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Trends In Global Governance and Europe's Role

D5.2 Publication of Scenarios for Global Governance: 2nd Workshop report and brochure

WP 5 Innovative, participatory scenario development for strategic governance decisions

TRIGGER

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Index of Figures

CHAPTER 1

Adapting to Crisis:

The Art and Necessity of Long Range Scenarios

1. Introduction: ... and there is no end in sight.

As these scenarios were being finalised, the world was in the throes of the COVID-19 global pandemic - the first of its kind in nearly a century, and this time more impactful given the globalised world systems we have become dependent on. This pandemic has resulted in an extraordinary loss of human lives - a loss that no econometric value can account for - and it has presented us with hardships, both physical and psychological, that we are unprepared to confront as individuals, families, communities, and organisations. It has asked us to look hard at how we value one another, and how that value is expressed in our societal constructs. All this, and there is, to date, no end in sight.

The pandemic has left the global economic engine languishing in uncertainty, with effects including shuttered businesses, stalled production, hobbled commerce, reduced employment, increased unequal wealth distribution, and rearranged logistics and value chains. It has shifted the balances of economic power and prompted new approaches to national and supranational fiscal and monetary policy around the planet whose effects will be felt for years, perhaps decades. It has already cost the global economy trillions of dollars, with full economic recovery estimated by some to take a decade or longer, and it has amplified the precarious conditions for millions, if not billions, of people. All this, and there is no end in sight.

It has asked cities and metropolitan areas to reassess their role in governing and highlighted their capacity to shepherd millions of lives through the difficulties of crisis. Some cities have responded with stark, but effective, guidance, while others have seized the opportunity to redefine urban life and institutional infrastructure, if only temporarily, to foster both more resilient and more ecologically responsible communities. Other urban areas, overwhelmed by the pressures of the pandemic, will face a long and hard reckoning with the social, economic, and political fallout of the virus and governmental responses. All this, and there is no end in sight.

In some contexts, technologies for digital communication have enabled work to continue with relatively little disruption, but they have also made digital divides in our societies all the more apparent. Other technological fields, for example genomics-based virology and vaccine research and data science for contact tracing, have seen regulations relaxed and research funding committed in unprecedented ways. The pandemic has affected research and innovation across the board, but in very unequal ways and with little long-term stability guaranteed. All this, and there is no end in sight.

Finally, the COVID-19 pandemic has brought new light to the plight of our planet's ecological systems, and the role we, as a species, will play in addressing this aspect in the future. While the pandemic has temporarily shut down whole nations, forcing humans to remain locked in their homes; flora and fauna of the natural environment have been revitalised in a short amount of time in cities and waterways across the globe. At the same time, we have witnessed the dramatic

sacrifices that have accompanied such change, and we know that without more intensive behavioural change, the larger crises of climate change will cause even greater disruption. All this, and there is no end in sight, though we will persist and are compelled to look beyond.
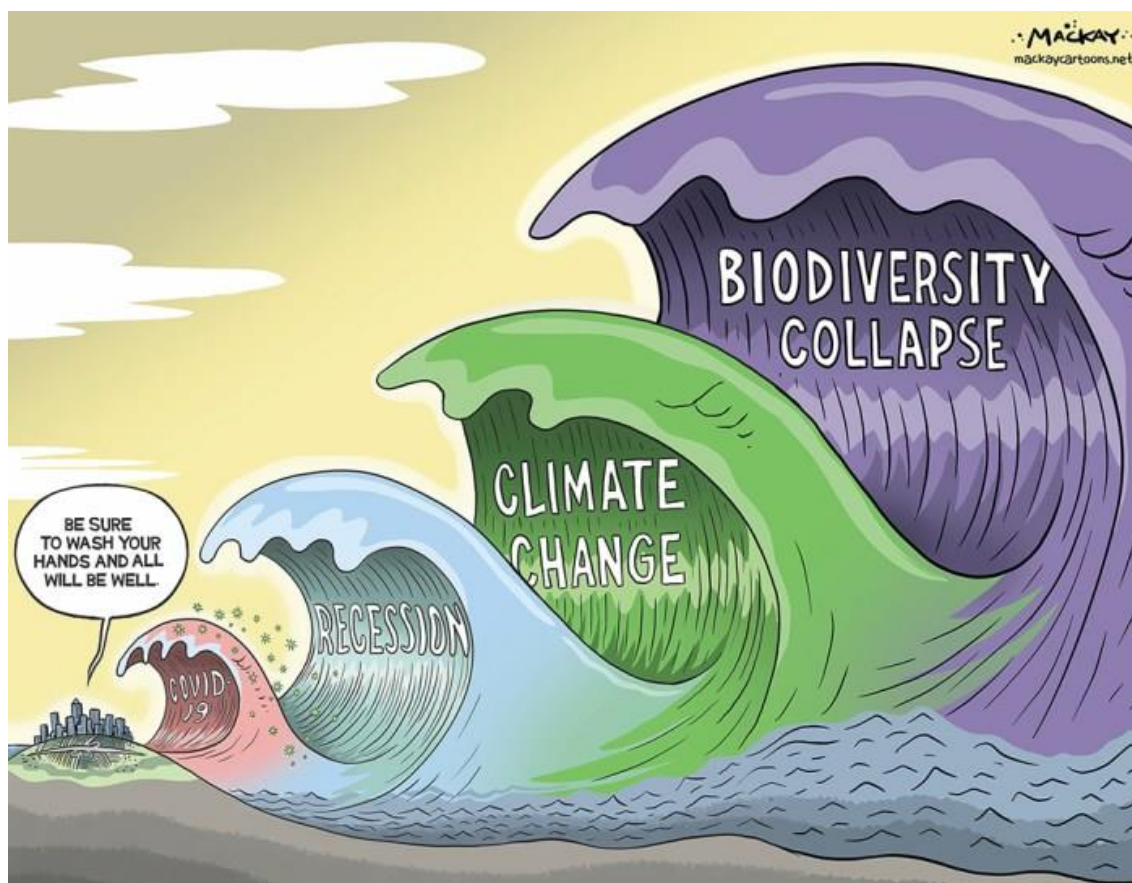
Figure 1 - A 'resilience' perspective on why we explore long range futures

Image Source: Graeme MacKay,(original posted on The Hamilton Spectator, March 11, 2020, updated December 12, 2020). ((Licensing : https://www.artizans.com/image/GMAC3940/collapsing-biodiversity-is-another-looming-wave-of-destruction-color/))

1.1. Scenarios in the time of COVID-19

The initial process of creating the TRIGGER scenarios was conducted in a two-day workshop in early November 2019. At this time, the COVID-19 virus was already affecting China, and in particular the city of Wuhan, and was being closely monitored by the World Health Organization. However, given past successes in containing the global spread of outbreaks (H1N1, SARS, and Ebola), there was little reason to believe that COVID-19 would escape its containment and go on to have so great an impact on the world. Even though global health issues and the potential for

pandemics was included in our initial Trends in Global Governance report (D5.1) - the foundational document for the scenario workshop - it was not, at the time, viewed by experts to be a factor of critical priority in shaping the futures of global governance.

While the COVID-19 crisis has had significant impacts on global governance institutions (e.g. UNs, WHO) and geopolitical relationships, this pandemic should be viewed not as an actor, but as a catalyst or an amplifier of the current socio-political situation. The consequences of the virus itself is not determining how we govern; but rather it reveals more clearly the way we govern and the fundamental rationale behind different political systems and traditions. The variety of responses to the crisis, have made the governance continuum more visible and explicit, ranging from China's strong-state pandemic response to the evolving Swedish model. Furthermore, it is not the virus, but often all too human-made systems that have encouraged nations to leverage global institutions like the United Nations or the World Health Organization to pursue foreign policy goals. Nor is the virus actively pursuing an agenda that forces communities to alter their view of mutual trust, 'essential work', or collective care. No, COVID-19 is obviously not conscious at all. It is a simple organism; a virus whose streamlined genetic code is reliant on host systems to propagate and continue existing, mutating, and surviving. And yet, this virus has presented our contemporary systems of national, supranational and global governance with a novel challenge and asks those systems to respond accordingly. Nothing about the COVID-19 pandemic was or is inevitable. Everything that has happened, and that will happen, to our human societies during this crisis is contingent on the choices of human actors.

So too will our futures be. The pandemic has exposed both strengths and weaknesses in global governing activities, asked us to re-evaluate our collective preparedness for future crises, and forced us to reconsider our responses to a fundamental question: *where do we go from here?*

1.2. Where do we go from here?

This is the root question that drives the development of scenarios. In the case of exposing and examining the possibility space for a concept as malleable as 'global governance', this question quickly brings to light the complexity involved both in understanding the evolution of global governance and in plotting the developmental directions it may yet take. In order to approach this complexity in a manageable way, our foresight process took several fundamental decisions to guide the scenario development process.

At the onset of the TRIGGER project, we set a time horizon of 30 years, meaning that each scenario would tell the story of global governance in the world of 2050. Given the dramatic change that the world has seen over the past 30 years, this time horizon gives changes in ideas, technologies, policies, and societies the breathing space to emerge in surprising ways. To better understand the change that 30 years can bring, take a moment to recall a bit about the year 1990:

- Recall the Internet of 1990. A network of mostly public research institutions with only the simplest forms of web-search, online communities and e-commerce. Almost no advertisement, file-sharing of mainly scientific data, code, and the occasional photograph. Google, Facebook, and other contemporary Internet behemoths are still more than a decade away from inception.
- Recall the fall of the Berlin Wall. The dissolution of the Soviet Union. The end of the Cold War. The unbridled globalisation that followed.
- Recall that the year 1990 was composed of places and events like: Beijing (emerging from Tiananmen Square), South Africa (release of Mandela, unwinding of Apartheid), Dubai ('the sleepy desert backwater').

There are, of course, many ways to envisage the differences, and similarities, between the world of 1990 and the world of today, and this remains the central truth of any scenario development process. A properly executed scenario is not a plan of action, nor a closed system. Instead, it is a sketch of a possible world - a world that may come to pass but is neither predestined nor guaranteed. This world should be logically coherent and structurally cohesive, but never closed to query or considered as complete. A scenario world is responsive to what might be termed 'user needs' - able to just as easily apply to a local community or cultural centre, as to an international governing structure. A scenario is able to host the narratives that drive organisations in the present and challenge those narratives to adapt going forward. Scenarios can harbour both aspirations and anxieties presented by the 'user', and offer a framework that enables reflection on how these motivations might play out.

Most importantly, a scenario should not easily be cast into any overly simplified binary like utopian or dystopian, but rather will contain some elements that can elicit strong appeal and others that help articulate equally strong refusal. The systems and governance models that operate within each scenario will incentivise novel behaviours and create both opportunities for some actor groups and challenges for others. However, each scenario should appear to be equally likely from our perspective in the present. While individual factor trends may appear locked into their current trajectories, the interaction between factors, and the emergence of novel events, as articulated in scenarios, can create the space needed for the futures to still surprise. To provide this semblance of coherence between the trend projections from today, and the clouds of possibility that surround their interactions, scenario processes typically make some very basic assumptions based on fundamental uncertainties that are central to the scope of the project.

The TRIGGER foresight process holds two fields of uncertainty to be central to the development of each scenario. One spectrum of uncertainty contains the future possible developments of global governance systems, initially divided into three general spaces: a more **fragmented** global governance terrain, a **continuation** system that reflects incremental change to the status quo,

and a **transformed** mode of global governance. The second field of uncertainty at the heart of TRIGGER is the role that the EU will play in global governance going forward; will it have a **strong influence**, or a **weak influence** with respect to global governance institutions, decisions, and actions? Against this backdrop, during the initial foresight workshop, experts were asked to identify core factor trajectories that could feasibly lead to the development of six total scenarios.

Perhaps the first major change to this scenario development approach due to COVID-19 was the eventual elimination of two of the continuation scenarios. As the earliest stages of this ongoing pandemic unfolded, the scenario development team made the executive decision to merge appropriate elements from each of the continuation scenarios into one of the other four scenarios. This decision has yet to be fully justified, though the spate of scenarios emergent from the COVID-19 crisis with titles acknowledging 'post-normal' or 'new normal' futures have given us some confidence that this decision was correct. Regardless, in preparation for the second expert workshop the foresight team internally developed the four remaining scenarios - examining stronger and weaker EU influence in both fragmented and transformed global governance futures.
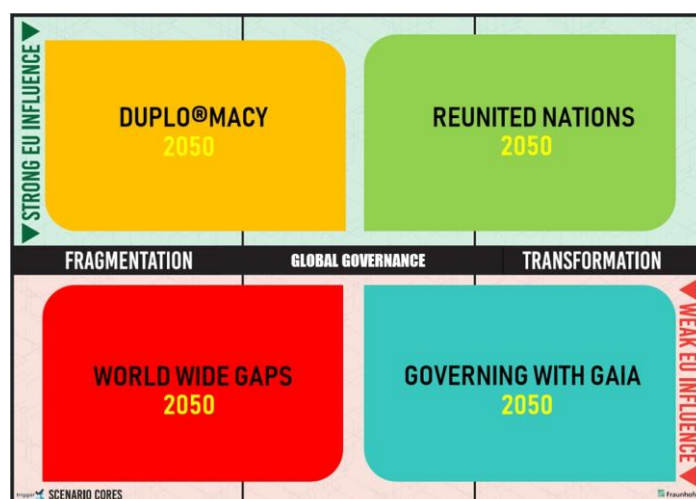
Figure 2 - The four TRIGGER scenarios arranged in the Global Governance (Y) and EU Influence (X) matrix.

The second expert workshop was designed to test the internal logic and cohesion (robustness) of each scenario and extend the details for factor interactions and actor groups that drive them. This process was an effort to maximise the long-term utility the TRIGGER scenarios can provide to policy-makers, and other 'users' going forward. Given the precautionary restrictions on travel and in-person meetings placed on our expert pool, the procedural agenda of the workshop was re-designed so that the workshops could be conducted remotely using a medley of appropriate digital platforms. These workshops were conducted throughout June and July of 2020 across four separate sessions: an introductory seminar, two scenario robustness-testing workshops, and a hybrid back-casting and strategic role-playing exercise in the final meeting.

During the introductory digital seminar, each of the four scenarios were presented to the participants by reading the executive summaries and outlining major developments in each of the six STEEP+ categories: Social, Technological, Ecological, Economic, Political, and Additional (+)[1]. Each scenario paints a picture of how global governance might be understood as having further fragmented or transformed over the course of the next 30 years, taking into account how STEEP+ factors develop and interact to change the conditions in which governance takes place. However, each of these scenarios is intentionally ambiguous in terms of the precise timelines for technological innovations, emergent social dynamics, ecological and economic shifts, and political (and policy) changes that allow each world to exist. This ambiguity enables topic specialists and experts to provide the critical imagination that can animate each world. For each factor that has been taken up and addressed within these scenarios, topic specialists will find the capacity to exercise their knowledge and wisdom through the production of useful imaginaries - ideas, theories, and speculations that can both challenge and support the factor developments that drive each scenario.

The final three workshops were composed of a series of activities that were designed to provoke precisely such responses from the workshop participants. Workshops II and III were aimed at fomenting discussion about the scenario factors to enable each scenario to land within an acceptable range of plausibility. These workshops focused on answering the following questions about each scenario:

- Are there any relevant STEEP+ factors missing from the scenario? If so, which ones, and how might they support or challenge the current scenario narrative?
- How has COVID-19 changed the STEEP+ factors within the scenario? What additional effects might those changes have?
- How can the role of the EU and its member states within each scenario be described? What additional, crosscutting, factors are important for EU actorness to advance?

The inputs provided by the workshop participants helped to refine the scenarios - adding or editing particular aspects of each world so as to better reflect possible futures. The revised scenarios were then tested for their robustness in the final digital workshop through two primary activities. In four separate scenario groups, participants were first asked to identify signals and indicators that we might be moving in the direction of the scenario, and how those signals might develop if the world continued in the direction of such a scenario. In the second phase of the final workshop, participants collectively voted on the top three SDGs that need to be addressed, and then took these SDGs as 'goals for 2030' into each of the scenario spaces for a role-playing activity. Then, within each scenario, participants would take on the role of a policy-maker (EU or national), a

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1 The STEEP+ framework is described in greater detail in Section 1.3.2 of this publication.

CSO/NGO, a private sector business, or a representative from an external actor group (like a foreign government or global company). Throughout the Digital Workshop Series, experts offered important insights into the ways in which the scenarios could be useful to various groups of experts, interested parties within the European institutions, civil society organisations, and other stakeholder and actor groups in the EU. To the best of our ability, we have included a 'user's guide' to methods and best practices for utilising these scenarios (Chapter 6), and we are hopeful to grow a vibrant community of practice around them.

1.3. The Structure of the TRIGGER Scenarios for Global Governance in 2050

Each scenario is presented within a singular structure format to help readers and users of this report to better locate information quickly, and in what we hope to be a logical manner. To the best of our ability, these scenarios were authored to appear relatively uniform in terms of length and level of detail within each of the sections listed below.

1.3.1. Executive Summary and Extended Narrative

The executive summary of each scenario is written to quickly express how global governance has evolved in each of the worlds of 2050, and how the EU's role and influence has shaped and adapted to these conditions. The summaries are written from the perspective of 2050, and mention major shifts in the global governance landscape, significant 'fictional' events, and a broad picture of the European situation.

