Compilation of the Group Works

Foreword

The 63rd Graduate Study Programme (GSP) was held at the Palais des Nations in Geneva, Switzerland from 30 June to 11 July 2025, bringing together 52 graduate students from around the world. Organized by the United Nations Information Service Geneva, GSP is the longest-running educational initiative of the United Nations.

This report represents a collection of written works of the five Working Groups composed of students and facilitated by staff of the United Nations, the Kofi Annan Foundation, and the Geneva Science and Diplomacy Anticipator. The five Working Groups looked into five aspects of the Pact for the Future and its annexes.

Opinions, positions, statements, and conclusions expressed in the five reports included in this compilation are exclusively of their authors – graduate students who participated in the Programme. They do not necessarily represent or reflect the views of the United Nations, the group facilitators, or the facilitators' respective organizations.

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Content

1.0 Introduction

Emerging technologies continue to be a major issue for regulators and policymakers worldwide amid the fourth Industrial Revolution. Exacerbated by the COVID-19 pandemic, digital and other emerging technologies have significant societal transformatory potential but remain largely ungoverned at an international level. The Global Digital Compact (GDC)[1], ratified as part of the United Nations' Pact for the Future in 2023, aims to provide a global framework by which digital technologies are governed. The United Nations Office on Digital and Emerging Technologies (ODET), a new body started in January 2025, aims to track the progress of the GDC, while playing a larger role in the global governance of digital and other emerging technologies. This report shall provide a rationale for the global governance of emerging technologies and provide an outline for what that governance needs to look like to be effective.

We used the Geneva Science and Diplomacy Anticipator (GESDA) radar[2] and its categories as our basis.

Figure 1: GESDA Science Breakthrough Radar

[1] United Nations. (2023). *Global Digital Compact*. Available at: https://www.un.org/global-digital-compact/sites/default/files/2024-09/Global%20Digital%20Compact%20-%20English_0.pdf

[2] GESDA. (2025). GESDA Science Breakthrough Radar®. Geneva Science and Diplomacy Anticipator. Retrieved July 10, 2025, from https://radar.gesda.global/

This report provides a rationale for the global governance of emerging technologies and outlines what effective governance frameworks must encompass. We do this by analyzing five emerging technologies which have received extensive policy attention that demonstrate significant growth potential, disruptive capacity, and societal impact implications over the next two decades.

These are:

- Health span and Longevity Extension Technologies (HLETs)
- Brain-Computer Interfaces (cognitive enhancement)
- Genetic engineering / Gene Editing
- Carbon Capture, Utilization and Storage (CCUS)
- Quantum Computing

Our analysis examines governance gaps across multiple scales, from technical standards and national regulations to international coordination mechanisms, identifying where current approaches fall short and what comprehensive governance requires.

2.0 Brain-Computer Interfaces (cognitive enhancement)

2.1 Current state and Potential

Brain-Computer Interfaces (BCIs) refer to neurotechnologies that facilitate direct communication between the human brain and external digital systems. Originally designed for clinical use in restoring motor and sensory functions for individuals with disabilities, BCIs are now rapidly evolving toward non-invasive cognitive enhancement for healthy populations. While this technology had long been a laboratory curiosity, it is now aimed at revolutionizing critical industries like healthcare, defense, and human cognition.[3] The global BCI market is projected to grow from USD 2.83 billion in 2025 to USD 8.73 billion by 2033, with a CAGR of approximately 15.13%. A different forecast estimates growth from USD 2.94 billion in 2025 to USD 12.40 billion by 2034, with a higher CAGR of 17.35%.[4] These reports are a few examples of the market optimism on the relevance of the BCI industry in the next decade.

Clinical and consumer deployments have already begun. In 2021, neurotechnology platform BrainGate achieved the first high-speed wireless brain-to-computer communication that enabled users with spinal cord injuries to type without physical input.[5] Similarly, Neuralink successfully implanted its "Telepathy" device in the first human participants by early 2024 following approval. Reports indicate this participant can now control a computer and smartphone using only brain signals. As of April 2025, five people, including a military veteran, have been implanted with

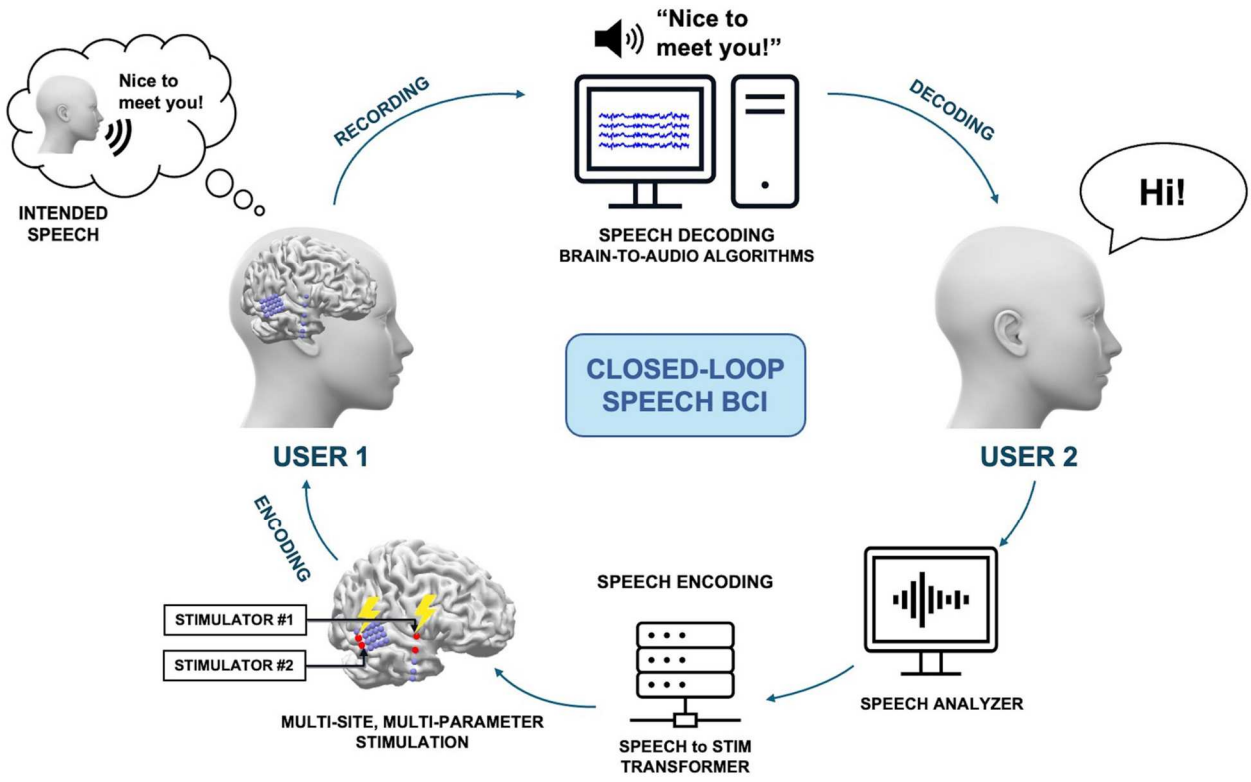
[3] Roh, T., Nguyen, M. T., Bui, D., Han, S., Kim, J., and Kim, D. J. 2024. *A descriptive review of brain–computer interfaces for medical applications*. Journal of Surgical Research, 293, pp. 49–61. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11392146/ (Accessed: 5 July 2025)

[4] Straits Research Private Limited. (19 February 2025). *Brain-Computer Interfaces Market Size is Projected to Reach USD 8.73 Billion by 2033, Growing at a CAGR of 15.13%* [Press release]. GlobeNewswire. Retrieved from GlobeNewswire.

[5] Brown University. 2021. *First human use of high-bandwidth wireless brain-computer interface*. 31 March. Available at: https://www.brown.edu/news/2021-03-31/braingate-wireless (Accessed: 5 July 2025).

Neuralink chips as part of a study at the University of Miami. Furthermore, in May 2025, Neuralink revealed its first nonverbal ALS patient, Brad Smith, can edit a video, move a cursor, and narrate with a synthetic voice created from his pre-ALS recordings entirely through his implant.[6] However, technologies with such transformative potential inevitably present significant risks. BCIs blur the boundaries of personal cognition, raising fundamental questions about mental privacy and autonomy. In the absence of rigorous safeguards, these technologies could exacerbate cognitive inequalities or enable unprecedented forms of mental manipulation.

Figure 2: Closed-Loop Speech Brain–Computer Interface (BCI) Communication Framework[7]



BCI Technology and Global Impact

BCIs can be categorized as invasive, minimally invasive, or non-invasive. Invasive BCIs have achieved remarkable signal decoding speeds. Stanford's 2021 implant enabled paralyzed participants to recreate handwriting at 90 characters per minute, while University of California researchers demonstrated 15 words per minute communication using speech-related neural

[6] Evans, S. 2025. *The first nonverbal patient to receive Elon Musk's Neuralink shares a video he edited and narrated using his brain chip*. Business Insider. 5 May. Available at: https://www.businessinsider.com/als-neuralink-patient-edits-video-brain-ai-voice-elon-musk-2025-5 (Accessed: 8 July 2025).

[7] See figure 1: This diagram illustrates a closed-loop speech BCI system enabling bidirectional communication between two users. User 1's intended speech is decoded from neural activity using brain-to-audio algorithms and transmitted to User 2. The received speech is then processed and transformed into targeted multi-site brain stimulation in User 2, completing a feedback loop. The system integrates components for speech decoding, encoding, stimulation, and analysis to facilitate seamless neural communication.

signals.[89] Minimally invasive systems, including Synchron's Stentrode and Precision Neuroscience's thin-film devices, have progressed through human trials, demonstrating real-world safety and performance.[1011] Non-invasive EEG-based BCIs are increasingly common in gaming and diagnostics, with February 2025's "Brain2QWERTY" deep-learning model enabling improved non-invasive text entry.[12] Market estimates range from $1.74 billion in 2022 to $12.4 billion by 2034.[13]

BCIs deliver transformative medical outcomes, enabling paralyzed patients to control prosthetics and communicate. However, significant risks emerge around mental privacy and security. Colorado enacted the first neural data protection law in August 2024, categorizing brain-derived information as sensitive data requiring opt-in consent. Research demonstrates "brain hacking" vulnerabilities where EEG signal perturbations can cause misinterpretation of user intentions. Military applications through DARPA-backed research raise concerns about weaponized cognitive control and the need for regulatory frameworks governing militarized neural technologies.

2.2 Governance Gap Analysis

The global governance landscape for brain-computer interfaces reveals critical regulatory fragmentation that fails to match the technology's accelerated advancement and cross-border implications. For instance, only two U.S. states (Colorado and Minnesota) have enacted specific laws protecting neural data, with Minnesota creating criminal penalties for violations of neural data rights.[14] only Chile has enacted a dedicated neural data law. Globally only six countries have indirectly related neural data laws. In contrast, the vast majority of jurisdictions operate without any BCI-specific legal frameworks. This regulatory vacuum becomes particularly concerning given that international frameworks remain limited to non-binding recommendations from the OECD and UNESCO, lacking enforcement mechanisms essential for global compliance. The absence of standardized neural data formats and interoperability protocols creates significant barriers to responsible innovation.[15] Current frameworks fail to address fundamental

[8]Willett, F.R., et al. "High-performance brain-to-text communication via handwriting." Nature 593, 249–254 (2021). doi:10.1038/s41586-021-03506-2

[9] Chang, E.F., et al. "An Accurate and Rapidly Calibrating Speech Neuroprosthesis." New England Journal of Medicine (2021). doi:10.1056/NEJMoa2314132

[10] Simeral, J.D., et al. (2023). Assessment of Safety of a Fully Implanted Endovascular Brain-Computer Interface for Severe Paralysis in 4 Patients: The Stentrode With Thought-Controlled Digital Switch (SWITCH) Study. *JAMA Neurology*, 40(1), 68-75. doi:10.1001/jamaneurol.2022.4847

[11] Synchron. (2024, September 30). Synchron Announces Positive Results from U.S. COMMAND Study of Endovascular Brain-Computer Interface. *Business Wire*. Retrieved from https://www.businesswire.com/news/home/20240930433219/en/

[12] Lévy, J., et al. (2025). Brain-to-Text Decoding: A Non-invasive Approach via Typing. *arXiv preprint* arXiv:2502.17480. Retrieved from https://arxiv.org/abs/2502.17480

[13] World Economic Forum. (2024, June). The brain computer interface market is growing but what are the risks? *World Economic Forum*. https://www.weforum.org/stories/2024/06/the-brain-computer-interface-market-is-growing-but-what-are-the-risks/

[14] Gordon, Emma C. and Anil K. Seth. "Ethical considerations for the use of brain–computer interfaces for cognitive enhancement." *PLOS Biology*, vol. 22, no. 10 (2024): e3002899. DOI: 10.1371/journal.pbio.3002899. Available at: https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3002899

[15] Singh, Amardeep, Luca Bianchi, Davide Valeriani and Masaki Nakanishi. "Editorial: Advances and challenges to bridge computational intelligence and neuroscience for brain-computer interface." *Frontiers in Neuroscience*, vol. 18 (2024): 1456515. DOI: 10.3389/fnins.2024.1456515. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC11333880/

accountability questions when BCI influence potentially overrides free will and control over actions, particularly relevant for military and enhancement applications, where traditional liability concepts prove inadequate. The rapid emergence of commercial BCI products, from Neuralink's FDA-approved devices to Neurable's consumer headphones, outpaces regulatory development, creating a dangerous precedent where market forces drive deployment without comprehensive safety or ethical oversight. This governance deficit becomes more critical as BCI applications expand beyond medical use into cognitive enhancement, creating unprecedented questions about human identity, mental autonomy, and societal equity that transcend traditional regulatory boundaries. Without coordinated global governance, technology risks developing along fragmented national lines, potentially creating incompatible standards, regulatory arbitrage, and exacerbating global inequalities in access to cognitive enhancement.

2.3 UN/ODET Values

Existing UN and multilateral efforts

Current UN and multilateral efforts on BCI governance remain fragmented across multiple agencies and organizations, creating coordination gaps that undermine comprehensive policy development. UNESCO's 2023 Declaration on the Ethics of Neuroscience and Neurotechnology represents the most comprehensive international framework to date, yet lacks the binding mechanisms necessary for effective implementation across diverse technological applications.[16] Within the UN system, WHO addresses neurological disease burden and BCI applications for disability support within existing health frameworks, while OHCHR examines human rights implications of neurotechnology, particularly concerning mental autonomy and privacy of thought. However, these efforts operate in institutional silos without coordinated policy integration. Beyond the UN, the OECD has developed comprehensive Recommendations on Responsible Innovation in Neurotechnology (2019, updated 2023), providing valuable guidelines for member states but lacking binding enforcement mechanisms essential for global compliance.[17] Regional efforts, including the EU's development of regulatory frameworks within AI Act provisions, remain limited in scope and fail to address BCI-specific governance challenges comprehensively.

UN-ODET: Role, Value Addition

ODET's unique position can enable multilateral collaboration among diverse stakeholders. The multidisciplinary nature of BCI research creates significant gaps in sharing methods and datasets between computational intelligence and neuroscience communities, highlighting the critical need for unified coordination mechanisms.[18] Key stakeholders, including neuroscientists, technologists,

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[16] United Nations Educational, Scientific and Cultural Organization. *Recommendation on the Ethics of Artificial Intelligence*. UNESCO Doc. 41 C/28, Paris: UNESCO, 2023. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000385082

[17] Organisation for Economic Co-operation and Development. *Recommendation of the Council on Responsible Innovation in Neurotechnology*. OECD/LEGAL/0457, Paris: OECD Publishing, 2019, updated 2023. Available at: https://www.oecd.org/sti/recommendation-on-responsible-innovation-in-neurotechnology.htm

[18] Singh, A., Bianchi, L., Valeriani, D., & Nakanishi, M. (2024). Editorial: Advances and challenges to bridge computational intelligence and neuroscience for brain-computer interface. *Frontiers in Neuroscience*, *18*, Article 1434838. https://doi.org/10.3389/fnins.2024.1434838

ethicists, and policymakers, are essential for developing frameworks that address both technical standardization and ethical governance. Given the rapid pace of BCI advancement, where enhancement applications are emerging alongside medical uses, ODET can establish early warning systems for convergence risks and implement proactive standard-setting before market dominance solidifies. Most critically, ODET can operationalize Global Digital Compact provisions specifically for neural data, establishing the world's first comprehensive framework for cognitive rights protection. The fundamental questions BCI raises about human identity, consciousness, and agency require universal principles that transcend national boundaries, which can only be effectively provided by the UN system's legitimacy. Leveraging UN development mandates, ODET can ensure that BCI benefits developing countries and vulnerable populations, thereby preventing the "cognitive divide" from exacerbating global inequalities. Through this integrated approach, ODET can transform fragmented national responses into a coordinated global governance framework that protects human rights while enabling beneficial technological advancements.

3.0 Carbon Capture, Utilization and Storage (CCUS)

3.1 Current state and Potential

Carbon Capture, Utilization and Storage (CCUS) is a critical climate mitigation technology designed to prevent large volumes of carbon dioxide (CO_2) from entering the atmosphere, particularly from major emission sources such as power plants, cement factories, and steel mills[19]. While often considered an emerging innovation, its core component Carbon Capture and Storage (CCS) has been in safe commercial use for over four decades, demonstrating a proven track record in reducing greenhouse gas emissions. Under the Clean Development Mechanism of the UNFCCC, CCS is defined as "the capture and transport of carbon dioxide from anthropogenic sources of emissions, and the injection of the captured carbon dioxide into an underground geological storage site for long-term isolation from the atmosphere"[20].

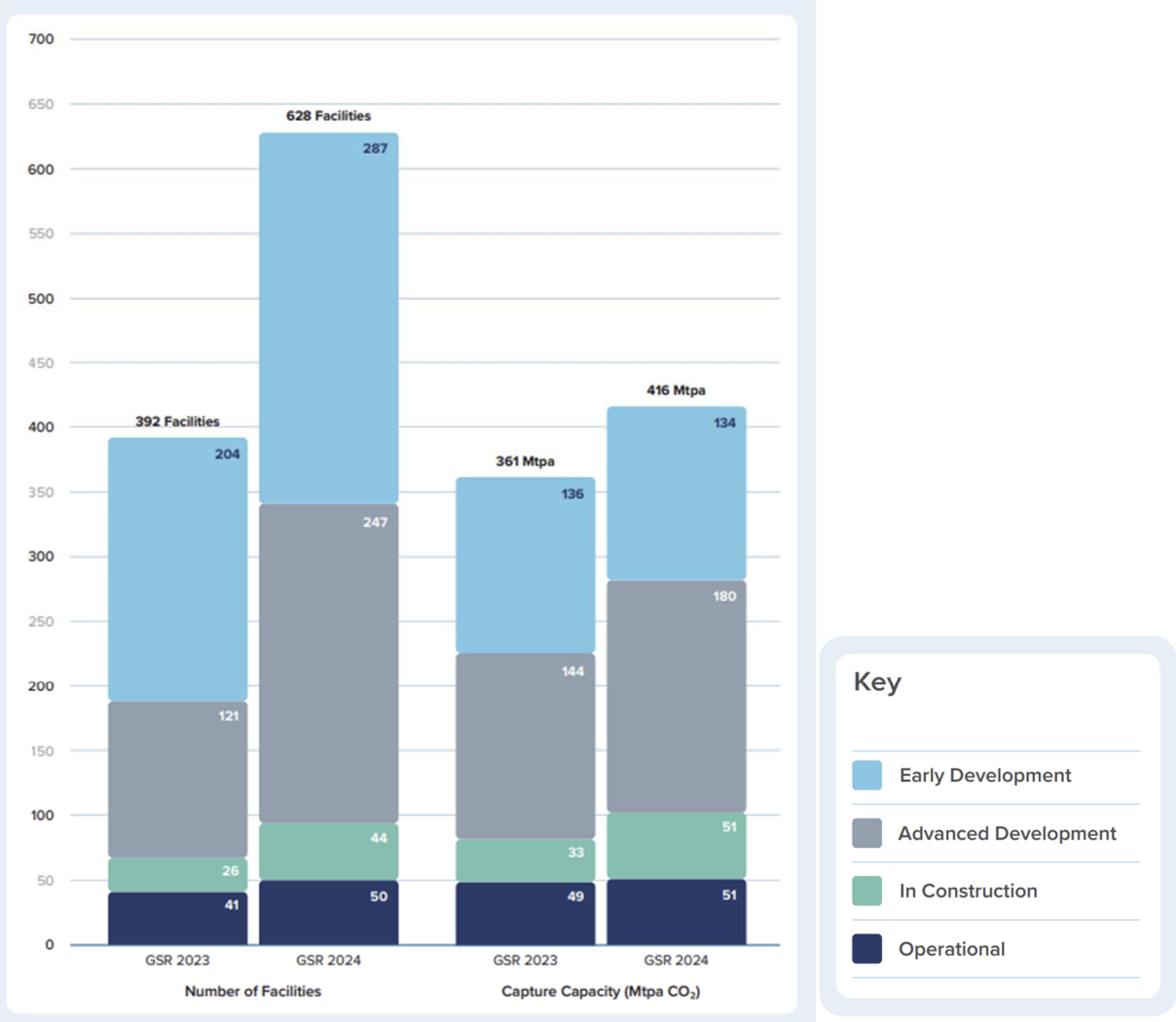
The CCUS process involves three main stages. First, during the capture phase, CO_2 is separated from other gases at industrial sites that use fossil fuels or biomass. If not used on-site, the CO_2 is then compressed and transported, typically via pipelines, but also by truck, rail, or ship to be either utilized in various industrial applications or injected underground into deep geological formations, such as depleted oil and gas reservoirs or saline aquifers, where it is securely and permanently stored. These storage sites are closely monitored to ensure environmental safety. Capture systems often target around 90% efficiency, significantly reducing emissions from the source facility[21].

CCUS plays a key role in clean energy transitions. It allows for the continued operation of existing power and industrial infrastructure while significantly cutting emissions, making it especially

[19] Global CCS Institute. (n.y.). *What is CCS?* Retrieved July 2, 2025, from https://www.globalccsinstitute.com/about/what-is-ccs/
[20] Global CCS Institute. (2022). *2022 Status Report*. Retrieved July 4, 2025, from https://status22.globalccsinstitute.com/2022-status-report/regional-overview/
[21] MIT Climate Portal. (2021). *How efficient is carbon capture and storage?* Retrieved July 2, 2025, from https://climate.mit.edu/ask-mit/how-efficient-carbon-capture-and-storage

important for hard-to-abate sectors like cement, steel, and chemicals[22]. Additionally, CCUS enables low-cost hydrogen production by capturing emissions from hydrogen derived from fossil fuels, supporting the decarbonization of sectors such as heavy industry, trucking, and shipping. It also offers a pathway for carbon dioxide removal, helping to balance residual emissions that are difficult or impossible to eliminate through other means.

Current State



Source: Global CCS Institute (2024)

As of July 2024, there are 50 CCS facilities operating around the world, 44 under construction, and more than 500 in development[23]. The total capture capacity, including projects under development, reaches 416 Mtpa CO2. Collaboration between governments around the world has

[22] International Energy Agency. (n.d.). *Carbon Capture Utilisation and Storage*. Retrieved July 3, 2025, from https://www.iea.org/energy-system/carbon-capture-utilisation-and-storage

[23] Global CCS Institute. (2024, November 6). *Global Status of CCS 2024*. https://www.globalccsinstitute.com/wp-content/uploads/2024/11/Global-Status-Report-6-November.pdf

also been expanding, with over 50 bilateral agreements in place since 2020, many involving cross-border transport and exporting CO_2 for storage in other countries.

Countries, especially developed ones, have started implementing carbon taxes for goods exported to their markets. The European Union's Carbon Border Adjustment Mechanism (CBAM) places a carbon price on imports of emissions-intensive goods like steel and cement, incentivizing exporters to reduce their emissions through technologies like CCS[24]. Similarly, domestic carbon pricing regimes are tightening globally, with Singapore raising its carbon tax to SGD 25/tCO_2e for 2024–2025, aiming for SGD 50–80/tCO_2e by 2030.[25]

These escalating carbon prices create strong economic incentives to adopt CCS. However, if CCS is not regulated and standardized by an international body, such as the UN Office for Digital and Emerging Technologies (UN ODET), there is a growing risk it could become a de facto trade barrier. Wealthier countries with the resources to implement CCS would gain preferential market access, while developing countries might be excluded or penalized, potentially reinforcing global inequalities. This situation risks triggering trade tensions and exacerbating the climate technology gap. UN ODET is uniquely positioned to mitigate these risks by promoting global standards, enabling interoperable digital MRV systems, and supporting equitable capacity-building, ensuring that policies like CBAM and carbon taxes support inclusive sustainable development.

Existing UN and Multilateral Efforts

Several countries have included CCUS in their Nationally Determined Contributions (NDCs), although detailed guidance is still lacking. Agencies like UNEP, UNDP, and UNIDO provide technical assistance and capacity-building for sustainable industrial practices, including CCUS. The Global Digital Compact offers a framework for piloting open digital governance systems, which could be applied to CCUS monitoring, reporting, and verification (MRV). The International Energy Agency (IEA) and Global CCS Institute provide technical research, policy handbooks, and country roadmaps.

3.2 Governance Gap Analysis

Governance surrounding CCUS is urgently needed. Currently, no unified global standards exist for lifecycle carbon accounting. Monitoring, reporting, and verification (MRV) standards vary widely across countries, and carbon credit markets inconsistently recognize or regulate CCUS projects. Additionally, there are no clear transboundary rules governing the storage and transportation of captured CO_2, contributing to fragmented and underdeveloped governance.

In the absence of strong governance frameworks, significant risks arise, such as legal uncertainty and potential environmental and sovereignty risks. A major concern is the uneven deployment of CCUS, which could favor wealthier countries with the resources to implement the technology.

[24] European Commission. (2023, October 17). *Carbon Border Adjustment Mechanism (CBAM)*. European Commission. Retrieved July 8, 2025, from https://trade.ec.europa.eu/access-to-markets/en/news/carbon-border-adjustment-mechanism-cbam

[25] NCCS. (2025). Carbon Tax. *National Climate Change Secretariat of Singapore*. Retrieved July 8 2025, from https://www.nccs.gov.sg/singapores-climate-action/mitigation-efforts/carbontax/

Another risk is the possibility of greenwashing, where CCUS is used to justify the continued extraction and use of fossil fuels under the guise of mitigation.

Global Digital Compact

CCUS aligns closely with the Global Digital Compact (GDC), particularly in areas related to digital platforms, artificial intelligence, and open data systems. As the GDC promotes open digital governance systems, it could enhance the MRV of CCUS projects, ensuring transparency and accountability in carbon capture and storage. Moreover, the development of cross-border carbon pipelines and storage facilities raises complex issues related to environmental security and national sovereignty.

CCUS also supports the achievement of SDG 13 (Climate Action) and SDG 9 (Industry, Innovation, and Infrastructure) by reducing greenhouse gas emissions and fostering technological innovation in hard-to-abate sectors like cement, steel, and chemicals. The deployment of CCUS also facilitates infrastructure expansion and investment in cleaner industrial processes.

3.3 UN/ODET add-value

Future Horizons

Looking forward, initiatives like the Carbon Data Open Protocol (CDOP), launched in early 2025, aim to standardize carbon market data, while the Science Based Targets initiative's (SBTi) draft update to its Corporate Net-Zero Standard will strengthen net-zero credibility by improving emissions tracking and clarifying carbon credit use.[26] By 2030, over 430 million metric tons of CO_2 could be captured every year if the 628 projects worldwide operate at full capacity.[27] To align with net-zero targets, the global CCUS technology capacity must expand significantly by more than 100 times by 2050, targeting 4 to 6 gigatons of CO_2 annually to decarbonize about 15% to 20% of today's energy-related emissions.

Recommendations

Recognizing the role of CCS and CCUS as critical technologies to achieve deep decarbonization, particularly in hard-to-abate sectors and fossil-fuel dependent economies;

Noting the conclusions of the UNFCCC Executive Board (EB 26, Annex 13) that the inclusion of CCS under the Clean Development Mechanism (CDM) faces considerable methodological, legal, and technical challenges[28];

[26] McAllister, L. (2025, April 30). How CDOP and SBTi are redefining global carbon market standards. *Reuters*. https://www.reuters.com/legal/legalindustry/how-cdop-sbti-are-redefining-global-carbon-market-standards-2025-04-30/

[27] Majid, A., & Almulla, M. (2025, March 26). 3 essentials for carbon capture and storage to really take off. *World Economic Forum*. https://www.weforum.org/stories/2025/03/carbon-capture-storage-essentials-uptake/

[28] UNFCCC. (2011). *Modalities and procedures for carbon dioxide capture and storage in geological formations as clean development mechanism project activities (Decision 10/CMP.7)* [FCCC/KP/CMP/2011/10/Add.2]. United Nations Framework Convention on Climate Change.

Acknowledging the potential of emerging digital technologies to improve the monitoring, reporting, and verification (MRV) of CCS/CCUS projects;

Emphasizing the importance of addressing long-term liability, transboundary governance, and environmental integrity in the deployment of CCS/CCUS;

Recommends that the UN Office for Digital and Emerging Technologies (UN ODET), within its mandate, take the following actions:

1. Facilitate agreement on baseline standard liability norms: Collaborate with ISO, GHG Protocol, and other stakeholders to create harmonized standards for lifecycle emissions from CCUS projects, including Enhanced Oil Recovery (EOR).

2. Support Global South capacity-building for CCUS deployment: Use platforms such as UNODET, UNDP, and UNIDO to provide training, regulatory frameworks, and funding access to developing nations, helping them implement CCUS technology.

3. Support meaningful inclusion in NDCs: Ensure multi-stakeholder participation, including indigenous groups, youth, civil society, etc., in the development of NDCs related to CCUS.

4. Integrate Free, Prior, and Informed Consent (FPIC): Adopt FPIC and environmental justice principles into project approvals and community engagement processes, ensuring that all stakeholders are meaningfully involved.

4.0 Genetic Engineering/Genome Editing

4.1 Current State and Potential

The advent of gene editing technologies represents immense opportunities in agriculture, more precisely in food production optimization, as well as solutions for grave genetic diseases such as sickle cell disease which affect around 8 million people worldwide.[29] The most significant development in recent years is indeed the approval for gene-edited therapy for sickle cell disease.

Genetic engineering in large cannot longer be considered as a technology on the horizon but rather one that has arrived and will continue to expand. With such possibilities of expansion comes an urgent need for commensurate governance. To date the public and regulatory discourse has largely been focused on CRISPR-Cas9, which is the foundational technology that allows scientists to precisely modify DNA sequences.[30]

However, given the rapid evolution of the technology, with new toolkits that offer improved precision, efficiency, and versatility, static regulation, without adaptation, would quickly become

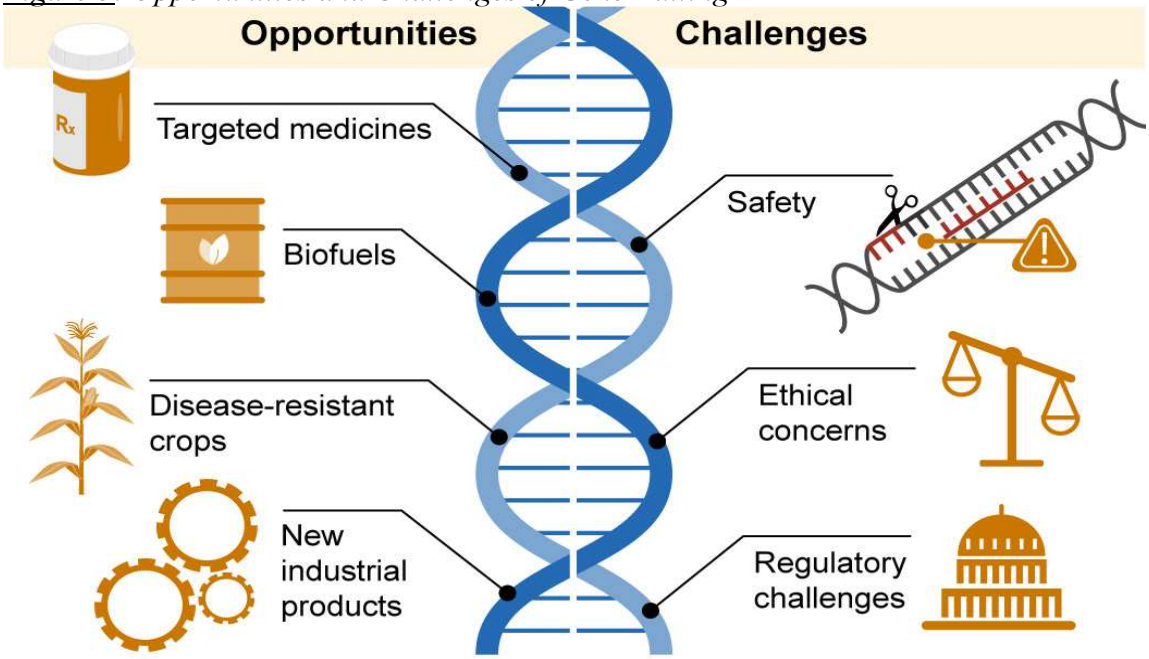
[29] "Sickle Cell Disease," National Heart, Lung, and Blood Institute, last modified March 27, 2024, https://www.nhlbi.nih.gov/health/sickle-cell-disease.
[30] What Is CRISPR?," Innovative Genomics Institute (IGI), University of California, Berkeley, accessed July 3, 2025, https://innovativegenomics.org/what-is-crispr/.

obsolete. There is therefore a need to shift from a reactive governance model to a more adaptive and forward-looking one, to accommodate new genetic editing tools and techniques.

Moreover, beyond clinical and agricultural use cases the field is opening up new fields of inquiry and application that present even more complex ethical challenges. Examples include the ability of creating precise genetic changes in cell lines and animal models to simulate human diseases like Parkinson's or cancer; or modifying the genomes of animals, primarily pigs, to make their organs more compatible with the human body.[31]

Societal Impacts & Challenges (*The Risks and Opportunities*)

Figure 3: Opportunities and Challenges of Gene Editing



Source: (Science & Tech Spotlight, 2020)[32]

In everyday life, where there are opportunities then risks are likely to arise. What the World was not expecting to see was how vastly technology is taking the lead in many sectors, including science. Genome editing technologies like CRISPR-Cas9 allow scientists to precisely alter DNA, offering potential treatments for genetic disorders.[33] It holds promise for the treatment and prevention of more complex diseases, such as cancer, heart disease, mental illness, and human immunodeficiency virus (HIV) infection.

