have increased fastest in richer countries, highlighting the potential role of lifestyle factors.ⁱⁱⁱ

- **AI trained for human shortcomings**

AI tools are being developed to help people in many ways. They are expected to be (and some are already) much more effective than humans at certain tasks but they are also observed to be increasingly prone to human-like errors. Some AI systems are even learning to lie. For example, Meta's 'Cicero', which stands out as a "master of deception", was trained to play strategy games by betraying alliances when needed for winning.^{iv}

- **Gamifying voting**

Gamification, or the use of game mechanics to increase participation, has been increasingly experimented with in digital government tools, mainly for services and governance at municipal level. It is mostly used to improve engagement in citizen consultations, for sharing information or for encouraging sustainable behaviour.^{v,vi}

In the face of decreasing voter turnout in many countries, some people try to apply gamification to politics, and especially to the voting process.^{vii} *VoterCat* is an application created during a "Code the Vote" hackaton which turns expressing a vote into "an engaging and rewarding adventure"^{viii}. In US elections, campaign apps use gamification for voter outreach, giving redeemable points for sharing information about the campaign^{ix}. The voting process itself has also been increasingly gamified, for example with political gambling markets gaining popularity through "horse race" elections coverage, focusing on winning odds rather than on policy positions.^{x,xi}

- **Fracturing Greentech global supply chains**

The US Biden administration introduced a 100 percent tariff on Chinese-made electric vehicles (EVs) in May 2024.^{xii} This follows the introduction of the US Inflation Reduction Act in 2022 which aims at attracting investments into American green value chains through tax exemptions.^{xiii} The trade clashes between the US and China affect global green technology supply chains, risking to partly decouple and fracture global green technology supply chains. The EU, as one of the actors caught in the middle, now needs in turn to come up with its own strategy to save its green technology or risks falling behind.

- **Deteriorating late adulthood conditions**

Current demographic and healthcare trends indicate that the proportion of people aged 65+ with complex health problems and limited resources will increase substantially over the next decades.^{xiv} This is happening at a time when providing appropriate health services will be very challenging due to health workforce shortages, public budget deficits and the complex transition from "cure-seeking medical care" (aiming at restoring organ function) to "cure-and-support seeking medical care" (aiming at restoring activity rather than cure).^{xv} Old people are also expected to be disproportionately affected by climate change effects and pollution.^{xvi} Simultaneously, pensions in the EU are expected to drop from currently 43% of average wages to 36% in 2070,^{xvii} with retirees having high private debt (e.g. from ultra-long mortgages). This could lead to retirees being increasingly at risk of economic insecurity and engaging in the gig economy to make ends meet.

- **Wombfare**

The increase of geopolitical tensions has brought to attention the role of population growth to project power and maintain territory. News of India overtaking China in 2022 as the country with the largest population in the world have made headlines as many countries grapple with population decline.^{xix}

Political demographers have analysed the weaponisation of migration extensively, but there is an increasing recognition of the weaponisation of population growth. This can have a big impact on the dynamics of ethnic, religious and international conflicts.^{xx} *Wombfare* is the use of fertility as a political weapon to defeat rival ethnic and religious groups. It is deployed by both religious and secular groups to gain political influence where differential demographic growth rates can lead to state collapse and violent conflict.^{xxi}

- **Extensions of citizenship**

The concept of citizenship is increasingly extending to new domains beyond the nation state. This is linked to education, rights and obligations in global, digital or environmental contexts^{xxii}. In the EU, a 2023 Eurobarometer survey showed that while 72% of interviewees felt that they are EU citizens, only 58% said they were aware of their rights as EU citizens. The United Nations define global citizenship as social, political, environmental, and economic actions of globally minded individuals and communities worldwide.^{xxiv} Climate and digital citizenships emphasise the rights and responsibilities in the green and digital domains.^{xxv,xxvi} In this context, Tuvalu, a country at risk of being flooded due to climate change, is looking to preserve its nation and culture digitally, as a digital nation.