1.3.2. STEEP+ Factors

The STEEP+ (**S**ocial, **T**echnological, **E**cological, **E**conomic, **P**olitical, Additional (**+**)) framework allows for the categorisation of factors that are critical to shaping and forming the futures of a given topic area. The STEEP+ framework can be thought of as a cognitive apparatus that enables participants to hold complex subjects in relation to one another, and approach scenario generation with a systemic perspective. Each factor harbours a degree of uncertainty and dynamism and denotes a range of alternative developments that must be considered during the scenario generation process. The original STEEP+ factor report (D5.1), including over 100 factors and sub-factors, was the starting document for the Foresight Workshop in Florence (Italy) and seeded the process of generating the scenario cores that have been elaborated in this report.

Each scenarios contains notes on the evolution of factors within each STEEP+ category in the world of 2050, as well as on their relationship to both global governance and EU influence within that world. While the factors have remained within their original STEEP+ categories, the text also illuminates the inter-connectivity that amplifies their capacities to create or respond to change across the STEEP+ silos.

Finally, the TRIGGER project has examined three technological fields that with a bi-directional relationship to governance - Artificial Intelligence/Machine Learning (AI/ML), Distributed Ledger Technologies (Blockchain), and Open Source Software and Standards (OSSS). As application of these technologies and their governance received special attention within TRIGGER's Work Package 4 (D4.5), their possible development paths play an important role within each of the scenario worlds.

1.3.3. EU Actorness

Drawing from the ongoing research in the TRIGGER project, each scenario addresses the evolution of the EU's ability to influence and shape the global governance arena - referred to by the project as 'EU actorness'. In order to categorically analyse the historical evolution of EU actorness (WP 1-3), the TRIGGER project has developed a framework for analysing the complexity of the EU actorness in global governance constellations.

The EU actorness assessment matrix is separated into three internal dimensions - *authority, autonomy,* and *cohesion* - to examine how the policies and actions of the EU and its institutional apparatus are shaped. Conversely, the external dimensions - *recognition, attractiveness,* and *opportunity/necessity to act* - are focused on how external stakeholders formally recognise the EU, perceive its attractiveness and how the external environment shapes the action of the EU. These actions can include collaboration with states or associations of states, support for international governing bodies (UN), and the creation and enforcement of policies (e.g. GDPR policy). In addition, there is one actorness assessment dimension that is seen as cutting across internally and externally pointed critique - *credibility*. Credibility points towards the reliability of the EU to establish and comply with its own policies as gauged by both internal and external actor groups (citizens, foreign nations, organisations, etc.).

Given its centrality to the TRIGGER project, the multi-dimensionality of actorness (see table below) is addressed within each of the scenarios to better articulate how the EU, its institutions, and its member states have adapted to the changing conditions of global governance. The short responses in this section of each scenario are given greater clarity and explanation within the scenario's extended texts and the STEEP+ reports.

Multi-Dimensional Actorness Assessment Framework for the EU	
Internal Dimensions	
Authority	The formal legal basis and competence
Autonomy	Capacity in terms of financial and human resources, knowledge and expertise, ability to set priorities and make decisions, capacity for policy enforcement

Cohesion	Shared values, interests, and principles, similar goals and collective positions of EU Member States and intra-EU bodies
External Dimensions	
Recognition	Formal recognition of the EU as a party to intl. organisations/agreements/treaties, international perception of the EU
Attractiveness	Economic, political, geopolitical (instrumental) and normative attractiveness, from the viewpoint of other governments Advantages of EU cooperation
Opportunity – Necessity to Act	Developments and constellations (groups) internationally, which determine options to act / EU actorness in this policy arena e.g. external threats such as Corona, Brexit (opportunity and necessity in relation to outside trends)
Across Dimensions	
Credibility	Compliance with its own policies and ambition, reputation of the EU through the eyes of other non-EU states (e.g. is the EU credible in this policy arena in the eyes of Vietnam?) and other significant global governance actors (such as regional organisations (e.g. ASEAN, WHO), NGOs (e.g. Greenpeace) and social movement groups (e.g. Fridays for Future)

1.3.4. **Looking to Far Horizons**

Imagine that you are the captain of a ship at sea. You are navigating the winds, currents, and terrain of the present, while plotting a course to some distant place you will arrive at in the future. You may have some knowledge of the destinations you might choose, but you also know the difference between knowledge and lived experience. As captain, you have many layers of responsibilities to which your decisions are sensitive, and now you must decide where next to make port.

The four worlds of 2050 presented in this report may, at times, seem unlikely, fantastic, or ridiculous. This is an intentional scenario creation device, drawing inspiration from Jim Dator's second Law of the Future: *Any useful idea about the future may at first appear ridiculous*[2]. This law is based on the observation that in many instances our contemporary perspective is unable to accommodate ideas and concepts that appear abnormal - a bias also called the tyranny of the present. Furthermore, this law reinforces the need for foresight and futures practitioners to be ready to receive that ridicule both humbly and with the insistence that possible futures may lie quite outside of our individual imaginations. Scenarios are developed to give some credence to

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2 This "Law" is accompanied by an important corollary: not all ridiculous ideas about the future are useful. Dator, Jim. "What futures studies is, and is not." Jim Dator: A Noticer in Time. Springer, Cham, 2019. 3-5.

seemingly ridiculous ideas by wrapping them in realistic systemic transformations, and demonstrating the motivations and technologies that might make them a reality. They may challenge our sense of identity and community, our understanding of the world and our place within it, and the plans and efforts that seem so clear in the present. These are some of the hallmarks of long-term scenarios, precisely because our futures may likely feel like 'a foreign country'[3] - strange and beautiful, sometimes confusing and frightening, often thought-provoking, and hopefully inspirational.

In some contexts, a 30 year time horizon may not seem useful, with some asking: So what? Why should I let possibilities that are decades away shape my decisions in the present? There are a number of responses to this very important line of questioning. In policy circles, the argument could be made that some of those policies, or the impacts that they have, may very well still be influencing the world in complex, unpredictable ways, 30 years in the future. For decision-makers, acknowledging that our convictions concerning the future are shaped by our pasts and our capacity to imagine alternative futures[4], and that those convictions are what form the basis of our present day decisions, presents a compelling reason to engage with scenarios from far off futures. Exercising the imagination enables the capacity to view the present through a lens of opportunity and challenge that - a hallmark of both responsible policy, and stalwart leadership.

The TRIGGER scenarios have been created to help groups and organizations engage with long-term futures and build up an internal capacity for futures literacy that can be useful in navigating uncertain futures[5]. They are like field notes in the captain's hand - painting a picture of what might lie ahead. For some organisations, these scenarios can be utilised to initiate backcasting activities - figuring out those issues that have 'gone right', gone wrong' and 'gone sideways' in creating the condition for such a future scenario. These scenarios might also be starting points for the process of carving out what a *preferred future* looks like and is composed of from an organisational perspective. This preferred future will account for and address the factors shaping possible futures of global governance, and the regions of uncertainty that populate the space between now and then. In the final section of this report, we have included methods and tools that can be used to effectively deploy these scenarios within strategy and decision-making processes. But for now, captain, look out to the horizon and imagine what may lie ahead.

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3 Tenner, Edward. "The Future Is a Foreign Country." The Wilson Quarterly (1976-), vol. 30, no. 1, 2006, pp. 62–66. JSTOR, www.jstor.org/stable/40261356. Accessed 13 Jan. 2021.

4 Beckert, J., & Bronk, R. (Eds.). (2018). Uncertain futures: Imaginaries, narratives, and calculation in the economy. Oxford University Press.

5 Miller, R. (2018). Transforming the future: anticipation in the 21st century (p. 300). Taylor & Francis.

CHAPTER 2

Governing with Gaia:

Planetary Systems and Local Communities

2. Governing with Gaia: Planetary Systems and Local Communities

2.1. Executive Summary

Governing with Gaia **is a scenario within a transformed global governance, wherein the EU has a weakened influence.**
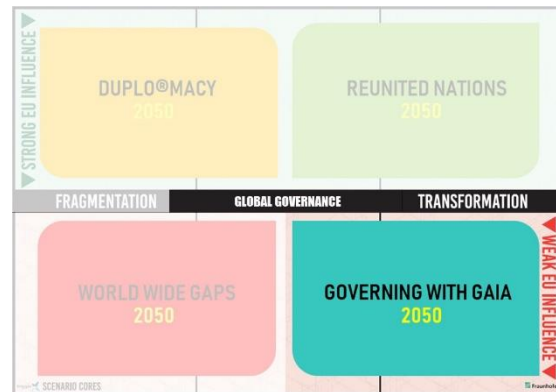

Figure 3 - Governing with Gaia 2050 scenario: Transformed global governance, Weak EU influence

In the year 2050, global governance has transformed into an effective, stable constellation of actor-network powers operating under a planetary systems approach to decision-making and action. The emergent global powers are composed of organisations and institutions from both the public and private sector, and they have established strong principles for multi-stakeholder alliances with common concerns for the health of human and non-human ecosystems of Earth. All actor-network operations and decisions are informed by multi-dimensional monitoring of systems and balanced with economic and cultural sensitivities to regional conditions. Utilising network dynamics, and their capacity to channel energies and resources efficiently, these actor-networks govern civil service provision (e.g. healthcare, education, utilities, communications, transportation, etc.) under a sufficiency-based model of economic and social prosperity. Effective technological regulation and deployment falls under the domain of each actor-network and is semi-orchestrated − allowing for regional independence within the guidelines of effective environmental caretaking. While the EU has seen its functional and political power diminished, its legacy and influence remain within the governance policies set forth in the Gaia Caretakers Accords. Globally, individual nation states have seen their direct governance power greatly diminished. However, in the EU, many national ministries, industrial sectors, and companies remain powerful nodes of the transnational actor-networks.

The COVID-19 crisis, followed by the resulting global economic recession and slow recovery, sent a strong message to the citizens of the world - resiliency is best organised at a local level, with a place-based approach to decision-making, combined with the operational support of actor-networks. Where state powers failed, private sector suppliers and logistics chains proved critical to helping communities survive both health and economic crises. Alternative economies began to

emerge following an extended economic depression, and regional ecological systems became valuable assets. Climate change related shifts in regional ecosystems were accompanied by large scale emergency events - Iberian drought, Mediterranean heat waves, and forest fires across Central Europe. Service partnerships between private sector actors and regional became more entwined, constituting in new networks of resource and service management. Open Source Machine Learning was widely deployed by private actors to increase efficiency - data was publicly available for transparency and monitoring. Land-, sea-, and space-based sensor arrays were deployed to gather data on Earth systems' health, activity, and mutual influence. Human systems began adapting to planetary boundaries and the sensitivity of critical ecological systems.

2.2. Extended Scenario Text

Within this future, global governance has transformed into a synergistic coordination of transnational actor-networks, each organised according to a matrix of knowledge competence, R&D expertise, demographic dynamics, and focused on addressing the pressing impacts of climate change. These actor-networks are hybrid conglomerates composed of private sector entities, state-run organisations, and NGO's, with each network focused on providing an essential civil service - water, food, energy, transport, healthcare, education, and others. In response to environmental concerns and climate change, these networks coordinate their efforts under the Gaia Caretakers Accords - a global compact with the goal of undoing two centuries of human caused environmental damage by restoring the atmosphere, and ocean- as well as land-based ecologies to a pre-industrial state by eliminating anthropogenic pollutants. For many EU citizens and some of the EU's institutions, this framework signals an important shift towards environmental justice, but it is not without costs.

To ensure that human and earth systems are moving towards the goals set forth in the Gaia Caretakers Accords, planetary ecological health is monitored and assessed constantly by overlapping systems of orbital satellites, land- and water-based instrumentation and sensor arrays, and human-centric reporting systems. Data streams from these sources continuously feed into digital agents for analysis and optimisation - agents coded to prioritise the ecological goals set forth in the Gaia Caretakers Accords, while optimising global actor-network operations to provide essential civil services. The monitoring of, and accounting for, planetary systems is the backbone of the actor-network governance apparatus, providing critical knowledge and advice to human decision-making institutions. Many EU-funded efforts have been critical in defining the technological standards for such systems including open source development protocols, transparency requirements, and public access guarantees.

The climate crises, compounded by a series of economic shocks, were essential to the founding of these new actor-network power centres. The economic fallout from COVID-19 virus was just one of many systemic shocks that undermined the legitimacy of nation states around the world. The previous global financial systems, having unevenly distributed wealth and influence, and

more importantly the fallout from failures, were viewed as a primary target of regulatory reform coupled with re-evaluation of holistic economic activities. These regulatory changes further drove the awareness of the great decoupling between financial and real economics that had come to define many national level decisions.

Unable to provide for citizen health and well-being, a majority of state institutions suffered a reputational crisis from which they could not recover - particularly when compared to the nimble and responsive systems emerging from self-organised networks of individuals and small businesses. *Sufficiency* was taken up as the guiding mantra for system assessment - and, contrary to previously prevalent popular myth, led to a spate of innovations across the product and service spectrum. As the concept of sufficiency was tightly interwoven with environmental concerns of the depletion of finite resources, emergent actor-networks challenged transnational businesses to devote large sums into fundamental redesigns of sector systems - prioritising ecological goals above all - or face major divestment. However, sufficiency-oriented network policies also had repercussions on certain activities and consumer expectations. Some examples include: 1) restrictions on modes of travel with fossil fuelled aircraft and shipping that became highly curtailed, 2) severely reduced availability of imported foods, and 3) limited availability of consumer goods with high environmental impacts.

From a systemic perspective, however, the success of the private sector in providing essential civil services, particularly in times of crisis, helped corporate organisations gain public acceptance despite their role in exacerbating wealth inequality and their reputations for lobbying, manipulation, and other questionable activities. This popular support, coupled with high levels of perceived inaction and corruption within national governments and institutions, created the conditions in which sweeping authority was given to transnational networks of private organisations. This authority was derived through a combination of interconnected citizen collectives, their coordinated consumption patterns, and citizen's proven commitment to actively monitor the network. This popular authority was coupled with the mostly symbolic blessing of remaining national powers.

In exchange for this power, these transnational actor-networks are held to rigorous public accountability assessments for all activities they coordinate or take part in: ranging from highly localised initiatives, to the comprehensive results of their global efforts. The open data streams from planetary systems monitoring activities are wielded by both citizens and other actor-networks to ensure compliance to the Gaia Caretaker Accords and the goals set therein. Citizen participatory monitoring, codified as part-and-parcel of civil service reception, ensures that transnational powers are held accountable to the highest standards for services they provide. While this has entailed that citizen privacy and autonomy has been somewhat reduced - an issue that remains contentious, particularly with older generations - the increased citizen empowerment

at the regional level, and the consistency of civil services provided, is seen as more than equitable return for privacy invasions by many.

Actors and organisations across these networks deploy the latest in earth systems monitoring sensors to collect real-time global data regarding the ecological impact of their operations and services. Combining these data troves with state-of-the-art intelligent systems, and machine-learning enabled global models, transnational networks have deployed „Green AI" to both handle real-time decision-support, and provide guidance on future-oriented strategies for expanding network actions and programmes while adhering to planetary boundaries. Regulation and monitoring of the decentralised components of the Green AI system is primarily conducted by the trans-network apparatuses that coordinate joint service provision. For instance, the Food and Nutrition Network (FNN) supports and relies on highly localised systems for data collection and verification, alongside the various agricultural products of the members. These data streams not only serve to internally check FNN operations, but can also be used as secondary monitoring for related networks (Transport and Mobility Network, Health and Wellness Network). Regarding Artificial Intelligence technologies, each actor network is left to govern the development of the systems that relate most directly to their own operations, but open source code has become the de facto standard to increase transparency and accountability. This has allowed for global collaboration in technological development, which has in turn led to more rapid expansion of system capacities and higher orders of security.

The open source and standards approach has proven widely effective in other technological development fields, as transnational actors have been able to target region-specific needs for R&D with expert collaboration from around the world. Many technological development areas can be characterised by such trans-network differentiation regarding regulations and their enforcement. However, any technological development that leads to deviations from the Gaia Caretakers Accords is collectively policed by all networks and their actors. This has proven to be an arena in which new forms of governance have blossomed.

As different networks have attempted to optimise operations and systems with respect to the Gaia Caretakers Accords, inevitably intra-network conflicts have arisen. For example, optimal operations in Transportation and Mobility has often clashed with optimisation efforts by Energy, Nutrition, and Health networks. This situation has been recurrent across and between all major actor-networks and has led to new processes of negotiation and co-development planning. In some instances, entrenched state powers have remained potent barriers to necessary reforms and have used their institutional inertia to steer negotiations in their favour. This phenomenon has been observed numerous times with respect to nation states whose population size and economic strength encouraged the development of national competition-based strategies. As trade-offs between actor networks are being developed, affected citizen groups, service providers, and other actor groups are kept within the loop of the decision-making process.

Given that participation is incentivised for both individuals and collectives, negotiations are widely transparent and often responsive to various actor concerns. While there is no overarching authoritative body concerning these negotiations, the complex nature of actor-network optimisation often leads to powerful network nodes utilising their influence in a hierarchical fashion. At times this type of network influence has altered the lives and livelihoods of citizens and communities in profound ways. Returning to our example, when the Transport and Mobility network decided to reshape the port and rail systems, many coastal and inland communities were displaced to accommodate the required infrastructure. Effective counter strategies are still being developed, including the formation of ad hoc representative councils, the development of novel financial instruments, and specialised community-based justice services that leverage participation and the strength of other actor-networks to counter attempts at network hegemonies.

