

Strategic foresight

Using the 'ETUI future scenarios for 2050' to respond more effectively to multiple crises

Aida Ponce Del Castillo and
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Report 2023.05

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european trade union institute

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Abstract

The multiple crises that the world is facing have diverse and unequal impacts on society at large. Uncertainty reigns as these crises continuously evolve in many different directions. The fast-paced change that we are experiencing challenges societal structures and triggers social unrest. Foresight and scenarios can be useful tools to improve our response to these crises from a long-term perspective. This report starts by explaining how foresight and future scenarios can help to anticipate how to best respond to crises, feed evidence-based policy-making and foster innovation. They can also help organisations of all types and sizes to take coherent and robust action. The report argues that strategic foresight needs to be implemented as a new layer of organisational change. The report then describes the ETUI future scenarios developed in 2020: (1) High-Tech Hives; (2) (Dis)-connected Ghettos; (3) Green Castles; and (4) Eco-Villages, explaining the foresight methodology used to develop them. In order to bring the scenarios up to date, the text maps some of the key events that took place in 2021 and 2022, focusing on the four global crises: climate and energy; rising inflation; war and changing geopolitical order; and social inequalities. To encourage people to use the ETUI scenarios, the report provides guiding questions to help the reader to recognise whether a given scenario is starting to materialise. It identifies key issues that need to be monitored in the coming years. Finally, the text highlights the fact that strategic foresight does not end with the development of future scenarios, and that a foresight process also requires action plans, including roadmaps and contingency plans. It concludes by inviting readers to use the scenarios in their own work environment.

Introduction

The four global crises – climate and energy; rising inflation; war and changing geopolitical order; and social inequalities – are adversely affecting the livelihoods of a growing number of European workers and citizens. These need to be understood and tackled as ‘wicked problems’, so that leaders and organisations can move forward beyond 2023. Foresight allows us to gain a better understanding of the possible impacts of these crises on specific countries, regions, communities and individuals, and thus develop better anticipation, coping and mitigation strategies.

Strategic foresight is an academic discipline and a practice that uses strategic thinking to develop strategies, plans and decisions that will remain robust for the future (Andersen and Andersen 2014). Even when its scope and focus are widened to more participatory activities through the involvement of a range of actors and when data-driven techniques are exploited to acquire more evidence (Saritas et al. 2022), the main objectives are still: (1) to develop a systemic approach to critical thinking about change; (2) to gather intelligence in order to anticipate possible future developments in the short and in the long term (Lustig 2017); and (3) to develop and strengthen coherent strategic decision-making by providing plausible pathways to address deep uncertainties and ‘wicked problems’¹ (Ponce Del Castillo 2019). It involves the use of qualitative and quantitative methods and the participation of a wide range of actors and voices (Miles et al. 2008).

Strategic foresight is not prediction, it is not a forecast and it is not approached by means of desk research alone. Forecasts focus on a single future, whereas foresight looks at multiple possible futures. The timescale is longer than the budget or planning cycle of most organisations – and certainly longer than the job tenure of the team developing these futures, to help avoid bias and defensiveness. The strength of foresight is the ability to see developments early, before they become trends, to recognise patterns or weak signals before they start to emerge and to grasp where societal impacts are likely to occur (Rohrbeck and Schwarz 2013). It is a process in which anticipation and planning play a significant role.

1. The concept of ‘wicked problems’ is used to describe complex, multifactorial issues which cannot be defined or ‘solved’ in full. They usually require a behavioural or cultural change (Lustig 2017: 117). The concept functions as a warning sign that triggers a reflection on the nature of the problems we face (Termeer et al. 2019).

Strategic foresight is now incorporated into EU policy-making, ensuring that it ‘becomes an integral part of the Better Regulation toolbox’. President von der Leyen placed strategic foresight high on the European Commission’s political agenda by embedding it within the policy cycle and by designating a vice-president responsible for interinstitutional relations, better policy-making and strategic foresight. Since 2020, the European Commission has produced annual Strategic Foresight Reports, designed to inform resilience-enhancing policies.

The need to anticipate and increase resilience was made a key priority in President von der Leyen’s political guidelines, which, in 2020, set a strategic long-term course to achieve the transition towards a green, digital and fair Europe (European Commission 2020). Strategic foresight seeks to draw on ‘a clear understanding of trends and emerging issues, possible scenarios and related challenges and opportunities’ (European Commission 2022b). Its objective is to strengthen the EU’s resilience² and strategic autonomy, secure leadership and improve competitiveness. It also supports policy-making in the initial stages of the policy cycle, which can be essential for the involvement of, and cocreation with, societal stakeholders.

The 2022 Strategic Foresight Report, ‘Twinning the green and digital transitions in the new geopolitical context’, addresses the interplay between the two transitions, taking into account ‘the disruptive and changing geopolitical landscape’ (European Commission 2022b), so that policies can be adjusted in line with the profound shifts in the labour market and geared towards a new economic model.

Foresight is a dynamic approach to anticipating changes and developing plans, so that actions can be adapted accordingly.