[31] What is Genome Editing?," MedlinePlus, National Lib
rary of Medicine, accessed July 3, 2025,
https://medlineplus.gov/genetics/understanding/genomicresearch/genomeediting/.
[32] U.S. Government Accountability Office, "Science & Tech Spotlight: Gene Editing," GAO-20-639SP, June 29, 2020, https://www.gao.gov/products/gao-20-639sp.
[33] What are genome editing and CRISPR-Cas9?," MedlinePlus, National Library of Medicine, last modified March 22, 2022, https://medlineplus.gov/genetics/understanding/genomicresearch/genomeediting/.

Medical benefits continue with the advancement of healthcare services, for instance, the couple could conceive of a genetically related child without passing on a genetic disease. Moreover, it has potential benefits in agriculture, whereby it plays a key role in the increase of crop yields, reduced costs for food, and resistance to pests and disease, with the main benefit of food security[34]. It goes beyond humans and the environment and includes the animals through the increase of yields and reduction of diseases, just like it does in humans.

From cancer treatments and elimination to the creation of strong drought-resistant crops to survive in a harsh environment. This same tool for impacting the World and people positively,
could on the other side be used to modify weapons by using various pathogens as a global security risk. Various studies have argued that there are many ethical concerns around genetic transformation. The increase of heritable changes due to Germline Editing can result in designer babies and be passed to future generations.

This is science, and of course, there are so many unpredictable consequences; this is well aligned with CRISPR-Cas9's[35] unknown future and long-term effects on humans, animals, and the environment at large. The increase of crop yields through genetically modified organisms is a risk to the environment due to the unforeseen consequences that may be harmful to the crops, soil, and consumers as well. The safety, regulatory, and societal concerns of gene editing using CRISPR-Cas9 are a pressing technology that needs to be taken into consideration for the increased social good.

4.2 Governance Gap Analysis

The governance challenge is not to choose between progress and precaution, but to forge a path that harnesses the former while responsibly managing the latter. The initial tests of approved gene therapies have come to market with staggering price tags, often costing upwards of $2 million per patient which leads to the issues of equity and access. One's genetic destiny should not be determined by one's economic status. For such a technology with great social value-add, to only serve affluent people would go against the foundational principles of global health and human rights championed by the United Nations through the Universal Declaration on Bioethics and Human Rights (2005) Article 15 which explicitly states that the benefits of scientific research should be shared with society as a whole and the international community.[36]

Perhaps, the most challenging ethical and governance issues are raised by the prospect of heritable human genome editing (HHGE). A majority of European Union countries have ratified the Oviedo

[34] Douglas Broom, "5 ways CRISPR gene editing is shaping the future of food and health," World Economic Forum, April 3, 2024, https://www.weforum.org/agenda/2023/02/crispr-gene-editing-impact-food-health/.
[35] "High Cost of Gene Therapies," Penn LDI, last modified January 26, 2024, https://ldi.upenn.edu/our-work/issue-briefs/high-cost-of-gene-therapies/.
[36] National Academies of Sciences, Engineering, and Medicine, *Heritable Human Genome Editing* (Washington, DC: The National Academies Press, 2020), https://doi.org/10.17226/25665.

Convention. Furthermore, other countries including Canada, Germany, and Australia have adopted specific statutory bans on HHGE. Likewise, in the United States, federal funds are prohibited for any clinical use of HHGE. China, along with other scientifically advanced nations, has enacted a framework for ethical oversight on heritable modification.

The regulatory responses to gene editing vary across countries. Even though the international scientific community functions as a non-state polycentric system that acknowledges and integrates these different governance frameworks, it mainly operates as a self-regulating system[37]. Self-governance is necessary but not sufficient, and the risk of conflicts of interest is high. The existing body of international law lacks binding rules posed by the technology, as well as any enforcement mechanism at the global level.

The Universal Declaration of Human Rights (1948) and following conventions, such as the Convention on the Rights of Persons with Disabilities (2006), lay the foundation that guide any biomedical technology. Furthermore, The UNESCO's Universal Declaration on the Human Genome and Human Rights (1997) posits the human genome as a "heritage of humanity". Building on this, the Universal Declaration on Bioethics and Human Rights (2005) put forward a comprehensive set of bioethical principles that respect human vulnerability and the equitable sharing of the benefits of scientific progress. Even though these UNESCO's declarations, including at the WHO's which serves primarily as a guideline providing entity, have been influential in shaping global norms and bioethics policies, they are not binding and are considered as "soft laws" making them not legally binding on Member States. Consequently, while the world has a set of shared principles there is a lack of shared enforceable rules in genetic engineering. This gap between accepted norms and binding law is a central element of a global governance deficit in the domain.

4.3 UN/ODET coordination across the UN system

What the World Health Organization (WHO) did and is still doing involves the creation of policies that will continue the enhancement of coordinating effectively the CRISPR-Cas9. There are various models created for reducing the challenges and risk from occurring, and WHO got involved after the rise of ethical concerns of genome editing. In 2018, it was when it formed a global expert committee for addressing ethical, scientific, legal, and even social issues that are related to somatic, germline, and heritable human genome editing.[38] The ethical values and principles were set for being based on making decisions, and governing effectively the usage for CRISPS-Cas 9 to be misused, unfair to the users, and free from risks to the people and planet. The United Nations System follows a guideline, and safeguards measures are put in place for the limitation of risks and the increase of ethical concerns while the implementation process is ongoing. Therefore, various global and regional entities gather in conferences for biosafety frameworks, and regulations.

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[37] United Nations Educational, Scientific and Cultural Organization, *Universal Declaration on the Human Genome and Human Rights*, November 11, 1997, https://www.unesco.org/en/legal-affairs/universal-declaration-human-genome-and-human-rights.

[38] World Health Organization, *Human Genome Editing: A Framework for Governance* (Geneva: World Health Organization, 2021), https://www.who.int/publications/i/item/9789240030060.

Final thoughts

The United Nations system has engaged with the issue of gene editing, through its specialized agencies. More specifically, the World Health Organization (WHO) has focused on the clinical and public health dimensions, UNESCO on the ethical and human rights implications, the Food and Agriculture Organization (FAO) on agricultural applications, and the Convention on Biological Diversity (CBD) on environmental safety[39]. While this is commendable there is a structural weakness shown by the fragmented, siloed response to a technology that is inherently convergent. In other words, The UN's many institutional responses fail to mirror the convergent nature of the technology. The UN Inter-Agency Committee on Bioethics (UNIACB) should be empowered to resolve the "governance mismatch" and drive a unified UN strategy for a convergent technology like gene editing, beyond being an entity for coordination and information sharing.

5.0 Health Span and Longevity Extension Technologies (HLETs)

5.1 Current State and Potential

Advancements in cancer research have led to significant increases in individual cancer survival rates.[40] The impact is often measured through Quality Adjusted Life Years (QALYs) as the years of life lost due to premature mortality and years of life lived with a non-fatal health outcome.[41]

In high-income countries, this has yielded gains of approximately 1.07 to 3.7 years in average life expectancy over several decades.[4243] In low- and middle-income countries, especially in sub-Saharan Africa, the impact has been significantly smaller due to poor access to screening, limited radiotherapy infrastructure, and high treatment abandonment rates. For example, in Nigeria, over 100,000 new cancer diagnoses occur per year, yet the country faces major gaps in care.[44] Another example of this divide is in Argentina, a middle-income country where cancer remains a leading

[39] James A. Schear and Sarah A. Tegan, "Unlocking the Promise of Gene Editing," Carnegie Endowment for International Peace, March 5, 2024, https://carnegieendowment.org/2024/03/05/unlocking-promise-of-gene-editing-pub-91866.

[40] Horgan, D., Van den Bulcke, M., Malapelle, U., Normanno, N., Capoluongo, E. D., Prelaj, A., ... & Hofman, P. (2024). Demographic analysis of cancer research priorities and treatment correlations. *Current Oncology*, *31*(4), 1839-186. https://www.mdpi.com/1718-7729/31/4/139

[41] Vergel, Y. B., & Sculpher, M. (2008). Quality-adjusted life years. *Practical neurology*, *8*(3), 175-182. https://pn.bmj.com/content/8/3/175

[42] Watt, J. A., Veroniki, A. A., & Straus, S. E. (2024). Lifetime Gained With Cancer Screening. *JAMA internal medicine*, *184*(2), 226-226. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2813616

[43] Wéber, A., Laversanne, M., Nagy, P., Kenessey, I., Soerjomataram, I., & Bray, F. (2023). Gains in life expectancy from decreasing cardiovascular disease and cancer mortality–an analysis of 28 European countries 1995–2019. *European Journal of Epidemiology*, *38*(11), 1141-1152. https://link.springer.com/article/10.1007/s10654-023-01039-8

[44] Akinwande, A. M., Ugwuanyi, D. C., Chiegwu, H. U., Idigo, F., Ogolodom, M. P., Anakwenze, C. P., Abi, R., & Odukoya, O. (2023). Radiotherapy services in low resource settings: The situation in Nigeria. *SAGE open medicine*, *11*. https://doi.org/10.1177/20503121231153758

cause of mortality, and innovations in treatment have had only partial reach due to economic barriers and uneven healthcare access.[45]

In short, while disease-specific research, especially cancer research, has achieved major therapeutic advances, its systemic effect on population-level mortality and health span remains constrained. It primarily improves survival after diagnosis, not the baseline probability of remaining disease-free.

I. HLETs: Systemic, Scalable, and Sustainable Impact

Drawing upon these advances, Health span and Longevity Extension Technologies (HLETs) emerged, representing a paradigm shift. Rather than targeting individual diseases in isolation, HLETs encompass a range of biomedical tools and interventions that aim to delay or prevent the onset of multiple chronic conditions by modulating the biological processes of aging itself. HLETs encompasses a wide range of interventions including most prominently, senolytics (which clear senescent cells), mTOR inhibitors, mitochondrial stabilizers, caloric restriction mimetics, and gene therapies that address systemic degeneration.[46]

Unlike traditional treatment-focused approaches, HLETs offer the potential to compress morbidity by extending the healthy, productive years of life (health span) while also increasing overall lifespan.[47] They do so in a way that scales across both healthy individuals and those with pre-existing conditions.

Crucially, HLETs may offer a far higher return on investment (ROI) than late-stage disease treatment[48]. Compared to current health technologies, many HLETs are significantly cheaper to develop, deliver, and deploy especially in the context of preventive care, public health systems, and global south populations. For instance, geroprotective drugs like metformin or NAD+ precursors could be integrated into existing healthcare frameworks at low cost while yielding outsized gains in disease prevention, workforce productivity, and reduced healthcare expenditure reducing health inequalities worldwide.

[45] Gonzalez, L., Alcaraz, A., Gabay, C., Castro, M., Vigo, S., Carinci, E., & Augustovski, F. (2023, December 27). *Health-related quality of life, financial toxicity, productivity loss and catastrophic health expenditures after lung cancer diagnosis in Argentina.* Cornell University. https://doi.org/10.48550/arXiv.2312.16710

[46] Guo, J., Huang, X., Dou, L., Yan, M., Shen, T., Tang, W., & Li, J. (2022). Aging and aging-related diseases: from molecular mechanisms to interventions and treatments. *Signal transduction and targeted therapy*, *7*(1), 391. https://www.nature.com/articles/s41392-022-01251-0

[47] Max Planck Institute for Biology of Ageing (2025). *What do the terms life expectancy, lifespan, longevity and health span mean?* https://www.age.mpg.de/what-do-the-terms-life-expectancy-lifespan-longevity-and-health-span-mean

[48] Edejer, T. T. T., Baltussen, R., Adam, T., Hutubessy, R., Acharya, A., Evans, D. B., & Murray, C. J. L. (2017). WHO guide to cost-effectiveness analysis. *Geneva: World Health Organization*. https://iris.who.int/bitstream/handle/10665/42699/9241546018.pdf

II. Strategic Importance for the SDGs to UN

This makes HLETs one of the most strategically vital technologies that will stand to impact society in a critical manner in the next 10 to 15 years. Their potential to reduce disease burden, extend functional lifespan, and scale affordably makes them uniquely impactful across several SDGs[49].

SDG 3 (Good Health and Well-Being): HLETs are a direct lever as HLETs focus on delaying or preventing the onset of chronic diseases by targeting the biological processes of ageing *itself*. This extends the number of years individuals spend in good health, reducing morbidity, improving quality of life (i.e. measurable through QALYs), and lowering long-term healthcare costs. HLETs has also shifted healthcare systems from reactive disease management to proactive health preservation, benefiting people with pre-existing conditions as well as healthy populations.

SDG 10 (Reduced Inequalities): HLETs offer an opportunity to narrow the global *longevity gap*.[50] Many HLET interventions are low-cost, preventative, and scalable, making them accessible for low- and middle-income countries where the burden of age-related diseases is rising fastest. By investing earlier in health, rather than later in illness, countries can reduce unequal health outcomes, expand productive life years, and ease the economic strain of ageing populations.

SDG 11 (Sustainable Cities and Communities): Healthy ageing reinforces the fabric of families and communities. In many regions, older adults play central caregiving and governance roles (e.g., grandparent-led child-rearing in China or elder mediation in Senegal). HLETs enhance their ability to participate actively in society, reducing dependency and strengthening community resilience. Sustaining the health of ageing populations is thus not just a healthcare goal, it is a social and cultural one as well.

5.2 Governance Gaps Analysis

Despite their transformative potential, HLETs remain comparatively under-governed and underfunded relative to adjacent technological domains[51]. In recent years, AI has attracted a surge of attention from policymakers, multilateral institutions, and philanthropic funders. Dedicated UN task forces, international safety standards, and multi-billion-dollar national strategies have emerged to coordinate its safe and equitable deployment.

In contrast, the governance of HLETs remains *fragmented*. Within the UN system, aging is addressed primarily through frameworks like the Madrid International Plan of Action on Ageing (2002), WHO-led initiatives such as Decade of Healthy Ageing (2021–2030) and ICOPE (Integrated Care for Older People).[52] These efforts are focused on social determinants, care

[49] Assembly, G. (2015). Sustainable development goals. *SDGs transform our world*, *2030*(10.1186). http://www.igbp.net/download/18.62dc35801456272b46d51/1399290813740/NL82-SDGs.pdf

[50] Garmany, A., & Terzic, A. (2024). Global healthspan-lifespan gaps among 183 World Health Organization member states. *JAMA Network Open*, *7*(12), e2450241-e2450241. https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2827753

[51] Tournas, L., & Marchant, G. E. (2019). The Fountain of Youth Revisited: Regulatory Challenges and Pathways for Healthspan Promoting Interventions. *Food and Drug Law Journal*, *74*(1), 18-45. https://www.fdli.org/wp-content/uploads/2019/03/Marchant-.pdf

[52] World Health Organization. (2024). *Integrated care for older people: Guidance for person-centred assessment and pathways in primary care* (2nd ed.). Geneva, Switzerland: World Health Organization.

systems, and functional ability but do not yet encompass emerging biomedical interventions that target the biology of aging *itself*. The WHO Council on the Economics of Health for All has signaled the need to shift investment toward preventive, systemic health approaches, aligning partially with HLETs'objectives. However, specific outputs or mandates for biotechnological longevity interventions remain absent as echoed by the UN's Governing AI for Humanity Report.[53]

Beyond the UN, several international and multilateral initiatives have begun filling the gap. The International Longevity Alliance coordinates civil society advocacy across more than 35 countries to promote recognition of aging as a treatable condition[54]. The Global Health span Policy Institute and the Health span Action Coalition lobby governments and intergovernmental bodies to support research, trial infrastructure, and regulatory reform for health span interventions.[55] Landmark statements like the Dublin Longevity Declaration have emerged from these networks, urging the global community to prioritize aging biology as a public health frontier[56].

Public-private and philanthropic actors are also driving governance-like functions. The Hevolution Foundation, funded by Saudi Arabia, has committed over $1 billion to support translational aging research globally.[57] Prizes such as the $101 million XPRIZE Health span[58] and decentralized initiatives like VitaDAO[59] play important roles in funding, standard-setting, and building scientific legitimacy.

Furthermore, longevity technologies developed in one country can affect others through data flows, treatment access, and global equity. Without governance, this could lead to biomedical privilege, where wealthy nations monopolize age-extending technologies. ensuring the right to health, privacy, and equitable access, particularly in lower-resource settings, is essential when personal data, clinical trials, or biotech manufacturing occurs across jurisdictions.

Some national governments are beginning to adopt longevity policy frameworks (e.g., the UK's All-Party Parliamentary Group for Longevity, Israel's Sheba Longevity Center, and Switzerland's Health span Campus). But currently there is no multilateral treaty, no centralized intergovernmental roadmap, and no institutionalized coordination akin to what exists for AI.

To fully realize the benefits of HLETs, especially in alignment with the SDGs, these technologies require governance frameworks that reflect their systemic relevance and cross-border implications

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https://iris.who.int/bitstream/handle/10665/380175/9789240103726-eng.pdf?sequence=1 iris.who.int+6pmc.ncbi.nlm.nih.gov+6facebook.com+6

[53] United Nations (2024). *Governing AI for Humanity Report* https://www.un.org/sites/un2.un.org/files/governing_ai_for_humanity_final_report_en.pdf

[54]International Longevity Alliance (2025). *History of the International Longevity Alliance.* https://longevityalliance.org/history-of-the-international-longevity-alliance/

[55] Global Healthspan Policy (2025). *Our Priorities.* https://healthspanpolicy.org/our-priorities/

[56] Dublin Longevity Declaration (2023). Consensus Recommendation to Immediately Expand Research on Extending Healthy Human Lifespans https://dublinlongevitydeclaration.org/DublinLongevityDeclaration.pdf?v=20231008

[57] Murshid, G. A. (2024). The rise of healthy longevity and healthspan in Saudi Arabia: from funding geroscience research to precision medicine and personalized digital twins. *Discover Medicine*, *1*(1), 1-12. https://link.springer.com/article/10.1007/s44337-024-00086-8

[58] Justice, J. (2024). XPRIZE Healthspan: A path to accelerate translational geroscience. *Innovation in Aging*, *8*(Suppl 1), 101. https://pmc.ncbi.nlm.nih.gov/articles/PMC11689441/

[59] VitaDAO. (2025). Tackling aging with the power of a global community. https://www.vitadao.com/

as expressed in the UN's Governing AI for Humanity Report[60]. This includes standardizing trial endpoints for aging, coordinating ethical norms, integrating longevity into global health financing, and expanding the mandates of existing institutions like WHO, ODET, ITU and UNDP to explicitly include HLETs.

5.3 UN/ODET, The Value-Add of Global Governance

Global governance of emerging health span and longevity technologies can mitigate fragmentation, reduce inequality, and promote responsible innovation. Given the current siloed approaches among UN bodies (e.g., WHO, ITU, UN DESA), a unifying governance framework would provide coherence, ensure shared standards, and avoid duplication. It would also offer anticipatory governance which proactively addresses risks and ethical questions before harms emerge as in emerging technologies that increase health span and longevity.

6.0 Quantum Computing

Quantum computing represents a fundamental change in information processing. In contrast to classical computers, which work with bits that can only assume the state 0 or 1, quantum computers use qubits that can assume several states simultaneously thanks to superposition. This enables massively parallel processing, which makes it possible to solve problems that were previously inaccessible to classical systems. By reducing quantum noise and making targeted use of fundamental quantum effects, researchers are trying to make quantum computers a practical tool for areas such as encryption, drug development and complex simulations.

6.1 Current State and Potential

Quantum computing leverages quantum mechanics to vastly outperform classical computers in solving certain problems.[6162] As of 2025, quantum technologies remain at a prototype stage, with major companies and governments investing billions into R&D. Significant progress has occurred, demonstrated by systems developed by IBM, Google, and others achieving prototypes ranging from 400 to 1000 qubits (World Economic Forum, 2025).

Civilian Applications: Quantum computing holds transformative potential for sectors like healthcare, energy, finance, and climate science. For instance, quantum algorithms can significantly accelerate drug discovery, optimize renewable energy resources, improve climate modeling accuracy, and revolutionize financial risk management. Early applications are already

[60] United Nations (2024). *Governing AI for Humanity Report* https://www.un.org/sites/un2.un.org/files/governing_ai_for_humanity_final_report_en.pdf

[61] RAND Corporation. (2023). When a quantum computer can break encryption: What happens? https://www.rand.org/pubs/research_reports/RRA510-1.html

[62] *Quantum computing*. GESDA. (2025, July 1). https://radar.gesda.global/topics/quantum-computing

emerging in specialized sectors, and broader commercial impacts are anticipated by the late 2020s.[6364]

Security Applications: Quantum computing presents profound implications for global security, particularly cybersecurity. Quantum-enabled algorithms (e.g Shor's algorithm) threaten existing encryption standards, potentially enabling rapid decryption of sensitive data once sufficiently powerful quantum systems are available (anticipated post-2030). This "Q-day" scenario drives the urgency for quantum-resistant cryptographic standards, which countries like the United States have mandated to transition by 2035.[65] Militarily, quantum technology promises advancements in secure communications and sensor technology, which could alter strategic balances and introduce new forms of conflict and espionage.

Potential Global Impact

Quantum advancements risk exacerbating global inequalities if concentrated within wealthier nations, creating a potential "quantum divide".[66] However, intentional international collaboration and open access initiatives could democratize quantum technology, providing benefits in areas like medicine, agriculture, and climate modeling to developing countries.

Quantum computing introduces substantial privacy risks through its capability to decrypt previously secure information, potentially undermining individual privacy and human rights standards. Conversely, quantum technologies could enhance global health and development rights significantly if responsibly applied[67].

Quantum computing can directly contribute to sustainability and the achievement of the Sustainable Development Goals (SDGs), such as through improved climate solutions and sustainable resource management.[68] Yet, current quantum hardware requires substantial energy consumption, necessitating advancements in energy-efficient technologies to ensure sustainable deployment.

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[63]World Economic Forum, & Accenture. (2025, January 17). Embracing the quantum economy: A pathway for business leaders. World Economic Forum. https://www.weforum.org/publications/embracing-the-quantum-economy-a-pathway-for-business-leaders/

[64]OECD. (2025). A quantum technologies policy primer (OECD Digital Economy Papers No. 371). OECD Publishing. https://doi.org/10.1787/fd1153c3-en

[65]National Institute of Standards and Technology. (2024, August 13). Post-quantum encryption standards (FIPS 203, FIPS 204, FIPS 205). U.S. Department of Commerce. https://www.nist.gov/news-events/news/2024/08/nist-releases-first-3-finalized-post-quantum-encryption-standards

[66]UNESCO. (2024). *Concept note of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) on the ethics of quantum computing*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000390736

[67]UNESCO Information for All Programme. (2025). *Human rights–centered global governance of quantum technologies: Advancing information for all* [Issue brief]. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000393402

[68]Geneva Science and Diplomacy Anticipator (GESDA). (2023, October). Intelligence report on the multilateral governance of quantum computing for the Sustainable Development Goals. GESDA Diplomatic Forum and Open Quantum Institute. https://open-quantum-institute.web.cern.ch/wp-content/uploads/2023/10/GESDA_OQI_Intelligence_Report_Quantum_Computing_Mutlilateral_Governance_SDGs_Oct_2023.pdf

Quantum computing's impact on cybersecurity requires international collaboration to standardize quantum-safe encryption and prevent misuse in offensive cyber operations (RAND Corporation, 2023).[69]

Risks

Quantum Supremacy Milestones

The term Quantum Supremacy Milestones describes the point in time where quantum computing is reaching a point where it is able to perform tasks infeasible for the normal/existing computers. This point was reached 2019 according to google, which developed the 53-quibt Sycamore processor, which computed a task which a normal computer would need multiple thousands of year only 200 seconds (Conover, 2019)[70]

Cryptographic Disruption: Breaking Encryption and Digital Security

The report from July 2024 (U.S. Office of Management and Budget, 2024)[71] describes the feasibility of a cryptanalytically relevant quantum computer by 2030, which requires urgent preparedness. More conservative voices of the analysts at the MITRE project entail the likelihood of these breakthroughs will be around 2050 (Conover, E. 2019)[72]. These indifferences underline the uncertainty and therefore the urgency to migrate systems is now, to act before adversaries can exploit it.

Global Digital Security Collapses

Virtually all modern public key encryptions (RSA,ECC) underpin all secure online activity, ranging from banking systems, e-commerce platforms to military and government communication. Algorithms such as e.g. the Shor's algorithm could bypass all these existing security standards, resulting in the monopoly of power for the owner of this advanced technology (Soutar, Barmes, & Beato, 2024)[73].

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[69]RAND Corporation. (2023, September 21). When a quantum computer is able to break our encryption, it won't be secret [Commentary]. RAND Corporation. https://www.rand.org/pubs/commentary/2023/09/when-a-quantum-computer-is-able-to-break-our-encryption.html

[70] Conover, E. (2019, December 18). Google claimed quantum supremacy in 2019 — and sparked controversy. Science News. https://www.sciencenews.org/article/google-quantum-supremacy-claim-controversy-top-science-stories-2019-yir#:~:text=Google%27s%20quantum%20computer%20Sycamore%20performed,quantum%20computer%20chips%20is%20shown

[71] U.S. Office of Management and Budget. (2024, July). *Report on post-quantum cryptography: As required by the Quantum Computing Cybersecurity Preparedness Act, Public Law No: 117-260*. https://www.whitehouse.gov/wp-content/uploads/2024/07/REF_PQC-Report_FINAL_Send.pdf

[72] Conover, E. (2019, December 18). Google claimed quantum supremacy in 2019 — and sparked controversy. Science News. https://www.sciencenews.org/article/google-quantum-supremacy-claim-controversy-top-science-stories-2019-yir#:~:text=Google%27s%20quantum%20computer%20Sycamore%20performed,quantum%20computer%20chips%20is%20shown

[73] Soutar, C., Barmes, I., & Beato, F. (2024, October 22). Why the new NIST standards mean quantum cryptography may just have come of age. World Economic Forum. https://www.weforum.org/stories/2024/10/quantum-cryptography-nist-standards/

6.2 Existing UN and Multilateral Efforts

- UNESCO Leads the ethical framework and human rights considerations[74]
- ITU develops international standards for quantum communication networks[75]
- UNIDIR explores quantum related security risks[76]
- OECD and WEF facilitate dialogues on responsible quantum tech and policy[77]
- Regional groups like NATO and UN develop quantum strategies, however with a limited scope.
- UNESCO: lead UN agency for the 2025 International Year of Quantum Science and Technology.
- The UN, particularly through the Office of Digital and Emerging Technologies (ODET), can effectively bridge existing governance gaps and foster inclusive global governance frameworks (ODET, 2025).

6.3 Governance Gap Analysis

Currently, quantum computing governance remains fragmented and predominantly national or regional (OECD, 2025; NATO, 2024)[78][79]. Over 30 nations have developed quantum strategies emphasizing research and development with limited considerations of global governance frameworks. Mostly absent are international norms and agreements addressing quantum potential, ethical implications, or equitable access. Additionally, there is a growing risk of quantum divide especially in developing countries due to the lack of technical capacity, funding is needed in order to address this issue.

Lastly, there is growing risk of policy conflict of different UN processes such as e.g. digital rights discussions, cyber GGE etc. creating a separation of discussions leading to a complication and creating the need for a harmonization of these fields. These aspects highlight the current weak state of enforcement and the need for new negotiations that go beyond current mechanisms and solutions in form or briefings and workshops for a new global set of rules.

[74]UNESCO. (2024, June 7). International Year of Quantum Science and Technology 2025 [General Assembly resolution A/RES/78/287]. United Nations General Assembly. https://digitallibrary.un.org/record/4052700/files/A_RES_78_287-EN.pdf

[75]International Telecommunication Union, & ITU-T Study Group 13. (2025, April). Recommendations for quantum key distribution networks: Control and management (ITU-T Recommendation Y.3804). ITU. https://handle.itu.int/11.1002/1000/16313

[76]United Nations Institute for Disarmament Research. (2024). Quantum technology, peace and security: A primer (UNIDIR Research Paper No. 34). UNIDIR. https://www.unidir.org/publication/quantum-technology-peace-and-security-primer

[77]OECD Global Forum on Technology. (2023, November 27). Responsible quantum technology development [Event report]. OECD. https://www.oecd.org/global-forum-technology/events/2023/responsible-quantum-technology-development/

[78]OECD. (2025). Quantum technologies policy primer (OECD Digital Economy Papers No. 371). OECD Publishing. https://doi.org/10.1787/fd1153c3-en

[79]North Atlantic Treaty Organization. (2024, January 16). Quantum technologies strategy: Ensuring that the Alliance is “quantum-ready” [Official strategy]. NATO. https://www.nato.int/cps/en/natohq/official_texts_221777.html

7.0 Comparative Analysis

	Impact Scale	Governance Gap	Severity/Risk	UN/ODET Relevance	Technology Maturity
Cognitive Enhancement	Medium	High	High	High	Low
Genetic Engineering	High	Medium	High	Medium	Medium
Healthspan Extension	Medium	High	Medium	Medium	Low
Carbon Capture, Utilization and Storage	Medium	Medium	Medium	Medium	Medium
Quantum Computing	High	High	High	High	Low

1. Impact Scale

The potential of a technology to significantly influence global security, development, human rights, and the environment.

- High: Transformative global impact affecting multiple sectors (economy, security, health, society) at large scale.
- Medium: Significant regional/global influence, important impacts but less extensive.
- Low: Limited or localized impacts with minor implications for broader global systems.

2. Governance Gap

Extent to which existing local, regional, or international regulations fail to adequately manage risks, ethical implications, or equitable access to the technology.

- High: Little or no international governance frameworks exist; significant risks unmanaged.
- Medium: Partial frameworks exist but are fragmented or incomplete.
- Low: Robust and widely adopted governance frameworks already in place.

3. Severity/Risk

Degree of immediate risk or threat posed by technology misuse, accidents, inequality, or unintended consequences.

- High: Immediate and severe potential threats (existential risks, global security disruption).
- Medium: Moderate risks manageable through existing or emerging controls.
- Low: Minor risks or easily mitigable through routine measures.

4. UN/ODET Relevance

Alignment of the technology's governance with the mandate of the UN Office for Digital and Emerging Technologies (digital cooperation, sustainable development, human rights, security).

- High: Directly fits core UN/ODET priorities and mandates (digital cooperation, global security, SDGs, human rights).
- Medium: Relevant to broader UN objectives, but less directly aligned to ODET's core mission.
- Low: Limited relevance to UN/ODET mandates; mostly handled by other institutions.

5. Technology Maturity

Developmental stage and readiness for widespread deployment or commercialization.

- High: Mature technology with widespread adoption, commercially available or widely used.
- Medium: Emerging technology demonstrating viable prototypes, early commercial applications.
- Low: Early-stage or experimental technology; not yet widely demonstrated or commercially viable.

8.0 ODET, UN and Global Governance

8.1 The Challenges of Governing Emerging Technology and the Need for Global Governance

Information asymmetries prevent policymakers from gaining the clear insight and capacity needed to understand current technological progress.[80] The accelerated pace of innovation in emerging technologies outpaces the regulatory frameworks as technology evolves so quickly and unpredictably that technology becomes inadequate to address new developments.[81] Additionally,

[80] Becker SW, Brownson FO. 1964. *What Price Ambiguity? Or the Role of Ambiguity in Decision-Making*. Journal of Political Economy, 72(1), p. 62–73.
[81] Taeihagh, A., Ramesh, M., and Howlett, M. 2021. *Assessing the regulatory challenges of emerging disruptive technologies.* Regulation and Governance 15(4). https://doi.org/10.1111/rego.12392

the accelerated product cycles of emerging technologies far exceed the time required to develop regulations, creating a regulatory lag that fails to keep pace with market realities[82].

As a result, private tech conglomerates have emerged in global digital governance. While these companies have established their own governance protocols[83], these favor sectoral interests and neglect the social, environmental and humanitarian impacts of their actions[84]. The global footprint of emerging technologies and their operations risks creating a new global digital workforce[85] who currently lack protections, leaving them vulnerable to exploitation[86]. The adoption of emerging technologies further risks deepening the divide between the Global North and South, severely affecting marginalized communities[87]. Additional security concerns (e.g. misuse of quantum computing) and socio-economic disparities (e.g. unequal access) exist.

In recent years, national governments and regional blocs have passed regulations on data security and AI, while others remain ungoverned or governed tangentially. However, effective global governance requires developing new multilateral agreements and updating existing ones. The ILO's Convention C098, UNEP's Basel Convention, or WTO's Information Technology Agreement could be updated to account for emerging technologies.

We therefore suggest a three-fold rationale for the increased global governance of emerging technologies:

1. To accelerate multilateral coordination regarding the risks, impacts and benefits of emerging technologies;

2. To adaptively and anticipatorily shape the approaches by which emerging technologies are governed, and enable governments and other regulatory bodies to implement them; and

3. To revise and update existing international agreements in line with developments triggered by emerging technologies.

ODET, the GDC and our Methodology

On 1 January 2025, the UN established the Office for Digital and Emerging Technologies (ODET) to succeed the Secretary-General's Envoy on Technology, following adoption of the Global Digital Compact[88]. With an expanded mandate, ODET drives inclusive, system-wide digital cooperation

[82] Cutter, M. A., Gordijn, B., Marchant, G. E and Pompidou, A (eds). 2011. *The Growing Gap Between Emerging Technologies and Legal-Ethical Oversight: The Pacing Problem.* Springer.

[83] See for instance: https://cybertechaccord.org/

[84] Kilovaty, I. 2020. *Privatized Cybersecurity Law.* UC Irvine Law Review 10(4). Available at: https://scholarship.law.uci.edu/ucilr/vol10/iss4/6

[85] Yin, M., Suri, S., and Gray, M. L. 2018. *Running Out of Time: The Impact and Value of Flexibility in On-Demand Crowdwork.* CHI '18: Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, Paper No.: 430, p. 1 - 11. https://doi.org/10.1145/3173574.3174004.

[86] Williams, A., Miceli, M., and Gebru, T. 2022. *The Exploited Labor Behind Artificial Intelligence.* Noema Magazine. Available at: https://www.noemamag.com/the-exploited-labor-behind-artificial-intelligence/

[87] UNDP. 2023. *A shared vision for technology and governance.* United Nations.