The tense balance between global actor-network powers and the citizens and communities they serve is playing out around the world in many ways. In some cultural and political contexts, this mode of network governance stands at odds with long-standing governance schemes and/or cultural values and behaviours. In these contexts, citizens are sceptical of the platforms created to monitor their network interactions, and have developed numerous strategies to evade what they view as surveillance. These situations also tend to give rise to individuals and groups who operate in the governance gaps in which actor-networks are under-represented, and through activities that monitoring efforts cannot easily address. Often referred to as 'shadow networks,' these actors are not necessarily opposed to the Gaia Caretakers Accords and its ecological restorations principles. Rather, these groups emerge in response to the new organisation of power inherent in the actor-networks, and they are anchored in the disenfranchisement and alienation that accompanies systemic transformations of any kind.

2.3. STEEP+ Factor Development

Social, Technological, Economic, Environmental, Political and Additional (+) factors have played an important role in shaping this scenario. In this section, you will find information on important developments within each of these categories that have made this scenario possible. The STEEP+ highlights included here do not represent the totality of change that enables this scenario, and many of these factors interact across the STEEP+ categories.

2.3.1. Social

• Community self-sufficiency has been widely adopted as the primary socio-economic ethos, and drives the pursuit of common goods collectively agreed upon.

• Decision-making remains human centred, though some community freedoms are curtailed by the needs of local ecological factors. Human representatives form coordinating bodies to shape actor-network operations.

• Urbanisation has plateaued, or even reversed, in many areas as various incentives to create smaller, specialised communities have encouraged population distribution.

• Owing to hyperconnectivity, social movements regarding the use and abuse of power by the actor-networks can quickly grow global in scale, forcing adjustments to network operations.

• Citizen participation is often in danger of being commodified and exploited given the economy of social participation that underpins the actor-network legitimacy.

• Various types of 'shadow' communities actively manipulate participatory metrics, misrepresenting regional feedback channels by obscuring or amplifying system interactions and local activities.

2.3.2. Technological

• Effective technological regulation and deployment falls under the domain of each actor-network, and is semi-orchestrated - allowing for regional independence within the guidelines of effective environmental caretaking. Technological governance is typically conducted by balancing the demands of specific actor-networks with the principles and goals of the Gaia Caretakers Accords.

• Planetary systems are continuously monitored by numerous arrays of semi-autonomous sensors (satellites, ocean-faring, earth based). These provide open, real-time data on various ecological and human systems, and their interaction.

• Genetic engineering has created new energy sources, carbon capture capacities, and robust food supplies. However, this field has also seen numerous scandals perpetrated by rogue research initiatives, and has threatened entire actor-networks and ecological systems.

• Open Source Software and data standards ensure interoperability and interpretability across actor-networks technologies.

• Artificial Intelligence technologies have been deployed by both state and private actors, though private actors' critical role in service provision gives them more power and capability in utilising incoming data streams.

2.3.2.1 Governance Technologies - AI/ML, Blockchain, Open Source Software and Standards

2.3.2.1.1 AI/ML

'Green' AI is an umbrella term that covers all AI projects used by the actor-networks in this scenario. Each actor-network develops its own version of AI to incorporate monitoring systems and data streams that are most essential to its operations. As per the Gaia Caretakers Accords, AI systems attempt to optimise actor-networks to function towards the goal of restoring the climate and reviving ecosystems. AI systems from each actor-network are used primarily to facilitate decision-making under complex circumstances, and can be used as checks and balances for the systems of other networks. AI does not have complete autonomy to take action, though some sub-systems are able to operate with almost zero human intervention.

AI is widely regarded as free from bias, given the voluminous and high quality of personal data that is now available for Machine Learning algorithms from the global citizen repositories (anonymised and safeguarded through distributed ledger technologies). The ethical guidelines for AI that emerged from the earlier years of large-scale system deployments, have been hardcoded into the fundamental source code from which actor-network specific AI systems are forged. These guidelines contain specific fail-safes and boundary conditions that limit 'worst-case' scenario behaviours from AI, and include specific human oversight mechanisms that are mandatory.

2.3.2.1.2 Distributed Ledger Technologies (Blockchain)

Distributed Ledger Technologies underpin numerous modes of community exchange, and have been designed to reflect the values and goals of the community. Blockchain technologies play an important role as a verification technology for various data streams: citizen participation channels, monitoring data from sensor arrays, and transactional accounting for inter- and intra-network operations. The technological evolution in terms of energy efficiency, streamlined usability, and increased security has turned DLTs into an essential component of most digital 'stacks'. Much of these developments were accelerated by large scale investment by states and private sector entities before the Gaia Caretakers Accords came into place.

Blockchain is central to citizen participation and thus multi-level governance. As these technologies became more ubiquitous, and their deployment and user friendliness made for rapid onboarding, 'virtual nations' began to emerge offering services and levels of accountability that challenged states widely viewed as corrupt. These success stories became the foundation on

which the actor-networks of 2050 are built. Given the importance of citizen input as a limiting factor against abuses of power, blockchain technologies were deployed as a critical record of participatory actions. The ubiquity of transaction records reinforced the need for actor-network transparency policies to be aligned with sentiments from both citizens and peer networks.

2.3.2.1.3 Open Source Software and Standards (OSS and OS)

Open source software and standards play an important role, particularly in the propagation of AI systems and global environmental monitoring sensor arrays that enable actor-networks to work within the Gaia Caretakers Accords. Initially adopted for governance purposes by federated states to ensure interoperability, OSS and OS principles had a long history of development within academic research institutions that could be built upon. Open source code libraries were particularly essential to breakthrough research in AI and ML, and proved critical in the establishment of ethical instantiations of these technologies as they were deployed to assist in decision-making with regard to global environmental issues.

As the Gaia Caretakers Accords was established, the underlying OSS and OS principles of leading technological systems were adopted as best practices for encouraging global scale collaboration, and interoperability across various hardware and software suites. Actor-networks, being relatively agnostic to national borders and policies, were quick to support the move to OSS and OS, given minimal initial legal dangers of doing so, and the broad availability of the tools and resource needed for project development. Between the early investments by large state actors, and broad adoption by the actor-networks, OSS and OS simply outpaced all proprietary systems, and was dominant by 2035.

2.3.3. Ecological

• Global climate change is impacting the globe in more evident ways, and planetary warming is still increasing though emissions have begun to decline around the world. Atmospheric CO_2 removal activities include various forms of ecological restoration, geo-engineering, and industrial infrastructure adaptation.

• Ecological preservation and restoration are guiding principles across all social, economic, technological, and political operations coordinated by actor-networks.

• An increasing number of ecosystems have been granted globally recognised civil rights that can be used to legally protect them for current and future generations.

• Public support for the Gaia Caretaker Accords is fuelled by ongoing waves of environmental disaster correlated with climate change which have impacted communities around the world either directly (including drought, famine, flooding, heat waves, floundering biodiversity, etc.) or through indirect economic impacts.

• Genetic engineering became a potent technological field to address climate change and its social impacts while adhering to the Gaia Caretakers Accords, but it has the capacity to deeply impact living ecosystems and is therefore highly regulated.

2.3.4. **Economic**

• The economic fallout from rolling, climate-induced crises affects financially vulnerable populations the hardest, exposing the effects of the decoupling of financial and real economies, and creating conditions that necessitate mutual-aid solutions.

• Cuts in state budgets due to economic crises inspire communities to adopt and develop the new economic paradigm of local sufficiency accompanied by the emergence of alternative regional currencies.

• Planetary systems data is used by all actor-networks as the basis for sensitive economic analysis and regulation, and supports numerous decision-assistance applications that are deployed across governing institutions.

• Actor-networks are wholly dependent on basket of metrics including those from the analysis of citizen sentiment, quality of services, ecological health and sustainability, network engagement and activity. This results in a highly modified 'attention' economy - where attention is paid to community, people, and local environment.

• The Gaia Accords codify in policy the relevance of planetary health as the key reference point for all forms of self-interest that must be included in all profit-seeking activities. This is enforced economically via various monitoring activities, and analysis of individual and community data.

2.3.5. **Political**

• National governance structures are viewed as corrupt and unreliable; and many states and institutions have lost public trust, particularly in light of their incapacity to act on the accelerating rate of crisis events linked to climate change and its economic impacts.

• Gaia Caretakers Accords, binding agreements between actor-networks and citizens, are perceived as the primary standard for legitimising activities of any kind.

• Community-level citizen organisations drive the emergence of platform-based mutual aid. These platforms form the basis for the transnational actor-networks - gathering the most effective sector-based actors (including formal central national, and supranational institutions) to provide optimal services (health, utilities, education, etc.) to citizens.

• The Gaia Caretakers Accords are signed into action by actor-networks based on overwhelming citizen support for addressing ecological concerns linked to crises. This represents a monumental shift away from state-based political authority in terms of global governance.

• Regardless of these tends of erosion, effective state institutions often become powerful nodes within actor-networks, and enable nations to exert some influence on operational decisions. In so far as they are able to sway public opinion and coordinate citizen actions, states remain a potent force within network governing mechanisms.

• Citizen participation is integrated as a fundamental right and responsibility in guiding the deployment of actor-network resources and capacities to meet human, and non-human, community needs. Ecological systems are granted fundamental rights and become protected entities.

2.3.6. Additional (+)

• Hybrid Threat Vectors - Organisations that believe themselves to have been disenfranchised by the rise of citizen participation and the actor-network movement, now work to accomplish subversive goals through tactical complexity.

2.4. EU Actorness

What role does the EU play in a world governed by global actor-networks with little respect for territorial and political borders, that is optimised to preserve and restore the planet's multidimensional ecosystems

Internal Dimensions	
Authority The formal legal basis and competence	EU law and policy are coded within the international 'Gaia Caretakers Accords with respect to ecological milestones, ethical use of AI/ML, as well as autonomy and rights of human and non-human terrestrial life.
Autonomy Capacity in terms of financial and human resources, knowledge and expertise, ability to set priorities and make decisions, capacity for policy enforcement	While the EU and its institutions have been scaled back - replaced largely by elements of the actor-network service providers - they retain some institutional autonomy through their vaunted research and policy response agencies, and are still able to provide important fiscal support for R&I programmes.
Cohesion Shared values, interests, and principles, similar goals and collective positions of EU Member States and intra-EU bodies	The EU is still considered an important symbol of Western values. Despite its waning actual influence, this emblematic role plays a crucial role in shaping the social and political attitudes of the continent's citizenry.
External Dimensions	
Recognition Formal recognition of the EU as a party to intl. organisations/agreements/treaties , international perception of the EU	The EU is viewed as progressively advancing universal human and non-human rights through technological, ecological, and economic policy in collaboration with actor-network powers.

Attractiveness Economic, political, geopolitical (instrumental) and normative attractiveness, Advantages of EU cooperation	EU policies regarding data protection and ethical uses of data technologies had already been adapted to ecological and societal concerns. This sensitivity resonated with other nations and actors, and the translation of these policies into OSSS code and hardware standards for safe interoperability between various monitoring networks led to their global adoption.
Opportunity – Necessity to Act Developments and constellations (groups) internationally, which determine options to act / EU actorness in this policy arena e.g. external threats such as Corona, Brexit (opportunity and necessity in relation to outside trends)	In the world of 2050, the EU, and similar supranational or federal powers do not have the same capacities to act, given the rise of the actor-networks and the terrestrial monitoring systems.
Across Dimensions	
Credibility Compliance with its own policies and ambition, reputation of the EU through the eyes of other non-EU states (e.g. is the EU credible in this policy arena in the eyes of Vietnam?) and other significant global governance actors (such as regional organisations (e.g. ASEAN, WHO), NGOs (e.g. Greenpeace) and social movement groups (e.g. FfF)	Due to missing consensus on crisis reaction and recovery programmes, the EU and its member states faced a crisis of credibility, which helped give rise to the power of the actor-networks. This trend was globally pervasive and fuelled the movement towards social cohesion and community sufficiency. As this credibility has been repaired, and the EU has emerged as a collective acting as important counter-balances to other citizen bases with respect to steering the actor-networks that coordinate global operations to provide citizen services in alignment to climate goals.

Figure 4 - EU Actorness examination under the conditions of the Governing with Gaia scenario

2.4.1. **EU/Supranational**

The EU remains an important, symbolic institution - proving that cohesion and collaboration are possible - even in times of great upheaval. It has remained a beacon of hope and the promise of unity for many - given its rise from the violence of the early 20th century. However, its role as a central supranational governing unit has been greatly reduced, as more power has been ceded to the transnational actor-networks coordinated under the Gaia Caretakers Accords. Though actors within the EU are recognised as powerful entities in network governance systems, these actors are not beholden to regulation or standards from the EU or its member states. Rather, EU policy recommendations are incorporated into the regulatory basket of each actor-network, and are balanced with competing, global regulatory initiatives according to a complex regimentation algorithm that makes suggestions regarding optimal operations of the network itself, and the operations of affected networks. The EU has experienced a decreasing influence on the direction of trade and finance policies as actor-network fiscal schemes are derived from nodal power and network flow optimisation with respect to the goals of the Gaia Caretakers Accords.

2.4.2. **EU Member States**

Individual member states of the EU, many of which were seen as overly corrupt, and unable to provide central services to their citizens, draw their power from a nostalgic identity formation in older generations. Given the transfer of most civil services (social welfare, healthcare, infrastructure maintenance, etc.) to highly efficient and effective transnational actor-networks, and their locally-based representatives, the states have found themselves unable to convincingly claim authority or autonomy. Elements of the state, typically those that were viewed as non-corrupt or excellent service providers, now serve as critical junctions between receding state power and the actor-networks. Some state functions now serve an important monitoring and validation role for the actor-networks, utilising redundant infrastructure and independent analysis tools. Thus, states have proven an important check and balance instrument for the private sector members of the actor-networks. National level influence over technological governance is largely due to the R&I funding programmes that states still run. Even as individual state contributions are smaller in proportion to what they once were, collectively they still compose a majority of R&I funds used by actor-networks. This allows states to subtly shape the direction of technology specific developments, but little else. National entities are influential with regard to the new economics of sufficiency, primarily due to national identities among citizens that can be harnessed to sway participatory processes for resource allocation and distribution.

2.4.3. **EU Agencies**

EU agencies have been widely reduced in both their number and scope, but their legacy remains an important aspect of the new power configurations under the Gaia Caretakers Accords. Given the thematically focused nature of agencies, and the expertise that was previously organised under the agency model, EU agencies were ripe to be integrated into the transnational actor-networks that emerged under the Gaia Caretakers Accords. Therefore, EU agencies are only influential on the geo-political level in so far as they have been incorporated into individual actor-networks. EU agencies were well-positioned to take lead monitoring roles in assessing progress towards the Gaia Caretakers Accords. Their influence over the procedural foundations of monitoring and assessment activities is notable, even as their global influence has been reduced.

2.4.4. **Private Sector**

The role of the private sector has strongly expanded under the Gaia Caretakers Accords. Initially this transition occurred, because private sector models were perceived as the most effective and efficient mode of governance for organising and streamlining global operations. As the Gaia Caretakers Accords redefined the incentive structure underlying most human activities, the private sector model was adapted to new conditions. Private sector actors are very powerful conduits of effecting change, and can outmanoeuvre many of the traditional state institutions. This power, however, is balanced by a series of other institutions (some state-based, other citizen-

based, and others technologically-based). Private actors within the transnational networks are beholden to both the Gaia Caretakers Accords, and to the policies and regulations that are passed as network affiliate protocols. The transnational networks are responsible for maintaining cohesion among the various private sector actors they are composed of, and authority within each network is carefully distributed. Diplomatic relationships between networks are often composed of a mix of elected and randomly selected representation. Such diplomacy is necessary when redundancy of services becomes an issue (rare), or when plans of two or more actor-networks contradict each other (frequent). Such instances require networks to establish new bargaining configurations, often facilitated by AI systems that are sensitive to citizen sentiment.

2.4.5. Regional and Local Authorities

Local authorities have maintained a relative strength in the course of global governance transformation, primarily due to the importance of citizen participation, and the critical role that local authorities play in most citizen's daily lives. Initially, local authorities found themselves constrained to adapt to contending demands of nascent actor-network members in their communities, as incentives for participation encouraged a competitive approach to gathering influence and encouraged behaviour known as "surge participation". However, as the participatory incentive system played out, and such behaviour was born out as fruitless, local authorities were able to play a pivotal facilitator role between citizens/actor groups living within the same communities. Such facilitation efforts provided critical information waypoints to the larger actor-networks able to mobilise resources for solution discovery, and disseminate locally co-created solutions across networks as examples to inspire other communities. Thus, local authorities and governing bodies have found an important role in global governance systems - as actor-networks' first responders to local issues with global implications. Sub-national authorities play a small role in global finance and trade, in part through their role in testing and assessing true value within localised, community-based currencies. Additionally, in so far as they are able to mobilise local citizens to act coherently with regard to providing services and moving towards the Gaia Caretakers Accords, local authorities and leadership is able to optimise actor-network operations for their communities. By creating pools of citizen participation incentive tokens, sub-national regions have been able to create unique, contextually sensitive solutions to problems.