- **Modular sovereignty**

In early 2024, the Egyptian Government signed a 35 billion USD deal with the Abu Dhabi sovereign fund to develop the Ras al-Hekma peninsula. This is perceived as selling-off land in the face of economic crisis.^{xxviii} As sovereign funds increasingly invest in land and real estate^{xxix,xxx} and with growing Chinese state investments in international infrastructures^{xxxi}, the concept of territorial sovereignty becomes blurred.

While territorial sovereignty remains a defining element of state in international law, actual power relations can make sovereign power modular, i.e. operating as an adaptable, even partly exchangeable and highly mobile form of power that evolves through crises and emergencies^{xxxii}. This is significant as the world evolves towards a new international order.

- **Recognising chaotic climate change**

The butterfly effect is a metaphor that describes how small events can lead to serious consequences over time. This makes weather forecasting, for instance, very difficult as small local weather changes increasingly impact broader weather patterns over time.^{xxxiii} Likewise with climate change. We can't predict every single impact that rising average temperatures will have on people, nature and the world. But as temperatures rise, these butterfly effects are becoming increasingly recognised. While people tend to focus on the negative consequences, this effect means that the smallest efforts against climate change anywhere in the world can also end up having world-changing outcomes.

- **Engineering the gut microbiome**

While the gene-editing tool CRISPR has been extensively used to modify individual microbes, research is turning towards the engineering of entire microbiomes.^{xxxv} The human gut microbiome is the object of particular attention for promoting health and treating disease. The ecology of the trillions of human gut microorganisms is now known to have not only an impact on health, but also on how we think and sleep. Recent studies also point to the gut microbiome as having a good potential for antibiotic discovery. These very promising advances are but an early stage in the discovery of how microbial communities influence the organisms that host them but hold serious promises in terms of being able to change microbiomes for therapeutic purposes.

● Adolescents on financial markets

Teenagers (13-17 years old) are increasingly investing in financial and cryptocurrency markets through online apps^{xxxviii, xxxix}. A US study shows that 23% of teens are already investing, with 75% saying that this is important to them.^{xl} The UK Financial Conduct Authority reports that 8% (over 250,000) of 13-16-year-olds hold high-risk crypto assets, sometimes confusing gambling, trading, investing and entertainment^{xli}. This confusion between entertainment and actual investing changes radically the usual psychology of economic actors and opens the door to large scale manipulation of vulnerable users.

ⁱ <https://bmjncology.bmj.com/content/2/1/e000049>

ⁱⁱ [Why are so many young people getting cancer? What the data say \(nature.com\)](#)

ⁱⁱⁱ [Early-onset cancer: why are more young adults being diagnosed? - Cancer Research UK - Cancer News](#)

^{iv} <https://nypost.com/2024/05/14/business/metas-ai-system-cicero-beats-hum%E2%80%A6>

^v [Japan's gamified environment apps target a greener mindset - The Japan Times](#)

^{vi} [4 Ways Gamification Can Promote Sustainable Urban Planning | Green City Times](#)

^{vii} [Gamification of Elections - FH JOANNEUM \(fh-joanneum.at\)](#)

^{viii} [VoterCat | Devpost](#)

^{ix} <https://www.bbc.com/news/magazine-16535626>

^x [You can now bet on the presidential election \(scrippsnews.com\)](#)

^{xi} ['Horse race' coverage of elections: What to avoid and how to get it right \(journalistsresource.org\)](#)

^{xii} <https://carnegieendowment.org/emissary/2024/05/china-ev-tariffs-biden-why-world-unpacked-podcast?lang=en>

^{xiii} <https://www.frontier-economics.com/uk/en/news-and-insights/articles/article-i10390-the-inflation-reduction-act-and-what-it-means-for-the-eu-and-the-uk/>

^{xiv} Baådoudi F, Picavet SHSJ, Hildrink HBM, Hendrikk R, Rijken M, de Bruin SR. Are older people worse off in 2040 regarding health and resources to deal with it? - Future developments in complex health problems and in the availability of resources to manage health problems in the Netherlands. *Front Public Health*. 2023 Jun 16;11:942526. doi: 10.3389/fpubh.2023.942526. PMID: 37397729; PMCID: PMC10311544.