[88] See: https://www.un.org/digital-emerging-technologies/content/press-release-new-un-office-digital-and-emerging-technologies

and policy development, while leading Compact implementation and advising UN leadership on emerging tech. The following sections build on ODET's mandate towards developing a governance framework. The GDC spans five objectives[89]:

1. Close all digital divides and accelerate progress across the Sustainable Development Goals:
    a. Connectivity
    b. Digital skills and literacy
    c. Digital public goods and digital public infrastructure
2. Expand inclusion in and benefits from the digital economy for all
3. Foster an inclusive, open, safe and secure digital space that respects, protects and promotes human rights:
    a. Human rights
    b. Internet governance
    c. Digital trust and safety
    d. Information integrity
4. Advance responsible, equitable and interoperable data governance approaches:
    a. Data privacy and security
    b. Data exchanges and standards
    c. Data for the SDGs and for development
    d. Cross-border data flows
    e. Interoperable data governance
5. Enhance international governance of artificial intelligence for the benefit of humanity

Mapping Existing Governance Arrangements for Emerging Technologies
The emerging technologies considered are each governed to varying degrees at different levels.

At the national level, the U.S., the NIH and FDA regulate clinical applications of genetic engineering[90]. Quantum research is supported by initiatives such as the National Quantum Initiative Act[91]. Many countries also have AI and digital transformation strategies, which may touch upon cognitive enhancement technologies.

Regionally, the EU's General Data Protection Regulation (GDPR) plays a central role in the oversight of neurotechnologies[92].

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[89] United Nations. (2023). *Global Digital Compact*. Available at: https://www.un.org/global-digital-compact/sites/default/files/2024-09/Global%20Digital%20Compact%20-%20English_0.pdf

[90] United States Department of Health and Human Services. 2025. FDA halts new clinical trials that export Americans' cells to foreign labs in hostile countries for genetic engineering. NIH Director Statements, 18 June 2025. Retrieved July 5, 2025, from https://www.nih.gov/about-nih/nih-director/statements/fda-halts-new-clinical-trials-export-americans-cells-foreign-labs-hostile-countries-genetic-engineering

[91] United States. 2018. *National Quantum Initiative Act*, H.R. 6227, 115th Congress. Retrieved from https://www.congress.gov/bill/115th-congress/house-bill/6227/text (accessed 5 July 2025).

[92] European Parliamentary Research Service. (2024, July). The protection of mental privacy in the area of neuroscience - Societal, legal and ethical challenges | Panel for the Future of Science and Technology (STOA) | European Parliament. Retrieved from Europa.eu website: https://www.europarl.europa.eu/stoa/en/document/EPRS_STU(2024)757807

8.2 International and Multilateral Governance Initiatives

UN System

Several UN bodies are involved in governance-related discussions around emerging technologies. WHO provides ethical guidance on gene editing, especially heritable human genome editing[93]. UNESCO has developed bioethics frameworks and convened on neuroethics[94].
The Global Digital Compact emphasizes human rights and inclusion in digital governance.

Other bodies such as OECD have *Guidelines for Multinational Enterprises on Responsible Business Conduct* encompassing science and technology sectors[95]. In addition, the OECD highlights anticipatory technology governance and recommends five pillars: adherence to values (e.g. human rights, privacy, democracy and sustainability), strategic intelligence, stakeholder engagement, regulatory agility, and international cooperation[96].

African Union

APET provides an initiative in Africa calling for harmonized regulation[97]. Furthermore, *Recommendations for Data and Biospecimen Governance in Africa* encourage ethical and culturally sensitive data use practices, aiming to decolonize research and promote accountability[98].

World Economic Forum (WEF)

WEF hosts public-private initiatives on biotechnology, neurotechnology, and quantum computing. The Centre for the Fourth Industrial Revolution works on policy frameworks for AI, gene editing, and other tech. However, these initiatives lack binding governance authority and function as convening platforms[99].

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[93] World Health Organization. (2021). WHO Expert Advisory Committee on Developing Global Standards for Governance and Oversight of Human Genome Editing. Human Genome Editing. World Health Organization. Retrieved from https://iris.who.int/bitstream/handle/10665/342484/9789240030060-eng.pdf?sequence=1

[94] UNESCO. (2025). Draft text of the Recommendation on the Ethics of Neurotechnology. In unesdoc.unesco.org. Paris: UNESCO. Retrieved from UNESCO website: https://unesdoc.unesco.org/ark:/48223/pf0000393395

[95] OECD. (2024). Framework for Anticipatory Governance of Emerging Technologies. In OECD. OECD. Retrieved from OECD website: https://www.oecd.org/en/publications/2024/04/framework-for-anticipatory-governance-of-emerging-technologies_14bf0402.html

[96] OECD. (2025). A quantum technologies policy primer. Retrieved July 10, 2025, from oecd.org website: https://www.oecd.org/en/publications/a-quantum-technologies-policy-primer_fd1153c3-en.html

[97] AUDA-NEPAD. (2022). African Union High Level Panel on Emerging Technologies (APET) | AUDA-NEPAD. Retrieved July 10, 2025, from www.nepad.org website: https://www.nepad.org/microsite/african-union-high-level-panel-emerging-technologies-apet

[98] The African Academy Sciences. (2021). Recommendations for Data and Biospecimen Governance in Africa. In AESA & AUDA-NEPAD (Eds.), nepad.org (pp. 1–14). Retrieved from https://www.nepad.org/file-download/download/public/140027

[99] https://centres.weforum.org/centre-for-the-fourth-industrial-revolution/home

The Open Quantum Institute (OQI)

Launched by CERN and supported by the Geneva Science and Diplomacy Anticipator (GESDA) and UBS, the OQI promotes inclusive access to quantum computing. It represents a multistakeholder effort to align quantum research with the SDGs, although it fall shorts of formal global governance[100].

The Quad

Australia, India, Japan, and the United States released a joint statement affirming the importance of transparency, accountability, and human rights in technological development, particularly around critical technologies[101].

8.3 Recommendations

Governance frameworks dealing with emerging technology need to navigate between inaction and strangling the market through over-regulation[102]. We suggest a principles-based rather than standards-based approach to do this, to enable greater openness, flexibility and agility[103]. Principle-based approaches treat regulation as a learning process, rather than a final decision[104]. Alongside this, an iterative, data-driven approach where market data on investments and growth in the industry is used to drive discussions on decision-making is recommended. The need for adaptive[105], agile[106] and responsive[107] regulation has also been highlighted in the literature. Appropriate risk management processes must be integrated[108]; this is especially relevant where actions have transboundary implications[109].

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[100] Open Quantum Institute (OQI). *The Open Quantum Institute: Intelligence Report on Quantum Computing, Multilateral Governance, and the SDGs*. Geneva: Geneva Science and Diplomacy Anticipator (GESDA), 2023. Retrived from : https://open-quantum-institute.web.cern.ch/wp-content/uploads/2023/10/GESDA_OQI_Intelligence_Report_Quantum_Computing_Mutlilateral_Governance_SDGs_Oct_2023.pdf.

[101] https://www.mofa.go.jp/files/100238188.pdf

[102] Collingridge, D. 1980. *The Social Control of Technology*. Frances Pinter.

[103] Fenwick, M. D., Kaal, W. A., Vermeulen, E. P. M. 2017. *Regulation Tomorrow: What Happens When Technology Is Faster than the Law?* American University Business Law Review 6(3).

[104] Callon, M., Lascoumes, P., Barthes, Y., and Burchell, G (*trans)*. 2001. *Acting in an Uncertain World: An Essay on Technical Democracy.* MIT Press: Cambridge.

[105] Whitford, A. B., & Anderson, D. 2020. *Governance landscapes for emerging technologies: The case of cryptocurrencies.* Regulation & Governance. doi:10.1111/rego.12366

[106] World Economic Forum. 2019. *Agile Governance: Reimagining Policy-making in the Fourth Industrial Revolution* [White Paper]. Available at: https://www3.weforum.org/docs/WEF_Agile_Governance_Reimagining_Policy-making_4IR_report.pdf

[107] OECD. 2024. *Framework on Management of Emerging Critical Risks.* OECD Public Governance Policy Papers.

[108] KPMG International. 2020. *Dynamic Risk Assessment.* Available at: https://assets.kpmg.com/content/dam/kpmg/ie/pdf/2020/06/ie-kpmg_dynamic_risk_assessment_150620.pdf

[109] Leitner, C., and Stiefmueller, C.M. 2025. *Digital Technologies and Legal and Regulatory Frameworks*. In: Baimenov, A., Liverakos, P. (eds) *Public Administration in the New Reality*. Palgrave Macmillan, Singapore. https://doi.org/10.1007/978-981-96-3845-1_3

In this report, we consolidate various elements[110], encapsulated in the figure below, to provide the outline of a framework for the global governance of emerging technologies. It is important to note that to fully develop this framework, it will have to be brought into alignment with the SDGs and the GDC, and appropriate metrics and methods for operationalization developed. Towards this, we propose the following recommendations to the ODET:

1. Initiate a detailed research project consolidating and elaborating the outline provided into a full framework
2. Track, study, develop 'best practices' and help national governments implement minimal regulatory sandboxes for emerging technologies
3. Develop an annual review process focusing on mainstreaming adaptive and responsive measures - geared towards emerging technologies - in existing UN treaties, agreements, etc; this will be primarily a coordinating activity
4. Based on the framework developed (see point 1), develop a rationale by which new emerging technologies are tracked, and science-policy briefs developed for the UNSG; ODET could work with the SAB on this
5. Work to ensure the creation of platforms for the encouragement and discussion of innovation in emerging technology in countries with lower access to digital services and facilities
6. Gender and youth inclusive tech education strategies with national governments
7. Establish a Biannual Multistakeholder Forum on emerging technologies, gathering states, technologists, scientists, academia and civil society

[110] OECD. (2024). *Framework for Anticipatory Governance of Emerging Technologies*. OECD. Retrieved from OECD website: https://www.oecd.org/en/publications/2024/04/framework-for-anticipatory-governance-of-emerging-technologies_14bf0402.html

9.0 Conclusion

Our analysis of five critical emerging technologies reveals a fundamental governance crisis. Current fragmented approaches are insufficient to address their converging impacts and cross-border implications. These technologies are not developing in isolation but are increasingly convergent. Brain-computer interfaces rely on quantum computing advances; genetic engineering depends on AI for drug discovery; CCUS systems require quantum-secured communications; and longevity technologies integrate biotechnology with AI-driven diagnostics. This convergence means single-technology governance approaches are fundamentally inadequate. Government investments in quantum technologies alone reached $1.8 billion in 2024, with an additional $10 billion announced in early 2025. This concentration risks creating technological colonialism, where few actors control technologies that will fundamentally reshape global society.

Without intentional governance, these technologies will exacerbate existing inequalities, creating "longevity gaps," concentrating cryptographic power, pricing out developing countries from life-saving treatments, and establishing new forms of cognitive inequality. The UN system must immediately establish a Global Emerging Technology Governance Observatory, launch biannual Multi-Stakeholder Dialogues, and develop Principles-Based Governance Guidelines adaptable to rapid technological change. Medium-term objectives include negotiating International Framework Agreements for each technology area, creating Global South Capacity Building Programs, and establishing Technology Assessment and Foresight Mechanisms.

The current trajectory of fragmented national approaches, voluntary industry self-regulation, and reactive governance will lead to technological authoritarianism, exacerbated global inequality, and existential risks where technological development outpaces human capacity to control it. The convergence of these technologies represents both the greatest opportunity and challenge facing humanity. The potential benefits are transformative but will only be realized through decisive action establishing governance frameworks ensuring these technologies serve all of humanity. The UN system has a unique opportunity to lead this effort. The time for incremental approaches has passed. The imperative for comprehensive, global governance of emerging technologies is not just urgent, it is existential

Working Group 2: Peace and Security

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The Pact for the Future addresses International Peace and Security through 15 action points, of which we have chosen to focus on four:

Action 13 We will redouble our efforts to build and sustain peaceful, inclusive and just societies and address the root causes of conflicts.

Action 16 We will promote cooperation and understanding between Member States, defuse tensions, seek the pacific settlement of disputes and resolve conflicts.

Action 17 We will fulfil our obligation to comply with the decisions and uphold the mandate of the International Court of Justice in any case to which our State is a party

Action 19 We will accelerate the implementation of our commitments on Women, Peace, and Security

The paper reviews best practices, analyses case studies, assesses challenges, and develops concrete recommendations to strengthen global responses. The paper aims to contribute actionable, practical insights and recommendations to help enhance international peace and security.

Action 13

"We will redouble our efforts to build and sustain peaceful, inclusive and just societies and address the root causes of conflicts - with a specific focus on Article C "Ensure that military spending does not compromise investment in sustainable development and building sustainable peace and request the Secretary-General to provide analysis on the impact of the global increase in military expenditure on the achievement of the Sustainable Development Goals by the end of the seventy-ninth session."

A. Overview

While the Pact notes efforts to redouble building and sustaining peaceful, inclusive, and just societies - and address the root causes of conflicts - excessive global military expenditure by Member States undermines these objectives by diverting resources away from development, dialogue, and social cohesion. To advance the Pact for the Future's commitment, Action 13, and specifically Article (C) underscores the need to ensure that military spending does not compromise investment in sustainable development and peacebuilding. It further requests the Secretary-General to provide an analysis of how the global increase in military expenditure is impacting the achievement of the SDGs by the end of the seventy-ninth session of the General Assembly.[111]

The current trajectory of global military spending represents a serious threat to these objectives. According to the Global Peace Index 2025[112], the economic impact of violence on the global economy in 2024 was estimated at $19.97 trillion in purchasing power parity (PPP) terms. This

[111] Ensure that military spending does not compromise investment in sustainable development and building sustainable peace and request the Secretary-General to provide analysis on the impact of the global increase in military expenditure on the achievement of the Sustainable Development Goals by the end of the seventy-ninth session.

[112] Institute for Economics & Peace. (2025, June). *Global Peace Index 2025: Identifying and measuring the factors that drive peace* (p. 5). Retrieved from http://visionofhumanity.org/resources

represents 11.6 percent of global GDP, or approximately $2,446 per person (Institute for Economics & Peace, 2025). Within this broader picture, the Stockholm International Peace Research Institute (2025)[113] reports that global military expenditure alone reached $2.718 trillion in 2024, reflecting a 9.4 percent increase in real terms over the previous year. This marks the largest annual increase since the end of the Cold War and the tenth consecutive year of rising military budgets, bringing the global military burden to 2.5 percent of world GDP (UNODA, 2025)[114].

While over a hundred countries boosted their defense budgets in 2024 at the expense of other budget areas; the top five spenders, the United States, China, Russia, Germany, and India, accounted for 60 percent of total expenditure, collectively spending $1,635 billion (SIPRI, 2025)[115]. Furthermore, at the 2025 NATO summit, member states committed to raising defense spending to 5 percent of GDP by 2035[116]. Doubling the previous commitment, this decision reflects a growing trend in response to heightened geopolitical tensions and active conflicts, most notably the ongoing war in Ukraine and persistent instability across the Middle East.

Global development and humanitarian funding, on the other hand, lags far behind military outlays. The Official Development Assistance[117] remains modest and has recently declined in 2024 by 7.1 percent in real terms compared to 2023. Total ODA in 2024 amounted to approximately $212.1 billion, which is less than 10 percent of global military spending. This figure represents only about 0.33 percent of donors' gross national income (GNI), falling significantly short of the longstanding already low 0.7 percent GNI target for aid (OECD, 2025). For 2025, the United Nations and its partners appealed for $47 billion to assist 190 million people facing acute needs across 72 countries[118], which amounts to less than 2 percent of annual world military spending.

This disparity has profound implications for development with critical UN peace and development mechanisms remaining severely underfunded. The Peacebuilding Fund operates on a multiyear budget of just $1.5 billion, and UN peacekeeping missions across 11 countries require $5.59 billion, together making up less than 1 percent of annual military spending (United Nations,

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[113] Stockholm International Peace Research Institute. (2025, April 14). *Unprecedented rise in global military expenditure; European and Middle East spending surges*. SIPRI. Retrieved from https://www.sipri.org/media/press-release/2025/unprecedented-rise-global-military-expenditure-european-and-middle-east-spending-surges

[114] United Nations Office for Disarmament Affairs. (2024). *The United Nations Disarmament Yearbook: Volume 48 (2023)*. United Nations. https://www.un.org/disarmament/publications/yearbook/

[115] Stockholm International Peace Research Institute. (2025, April 14). *Unprecedented rise in global military expenditure; European and Middle East spending surges*. SIPRI. Retrieved from https://www.sipri.org/media/press-release/2025/unprecedented-rise-global-military-expenditure-european-and-middle-east-spending-surges

[116] https://www.nato.int/cps/en/natohq/official_texts_236705.htm

[117] Official development assistance (ODA) is government aid that promotes and specifically targets the economic development and welfare of developing countries. ODA has been the main source of financing for development aid since it was adopted by the OECD's Development Assistance Committee (DAC) as the "gold standard" of foreign aid in 1969.

[118] https://ec.europa.eu/echo/files/funding/hip2025/Strategic%20Priorities%20and%20Policy%20Support%20HIP%20.pdf#:~:text=affecting%20the%20capacity%20of%20humanitarian,and%20recent%20decisions%20by%20some

n.d.)[119]. According to the United Nations Office for Disarmament Affairs (UNODA, 2024)[120], the cost of a single modern battle tank could finance malaria treatment for approximately 26,000 individuals, while the expense of one stealth fighter could provide an entire year of schooling for 200,000 children. Similarly, just one week of global military spending, approximately $50 billion, could fund the entire annual budget of the UN World Food Programme multiple times over (WFP, 2023)[121]. Investments in education, healthcare, and food insecurity are among humanity's most effective tools for addressing the root causes of violence and conflict, but these numbers highlight the stark opportunity cost of current defense expenditures.

Beyond the Pact for the Future, the compromise between excessive military expenditure and underinvestment in sustainable development and peacebuilding has been repeatedly addressed by various UN bodies. The UNODA emphasized in its 2024 policy guidance that redirecting even a modest portion of global military expenditure could lead to transformative development outcomes, such as the eradication of extreme poverty and the achievement of universal access to education (UNODA, 2024). This perspective is reinforced by the United Nations Conference on Trade and Development (UNCTAD), which in its 2023 report argues that high levels of military spending often divert capital away from long-term development priorities, including poverty reduction, industrial transformation, and sustainable infrastructure investment (UNCTAD, 2023). Additionally, the Office of the High Commissioner for Human Rights (OHCHR), through its mandate on the Right to Development, has long maintained that:

> *"All States should promote the establishment, maintenance and strengthening of international peace and security and, to that end, should do their utmost to achieve general and complete disarmament under effective international control, as well as to ensure that the resources released by effective disarmament measures are used for comprehensive development, in particular that of the developing countries." (Declaration on the Right to Development, United Nations, 1986, Article 9)*

This argument is reinforced by the concept of human security, introduced by the United Nations Development Programme (UNDP) in the 1994 Human Development Report, which redefined security as:

> *"Safety from chronic threats such as hunger, disease and repression…not just military defense" (UNDP, 1994, p. 23).*

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[119] United Nations. (n.d.). *Disarmament in numbers*. United Nations Peace and Security. Retrieved July 8, 2025, from https://www.un.org/en/peaceandsecurity/disarmament-numbers

[120] United Nations Office for Disarmament Affairs. (2024). *The United Nations Disarmament Yearbook: Volume 48 (2023)*. United Nations. https://www.un.org/disarmament/publications/yearbook/

[121] https://executiveboard.wfp.org/document_download/WFP-0000157354 In 2023, WFP received USD 8.3 billion against approved needs-based plan of USD 22.8 billion,19 resulting in the organization's highest recorded shortfall, at more than 60 percent. The shortfall forced WFP to prioritize life-saving assistance at a time when acute hunger was at near-record levels globally. Direct expenditures totaled USD 10 billion in 2023, exceeding contributions received during the year, with unspent balances carried forward from 2022 helping to sustain WFP operations and assist more than 152 million people.

Meanwhile, the United Nations Institute for Disarmament Research (UNIDIR) has proposed integrated assessment frameworks to evaluate the dual impact of military expenditure, both in terms of its contribution to national security and its opportunity costs for development (UNIDIR, 2023). Together, these perspectives demonstrate growing multilateral consensus that reducing military spending is not only a disarmament imperative, but also a prerequisite for equitable and sustainable development.

B. Best practices

Best practices for aligning military expenditure with sustainable development should go beyond budgetary reallocation and include a broader vision of peace-centered governance. This involves promoting political participation within development programs, integrating peacebuilding objectives into broader development strategies, and ensuring that all interventions are aligned with the principles of SDG 16: *promoting peaceful, inclusive, and just societies*. Effective models in this area address the root causes of conflict and enhance the legitimacy and responsiveness of state institutions inclusively. The following examples illustrate different approaches that offer insights into how states and international actors can uphold sustainable peace without compromising essential development investments.

Global Peace Dividend Initiative (2021–ongoing)

The Global Peace Dividend Initiative serves as a model aligned with Action 13(c) of the New Agenda for Peace, advocating a transition from militarized security methods to preventive, development-focused, and human-centric initiatives. Launched in 2021 with support from 56 Nobel laureates, it calls for all countries to jointly reduce military expenditure by 2% per year for five years. This modest, coordinated slowdown of the arms race is designed to preserve each nation's security balance while freeing up substantial resources, approximately $1 trillion over five years, to tackle global crises. Importantly, GPDI proposes reinvesting the "peace dividend" into sustainable development by allocating half of the savings from reduced military budgets in a UN-supervised global fund for public goods like pandemic preparedness, health, education, climate action, and poverty alleviation. The remaining half stays with national governments to provide new fiscal space that could be used to retool military industries towards civilian and peaceful technologies. Crucially, this ensures that defense establishments can gradually pivot some capacity to support development, such as engineering expertise for infrastructure or disaster relief, without compromising core security. One of its key strengths lies in being a civilian-led and globally coordinated initiative, relying on diplomacy and mutual trust to reduce threats collectively, acknowledging that no individual state can alter security paradigms independently. As such, it represents an inclusive approach to global security that demonstrates good practice, showing how military spending can be moderated to advance sustainable development and peace without compromising national or collective security.

UN Peacebuilding Fund (2006–ongoing)

The United Nations Peacebuilding Fund (PBF) is one of the leading examples of positive integration of security and development efforts. Established in 2006 by Kofi Annan as the UN's

"financial instrument of first resort" to sustain peace[122], the PBF provides fast, flexible funding for early peacebuilding initiatives in countries emerging from or at risk of conflict[123]. By prioritizing initiatives that yield immediate peace dividends for communities, such as stimulating economic revitalization, creating jobs, and re-establishing essential services for people after conflict, this fund supports socio-economic recovery efforts. Rather than replacing national defense spending, this program complements it by focusing on the root causes of instability, often beyond the military's scope. It also pioneers cross-border initiatives targeting drivers of instability, such as resource competition and transnational recruitment by armed groups. Managed by the UN Peacebuilding Support Office (PBSO), its programming emphasizes nationally led efforts, often implemented in partnership with civil society and local communities[124]. By fostering partnerships in fragile settings, it supports SDG 17, together with multiple development goals; this fund exemplifies a good practice by visibly improving livelihoods and governance, both preventing relapse into violence and solidifying peace.

EU Cohesion Policy: Dual-Use Infrastructure (2024–ongoing)

The EU's 2024 update to Cohesion Policy allows member states to channel regional development funds into dual-use infrastructure projects such as roads, bridges, rail lines, and energy grids designed to serve both civilian needs and military mobility. Intentionally, this integration of security and development promises efficiency gains such as improved connectivity, fosters economic growth in lagging regions, supporting SDG 8 and SDG 9, while the same assets enhance strategic resilience in times of crisis. Embedding climate-proofing and smart-technology upgrades further aligns investments with SDG 13 and SDG 11, creating a narrative of "win-win" civilian and defense benefits.

Although sometimes beneficial, the dual-use approach can carry serious risks. First, it blurs the line between civilian development and military preparedness, potentially militarizing everyday infrastructure and shifting budgetary priorities away from social welfare programs targeted at reducing inequality (SDG 10) or improving health and education (SDG 3 and SDG 4). Second, because cohesion funds traditionally lack robust defense-sector accountability, there is a transparency gap, and local communities and regional stakeholders may have little say in how "dual-use" criteria are applied or monitored. Furthermore, by normalizing the redirection of cohesion money toward strategic mobility, the policy could lock in military agendas under the guise of development, undermining the spirit of Article C's call to ensure that military spending does not compromise investment in sustainable peace. As such, while dual-use infrastructure under Cohesion Policy showcases some good practice synergies, it also illustrates how merging defense objectives with development financing, absent clear safeguards, civilian oversight, and strict transparency measures, can inadvertently compromise the very social and environmental goals that sustainable development seeks to uphold.

[122] https://lordslibrary.parliament.uk/united-nations-peacebuilding-fund/#:~:text=The%20UN%20Peacebuilding%20Fund%20was,member%20states%2C%20organisations%2C%20and%20individuals

[123] https://mptf.undp.org/fund/pb000

[124] https://peacenexus.org/partnership/united-nations-peacebuilding-support-office/?utm_source=chatgpt.com

C. Case Studies - United States

The case study of the United States illustrates how the compromise unfolds in practice, highlighting the tangible trade-off between military and development spending, demonstrating the missed opportunities to invest in underserved regions and foster sustainable peace. The reason why the United States is taken as the case study is that it remains the country with the highest military expenditure globally, while also having historically played a leading role in international development and multilateral support through foreign aid and contributions to the United Nations. As of 2024, military spending by the U.S. was more than the next ten countries combined, while development assistance has seen significant cuts, with key foreign aid programs suspended or reduced. This dual and contradictory role makes the U.S. a relevant example for assessing how increased military spending may affect investments in sustainable development and the achievement of the SDGs, both domestically and globally. This case study also helps to illustrate the broader challenge of aligning national budget priorities with global commitments to peace and development.

Overview of US military spending: In 2023, the United States spent $886 billion on the military, representing approximately 3.4 percent of its GDP, accounting for 37 percent of total global military spending (SIPRI, 2024). By comparison, China, the second-highest spender, allocated $296 billion which is less than a third of U.S. spending.

Overview of US development spending: Until 2025, the United States remained the largest global contributor to foreign aid, with a total of $79.5 billion committed and over $43 billion disbursed through USAID in 2023, focusing on humanitarian response, global health, economic development, and disaster relief[125]. It was also the largest contributor to the United Nations providing nearly $13 billion in 2023 (about 28% of the total UN budget)[126] of the $46 billion, including 6.8% of UN funding from US-assessed funding and 21% from US voluntary funding. However, in 2025, several UN agencies have come under renewed scrutiny from the U.S. administration notably the Human Rights Council, UNESCO, and UNRWA, resulted in an order suspending funding to these entities[127]. While the overall financial contribution remains significant, these cuts may weaken the UN's capacity to deliver essential services in crisis situations, including refugee protection, education, and health services.

The effects of the increase in military funding and decrease in development funding for other countries and organizations: The sharp rise in U.S. military spending approaching $1 trillion in 2025 coupled with planned cuts to foreign aid and UN contributions poses serious challenges to global peace and development. As the largest donor to the UN system, the U.S. plays a critical role in supporting agencies like the World Food Programme[128] and UNHCR[129], which depend on it for nearly 50% and 40% of their budgets, respectively. Reduced U.S. funding has already led to ration

[125] https://foreignassistance.gov

[126] https://www.cato.org/blog/us-funding-united-nations#:~:text=Figure%202%20shows%20that%20the,percent%20from%20US%20other%20funding

[127] https://www.whitehouse.gov/presidential-actions/2025/02/withdrawing-the-united-states-from-and-ending-funding-to-certain-united-nations-organizations-and-reviewing-united-states-support-to-all-international-organizations/

[128] https://docs.wfp.org/api/documents/WFP-0000167222/download/?_ga=2.87194973.457338959.1751985742-432566550.1751985742

[129] https://www.reuters.com/world/un-refugee-boss-urges-donors-fill-gap-left-by-trump-aid-freeze-2025-02-05/

cuts, disrupted refugee assistance, and delayed responses in humanitarian crises. For developing countries, this shift means fewer resources for health, education, and climate resilience that are core to the Sustainable Development Goals. It also risks weakening multilateralism and undermines the UN's capacity to sustain peace, in contradiction with the principles of the Pact for the Future.

D. Challenges

Global tensions driving an arms buildup and military competition

Global geopolitical tensions have reached their most acute levels in decades, fostering a security environment where states increasingly perceive the need to expand their military capabilities. Currently, there are 59 active state-based armed conflicts worldwide, twice as many as five years ago, marking the highest number recorded since the end of World War II[130]. Experts warn that 2025 may be the most volatile year in recent history, with multiple high-impact contingencies, including wars in Gaza and Ukraine, escalating tensions in the West Bank and at the U.S.–Mexico border, and hostilities between Iran and Israel - all of which pose significant risks to global peace and stability[131]. Heightened threats are directly translating into record increases in defense spending across the world, with all five global regions seeing increases in 2024[132]. Beyond conventional armaments, nuclear capabilities are also being aggressively expanded[133]. In 2024, nine nuclear-armed states collectively spent over $100 billion on nuclear weapons, a rise of 11 percent from the previous year, with the United States alone allocating approximately $56.8 billion (ICAN, 2025)[134]. Such developments indicate a dangerous reversal in the post–Cold War trend of nuclear arms reduction, exacerbated by deteriorating arms-control regimes and growing risks of miscalculation, especially with increasing integration of AI into military systems.[135] Yet, both the nuclear arms competition and the wider militarization trend remain largely unconstrained by binding international limits. As the UN Secretary-General's advisory board observed, although the UN Charter envisaged minimizing the diversion of resources to armaments, progress toward that goal *"has slowed, if not reversed"* (UNIDIR, 2023).[136]

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[130] https://hartinternational.com/conflicts-to-watch-2025

[131] https://www.cfr.org/report/conflicts-watch-2025

[132] All five global regions see increases in 2024, marking the second consecutive year of such universal growth. Particularly, European military outlays, including Russia, surged 17%, reaching $693 billion, while Middle Eastern spending climbed to $243 billion in 2024, reflecting a 15% increase year-on-year amid ongoing conflicts in Gaza and Yemen (https://www.sipri.org/publications/2025/sipri-fact-sheets/trends-world-military-expenditure-2024)

[133] According to SIPRI, the global inventory of nuclear warheads increased to 12,405 by January 2025, of which nearly 9,614 remained in active military stockpiles, and about 2,100 were kept at high operational alert, primarily by the U.S. and Russia. (https://www.sipri.org/media/press-release/2025/nuclear-risks-grow-new-arms-race-looms-new-sipri-yearbook-out-now).
Meanwhile, China is expanding its arsenal at the fastest rate, adding around 100 warheads annually, and is expected to match U.S. and Russian intercontinental ballistic missile capabilities by 2030. (https://www.theguardian.com/world/2025/jun/17/china-nuclear-warheads-weapons-stockpile)

[134] https://www.icanw.org/global_spending_on_nuclear_weapons_topped_100_billion_in_2024

[135] https://www.thetimes.com/world/asia/article/china-nuclear-war-xtxq9sj08

[136] https://unidir.org/wp-content/uploads/2024/09/UNIDIR-2023-ABDM-Report.pdf#:~:text=resources,the%20cold%20war%2C%20and%20arms

Consequently, the threat perceptions create a security dilemma in which disarmament or budgetary restraint becomes politically untenable.

The economic costs of military divestment

Escalating conflict risks, as outlined below, can severely undermine development, especially when the long-term damage inflicted by violence reverses progress for entire generations. As a recent UNCTAD report on Gaza Strip demonstrates, Gaza's economy has been left in "utter ruin" by the 2023–24 conflict, and *"once a ceasefire is reached, a return to the 2007–2022 growth trend would imply that it would take Gaza 350 years just to restore GDP to its level in 2022"*[137]. Likewise, Syria, after fourteen years of civil war, has seen its GDP shrink to less than half of its pre-conflict size and poverty rates nearly triple, from 33 percent before the war to 90 percent of the population today. At current meager growth, Syria might not regain its 2010 GDP level until 2080, implying a lost 70 years of development.[138] In this context, some states argue that military investment is necessary to protect development itself, seeing defense spending as a safeguard against potential conflict and instability. Framing militarization as a form of insurance, countries buy their future development with military investment. While strengthening states' capacity for self-preservation, it also risks entrenching a cycle where resources are diverted from development to armament, ultimately undermining the very stability and prosperity that such investments claim to protect.

Economic and industrial interests

Another major obstacle lies in the entrenched economic and industrial interests that profit from high levels of military spending. While not the most profitable sector in terms of margin, arms remain one of the most consistently revenue-generating industries globally. Also, often regarded as "too strategic to fail," it enjoys substantial political protection, public subsidies, and long-term government contracts. In 2023, the world's top 100 arms-producing companies amassed $632 billion in revenues, reflecting a 4.2 percent increase from the previous year (SIPRI, 2024)[139]. Furthermore, largely driven by ongoing wars and tensions, Russian defense firms saw a 40 percent revenue jump amid the Ukraine war, and Israeli arms companies hit record sales during the Gaza conflict.[140] Policymakers frequently argue that defense spending stimulates innovation and employment, and defense contractors strategically spread subcontracts across many states or districts, building political support.[141] Arms exports are also financially attractive; countries like the U.S., Russia, France, and China earn substantial income selling weapons abroad, creating trade surpluses and geopolitical leverage. All these economic factors mean that reducing military expenditures is not simply a matter of security policy; it also entails confronting profitable

[137] https://www.un.org/unispal/document/unctad-report-10sep24/#:~:text=The%20damage%20caused%20by%20the,factors%20redoubled%20the%20income%20loss.

[138] https://www.undp.org/syria/press-releases/accelerating-economic-recovery-critical-reversing-syrias-decline-and-restoring-stability#:~:text=,over%2014%20years%20of%20conflict

[139] https://www.sipri.org/media/press-release/2024/worlds-top-arms-producers-see-revenues-rise-back-wars-and-regional-tensions

[140] https://responsiblestatecraft.org/war-profiteering/#:~:text=The%20largest%20increases%20were%20tied,to%20the%20war%20in%20Ukraine

[141] For instance, the U.S. military-industrial complex is deeply woven into the economy; industry groups highlight that some 800,000 American jobs are directly tied to defense and intelligence contracts, and that over 10% of U.S. manufacturing demand comes from the aerospace and defense sector (clearedconnections.com)

enterprises and labor interests. As William Hartung noted, the more that companies and economies become "dependent on the profits of war, the harder it will be to shift funding towards other urgent priorities"[142], since a militarized economy creates stakeholders who benefit from the status quo.