CHAPTER 3

BUILDING WITH DUPLO®MACY:

Governance in an age of Super Blocs

3. BUILDING WITH DUPLO®MACY: Governance in an age of Super Blocs

3.1. Executive Summary

DUPLO®MACY **is a scenario within a fragmented global governance, wherein the EU has a strong influence.**
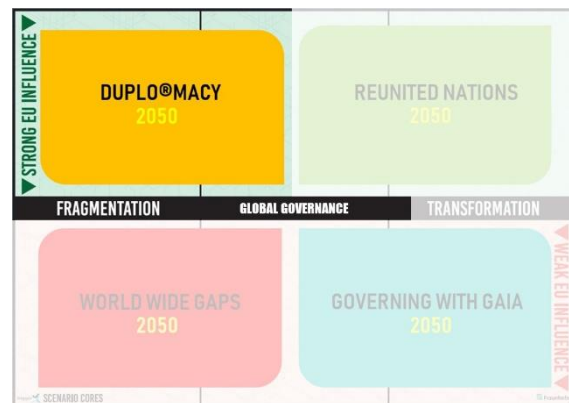

Figure 5 - DUPLO®MACY 2050 scenario: Fragmented global governance, Strong EU influence

By the year 2050, the geopolitical landscape is divided into four power blocs[6] organised primarily around access to various resources – energy, human skills, water, and arable land. Multilateral cooperation between blocs is sparse, temporary, and insufficient to address global scale problem areas (e.g. climate change, financial/economic crises, pandemics etc.). Inter-bloc travel and trade are highly regulated and policed, diminishing nascent global perspectives, and making demonisation of "others" easier. Despite the collapse of traditional global governance institutions, the European Union (EU) is an internally unified, coherent political actor, earning legitimacy from its citizenry by focusing on increasing quality and accessibility of services for all its constituents. Through a series of strategic treaties and mutual benefit programmes, the EU has forged strong ties with neighbouring regions in North and West Africa, the Middle East, and Ex-Soviet states - shoring up access to resources, relative security, and establishing itself as one of the primary powers in a multipolar global governance community. The EU has developed an independent military with close cooperative ties to North and West Africa to protect the bloc's border zones under the North & East Atlantic Treaty Organization (NEATO). The NEATO bloc's global power is based upon a values-based approach towards political, technological, and social questions - negotiating policy that allows for situational interpretation that balances the need for common law with varying cultural views on ethical behaviour. This is contrasted with other blocs that have taken a more rigid hierarchical and technocratic approach to such issues. This orientation of the

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6 The four fictional power blocs are named North East Atlantic Treaty Organizaiton (NEATO), Las Americas, the Indo-Pacific Collective (anglicised), and the Arctic Arabian Energy Corridor (anglicised). In figure one, a map of the four power blocs is presented.

EU to high normative standards regarding the socioeconomic and technological innovation, and internal ecological sphere makes it attractive for boundary regions between blocs to adopt such regulations.
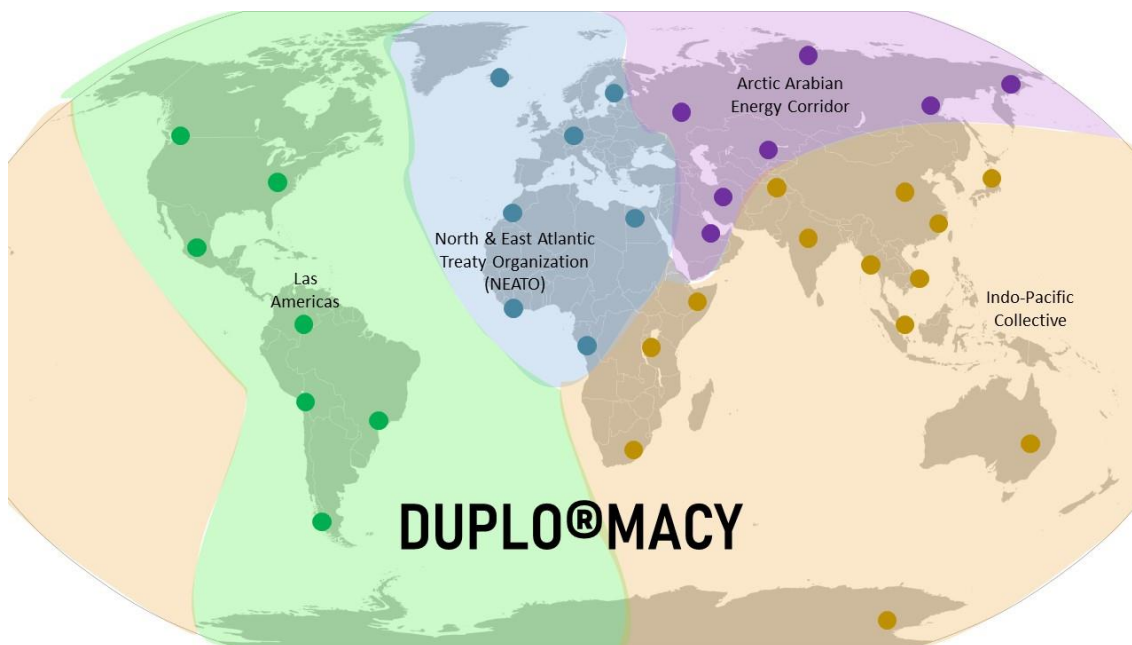

Figure 6 - Map of the Four Power blocs from the year 2050 (DUPLO®MACY).

3.2. **Extended Scenario Text**

In the Duplo®macy world of 2050, global governance is divided into large geo-political blocs (see Figure 1) - each operating independently and competitively to control their region and provide for their citizenry with central services. These blocs emerged over decades, as multilateral policies and agreements that defined the early 21st century slowly erode. The blocs are primarily organised by resource availability as a function of geographic proximity - resulting from strained global supply chains, and dramatic economic and geo-political fallout from the COVID-19 pandemic and subsequent crises. The focus on more regional solidarity was driven in part by social and political disruptions due to popular sentiment against wealth disparities, and difficulty in securing necessary resources. These trends were further accelerated by extreme climate conditions that impacted global agricultural markets and provoked social and political dissent in communities around the world. Power inequalities persisted in traditional global governance institutions (e.g. the UN, World Bank, WTO), leading many nations to seek out regional partnerships (e.g. ASEAN, MERCOSUR, ECOWAS, etc.) that would be more sensitive to localised needs and open to cooperative approaches to resource management. As the globalised world receded, these regional programmes became more consolidated and entrenched. Each bloc has prioritised self-sufficiency in terms of the region's resource limitations and population demands, and has propagated isolationist narratives to reinforce restrictions on inter-bloc cooperation, trade, and

travel. Each bloc continues to see heightened cultural tensions as a major source of potential destabilisation, and each has taken unique steps to address these tensions.

Through a series of strategic treaties and mutual benefit programmes, the EU has forged strong ties with neighbouring regions in North and West Africa, and has established itself as one of the primary powers in a multipolar global governance community. Under the North East Atlantic Treaty Organization (NEATO), European and nations from West Africa and Mediterranean coastal nations from Africa and the Middle East, have united their collective resources, technological ingenuity, and defense capabilities to solidify the region's security and independence. Driven by resource and demographic pressures, the EU initiated the NEATO negotiations, building on a long history of humanitarian aid and mutually beneficial trade agreements. Global crises, like the COVID-19 pandemic and the subsequent economic fallout, coupled with regional emergencies and climate-induced environmental shifts, led many Europeans to focus on the values for human life, health, and well-being that were shared with their regional neighbours. This reduced psychological and social barriers to greater cooperation with African countries, allowing a shift in regional strategies to more circular migration, and integrated research and education programmes. With increased knowledge and cultural flows, tolerance and collaborative opportunities were allowed to thrive and the foundations for the bloc were made concrete. Finally, a major turning point in the NEATO negotiations was the signing of a massive reparations bill that commits EU powers to account for their collective colonial histories with their new bloc partners.

The NEATO bloc faces some external pressures from the Arctic-Arabian Energy Corridor[7] bloc, and the Indo-Pacific Collective Bloc[8], while the secluded and highly militarised Las Americas[9] bloc maintains lukewarm relations with the NEATO and its members. Violent transnationalism - in the form of networked terrorist groups - has largely been pushed to the peripheral areas between power centers, as each of these blocs has found it mutually beneficial to focus funding and resources on the development of internal infrastructure, trade, and economic strength. There is very little multilateralism in trade, policy, regulation, and standards between the four major power blocs, however, the boundary zones between blocs remain fuzzy and porous. Competition

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7 The Arctic-Arabian Energy Corridor emerged as parts of the world transitioned away from fossil fuels, while other became even more dependent on it. This bloc controls the largest functional fossil fuel infrastructure, and thus has a heavy hand in the setting of prices. They also control travel across much of the Arctic Ocean, and efficient waterways between the Mediterranean (NEATO), and the Indian Ocean (Indo-Pacific Collective). Governance in this bloc is very hierarchical, with strong leadership making all major bloc decisions.

8 The Indo-Pacific Collective is the largest of the blocs in both population and territory, and it emerged as part of a peaceful resolution between China and India after years of accelerating border violence and competition. As other regions began to solidify, this region lost many external trade partners and turned their creative and industrial sectors inwards. This bloc presents a united front to the others, though internally it remains very unstable. The bloc has deployed a number of technological fixes to social and economic challenges (surveillance, controlled seasonal rationing, autonomous policing machines, etc.).

9 Las Americas is the outcome of both the rise of a more cohesive and youthful South America, and the downsized influence of the United States of America in global affairs. Together, North and South America have achieved economies of abundance, with ample resources and material goods. However, military strictness in policy, law, and enforcement underlies much of the mildly conservative civil society. This bloc seeks little from other blocs, and maintains very tight peripheral zones, though it occasionally partners with the NEATO coalition given their shared cultural history , and prior good standing.

between each of the power blocks is very high - with each vying to expand their sphere of influence, and viewing their bloc's internal policies as ultimately superior. This has led to a high frequency in small-scale conflicts along each of the bloc's peripheries - many of which align with critical trade routes, and resource deposits (with potable water remaining critical for all blocs). As a result of this need for increased defensive forces along the bloc's periphery, the EU has transformed itself into a military powerhouse, with strong binding treaties with the militaries of North and West African states.

Many heritage international institutions, like the United Nations, have been dissolved, and those that continue to exist, remain largely ineffective at passing or enforcing any semblance of global policy. Issues that once unified nations - like sustainable development, climate change, and human rights - have been subsumed by each bloc's preferred policy approach to such matters. Perhaps more importantly, the UN accords regarding nuclear proliferation, bio-chemical weapons and other munitions, and the once potent defense council have been all but abandoned. While many of the power blocs have forged independent agreements with each other regarding such issues, they do not provide the legitimacy that the UN institutions and resolutions once represented. This has led to the slow growth in the number of conflicts that have utilised various types of munitions and weapons that were once globally condemned. Such instances raise the stakes for inter-bloc conflict, which has helped maintain the blocs' rough outlines, but the peripheral zones between blocs are often grey with allegiances, and pocked by the scars of conflict.

The EU's primary military threats come from the Arctic Arabian Energy Corridor bloc along the eastern border, with conflict often focusing on the areas surrounding the Black Sea, Red Sea, and other critical trade routes. The Indo-Pacific Collective's influence and position on the African continent continue to encroach upon the EU's African partners, and violent disruptions along this periphery are a constant threat. The NEATO signees and Las Americas have a stable relationship, and often form alliances on an issue-by-issue basis (patrolling the Atlantic from excessive fishing and encroaching military presence from the other blocs). However, the relationship remains tense given the EU's extractive and colonial history that has been used by nationalist voices in South and Central portions of Las Americas. Hybrid warfare dominates conflict, with all major blocs engaged in persistent campaigns of aggression and obfuscation, particularly targeting metropolitan concentrations, and the softer border zones. The aims of these primarily digital campaigns is to disrupt daily routines and services, and retard or extract scientific and innovation research.

Trade and global markets have been radically reshaped within this world. Transnational private entities have been essentially dismantled across the power blocs - and though some of these companies still exist in name (VW, Microsoft, Shell, etc.) - the bloc specific instances of these companies are completely independent. With each bloc developing its own standards and

regulations for internal trade, technological development, and economic monitoring, global trade markets and indexes have largely dissolved. Given that each bloc hosts a unique innovation ecology, and is responsible for regulation of emerging technologies, the socio-technological differences between the blocs have become more pronounced. Skills scarcities differ from bloc to bloc, creating clandestine markets for moving specialists between blocs. Scientific emigres and mercenaries keep innovation vibrant, and remain a challenge for each bloc to police.

Within the NEATO bloc, individual states have pushed hard to provide citizens of all bloc nations with access to fundamental social welfare. The latter is modelled on the perceived success of the EU's core members, and benefits from a profound institutional reform in the North West African countries, the strengthening of regional cooperation in the area, and the turning of old colonial heritages into new and more balanced interregional NEATO cooperation schemes and projects. Bloc-level institutions coordinate state services for the bloc's nearly 1.5 billion inhabitants including expansive health coverage, free primary and secondary education, and subsidised trans-regional infrastructure projects for telecom, transport, agriculture, and industrial development. The governance of these institutions is viewed as a hybrid between the EU and UN governing systems, with various representative bodies for legislative and decision-making functions. This system is not reflected in the governance models within the other blocs, and is generally regarded as one of the bloc's primary stabilising forces.

3.3. **STEEP+ Factor Development**

Social, Technological, Economic, Environmental, Political and Additional (+) factors have played an important role in shaping this scenario. This section includes information on important developments within each of these categories that have made this scenario possible. The STEEP+ highlights included here do not represent the totality of change that enable this scenario, and many of these factors interact across the STEEP+ categories.

3.3.1. **Social**

- Member states of the EU have set up **direct investment programmes** for overcoming the COVID-19 crisis, and introduced **long-term structural reforms of the EU in order to equalise social services** for all citizens of EU. The emerging new welfare system of the EU, which results in a higher level of cohesiveness and solidarity within and among the member states, had great appeal to the bordering nations.

- Structural reforms in the EU focus on **increasing citizen approval**, making the **system more resilient to externalities**, and enabling the EU to reaffirm its position as a central authority in the emergent bloc system.

- **Demographic trends reinforce** geopolitical realities – encouraging **stronger ties with North and West African states**. As the population of the most African states are increasing, while those of European nations age and shrink, it was necessary and beneficial for the EU to set up policies that normalised migration movements between African and European states.

- **Increased immigration from North and East Africa has amplified racial and cultural tensions in the EU**, but multiple layers of interdependence (concerning questions of security, access to resources, technological transfer etc.) facilitate generally adaptive communities.

- **Inter-cultural collaboration and tolerance** are essential to the NEATO bloc existence**, and restitution policies** from EU to NEATO partners are paid through technological and infrastructural development projects (Internet Backbone, Sustainable Energy Grid, etc.)

3.3.2. **Technological**

- Within the NEATO bloc **AI and ML are widely deployed** for service system governance (particularly transportation, health and medical services, utilities management) and help to regulate access to these services for all citizens of the NEATO bloc.

- The NEATO bloc has established **AI/ML governance policies that address accuracy of outcome, data-based biases, explainability of outcome, actor accountability, transparency, and human oversight**. Although personal data and privacy are not

> prioritised within the bloc, they are tightly secured from external forces via advanced encryption.

- Compared to the development of AI within the other 3 blocks, (e.g. authoritarian leaning Indo-Pacific Collective, Las Americas 'Panopticon' approach), the European way benefits from active and voluntary participation of the citizenry.

- In terms of internal security, **cyberattacks become a major problem**. External actors utilise cyber-attacks to cause social unrest, conduct various forms of espionage, and undermine bloc-based political stability

- **Distributed Ledger Technologies** become relevant instruments of better **internally integrating the NEATO economy** and isolate and secure it from external disruptions.

- **Networked, distributed energy projects** across the NEATO bloc create new modes of community autonomy and enable social innovations to proliferate.

3.3.2.1 Artificial Intelligence and Machine Learning

In a digitalised world, technologies like ML/AI, Open Software and Standards and Blockchain become key for all four blocs to defend their own territory from external influence and widen their influence on peripheral zones. Regarding the governance of technology, NEATO follows the strategy to balance the regulation of technologies on the basis of shared values in a way that fosters innovation and delivers new technological and social standards across the bloc. In the Duplo®macy scenario, especially the sectors of transportation, health and medical services, administration, and the military are the main fields in which a highly developed ML/AI is needed to keep pace with developments in other blocs and to defend Europe's political actorness. The overarching governance priorities that are central to the development and use of machine learning includes accuracy of outcome (the quality and representativeness of data), dealing with biases (data quality), explainability of outcome, accountability of the actors that use ML, transparency, privacy and human oversight. In all of these quality criteria of AI, the EU manages to set high standards, both in a technical and socially normative way. Building upon and following the EU GDPR also for the development of AI/ML, European technology developers had achieved great success from the year 2025 on, because they could build on the massive trust and acceptability from EU citizens. Compared to the development of AI/ML within the other 3 blocs (e.g. China's perceived authoritarian approach), the European way benefits from the approval and active participation of the citizens, enabling new forms of socially innovative AI technologies. This overall approach to AI was crucial for the EU to persuade NEATO partners to adopt these technologies, and has allowed the bloc to become a global player within the field of AI by 2050 and as a 'niche leader' in certain domains. By maintaining and monitoring internal standards, NEATO based companies and agencies manage to gain influence on surrounding peripheral states, allowing

NEATO and the EU to consolidate their reputation as leaders in aligning technological progress with societal protections.