^{xv} Arai H, Ouchi Y, Toba K, Endo T, Shimokado K, Tsubota K, Matsuo S, Mori H, Yumura W, Yokode M, Rakugi H, Ohshima S. Japan as the front-runner of super-aged societies: Perspectives from medicine and medical care in Japan. *Geriatr Gerontol Int*. 2015 Jun;15(6):673-87. doi: 10.1111/ggi.12450. Epub 2015 Feb 5. PMID: 25656311.

^{xvi} Figueiredo T, Midão L, Rocha P, Cruz S, Lameira G, Conceição P, Ramos RJG, Batista L, Corvacho H, Almada M, Martins A, Rocha C, Ribeiro A, Alves F, Costa E. The interplay between climate change and ageing: A systematic review of health indicators. *PLoS One*. 2024 Apr 24;19(4):e0297116. doi: 10.1371/journal.pone.0297116. PMID: 38656926; PMCID: PMC11042704.

^{xvii} European Commission, 2024 Ageing Report. Economic and budgetary projections for the EU Member States (2022-2070), European Economy Institutional Paper 279

^{xviii} <https://restofworld.org/2024/aging-global-gig-workers/>

^{xix} [Countries with the largest population 2024 | Statista](#)

^{xx} [Weaponising demographics is an old Sangh chestnut \(deccanherald.com\)](#)

^{xxi} Toft, M.D. "Wombfare: The Weaponization of Fertility." In *A Research Agenda for Political Demography*, 101–14, 2021.

^{xxii} [PDE11_1_A5.pdf \(aalto.fi\)](#)

^{xxiii} [Idea of EU citizenship still intangible for most Europeans \(theconversation.com\)](#)

^{xxiv} [Global Citizenship | United Nations](#)

^{xxv} [JUSTICE AND CONSUMERS - Digital Citizenship Education Handbook by Council of Europe \(europa.eu\)](#)

^{xxvi} [Climate Citizenship in action | King Baudouin Foundation \(kbs-frb.be\)](#)

^{xxvii} [Tuvalu To Become First Digital Nation As Island Is At Risk Of Sinking - TechRound](#)

^{xxviii} [Understanding Egypt's Ras Al-Hekma Land Deal: No Panacea - The Tahrir Institute for Middle East Policy \(timep.org\)](#)

^{xxix} [Sovereign wealth funds get comfortable with real estate investment \(jll.it\)](#)

^{xxx} Blekking, J., Aassouli, D. & Jureidini, R. Food security and large-scale land acquisitions by sovereign wealth funds: a systematic review of the literature from 2012 to 2023. *Agric Econ* **12**, 28 (2024). <https://doi.org/10.1186/s40100-024-00320-y>

^{xxxi} [https://www.europarl.europa.eu/RegData/etudes/STUD/2023/747278/IPOL_STU\(2023\)747278_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2023/747278/IPOL_STU(2023)747278_EN.pdf)

^{xxxii} Bakonyi, Jutta. "Modular Sovereignty and Infrastructural Power: The Elusive Materiality of International Statebuilding." *Security Dialogue* **53**, no. 3 (June 1, 2022): 256–78. <https://doi.org/10.1177/09670106211051943>.

^{xxxiii} <https://www.nationalacademies.org/based-on-science/what-does-the-butterfly-effect-have-to-do-with-weather-forecasts>

^{xxxiv} <https://pubs.acs.org/doi/10.1021/acs.est.3c09025>

^{xxxv} [Engineering the Microbiome: CRISPR Leads the Way | The Scientist Magazine® \(the-scientist.com\)](#)

^{xxxvi} [The future of the gut microbiome | Stanford University School of Engineering](#)

^{xxxvii} [The Surprising Origin of the Next Super Antibiotic: Your Gut \(scitechdaily.com\)](#)

^{xxxviii} [Teenagers Are Pouring Into the Stock Market - WSJ](#)

^{xxxix} [How to Buy Crypto Under 18: A Guide for Teens \(analytcsinsight.net\)](#)

^{xl} [Fidelity® Study Reveals Teens Think Investing is Important. But Fewer Than 1 in 4 Have Actually Started](#)

^{xli} [Teenagers are taking a punt on high-risk crypto, warns FCA | This is Money](#)