Domestic decision problem - political and institutional fragmentation

Even if national leaders acknowledge the need to balance military and development spending, domestic political structures often hinder integrated decision-making. Government budgeting is typically divided among different institutions and constituencies, leading to a *"guns versus butter"* dilemma that is hard to resolve[143]. Defense budgets are usually handled by defense ministries, military officials, and legislative committees focused on security, whereas development and social budgets are championed by separate ministries of finance, education, health, etc., each with their own priorities. This siloed setup means there is rarely a single forum to weigh trade-offs between an extra fighter jet squadron and, say, thousands of new schools or hospitals. Additionally, decision timelines differ as military procurement often involves long-term projects, spanning decades for new weapons systems, that lock in future expenditures, whereas social programs might have short-term commitments[144]. The result is an institutional inertia that favors maintaining or increasing military budgets in parallel with development budgets, rather than reallocating between them. Crucially, in some cases, civil-military relations complicate matters further since the military establishment may have considerable autonomy or political influence, making it hard for civilian authorities to curtail defense funding. This is particularly relevant in certain countries where the armed forces control significant economic assets and wield political power.[145]

Multilateral enforcement problem: sovereign economic decisions

A structural challenge at the international level lies in the fact that military spending is widely considered a core element of national sovereignty, significantly constraining the ability of multilateral bodies to enforce or even meaningfully influence reductions. Unlike domains such as trade or climate change, where binding international agreements are in place, there is no, and realistically cannot be, a global treaty limiting military expenditures, as such constraints are perceived as a direct challenge to national sovereignty. While the UN General Assembly has repeatedly affirmed the developmental benefits of redirecting military budgets and UN agencies promote transparency and reductions, these efforts lack enforcement power. Furthermore, the UN's primary tool remains a voluntary reporting instrument hosted by the UNODA[146], but participation is uneven and non-binding. Ultimately, decisions rest on political will rather than international obligation. As long as states perceive external threats or derive economic and strategic value from military investment, they will invoke sovereignty to justify such spending. One of the key challenges, therefore, is to cultivate international norms and peer pressure strong enough to encourage voluntary rebalancing. Without innovative strategies, such as confidence-building measures, regional arms control frameworks, or development-for-disarmament

[142] responsiblestatecraft.org

[143] https://journals.sagepub.com/doi/10.1177/1065912919890417

[144] https://www.journals.uchicago.edu/doi/10.1086/506416

[145] (e.g. Egypt's military-owned businesses form a sizable chunk of the economy) warpreventioninitiative.org

[146] https://disarmament.unoda.org/convarms/milex/#:~:text=Focus%20on%20transparency

incentives, as well as the UN's guidance, will remain largely aspirational in the face of entrenched sovereign interests.

E. Recommendations

To promote a more balanced and development-centered approach to global security, the UN and its member states should consider the following:

UN agencies and Member States should adopt standardized reporting mechanisms that assess national military expenditures against social investment baselines. These should be tied to SDG-aligned budget audits led by independent or regional bodies.

The UN Office for Disarmament Affairs (UNODA) should expand reporting instruments and produce annual comparative reports highlighting opportunity costs and positive spending rebalancing where it occurs.

Member States and multilateral organizations should initiate a dialogue on corporate responsibility within the global arms industry, encouraging voluntary commitments to allocate a share of revenues to development funds or peacebuilding programs.

Where possible, transparency obligations should be placed on defense contractors benefiting from public procurement, requiring them to disclose contributions to SDG-linked initiatives.

States should be encouraged to mainstream peacebuilding goals (SDG 16) into national development strategies and fiscal frameworks. This includes allocating a minimum percentage of national budgets to peace-oriented, civilian-led programming that addresses root causes of conflict.

UNDP, UN Peacebuilding Support Office (PBSO), and regional development banks should offer technical assistance to integrate peace and resilience financing within long-term development planning.

Development financing instruments, whether national or international, should explicitly include safeguards against diversion to defense-related expenditures. Implementors should revise these funds to require civilian oversight, community consultation, and transparency.

The UN and donor countries should explore "development-for-disarmament" incentives (e.g., debt relief, technical aid, access to concessional financing) for countries that commit to sustained reductions in military spending and demonstrable reinvestment in development sectors.

Financing /mechanisms should be scaled up and linked to political and fiscal commitments to non-military conflict prevention.

UN entities, particularly DPPA, DPO, and UNDP, should adopt a system-wide strategy to shift the approach of national security away from defense-centric models toward human security, as defined in the 1994 Human Development Report.

Action 16

"We will promote cooperation and understanding between Member States, defuse tensions, seek the pacific settlement of disputes and resolve conflicts."

A. Overview

Promoting understanding and cooperation between countries is of crucial importance. This is the message of Action 16 of Peace and Security Chapter in the Pact of the Future UN member states have committed themselves to. The good intentions may never be realized without acknowledging the diversity of interests between Member States and other stakeholders when seeking conflict resolution. To improve the effectiveness of Action 16, cooperation between Member States must be strengthened by encouraging conflicting parties to address each other's concerns and interests. This way, war can be made economically and politically unappealing, enabling the pursuit of long-term stability and a deeper understanding of collective needs and goals among nations. In the following, we will examine the importance of cooperation through the lens of value-based principles, aligning individual and collective interests across all Member States who are integral to the conflict resolution process, and continuous mechanisms to ensure accountability after conflicts have been resolved.

B. Best practices

In the spirit of the UN, best practices aim to channel conflicts towards peaceful resolutions. Action 16 strives to achieve this by means of preventive diplomacy, peaceful settlement of disputes, and encouraging dialogue between states. The action point mentions key practices such as cooperation, fostering understanding, diffusion of tensions, seeking pacific settlements of disputes, and resolving conflicts. These suggestions provide directions, but need specificity for the decision-makers in the UN and Member States to resolve conflicts before turning violent.

The concrete action points of Action 16 have been adopted based on the above directions. They can be divided into several categories: measures, reaffirmations, pursuits, intensification, urges, support. Examples include:

"Develop and implement mechanisms as required for the pacific settlement of disputes, confidence-building, early warning and crisis management, at the subregional, regional and international levels to address new and emerging threats to international peace and security."

"Take appropriate steps to ensure that the International Court of Justice can fully and effectively discharge its mandate and promote awareness of its role in the peaceful settlement of disputes, while respecting that parties to any dispute may also seek other peaceful means of their own choice."

But there are also less concrete ones, such as:
"Reaffirm our obligations under international law, including the Charter and its purposes and principles."

"Pursue and apply confidence-building measures to reduce tensions and promote international peace and security."

While the level of detail varies, all action points share a common shortcoming: they lack sufficient concreteness to hold Member States accountable and fail to provide meaningful incentives for compliance.

C. Case study: Ethiopia and Eritrea

Following the 1998-2000 war between Ethiopia and Eritrea over the Tigray region and Badme, The Algiers Agreement and its provisions sought to resolve the conflict primarily through means of diplomacy and mediation[147]. Therefore, the agreement between Ethiopia and Eritrea helps to establish a legal and institutional framework for intended conflict resolution towards peace as outlined in Pact for the Future and specifically in Article 16.

Although peace deals between the regions were not reached until 2018 when Abiy Ahmed assumed power as Prime Minister, the diplomatic measures leading to the Algiers Agreement were crucial in the prevention of resumption and escalation of violent warfare from the years 2002-2018. After the 2000 Algiers Agreement, the countries remained in a standstill. The acceptance of the Eritrea-Ethiopia Boundary Commission (EEBC) as outlined in the agreement aimed to create peace between Ethiopia and Eritrea by establishing border demarcation, monitoring, and a permanent ceasefire. Unified operations leading to The Algiers Agreement show diplomatic success and achievement through multilateral cooperation by the Organization of African Unity (precursor to the African Union), the Security Council, the Permanent Court of Arbitration (PCA), and other UN mechanisms.

Though a diplomatic resolution was achieved, it failed to consider grievances held by other parties, most notably the population of Tigray. This raises the question of whether an outcome can truly be considered a success when diplomatic tracks are assessed independently from other measures. De-escalation and communication efforts enabled by the OAU and other actors focused primarily on settlement between the two Member States but failed to address the influence of the conflict and potential outcomes of the agreement on other stakeholders involved. Despite Badma being in the Tigray region, Tigrayans were overlooked during the peace process (and beyond) despite being on the front lines and most impacted by the conflict. The disregard for indigenous rights led to rising tensions and further instability. Alongside the presence of authoritarian systems, these factors heavily contributed to another war between Tigray People's Liberation Front (TPLF) and the Ethiopian federal government[148].

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[147] Eritrea–Ethiopia. (2000, December 12). *Algiers Agreement between the Government of the State of Eritrea and the Government of the Federal Democratic Republic of Ethiopia.* https://www.files.ethz.ch/isn/125337/1392_Algiers%20Agreement.pdf

[148] Seifu, B. (2024, May). Amplifying the voices of the Tigrayan Irob community: The failure of the Algiers Agreement. *Omna Tigray*. https://omnatigray.org/amplifying-the-voices-of-the-tigrayan-irob-community-the-failure-of-the-algiers-agreement/

In such contexts, peace is fragile and easily exploited, as seen with the signing of the Ethiopia–Eritrea peace deal in 2018 which was used strategically against the Tigrayan people in the Tigray region later, when Eritrean troops were found on Ethiopian soil to help Abiy Ahmed's government in the war on the Tigray People's Liberation Front (TPLF), complicating an already dangerous conflict[149]. Regional cooperation also suffers, the African Union's muted response exposed how political divisions, and informal alliances can block collective security efforts. More can be done through concrete measures that align the interests of all parties and strengthen regional cooperation.

Two conclusions can be drawn from the case study of Ethiopia and Eritrea. First, diplomatic communication and multilateral cooperation can encourage and incentivize peace agreements. Second, conflict resolution must be inclusive and locally grounded to ensure long term stability. Failing to account for regional actors and marginalized populations can sow the seeds for future conflict, even amid international celebration of a diplomatic "success." The Pact for the Future intensifies the need for dialogue and mediation between countries and could have the potential to lay the framework for preventative diplomacy if actions under the Pact consider inclusive diplomatic practices to include indigenous communities and other regional actors. Action 16 of the Pact for the Future emphasizes that peaceful dispute settlement and cooperation must be grounded in transparency, rule of law, respect for human rights, and inclusive governance.

D. Challenges

Authoritarian regimes, such as Eritrea, limit transparency and hinder diplomatic cooperation by concentrating power in the hands of leaders rather than institutions and civil society. This undermines trust, accountability, and regional confidence-building, particularly when peace agreements lack public scrutiny and national dialogue. The 2018 peace agreement between Ethiopia and Eritrea, initially celebrated globally, later revealed its geopolitical instrumentalization when Eritrean forces fought alongside Ethiopian troops in the Tigray conflict. Meanwhile, regional organizations like the African Union, despite having a strong normative framework, struggle with political divisions and lack of consensus, often allowing national agendas and informal alliances to weaken collective security mechanisms. These challenges highlight the need for greater preventive diplomacy and a unified approach to addressing regional conflicts.

Authoritarian governance limits trust and accountability

Eritrea is widely recognized as one of the most closed and authoritarian regimes in the world. It has no independent press, no elections since independence, indefinite national service, and virtually no space for civil society. In such a political climate, diplomatic cooperation is leader-centric, not institution-based. Peace agreements lack public scrutiny or national dialogue, which can reduce legitimacy, and civic trust and regional confidence-building are nearly impossible without transparency.

[149] Al Jazeera. (2025, March 25). *Are Ethiopia and Eritrea on the brink of war?* https://www.aljazeera.com/news/2025/3/25/are-ethiopia-and-eritrea-on-the-brink-of-war

Geopolitical instrumentalization of peace

The 2018 peace agreement between Ethiopia and Eritrea was celebrated globally. The true motivations, however, came into question when Eritrean forces were found to be fighting alongside Ethiopia's federal troops in the Tigray conflict (2020–2022)[150]. This raised concerns that peace had been used strategically, not sincerely—to isolate the Tigray People's Liberation Front (TPLF), a mutual adversary.

Fragmented regional cooperation weakens collective security mechanisms

While the African Union (AU) has a robust normative framework for peace and security — including the AU Constitutive Act's Article 4(h) which permits intervention in cases of grave human rights violations — its application in practice is often constrained by political divisions, lack of consensus among Member States, and deference to state sovereignty.
During the Tigray conflict, the AU's silence or delayed response to Eritrean involvement in Ethiopia's internal war highlighted a reluctance to confront Member States, especially when regional powers like Ethiopia are involved. The Pact for the Future calls for strengthening preventive diplomacy. The AU has the mandate but not always the political backing from its members to act decisively, especially when leading states are involved in the conflict. Diverging national agendas and informal alliances (e.g., Ethiopia–Eritrea coordination against TPLF) complicate the AU's ability to act as a neutral, unified broker.

E. Recommendations

To improve the effectiveness of Action 16, cooperation between Member States must be strengthened through the alignment of mutual interests. As the Pact for the Future seeks to revitalize the multilateral system, it should continue to provide key principles behind each action item, ensure clear guidelines on potential misuse of peace agreements especially among powerful Member States, and the strengthening of collective regional diplomacy.

Action 16 robustly tackles conflict prevention through enhanced diplomatic and mediation tools. However, it fails to embed foundational governance principles—such as transparency, rule of law, respect for human rights, and inclusive governance—within its framework. Without these systemic enablers, peace processes risk being applied selectively, lacking legitimacy, or manipulated for political ends, especially in authoritarian regimes.

While Action 16 rightly emphasizes the peaceful settlement of disputes and cooperation among states, it falls short in addressing the potential misuse of peace agreements as instruments of strategic advantage. There is little guidance or safeguards in the Pact to prevent states from weaponizing peace as a cover for geopolitical maneuvering or future aggression. Once agreements are signed, there should be continuous mechanisms to ensure accountability.

[150] Guardian News and Media. (2020, December 8). *Diplomats back claims Eritrean troops have joined Ethiopia conflict*. The Guardian. https://www.theguardian.com/world/2020/dec/08/diplomats-back-claims-eritrean-troops-have-joined-ethiopia-conflict?utm

The Pact for the Future calls for strengthened collective diplomacy. Its success, however, rests on whether national governments are willing to prioritize shared peace over narrow geopolitical gain. Without aligning national policies to continental commitments, even the strongest regional frameworks risk being rendered toothless. The most powerful security mechanism is a collective interest in regional stability; a situation in which each country is able to benefit through peaceful interaction between Member States. This can be achieved by dialogue between Member States in which there will be no reluctance for Member States to express their interests.

This will only work when all involved parties are included in the resolution process. Importantly, this also includes non-state actors such as rebel groups or members of civil society. As illustrated in the case study, negligence of relevant groups during peace talks can lead to grievances not being addressed and lays the foundation for continued conflict. Hence, any action towards sustainable peacebuilding relies on the collective interest of regional stability for Member States and non-state actors.

Action 17

"We will fulfil our obligation to comply with the decisions and uphold the mandate of the International Court of Justice in any case to which our State is a party."

A. Overview

As the principal judicial organ of the UN, the International Court of Justice (ICJ) plays an essential role in maintaining international peace and security. By providing an impartial judicial forum for addressing disagreements, the Court promotes peaceful conflict resolution and strengthens adherence to international law. Its judgments and advisory opinions not only settle specific legal controversies but also shape broader international norms and guide state behavior, thus reinforcing the rules-based global order. The ICJ carries out its mandate through two primary mechanisms[151]: contentious cases, which result in legally binding decisions[152], and advisory opinions, which provide influential legal interpretations, thereby shaping international practices despite their non-binding nature.

By signing the Charter, a Member State of the UN undertakes to comply with the decision of the Court in any case to which it is a party. Action 17 explicitly emphasizes this obligation. Respecting the ICJ's authority is crucial for preserving the integrity of international law, ensuring accountability and fostering trust among nations. However, this respect is currently under threat. Instances of selective adherence, political resistance and non-implementation of ICJ rulings by some states weaken the Court's legitimacy and undermine the international legal system.

In addition, Action 17 recognizes that while reinforcing respect for ICJ decisions, states retain sovereignty in choosing peaceful means for resolving disputes, such as diplomatic negotiations, mediation, arbitration, or third-party facilitation through UN-led diplomacy. In this way, the ICJ complements other peaceful mechanisms, offering states a comprehensive framework for conflict prevention and resolution.

151 International Court of Justice, "Jurisdiction," available at: https://www.icj-cij.org/jurisdiction (accessed 10 July 2025).

152 Enforceable under Article 94 of the UN Charter.

B. Best practices

To promote meaningful adherence to ICJ judgments and uphold Action 17, states are encouraged to adopt the following best practices:

Effective enforcement of ICJ decisions

While the ICJ itself lacks coercive powers, several mechanisms—legal, political and institutional—can support enforcement[153]. These include the use of provisional measures, the role of domestic courts in translating international obligations into enforceable national rulings, and, in theory, recourse to the UNSC[154].

Explicit integration of ICJ decisions into domestic law

Incorporating ICJ rulings into national legal systems—through legislation, executive measures or judicial interpretation— ensures that international obligations are clearly understood and applied domestically[155].

Reaffirming principles of good faith and *pacta sunt servanda*

Compliance relies on the legal and moral commitment of states. Article 94(1) of the UN Charter obliges Member States to comply with ICJ judgments, while Article 2(2) stresses the importance of fulfilling obligations in good faith[156]. These principles remind states that compliance is not discretionary but a core element of international legal responsibility. Regular reaffirmation of *pacta sunt servanda*—the principle that agreements must be kept—helps sustain the legitimacy of international adjudication.

Strong international cooperation and dialogue

Engagement in multilateral dialogue enhances trust in international legal institutions and reduces the risk of unilateralism. By working collectively to uphold ICJ decisions, states reinforce peaceful dispute resolution and promote a culture of legal compliance.

Advancing in new global challenges

The ICJ is increasingly called upon to address emerging global challenges that transcend traditional notions of state-to-state disputes, including social and climate justice. The recent advisory opinion on climate change obligations illustrates how the Court can guide states on

153 Adv. Sanjay Sarraf, Enforcing International Law: An Analysis of ICJ Decisions, IJCRT 11, no. 4 (April 2023).

154 See more under Article 94(2) of the UN Charter.

155 *Op, cit,* Adv. Sanjay Sarraf, Enforcing International Law: An Analysis of ICJ Decisions, IJCRT 11, no. 4 (April 2023).

156 Oktawian Kuc, "Obligation to Comply with ICJ Decisions: The 'Jurisdictional Immunities' Saga within the Italian Legal Order," *Studia Iuridica* 102 (2024)

pressing global matters[157]. In doing so, it helps clarify state responsibilities and strengthens international law's role in advancing justice and accountability.

C. Case study[158]

This case study will treat the currently pending case "Application of the Convention on the Prevention and Punishment of the Crime of Genocide in the Gaza Strip (South Africa v. Israel)".

Introduction

On 29 December 2023, South Africa filed an application instituting proceedings against Israel concerning alleged violations in the Gaza Strip of the Convention on the Prevention and Punishment of the Crime of Genocide. This case will highlight the role of the ICJ and the failure of Israel to comply with its rulings, even after signing the Pact for The Future, and thus Action 17.

Facts of the case

South Africa is the accusing party of the case. It does so under its *erga omnes* obligation, as genocide is a crime against the international community.[159] Israel is the accused party of the case.

On 7 October 2023, the military wing of Hamas and the Palestinian Islamic Jihad launched an attack in Israel, killing over 1,200 people in Israel and taking 240 people hostage in Gaza. As a response, Israel has started the "Israel-Hamas War". Between the start of the war and the moment of the filing of the application over 21,110 Palestinians had been killed, according to the Palestinian Health Ministry, at least 70 per cent of whom are believed to be women and children. A total of over 7,729 Palestinian children had been killed in Gaza in this time frame. Furthermore, the deprivation of delivery of food, clean water, and medical aid was threatening the lives of Palestinians in Gaza too. An estimated 1.9 million Palestinians out of 2.3 million had been forced to leave their homes until the filing of the application. Finally, the lack of basic medical care made the conditions for pregnant women and newborn children extremely unsafe, as the number of premature births for example had increased by 25-30% and many newborn children had died from preventable conditions.

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[157] International Court of Justice (ICJ), *Obligations of States in respect of Climate Change* (Advisory Opinion, Case No. 187), accessed via ICJ website: https://www.icj-cij.org/case/187

[158] The whole case study is based on the ICJ's documentation on Application of the Convention on the Prevention and Punishment of the Crime of Genocide in the Gaza Strip (South Africa v. Israel), Provisional Measures, Order of 26 Jan. 2024, I.C.J. General List No. 192.

[159] Based on Article IX of the Genocide Convention, South Africa has the legal ground to bring this case to the International Court of Justice.
Article IX:
Disputes between the Contracting Parties relating to the interpretation, application or fulfilment of the present Convention, including those relating to the responsibility of a State for genocide or for any of the other acts enumerated in article III, shall be submitted to the International Court of Justice at the request of any of the parties to the dispute.

Applicable law and legal issues

The applicable law for this case is International Law under Article II of the "Convention on the Prevention and Punishment of the Crime of Genocide".[160] South Africa has accused Israel of committing genocide by all listed means in Article II except (e).

Judgment and decision

Prima Facie, the court has decided that it has jurisdiction over this case, that the case deserves to be heard and that it will do so in the future, as it has jurisdiction and there is a plausible case. Based on the urgency of this case, the ICJ has issued 6 provisional measures to protect the Palestinian people in Gaza, while it is making its final decision.[161]

Analysis and commentary

While the ICJ's legal procedures have worked effectively, its provisional measures have been largely ignored by Israel. Amnesty International has reported almost 11 months after the first ICJ ruling that "Israel is committing genocide against Palestinians in Gaza".[162] Similarly, the Human Rights Watch has accused Israel of committing acts of genocide in Gaza by restricting access to water.[163] While the final decision of the ICJ on whether or not Israel is committing genocide has

[160] Article II of the Genocide Convention states the following:
"In the present Convention, genocide means any of the following acts committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group, as such:

(a) Killing members of the group;
(b) Causing serious bodily or mental harm to members of the group;
(c) Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part;
(d) Imposing measures intended to prevent births within the group;
(e) Forcibly transferring children of the group to another group."

[161] The six provisional measures issued by the ICJ:

1. Israel shall stop all acts of genocide against the Palestinian population in Gaza under Article II ((a)-(d)).
2. Israel shall stop its military to commit acts of genocide against the Palestinian population in Gaza under Article II ((a)-(d)).
3. Israel shall prevent and punish the direct and public incitement to commit genocide against the Palestinian population in Gaza.
4. Israel shall take measures to enable emergency relief in Gaza
5. Israel shall take measures to prevent the destruction and ensure the preservation of evidence related to allegations of acts of genocide against the Palestinian population in Gaza.
6. Israel shall submit a report to the Court on all measures within one month of the issuance of this order (issued on the 26 of January 2024)

[162] Amnesty International, *"You Feel Like You Are Subhuman": Israel's Genocide against Palestinians in Gaza*, 4 Dec. 2024, available at:
https://www.amnesty.org/en/documents/mde15/7670/2024/en/ [last accessed 8 July 2025].

[163] Human Rights Watch, *Extermination and Acts of Genocide: Israel Deliberately Depriving Palestinians in Gaza of Water*, 19 Dec. 2024, available at: https://www.hrw.org/report/2024/12/19/extermination-and-acts-genocide/israel-deliberately-depriving-palestinians-gaza [last accessed 8 July 2025].

not been taken, Israel is not changing its course of actions since the ruling on January 26, 2024. On the contrary, conditions in Gaza have even worsened, as a Polio outbreak in June 2024 in Gaza highlights.[164] The ICJ's ruling on provisional measures has not been effective as there is no functioning enforcement mechanism.

Conclusion

Looking back on Action 17, we conclude that although all UN Member States have reaffirmed to comply with ICJ decisions, today the reality is that Israel is failing to fulfill their commitment, and that other Member States are failing to hold Israel accountable for its failures. This is especially regrettable as this is a case of alleged genocide, and thus a case of utmost importance that reflects on humanity, on the UN and on the concept of multilateralism. This is demonstrated by the *erga omnes* obligation to prevent genocide. We believe that this case is an utter failure of the international community and that it is the duty of every UN Member State to uphold international law, to protect the Palestinian people in Gaza, and to hold Israel accountable for its actions in Gaza.

D. Challenges

Consent and the limits of jurisdiction

The ICJ's power is based on state consent, which creates a paradox: it empowers the Court only when states agree to its jurisdiction, simultaneously constraining it.[165] The *South Africa v. Israel* case illustrates this, as it can only proceed under the Genocide Convention.[166] This forces a broad, long-standing political conflict into a narrow legal framework, a common practice known as "shoehorning", where wider issues like occupation cannot be adjudicated.[167] While states accused of this often claim "abuse of process", the ICJ rarely accepts this defense, thereby preserving access to justice but also making the Court a venue for political battles.[168]

Non-compliance and the shadow of the UN Security Council veto

A major weakness is the ICJ's "enforcement deficit". While compliance is high in bilateral disputes where parties seek finality, it is low in high-profile political cases.[169] The UN Charter's

[164] BBC News, "WHO 'extremely worried' about possible Gaza polio outbreak", 23 July 2024, https://www.bbc.com/news/articles/crgrxjn9rkpo [accessed 8 July 2025].
[165] Newman, M. (n.d.). Research Guides: International Court of Justice: The International Court of Justice (ICJ) Overview. [online] guides.law.columbia.edu. Available at: https://guides.law.columbia.edu/c.php?g=1221809&p=9252453.
[166] EJIL: Talk! (2023). Goliath vs David (and Friends): A Recap of the Preliminary Objections Hearings in Ukraine v. Russia. [online] Available at: https://www.ejiltalk.org/goliath-vs-david-and-friends-a-recap-of-the-preliminary-objections-hearings-in-ukraine-v-russia/.
[167] Ibid.
[168] EJIL: Talk! (2019). Abuse of Process and Abuse of Rights Before the ICJ: Ever More Popular, Ever Less Successful? [online] Available at: https://www.ejiltalk.org/abuse-of-process-and-abuse-of-rights-before-the-icj-ever-more-popular-ever-less-successful/.
[169] Llamzon, A.P. (2007). Jurisdiction and Compliance in Recent Decisions of the International Court of Justice. European Journal of International Law, 18(5), pp.815–852. doi:https://doi.org/10.1093/ejil/chm047.

enforcement mechanism,[170] which relies on the UNSC, is flawed because its action is discretionary and subject to the veto of its P5. The *Nicaragua v. United States case* is a key example, where the U.S. vetoed a resolution to enforce the ICJ's judgment against it, demonstrating how P5 members can defy international law without consequence.[171]

Judicial elections, representation, and legitimacy

The Court's legitimacy is threatened by a politicized election process and representational imbalances. Judges are elected by the UNGA and UNSC,[172] but studies show voting patterns often align with political interests. The informal system of geographic seat distribution, which for decades included *de facto* permanent seats for the P5, prioritizes geopolitical balance over individual merit. Furthermore, a profound gender imbalance—with only six women among over 100 permanent judges in its history[173]—undermines the Court's moral authority and perception as a representative global institution.

Strategic litigation and its challenges

With the UNSC often deadlocked, states increasingly use the ICJ to litigate active wars, as seen in cases like *DRC v. Uganda* and *Ukraine v. Russia*. This "lawyering of war" allows states to seek legal condemnation of adversaries and mobilize international pressure.[174] However, it pulls the Court into intense political conflicts, stretching its judicial role. This trend is complicated by new phenomena like "mass interventions", where dozens of states joined the *Ukraine v. Russia* case, challenging the Court's procedures and highlighting its transformation into a legalized political arena.[175] While this enhances the ICJ's relevance, it also exposes its institutional weaknesses.

E. Recommendations

Bolstering compliance and enforcement (addressing the Article 94 deficit)

First, the UNGA should establish a formal, standing mechanism to systematically review compliance with all ICJ judgments. Leveraging its authority under the "Uniting for Peace" resolution[176],[177] this mechanism could dedicate a specific agenda item during each UNGA session

[170] See Article 94 of the UN Charter.
[171] Murphy, S. (2008). The United States and the International Court of Justice: Coping with Antinomies. [online] Available at: https://scholarship.law.gwu.edu/cgi/viewcontent.cgi?article=1902&context=faculty_publications.
[172] United Nations (n.d.). Statute of the International Court of Justice. [online] United Nations. Available at: https://www.un.org/en/about-us/un-charter/statute-of-the-international-court-of-justice.
[173] Opinio Juris. (2025). Symposium by GQUAL on CEDAW's GR40: Gender Parity in the ICJ and ILC – About Time! [online] Available at: https://opiniojuris.org/2025/02/04/symposium-by-gqual-on-cedaws-gr40-gender-parity-in-the-icj-and-ilc-about-time/.
[174] Anna Spain, Examining the International Judicial Function: International Courts as Dispute Resolvers, 34 LOY. L.A. INT'L & COMP. L. REV 5 (2011). Available at https://scholar.law.colorado.edu/faculty-articles/631.
[175] See more: McIntyre, J. (2023). A Hot Potato: The ICJ's Order on the Admissibility of 32 Declarations of Intervention in Ukraine v. Russia. [online] EJIL: Talk! Available at: https://www.ejiltalk.org/a-hot-potato-the-icjs-order-on-the-admissibility-of-32-declarations-of-intervention-in-ukraine-v-russia/.
[176] GA Res 377
[177] Which allows the UNGA to act on matters of international peace and security when the UNSC is deadlocked.

to discuss a report from the UNSC on the status of compliance with ICJ judgments from the preceding year.

Second, in clear cases of persistent non-compliance that threaten international peace and the rule of law, the GA could pass resolutions recommending that Member States adopt specific, lawful countermeasures[178] against the non-compliant state.

Third, the UNSG, supported by a coalition of non-permanent members and civil society, should advocate for the adoption of a formal or informal "principled abstention" policy among the P5.[179] Under this policy, a P5 member would publicly commit to abstaining from—rather than vetoing—a resolution aimed at enforcing an ICJ judgment under Article 94, unless it can publicly certify that the judgment directly and gravely implicates its own "vital national security interests".[180]

Enhancing the Court's legitimacy and representativeness (reforming elections)

First, to address the historic gender imbalance,[181] the UNGA and UNSC should pass a resolution urging all National Groups at the Permanent Court of Arbitration[182][183] to nominate at least one qualified woman candidate in every election cycle.

Second, it is necessary to create a permanent, independent UN advisory committee, composed of eminent jurists from diverse legal systems and backgrounds.[184] The committee would publish its assessments of each candidate's qualifications, increasing transparency and making it more difficult for states to push forward purely political nominees who lack the requisite expertise.[185]

Third, the ICJ judicial elections should be held at a separate, dedicated time, distinct from the main session of the UNGA. This would help insulate the process from the intense political negotiations and vote-trading that characterize the main session, allowing for a more merit-based consideration of candidates.

[178] These could include targeted sanctions, suspension of development aid (from willing states), or restrictions on diplomatic engagement, thereby raising the political and economic cost of defiance.
[179] While amending the UN Charter to remove the veto is politically unfeasible, a normative shift is possible.
[180] This would not eliminate the veto but would create significant political pressure against its use to shield a state from its legal obligations.
[181] Opinio Juris. (2025). Symposium by GQUAL on CEDAW's GR40: Gender Parity in the ICJ and ILC – About Time! [online] Available at: https://opiniojuris.org/2025/02/04/symposium-by-gqual-on-cedaws-gr40-gender-parity-in-the-icj-and-ilc-about-time/ [Accessed 9 Jul. 2025].
[182] United Nations (n.d.). Statute of the International Court of Justice. [online] United Nations. Available at: https://www.un.org/en/about-us/un-charter/statute-of-the-international-court-of-justice.
[183] Which are responsible for nominations.
[184] This committee's mandate would be to vet all nominees against the high standards of competence and moral character required by Article 2 of the ICJ Statute.
[185] Yale.edu. (2025). DSpace. [online] Available at: https://openyls.law.yale.edu/bitstream/handle/20.500.13051/4460/106AmJIntlL694.pdf?sequence=2&isAllowed=y [Accessed 9 Jul. 2025].

Fostering a culture of compulsory jurisdiction

To expand the number of states that accept its compulsory jurisdiction under the Article 36(2) optional clause, the UNSG, in partnership with a coalition of "like-minded states"[186], should launch a sustained, high-level global campaign to encourage wider acceptance of the Court's compulsory jurisdiction. This initiative could include high-level diplomatic engagement with states that have not yet made a declaration and offer technical assistance from the UN Office of Legal Affairs to smaller states and developing countries to help them draft and deposit their declarations, addressing any legal or capacity-related concerns.

Managing strategic litigation and "mass interventions"

First, the ICJ should use its power under Article 30 of its Statute to amend its Rules of Court to establish specific procedures for managing mass interventions under Article 63. Drawing lessons from the *Ukraine v. Russia* case, these new rules could empower the Court to direct intervening states with similar positions to form groups and submit joint written and oral observations. Moreover, rigorously enforcing the rule that interventions shall be strictly limited to the "construction of the convention" in question and shall not address the specific facts of the case or the broader merits of the dispute.

Second, the Court has the power to indicate provisional measures that are, in whole or in part, "other than those requested" by the applicant.[187] In highly politicized cases, the Court should be more willing to exercise this authority to craft more nuanced and targeted orders. This would allow it to balance the urgent need to protect plausible rights against the risk of appearing to pre-judge the entire dispute on its merits, thereby preserving its judicial caution while still acting decisively.[188]

Action 19

"We will accelerate the implementation of our commitments on Women, Peace, and Security."

A. Overview

International peace and security issues are facing increasing challenges in the context of armed conflicts, geopolitical shifts, censorship, and gender-based violence. In this context, the *Women, Peace and Security* (WPS) agenda, created after the Security Council Resolution 1325 (2000)[189], has emerged as an ambitious international response to strengthen the role of women in conflict prevention, peacebuilding, mediation leadership, post-conflict recovery, and democracy strengthening efforts (Kasumba, 2013)[190]. This agenda builds on the foundations laid by the 1995

[186] That have already accepted the optional clause without debilitating reservations.

[187] M.I (2024). ICJ Order: Application of the Convention on the Prevention and Punishment of the Crime of Genocide in the Gaza Strip (South Africa v. Israel) - Question of Palestine. [online] Question of Palestine. Available at: https://www.un.org/unispal/document/icj-order-24may24/.

[188] This approach can help mitigate accusations of overreach and enhance the perceived fairness of its proceedings.