3.3.2.2 Distributed Ledger Technologies (Blockchain)

In the context of an overall fragmented global governance in which various power blocs are hostile to one another, the Blockchain technology contains chances as well as risks for a unified and strong EU and the NEATO members. As in this scenario the EU, as a political actor, is a unified and strong actor by 2050 with a lot more legislative rights than it had in the year 2020, Blockchain technology has the potential to support/serve several goals that are crucial for such a strong political actorness of the EU: (1) the overall competitiveness of the economy and the innovation system of Europe against other markets, (2) enabling new and more efficient forms of societal and political participation (voting, bureaucracy processes etc.) which is key for a EU with much more competencies.

Given the fact that Blockchain technology increases the transparency and traceability of any sort of transaction, the technology holds the chance - similar to the OSS technology - to increase the interoperability between NEATO member states, companies, agencies, and institution. In this scenario, blockchain becomes a method of better integrating the NEATO economy internally and separating it externally. Since the technology offers the possibility to make data origin and history transparent - understanding, differentiating and optimising supply chains for sustainability becomes streamlined. This also strengthens certain values concerning data sovereignty and privacy.

Especially regarding the task of managing and maintaining social constructs (like voting rights and process, legal agreements, documents, administrative matters etc.) through Blockchain/Distributed Ledger Technology, the challenge remains how to prove the identity of the users. Therefore, it is necessary that the governance of the technology further focusses on developing the right identity management system in order to fully enfold its potential by 2050.

3.3.2.3 Open Source Software and Standards

Open Source Software and Standards (OSS) offers several opportunities for the EU as a political actor and are used across a variety of fields. It yet also contains pitfalls in a world that is, generally speaking, much more isolated. The NEATO coalition benefits from a higher capacity for cooperation between companies, institutions, and agencies through increased technical interoperability enabled by OSS. Interoperability and shared standards influence the competitiveness and diversity of a market, and will improve the innovation of the NEATO single market. Furthermore, EU policy and fiscal support for OSS becomes a vector to spread European values such as openness, accountability, and transparency with NEATO members, and widen its influence by enabling third countries to use values infused OSS options. Safeguarding OSS systems from external blocs is the primary challenge for the NEATO coalition, and remains a strong argument for securing access to the code repositories. Given the increased sophistication

of automated cyber defenses, and the resource intensity that cyberwarfare now requires, OSS technologies provided sufficient security while providing the greatest incentives.

3.3.3. Ecological

- **Climate Mitigation Technologies** are widely deployed, but uncoordinated at the global scale, limiting their ultimate potential and causing also non-intended side effects and incidents. Across NEATO, industrial carbon capture and genetically engineered organisms are widely deployed to reduce GHG concentrations.

- **Biodiversity** has become a **major concern** within all blocs, but there is no unified response to this crisis. Instead, advanced cloning and bloc-based genetic archival projects have been implemented to varying degrees of success. Some **living systems** have fallen over natural tipping points and **appear in various stages of collapse** as they transition towards new equilibrium states.

- Climate change has impacted many regions in terms of **unlivable heat**, **non-arable land**, and **unbreathable air**. Although the NEATO bloc had mainstreamed and prioritised climate goals in it is political agenda, it could not prevent some regions from facing natural disasters. Within the bloc, displaced communities are relocated and employed in **ecological rejuvenation projects**.

- Increased **political tension between the power blocs** due to various modes of fallout from climate induced environmental catastrophes results into higher rates of attempted migration, the spread of organised crime in peripheral zones, and escalation of conflicts.

- Food supply and distribution concerns have led to bloc-specific techno-political responses. The NEATO development and investment in genetically modified foods is widely regarded as successful.

3.3.4. Economic

- **Regionalisation and de-globalisation**, amplified during the global pandemic, resulted in **further dismantling of multilateralism**.

- NEATO has built a **highly regionalised production/value chains** (including medical goods, digital technologies, and consumer goods), and **strengthened regional economies. Technology sovereignty**, especially within the health sector, had become a major political ambition in all power blocs during and after the COVID-19 crisis.

- **Digital Platforms are dissolved, absorbed, or transformed within each bloc**, making bloc control of uses, taxation, and policing much more effective. The introduction of an effective, NEATO wide digital tax enabled a new comprehensive welfare system.

- The **socio-technological differences between the blocs have become more pronounced** as skills and scarcities differ from bloc to bloc, creating clandestine markets for moving specialists between blocs.

- **NEATO frugal innovation strategy supports African countries** to increase its highly qualified workforce and to move up in the value chain.

- Robust renewable energy systems have **decoupled economic activity from energy availability** across the NEATO bloc.

3.3.5. Political

- The highest priority for **public policy actors** are on the one side to **defeat influences from the other blocs**, especially through setting standards of new technology (e.g. for ML/AI), to control the access to the NEATO internal market, and to **ensure greater equality in social services across the bloc.**

- At the beginning of the Coronavirus pandemic, the crisis was used by some EU member states (e.g. Hungary) to "roll back" freedoms and legal standards, but the EU successfully stopped those trends by **combining its recovery investment programmes with strict and enforceable rules and sanctions** for member states acting against specific **civil rights and democratic standards**. This strategy contributed to a **coherent and defensible bloc** with a leading role of the EU.

- **Cooperation within NEATO** is fuelled by EU efforts **to encourage authenticity, balance, and justice** alongside the restitution financing that has been negotiated.

- **The EU and Africa defense forces** have been a **strong galvanising force** for creating NEATO stability during times of crisis and external threats. This development was and remains controversial as an expression of EU values and geopolitical agenda.

- The NEATO bloc plays an important role in **orchestrating geo-political dialogues** between other powers, tactfully deploying forces and **mediating during inter-bloc conflicts**. This mediating role of the EU has become more and more relevant due to the increased global political tensions.

3.3.6. Additional (+)

- **Defense and Security Forces:** The development of the EU joint strategic defense forces accompanied the dissolution of multilateral treaties and the accelerating pace of crises both within and external to the EU.

- The NEATO joint **space agency** (micro satellites) aids in surveillance, monitoring, and facilitates access to information across the bloc.

- **Hybrid warfare is a site of innovative information technologies** and is highly competitive with the increase in cyber-attacks on political institutions, enterprises and on social media platforms.

- **Nuclear arms have once again increased** in number, though control over them is restricted to bloc-based governing bodies. The Doomsday Clock has, by some accounts, moved back to 5 minutes before midnight (when climate assessments are removed).

3.4. EU Actorness

Internal Dimensions	
Authority The formal legal basis and competence	The EU acts as an equal partner within the NEATO bloc and is authorised by its member states to serve as the main actor for economic, security and legal negotiations with the African NEATO partners.
Autonomy Capacity in terms of financial and human resources, knowledge and expertise, ability to set priorities and make decisions, capacity for policy enforcement	The EU within NEATO is a supranational community, and has the power to act as derived from negotiation and compromise between its member states. The federal agencies and institutions are highly regarded within the bloc in terms of research, policy, and enforcement.
Cohesion Shared values, interests, and principles, similar goals and collective positions of EU Member States and intra-EU bodies	Within the NEATO bloc, the EU stands as a driving force for building and maintaining a comprehensive welfare system for all members. Also other institutions and governance mechanism have been taken over by African partners whenever it was advantageous for them. Equity, resilience, and openness are central values for all NEATO member states and institutions.
External Dimensions	
Recognition Formal recognition of the EU as a party to intl. organisations/agreements/treaties, international perception of the EU,	The other blocs recognise the expanded EU as the central organising entity for this bloc, and as equals for any inter-bloc negotiations and treaties. In all negotiations that the EU conducts on behalf of NEATO, it is ensured that the interests of the African partners are adequately represented.
Attractiveness Economic, political, geopolitical (instrumental) and normative attractiveness Advantages of EU cooperation	Though limited research is available, data suggests that the NEATO bloc is widely regarded as optimal by the citizens in the other blocs. However, this data is difficult to verify given the different punitive measure in place for opinions labelled as 'dissenting' in other blocs. Some blocs consider the value-centric NEATO governance model to be outdated within the geo-political atmosphere.
Opportunity – Necessity to Act Developments and constellations (groups) internationally, which determine options to act / EU actorness in this policy arena e.g. external threats such as Corona,	The NEATO bloc maintains lukewarm relations with Las Americas, and has acted in concert with that bloc at times, and with respect to certain issues (securing international trade routes, limited disaster response aid, etc.). The EU focuses most of its development and collaboration building operations within the bloc where it is viewed as a key organising power.

Brexit (opportunity and necessity in relation to outside trends)	
Across Dimensions	
Credibility Compliance with its own policies and ambition, reputation of the EU through the eyes of other non-EU states (e.g. is the EU credible in this policy arena in the eyes of Vietnam?) and other significant global governance actors (such as regional organisations (e.g. ASEAN, WHO), NGOs (e.g. Greenpeace) and social movement groups (e.g. FfF)	Internally, the expanded NEATO EU is generally viewed as credible, as policy tends to be well researched, and justly executed. It is also seen as a key factor in coordinating and funding the bloc's impressive technological and social innovation activities.

Figure 7 - EU Actorness examination under the conditions of the DUPLOMACY scenario

3.4.1. **Supranational/EU**

In 2050, the EU has managed to create a high level of integration among member states, which means a strong connection and cohesion within the EU and high acceptance of the legal competence of the EU. This high internal cohesion is accompanied by a sharp and clear demarcation and strong boundaries to the other three blocs and their member states. Within the regime of global governance, the EU is regarded as one strong and unified voice, but nevertheless its political influence concerning the governance of spheres with international relevance (like environment, technology, markets and economy) is limited and problematic due to the overall encapsulated, fragmented state of global governance and multilateralism.

Another issue within this overall fragmented condition of global governance, and a general atmosphere of protectionism between the four blocs, is the difficulty to establish a consistent and useful dialogue between the power blocs. A minimum of constructive cooperation between the main actors remains in the year 2050, though such cooperation is ad hoc and lacks a durable legal basis.

3.4.2. **National/Member States**

Due to an enduring crisis of international cooperation and multilateralism and the gaining of strength and influence of competing political systems (e.g. China but also other autocratic, non-democratic systems), the European states realised more and more (2020-2030) the urgency of a strong EU with a stronger legislative power at EU level. Nevertheless, this trend of centralisation leaves enough space for the member states in order to implement it in a flexible way and, by doing so, to address regional specifics and demands. The key here was to find a balance between the central and the local level. The related legal instruments the EU uses are EU directives, which provide a basic legal framework for member states but also gives them the opportunity to adjust legal requirements to their demands without jeopardising implementation or being opportunistic.

3.4.3. **EU Agencies**

EU agencies have played a central role in the development of an integrated and actionable legislative agenda to foster greater EU cohesion. Developing a unified EU voice with respect to data regulation, technological standards, finances, migration, and defence was run through critical EU agencies and the networks of expertise that they could rapidly engage. These agencies were also important players in establishing and integrating agency presence across northern and eastern Africa nations, as the bloc began to formalise ties. Thus, while these agencies have experienced a diminishing power within the realm of global governance, their necessity for internal bloc stability has increased dramatically.

3.4.4. **Private Sector**

As protectionism and isolationism have taken a strong hold over each bloc's approach to trade and commerce, the EU's private sector has seen a difficult transition period. The once strong export sector in some nations, and the coinciding influence with respect to international standard setting, has severely contracted. Though the N/E African markets have provided some relief, the EU's private sector's influence on global governance has receded considerably. However, the restructuring of supply chains and industrial production, the development of robust and near zero-cost energy provision, and the creation of large-scale infrastructure projects across the Mediterranean has created new opportunities for the EU private sector to transform itself.

3.4.5. **Sub-national/Regional and Local Authorities**

Regional and local authorities are viewed as the 'last mile' of service provision, and have the potential to exercise outsized leverage with respect to citizen support of the EU and the NEATO bloc. As they are seen as critical, this level of governance is highly scrutinised and monitored for any signs of corruption or mal-intent that could increase instability. Regional and local authorities, given their smaller resource bases, tend to be targeted for certain types of misinformation campaigns and service disruptions by external actor groups.

CHAPTER 4

REUNITED NATIONS:

Re-designing and Re-orienting Global Institutions

4. REUNITED NATIONS: Re-designing and Re-orienting Global Institutions

4.1. Executive Summary

Reunited Nations **is a scenario within a transformed global governance, wherein the EU has a strong influence.**
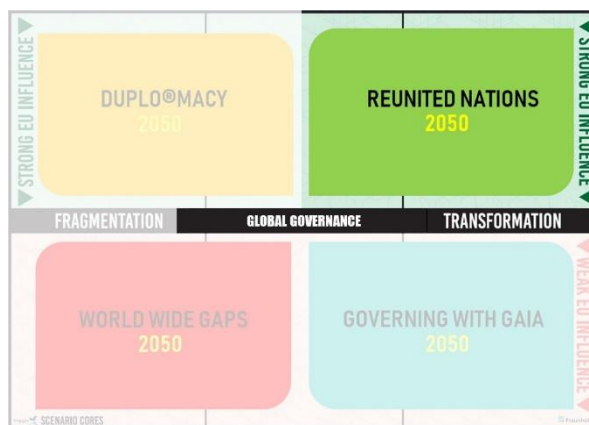

Figure 8 Reunited Nations 2050 scenario : Transformed global governance, Strong EU influence

By 2050, many of Earth's nations have unified to transform the United Nations system into a modern, nimble entity, fostering ecological justice, human and non-human rights, and the peaceful cohabitation of the planet. Given the scope of global challenges facing humanity in the 21st century - climate change, rapidly disappearing biodiversity, global health disparities, and ecological degradation, to name a few - and the need for united, coordinated efforts to confront them, systemic reform of the United Nations was implemented following the rolling disaster of the COVID-19 crisis. No longer satisfied with the 'petrified platitudes' of the original UN charter, the new system is better adapted to supporting a 'workable world.' However, many powerful nation states and corporate entities remain reluctant to concede to the UN's new authorities and powers - particularly if they benefited from the old structure. Looking for business advantages at every turn, the private sector is efficient at finding and exploiting loopholes in this new system, and often finds unofficial state support from one or more actors. Additionally, the powerful authorities vested in the reformed United Nations are not universally sensitised to local needs and challenges, and UN policies aimed at the long term prospects for the planet often demand individuals sacrifice material comforts and unwillingly adopt new behaviours and patterns.

In this scenario, the EU has strengthened itself internally, through a variety of internal service capacity building projects that have captured popular support and thwarted nationalistic messaging. Now with a more unified voice, the EU is able to exert a stronger influence on global governance by bolstering existing institutions and their efficacy. A structured, transnational approach has reinforced the EU's position as a partner of the growing Global South, resulting in a series of mutually beneficial trade and cooperation exchanges. The EU's strengthened global position has allowed it to aggressively pursue a sustainable, eco-conscious, and humanitarian

development agenda - shaping global governance in line with climate change strategies. Unfortunately, these new partnerships and policy pursuits often risk alienating some of the EU's traditional allies, and corporate lobbying has increased substantially across the Union. Technologies like Artificial Intelligence and Genetic Engineering play pivotal roles in this world, but the governance regimes that regulate their deployment form a contested area of global governance and cooperation.

4.2. Extended Scenario Text

This scenario begins with the European Union regaining the trust of the European population, and recapturing pro-EU momentum across the region's population as a result of its response to the COVID-19 health and economic crisis. By investing broadly in raising the quality of and access to broad social services across all member states, EU institutions emerged as a powerful force for increasing equality across the continent. The improved and equalised healthcare systems, educational facilities, and various sustainability focused infrastructure projects, fuelled an upsurge in popular support and positive political sentiment towards the EU and its mission. Though such investments were not unanimously supported, and often amplified internal governance tensions within the EU, citizen support for these measures was so strong that political powers across member states were forced to find compromises.

Through 2035, external global powers observed the success of the EU's economic shift towards a regionally self-sustaining model that encouraged greater inclusion distributed wealth and opportunity, and increasing circularity of resource and waste streams. Emerging from the global Coronavirus pandemic, the EU's policies and creation of incentives for increased cooperation amongst its member states and neighbours was viewed as innovative policy craft, with many of the policies being quickly adopted and adapted by other global regions. Transnational collaboration became increasingly institutionalised and accepted as the de facto standard for negotiations and actions between states. By essentially codifying the shift towards a new economic growth paradigm in policy and practice, the EU model of economic development helped redefine the international approach to achieving the Unite Nations Sustainable Development Goals (SDGs). Novel approaches included the adoption of a new basket of economic metrics including systemic quality of life measures, and ecological health monitoring. Again, such progressive steps can be traced back to the EU's investment in capacity building to better serve it citizenry; measures that later enabled the EU to establish itself as a primary actor in global governing institutions, in particular the United Nations.

As a unified voice and market, the EU was able to garner support for United Nations reform, leveraging its developmental investments and fruitful partnerships in the Global South. The EU, having demonstrated that strong social welfare systems were both attainable and desirable in a world facing accelerating change and heightened frequency of crises, was held up as both a model and a partner for egalitarian development by nations in Africa, South America, and Central

Asia. This increase in the EU's 'soft power' was used to rally support and pursue significant institutional change and redesign at the United Nations, though other 'powers' (e.g. China and US) were a formidable opponent in garnering sufficient votes for reform measures to pass. The EU and its partners were successful in leading the UN to embrace structural changes that strengthened important institutions of international relations by redistributing powers for decision-making and policy enforcement. Of course, such reforms were met with stiff resistance from entrenched powers within the UN, specifically with regard to reform of the Security Council and its sanctioning powers.

The reform of the United Nations was a multi-phase project including the move towards a weighted voting system for decision-making in both the General Assembly, and later within the Security Council and Economic and Social Council (ECOSOC). While the COVID-19 pandemic and subsequent crises became strong evidence of the existential threats facing our societies, there remained strong powers that had grown comfortable in the old regime. Many nations were hesitant to cede any autonomy to United Nations and its agencies, though ultimately partial concessions were made such that institutional design could go forward. The new voting formulae balanced institutional representation for larger portions of the world's population, and enabled General Assembly decisions to become increasingly binding and enforceable. This, in turn, has lifted the International Court of Justice to a more prominent and powerful position, and created greater buy-in from rising nations who now see their global influence matched by their capacity to guide UN decisions. This institutional transformation of the UN has had an immeasurable impact on global governance - the implementation a globally binding treaty to address the drivers and impacts of climate change, accelerating progress towards achieving the SDGs, and effective peacekeeping activities that have vastly reduced the threat of war. Based on the principles of solidarity and collaboration between communities, nations, and international regions, the United Nations has forged a new identity for the Earth's human and non-human living systems. The Redesigned UN is a beacon of hope for our 'pale blue dot'.

However, this transition has faced many challenges and hurdles, with many reform initiatives facing opposition and others enabling new sets of problems to emerge. For instance, part of the UN reforms have been designed to give NGO's, digital communities, and other voices from civil society around the world, a greater influence and representation in global scale decision-making. This move has strengthened democracies wherein NGO's are given more freedom to develop their platforms and expand their membership. Yet, while this reform was initially lauded by the Global South wherein many NGO's were active, that sentiment has soured as NGO's have tended to reinforce worldviews of the state ideologies in which the organisations are headquartered - typically western liberal democracies. Despite these challenges, the United Nations continues to search for governance mechanisms and instruments that can account for a wider array of perspectives on given issues from a more culturally and ideologically diverse set of actors.

In so doing, various technologies have been deployed to monitor and utilise public sentiment - another source of disagreement and resistance for UN members. Digital platforms enable new modes of measuring sustainable, socio-economic progress and are widely enabled by citizen participation in various data collection and processing activities. Through new forms of "data presumption", citizen science approaches are used in the design and production of quality of life or local community indicators, and information concerning social cohesion and welfare can be sourced from the bottom-up. Such 'community data' becomes an important contribution to the delivery of official statistics from centralised governing sources, and increases the amount of socio-political power a citizenry can leverage. Given the EU's strong record of accomplishment for safeguarding personal data through regulation and law, and their successful deployment of ethically grounded Artificial Intelligence (AI) technologies to translate citizen participation data into real-time policy advice, the EU model of data governance has become widely regarded as the gold standard for the UN's digitalisation programmes. It must be noted, however, that this model of data protection has produced resistance from private organisations and state institutions whose operational models relied heavily on access to personalised data. There remain dramatic differences in data protection laws in China, The United States, India, and many other nations keen to exploit individualised data for policy enforcement, security, and profit.

Take, for example, AI-enabled monitoring activities for real-time policy advice. These advances opened up new avenues for Machine Learning (ML) research to help design and implement localised experiments to sustainably grow economies while accounting for ecological sensitivity. Adopted and supported by the UN, the open source code for these ML algorithms enabled communities around the world to leverage these techniques for analysing and experimenting with algorithmic designs that reflected the complexity of their local regions. These open source designs were derived from EU programmes in developing value-based AI, and whose success was strongly contingent on effective, ethical, and trust-worthy data management and access protocols. While these principles and protocols would later be hard-coded into the open source releases, such governance decisions opened up a market for alternatives. The open source designs faced strong competition from private sector options that do not include strong ethical guidelines, and that were able to exploit regional differences in data management policy. The UN supports the development of hybridised, citizen-based, AI-enhanced, socio-economic monitoring systems, and views them as instrumental in establishing new policies with respect to human society's relationship with ecological and biological systems. At the same time, alternative systems are being developed and deployed to provide monitoring for different purposes, some of which complicate UN.

So what's happening in the world as a consequence of this UN reform process? Following the inception of reforms, the UN endorsed machine learning systems that suggested new experimental models for water management, food production, and integrated environmental policies. Together, AI and ML analytical technologies have identified combinations of policy

reform, social innovations, and novel infrastructure designs that are custom tailored to communities and regions around the globe. Such evidenced-based proposals are attached to international funding and finance sources, and become case studies in effecting change for other communities. This has enabled numerous impoverished and underserved communities to improve their conditions for life with consistent access to ecologically sensitive, and low-cost electricity, potable water, food resources, and global communications. However, such measures come at the cost of private data control, reduced community sovereignty, and UN infringement on some types of national autonomy (funding dispersal mechanisms, contracting, and planning). While many communities are delighted to see long standing inequalities addressed in tangible ways, there remain individuals and groups who are not always welcoming of UN interventions, even in some regions receiving international assistance.

This same uneasy balance also applies to efforts to address climate change through a variety of technological, economic, and social innovations. Ongoing research projects in computer-assisted Genetic Engineering (GE) and Climate Mitigation Technologies (CMT) are being conducted through international funding schema, with the benefits of these advances to be dispersed in an open source and standards framework. Genetic engineering is being developed to address robustness in food supply chains, as a means of energy production, for ecological restoration purposes including carbon capture, and for increased health benefits.

While this research was initially left open to the private sector, a series of accidents has led to United Nations treaties that explicitly deal with regulating all modes of genetic modification and design. This power move has faced fierce resistance from various member states in which genetic engineering firms have headquarters, but it is seen as the only way to effectively govern this potent technology. These types of decisions have impacted on other modes of political governance - for instance the large ecosystem 'reserves' like 90% of the Amazon rainforest controlled by the UN as a strategic reserve of biodiversity research and genetic exploitation. Such actions, while understood by the global community as necessary, are often viewed as governmental overreach by those they directly impact. A similar situation has played out in the Arctic Ocean, the waters surrounding Antarctica, and the Southern Pacific - where the UN has established regulation and control of the regions to coordinate and execute large scale climate mitigation deployments of genetically modified algae for carbon capture. Now closed to international shipping and fishing operations, such actions continue to present the world with the trade-offs successful global governance can look like.

Despite the pockets of resistance that have emerged during the reform of the United Nations, there is broad acceptance that global risks, challenges, and widespread problems necessitate effective binding regulations and governance structures if they are to be adequately addressed on a global scale. The redesigned structures and powers of the United Nations has given hope

to the global community, that together we might yet address our most urgent and threatening dangers.

4.3. **STEEP+ Factor Development**

Social, Technological, Economic, Environmental, Political and Additional (+) factors have played an important role in shaping this scenario. This section includes information on important developments within each of these categories that have made this scenario possible. The STEEP+ highlights included here do not represent the totality of change that enable this scenario, and many of these factors interact across the STEEP+ categories.

4.3.1. **Social**

- EU reinforces commitment to citizenry through 'green' investment plans for social stabilisation – improved quality and access to services (healthcare, education, housing, etc.)

- Citizen support and EU solidarity rise in response to societal improvements, emboldens EU member states to form a united, immovable front in global affairs.

- EU embraces a *multi-mutualism* approach to building systemic resilience for service provision and protection of individual rights.

- EU spearheads institutional innovation within the UN to create stronger bodies with sanctioning powers to monitor and police human rights and climate justice

4.3.2. **Technological**

- Technological governance plays an important role for the redesigned UN – capable of passing and policing regulations on the design and deployment of incremental and disruptive developments.

- Open Source AI/ML technologies are regulated by protocols and safeguards to protect against data driven bias and discrimination (Global standards follow EU's regulatory lead).

- Genetic engineering underscores importance of global regulatory approach following a series of severe accidents.

- Climate mitigation technologies (Geo-engineering) are a critical field requiring new climate justice institutions with global jurisdiction and sanctioning powers.

- Blockchain, with the EU as an early investor, has been deployed for incentivising citizen action and verifying various data transactions.

- A universal declaration on digital rights protects individuals from social credit scaring and privacy violations; it introduces rights to be digitally connected and educated.

4.3.2.1 Artificial Intelligence and Machine Learning

Machine Learning and Artificial Intelligence are widely deployed across this scenario, but the technologies are strictly regulated by UN accords addressing design protocols, data analysis techniques, security and privacy standards, and accountability for results. These systems are fed by data from a number of internationally led monitoring programmes, each with their own focus, but cooperative towards broader global agendas. Such programmes include numerous environmental health initiatives, and the sourcing of civic and community cohesion data from citizen participation. Early EU policy for AI/ML development - including values-based and ethical protocols - have become a global standard for system development in the field. AI/ML systems are able to provide real-time, data-driven advice to policy making institutions at all levels of governance, with the UN and other strong centralised powers having the greatest authority to utilise such advice for goals-focused projects.

4.3.2.2 Distributed Ledger Technologies (Blockchain)

Blockchain technologies are widely deployed as a safeguard against the abuse of personal or private data, and as essential mode of technological governance for those domains that require adherence to global regulation. The technology has become ubiquitous to the point of invisibility, standing as an integral backbone to citizen-sourced community data, R&I monitoring, data verification from monitoring programmes, and as an important component in various other domains.

4.3.2.3 Open Source Software and Standards

The Open Source Software and Standards model has been widely adopted for any project or application that aims to be global in its reach. This includes both public and private platforms, AI/ML research, climate mitigation technologies, and various UN-backed infrastructure projects (mobility, healthcare, energy, education, water, data, etc.). OSSS models have increased resource efficiency, focused innovative forces, and increased system interoperability around the globe. OSSS not only fostered a greater trust in many important technological platforms, it also greatly helped level the playing field across digital domains and technological gaps that had emerged between advanced and developing regions.

4.3.3. Ecological

- The United Nations recognises non-human rights and institutes an ecological justice department with widespread capacities and sanctioning powers.

- The UN's 'Blue Dot' Agenda addresses anthropogenic greenhouse gas emissions through taxation, and tightly regulated biological carbon capture programmes and climate mitigation technologies.

- GHG emissions are further addressed via industrial adoption of less carbon intensive processes (e.g. in vitro and synthetic meats in food production) which are widespread due to technological transfer programmes overseen by UN institutions.

- Consumer patterns shift given awareness raising programmes, scaled production of sustainable products, and social pressures related to ecologically sensitive behaviour.

- Climate justice is recognised, countries suffering from climate change are given access to key technologies at zero/(Fair, Reasonable And Non Discriminatory - FRAND) cost.

- Shared responsibility, with an evolution from "shareholders" to "stakeholders" capitalism model.

4.3.4. Economic

- United Nations Green Agenda outlines heavy Carbon and Digital taxation schemes to reduce inequality and address climate issues.

- Platform economies are regulated to ensure social responsibility, and continue to reduce trade frictions.

- The new growth paradigm focused on human wellbeing, mixed basket index metrics, and new environmental accounting standards.

- Multilateral trade is renewed, but is highly regulated with respect to addressing climate change and environmental as well as social justice.

- The end of economies of scale allows more distributed governance and local empowerment.

- Multilateralism is reinforced, with the inclusion of NGOs and International Organisations in global negotiations.

4.3.5. Political

- National governments, humbled by existential global threats, cede some of the autonomy and sovereignty to the reformed United Nations.

- Civil society voices become strengthened within the new UN organisations and weighted voting, increasing the importance of NGO's, digital communities, and other public voices.

- Ecological concerns play an important role in local and regional governance, given national oversight required by the sanctioning power of the UN.

- Swift and powerful responses to human rights violations encourage new monitoring and justice mechanisms across all levels of governance.

- An expanded definition of citizenship, and safeguards ensured by UN/National agencies, encourage wider participation in local decision making

- Policy is informed by passive Artificial Intelligence technologies, with ultimate acting power falling on human representatives.

4.3.6. Additional (+)

4.4. EU Actorness

Internal Dimensions	
Authority The formal legal basis and competence	The EU has an increasingly strong authority position for its member states, given its role in reducing inequalities in social services. The expanded authority has been translated into legislation with respect to the EU's capacity to act on behalf of the collective will of the EU citizenry.
Autonomy Capacity in terms of financial and human resources, knowledge and expertise, ability to set priorities and make decisions, capacity for policy enforcement	The EU is also viewed as having more autonomy to deal with internal issues, viewed by most citizens as a neutral arbiter with a strongly endorsed collective agenda.
Cohesion Shared values, interests, and principles, similar goals and collective positions of EU Member States and intra-EU bodies	As EU 'citizenship' came to be represent a more equitable and just position within an evolving social backdrop, a unifying European identity emerged stronger.
External Dimensions	
Recognition Formal recognition of the EU as a party to intl. organisations/agreements/treaties, international perception of the EU	Many external governing bodies now initiate their political outreach via the EU, as it has become the most efficient mode of international collaboration. The EU's unifying power within the United Nations is an attribute of this recognition.
Attractiveness Economic, political, geopolitical (instrumental) and normative attractiveness, Advantages of EU cooperation	The EU's policies and practices to reduce social inequality and support civic justice are considered exemplary by many actors and states around the world.
Opportunity – Necessity to Act Developments and constellations (groups) internationally, which determine options to act / EU actorness in this policy arena e.g. external threats such as Corona,	The EU has been viewed as both exceedingly responsive to outside factors and events, though somewhat rigid in terms of its commitments to environmental and ecological standards. Most external actors view this stubbornness as an important counterbalance to other strong global powers.

Brexit (opportunity and necessity in relation to outside trends)	
Across Dimensions	
Credibility Compliance with its own policies and ambition, reputation of the EU through the eyes of other non-EU states (e.g. is the EU credible in this policy arena in the eyes of Vietnam?) and other significant global governance actors (such as regional organisations (e.g. ASEAN, WHO), NGOs (e.g. Greenpeace) and social movement groups (e.g. FfF)	The EU is viewed as being a reliable example in good governance practices - both in its setting of progressive policy agendas, and its follow through on commitments made and honoured.

Figure 9 - EU Actorness Examination under the Conditions of the Reunited Nations scenario

4.4.1. Supranational/EU

The EU governance institutions have been concerted in their effort to strengthen the solidarity among the member states under the EU umbrella. This has included significant changes in fiscal policy, as healthcare, education, and social welfare systems have been brought to greater parity across the EU. The institutional apparatus of the EU has taken the lead on increasing investments in economically depressed regions within its member states and in collaboration with external partner nations. One model that has seen global adoption has re-invigorated non-urban economic engines through various circular economy policies. The EU has also incentivised an industrial transformation that is more eco-centered, and has created new institutional networks for building and supporting social cohesion (for example mental and physical health and rehabilitation centers).

4.4.2. National/Member States

Each EU member state has been critical in supporting and implementing supranational initiatives and policies. This harmonised support was encouraged by consistent EU actions that created widespread buy-in from citizens across all member states. States have adopted and adapted EU-developed anti-corruption platforms, and practice transparent and accountable use of EU funding. Member states are the primary executors of EU policy, including the advancement of social justice for citizens and migrants, climate-oriented policy, and as collaborative constellations for programmes involving external nations and groups.

4.4.3. EU Agencies

EU agencies' work in this scenario is broadly defined by high levels of cooperation and coordination across common fronts. They often act as important intermediaries between other nation states or UN institutions and the EU - serving a bidirectional monitors and translators across different scales of governance. In this scenario, EU agencies coordinate horizontally to maximise efficacy and promote unification, and collaborate to form new political power centres

within the EU. They have become responsible for local adaptation and experimentation programmes to deploy EU funds. Agencies are critical for external exchanges and negotiations, acting as information hubs communicating with the UN's monitoring capacities.

4.4.4. Private Sector

The EU's private sector remains essential to innovation, production, and distribution of global goods and services. Given the new environmentally sensitive regulatory atmosphere that now applies to these activities within the EU, private sector actors have become essential components of addressing the climate change crisis. Businesses are viewed as critical translators between policies and the 'sustainable' marketplace, and they serve a critical function of co-creating and enforcing the standards of the Green Agenda policy. The EU's private sector, having adopted many of these practices before much of the world, is a globally recognised center of innovation and entrepreneurship. As such, the EU has become a renewed epicenter for corporate activity, and routinely attracts talent and ambition from around the world.

4.4.5. Sub-national/Regional and Local Authorities

The strong and unified EU would not have been possible without the continuing efforts to raise citizen participation in EU decision-making at different levels. Sub-national authorities have proven to be some of the EU's most effective advocates - working with EU initiatives to ensure that citizen needs and desires are addressed, and using their platforms to credit and applaud EU efforts to the public. The high degree of participation that has created buy-in across many citizen groups is directly related to their involvement in local and regional policy formation activities. This dynamic has tightened the conceptual gap between EU level governance and each citizen's daily experience - transforming the idea of the EU from "big government" to "community agent" for a majority of citizens. A stronger EU has led to an increased funding availability for local initiatives, many of which are considered Open Access and available to similar communities around the world. Pro-EU political parties find large pools of localised support, and incentivised participation rewards the development of novel modes of civic engagement.