[189] United Nations Security Council. (2000). *Resolution 1325 (2000) [on women and peace and security]*. https://undocs.org/S/RES/1325(2000)

[190] Kasumba, Y. (2013). *Mainstreaming gender into African Union peace support operations: Why we are getting it wrong*. Conflict Trends. http://reference.sabinet.co.za/document/EJC138591

Beijing Platform for Action[191], which is currently completing 30 years. Adopted during the Fourth World Conference on Women, it represented a historic roadmap for seeking gender equality and empowering women and girls in various fields that have been previously denied to them. *The Platform* identified twelve critical areas for action, including political participation, violence against women, and strengthening the role of women in conflict transformation[192] and peacebuilding efforts.

Although more than a quarter of a century has passed since the adoption of the *Beijing Platform*, challenges in implementation remain, particularly in conflict-affected areas, where women, girls, and LGBTQI+ people face multiple forms of marginalization and violence and are often excluded from decision-making processes. Hence, there is a need for a profound and comprehensive review to reinforce international commitments by adopting more inclusive approaches that uphold gender justice, care, and psychosocial recovery as essential components of sustainable peace. In this context, the *United Nations' Pact for the Future*[193], specifically Action 19, reaffirms the importance of accelerating the implementation of our commitments under the WPS agenda. This action underscores the importance of ensuring women's safety and their participation in decision-making processes related to peace and security, thereby reinforcing all WPS commitments. However, its implementation has presented some challenges, as well as some gaps that will be addressed in this report to improve the implementation of this action from an intersectional perspective, integrating justice, care, and recovery, and also reframing the concept of empowerment beyond token representation toward real and sustainable impact, as well as to build a fairer social fabric, aiming to transcend the gender-based violence that affects not only women and girls, but also men, boys and especially the LGBTQI+ community.

It is essential to remember that these efforts are not new but rather reflect decades of feminist struggle and global civil society activism aimed at recognizing women's role as agents of change and active partners in building a more just and peaceful future, as well as LGBTQI+ activism that is aiming to denounce their marginalization in the world and included in the WPS agenda. Therefore, in line with the work that UN Women is doing, this report aims to explore practical approaches to operationalizing the commitments outlined in Action 19 of the *Pact for the Future*[194]. It does so by rethinking the concept of "empowerment" in peacebuilding, examining Colombia, presenting best practices and challenges for its implementation, as well as developing practical recommendations for a more comprehensive, gender-sensitive response. The methodology of this work is based on a review of the literature, as well as insights from our practical experience, lectures, and conversations with experts in the field.

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[191] United Nations. (1995). *Beijing Declaration and Platform for Action: The Fourth World Conference on Women, Beijing, China – September 1995*. https://www.un.org/womenwatch/daw/beijing/platform/

[192] In line with Lederach (1996), we adopt the concept of "conflict transformation" because it more accurately reflects the nature of conflicts. As part of the human experience, conflicts cannot be solved, only transformed into more sustainable patterns of relationships. According to the author, "transformation suggests a dynamic understanding that conflict can move in destructive or constructive directions, but proposes an effort to maximize constructive, mutually beneficial processes and outcomes" (1996, p. 19). In: Lederach, J. P. (1996). *Preparing for peace: Conflict transformation across cultures*. Syracuse University Press.

[193] United Nations. (1995). *Beijing Declaration and Platform for Action: The Fourth World Conference on Women, Beijing, China – September 1995*. https://www.un.org/womenwatch/daw/beijing/platform/

[194] United Nations. (2024, September 22). *Pact for the Future* [Outcome document, Summit of the Future]. United Nations. https://www.un.org/en/summit-of-the-future/pact-for-the-future

Rethinking empowerment and care in peacebuilding

When working with gender issues, the term "women's empowerment" is widely used by national and international organizations for multiple purposes, often in a non-critical manner. According to Cornwall (2018[195]), the concept has been stripped of its critical and emancipatory potential through the co-optation of feminist notions, such as "agency" and "choice," within a neoliberal framework. This diluted form – what Cornwall calls "light empowerment" – fails to challenge existing power relations and does not aim to transform the structural inequalities that sustain gendered oppression. Instead, it emphasizes individual advancement, particularly through economic participation, while sidelining collective struggle and systemic change. Drawing on a critical feminist perspective (Connell 2020[196], Mahmood 2005[197], Mohanty 2006[198], Parashar 2016[199]), we understand empowerment as the genuine acknowledgment of humanity, voice, lived experiences, memories, and traumas. This recognition provides healing, care, and emotional and symbolic justice, which is intrinsically linked to the pursuit of structural justice.

As a consequence, this broad understanding yields a more comprehensive action plan that aims to increase women's participation in leadership positions and commits to programs that promote ongoing structural and cultural transformations, building and strengthening peace and fostering societal development. Therefore, empowerment programs should focus on training and promoting female leaders in villages, cities, and institutions and organizations at all levels. These programs should also focus on quality education, transitional justice, memory policies, entrepreneurship, and other areas that connect to many sustainable development goals.

Action 19 of the *Pact for the Future* emphasizes meaningful and safe participation, as well as the prevention of gender-based violence in post-conflict settings.[200] However, the plan focuses on women in conflict and emergency zones without recognizing their role in maintaining peace and strengthening democracy. Additionally, the plan primarily emphasizes formal inclusion, failing to fully address the emotional, psychological, and care-based dimensions of empowerment. The plan also lacks an intersectional peacebuilding perspective that should address gender (in a way that moves beyond a narrow focus on "women"), race, class, ethnicity, disability, and other layers of oppression.

B. Best practices

Ensure the meaningful participation of women at all levels

Promote the full, equal, and substantive participation of women in peace processes, conflict resolution, and post-conflict reconstruction efforts. In Colombia, women's leadership must be

[195] Cornwall, A. (2018). Além do "empoderamento light": empoderamento feminino, desenvolvimento neoliberal e justiça global. *Cadernos Pagu*, (52), e185203. https://doi.org/10.1590/18094449201800520003
[196] Connell, R. (2020). *Gender: In world perspective*. John Wiley & Sons.
[197] Mahmood, S. (2005). *Politics of piety: The Islamic revival and the feminist subject*. Princeton University Press.
[198] Mohanty, C. T. (2005). *Feminism without borders: Decolonizing theory, practicing solidarity*. Zubaan.
[199] Parashar, S. (2016). Feminism and postcolonialism:(En) gendering encounters. *Postcolonial Studies*, *19*(4), 371-377.
[200] United Nations. (2024, September 22). *Pact for the Future* [Outcome document, Summit of the Future]. United Nations. https://www.un.org/en/summit-of-the-future/pact-for-the-future

recognized and supported at the grassroots, local, and national levels to ensure inclusive and sustainable peacebuilding.

Integrate gender-sensitive approaches across all sectors

Mainstream gender perspectives into peacekeeping, humanitarian, and development policies. The experience in Liberia offers key insights into how gender integration can transform peacebuilding outcomes and improve post-conflict recovery processes.

Support the development and implementation of national action plans on WPS

Assist in the creation and enhancement of National Action Plans (NAPs) with clear indicators, timelines, and dedicated funding. In Colombia, such frameworks are essential for operationalizing commitments under the WPS agenda and ensuring accountability.

Strengthen legal and policy frameworks to combat gender-based violence

Develop and enforce laws and policies that effectively prevent, investigate, and prosecute sexual and gender-based violence. Colombia's legal system must address structural impunity and ensure survivor-centered justice in both urban and rural areas.

Support women peacebuilders and human rights defenders

Provide sustained protection and financial resources to women peacebuilders and human rights advocates. Their efforts are crucial in promoting reconciliation, protecting human rights, and preventing the recurrence of violence in post-conflict societies.

C. Case Study: navigating the role of women in railing the path from conflict to reconciliation in Colombia

The Colombian armed conflict is one of the longest in Latin America, lasting more than 60 years. It emerged in the 1960s, fueled by deep-seated social inequalities, lack of access to land, political exclusion, and rural poverty. In this context, guerrilla groups emerged, such as the FARC-EP (*Fuerzas Armadas Revolucionarias de Colombia - Ejército del Pueblo,* Revolutionary Armed Forces of Colombia – People's Army), the ELN (*Ejército de Liberación Nacional,* National Liberation Army), and later, actors such as paramilitaries and criminal gangs linked to drug trafficking. This conflict has involved clashes between insurgent groups, state forces, paramilitaries, and organized crime actors. It has resulted in millions of victims[201], forced displacements, murders, and a series of kidnappings and disappearances. To better understand the complexity of the conflict, it is helpful to provide a brief chronological overview[202]:

1948: Often referred to as the "beginning" of the violence, marked by the assassination of Jorge Eliecer Gaitán.
1964: Formation of the FARC and ELN as left-wing peasant guerrilla groups.

[201] https://www.comisiondelaverdad.co/colombia-adentro
[202] https://www.bbc.com/mundo/noticias/2015/09/150923_cronologia_farc_colombia_paz

1980s–1990s: Guerrilla groups expanded and gained strength; paramilitary groups also emerged.
1998-2007: during these years the "Conversaciones en el Caguán" (Conversations in the Caguán) took place, they were several tries from part of the government trying to achieve a lasting peace. In 1998, President Pastrana started the peace talks with the guerrillas. In 1999, peace talks began formally, between President Pastrana and the leader of the FARC, Manuel Marulanda also known as Tirofijo. In 2001, the Colombian government and the FARC signed the San Francisco agreement, pledging to negotiate a ceasefire. In 2002, Pastrana interrupted the peace talks with the FARC after the hijacking of a plane. A war zone was declared in the south of the country and, as a result, rebels intensified the attacks. In 2007, the FARC made a condition to the government to withdraw troops and to establish a demilitarized zone.

Early 2000s: Launch of Plan Colombia, aimed at combating guerrilla activity with U.S. military support.

2005: Implementation of the Justice and Peace Act, which contributed to a partial demobilization of paramilitary groups.

2012–2016: Peace negotiations took place in Havana between the Santos government and the FARC.

2016: Signing of the final Peace Agreement with the FARC.

Despite negotiations and peace efforts, the conflict persists due to continued activity by paramilitary groups, FA dissidents, ELN, and cartels. The conflict has left more than nine million victims, according to Colombia's Victims Unit, with profound consequences. We are talking about over seven million displaced persons, thousands of missing individuals: a systematic human rights violations and war crimes, an erosion of the social fabric, fear, and distrust in rural communities. But also, we can mention the prolonged humanitarian crisis and limited state presence in several territories, especially in the borders such as Catatumbo region, that is currently suffering from a new escalation of violence, an intergenerational trauma and intangible wounds, and the destruction of nature and environment.

These violences affected all segments of the population differently according to social and geographical markets such as gender, race, and place of living. The rural areas were the most affected by the conflict, which was marked by the blood and histories of many people who suffered gender-based violence. According to the Colombian Truth Commission final's report, specifically on their gender and LGBTQI+ documents, it is possible to see that sexual violence, such as massive rapes, were used as a weapon of war, affecting primarily woman, but also men and LGBTQI+ people - who still being killed by being themselves. Women also have reported harassment inside the guerrillas, as well as many forms of discrimination. At the same time, many women organized themselves into movements focused on peace, human rights, truth-seeking, memory[203], and justice. Notable examples include Mothers of Soacha, La Ruta Pacífica de las Mujeres (The Peaceful Route of Women), and Las Tejedoras de Mampuján (The Weavers of Mampuján). The work of grassroots organization and the strong movement of victims led by women had a huge influence

[203] https://centrodememoriahistorica.gov.co/wp-content/uploads/2022/07/TESTIMONIOS-DE-LA-ROSA-BLANCA-DIGITAL.pdf

on the Havana conversations, pushing for the creation of a victim-centered and gender-sensitive approach for all the three transitional justice mechanisms — the Colombian Truth Commission, Special Jurisdiction for Peace, and the Search Unit for Persons Reported Mission.

The Colombian government has engaged in several peace negotiations throughout the years, and many mistakes have been committed before the successful implementation of a gender-sensitive dimension in peacebuilding and truth-seeking processes. These efforts have seen both progress and setbacks. Between the 1980s–1990s, they were several negotiations with the FARC, M-19 (Movimiento 19 de Abril / April 19th Movement), and EPL (Ejército Popular de Liberación / Popular Liberation Army). Only M-19 was successfully demobilized. In 2005, a partial demobilization of paramilitary forces was achieved by the local government. In 2012 until 2016, a peace process with the FARC was held, during which—for the first time—a Gender Commission was established, an innovative step in peace negotiations. In 201 the Peace Agreement between the government and the FARC was signed (more than 300 pages of treaty aiming to stop the conflict and to stabilize the country).[204] Although initially rejected in a plebiscite by a narrow margin, it was later revised and implemented by Congress. There was no agreement signed by the ELN, nor by other paramilitary groups.

The signing of the 2016 Peace Agreement marked a historic milestone, guided by a victim-centered approach and an explicit commitment to addressing gender-based violence and enhancing women and LGBTQI+ people participation in the peace process and transitional justice mechanisms (Murphy, 2024). Nevertheless, many obligations from the agreement remain unfulfilled. Key unresolved challenges include: the lack of land security and effective implementation measures; the inadequate reintegration programs for victims and former combatants; the insufficient protection for social leaders and activists, a difficulty to access women in rural areas, especially in Amazonia or Catatumbo. We can also point out the lack of funding and training to promote peace education and gender-sensitive education programmes and activities, especially in rural areas where the LGBTQI + intolerance is still strong. There is still a long journey to achieve gender equity in Colombian politics, despite the advances.

Despite these efforts, Colombia continues to face both structural and emerging obstacles to achieving a lasting peace. These include: the resurgence and strengthening of criminal groups. An ongoing violence against civilians, women, LGBTQI+, and social leaders; the persistence of poverty and social exclusion in rural areas, and a really limited State presence, which allows the conflict to continue in various regions.

D. Challenges in implementing the Women, Peace, and Security (WPS) Agenda

Despite the rhetorical commitment expressed in *Action 19* of the *Pact for the Future*, a significant gap persists between ambition and implementation regarding the WPS agenda. Structural inequalities continue to constrain women's full, safe, and meaningful participation in peacebuilding and political processes (UN Women, 2024)[205]. The *Fifth Review of the Beijing Platform for Action* (2024) highlights enduring challenges across regions, particularly in the Arab

[204] https://www.cancilleria.gov.co/sites/default/files/Fotos2016/12.11_1.2016nuevoacuerdofinal.pdf

[205] UN Women. (2024). UN Women annual report 2024. https://www.unwomen.org/en/annual-report/2024

States, where crises such as COVID-19, armed conflicts, and economic instability have deepened gender disparities. In countries like Somalia and the Democratic Republic of Congo (DRC), women face compounded risks, including limited access to political decision-making, entrenched patriarchal systems, and widespread gender-based violence. At the same time, inclusion efforts often remain symbolic rather than substantive (UN Women, 2024)[206].

Although 1,531 legal reforms have been enacted globally since 1995 to promote gender equality, women today enjoy only 64% of the legal rights that men do (UN Women, 2024)[207]. Nearly 75% of global parliamentarians are still men, and women's labor force participation remains significantly lower (63% compared to 92% for men). Additionally, women perform 2.5 times more unpaid care work, further limiting their economic mobility and opportunities for civic and political engagement. These inequalities are particularly pronounced in fragile settings, where the absence of childcare infrastructure, digital exclusion, and weak social protection systems deepen the divide.

Conflict-related sexual violence has also seen a dramatic rise—increasing by 50% since 2022, with 95% of victims being women and girls—revealing a systemic failure to integrate gendered protections into peace and security frameworks (UN Women, 2024)[208]. Additionally, the "NGOization" of women's movements is also identified as a persistent challenge in which donor-driven structures overshadow grassroots priorities and can impose externally defined goals and agendas that don't match local needs (Cornwall, 2018[209]; Tadros & Khan, 2018[210]). In addition, intersectional barriers related to race, ethnicity, class, age, and disability remain largely unaddressed in formal peace processes, leaving many women excluded, invisible, and silenced (Mohanty, 2003[211]; Crenshaw, 1991[212]).

Gender-based violence persists in many regions, and women's participation in spaces of power is still limited. The State must strengthen its protection mechanisms and ensure that the gender approach is mainstreamed in all peace policies. For example, in the case of Colombia, the implementation of the agreement faces significant obstacles, including violence against social leaders, a lack of resources for inclusion projects, and political resistance. As seen in Colombia and other countries like Guatemala, the DRC, and South Africa, gender-based violence was systematically used to destabilize communities and exert control, evidencing a global pattern that cuts across ethnic, political, and economic conflicts. This violence has had lasting consequences on the physical and mental health of the victims, as well as on social cohesion. Justice for victims, especially women, is insufficient. Impunity not only perpetuates harm but also undermines trust in institutions and hinders peacebuilding efforts. Beyond the formal end of the conflict, social,

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[206] UN Women. (2024). *UN Women annual report 2024*. https://www.unwomen.org/en/annual-report/2024

[207] UN Women. (2024). UN Women annual report 2024. https://www.unwomen.org/en/annual-report/2024

[208] UN Women. (2024). *UN Women annual report 2024*. https://www.unwomen.org/en/annual-report/2024

[209] Cornwall, A. (2018). Além do "empoderamento light": Empoderamento feminino, desenvolvimento neoliberal e justiça global. Cadernos Pagu, 52, e185205. https://doi.org/10.1590/18094449201800520005

[210] Tadros, M., & Khan, A. (2018). Challenging binaries to promote women's equality. Feminist Dissent, (3), Article 298. https://doi.org/10.31273/fd.n3.2018.298

[211] Mohanty, C. T. (2003). Feminism without borders: Decolonizing theory, practicing solidarity. Duke University Press.

[212] Crenshaw, K. W. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. Stanford Law Review, 43(6), 1241–1299. https://doi.org/10.2307/1229039

economic and political inequalities persist that disproportionately affect women, especially those belonging to indigenous or marginalized groups.

Despite women being the primary victims and protagonists in resistance and social reconstruction, women have traditionally been marginalized in formal negotiations and post-conflict decision-making. Only in recent cases, such as Colombia, have specific clauses been included for their participation. However, Colombia stands out for its Peace Agreement, which consists of an explicit gender chapter, while South Africa has an advanced constitution, albeit with gaps in its implementation. Guatemala and the DRC face greater difficulties in institutionalizing the gender perspective in public policies.

Despite these challenges in Colombia and South Africa, women have achieved a greater presence in post-conflict political and social spaces. In Guatemala and the DRC, representation remains severely limited, posing significant risks to activists. These overlapping challenges underscore the urgent need to move beyond rhetorical declarations. What is required is the development of more suitable accountability mechanisms, genuine local ownership, and sustainable funding models, fostering a structural transformation that centers on care, healing, and grassroots agency. At the same time, the emphasis on meaningful participation, financial support, and the prevention of gender-based violence aligns with UN Security Council resolutions, and operationalization remains a pressing concern. Strengthening the inclusion of grassroots women's organizations and establishing concrete accountability measures are essential steps toward closing this gap (Kasumba, 2013[213]).

E. Recommendations

Responding to urgent gendered needs in conflict-affected contexts

Ensure gender-responsive recovery in conflict and post-conflict zones by prioritizing women's access to essential services such as healthcare, food security, safe shelter, and trauma-informed psychological support.

Establish and expand emergency response funds for local women's organizations, particularly those addressing sexual and gender-based violence (SGBV). Special attention should be given to survivors of rape, which remains a systemic weapon of war, to ensure immediate protection, care, and legal assistance.

Create microcredit and financial mechanisms for community-based groups led by or serving women, especially those that confront gendered violence, promote livelihoods, and build economic autonomy for survivors.

WPS is also about development in a broader sense – economic, political and cultural proposals

Secure good education for all women and girls at all levels (elementary, high school, and professional), as well as a healthy environment for kids to develop their capacities and cultivate good values;

[213] Kasumba, Y. (2013). Mainstreaming gender into African Union peace support operations: Why we are getting it wrong. Conflict Trends. http://reference.sabinet.co.za/document/EJC138591.

Promote feminist peace education and human rights education that integrates emotional intelligence, non-violent communication, and collective memory, cultivating not only knowledge but also empathy, civic responsibility, and critical consciousness;

Finance cultural activities related to gender sensitization, GBV awareness.

Amplify the voices an visibility of grassroots women-led initiatives through public campaigns, social media, and community-based storytelling.

Proposals to ensure gender representativity and equity

Provide quotas in all levels for women and LGBTQI+ in order to ensure the participation in political processes in peacebuilding, and the development sector to ensure equity in the labor market, as well as representation.

Offer comprehensive training and awareness programs on gender equality, human rights, and inclusive governance. These programs should foster critical consciousness and strengthen the engagement of all stakeholders in transformative change.

Sustaining a gender-sensitive peace(s): for a feminist peace education

Institutionalize a pedagogy of care centered on healing, collective well-being, and community solidarity, particularly for women and LGBTQ+ individuals in post-conflict settings.

Provide self-defense and self-awareness training as practical tools and symbolic acts to reclaim bodily autonomy, safety, and confidence in spaces historically affected by violence and exclusion.

Recognize emotional and symbolic justice as critical components of peacebuilding by integrating mental health services, trauma-informed practices, and intergenerational dialogue.

Sustaining a gender-sensitive peace(s): transitional justice efforts

Draw lessons from Colombia's transitional justice experience by embedding intersectional, gender-sensitive approaches across all TJ mechanisms (dignification, reparation, and guarantees of non-repetition)

Call for multilevel approaches to boost the WPS agenda

Promote stronger cooperation among international organizations, donors, and local communities at all levels—grassroots, middle-range, and top leadership. This collaboration should ensure that international contributions to gender-related initiatives are inclusive, context-sensitive, and aligned with the priorities and lived realities of local actors. Such partnerships are essential for supporting sustainable peacebuilding efforts, addressing the structural roots of conflict, and advancing gender justice in the pursuit of a more equitable world.

F. Conclusion

The Pact for the Future provides a comprehensive framework for advancing international peace and security, with 15 action points guiding Member States. This paper has focused on four key

commitments: addressing the root causes of conflict, promoting cooperation and the peaceful resolution of disputes, upholding the authority of the International Court of Justice, and accelerating progress on the Women, Peace, and Security agenda.

Through the review of best practices, analysis of case studies, and assessment of persistent challenges, this paper provides practical and actionable recommendations to help strengthen global responses. By translating these commitments into concrete action, the international community can take meaningful steps toward building a more peaceful, just, and inclusive world.

Working Group 3:
Misinformation, Disinformation and the Future of Global Governance

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"Everyone shall have the right to freedom of expression;

The exercise of the rights provided for in paragraph 2 of this article carries with it special duties and responsibilities. It may therefore be subject to certain restrictions, but these shall only be such as are provided by law and are necessary:

(a) For respect of the rights or reputations of others;

(b) For the protection of national security or of public order (ordre public), or of public health or morals."

International Covenant on Civil and Political Rights, Article 19

In the age of the information revolution, the international community faces the need to protect free speech while combating the harm caused by misinformation and disinformation. This issue is of critical importance both to global governance and to the work of the United Nations (UN), whose activities are affected by this threat.

Purpose: This brief provides a foundational analysis of the disinformation threat confronting the UN. It is intended to inform the development of a strategic communications campaign by synthesizing insights into how disinformation targets UN institutions, humanitarian action, and peacekeeping operations, thereby offering a unified framework for a comprehensive response.

Introduction

"Misinformation, disinformation, and hate speech are increasingly fueling conflict, threatening democracy, and undermining human rights, health, and climate action. The rise of accessible AI technologies is amplifying these threats – especially against vulnerable groups, including children" (UNRIC, 2024).

In today's information ecosystem, the line between fact and falsehood is dangerously blurred. Disinformation, defined as "information that is not only inaccurate, but is also intended to deceive and is spread in order to inflict harm" (UNRIC, 2023), preys on misunderstanding and mistrust. It often works by wrapping falsehoods in partial truths, creating narratives that are not necessarily accurate, but appear credible. It is distinct from misinformation, which is "unintentional spread of inaccurate information shared in good faith by those unaware that they are passing on falsehoods" (UNRIC, 2023).

As the world's foremost multilateral body, the UN promotes global norms and rules-based international order. Yet, its complex structure and global mandate can make it seem distant and disconnected from the on-the-ground realities of the people it serves. This perception gap creates a vulnerability. The UN is a primary target for disinformation campaigns that seek to undermine its credibility and erode public support for international cooperation. These attacks are often aimed at the most visible and vital pillars of its work: humanitarian action and peacekeeping operations.

Scope and vulnerability

Humanitarian action

Humanitarian action is a core UN activity, aiming to save lives, alleviate suffering, and uphold human dignity during crises such as natural disasters, armed conflicts, and political instability (UNHCR, 2025). The domain is particularly susceptible to disinformation due to its high visibility, the emotive stakes involved, and the complex operational dynamics on the ground. UN-led aid efforts are often entangled in political tensions between conflicting parties and donor states, creating an environment ripe for narratives that question the UN's neutrality. Furthermore, a lack of transparency in aid prioritization and delivery protocols, as well as delays in information dissemination, can further expose the humanitarian arm of the UN to attacks on its credibility.

Peacekeeping operations

UN Peacekeeping helps countries navigate the difficult path from conflict to peace (United Nations Peacekeeping, n.d.). Through its unique strengths such as "legitimacy, burden sharing, and an ability to deploy troops and police from around the world", the UN is able to mobilize civilian and uniformed peacekeepers to fulfil mandates set by the UN Security Council and General Assembly (United Nations Peacekeeping, n.d.).

However, the very nature of these missions creates vulnerabilities that disinformation actors exploit to discredit the UN and undermine its legitimacy:

- The chaotic and unstable conditions in which peacekeepers operate heighten the risk of unintentional errors and expose them to both harsh criticism and the spread of disinformation about their motives.
- In the context of armed conflict, the fast-paced and volatile nature of events often leaves little to no room for objective observation, creating an information vacuum that can be easily filled by disinformation.
- Furthermore, the limited support infrastructure available to UN peacekeepers can increase their susceptibility to disinformation. In some cases, this can not only undermine the credibility of the mission but also trigger violent responses, including fatal attacks against peacekeepers.

Disinformation landscape

Disinformation targeting the UN is not random; it follows predictable patterns and is spread by a diverse set of actors. Understanding these recurring narratives and the ecosystem that propagates them is the first step toward building an effective defense.

Key false narratives

Disinformation campaigns typically coalesce around a few powerful, emotionally resonant themes designed to erode trust. These include:

- **The UN is biased or complicit:** In June 2025, there was a claim by Johnnie Moore, White House adviser and the head of GHF (humanitarian aid group that was rejected by the UN

and other aid groups), that there was a "disinformation campaign" by UN figures on the number of people killed at aid centres thereby undermining the UN's credibility while promoting their own version of the events (Sky News, 2025).

- **The UN inflates casualty numbers:** This claim alleges that UN-reported deaths or damage are exaggerated to attract sympathy or support for one party in the conflict. When the UN revised its casualty figures in early 2024, the adjustment was used by some groups to falsely claim prior reports had been fabricated (Washington Post, 2024).
- **The UN tries to control the global population:** Narratives such as ("the UN is using a chip to identify all humanity before 2030") were circulated on X and other social media accusing the UN of trying "to control the population". This was revealed to be disinformation (VerificaRTVE, 2024). Prior to these events, Reuters also exposed the falsity of similar "identification chip" narratives (Reuters, 2021).
- **The UN peacekeeping operations harm local populations instead of protecting them:** Since mid-2021, there has been information in the Central African Republic and Mali accusing four UN bodies of trafficking weapons, stealing resources, and calling them "genocide mercenaries", which were emerging with the deployment of Russian mercenaries from the Wagner Group (Trithart, 2022).

Key actors

The spread of these narratives is driven by a multi-layered ecosystem of actors, each playing distinct roles. These include:

- **State-linked propagandists:** Some governments and militaries create disinformation to weaken international humanitarian oversight or to promote domestic aid efforts as superior (EU DisinfoLab, 2022). For example, in the case of Gaza, Israeli politicians have frequently questioned the UN's integrity and intentions (Reuters, 2025b).
- **Conspiracy influencers:** Independent actors, often on social media, use terms such as "leaked document" or "insider whistleblower" that claim credibility despite lacking sourced evidence.
- **Polarized news outlets:** Politicized media, particularly alternative channels with ideological leanings (e.g., anti-globalist, anti-Zionist), play a central role in repeating or amplifying false narratives.
- **Digital platform businesses:** Corporations such as Google, Microsoft, and Meta act as gatekeepers of information. Social media platforms and peer-to-peer messaging apps provide distribution channels and algorithmic amplification to creators of disinformation. The content policies of these organizations decide what online content is acceptable or must be removed.
- **The general public:** Often, disinformation becomes misinformation as unwitting consumers of disinformation share it, without malice, but also without verifying the accuracy of its source. This frequently affects those in the "moveable middle", which refers to those who are not firmly decided on an issue and tend to be easily persuaded (Cassehgari, 2020).

Case studies

Institutions and values

In November 2024, Elon Musk reshared an X post from conservative influencer Mario Nawfal, who claimed that the UN is funding migration to the United States (Musk, 2024). The post relies on out-of-context pictures and AI-generated images and references the U.S. Citizenship and Immigration Services to lend credibility to the claim. Musk's endorsement of the post, just weeks after Trump's reelection, serves as a powerful amplifier to provoke outrage and reinforce a narrative against the UN, international cooperation and globalization. Nawfal and Musk's claim taps into anxieties around sovereignty, border control, and illegal migration, particularly among conservative and nationalist audiences. While the content may appear plausible, it distorts the purpose, funding sources and legal basis of UN humanitarian and migration programmes to fit a narrative of the UN controlling everything with the money of U.S. taxpayers. The harm lies in how such messaging undermines the UN's role and actions, spreads false assumptions, and fuels xenophobia and anti-globalist rhetoric. The emotive visuals and simple narrative evoke a sense of loss of control, strongly resonating with anti-immigration groups and people skeptical of international institutions, while also influencing undecided or moderate viewers by injecting doubt and mistrust.

Factors that make disinformation on the UN effective or harmful:

- The claim relies on the fact that states contribute to the budget of the UN, with the U.S. being the largest contributor, and that this money is diverted against U.S. interests and migration policies.
- The UN is pictured as controlling and promoting illegal actions, being an overly powerful and unaccountable global actor.
- Musk and Nawfal are two influential actors, whose post boosts visibility and echoes the concerns of conservative and nationalist audiences that the UN is detrimental to their sovereignty and wellbeing.
- Nawfal refers to a state agency – CIS – to make the claim appear more credible and legitimate.
- The aim of the post is to discredit the UN, suggesting its actions are not beneficial, especially for U.S. sovereignty and security.

Humanitarian action

In January 2024, Israel alleged that 12 staff members of the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) in Gaza were involved in Hamas' 7 October attacks. These claims led to the suspension of funding by the U.S. and over 10 other donor countries. At the same time, misleading images and videos circulated online, one falsely showing a Hamas fighter distributing aid, another claiming a UNRWA paramedic transferred weapons to militants. Both were debunked by independent fact-checkers (Misbar, 2024). Factors that made this disinformation effective include:

- The idea that UNRWA staff could be connected to Hamas seemed plausible to many, given long-standing tensions in Gaza and the operational presence of both actors in the same territory;

- The core message, framing UN aid workers as supporters of terrorism, was simple and free of nuance, allowing it to circulate with ease in political and social media discourse;
- The use of terms like "allegations" and references to ongoing investigations gave the disinformation a veneer of legitimacy and allowed it to circulate while maintaining the potential for deniability.

The result was a swift suspension of funding by multiple donor countries and widespread public doubt about UNRWA's neutrality. While the UN launched an internal investigation and issued public statements, delayed and uncoordinated messaging allowed false narratives to gain traction.

Peacekeeping operations

Disinformation campaigns have targeted UN Peacekeeping operations, particularly the missions in the Central African Republic, Mali, and the Democratic Republic of the Congo. This includes false allegations that UN peacekeepers are trafficking weapons to armed groups, supporting terrorists, and exploiting natural resources. The disinformation has taken various forms, including fake letters from mission leaders and photos or videos mislabeled to purportedly show UN peacekeepers engaging in nefarious behavior (Trithart, 2022).
Factors that made disinformation effective in the Central African Republic, Mali, and the Democratic Republic of the Congo:

- An existing lack of information in the face of uncertainty, which made people more likely to turn to untrustworthy sources. This is especially relevant for the conflict-affected areas, where many people have little access to news media. At the same time, it is all the more important for people in these areas to obtain information about security threats and humanitarian assistance. As a result, many turn to untrustworthy sources;
- In all three countries, disinformation tapped into widespread frustration and anger over the failure of decades of foreign intervention, including instances of misconduct by UN peacekeepers – such as sexual exploitation and abuse of local populations, and smuggling of natural resources – which make false allegations of misconduct more credible;
- Disinformation fed into and fed off misinformation surrounding the COVID-19 pandemic, which was already quite effective in matching genuine anti-colonial sentiment and anti-colonial (and anti-UN) disinformation;
- In all three countries, as elsewhere, social media and messaging applications have facilitated the rapid spread of disinformation both online and offline. There are also fewer resources devoted to monitoring and responding to misinformation on social media in Africa than in the Global North (Trithart, 2022).

United Nations responses

The United Nations has recognized the growing threat of disinformation and has taken steps to address it. However, a review of its responses reveals a strategy that is still in its early stages, with gaps between its ambitions and its on-the-ground impact.

Current UN initiatives

The UN's response is anchored in high-level principles outlined in the Global Principles for Information Integrity. Launched in 2024, the principles are a significant step, promoting truthful, rights-based communication while defending freedom of expression and providing a guide for multi-stakeholder action. At the operational level, between 2019 and 2022, the UN Security Council has acknowledged the threat by introducing new language on disinformation into the mandates of all four of its largest peacekeeping operations.

Inter-agency cooperation is being fostered through bodies like the Partnerships and Communication Working Group, which aims to strengthen coordinated messaging at the regional level. In peacekeeping, the UN Department of Peace Operations has engaged directly with tech platforms, primarily Meta, to establish channels for reporting harmful content.

Our working group only discovered the UN's fact-checking initiative, iVerify, relatively late in our research. iVerify is a tool implemented by national counterparts to verify information flagged by the general public (UNDP, n.d.). The absence of references to this initiative in our primary research sources may suggest limited public awareness and potentially a shortfall in achieving its intended goals.

Gaps in the current strategy

Despite these efforts, the UN's current approaches to countering disinformation has fundamental weaknesses that limit its effectiveness:

- **A reactive posture in a proactive war:** The UN's communication strategy is predominantly reactive. As seen in the UNRWA case study, the organization often responds only after false narratives have already gone viral, giving crucial ground to malicious actors who operate with more speed and agility. By the time an institutional response is formulated and approved, the damage to public trust and operational capacity is often already done.
- **Ineffective institutional messaging:** The UN's official communications are frequently technical, abstract, and framed in institutional jargon. Messages centered on broad concepts like "truth" and "the rule of law" fail to resonate with the emotional, human-centric narratives that make disinformation so compelling (United Nations Department of Global Communications, 2022). This institutional voice often feels distant and fails to connect with the lived experiences of everyday audiences, particularly the "moveable middle."
- **Ineffective reach of the target audience:** Even though the UN has addressed the issue of disinformation by, *inter alia*, establishing fact-checking initiatives such as iVerify, there appears to be a lack of public awareness regarding the concrete steps it takes to counter disinformation. This highlights the shortcomings in the UN's strategy for disseminating knowledge and raising awareness about its practical actions in fulfilling its mandate.
- **Systemic and technological hurdles:** The UN's response is hampered by systemic challenges it cannot control alone. As the Global Principles for Information Integrity acknowledges, the advertisement-driven business models of social media platforms create "financial incentives... for purveyors of disinformation and hate," as their algorithms are

designed to amplify emotionally charged content that drives engagement (United Nations, 2024). Furthermore, the UN's attempts to collaborate with these platforms have proven frustrating. Engagements are often *ad hoc*, and UN officials report that tech companies tend to minimize their own responsibility, placing the burden of identifying and reporting disinformation squarely on the UN's shoulders (Trithart, 2022).

- **A lack of transparency and acknowledgement of failures:** A significant gap exists in the UN's willingness to communicate with radical transparency. As the peacekeeping case study highlights, disinformation is most effective when it taps into legitimate local grievances or builds on past institutional failures. By avoiding open acknowledgement of its own challenges and shortcomings, the UN appears defensive and opaque, which further erodes trust and makes it more vulnerable to accusations of hiding the truth. An honest accounting of failures is a prerequisite for building genuine, resilient trust.

Insights for a new communication campaign

To counter disinformation effectively, the UN cannot simply present more facts; it must adopt a proactive, emotionally intelligent strategy. Disinformation spreads because it is believable, relatable, and repeated within trusted networks. The UN must leverage these same dynamics in the service of truth and transparency.

Why disinformation works

- **It's simple and emotional:** People share what they understand and internalize. Disinformation thrives on simple narratives that resonate emotionally, bypassing critical analysis.
- **It fills information gaps:** In the absence of clear information, gaps are quickly filled by assumption, bias, or deliberate falsehoods, allowing messages to mutate rapidly.
- **It builds community:** Memes and shared narratives create a powerful sense of belonging – an "us vs. them" dynamic that builds loyal communities around false beliefs.
- **It leverages partial truths:** The most effective disinformation is not a complete fabrication but is woven around a kernel of truth, making the entire narrative feel more plausible.
- **It's fast and adaptable:** Unbound by accuracy or due process, creators of disinformation have the advantage of speed, allowing them to spread and adapt narratives instantly.

Vulnerabilities in UN communication

- **Abstract institutional voice:** Messages centered on contested or ambiguous terms like "neutrality" or "rule of law" fail to resonate outside diplomatic circles. The UN's voice is often perceived as distant and technocratic, failing to inspire trust.
- **Reactive and cautious posture:** Delayed and overly cautious responses allow false narratives to become entrenched before they are ever addressed.
- **Lack of empathetic engagement:** UN messaging often lacks the human element, failing to incite the emotion and personal connection necessary to inspire action and build lasting trust.

Towards a trust-building strategy

Based on this analysis, we propose a strategic shift from a defensive posture to proactive storytelling.

The following principles should guide the UN's future communication efforts.

- **People trust people, not institutions:** Disinformation spreads through trusted in-group messengers (Bateman & Jackson, 2024); the same must apply to truth. The UN must leverage a diverse network of local ambassadors, journalists, influencers, and peer validators to carry its key messages.
- **Show, don't just tell:** Replace vague ideals with human stories that ground the organization's message. Narratives must explain what the UN *does*, not just what it *stands for*, showing the real-world consequences of its work on daily life.
- **Embrace radical transparency:** Humility and honesty build more trust than silence or deflection. Be open about past failures and current challenges. This proactive transparency inoculates the organization against future accusations of hiding the truth.
- **Take a stand on values:** The UN is not neutral on human rights, peace, and dignity. This should be stated with courage and clarity. Authenticity and a strong moral stance are more powerful than a pretense of detached neutrality that no one believes.

Operational recommendations

- **Establish rapid-response teams:** Create coordinated communication teams across all UN branches to detect and counter viral falsehoods in near-real-time, before they gain unstoppable momentum.
- **Invest in local relationships:** Build long-term partnerships with local journalists, educators, and civil society influencers to extend the UN's credibility and reach through trusted community voices.
- **Launch a central transparency hub:** Create a dynamic public dashboard showing real-time data on operations, such as aid deliveries, convoy maps, field challenges, and funding flows. Make data accessible and understandable.
- **Promote digital and media literacy:** Support and fund educational initiatives that equip citizens, especially youth, with the critical thinking skills needed to identify and reject disinformation independently.

Our campaign

Our recommendations and the accompanying video campaign are not just theoretical proposals; they are products of an intensive and practical multilateral process. By using our own working group as a microcosm of collective action, we moved from deconstructing disinformation to constructing our own proactive, trust-building narrative. This section outlines that process, demonstrating how a strategic communications campaign can be built from the ground up.

Video: https://youtu.be/eXp2h9PovWA

Our first step was to understand disinformation by putting ourselves in the shoes of its creators. We began by creating our own disinformation campaigns targeting three main aspects of the UN's operations: values and institutions, humanitarian aid, and peacekeeping operations. This exercise provided insights into why false narratives are so effective. We learned that disinformation operates not on complex lies, but on simplicity, emotional resonance, and adaptability. It succeeds when it taps into what people *want* to believe and is shared within trusted networks. Some of our takeaways from this exercise were that "trust often lies in who shares the message, not the message itself," and that disinformation works because it is liberating for its creators who are "not bound by truth or process." This understanding served as a foundation for our counterstrategy: to be successful, our own messaging had to be just as compelling, human-centric, and emotionally intelligent.

With a new understanding of the tactics, we synthesized our research to map the key narratives and actors in the disinformation landscape targeting the UN. This analysis revealed that the most critical battleground for trust is not among the UN's dedicated supporters or its entrenched detractors, but within the "moveable middle." We strategically identified this group – the global public audience who may know the UN by name but are unfamiliar with its day-to-day work – as our primary target audience. This audience is not hostile, but its information vacuum can make it highly susceptible to being swayed by the simple, emotionally charged narratives of disinformation.

Our goal, therefore, was not a top-down institutional order, but an invitation. In line with the UN Office at Geneva (UNOG)'s objective to broaden its public engagement, we chose to empower this audience, framing them as vital participants in, not just passive recipients of, global governance. This approach aims to support the UN's ongoing efforts through fact-checking, digital literacy, and pre-bunking to foster a resilient, informed base of public support that can recognize and reject disinformation on its own terms.

Our minute-long video is the culmination of this strategy. Every choice – from the messengers to the message – was a direct response to our analytical insights:

- **The messengers:** We chose to feature the diverse members of our Graduate Study Programme working group, representing nine different countries. This choice serves two purposes. First, it replaces the image of the UN as a faceless institution with relatable, young, human faces, leveraging the principle that people trust people. Second, it frames our own collaborative, truth-seeking process in the Study Programme as a tangible example of multilateralism in action. We are not just talking about global cooperation in our campaign; we are practicing it.
- **The message:** The script was designed to follow a "narrative replacement" strategy. It opens with an emotionally resonant hook – "It's easier to destroy trust than to build it" – to acknowledge the reality of the problem. It then quickly pivots from the "know" of fear and division to an empowering solution. The call to action – "So use your voices, the UN is listening. Act where you are, ask questions, and pursue sources that are reliable" – is an explicit invitation for the "movable middle" to become active stakeholders in information integrity. It reframes the fight against disinformation from a defensive chore to an act of civic duty and empowerment.

Our group's next step is to post and monitor the response to our video. It's designed to be shared across social media platforms such as Instagram, TikTok, and Facebook. Its performance will be tracked to measure engagement, reach, and audience feedback. Our hope is that this is not the end of the campaign, but the start of a new conversation with our target audience – in a critical feedback loop that will allow for the UNOG's continued adaptation and refinement of their communication strategies.

Conclusions and recommendations

The spread of disinformation poses a threat to global governance. Our analysis demonstrates that false narratives systematically target the values of the UN as an institution and harm its ability to carry out its core activities, such as humanitarian aid and peacekeeping, due to their high visibility in the political context. In UN humanitarian work, transparency is often reduced by political tensions, while in UN peacekeeping operations, peacekeepers themselves are under attack in a chaotic conflict environment with multiple stakeholders, and media algorithms facilitate the spread of false narratives.

Moreover, behind the scenes of misinformation circulating on social media is a complex ecosystem of commercial and political interests, as noted by Irene Khan (personal communication, 9 July 2025). The time and content that users spend on social media every day are monetized through content ranking algorithms that prioritize engagement over social impact. These commercial media outlets operate in a way that encourages manipulation and targeted disinformation that often impacts vulnerable communities. While the scale and cross-border nature of social media make it difficult to stop the spread of disinformation entirely (Queens University of Charlotte, n.d.), we suggest developing a legal culture in cyberspace and promoting it through the media platforms, in order to make digital societies safer, healthier, and more trustworthy.

Together, these factors show how easily people can be misled, thereby undermining trust in the UN. When analyzing the vulnerabilities of humanitarian and peacekeeping operations, it becomes clear that misconceptions thrive where information gaps exist, trust is fragile, and communication channels are controlled by vested interests. By attacking the neutrality and accuracy of UN information, some actors collectively undermine the truth of the UN mission and make it difficult to convey the real facts in crisis situations.

In the context of digitalization, it is easy to mislead others, thereby threatening rights and freedoms in cyberspace. This is contrary to the rule of law, so defining fair and effective regulation of the dissemination of disinformation is one of the most important challenges of the digital era. This is a point on which there is broad agreement (Human Rights Council, 2021). One explanation for this is the lack of sufficient knowledge to fully understand the scope and nature of the problem. For example, there is still no universal definition of disinformation.

Another widely accepted point is that disinformation is a multifaceted and borderless phenomenon with serious consequences, as demonstrated above. It is politically polarizing, prevents people from meaningfully exercising their human rights, and erodes trust in governments and international organizations, such as the UN (Human Rights Council, 2021). Given this complexity, the UN cannot respond to the threats posed by disinformation on its own. Additionally, it is important to

always bear in mind the essence of the UN as an international organization. Unlike its member states, which have broad powers to create and enforce laws within their own territories, the mandate of the UN is limited and confined to the capabilities granted to it by the member states through the UN Charter.

Essentially, this implies that the UN itself has no power to design and issue legally binding decisions for states, companies, or individuals, except in some very narrow exceptions. These limitations of the UN's mandate explain its restricted capacity to address disinformation.
Nevertheless, there is still much that the UN can and should do:

- The UN must continue to initiate, sustain, and promote multidimensional, multi-stakeholder dialogue, with the proactive engagement of states, companies, international organizations, civil society, and the media.
- While states remain the primary duty bearers for ensuring the integrity of the information order, primarily through introducing relevant regulations, the UN cannot remain reactive. It must continue: exploring the phenomenon of disinformation; investigating its causes; analyzing the conceptual and contextual challenges it poses; and examining how states and companies respond. Based on this, the UN should propose recommendations for states on how to address challenges created by disinformation. Furthermore, it should ensure that the knowledge gathered is equitably shared among nations, in order to close knowledge gaps in developing countries.
- The UN must persist in its role as a key promoter of human rights. In performing this role, it must, *inter alia*, ensure that all efforts by states to address disinformation and misinformation are firmly grounded in international law, particularly international human rights law. This can be achieved through various channels: consultations with states, companies, civil society, as well as through the establishment of initiatives and the organization of learning events on safeguarding and promoting human rights in the digital space.
- The UN must preserve and promote the importance of media and digital literacy, as well as digital inclusion. In practice, this could mean issuing recommendations to member states on specific measures to be introduced at the national level to improve digital literacy and inclusion, both of which serve as tools for countering disinformation. In addition, the UN itself can develop and publish various digital campaigns, informative papers, reports, and other knowledge products (Human Rights Council, 2021).

While addressing the problem of disinformation, the UN should continue to take action on existing global challenges. It must be remembered that the rise of technology is not the sole factor driving the spread of disinformation. On the contrary, the real root cause of disinformation lies in "the frustrations and grievances of a growing number of people, fueled by decades of economic deprivation, market failures, political disenfranchisement, and social inequalities, which make some individuals more susceptible to manipulation" (Human Rights Council, 2021).

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Working Group 4:
Science-Based Decisions and the Pact for the Future

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I) Anticipating the future: Why it matters

The Pact for the Future, published in 2024, solidified a key message to the world: reform is needed in how global governance is evaluated and modernized through a foundational understanding of key areas, especially in science and technology. An exclusive chapter focused on the science and technology to implement appropriate measures to scale up, seize, and safeguard marginalized communities within the context of a digitalized society. Additionally, one of the annexes of the Pact includes the Global Digital Compact, examining the five main objectives to ensure a safe, inclusive, and equitable global governance within an era of emerging technologies and scientific breakthroughs.

Science and diplomacy are undergoing a dramatic paradigm change that is overturning the multilateralism and international collaboration that serve as the cornerstones of international government. In addition, the globe is confronted with complex and intercorrelated problems that necessitate a coordinated response to threats, including human rights, climate change, and global health crises. However, due to geopolitical rivalry, this impedes and complicates diplomatic efforts to cooperate on safeguarding measures against scientific breakthroughs. As mentioned in the Pact, the capacity to prepare for and adapt to new scientific and technical developments is becoming an essential instrument to establish a timely and effective global governance structure. In line with the Pact, an anticipatory approach to science and diplomacy is crucial to ensure scientific breakthroughs and their transformational effects on people, planet, and society are taken into account. Consequently, an anticipatory lens will enable protecting and promoting sustainable development, peace, security, and human rights as emerging technologies and scientific breakthroughs continue to advance and reshape social, political, and security landscapes.

II) The Pact of the Future as a framework

The Pact for the Future provides not only a mandate for the global community but also a framework to engage on potential governance responses to future technologies, helping shift decision-making from reactive to anticipatory. By exploring science and technology domains where advances are expected to yield profound social, economic, and environmental consequences, the Pact's goals are reinforced. In relevance to the timely trends of building strong anticipatory governance for emerging technologies and scientific breakthroughs, the Geneva Science and Diplomacy Anticipatory (GESDA), an independent foundation, was founded by the Swiss Federal Council and the Canton and City of Geneva in 2019. Working Group 4 focuses on the topic of *Science-Informed Decisions & the Pact for the Future,* driving a forward anticipatory approach on training and making use of an anticipation tool offered by GESDA to enable anticipatory governance in tackling global challenges. By engaging on the topic of synthetic biology, as an example for an anticipated emerging field of science and technology, the group engaged on the question, how to facilitate proper measures to mitigate risks and challenges and prepare for the transformational science and technology breakthroughs. The group's work exemplifies how early action can prevent future crises, exploring inclusive governance pathways for breakthrough technologies and creating learning experiences that build capacity for future-oriented policy.

III) The GESDA Science Breakthrough Radar as a starting point

The GESDA Science Breakthrough Radar, a tool for science anticipation, establishes an indicator based on the transformational effect on the people, planet, and society. Published annually, the Radar provides an informative overview of the ongoing science trends and how such technological advancements will break through within a 5-, 10-, and 25-year time span. It surveys over 40 emerging research and technology domains in five scientific platforms. This covers Quantum Revolution and Advanced Artificial Intelligence, Human Augmentation, Eco-regeneration and Geoengineering, Science and Diplomacy, and Knowledge Foundations, with 6-7 subtopics including synthetic biology. Based on the work of over 2000+ researchers in 87 countries since 2021, the Radar gathers information that gives leaders around the world the evidence they need to make decisions that are focused on the future.

To dive deeper into how each topic on the Radar is assessed and analyzed, 4 community-based Pulses are included in science, diplomacy, their impact, and the public perception regarding such topics. Hence, the objective is to not only take into account the science-based trends from natural science to humanities but also engage the global diplomatic communities in kick-starting the dialogue around anticipated science and technology through the annual GESDA Science and Diplomacy Anticipation Summit that aims to ensure global issues of human rights, peace and security, and prosperity in such breakthroughs. Furthermore, the Pulse of Impact shows the investment trends within the private sector regarding patents, start-ups, and private investments in the topics addressed within the Radar. Lastly, it is crucial in analyzing how such emerging topics are received by the public and the changing public sentiments over the years.

The main work of ensuring a preparatory global governance of emerging technologies and scientific breakthroughs is fundamental to safeguarding the future of our society in a digitalized world. Especially, the breakthroughs without proper governance to mitigate and tackle the challenges will amplify inequality and the digital divide. Hence, anticipatory science diplomacy is crucial, both in relevance to the Radar and in applying the Pact for the Future, to ensure that science and diplomacy are an integral part of the discourses as we contribute to the discussion of a resilient and sustainable future for all. The ramifications of a hypothetical breakthrough in laying out a diplomacy game to provide a platform for formulating a collective response within a multi-stakeholder setting through an immersive role-play are the essential to providing timely global governance.

Overall, the project covered in this report references the Radar as a guide to map new scientific and technological advancements and investigate how they relate to global diplomacy and the Sustainable Development Goals (SDGs). Further examining how multilateral talks and international relations can be influenced by evidence-based policy through a simulation game of anticipatory diplomacy on science and technology. This will enable us to mobilise forward-thinking on how early and cooperative diplomacy can navigate the governance of revolutionary scientific advancements before their worldwide implementation.

Introduction to synthetic biology

Synthetic biology is a rapidly growing field at the intersection of biology, engineering, and computer science that allows scientists to redesign living organisms or even create entirely new ones. Synthetic biology is about treating life like programmable matter. Just as we write code to control computers, we can now "write" DNA instructions to control how living cells behave. This means we can engineer bacteria to clean up pollution, create crops that grow in harsher climates, or even develop custom-made medicines that target diseases more precisely than ever before.

One of the most exciting aspects of synthetic biology is its ability to work on multiple scales, from the tiniest molecules to entire ecosystems. At the molecular level, scientists can now manufacture materials and compounds that don't exist in nature. At the cellular level, synthetic biology allows for the creation of new versions of DNA and other biomolecules. These synthetic components can be inserted into living cells to give them new abilities. On a larger scale, scientists are exploring how to design entire multicellular organisms or even synthetic ecosystems. While still in the early stages, these developments could eventually lead to breakthroughs like lab-grown organs for transplants, coral reefs that can survive rising sea temperatures, or custom-built organisms that restore damaged ecosystems.

Thanks to rapid advances in tools like CRISPR (for gene editing), DNA synthesis (for writing genetic code), and artificial intelligence (to help design new biological systems), the possibilities of synthetic biology are expanding quickly. According to GESDA's Science Breakthrough Radar, many of these breakthroughs, such as cell-based meat, low-carbon biofuels, or AI-designed enzymes, are expected within the next 5 to 10 years, while more complex achievements like programmable organs or synthetic ecosystems may be possible within the next 25 years.

However, with great power comes great responsibility. The ability to engineer life forms raises ethical, social, and environmental questions. What happens if a synthetic organism escapes into the wild? Who controls the use of these technologies, and who benefits? Because of these risks, many scientists and policymakers emphasize the need for strict safety protocols, international governance, and ethical oversight. Some researchers are already working on "genetic firewalls" that make synthetic organisms dependent on lab-only conditions so they can't survive in the natural world.

Synthetic biology is not just a scientific breakthrough; it is a transformative approach that could reshape how we address some of humanity's biggest challenges, from climate change and food security to global health. As GESDA rightly notes, synthetic biology in these sectors represents a high-impact, high-uncertainty frontier. To ensure its benefits are shared fairly and its risks are managed wisely, it must be developed with strong cooperation between scientists, governments, international institutions, and civil society. This makes anticipatory science diplomacy thinking ahead, involving diverse stakeholders, and building global agreements before problems arise essential.

(1) Synthetic biology for climate, energy, and biodiversity

Synthetic biology can help us respond to some of today's most pressing environmental challenges, climate change, biodiversity loss, and energy sustainability. By using biology not just to

understand nature but to actively engineer solutions for environmental crises, synthetic biology could offer tools for a more resilient and sustainable future.

That said, the release of engineered organisms into ecosystems raises complex questions. This is why GESDA emphasizes anticipatory science diplomacy, a forward-thinking approach that brings scientists, diplomats, policymakers, and the public together *before* these technologies are deployed.

(1.1) Biodiversity

Biodiversity is declining faster than at any time in human history, driven by climate change, pollution, habitat loss, and overexploitation. In this context, synthetic biology offers entirely new conservation strategies, some that enhance traditional methods, and others that challenge our very definition of nature.

One promising area is species monitoring and protection. Genomic tools allow scientists to track endangered or invasive species by detecting tiny traces of genetic material in air, soil, or water. These methods are less invasive than physical tagging or trapping, and they provide more comprehensive data. In the future, synthetic biology could take this further: imagine biosensors embedded in ecosystems that detect early signs of ecosystem stress, like disease outbreaks or collapsing populations, giving conservationists a chance to intervene before it's too late.

A more ambitious and controversial application is assisted evolution. This involves genetically enhancing the resilience of vulnerable species to help them survive in a rapidly changing climate. For example, scientists are experimenting with editing the genomes of corals to improve their heat tolerance, so they can better withstand ocean warming. Similarly, synthetic biology could one day make endangered mammals more resistant to disease or environmental toxins. While such innovations offer hope for species on the brink, they also raise important ethical concerns: Are we changing too much, too fast? What unintended consequences might arise from altering a species' DNA?

Perhaps the most visionary application of synthetic biology in biodiversity is de-extinction and ecosystem restoration. Some scientists are exploring whether extinct species like the woolly mammoth could be brought back using preserved DNA and genome editing. Others are looking at how lost functions might be restored by engineering new organisms or modifying existing ones. While these ideas spark public imagination, they also come with major scientific and ethical questions: Can recreated species truly reintegrate into today's ecosystems? And should we invest in reviving the past when current species are still disappearing?

What is clear is that conservation is moving from a passive, preservationist mindset to a more active, bioengineered model of ecological proactiveness. This shift demands dynamic governance frameworks that include not only technical experts but also ethicists, indigenous communities, and the public at large.

(1.2) Energy and climate

Synthetic biology has the potential to revolutionize our systems of how we produce energy, manage carbon, and build infrastructure by turning living organisms into tools for carbon capture, clean energy production, and sustainable manufacturing.

One of the most exciting developments is the engineering of microbial consortia, groups of bacteria that work together to complete complex tasks. Instead of relying on a single type of microbe to do everything, scientists assign different roles to different microbes. For instance, in a system designed to clean up oil spills or break down plastics, one microbe might detect the pollutant, another breaks it down, and a third helps manage the waste. This approach, inspired by ecosystems themselves, allows for more robust and scalable environmental solutions.

Microbes are also being reprogrammed to absorb and use carbon dioxide, and turn it into useful products like biofuels, biodegradable plastics, or even pharmaceuticals. This creates a powerful two-for-one solution: removing excess CO_2 from the air and producing valuable materials without fossil fuels. However, these systems are still expensive and difficult to scale, especially in outdoor or industrial environments. Advances in genetic engineering and AI-driven design are making progress, but a lot of work remains to bring these technologies to commercial scale.

Another area is to produce green hydrogen, a clean fuel that could replace fossil fuels in many sectors. Traditional hydrogen production is energy-intensive and polluting, but engineered microbes could produce hydrogen naturally, at lower cost and with fewer emissions.

Finally, synthetic biology could enable bioremediation at an unprecedented scale. Engineered bacteria can already break down pollutants like heavy metals and toxic dyes. In the future, these systems could be deployed in polluted rivers, landfills, or industrial zones to help restore ecosystems. Other tools, such as gene drives or RNA sprays, can reduce the need for harmful chemical pesticides by targeting specific pest species with genetic precision.

The use of synthetic biology in energy, climate, and biodiversity isn't just about replacing existing tools with more advanced ones, it is about rethinking how we live with nature, using science to design sustainable, responsive systems that benefit both people and the planet.

(2) Synthetic biology in the field of food and agriculture

Synthetic biology is expected to bring major changes to how we grow food and feed the world. As global challenges like climate change, population growth, and land degradation increase pressure on food systems, scientists and innovators are turning to synthetic biology to build more sustainable, nutritious, and resilient ways of producing food. This technology offers exciting new tools to redesign how we grow crops, raise animals, and manufacture food, with the ultimate goal of helping us achieve SDG 2: Zero Hunger while using fewer resources and causing less environmental harm.

One of the biggest breakthroughs in this field is the development of cultivated or lab-grown meat. Instead of raising and slaughtering animals, scientists can now grow real animal cells in controlled laboratory environments that help the cells grow into muscle tissue, just like they would inside an

animal's body. This process, known as cell-based meat production, uses fewer natural resources such as land and water and produces much lower greenhouse gas emissions. It also avoids animal suffering and can help meet the growing demand for meat in a more ethical and sustainable way.

In addition to meat, synthetic biology is being used to design food ingredients at the molecular level. Microbial cells like yeast or bacteria can be engineered to produce specific food components such as proteins, fats, vitamins, and other nutrients. For example, microbes can be programmed to produce dairy proteins without cows, or omega-3 fatty acids without fish. These ingredients can then be used to make plant-based dairy or fish alternatives that are closer in taste, texture, and nutrition to the real thing.

Beyond food production, synthetic biology is also playing an important role in agriculture. Traditional farming relies heavily on chemical fertilizers and pesticides, which can harm the environment. Synthetic biology offers more targeted and sustainable alternatives. For instance, scientists are exploring the use of genetically modified microbes that fix nitrogen from the air, reducing the need for synthetic fertilizers. Other projects are developing biological tools that target pests more precisely, such as RNA sprays or engineered pheromones, which disrupt pests without harming other species.

One of the most ambitious goals in this area is to re-engineer photosynthesis. By improving how plants perform this function, scientists hope to increase crop yields while using fewer inputs. Another approach is to engineer the structure and function of plant cells, helping plants grow in difficult conditions like high heat, drought, or poor soil. This could be especially useful as climate change makes farming more unpredictable. By combining biology with digital tools like artificial intelligence, researchers are starting to create precision agriculture systems that are smarter, more adaptive, and more sustainable.

While the full potential of synthetic biology in food and agriculture is still being explored, it already points to a future where food can be produced more ethically, efficiently, and locally. However, this comes with challenges. These include concerns about the safety of engineered organisms, the potential for economic disruption in traditional farming, and the risk of increasing inequality if access to these technologies is limited. That's why careful governance, public dialogue, and transparent regulation are essential to make sure that these innovations benefit everyone fairly.

(3) Synthetic biology in the field of health and medicine

In the medical domain, synthetic biology has catalyzed revolutionary breakthroughs, exemplified by engineered biomaterials with self-repairing capabilities and synthetic cellular systems that produce medications or detect diseases. Engineered cells act as living sensors, detecting biomarkers or manufacturing therapeutic molecules in real time. For instance, synthetic minimal cells function as miniature drug-producing factories, detecting disease conditions and autonomously synthesizing treatments within the body, thereby blurring the boundary between diagnosis and therapy.

Precision medicine particularly benefits from synthetic biology through genome editing technologies such as CRISPR-Cas9. These tools enable precise manipulation of genetic sequences

associated with diseases, opening pathways to treat previously untreatable genetic conditions at their source. For instance, CRISPR-based therapies have progressed to clinical stages, demonstrating effectiveness in treating sickle-cell disease. Likewise, synthetic biology enhances cell-based therapies, notably CAR-T (Chimeric Antigen Receptor T-cell) therapies, enabling the patient's own immune cells to precisely recognize and target cancer cells. Emerging developments include gene circuits that activate therapeutic cells exclusively at disease sites, significantly enhancing treatment precision and minimizing collateral damage.

Synthetic biology also sparks a diagnostic revolution. Unlike traditional diagnostics reliant on expensive centralized laboratories, engineered biological systems provide rapid, low-cost alternatives deployable at the point-of-care. Engineered bacterial biosensors can detect disease biomarkers, reporting results immediately. For example, probiotic bacteria have been reprogrammed to detect intestinal inflammation, offering a minimally invasive internal diagnostic tool. Similarly, synthetic gene circuits in human cells can identify disease-related molecules and generate measurable signals, providing highly specific diagnostic capabilities. Additionally, cell-free CRISPR-based diagnostic kits rapidly detect pathogens, significantly improving disease surveillance capabilities, especially beneficial in resource-limited regions.

Beyond diagnostics and treatment, synthetic biology revolutionizes pharmaceutical production and drug discovery. Engineered microorganisms serve as cellular factories, efficiently synthesizing complex therapeutic compounds previously costly or challenging to produce. For instance, synthetic biology facilitated yeast-based production of the antimalarial compound artemisinin, significantly improving production efficiency and reducing costs. The recent emergence of RNA-based therapeutics, exemplified by COVID-19 mRNA vaccines, underscores synthetic biology's potential for rapid, safe, and scalable vaccine manufacturing. These synthetic vaccines, designed via computational methods and synthesized chemically, can be produced rapidly without handling live pathogens, transforming global vaccine accessibility and pandemic preparedness.

Critically, synthetic biology enables on-demand biopharmaceutical production, offering decentralized solutions to global supply-chain limitations. Portable production units utilizing cell-free protein synthesis or engineered microbes could allow hospitals or clinics in remote locations to manufacture personalized medicines, vaccines, or antibodies locally. This model promises significant implications for global health equity, bridging access gaps and enhancing responsiveness during health emergencies. Synthetic biology also has transformative potential in regenerative medicine. Programmable tissues and organoids, grown from engineered stem cells within synthetic scaffolds, may soon allow precise tissue replacements tailored to patients, reducing organ rejection risks and shortages.

Given synthetic biology's powerful capabilities, robust governance frameworks and ethical oversight are paramount. The dual-use nature of synthetic biological technologies necessitates stringent biosecurity measures and global collaboration. Rapid democratization of biotechnology risks outpacing current regulatory systems, highlighting the urgent need for updated international treaties and guidelines governing synthetic biology research and applications. An inclusive, complexity-informed governance approach, integrating scientific, ethical, and societal perspectives, is essential to anticipate systemic risks and unintended consequences. Proactive policymaking, guided by principles of anticipatory science diplomacy, can ensure synthetic biology's equitable, responsible development and deployment.

IV) Building capacity for future-oriented policy: A serious game on synthetic biology diplomacy

(1) Why this game matters

This serious game provides an experiential learning opportunity to see firsthand how emerging technologies like synthetic biology are reshaping international collaboration. As the players negotiate alliances and resolve crises, they will gain insights into the geopolitical, ethical, and normative factors influencing tomorrow's science-driven world. Become an anticipatory leader, harness the transformative power of quantum breakthroughs and drive multilateral action for the benefit of all. In this way, we can think creatively about the world that we want to help create - using the future to build the present.

(2) Game structure

Through the proposed synthetic biology diplomacy game, the authors of this report designed an experiential experience that allows participants to engage in a simulation context anticipatory science diplomacy in practice. The simulation, which in its core represents a role play, is divided into three parts.

(a) Part 1: Seeing the future

At the opening, participants will be presented with the world in 2035 when large-scale quantum computing has been achieved, issues and conflicts related to the access to the technology are coming to the fore.

(b) Part 2: Using the future to build the present

The scenario then rewinds to the present and asks delegations from fictional countries and organizations to explore what decisions could be made to mitigate the negative 20XX situation

(c) Part 3: Evaluating science diplomacy in practice

The game leads participants to reflect on ideal futures and then respond to the fictional scenario from the perspective of their assigned characters, and in doing so, generate dynamic circumstances which they must respond to.

The game will explore the governance, peace and security, intellectual poverty, supply chain, human rights, ethics and capacity building aspect of biogenetics and teach participants skills such as anticipation, international negotiations, diplomatic protocol, science advice, honest Brokering and multilateral science diplomacy.

(3) The story

The sun no longer sets gently in Wakke. It burns. As temperatures soar beyond human tolerance, crops fail, children collapse, and a silent extinction grips the nation. Out of this desolation, one voice rises, Dr. Bianca Yuki Arenata, a brilliant geneticist from Wakke, who sees salvation not in aid, but in code. She pioneers a vaccine designed to rewire the human body for climate resistance.

When Bria's biotech mogul, Cristobal Kiav, catches wind of this innovation, he sees more than hope, he sees a trillion-dollar market. The two strike a deal: Wakke's desperation meets Bria's power. The result? ThermoGene, a miracle vaccine rolled out with dazzling speed. Nova Gene, a viral influencer with a heatproof aesthetic and a tagline that roars. "If you're not heatproof, you're not hot", sends it trending globally. It works. Until it doesn't. In villages across Wakke, people begin to die, quietly at first, then horrifically. Immune systems collapse, bodies break down. Genome, a shadowy hacker, breaches GenCline servers and finds proof: internal memos showing the company knew about possible mutation risks. They ignored them. Panic erupts. Minister Rufus Bulbe of Wakke, once a quiet health leader, becomes a firebrand, accusing Bria of using his people as disposable test subjects. In Bria, Health Minister Hilaria Vaxxwell tries to spin the chaos, desperate to shield her nation's reputation. But the truth won't stay buried. In Lauze, Minister Philomenna Bandola calls for a global inquiry. "Science must serve all," she declares, "not just the powerful." Meanwhile, Bria's Foreign Minister Maximo Blobert coldly maneuvers behind closed doors, trying to keep Bria's biotech empire intact, while Lata Zoomies of Wakke demands reparations and global bioethics reform. As world leaders descend on Lauze for a high-stakes science diplomacy summit, investigative journalist Elira Vostral, whose exposé on the leak shook the world, paces the halls with the unease of someone who knows more secrets will break. Nova Gene, caught in the public backlash, live streams from her hotel, switching between outrage and influencer comedy: "So… I may have sold you the end of the world in a serum. My bad?" The summit begins with hope but collapses under egos, fear, and old geopolitical wounds. Bria refuses liability. Wakke demands justice. Lauze pleads for unity. A second wave of mutations begins in Bria. The crisis is no longer regional, it is planetary. The world stands on the brink. Now, diplomacy is the last firewall.