CHAPTER 5

WORLD WIDE GAPS:

Muddling through an Entropic World

5. WORLD WIDE GAPS: Muddling through an Entropic World

5.1. Executive Summary

World Wide Gaps **is a scenario within a fragmented global governance, wherein the EU has a strong influence.**
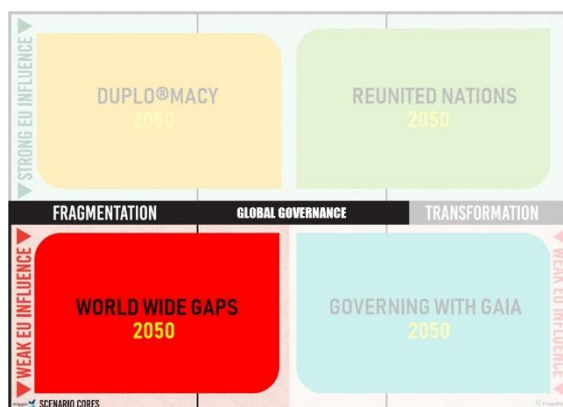

Figure 10 - World Wide Gaps 2050 scenario: Fragmented global governance, weak EU influence

In this version of the world in 2050, global wealth has been severely concentrated in the hands of very few state powers, individuals, and private organisations. This has fractured the efficacy of global governance mechanisms and institutions, weakened the power of democratic states, and reinforced divisions between social classes. Disparities exposed and amplified during the COVID-19 crisis, continued to worsen as one crisis rolled into the next - a prolonged economic downturn, widespread civil unrest that only exacerbated the pandemic, and led to a rash of regional conflicts. Furthermore, without concerted global efforts to address environmental issues, the effects of climate change have increased in severity, spurring increases in climate refugees and further conflicts over resources. Global economic superpowers (primarily the states and companies of the US and China) are non-responsive to the external effects of declining ecological health and societal stability. The European Union's strength has been undermined, as its member states, themselves highly unequal in prosperity and influence, struggle to find common ground for policy and action. The EU membership has shifted dramatically, and its total number of member states has decreased - with many of its less wealthy states leaving the Union, and a couple of new members joining as a way of concentrating wealth and collective power to support relative sovereignty.

With the decline of many state powers' efficacy around the world, urbanisation has accelerated, as cities leverage infrastructure innovations and regional resources to attract various types of capital, often adopting and advancing technocratic solutions to local ecological degradation.

However, a neo-feudalist system emerges across much of the world, as metropolitan areas leverage their outsized markets and security forces to exploit surrounding suburban and rural areas for labour and resources. Cities are well known for their ubiquitous surveillance, systemic biases, and myopic partnerships, but they are also high technology hubs and cultural dynamos. Networked cultural institutions - known as *enclaves* - have sprung up globally, offering essential services (food, shelter, alternative healthcare systems, cultural consumer goods, network access, etc.) for their members, and providing some counter balance to negotiations with elite corporate and state entities. These 'enclave' cultural communities are able to rally hundreds of millions of supporters from their global membership, and often compound socio-political issues at the local and regional level.

5.2. Extended Scenario Text

Unchecked increases in economic inequalities have radically undermined efforts in global governance, and have exacerbated social, political, and infrastructural gaps around the world. There is a stark difference between the opportunities afforded by the world's elite individuals and corporate entities as compared to the billions of those that lack social and financial capital and the power that accompanies them. These imbalances have had repercussions for every scale of societal organisation, and have rendered attempts at global governance fruitless without the backing and influence of the world's rich and powerful.

For international organisations, the continued economic dominance of a small number of nation-states serving national and private sector interests has hollowed out the efficacy of global policies and agreements. Intense competition has amplified and prolonged 'trade wars' whose impacts have spilled over into other geopolitical topics. The prime example for this remains the failure of international environmental policies to confront climate change related issues. As the world's primary economies continued to dismiss such policies in pursuit of expanding growth in wealth and influence during the 2020s, smaller nations also began abandoning such agreements; at first slowly, but with increasing frequency, until the Paris Agreement was scarcely more than words on paper. Such actions by the world's most powerful nations across other global policy areas (from technological moratoriums, to human rights protections) slowly drained away international trust in organisations like the United Nations, and undermined humanitarian efforts like the International Red Cross Red Crescent Movement (ICRC). With China, the US, and India utilising their economic and military power to further hegemonic agendas, the EU, and similar regional federations in Africa, the South Pacific, and South America, have been forced to internally consolidate their social, economic, and technological powers.

Most formal attempts at global governance are now influenced by the interests and whims of a concentrated elite, with enforcement of such policies carried out by military and paramilitary actors, strict economic sanctions, and other punitive instruments. Regional federations offer some resistance to external state powers, but remain susceptible to temporary capture by private sector

entities. Given their extra-legal origins, organised criminal networks also play an important intermediary role between elite institutions and federated power hubs. These organisations can be swayed by both localised rewards and global incentives, sometimes behaving as mercenaries while acting as regional protectors in other situations. They are trusted by none, but often find their services in demand. In this way, the execution of local and global policy is often encased in conflict and violence.

Increasing transnational fragmentation and inequalities further intensified infrastructural gaps both between, and within, individual nation states. In developing nations, without comprehensive investment, infrastructure has become non-standardised, non-integrated, and often subpar. Even for the wealthiest nations, infrastructural improvements have been largely dictated by the economic interests of each nation's elite. In most post-industrial nations all but the most essential roads and rail networks - those connecting mega-scale seaports to their equally large inland hubs - have fallen into disrepair or been reclaimed by natural forces and ecologies. However, a different scene emerges around metropolitan areas and other zones with concentrated human populations.

For those living in major metropolitan and economic areas, infrastructure is continuously upgraded to maximise economic efficiency, draw talent and youth to labour markets, and increase urban innovation capacities. The urbanisation trend was strengthened in the second phase of the COVID-19 pandemic, as cities invested in their healthcare systems and personnel in response to rising case numbers, and rural areas were unable to compete over the long-term given rising infrastructure and human resource costs as public health events continued to increase in frequency. Outfitted with cutting edge digital and mobility systems, cities have become powerful centres of power and influence - experimenting with new forms of localised governance, and fighting corruption and political favouritism wherever possible. Cities in federations located outside of the major global national powers offer the best forms of resistance to the elite classes, by utilising their bargaining capacity as well as managed market places for private goods and services. While powerful enterprises continuously attempt to gain monopolistic advantages over metropolitan areas, urban identities and collective ingenuity have proven to be stalwart defence mechanisms. The cultural diversity and, albeit tentative, cohesion of urban populations has proven to be a powerful antidote to forces of the global elite.

In cities, 'enclave' societies have emerged to provide various types of services (material, cultural, spiritual, physical, etc.) in a format that is common and recognisable across all urban areas wherein the 'enclave' has a presence. These enclave communities aim to provide global experiential ubiquity for all types of social and cultural services (similar to Apple or McDonald's stores in 2020). These enclaves are typically exclusive buildings or communities in which membership credentials limit access to amenities (tiered according to income, seniority, contributions, etc.). As these are global networks to varying degrees, and important vessels of

culture and communication, they are able to exert some influence on 'global governance' activities - though it is rarely termed as such. Enclaves act as both major customer bases for many products and services, and as representatives of cultural values that are expressed through the enclaves' endorsement and bulk-purchasing decisions. Some of the largest global enclaves include the Unified Peoples of Islam, The Universal Catholic Church, Collective Socialist Agency, The Way (Taoist, Confucianism, and Buddhism), Seafarers United, and the Consolidated Relief Societies Group. With each being composed of many hundreds of millions of members, the enclaves are able to express influential opinions over topics like technological development, environmental practices, and humanitarian issues. Within the EU, these enclaves have representation within decision-making bodies, and most employees of EU institutions are members of one or more enclaves. In this way, continued urbanisation, and the ways in which it has reified cultural identity and community membership as central to the social fabric, has proven to be a unique counterbalance to concentration of wealth and power.

Outside of these urban zones, however, the scars of sharp inequalities are ever-present, and as cities have concentrated talent, ambition, and influence, suburban and rural areas have come increasingly under the heel of the demands of the powerful urbanites and elite institutions. While for some, there is peace and refuge to be found in the liminal spaces between urban areas, global disparity has left many populations embittered by their lack of agency, and the neo-feudal conditions that define their life and prospects. Thus, opportunity impoverished regions have built elaborate networks of personal and digital capabilities that allow them to engage in various strains of hybrid conflict both for politically motivated purposes and as mercenary services. Rural populations represent a more guerrilla form of resistance to both urban and elite powers, and their role as agrarian producers (or saboteurs), makes them a formidable, if mercurial, force to balance the increased clout of urban areas. A contended symbiosis has developed between urban areas and the suburban and rural communities on which they rely, though externalities often remind both sides how important this fragile stability is for mutual survival.

In many cases, the increased threat of violence from contending forces – be it rival urban populations, hostile corporate operations, or the advance of state hegemonies – is strong enough to maintain urban networks across the EU. These externalities amplify the challenges presented by destabilised environments and disrupted ecologies: unreliable agricultural conditions, the frequent emergence of new diseases, and the precarious living conditions of the global poor. For instance, the aforementioned failure of climate-based policies have had tragic repercussions around the world. What were once considered extreme climate events, and their catastrophic outcomes for communities, have come to define the new normal for many populations. Inland, prolonged drought coupled with short periods of intense precipitation, has decimated agricultural regions. On the coast, outside of the most critical ports, most communities have embraced a live and let die approach to their towns and cities. Those that could afford to relocate have already done so, as national funding for re-building coastal communities was largely drained by the end

of the 2030s, and international aid efforts moved from intermittent to non-existent for all but the worst climate-driven disasters.

The disruptions to agricultural conditions, have spurred the development of a highly differentiated regulatory landscape for a number of biotechnologies − in particular genetic modification and engineering of robust crop varieties. As a result, millions of farmers have been displaced from their lands and livelihoods. As displaced persons continue to seek sheltering communities, key resource availability has led to large-scale conflicts. The availability of safe drinking water has been at the centre of numerous civil insurrections within states, and has been a critical factor in no less than 10 international conflicts across Eurasia.

The once widespread concept of multilateralism has now been relegated to a reactive response to the world's seemingly ongoing disasters. Cooperation between nations or transnational organisations (like the 'enclaves') is short-lived, sporadic, and focused on superficial solutions to problems with deep systemic roots. For instance, geo-engineering projects with limited scope have spurred a number of geo-political conflicts given unequal distribution of consequences. One example of this is wide spread use of cloud seeding technologies to encourage rain for local food production. While the droughts are fuelled by increasingly aggressive climate change, temporary rainfall in one region often creates problems in other regions, even provoking dramatic drought conditions in some cases. This example provides a useful metaphor for living conditions in this version of 2050 - activities designed to better life for some, can quickly denigrate life for others, and the fallout from such actions can be fast-forming, violent, and counterproductive for all parties involved. With global governance based on nation state authority now more of a patchwork of myopic policies and practices, most of the world's citizenry have turned to culture and cosmology to find hope and agency in shaping a better world for future generations.

5.3. **STEEP+ Factor Development**

Social, Technological, Economic, Environmental, Political and Additional (+) factors have played an important role in shaping this scenario. This section includes information on important developments within each of these categories that have made this scenario possible. The STEEP+ highlights included here do not represent the totality of change that enable this scenario, and many of these factors interact across the STEEP+ categories.

5.3.1. **Social**

- Persistent, rising inequality within countries drives increased populism and distrust in large-scale governments. Political polarisation correlates to social class and service quality driving a breakdown of political equilibria.

- Urban migration increases driven by deteriorating living standards in many rural and suburban regions, pressuring metro areas to invest heavily in various forms of infrastructure (utilities, transport, health, communication, etc.).

- Social credit systems based on peer evaluations and ratings lead to ubiquitous surveillance and sousveillance in cities, and an "uberisation" of the socio-economics.

- Income-based provision of healthcare with tiered access to quality of care and treatment become standard policy.

- Social cohesion within cities is centered on cultural activities linked to 'enclave' networks and the various services they provide. Urban economic pressures make it difficult to form communities in a more organic and spontaneous way.

- Rural communities become a refuge for many affected by the psychological pressures and various dangers (vice, crime, exploitation, etc.) of urban living.

5.3.2. **Technological**

- Growing difference in technological development between different territories, with highly localised solutions paired to competing standards, a highly fragmented Internet, and a deepening digital divide.

- Artificial Intelligence system results are regarded as objective and true with little AI oversight or monitoring, and few options to question AI decisions. These systems are widely deployed, with systems competing on price and policing power - not on ethical debiasing, transparency standards, or data privacy.

- Machine Learning applications induce transformations of policy-making in terms of decision-making processes being hidden within the 'black boxes' of proprietary algorithms, ultimately amplifying a trend against evidence-based policy.

- Data control, ownership, or management standards is no longer a strong policy point outside of those 'enclaves' that define themselves by their data protection policies. Most data is used for commercial, policing, and socio-political purposes, though the data itself has become nearly valueless by itself.

- Genetic Modification and Engineering has been widely deployed for food security, but it faces no global regulation or coordination. The situation has resulted in patches of uncontrolled genetic mutation whose long-term consequences for human and ecological health remain uncertain.

- The widespread use of AI and Genetic Engineering technologies has led to a rapidly blurring border between artificial and biological worlds. Human and non-human gene modification and experimentation have led to some novel hybridisations.

5.3.2.1 Artificial Intelligence and Machine Learning

Machine Learning and Artificial Intelligence are widely deployed across different domains and contexts. The remaining national powers have engaged in an AI arms race, with systems designed to weaponise data streams and digital systems. Outside of conflicts over resources, physical warfare has largely been replaced by digitally designed and deployed violence to hard and soft infrastructures - disrupting, confusing, and sowing distrust. Internally, nations states, and to a greater degree metro areas, use AI/ML systems for controlling access, monitoring behaviours, and predictively policing the citizenry. Ubiquitous surveillance is largely run by semi-autonomous systems that operate with little human oversight or intervention.

5.3.2.2 Distributed Ledger Technologies (Blockchain)

Blockchain, or distributed ledger technologies (DLT), has been integrated with various digital systems and serves as the gatekeeper for numerous services. The critical role of this technology for individual's lives, and for governing bodies (urban elite), has made it a target for external attacks of various kinds. While DLT remains a robust verification, the ecosystem of tokens requires a high degree of technical sufficiency to navigate - a skillset in short supply, and worth a lot to vested interests. Therefore, much of the promise of blockchain technologies remain unexploited, and little has been done to address the energy inputs DLT systems require.

5.3.2.3 Open Source Software and Standards

Open source software, when it exists, is often far below the cutting edges of technologies that are used by powerful nations, corporations, and the elite classes. While OSS remains an important 'affordable' option for many billions of people on the planet, these systems are often dated, unreliable, and often well behind the capacity curve. However, it is critical to note that given the affordability factor of open source projects, OSSS have become a playground for different communities to experiment and create. These platforms also represent a mode of evasion for actors who wish to, or are forced to, remain furtive and anonymous in their activities.

5.3.3. **Ecological**

- Global environmental policies fail to meet goals, as implementation is inefficient and not integrated into trade, security policies. Weak international bodies are unable to organise effective sanctioning of states or corporate entities.

- Anthropogenic disruptions have undermined numerous ecological services, and increased threat vectors from zoonotic communicable diseases, invasive species, and anti-biotic resistant organisms.

- Climate induced extreme weather events are increasing in number and severity. Unpredictable growing seasons and droughts are becoming more frequent, impacting food security.

- Scarcity of potable water leads to increased regional conflicts, spurring mass migration movements within and between weakened territories.

- Increasing urban populations free more arable land, but increasing demand and logistics challenges still make basic nutrition difficult to universalise.

5.3.4. **Economic**

- As urban centres have inherited a majority of social organising responsibilities, their procurement agenda dominates local production. Some monopolistic entities hold relevant market positions in major urban areas, but fragmented supply chains make brand ubiquity unprofitable.

- Unregulated platform economies dominate highly segmented modes of exchange in the real economy (Tiered Amazons), while global exchange markets are subsumed by competing superpowers.

- Sub-national level/ local economic paradigms grow in strength centred on providing metro areas with food, and highly decentralised industrial manufacturing models, both of which have been made possible by advances in automation technologies for agriculture and fabrication.

- The return of more local currencies, particularly within city-states, complicates commerce across often invisible borders. Official currencies, like the US Dollar, Euro, and Yuan are tied to the financial economy, while the real economy works through unofficial channels.

5.3.5. **Political**

- Insufficient crisis response decreases national and global governance legitimacy, but gives rise to neo-feudal, urban and regional governance systems.

- Metropolitan areas, surging in size, have become critical political nodes – with cities passing, and enforcing, the most progressive policies for social and planetary health.

- Political corruption is stigmatised and scrutinised, particularly in highly connected and surveilled cities, but it persists in adapted, subtle forms.

- Populism remains a potent force, but it has become highly sophisticated in its wielding of socio-political power, as migration has created patchwork, multi-cultural, and vibrant peoples in major urban areas.

- Within urban areas, trans-urban ‚enclaves' have emerged that provide common services to ‚members' based on beliefs, genetics, wealth, and any number of differentiating factors. These groups provide an additional channel of global governance activities.

5.3.6. **Additional (+)**

- Compounded inequality of infrastructure endowments are increasing returns to the 'winners'. Some urban areas remain at the cutting edge of infrastructure advancements while other cities become neglected backwaters.

- Large-scale hybrid warfare campaigns are pointed at urban areas commercial and cultural centers, keep cities embattled through various modes of digital attack.

- Urban governance institutions often engaged in reflexive processes with various stakeholder groups. This open response has become necessary for maintaining a peaceful co-existence across highly striated social classes.

- Stronger cities invest in their own defensive resilience, including military forces, cyber defenses, and multi-layered health systems - attempting to build "golden cages" for their residents.

5.4. **EU Actorness**

Internal Dimensions	
Authority The formal legal basis and competence	The EU member states, though reduced in number, still recognise the validity of the EU, primarily as a market arbiter in trade negotiations, and its ability to organise and coordinate projects, research, and funding.