You, the player, are thrust into this volatile world as minister, activist, executive, or scientist. You carry secrets, power, and pressure. Can you lead your people through this storm? Or will you ignite the next war over genes?

(4) Characters and roles

The game has 12 different characters that participants can take on. Ahead of the game, characters will be assigned, and each participant will be provided with a card containing confidential instructions outlining the interests and objectives for the game, as well as conflicts their characters have with other characters.

The characters will negotiate according to the instructions defined in their cards. The objective of the game is for participants to respond to the fictional future scenario from the perspective of their assigned characters in the present (using the future to build the present). The result should be a 'world' that is moving towards a positive outcome to the challenges outlined in the scenario, a world where synthetic Biology is deployed for the benefit of all humanity in support of the UN Pact of the Future.
Head of delegation These are those participants that act as ministers of foreign affairs.
Member of delegation: Participants will be organized in delegations from fictional countries, composed of representatives from the government, academia, private sector, civil society, and international organizations, all involved in quantum technologies.

Chair: One participant will act as chair during the negotiations of delegations in the plenary and facilitate discussion within delegations.

(5) Objectives

How can we ensure genomic equity in biotechnology when global research infrastructures are deeply unequal?
→ *Addresses the core injustice of ThermoGene's rollout and calls for structural reform.*

What international mechanisms should govern the deployment of human gene-editing technologies during global emergencies?
→ *Tackles anticipatory governance and the need for multilateral safeguards.*

Should the right to climate-adaptive gene therapies be considered a new human right in the Anthropocene?
→ *Provokes reflection on equity, access, and evolving norms in global health.*

In cases of global biotechnological harm, who bears responsibility, the inventors, regulators, funders, or deploying states?
→ *Clarifies liability and strengthens ethical accountability frameworks.*

How can science diplomacy prevent a permanent biopolitical schism between enhancement-embracing and bio-conservative blocs?
→ *Speaks directly to the fractured state of global diplomacy in your scenario.*

What reparative frameworks can restore trust and dignity to communities harmed or excluded by synthetic biology advances?
→ *Centers justice, restitution, and post-crisis reconciliation.*

What structures must be put in place to prevent the commercialization of human biology from undermining the public interest?
→ *Engages both market regulation and the ethical mission of science.*

This science diplomacy is built on strong appreciation for:

(a) Science anticipation: embedding foresight into decision-making

The questions directly call attention to the future consequences of scientific actions, especially when deployed under pressure. This builds appreciation for anticipatory science in three key ways:

- Early Risk Detection: Questions about genomic equity and inclusive trials (Q1, Q2) challenge participants to think about the preconditions for global safety before crises occur.

- Adaptive Governance: By asking if climate adaptation could become a human right (Q3), you force diplomats and scientists to imagine how policy must evolve with science, not react after damage is done.
- Evolutionary Responsibility: The inclusion of questions about long-term social and biological consequences (Q7) underscores that science cannot exist in a vacuum, it must anticipate systemic impacts.

Takeaway: These questions build a mindset where science-based anticipation becomes a norm, not a luxury.

b) Honest brokering: elevating trust and ethical dialogue

Honest brokering is about presenting all viable options transparently, grounding negotiation in facts, and centering impacted voices. The questions do this by:

- Exposing Power Dynamics: Who controls IP? Who was tested? Who profits? (Q1, Q4, Q6) These questions unveil silent power structures in scientific development.
- Grounding Accountability: By asking who is responsible for harm (Q4), participants must confront both technical and moral responsibility, including their own roles.
- Making Space for Marginalized Actors: Q6 puts justice for excluded or harmed populations at the center, aligning with the principles of inclusive science.

Takeaway: These questions help build a space where diplomacy and science can have difficult but essential conversations based on honesty, not spin.

c) Global and multilateral action: reaffirming collective responsibility

Multilateralism is only as strong as its shared commitments. These questions operationalize that principle by:

- Framing Science as a Commons: Q3 and Q7 ask whether the products of biotechnology should be governed like global public goods, not market commodities.
- Demanding Global Norms: Q2 and Q5 call for international mechanisms and diplomatic frameworks, pushing participants to design shared rules, not unilateral responses.
- Repairing the Social Contract: By introducing the need for reparative frameworks (Q6), the questions elevate restorative justice as a diplomatic tool, not just a domestic issue.

Takeaway: The questions link national actions to planetary consequences, showing that no country can act in isolation when genes, climate, and humanity are interlinked.

(6) Full description of the scenario: ThermoGene – a diplomatic crossroads in synthetic biology

By 2048, worsening climate disasters, from mega-droughts to superstorms, have severely destabilized much of the planet. Rising temperatures, water shortages, and cross-border climate-induced migration challenge national systems and increase global tensions. In response, scientific communities, biotech companies, and international organizations are urgently innovating. Amidst

this fragile situation, Dr. Bianca Yuki Arenata, a geneticist from the climate-vulnerable state of Wakke, makes a significant breakthrough. She creates a prototype for a synthetic biology treatment, a gene-editing therapy aimed at boosting human resilience to climate stress by improving heat tolerance and oxidative stress response. The goal: equip the body to better survive in a changing environment.

This innovation, soon branded as ThermoGene, draws immediate global interest. But Wakke lacks the infrastructure to test, produce, or distribute the treatment widely. Enter Bria, a technologically advanced, well-resourced nation with a booming biotech sector.

Cristobal Kiav, CEO of Bria's leading biotech conglomerate GenCline, proposes a partnership: Bria will fund and distribute ThermoGene, taking it through regulatory and commercial pipelines. Minister Hilaria Vaxxwell, Bria's Health Minister, fast-tracks approval under emergency ethics provisions. The rollout begins with select groups in Bria and allied countries.

However, what the public doesn't immediately see is that the therapy's success depends on a rare genetic stabilizer, an organic compound found only in Lauze, a neutral but scientifically advanced nation that maintains strict bioethical and genomic sovereignty policies. Without this compound, the treatment cannot be stabilized in most gene expressions. This creates a dependency: Bria needs Lauze to maintain its control over ThermoGene's market success.

As Lauze prepares for its annual Global Science and Diplomacy Forum, its Minister of Innovation, Philomenna Bandola, voices concern. She insists on an equity-first, multilateral governance approach, advocating for pangenomic trials and shared benefit mechanisms before approving ingredient export. Lauze delays approval of full-scale ingredient transfers pending a Global Genomic Equity Review.

In contrast, Bria, seeking commercial advantage and strategic control, begins a limited rollout using existing stockpiles and parallel compounds. Social media influencers like Nova Gene, a Bria-based public figure, launch campaigns promoting ThermoGene as a futuristic lifestyle, inadvertently driving unregulated black-market demand, particularly in Wakke, Solte, and other excluded states.

Meanwhile, scientific voices in Wakke and Solte raise alarm about incomplete testing, particularly the exclusion of diverse genomic populations. Dr. Arenata, once a symbol of innovation, now finds herself calling for scientific caution and urging for the restoration of global research integrity.

By Month Seven, signs of strain appear:

- In certain populations (Groups B and C), severe neurological and reproductive side effects emerge.
- A data leak by Genome, a whistleblower from Solte, reveals internal GenCline memos that had flagged possible genomic risks during early trials.
- Minister Rufus Bulbe, Wakke's Health Minister, demands international accountability, accusing Bria of negligence and exploitation.

As nations prepare for a special diplomatic summit in Lauze, political positions crystallize:

By Month Ten, ThermoGene has gone global, legally and illegally. The mutation crisis intensifies, and trust in international institutions begins to erode. Refugee camps in climate hotspots host millions affected by inconsistent therapies. Allegations of "genetic colonialism" grow.

Lauze calls for an emergency summit to:

1. Establish a Global Genomic Ethics Council.
2. Create a Multilateral Mechanism for Genomic Equity and Benefit Sharing.
3. Launch a UN-led investigation into biotech accountability and propose reparations where needed.
4. Decide on protocols for future anticipatory biotechnology deployment.

By Month Twenty, the world is no longer divided by borders, but by biology.

The ThermoGene crisis has catalyzed a profound fracture in the global order. Humanity splinters into three ideological blocs, each shaped by its stance on human enhancement and synthetic biology:

- The Neo-Humanist Coalition, led by Bria, embraces gene-editing as the next evolutionary step. Its citizens undergo enhancement not only for climate resilience, but cognitive optimization and sensory augmentation. Bria frames this path as progress, inevitable, irreversible, and necessary.
- The Bio-Conservative States, anchored by Lauze, reject the wide-scale editing of the human genome. Citing long-term ecological, social, and ethical risks, Lauze withdraws from further human experimentation, calling instead for global moratoria and a return to science governed by caution, not capital.
- The Fragmented Zones, including Solte and Wakke, are neither unified nor stable. Reeling from uneven access, bio-disasters, and political betrayal, they are fighting on multiple fronts: for recognition, for reparations, and for sovereignty over their genetic futures. Civil unrest, black-market mutations, and stateless communities destabilize the region.

In the vacuum left by escalating mistrust, multilateral institutions falter. The World Health Organization, once a pillar of global cooperation, dissolves amid recriminations and funding freezes. The Pact for the Future - the shared vision for equity, dignity, and intergenerational justice - feels like a relic of a more hopeful era.

And yet, one thread remains unbroken.

A coalition of diplomats, scientists, and civil society actors forms the Pangenome Alliance - a last-ditch effort to prevent a permanent biopolitical schism. They convene an emergency summit under the banner of "One Humanity, Many Genomes", determined to restore the idea that science should unify, not divide.

This is no longer just about ThermoGene. It is about who gets to shape the human future - and whether that future belongs to all.

The summit will be the final firewall:
Will diplomacy prevail, or will this be the age when collaboration died at the hands of genetic inequality?

(7) Note to players

This scenario is designed to simulate real-world diplomatic challenges around:

- Science equity
- IP and access
- Climate adaptation
- Global governance and trust

Each actor brings their nation's priorities and ethical frameworks to the table. Your goal: to negotiate a path forward that rebuilds trust, rebalances power, and ensures science serves all humanity, not just the privileged few.

(8) Nation explanation

1. Bria: Fortress of genetic sovereignty

Bria, a global leader in biotech and quantum computing, was among the first to deploy ThermoResist through its proprietary, optimised variant: ThermoResist-BriaPrime. Trial data had already been aligned with Bria's urban, industrial, and high-performance genomic profiles.

Its elite population emerged as Group A "Sunwalkers"; resilient to heat waves, ultra-violet (UV) radiation exposure, and oxidative stress. This success reinforced Bria's political popularity but further alienated marginalised groups, bordered communities, and migrants who were excluded from the rollout.

As mutations appeared in other regions, Bria imposed gene-passport systems and enacted border restrictions to limit the influx of "non-normals." Accusations emerged that Bria had known the differential genomic risks ahead of time and concealed data from Solte and Wakke.

Science diplomacy response: Bria refused to join the Pangenome Alliance and instead pushed for a "Gene Sovereignty Standard," invoking national IP rights and market protectionism.

2. Lauze: ethical steward and fractured society

Lauze's cautious centre-left government initially delayed adoption of ThermoResist, conducting prolonged ethical and pangenomic reviews. Despite this, private citizens and corporations bypassed regulations, obtaining treatment in Bria or offshore clinics.

This led to an internal schism: privileged classes became Sunwalkers, while working-class citizens and Wakkean migrants remained unmodified and exposed.

Public outrage erupted. Lauze's Parliament passed the "Genome Equity and Consent Act," making it the first country to criminalize unauthorized gene edits and champion pangenomic inclusion in clinical trials.

Science diplomacy response: Lauze hosted the first Global Precision Genomics Summit and co-authored the "Open Genome Protocols" with Solte and Wakke, calling for equitable representation in all future trials.

3. Solte: betrayed by partnerships

Solte relied on international partnerships to access ThermoResist, deploying it through multilateral programmes without full local screening. As a result, rural and coastal populations suffered severe side effects, particularly memory loss, emotional volatility, and reproductive complications.

Solte accused Bria and biotech contractors of concealing parts of trial data. The fallout led to mass resignations in its Ministry of Health and the collapse of its science diplomacy alliance with Bria.

In retaliation, Solte leaked confidential trial communications, exposing that genomic disparity data had been withheld to maintain rollout speed.

Science diplomacy response: Solte became a founding member of the Gene Justice League, calling for reparations, international regulatory overhauls, and a new UN Bioethics Tribunal.

4. Wakke: from margins to moral vanguard

Wakke was excluded from ThermoResist trials and rollout due to a lack of biotech infrastructure. Its citizens, particularly migrant workers, were denied access or subjected to unregulated black-market variants like ThermoResist-X2.

Side effects swept across informal settlements: neurological dysfunctions, birth anomalies, and climate-triggered rage episodes. The global media dubbed this generation the "Ash Children."

In response, Wakke's young diaspora scientists, educated abroad, helped craft the Wakke Declaration, a sweeping call for genomic reparations, technology transfer, and a global moratorium on non-consensual biointerventions.

Science diplomacy response: Wakke became a co-founder of the Council of BioSovereign Nations and launched the Gene Commons Charter, advocating for transparent, equitable synthetic biology governance.

(9) Characters and roles

Each character in the gameplay represents a unique area of expertise and brings a distinct perspective to the discussion. Their interactions introduce new dynamics, each contributing to specific teaching and learning objectives. The following figure (Figure 1) provides a visual representation of the characters, followed by a brief description of their roles.

Figure 1: An overview of the key characters that are involved in the scenario.

a) Science

1. Dr. Bianca Yuki Arenata
Origin: Wakke
Role: Lead Genetic Researcher
Description: A brilliant but idealistic scientist driven by the dream of genetic justice for vulnerable communities like her own. She spearheaded the development of the "climate-resistance" vaccine in hopes of rescuing Wakke from climate-induced collapse.
Stance: Believes in open science and equitable tech access, but now questions the unchecked speed and corporate influence in biotech. Advocates for a humanitarian-led global science council.

2.
Cristobal Kiav
Origin: Bria
Role: CEO of GenCline Biotech (suggested name: evokes cutting-edge and gene editing power)
Description: Charismatic, visionary, and ruthless. A titan in the biotech world who saw the climate vaccine as both a humanitarian solution and a trillion-dollar opportunity.
Stance: Frames the disaster as an "unforeseeable anomaly," defends corporate-led innovation, and resists regulatory overreach. Secretly knew about potential mutation risks.

b) Diplomacy

MINISTERS OF HEALTH

3. Hilaria Vaxxwell – Minister of Health, BriaElite, pragmatic, and strongly pro-vaccine. Faces pressure after Bria exported the vaccine aggressively. Seeks to manage damage while saving Bria's global reputation.

4. Hon. Rufus Bulbe – Minister of Health, Wakke
Grounded, desperate to regain trust from his population. Outspoken critic of Bria and the biotech company after the deaths in Wakke.

5. Philomenna Bandola – Minister of Health, Lauze
Ethical, scientifically grounded. Wants a global inquiry and tighter biotech ethics codes. Trusts science but warns against "techno-nationalism."

FOREIGN MINISTERS

6. Maximo Blobert – Minister of Foreign Affairs, Bria
Cold strategist. Wants to maintain Bria's global dominance and avoid reparations. Leans into diplomacy to deflect accountability.

7. Lata Zoomies – Minister of Foreign Affairs, Wakke
Energetic and activist-minded. Demands justice, reparations, and a multilateral treaty on bioethics in climate interventions.

8. Sunny Vakkay – Minister of Foreign Affairs, Lauze
Wants to preserve Lauze's neutral broker image. Proposes a science diplomacy summit to establish shared regulatory norms.

c) Citizens/Civil Society

CIVIL SOCIETY GROUPS

9. Hummod Watch
Focus: Monitoring human modification and defending bodily autonomy. Warns of tech-colonialism.

SOCIAL MEDIA INFLUENCER

11. Nova Gene
Tagline: "If you're not heatproof, you're not hot."
Futuristic, edgy, wildly popular. Promoted the vaccine aggressively online. Now faces backlash for her role.
Stance: Initially pro-science hype, now in damage control. Claims she was misled by GenCline.

HACKER + JOURNALIST

12. Genome (Hacker)
Elusive cyber-activist who broke into GenCline servers. Exposed internal communications revealing the company knew about mutation risks pre-release.

13. Journalist: Elira Vostral
Origin: Lauze
Profile: Investigative journalist from The Lauze Ledger. Known for exposing corruption in pharma and tech. Collaborated with Genome to publish the leak.
Stance: Advocates for whistleblower protections and biotech transparency laws.

(10) Game Package: preparing for the game

Facilitators have full access to the following resources to support their preparation

- Resource 1: Facilitator Guide
- Resource 2: Game Resources. A set of game cards, character plaques, and the game PPT with embedded videos
- Resource 3: Discussion Guide. Optional templates to support the discussion flow.
- Resource 4: Participant Guide This resource explains the objectives of the game, its fictional scenario and presents the country profiles which will help participants to position themselves with their assigned character.

In advance of the game, it is recommended to circulate the Participant Guide to all participants. This can be the day before or on the day,

Prior to the game, so that participants become familiar with the scenario and the country profiles.

Depending on the level of experience, facilitators on average will need 4-8 hours to prepare for the game (content-wise). Additionally, the time required to manage logistics for hosting the game will need to be factored in.

<u>Setting up for the game</u>

• Participants will be seated around a U-shaped or square configuration, with the Chair sitting at the head table.

• Character plaques with the character role will be placed in front of participants so that everyone can see their role.

• Provide pens, paper and the Discussion Guide in front of each participant.

• Each participant is assigned a character card describing the role, to be worn in a lanyard around their neck.

Allocation of characters.

Number of characters: 12

- Option A: If there are more participants than characters, multiple games can be played in parallel, which allows for a comparative discussion and debrief about the different outcomes the groups achieved.
- Option B, Another possible configuration is for participants to play in pairs.
- Option C: You can also combine Option A and B by keeping all players for the intro in the plenary in the same room, split them right after for the negotiation rounds into 2 or more groups, depending on the number of players, and then have everyone join Part 3, the debrief.

Conclusion

Overall, science does not solely focus on the scientific knowledge but the governing instruments to ensure we navigate a world with increasingly complexity and interlinked challenges. Hence, science diplomacy must evolve - anchored in the commitments set out in the Pact for the Future. This means building a framework that prioritizes anticipatory governance, open and equitable access to scientific benefits, and inclusive, rights-based approaches to data and technology. It calls for global mechanisms that ensure meaningful participation of all regions and peoples in science policymaking, especially those historically marginalized in medical and research ecosystems.

The science diplomacy game focusing on a simulation of the ThermoResist crisis exposed how broad-spectrum synthetic biology - when developed and deployed without ethical foresight and equitable inclusion - can deepen global inequality and trigger cascading crises. It revealed the fragility of international governance, the consequences of genomic exclusion, and the urgent need for accountability in science-led solutions. Through the process, the four nations respond in a way that underscored the enduring importance of political will, technological capacity, and public trust in shaping our collective future.

Consequently, as new coalitions and ethical compacts take form, the path forward lies in a recommitment to global cooperation, as well as its reimagination. Science diplomacy must be reoriented as a tool for planetary solidarity, guided by intergenerational responsibility, precision equity, and the shared stewardship of knowledge and innovation. In doing so, we realign with the spirit of the Pact: forging a future where innovation uplifts all of society, and synthetic biology serves humanity as a whole with the people, trust, and our shared future.

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Working Group 5:
Youth-Led Governance and Accountability for the Pact for the Future

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Introduction

Representing 1.2 billion people or 16 per cent of the global population, youth contribute to the United Nations (UN) agenda-setting in seminal ways. The 2030 Agenda for Sustainable Development positions youth both as torchbearers of sustainable development and essential stakeholders in shaping the future (UNGA, 2015, A/Res/70/1). As the Pact for the Future highlights, youth are "critical agents of positive change" in peace and security, sustainable development, and human rights issues (UNGA, 2024, A/Res/79/1). They bring new perspectives, innovative ideas, and a future vision that are critically needed in today's policymaking (UNDP, 2012). However, according to Youth2030, only 23% of UN entities satisfactorily empowered meaningful youth engagement in 2022 (UNYO, 2024).[214] There is a significant gap between the recognized importance of youth participation and its actual implementation in the UN system and beyond.

This document presents a set of practical, youth-focused recommendations for monitoring the Pact's progress and enhancing accountability for the Pact and beyond. Specifically, it proposes mechanisms to improve youth engagement and influence in the UN's employment and decision-making processes. By implementing the recommended tools, the UN agencies and their leaders will actualize a future for youth engagement based on fair compensation, regional equity, and inclusivity.

1. Background and definitions

1.1. Definitions of youth

Youth refers to the period of maturation and transition from childhood to adulthood (UNDESA, n.d.). There is no internationally agreed-upon definition of the age range. National governments and organizations have vastly different definitions for statistical and logistical purposes. The UN defines youth as anyone between the ages of 15-24 years. This definition was adopted by the General Assembly in its resolution 36/28 in 1981 and later informed the designation of 1985 as the International Youth Year (UNGA, 2025). General Assembly Resolution 68/130 in 2013 built on this by urging Member States to include youth in their delegations.

Youth is not merely a biological concept; it is shaped by socioeconomic and cultural factors. The hallmarks of successful transition to adulthood, such as stable employment, social networks, livelihoods, and independence, do not align with a singular age parameter across cultures and geographical locations. Sociologist Lingling Xu points out that time is inherited as a form of privilege; intersectional inequalities are constructed, experienced, and transmitted temporarily (Lingling Xu, 2025). As a result, those disadvantaged by their gender, race, socioeconomic vulnerability, disability, lack of digital access, and migration do not have the same access to maturation opportunities, often experiencing prolonged youth and delayed or premature adulthood

[214]Satisfactory performance refers to having 7 or all 8 processes in place for meaningful youth engagement, which ought to be (a) institutionally mandated, (b) rights based and safe, (c) designated, (d) resourced, (e) transparent, (f) accessible, (g) voluntary, (h) informative, (i) reciprocally accountable (youth to the UN and UN to youth), and (k) ensuring youth as partners.

due to early responsibilities and systemic pressure. This document advocates for the subdivision of youth to recognize their unique challenges. While the Pact has highlighted subgroups such as women and girls, youth with disabilities, and youth from developing countries, we make further distinctions for those not specified in the Pact, such as indigenous youth, LGBTQIA+ youth, and migrant and refugee youth.

Acknowledging these problems, the working definition of youth in this document adopts that of the UN, albeit with a critical view. A further distinction is made between early youth, the age of 14-21, and late youth, 22-25, to reflect the existing differences in access to youth governance opportunities. These categories are not intended as strict cutoffs, but rather as a flexible framework that should be adapted to the unique circumstances of the individual and evolve with time and future opportunities.

1.2. Definition of accountability

In mainstream scholarship, accountability is conceptualized within Western democratic and bureaucratic traditions; nevertheless, its definition remains complex and context specific. Rather than a static or singular idea, accountability is a multidimensional construct that adapts to different situations (Gelfand et. al, 2004). Carolyn Moser's framework involves the obligation of individuals and organizations to explain and justify their actions to others who have the authority to judge those actions (Moser, 2023). It encompasses the duty to act according to certain standards or commitments (Moser, 2023; Tripathi, 2016). Current research underscores that accountability is inherently relational and responsive.

Scholars have distinguished between accountability as a virtue and as a mechanism. As a virtue, accountability is a quality of openness to judgement and a willingness to hold to account, fostering improvement rather than merely assigning blame (Torrance, 2021). As a mechanism, processes, and structures are designed to ensure that actors are held responsible for their actions (Ibid). Framework such as the "5 Ws" (who, to whom, for what, why, and in what way) are frequently employed to unpack the layers of accountability, emphasizing that its meaning and application vary by context, be it political, legal, administrative, or interpersonal (Moser, 2023). Despite its widespread use, there is no universally accepted definition of accountability. However, the evolving understanding reflects the growing recognition that accountability is both a process and a condition essential for ethical and effective governance, organizational functioning, and social trust.

In this document, accountability refers to the obligation of institutions, governments, and international bodies to transparently explain and justify their decisions and actions to youth and to recognize that the latter share the responsibility of oversight. It is a dynamic and context-sensitive process that ensures commitments such as those outlined in the Pact are not merely symbolic but are translated into measurable outcomes and responsive governance. Based on the definition, accountability mechanisms need to be designed to reflect both virtue and system. This will encourage institutions to adopt them not just as a formal process but also as a cultural value rooted in openness, reflection, and responsiveness, which is critical in youth engagement. Furthermore, there is a need to adopt Torrance's '5Ws' framework. When designing and evaluating youth-

centered policies, the use of the framework ensures clarity in responsibilities, expectations, and feedback loops in the global and national implementation of the Pact.

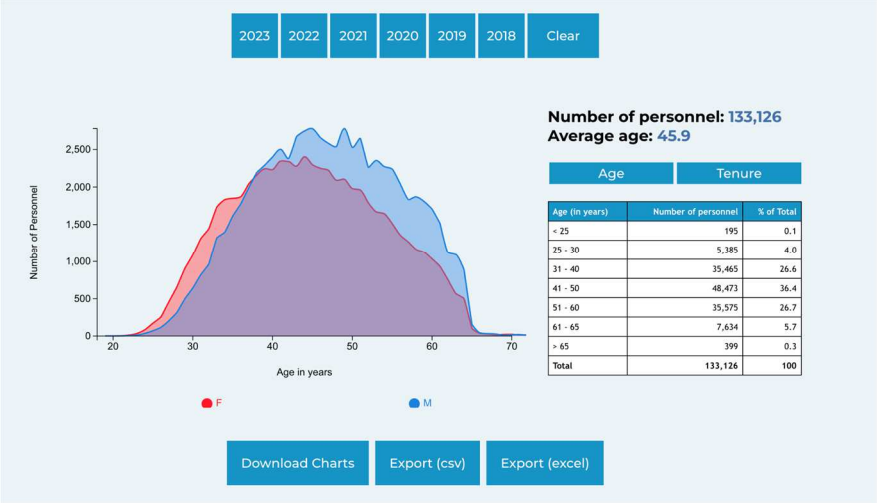
Additionally, existing platforms such as the Youth Delegate Programme, the Youth Advisory Panel (YAP) of the UN Children's Fund (UNICEF), UN Economic and Social Council (ECOSOC) Youth Forum, Youth Climate Movement, Youth2030 Global Action Plan Platforms (UN System-Wide), the Convention on the Rights of the Child (CRC), the Universal periodic reviews, and accountability measures for more specific issues, such as the UNESCO Global Education Monitoring reports, the ILO supervisory system, among others should be strengthened where youth are empowered to access and influence policies, as this enables them to hold institutions accountable. Collaboration with other platforms like the African Union Youth Council and African Youth Ambassadors, Civicus Youth Action Lab, among other local youth assemblies, will promote idea sharing. Refer to section 3.2.6 below for future insights into how accountability is specifically addressed.

2. Representation of youth among UN employees

The meaningful representation of youth inside the UN system is a key measure in ensuring the organization's commitment to youth in the Pact. Despite the growing inclusion and recognition of youth as agents of change, participation inside the UN remains limited. Often constrained by regional disparity in access, unpaid or undercompensated internship programmes, and systematic barriers regarding career entry positions. As the Pact states, "We decided to promote meaningful, inclusive and effective engagement of young people… where appropriate and following the rules of procedure and established practice, taking into account the principles of gender parity and balanced geographical representation and non-discrimination" (UNGA, 2024, A/RES/70/1). The Youth and Future Generations section highlights the need for system reforms by strengthening youth participation and engagement in the UN system. This section focuses on three youth representation dimensions within the UN: employment, fair-paid internships, and regional disparities, placing each within the broader implementation of the Pact.

2.1. UN employment

Meaningful youth engagement at international organizations requires adequate representation of youth in the workforce. The UN System Chief Executives Board for Coordination reported in 2023 that young professionals below 25 constitute only 0.1 per cent of the UN personnel, while those under 30 represent only 4 per cent (UNSCEB, 2023). The lack of youth representation among the UN staff defies the youth empowerment agenda outlined in the Pact. Currently, youth have access to engage in UN activities through youth-related forums, youth-led consultations, internship programmes, the Assistant Secretary-General for Youth Affairs, and the UN Youth Office. The annual ECOSOC Youth Forum, the Human Development Report (HDR) youth consultation, and UN youth volunteer programmes are examples of how youth can participate in the UN's advancement of the 2030 Agenda. While these platforms provide youth with valuable empowerment and professional opportunities, these short-term consultative engagements lack implementation power and policy consistency.



Age (in years)	Number of personnel	% of Total
< 25	195	0.1
25 - 30	5,385	4.0
31 - 40	35,465	26.6
41 - 50	48,473	36.4
51 - 60	35,575	26.7
61 - 65	7,634	5.7
> 65	399	0.3
Total	133,126	100

Figure 1. Age distribution of UN employees (UNSCEBC, 2023)

2.1.1. Underpayment and employment instability

In the current UN employment system, young professionals below 25 typically hold internship contracts or consultancy contracts (UNGA, 2025, A/Res/79/746). The average living cost of Geneva is 1,685-2,815 CHF per month, while the average living cost in New York is 3,300 USD (Graduate Institute Geneva, 2024; New York University, 2024). While consultancies and UNV contracts offer compensation, consultancy durations are usually short, and renewals are subject to funding availability, and thus, employment is unstable. Based on the UNV stipend calculator, Youth Volunteers in Geneva receive 2,900 CHF per month, and those in New York receive 2,350 USD per month. Most UN Volunteers are based in the Global South, where the hardship level is high, and assignments entail invisible costs such as social instabilities and safety risks.

The Young Professionals (YPP) and Junior Professional Officer (JPO) programmes have the eligibility requirements of 32 years old or below, yet to be more competitive, successful YPP and JPO candidates are usually in their late 20s and early 30s.

2.1.2. Recommendations

To address the underrepresentation of youth in the UN employment landscape, we propose a "Youth for UN" reform that establishes a specific quota for young professionals below 25 and below 30, respectively. Under this initiative, 3% of the UN vacancies will be reserved for personnel below 25, and 7% of the total UN vacancies will be reserved for personnel between 25-30. The "Youth for UN" reform will create true entry-level opportunities for recent graduates. Under this initiative, the UN employment system shall:

- Increase the number of P1 contracts;
- Increase the number of Long-Term Agreements (LTA) consultancy contracts;
- Increase the payment for UN volunteers and the UN internship programme to cover the basic living costs for young professionals.

The Pact declares, "We welcome the progress made in promoting the meaningful engagement of youth… by increasing the representativeness, effectiveness, and impact of youth engagement at the UN." The current UN employment landscape needs to evolve from emblematic youth empowerment to the pragmatic inclusion of youth in the workforce by providing long-term contracts and proper compensation. In turn, youth leadership and decision-making power will transform the UN.

2.2. Towards fair-pay internships in the UN System

UN internships were established to provide firsthand experience of the day-to-day activities within the international environment and act as an entry point to global governance. Yet, most internships are unpaid, undercompensated, and subject to a duration limit (Ibid). Intersecting directly with Action 37 of the Pact, which advocates for the strengthening of youth participation and involvement in decision-making processes and global governance mechanisms, ensuring equitable access to opportunities in multilateral systems (UNGA, 2024, A/Res/79/1).
This section focuses on the challenges arising from unpaid internships, analyses existing initiatives, and presents proposals and recommendations for establishing more inclusive and equitable UN employment frameworks. Despite the UN's global mandates on both human rights and decent work, the UN has had a long history of unpaid or minimally paid internships, often based in high-cost cities like Geneva and NYC. While UN agencies, including the ILO, WTO, among others, provide living stipends for interns, the compensation can barely cover the cost of living in headquarters cities. The complete current compensation for internships is listed below:

UN Agency	Monthly Pay
ILO	2,450 CHF
WTO	1,800 CHF
UNICEF	1,700 USD
WHO	1,700 USD
WMO	1,500 CHF
UNDP	1,000 USD
UN Women	1,000 USD
ITU	Unpaid
OHCHR	Unpaid
UNEP	Unpaid
UNESCO	Unpaid

Figure 2. UN internship remuneration by agency

The location of the headquarters offices is based on a combination of diplomatic, political, and historical factors tied to the post-World War II international order. While the New York office was established as the US emerged as both a global power and a leader in the founding of the UN, the Geneva office was established following the seat of its predecessor, the League of Nations, as well as its historical neutrality and geographic location in central Europe. Both of these cities are among the most expensive in the world, often creating financial barriers for interns, disproportionately affecting youth from the Global South and underrepresented communities.

2.2.1. Existing initiatives and reform efforts

Over the years, several reform efforts have emerged to address the challenges of internship programmes in the UN, including reforms by agencies and advocacy-driven initiatives led by civil society actors and youth.

2.2.1.1. Fair Internship Initiative (FII)

FII is a youth-led advocacy network, created in 2015, that aims to advocate for fair, paid, and accessible UN internships. Through the years, FII has conducted several surveys of interns and further developed an Internship Quality Index (FII, 2021). FII has constantly lobbied for the Human Rights Council and the General Assembly to address the previously mentioned issues. The main challenge the initiative has faced includes the lack of institutional recognition being a volunteer-led movement without a formal status in the UN system. Most FII relies mainly on former UN interns, who serve a limited period ranging from 3-6 months. Even though initiatives like the FII provide visibility to the UN internship system disparities, agency-level and General Assembly reforms are necessary to ensure interns have inclusive access and fair compensation.

2.2.1.2. Joint Inspection Unit (JIU)

The Joint Inspection Union is an external oversight body of the UN; it was established by the General Assembly in 1978. It oversees carrying out inspections, evaluations, and investigations of UN entities to enhance financial and administrative efficiency as well as promote best practices. In 2018, they issued a report on the Review of Internship Programmes in the UN System, which evaluates UN internship programmes from 2009 to 2017 (Cazeau, 2018, JIU/REP/2018/1). While the report recognizes the progress made in policy framework establishment, it also highlights that previous recommendations provided haven't been implemented. The report is centered on 5 areas: application process, internship period, competition, and follow-up.

2.2.1.3. Agency-Specific Reforms

Despite the lack of general reform in paid internships within the UN system, agencies including UNICEF, ILO, and UNDP have undertaken reforms improving accessibility and fairness by offering remuneration that reflects living costs at duty stations. The reforms are mentioned in the JIU review of the UN internship programmes; these programmes are being redesigned to ensure the participation of developing countries and underrepresented regions. However, several challenges remain, including the lack of a system-wide policy enforcement mechanism, agencies currently struggling with budget justifications, and accessibility disparities favoring Global North-based youth.