Autonomy Capacity in terms of financial and human resources, knowledge and expertise, ability to set priorities and make decisions, capacity for policy enforcement	The EU is able to make trade commitments on behalf of its remaining member states, though these can be overridden by individual states trade agreements. Fiscal policy and the central bank remain the key modes of autonomous actions the EU can exercise.
Cohesion Shared values, interests, and principles, similar goals and collective positions of EU Member States and intra-EU bodies	Internal cohesion, following the reduced number of member states, has become stronger, though external forces continuously try to undermine the sense of shared interests and values. The EU has accepted representation from the cultural enclaves, given their socio-political influence.
External Dimensions	
Recognition formal recognition of the EU as a party to intl. organisations/agreements/treaties, international perception of the EU	While the EU remains recognised by external state and private sector entities, it no longer commands the same level of influence over negotiating terms and policies.
Attractiveness Economic, political, geopolitical (instrumental) and normative attractiveness Advantages of EU cooperation	The EU remains an attractive power for international treaties with states around the world, though its influence on international policy and monitoring are increasingly limited.
Opportunity – Necessity to Act Developments and constellations (groups) internationally, which determine options to act / EU actorness in this policy arena e.g. external threats such as Corona, Brexit (opportunity and necessity in relation to outside trends)	The EU, along with most other state and private actors, have failed to find lasting partnerships and collaborations with others. Without the recognised power to enact and enforce policy consistently, the EU has conceded many of its former roles.
Across Dimensions	
Credibility Compliance with its own policies and ambition, reputation of the EU through the eyes of other non-EU states (e.g. is the EU credible in this policy arena in the eyes of Vietnam?) and other significant global governance actors (such as regional organisations (e.g. ASEAN, WHO), NGOs (e.g. Greenpeace) and social movement groups (e.g. FfF)	The EU has limited credibility in this world, given the precarious state of its remaining members, and its languishing private sector. The EU's open stance of accepting all 'enclaves' seems to be one of its strongest platforms for credibility.

Figure 11 - EU Actorness examination under the conditions of the World Wide Gaps scenario

5.4.1. **Supranational/EU**

The EU has become a smaller, but highly coherent, entity, with some states opting out of the EU system entirely, and broad consensus between the member states that remain. Thus, the EU's role in global governance is severely limited. The EU 'Metros' project aims to link the major urban hubs of the Union with large scale infrastructure projects and R&I funding. Attempts to create EU

standards for urban development have mixed results, particularly given economic disparities between regions. Large-scale hybrid warfare campaigns encourage the remaining EU core to strengthen its networked defensive capabilities, and border zones are often the site of physical combat. The reduced size and strength of the Eurozone has dramatically restricted the currency's utility outside of the remaining EU states, and thus curtailed the EU's economic clout even more.

5.4.2. National/Member States

Nation-state governance is openly criticised for corruption and lobbyism, with ever-greater number of citizens avoiding national taxation and policies. National entities now attempt to act as coordinators for regional and urban governance actors, though national entities find it difficult to keep up with the increasing complexity and divergent demands of sub-national power centres. Remaining EU member states contribute less funding to administrative EU institutions, but support individual project with matching or majority funds.

5.4.3. EU Agencies

EU agencies have also seen a dramatic drop in their number, power, and influence, given the waning power of the EU itself. However, agencies represent one of the EU's strongest ties to the sub-regional power centres, as they still serve critical roles in researching, monitoring, and providing critical data to urban and rural governance institutions. While they have little direct power over governance, they do wield significant soft power in their data-based advising role.

5.4.4. Private Sector

The private sector in general - perceived to be the main driver of political corruption - was the focus of exceptional social backlash as governing structures failed to meet citizen needs. As power refocused on urban areas, EU-based private actors attempted to capture as much of these markets with home-grown platforms and decentralised industry as possible. However, there remains a strong presence of globally recognised brands and products that speak to the apparatus of corporate wealth generation and propagation. These market forces offer considerable resistance to smaller scale alternatives offered by the EU private sector.

5.4.5. Sub-national/Regional and Local Authorities

Urban areas and sub-national regions have become the dominant container for social, political, and economic power across the EU. Urbanisation and increased migration have increased the demands on urban systems - but city leaders have responded by soliciting a mix of public and private funding for necessary and innovative infrastructure (water, food, information, mobility, and re- or up-cycling). Cities often deploy reflexive governance measures to maintain the relative peace across highly striated social classes. AI/ML technologies are key to policing and granting

access to most services, but these are unevenly deployed and regulated between sub-national power centres.

CHAPTER 6

USING THESE SCENARIOS

6. **Using These Scenarios**

These TRIGGER scenarios were developed to give a sense of how global governance systems might change with respect to the complex interactions of many factors, but they are in no way comprehensive or complete. In fact, these scenarios are designed and written to offer glimpses of coherent worlds, but remain ambiguous on many key details providing openings for discussion in our present day. In crafting these scenarios to be useful for individuals and organisations whose activities and decisions impact long-range futures, it was often necessary to leave some developments and elements of these worlds vague. The intention of these choices is to create starting points for policy departments, decision makers, civic leaders, and other actors to initiate future-oriented processes outside the TRIGGER project. Below we make some suggestions for methods of employing these scenarios that might be useful within these different contexts. This list of methods and references is by no means complete, but may prove useful for those who are approaching foresight and alternative futures for the first time.

An excellent starting point for utilising these scenarios might be by examining the Six Pillars approach outlined by Sohail Inayatullah over a decade ago[10]. In summary, the six pillars are as follows:

- The used future − deploying plans and strategies based on a vision of 'the future' developed by someone else, for something else, within a different context.
- The disowned future − creating an artificial distance between our present context and 'the future' as defined as abstract or malleable goals, rewards, or accomplishments.
- Alternative futures − accepting that there are a plurality of futures, co-existing in the present, creating the need for reflection, adaptation, and reconciliation.
- Alignment − aligning the day-to-day lives, behaviours, and actions of individuals and organisations with longer term visions and strategies to achieve them.
- Models of social change - discussing and discovering the model of 'how things change' that shape individual and collective approaches to futures.
- Uses of the future − the various layers of utility for foresight and futures: building foresight capacity through training, shaping effective strategy (deeper), capacity and confidence to create futures (deeper still), emerging conditions for paradigmatic shifts (deeper yet again), and finally shifting the way reality is perceived or cosmological change (deep end).

In the following sections methods to probe these deeper levels of using the future are introduced, with some references to more nuanced discussion of these methods and how they might be deployed.

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10 Inayatullah, Sohail. "Six pillars: futures thinking for transforming." foresight (2008).

6.1. Build your own futures

In a sense, all of these scenarios should be considered 'used futures.' They were created by someone else (the TRIGGER foresight team), for a specific purpose (examine possible futures for global governance), within a different context (the EU during a global pandemic). That they are used, however, does not make them useless, but allows us to gain perspective of their potential utility.

One such purpose they may still serve is the provocation of future dialogues among stakeholders. This can be conducted through various types of workshop models in which these scenarios are reviewed, discussed, and deconstructed by one or more small work groups. Such discussion can be very fruitful by enabling individuals, and eventually organisations, to begin coming to terms with the existence of 'alternative futures,' better defining working theories of social change, and most importantly initialising discussions about elements of scenarios that are preferable and undesirable. These are essential steps in the creation of a shared vision of the future, but they are inherently challenging for groups for whom a singular future, most likely not their preferred one, has become a subconscious, often totalising vision of what 'will be'.

The creation of a preferred future is an arduous process, but a necessary one for those entities that expect to be living in, or at least aspire to be influencing, a world that has yet to become. In order to break away from a dependence on 'used futures' the group must be committed to the processes of examination (of scenarios), of reflections (regarding preferences both shared and divergent), and of compromise (for divergent preferences to co-exist), and creation (the preferred future for the group).

A process for examination can be as casual as a scenario reading group, or as structured as an experiential scenario exhibit with coordinated breakout groups, expert facilitation, and professional mediation. The common elements are that diverse people are able to understand what a possible future world looks and feels like, how parts of it interconnect, and most importantly what they do, and do not, like about that world and why. These are the critical questions around which a future oriented dialogue can build and evolve, and thus are central to shaping the examination activities. The capture of such a discussion need not be verbatim, but should rather focus on issues, ideas, and factors that were found to be desirable and undesirable. Majority and minority opinions regarding that desirability are useful in discussions regarding compromise, and guiding the discussion into questions concerning why differences in desirability emerge can lead to work groups uncovering assumptions, aspects of daily operations, and other highly useful information.

Thus the examination begins to shift towards reflection - an important phase of transforming the individual and organisational activities and operations so that they align with strategies to achieve preferred futures. Using the preferred future as a mirror can lead to difficult conversations and realizations, particularly if reflection and reconciliation are not already a part of organisational

culture. Reconciliation in this sense means using an image of the future that is desirable to define the organization's role at that time, and beginning the process of identifying activities and operations that would need to be transformed to achieve these goals. In some cases this might mean forming new collaborations, scaling up some processes while winding down others, or shifting day-to-day praxis to begin creating a new organisational culture. It is often said that 'culture eats strategy for breakfast', and this sentiment points towards the very real role that cosmology and social change models play within any organisation. To shift an organisational culture is no easy task. It requires time, patience, and commitment to the process, with a realistic view of the difficulties that might be involved. And yet, for many organisations engaging with long range future-oriented strategy development, the need for cultural transformation becomes evident in process of creating an image of a preferred future and strategizing to achieve them.

1) ***Assemble*** a foresight team to review the TRIGGER scenarios. Optimally the team will be composed of individuals from across the organisation.

2) ***Review*** the main points of the scenarios within the team, both as individuals and collectively. Encourage team members to review more than one scenario, underscoring the idea that multiple futures are possible and should be considered.

Figure 12- Overview of Scenario review process for strategy development project conducted with the Institute for European Policy

3) ***Develop*** a mode of capturing individual reactions to each of the scenarios. This could be accomplished in a number of ways - structured discussions, questionnaires (open answers preferred), digital tools - but helps people articulate their critical, rational, and emotional responses to alternative futures. All of these reactions are important for crafting a preferred future.

Some example questions:

Were there any aspects of the society in this future that you found interesting or appealing? Were there any aspects that you think were underdeveloped?

What was your reaction to the technological developments described in this scenario? Are there any technologies you think are missing?

How do environmental issues play a role in this scenario, and what is your response to this portrayal? Are there any environmental issues that are missing?

Do you think that the economic system in the scenario can be effective? How does the scenario economy differ from what we see today?

What are appealing or concerning policies are mentioned or implied in this scenario and what makes them so?

4) ***Identify*** elements of each scenario that are appealing from both and individual and organisational perspective, and attempt to bring them into a singular 'world'. Be prepared for disagreement and contradictions to arise, identify them, and create a space for negotiation of these issues.

5) ***Refine*** a version of the image of the preferred future for the world and for the organisation as a contributor to this world. Acknowledge that there exist disagreements and resistance, and that this preferred future is not a utopia, but that it represents an improved world and organisation from the perspective of the present.

6) ***Broaden*** the review of the preferred image of the future within the organisation. Offer others the opportunity to learn about this preferred future, hold an open meeting (or even a series of them) to discuss the vision and the process that brought it to being. Prepare to make changes to the preferred future, or engage in discussions and debates with new opinions concerning the future that are already present within the organisation.

7) ***Backcasting*** is the process of taking a shared image of the future and working backward from that future to the present - identifying aspects of policy, culture, technology, and society that would have to be maintained or changed along a path to that future. Important here is the identification and discussion of critical 'waypoints' at which the organisation will be asked to adapt to internal or external dynamics.

8) **Implementation** after a successful backcasting is where 'the rubber hits the road' as the saying goes. This phase often exposes areas where alignment is needed between current culture and practice, and what is envisioned for the organisation. It will require patience and flexibility from all actors. This phase takes time and in many ways is continuous.

9) *Revisit* the entire preferred future process periodically to capture and reimagine shifts that have taken place both within and external to the organisation. Establishing a sort of continuous futures procedures ensure that the vision stays fresh, relevant, and reflective of change.

This process is perhaps the most time and resource intensive, but it is also the most rewarding and productive for the organisation. As mentioned previously, the TRIGGER scenario can play a role during the early stages of the process, but fade into the background of the preferred future as the process goes forward. These scenarios may later be reference points for later discussions regarding the vision, strategy, and implementation, but are mostly functional as a mode of initiating an alternative futures process.

6.2. Scenarios as Contextualising Tools: Examining the SDGs within the TRIGGER scenarios

During one of the TRIGGER scenario robustness workshops, a method of scenario exploration employing role-playing activities was used to explore how selected United Nations Sustainable Development Goals (SDGs) could be achieved. With the highly dynamic interactions between the factors and responses that underpin each of the scenarios leading to quite different worlds of 2050, we thought the SDGs present us with a rich set of contemporary initiatives whose progress would certainly be shifted in each scenario context.

Figure 13 An overview of the United Nations Sustainable Development Goals

This workshop began with the expert group collectively voting on which of the SDGs they would like to explore within all of the scenarios. This step was coordinated so that we could streamline the process of testing the scenarios, but in theory any of the SDGs, or other pre-existing goals, could be placed within this method. For the purposes of this exercise the SDGs chosen were: *Good Health and Well Being*, *Quality Education*, *Clean Water and Sanitation*, and *Industry, Innovation and Infrastructure*. Given that all of these SDGs are intended to be addressed by the year 2030, approximately one decade into the progression of each of these scenarios, and that they have light, context dependent metrics attached to them, they pose an interesting lens through which to assess what might be happening in each of the worlds, and within policy circles in particular, during this time. The specific details of the small group work here will not be the focus of this description, but the process through which this method was executed will be described for others to utilise.

After the selection of SDGs, the workgroup split into smaller breakout sessions, each one focused on one of the scenarios. While this workshop was conducted using digital platforms, the same dynamic of larger and smaller work groups can also be used in physically situated workshops. In the smaller breakout groups, time was allotted for participants to first read and listen to the executive summary of the scenario, and ask more general questions to the facilitators. It

Figure 14 - An overview of the scenario robustness exercises including indicator identification , situating goals within diverse scearios, and , and role-playing to discover action paths

is worth noting here that all of the facilitators were from the TRIGGER scenario development, and thus had an in-depth familiarity with the scenario content: governing systems, economic and social shifts, technological policies, and environmental issues. This level of familiarity is useful for the initial stages of getting participants acquainted with the scenario, and it is recommended that process facilitators review the longer scenario texts.

After familiarising the group with scenarios, the method went into a robustness testing activity - asking participants to brainstorm and discuss present day indicators that point in the direction of the scenario under review. These discussions were quite productive in allowing different expert

voices to assess the scenario with respect to their domain specific knowledge. The process then asked experts to describe how the listed indicators might develop to further support the evolution of the future towards their scenario. In combination then, these two phases of the workshop could be used in a number of ways, for instance in tracing out elements that

Figure 15 - Close up of Scenario robustness testing initial phases - identifying indicatiors and and their development paths within a scenario

can direct future monitoring efforts, or in identifying assumptions and gaps in knowledge by the assembled group. However, in this workshop, these phases were meant to create a sense of familiarity between the group members while simultaneously deepening understanding of the scenario.

The final exercise was designed as a role-playing activity that might be useful within a European policy making context. Role-playing is a certain type of performative method that enables people to take on a persona that may be quite different from their current profession and livelihood. This encourages people to begin viewing both the present situation, and the possible future, from a different perspective. When this method is couched within a 'game' experience, it provides a certain liberation from the pressures and expectations of the present, and this can facilitate increased imagination, and therefore strategizing, by participants. The roles presented to the participants were representatives from: 1) EU-level public policy, 2) National -level public policy, 3) Non-governmental Organisations, 4) Private Sector Business, or an 5) External (from the EU) Actor. Participants were encouraged to build more detailed profiles for each of their roles, thus giving their interactions more specificity within the context of the scenario.
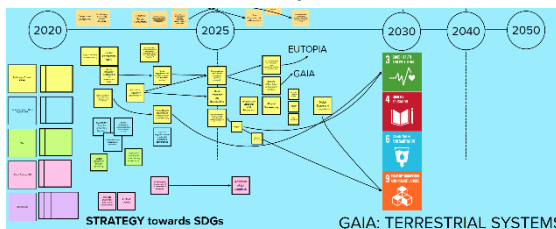
The purpose of this activity was to encourage each participant to build out a series of 'actions' - including policy pursuit, collaboration with other, business strategies, PPPs, and others - in the pursuit of one or more SDGs. With the TRIGGER scenarios and the previously identified indicators and factor developments serving as a backdrop for the entire strategy building process, participants were encouraged to champion an SDG towards its achievement. However, the game serves as a vehicle for knowledge sharing, the development and reflection upon a sense of alternative futures, and practice developing goal specific strategies based on a distant image of the future.

6.3. **Conclusions**

The scenarios presented in this deliverable of the TRIGGER project are crated as an entry into possible futures. They are not predictions as to what will happen, they are speculative extrapolation about what could happen, derived from expert input and wrapped into coherent narratives. Their primary purpose is to initiate future-oriented dialogue through a variety of methods, a small portion of which are outlined here. Engaging with the possibilities and potentials that futures hold is an important step in orienting ourselves in the present, and the TRIGGER project will continue to develop modes and methods that make these scenarios of increased utility to those groups who wish to employ them.

In looking forward we are confronted with complexity and uncertainty, perhaps best exemplified in the terrible pandemic that holds tightly to the world. However, we must continue to look beyond the present, and to create futures that are preferable to our current state. These scenarios are offered as one option through which to begin these necessary, and timely processes.