2.2.1.4. UN Report (A/Res/79/746)

The UN Advisory Committee on Administrative and Budgetary Questions recently conducted a review of the UN Internship Programme, following the mandate of General Assembly resolution 77/278, which addresses human resources management within the UN Secretariat (UNGA, 2023, A/RES/77/278; UNGA, 2025, A/79/746). The General Assembly review of the UN internship

programme aimed to evaluate the current system and propose reforms that would align internships within the system while promoting transparency, equitable access, and diversity. The Secretary-General proposed a restructuring that aims to introduce a centralized, paid internship scheme starting in 2026. The Department of Operational Support will oversee the administration of the internship programme. Additionally, the proposals include the annulment of the six-month application restriction as well as promoting merit-based recruitment, expanding diversity by targeted outreach strategies (UNGA, 2025, A/79/746). The report underlines how unpaid internship programmes often have limited access to participants, resulting in inequality across the system.

The Advisory Committee embraced the mentioned proposals but highlighted the importance of monitoring, cost control, and targeted outreach mechanisms. Additionally, they recommended a three-year pilot period, meant to begin in 2026. Data, including demography, costs, learning outcomes, and employability in UN roles, will be collected and analyzed during this pilot period.

2.2.2 Recommendations

Joint Inspection Unit (JIU)
While the report highlights geographic disparities, it does not necessarily explore structural disadvantages faced mainly by youth in the Global South (relocation fees, visa processes). Future reviews would be more effective if they were able to better address these barriers and propose targeted actions (relocation grants, regional internship hubs). The report doesn't frame internship accessibility as part of intergenerational justice, which, if done, could provide stronger legal and ethical foundations for action, aligning with Article 37 of the Pact.

Agency-Specific Reforms
Agency-specific reforms could benefit from the following actions: the establishment of a minimum remuneration UN internship standard (covering cost of living), facilitating internship-to-employment bridges (fast tracks to programmes like the Young Professionals Programme or Junior Professional Officer), developing specialized programmes and outreach strategies targeting underrepresented countries' youth. As well as favoring transparency mechanisms, including publishing data on intern pay, demographics, and career progression.

UN Report (A/Res/79/746)
To ensure that the proposals established in the (A/Res/79/746) Report achieve their intended goals, detailed attention must be provided to their practical implementation. The following recommendations have the objective of supporting an effective, inclusive, and transparent implementation.

- The development of a phased implementation plan for the pilot period, which includes performance targets, timelines, and risk mitigation strategies, ensures both accountability and consistency, all to provide clear implementation frameworks.
- The standardization of learning and supervision structures sets a requirement for all interns to receive Individual Development Plans, complemented with constant coaching and mentorship.
- Constant monitoring and reporting on key diversity indicators, tracking data on gender, region, age, nationality, and disability to assess the levels of alignment with UN human

resource diversity goals. Including the promotion of transparency mechanisms by annual report publishing.

- The expansion of the geographical distribution of internships by setting quotas or percentage targets for placement in regional offices, enhancing diversity.
- Regular assessment and an adaptation mechanism based on pilot period results. Evaluation of the programme's effectiveness against key performance indicators every 3 years, and adjustment of design, policy measures, and resource allocation based on these data insights.

These reform proposals strongly support the vision established in the Pact by strengthening youth participation in multilateral processes and enabling young people from all backgrounds to engage with international institutions. These reforms, if implemented, would also contribute to youth development through mentorship and structured learning. This internship reform proposal positions the UN as a more responsive and accessible global institution for the youth and future generations, empowering them as agents of change.

2.3. Regional disparity in employment for youth

2.3.1. Context

In order to ensure that youth are widely and diversely represented throughout employment opportunities in the UN, it is critical to examine the regional equity in the employment processes. Creating a more equitable system for employment and career opportunities within the UN is key for accomplishing both the goals of the Pact and the Sustainable Development Goals (SDGs). This can be achieved by reforming and expanding the UN career outreach among local communities throughout the world, particularly in the Global South.

2.3.2. Challenges with equitable youth hiring

As the Diversity, Equity, and Inclusion policy of the UN Human Resources notes, the UN seeks to be fully inclusive for people of all ethnic, racial, gender, age, and disability backgrounds. However, as UN Resolution A/Res/79/746 notes, from 2014-23, 60 per cent of all interns at the UN came from only 10 member states, many of whom were Global North states (UNGA, 2025, A/Res/79/746). While positive steps have been taken to address these inequalities, such as substantially increased hiring from Global South countries in 2022-23 (Ibid).

The UN lags in centering equitable and inclusive hiring practices that adequately represent diverse global populations that are not educated or employed within the Global North. The UN hiring process could be fairer and more inclusive, particularly regarding the length of university degree programmes in the Global South (4-5 years) and professional experience. Many young people in the Global South also gain skills through informal work and community service, not formal jobs, which ought to be considered as necessary background experience for UN employment (de Boeck and Honwana, 2005). Recognizing these realities and designing hiring policies with local insight is integral for empowering youth employment throughout the UN.

Furthermore, youth coming from minority communities such as indigenous groups, migrant and refugee populations, and even LGBTQ+ communities often face particular challenges of inclusion and representation throughout UN employment globally. For indigenous people and migrant populations, particularly, access to job postings and career opportunities within the UN, and even other job sectors. These communities face a particular challenge due to potential limited access to the internet as well as limited representation in their native language (Denzer et. al, 2021). For LGBTQ+ communities in certain countries, their identities subject them to discrimination and bar them from certain personal and professional opportunities, thus demonstrating the unique challenges they face (Gore, 2022). While the UN Human Resources offices ensure that employees from all backgrounds will not be discriminated against for their sexual orientation and gender identity, they fail to account that LGBTQ+ youth may face discrimination at the domestic level, thus impeding them from certain local job qualifications and opportunities.

Prospective youth applicants/employees with the UN face certain hurdles that impede them from applying and obtaining permanent or contractual employment within the UN, many of which particularly impede youth from the Global South. With these challenges in mind, we present a set of recommendations and actionable policies and solutions developed in order to directly combat the regional disparities and limitations youth face in the UN's employment process.

2.3.3. Recommendations and actionable policies

Empower Global Youth with Tools and Connections to Thrive

The first essential step requires better resource availability and networking opportunities, particularly for youths in the Global South. Young leaders face obstacles because they lack access to capital and professional networks, according to the UNDP (UNDP, 2025). The UN should increase funding for youth-led innovations through successful models like the Kofi Annan Innovation Award for Africa, while creating youth advisory boards in all agencies, as the ITU Youth Advisory Board has demonstrated. The platforms serve as essential platforms that give young people the necessary mentorship and visibility and influence institutional structures.

Make Youth Voices Count Where Decisions Are Made

Building an environment that respects all stakeholders while promoting their collective involvement is a key priority. The widespread belief that youth contributions hold little value needs to transform into authentic inclusion, according to the World Bank (Sultan et. al, 2022). The proliferation of youth agency depends on both stakeholder acceptance and the actual participation of young people at decision-making tables. There is an overwhelming need for authentic involvement instead of superficial participation among youth.

Build Skills that Match Local Realities in the Global South

Policies need to be adapted to the specific needs of different regions in order to address their unique inequalities. The investment in capacity building and digital literacy, and entrepreneurship training should focus on local contexts, especially in underserved regions, according to the African Development Bank (ADP, 2019). The development of skills and

knowledge that match local environments leads to enduring leadership with forward-thinking abilities.

Actionable Policy: Regional Career Centers

In order to best invest in youth, it is necessary to directly connect youth with the opportunities and resources that contribute to equitable hiring. Accordingly, regional career centers, where young people can attend informational networking sessions about hiring practices and UN career opportunities, would positively impact UN outreach and youth incorporation.

Firstly, these career centers can be based in pre-existing regional UN offices and connect youth more directly with those employed there. Career centers among universities and private sector corporations have demonstrated a considerable effect on youth's entry and empowerment in the labor force. These would also provide the foundation for connecting youth in specific regions across the world, thus addressing their unique regional context and connections within the UN system. Developing and incorporating these career centers into regional UN offices, particularly throughout the Global South, would connect youth directly with job opportunities and career pathways.

Secondly, the regional career centers would be linked to the representatives and officials employed within the regional UN offices. These career centers would closely rely on collaborations between the regional organizations and the local youth in order to cultivate youth empowerment in UN career spaces. Moreover, communication with the career centre should be done in localized multiple languages, considering limited access to the internet in some regions through youth-focused career centers to support equitable representation (Chigunta et. al, 2005).

These networks within a career centre establish a complete system that enables youth empowerment while closing regional divides and transforming their position as UN system catalysts for innovation and sustainable development. The career centers would prove critical, as in the case of context-specific pathways, many youths in the global south also gain informal experiences, such as community services, traditional-based learning, and primary health care support. Within these centers, the UN would account for these experiences and skills as relevant educational qualifications of youths from the Global North and further expand outreach programmes to include regional universities and youth networks.

4. Representation of youth in the UN decision-making processes

From the low levels of youth employment within the UN System to the sparse and often symbolic mention of youth in key frameworks like the Pact, one thing becomes clear: youth inclusion cannot be an afterthought. The previous sections have shown that youth face barriers not just in accessing UN careers but in finding meaningful, long-term engagement within the system. This naturally leads us to a deeper issue: decision-making. A Pact that does not include the Declaration on Future Generations or fails to embed youth in the decision-making process is purposeless. Youth accountability is not about token representation or symbolic statistics; it means embedding young

voices at all levels of the UN decision-making process, particularly those from underrepresented communities that have long been disconnected from the system.

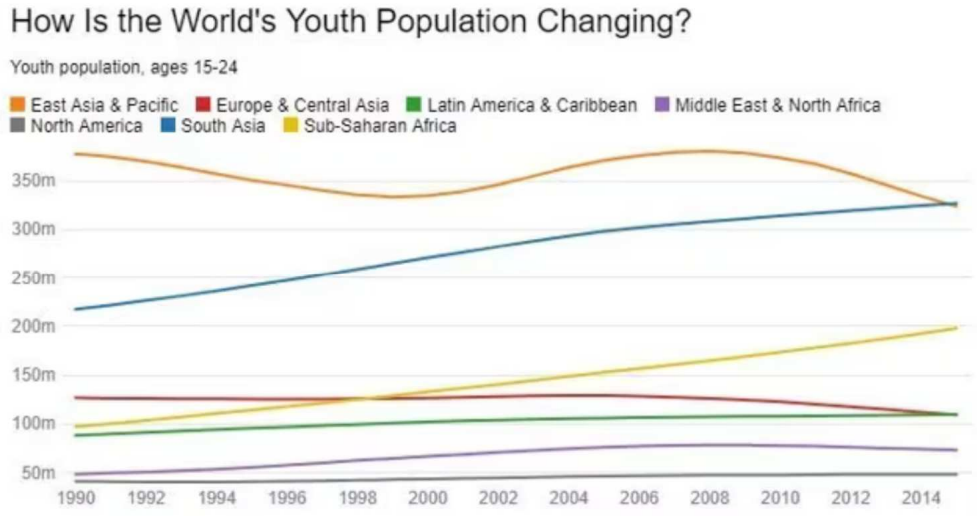


Figure 3: Projected global youth demographics by region (Gray, 2018)

3.1 Improved communication with UN agencies

3.1.1 Meaningful youth engagement

The Pact is designed to foster meaningful youth engagement, meaning that youth are not only present but also have a real impact on the decision-making processes. According to the Pact of the Future, a meaningful impact must be systematic and structured, creating channels for discussions, not only one-off events (UNGA, 2024, A/RES/79/1). It must also be influential and guarantee that youth contributions are considered in the final decision. Furthermore, this approach requires inclusive and diverse engagement, actively involving youth from different regions and cultures, and promoting gender equality as highlighted in previous sections of this paper. Finally, it must be a safe and respectful environment that actively researches youth from all backgrounds and is well-represented.

3.1.2 Current proposals in the Pact to enhance communication with youth

To institutionalize this strategy, The Pact endorses multiple mechanisms to build effective communication with youth, such as the UN Youth Office, which aims to make meaningful youth participation the norm, not the exception (Ibid). Its mandate includes placing youth at the centre of multilateralism and the global cooperation ecosystem; bringing youth into dialogue with leaders coordinating youth engagement across all UN entities, which would strengthen collaboration. This entity works on mainstreaming youth in different areas like peace, security, and climate change, while enhancing accountability by reporting how youth influence the decision-making process.
Furthermore, the Declaration on Future Generations is a key annex to the Pact of the Future. Its function is to recognize the UN's responsibility to consider the impact of its decisions. This declaration has also had an impact on communication between youth and UN entities (Ibid). It gives youth a recognized basis for their activities and advocacy. Further, it empowers youth to

establish better communication and be an actor to solve issues like climate change and sustainable development. In addition, this declaration is intended to enhance collaboration between different UN departments by strengthening existing channels. The key existing channels include: OSEY, MGCY, the ECOSOC, and the Youth Delegates Programme.

3.1.3 The Global Digital Compact (GDC)

Another chapter of the Pact is the GDC. It specifically aims to ensure that youth, particularly in the Global South, have access to digital tools and to communicate as well as in the Global North (Ibid). It also refers to the need for a safe and inclusive digital platform, protecting youth from misinformation, online harassment, and hate speech.

The International Telecommunication Union (ITU) is a UN specialized agency for information and communication and has a central role in the implementation of the GDC. It provides the technical expertise and implementing mechanisms to turn the political strategy into a reality. Moreover, the ITU works in alignment with the GDC and the Pact by starting a global initiative to develop technical standards for AI and initiating a technical framework to translate the values of safety, inclusivity into reality (ITU, 2024).

3.1.4 Recommendations

To move from policy to practice and ensure that the Pact is not only established but also effective and realistic, the following actions must be taken:

- Employ an online portal that consolidates UN youth engagement in different entities.
- Ensure that all key youth channels will be reported; this document will be a key recommendation received from youth and the UN's response.
- Remove financial barriers and dedicate funds to fully support UN Youth Delegates, providing them with the necessary training, capacity building, and materials.
- Integrate a youth advisory council to involve them directly in the creation of frameworks and support them to gain technical expertise.
- Reduce misinformation and hate speech, it's essential to empower youth to build their digital platforms that respond to their needs and are based on a healthy and creative digital ecosystem.

3.2. Recommendations on institutionalized youth participation in UN decision-making

3.2.1. What does institutionalized youth participation mean?

Youth are often brought in to speak, to be seen, but not to stay involved within the UN, where the real decisions are made. Institutionalized youth participation is about making youth involvement permanent instead of performative. It means young people don't need a moment of crisis to be heard. Instead, youth participation is built into the way decisions are made, through clear roles, lasting structures, and meaningful influence.

Youth need to be central in shaping the future of the UN system, as mentioned at 2.2. Towards Fair-Pay Internships in the UN System, part where it is needed to address the barriers mentioned and propose targeted actions. When youth voices are embedded into governance, their outcomes and voices do not rely on who holds power; they become part of the system and how things are done. This is critical as global challenges such as displacement and climate change, inequality, and digital exclusion are not youth statistics, but lived experiences. Youth involvement brings not only energy, but real solutions that resonate permanently among youth.

3.2.2. Youth in the Pact: present, but not empowered

The Pact for the Future talks about building an inclusive, fairer world. However, out of 54 actions, only five mention youth, none of which specify how they'll be involved. There are no mechanisms, no pathways, no timelines. Young people are acknowledged, but not trusted with responsibility. This is more than an omission. It's a reminder of how often youth inclusion is not considered a priority. If the pact does not seriously consider youth, it is difficult to shape the future with them in mind.

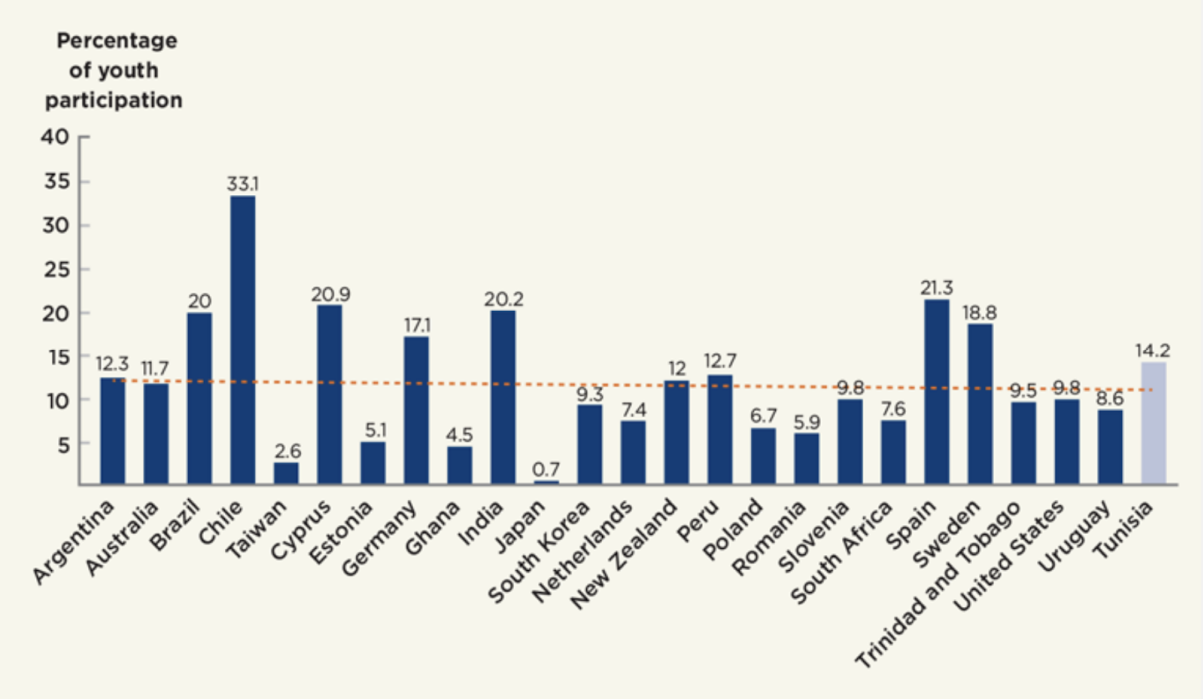


Figure 4: Percentage of youth (<30) having participated in peaceful demonstrations by country (Dews, 2019).

3.2.3. Youth-led spaces in decision-making arenas

It’s time to reimagine where and how youth participate and move beyond side panels and temporary forums, and to consider youth-led sessions that are a regular, expected part of the UN General Assembly, and further to ask that young people have an official place to speak in High-Level Political Forums.

3.2.4. Laying the foundation: a youth participation framework

A lasting structure is needed to support these changes. A Youth Participation Charter—designed with youth, not just for youth—could help set real standards across the UN. It would define what meaningful participation looks like, outline clear expectations, and hold institutions accountable, as mentioned at 2.1.1 and 2.1.2.

Crucially, this framework must be inclusive. It cannot solely serve youth with privileged access and opportunities. It must prioritize the voices that are often left out, such as youth from the Global South, refugee and displaced youth, indigenous youth, youth living with disabilities, and young women. Inclusion means nothing if it isn’t equitable. It is necessary to stop treating youth participation as a waiting game. Accordingly, intergenerational leadership models can create shared spaces where experience and new ideas from new perspectives complement each other.

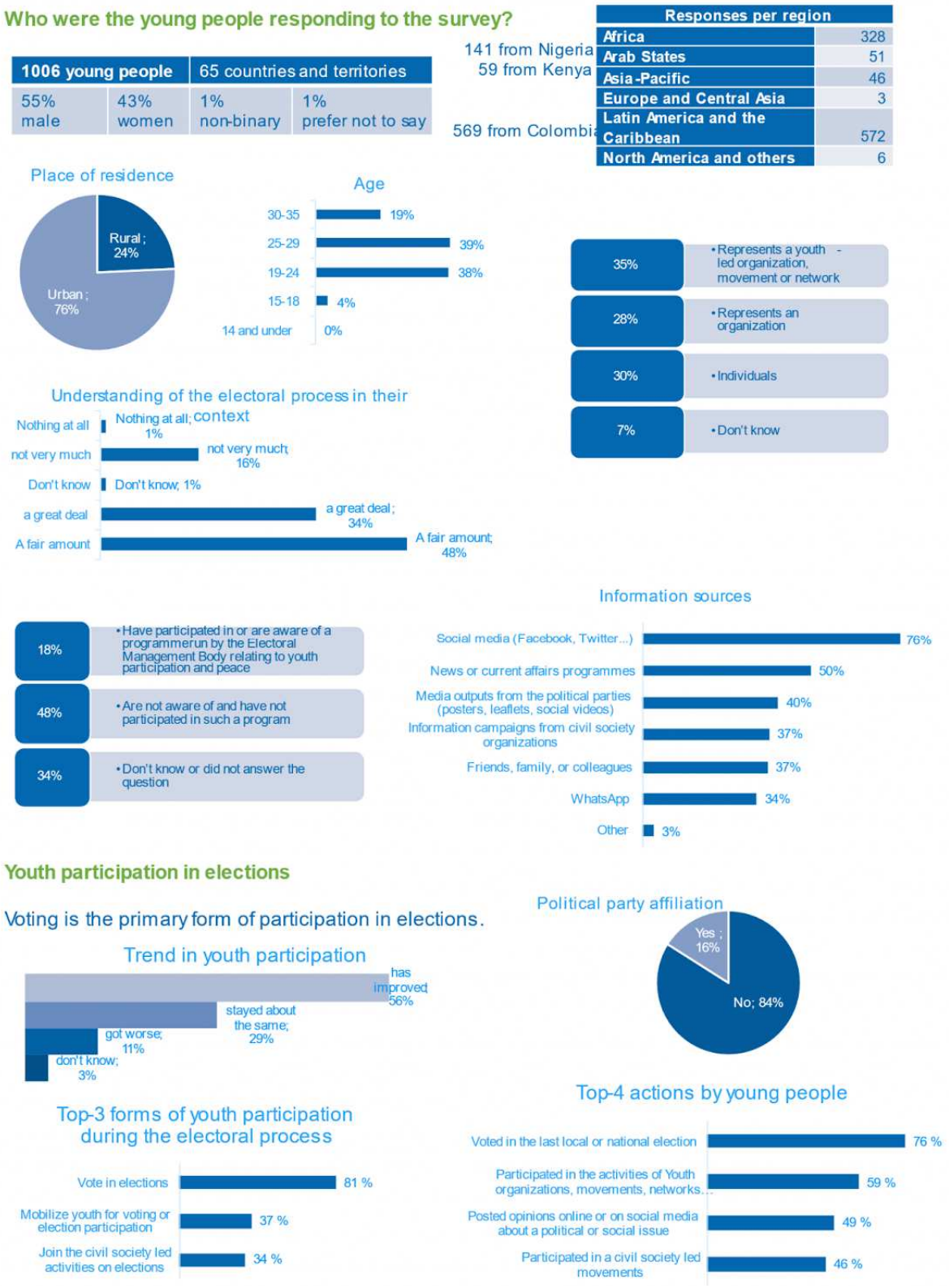


Figure 5: Youth-identified priorities for leadership and political inclusion (UNDP, 2023)

3.2.5. Scaling youth advisory bodies across the UN

UNICEF's Youth Advocates and UN Women's Youth Panel have already demonstrated that when youth are trusted and supported, they deliver. However, those examples are still rare. Every UN agency should have a Youth Advisory Board with real influence. Not just an honorary title or a listening session once a year, but a meaningful, consistent role in decision-making.

Additionally, youth-led organizations, especially those working on the ground in communities, deserve consultative or observer status in UN negotiations. These groups know about what is happening on the front lines of crises. Their insights should be part of the conversation, not outside of it.

3.3. Global representation and inclusion of youth in UN decision-making processes

While Article 36(a) of the Pact encourages the establishment of national mechanisms for youth consultation and Article 37(d) calls for developing core principles for youth engagement in UN processes, there is still limited and inconsistent implementation across Member States.

In 1981, the UN GA adopted a resolution A/RES/36/17 asking member states "to consider including youth representatives in their national delegations to the General Assembly and other relevant UN meetings" (UNGA, 1981, A/RES/36/17). This call was subsequently repeated in 2013 in resolution A/RES/68/130, where the General Assembly "urges Member States to consider including youth delegates in their delegations at all relevant discussions" (UNGA, 2013, A/RES/68/130).

Furthermore, domestic-level youth participation often lacks institutional support and legal recognition, particularly in developing countries where limited financial and technical resources hinder implementation, as highlighted previously. Meanwhile, high-income countries such as Belgium and the United States have more established youth engagement frameworks and are in a position to support capacity-building and knowledge transfer to Member States in earlier stages of youth inclusion policy development.

As the UN advances its youth agenda through the Pact, strengthened coordination between the UN Youth Affairs Officer and the UN Special Envoy on Future Generations is essential to promote coherent, inclusive, and accountable systems of youth participation globally.

3.3.1. Strengthening the mandate and collaboration between the UN Youth Affairs Officer and the UN Special Envoy on Future Generations

Establish a joint accountability framework for youth inclusion

Our first recommendations for a unified accountability strategy should be a jointly developed framework by the Youth Affairs Officer and the UN Special Envoy on Future Generations to clarify institutional responsibilities and set measurable targets for youth inclusion in UN and national governance systems. This framework will ensure that youth voices are integrated in decision-making at all levels, including but not limited to annual youth participation audits

through the programmes and conferences mentioned in sections 1.2 and 3.1.2, such as the UN Youth Delegate Programme, regional consultations, and key measurements on Member States' youth inclusion efforts.

Institutionalize national youth liaison focal points in cooperation with the UN Youth Office

Through the Youth Office, the UN must promote the creation of Youth Liaison Focal Points in every Member State, particularly in low-income countries where youth consultation mechanisms are absent. This will allow us to strengthen youth engagement at the domestic policy level, empowering and increasing the representation of youth constituencies at both the national level and international monitoring bodies. Along the same lines, we will encourage the support of high-income countries to contribute through technical expertise exchanges, peer mentoring, and support for youth policy development in low- and middle-income countries.

Develop a Global Youth Participation Index (GYPI)

Our third recommendation targets the lack of monitoring and standardization of youth participation efforts worldwide. Both the Youth Affairs Officer and the Special Envoy on Future Generations should jointly lead the development of a Global Youth Participation Index to measure quality, equity, and frequency of youth participation in governance. Working alongside accessibility in low to middle-income countries through the GDC, as mentioned earlier in section 3.1.3, this participation index needs to include disaggregated data on youth representation at the regional, national, and local level, legal frameworks supporting youth participation, funding allocated for youth civic engagement, gender-based participation, among others.

Establish a joint capacity-building facility for youth governance

Our fourth recommendation is a multi-organizational UN task force on Youth Capacity-Building to equip young people with the knowledge, tools, and support needed to participate meaningfully in governance. Working alongside the 2.3.3.1 Regional Career Centers in terms of UN system procedural matters and job opportunities, this taskforce will prepare youth to engage effectively in decision-making processes through online and offline training programmes, mentorship and peer exchange networks, and micro-grants for youth-led civic and advocacy initiatives.

Embed youth review mechanisms in UN governance processes

Our fifth recommendation addresses the core issue with the current state of youth participation: it should not be symbolic but rather active. Therefore, we encourage the development of UN-structured mechanisms for youth to review, critique, and contribute to intergovernmental outcomes within the multilateral system. By bringing the UN youth programme representatives to a year-long auditing of main UN advancements, we can ensure transparency and responsiveness in global decision-making processes. For example, we encourage member states to make use of their Voluntary National Reviews (VNRs) through youth engagement pathways. Similarly, it is necessary to develop monthly youth panels reviewing progress on the Pact, and annual Youth Accountability Forums through the Youth Delegate Programme to feed into the fulfilment of the Pact.

3.4 Education and capacity building

One of the SDGs is to ensure quality education, inclusive and equitable, and encourage lifelong learning opportunities for all.

3.4.1 Challenges facing youth education and skill development

It recognizes several priorities in its agenda related to the education and capacity development of young people. As previously mentioned, many young people are still deprived of access to quality education, vocational training, and resources to thrive in the changing world. Poverty, inequality, discrimination, and inadequate infrastructure disproportionately limit vulnerable young people, such as girls, youth with disabilities, Indigenous youth, and those experiencing conflict-affected situations.

Weak access to the internet entrenches these inequalities, keeping young people away from e-learning, information, and global solidarity. Climate change and economic insecurity add to this crisis, destabilizing education and limiting long-term opportunities. Economic barriers like rising tuition fees and a lack of public investment keep many from accessing or completing higher education.

Key statistics from the UNESCO Institute for Statistics (UIS):

- 263 million children and youth worldwide are out of school (primary to upper secondary);
- Only 50% of youth in sub-Saharan Africa complete lower secondary education;
- 750 million adults (two-thirds women) lack basic literacy skills (UNESCO, 2025).

3.4.2 Actions and commitments from the Pact

The Pact outlines several commitments to address these challenges. High-priority actions include upscaling investment in education and vocational training, promoting universal health coverage to protect physical and mental well-being, and promoting entrepreneurship and youth innovation. As previously mentioned in section 3.1.3 on the GDC, the Pact places special focus on reducing the digital divide to connect schools and hospitals to the internet and enhancing digital literacy (UNGA, 2024, A/RES/79/1). It also calls for authentic youth participation in national and international decision-making and stresses gender equality and social inclusion as essential for education.

3.4.3. Future recommendations towards education for all

Strengthen accountability mechanisms for education policies

Young people should not just be consulted; they should have real power in shaping and assessing education policies. That means embedding youth evaluators at every stage, from planning to implementation to review, and giving them the authority and ability to challenge or veto progress assessments when targets are not being met.

At the same time, governments and institutions must be held to higher standards. They should be required to track and publicly report on all 11 official SDG 4 indicators mentioned in the Global

indicator framework for the SDGs, set clear deadlines and timelines for progress, and break down data by gender, region, and disability status so no one gets left behind.

Improve binding financing for education commitments

Education initiatives are still underfunded with no blueprints for binding finance, despite strong policy plans. Action 34 has no fixed funding targets, and Goal 1 of the GDC has broad goals with no resource framework.

Transparency in financing strategies must be used to ensure accountability and a high value for equity. In line with the Paris Declaration on the future of education, a funding framework and a multilateral fund for youth education need to be established.

Increase the representation of vulnerable groups

While the Pact guarantees inclusion, it lacks policies that can be enforced. Refugees, indigenous youth, and youth with disabilities fall out of national education strategy and capacity-building plans. General commitments must be replaced by concrete actions. Action 8 must include mandatory inclusion quotas for marginalized youth in education governance. National education plans must include concrete policies for refugees, indigenous youth, and individuals with disabilities.

Enhance digital equity

Young people are still held back by high connectivity costs, uneven access to devices, and inadequately relevant digital education. Current policies are narrowly focused on infrastructure with no regard to usability. To bridge the digital divide, Objective 1 would need to be expanded to encompass device subsidy programmes for poor students, free learning data bundles in public-private partnerships, and open data platforms publishing real-time feeds of school network availability and digital learning milestones.

4. Outcome of the Pact on youth in broader global society

Of the 54 actions, only five specifically mention youth, with Actions 34 and 35 making specific reference to outcomes for youth. The latter focuses on investing in social and economic development, and the former on protecting human rights. These actions include calls for access to education, security of decent work and entrepreneurship opportunities, increased investment into essential services for young people, striving for universal health coverage, seeking the immediate eradication of forced child labor and slavery, combatting stereotypes and discrimination based on gender, disability, and other vulnerable youth groups (for example, child marriage and female genital mutilation). The actions address both ‘youth’ and ‘young people’, while making specific calls for action to support women and girls, youth with disabilities, and other particularly disadvantaged groups or populations in vulnerable situations (UNGA, 2024, A/RES/70/1).

4.1. Evaluation

Within these actions, there is no direct reference to the term accountability, nor to which mechanisms will be used to ensure their implementation. There are no clear benchmarks, targets, or indicators, nor binding legal obligations. There are also very few mentions to timelines within which these actions should be achieved, other than 35 B) which calls for immediacy in its actions to end childhood slavery and labor, and Action 20, which invites the secretary general to complete the "second independent progress study on youth's positive contribution to peace processes and conflict resolution by the end of the eightieth session", (which is September 23, 2025) for which an author has now been appointed (Ibid).

Overall, we feel that generally the scope of subgroups and topics is well represented, with a few exceptions. In terms of youth subgroups, while they may be included in the more generalized language, indigenous youth, LGBTQIA+ youth, and migrant and refugee youth populations could benefit from specific mention due to their unique circumstances. Omitted topics that could also receive special mention are youth involvement in arts, culture, and recreation.

4.2. Recommendations

Adjust the language of both the Pact and the broader UN definition of youth to include subgroups

As referenced in section 1.1, the definition of youth can be expanded both within the context of the Pact and as part of the UN's broader definition of youth.

Unify and adapt the current accountability frameworks across the UN System

There exist several accountability mechanisms for youth-led outcomes within the UN system, as listed in section 1.2. While the presence of these reporting mechanisms is encouraging, it reveals a complex and fragmented system. One positive example of integration across these mechanisms is the Youth2030 strategy's commitment to aligning their and national policies to the SDGs (UNYO, 2024). These various accountability framework outcomes should be unified for youth and linked to actions 34 and 35 of the Pact.

Furthermore, the indicators and data used across these mechanisms should also be adapted to reflect the youth-based, disaggregated nature of the definition of youth and its subgroups. The inclusion of specific time frames can also add to the accountability of each of these measures.

Create an independent youth-based accountability commission

While the UN youth strategy strives to increase meaningful participation, a specific Independent Youth-based Accountability commission could be created. It could consist of diverse and independent youth organizations and coalitions to provide an independent evaluation mechanism, such as shadow reports to complement government reporting, and ensure no issues are overlooked. An example is the Shadow Report on EU policy by the European Youth Forum, whose format could be replicated or inspire a global model (Rieux, 2015).

Conclusion

Through initiatives such as the Pact for the Future, the UN has made initial strides towards youth involvement. However, these symbolic commitments must be translated into measurable outcomes through building structures that convert aspirational goals in the Pact into concrete benchmarks with measurable indicators, with youths involved in the tracking process. Actualizing the Pact's visions involves increasing representation of youth in the UN employment and as well as its broader outcomes for youth across global society. Fostering relational and responsive accountability is critical towards promoting multidirectional communication between institutions and youths, where feedback is acknowledged, acted upon, and documented. This contributes to building social trust and reinforces the view of accountability as an evolving relationship and not a static concept.

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