This report aims to provide a rationale for employing foresight for purposes other than high-level policy objectives or innovation. It suggests that strategic foresight should be implemented as a ‘new’ layer in organisational change and in trade union organising strategies. It posits that shaping the future is not only about building resilience. Putting foresight into practice involves two phases: the first is an anticipatory phase, exploring the diverse issues arising from alternative futures (Williams 2021). This is where future scenarios are developed. Scenarios are useful in exploring how various uncertainties play out from a long-term perspective. The second phase is an active phase, which is about devising robust plans in the form of roadmaps and contingency plans constructed through strategic dialogue, feasibility assessments and targeted plan development. These can help to adjust visions,

2. There are many different ways of understanding the concept of resilience, and it has been the subject of numerous studies. The EU Commission defines it as ‘the ability not only to withstand and cope with challenges but also to undergo transitions in a sustainable, fair and democratic manner’ (European Commission 2020).

goals and the strategies themselves (Eriksson and Weber 2008; Kerr and Phaal 2021). This report explains the first phase and posits the significant importance of developing the second.

1. The method: future scenarios as a compass

The ability to offer an insight into the potential consequences of human-induced changes in the environment is one of the key added values of foresight. In a study on the value creation of strategic foresight, 77 multinational organisations were analysed (Rohrbeck and Schwarz 2013). The authors developed a model for assessing future preparedness in any organisation and identified a number of benefits deriving from foresight work: ‘enhanced perception of emerging change and discontinuities; enhanced strategic management by, for example, fostering strategic discussion and creating the ability to adopt alternative perspectives; enhanced innovation management by, for example, improving customer understanding and reducing the level of uncertainty in R&D projects; overall value contributions in terms of facilitating organizational learning and an improved ability to shape the future’. In other words, the value of foresight lies in the ability to provide any leader or organisation with alternative lenses and alternative paths to see and prepare for the future.

If, in early 2019, you had been told that, by the end of the year, a pandemic would emerge that would bring the world to a standstill, you probably would not have believed it. But this is what happened. Organisations and states that had considered the possibility and made contingency plans in advance had only to put them into action (Pollack et al. 2021). In a nutshell, this demonstrates the importance of considering potential futures and thinking through the plans that would be necessary, should they come about.

Future scenarios are one (anticipatory) element of a foresight process. They are a tool ‘to develop plausible, coherent visions about the future and to foster anticipatory knowledge’ (Iwaniec et al. 2020). The ETUI has carried out an internal strategic foresight project using foresight methods and future-oriented analysis. First, it analysed the megatrends and drivers of change. Then, in cooperation with SAMI Consulting and the Institute for Manufacturing of the University of Cambridge, using inductive and deductive approaches to select the uncertainties, four future scenarios were co-created with ETUI staff. Each scenario illustrates a potential future for the world in 2050. The ETUI scenarios were developed through a participatory, collective thinking method that involved most of the ETUI’s staff. The narratives of the scenarios identified the main characteristics, priorities and uncertainties for future development. Then, to determine ways of working towards preferred future scenarios, an internal strategy was developed, with 12 strategic roadmaps to be implemented. As they are internal materials, they are not part of this report.

For the purpose of this publication, which focuses on the four crises that are 'converging' in 2023, the authors chose to centre this report on four of these key uncertainties: environment and climate; social; technological and digital; and the changing global order. In this report, we present the ETUI future scenarios for 2050. Future scenarios are not an attempt to quantify or predict the future, but instead they make it possible to explore the potential implications and to gain an understanding of the complexities and interconnections between factors that can affect social, economic and ecological outcomes. This knowledge can be used to inform decision-making and policy development, helping to ensure that decisions are based on a thorough understanding of the potential impacts of proposed changes, which will assist in the exploration of plausible and sustainable pathways, so that leaders can make decisions and proactively develop robust strategies. These scenarios offer guidance to any leader or organisation to help them navigate through the complexity of the crises.

2. A map of significant events between January 2021 and December 2022

To develop scenarios for different futures, it is important, from the outset, to start with the implications of the key events and the related assumptions. The ETUI scenarios were developed in 2020. At the time of writing this report (late 2022), we are two years further on, so we need to take stock of the situation and update it with the significant events that occurred between 2021 and 2022, their implications and related assumptions. Some of these events may have started pushing society towards one or more possible futures. This is an opportunity to explore where Europe is now. Below is a brief overview of some of the significant events that occurred between January 2021 and the end of 2022.

2.1 War in Ukraine and its wider impact

In 2022, Europe faced a war on its doorstep. NATO nations and Europe as a whole resolved to support Ukraine in its defence against Russian aggression (NATO 2022). This led to the world facing a new energy crisis and exacerbated global food prices around the world, which skyrocketed to record levels. More than 30 countries depend on Russia and Ukraine for at least 30% of their wheat import needs, and almost 40% of all African wheat imports come from Russia and Ukraine (Goering 2022; IPES-Food 2022).

Russia's war on Ukraine also had an impact on the environment and public health in Ukraine and in wider areas of eastern Europe (Averin et al. 2022). After several months of war, Ukraine had won some victories in its struggle against Russia, but the human and financial tolls are incalculable (Faulconbridge 2022).

The war is categorised as a 'hybrid war': it involves the use of weapons, drones, misinformation and cyberattacks (Tidy 2022). In response to the return of war in Europe, the EU Commission took significant measures to safeguard 'strategic autonomy' by ensuring the defence and security order, boosting innovation and securing its position in trade, finance and investments (Borrell 2020), supporting Member States and imposing sanctions against the parties responsible. It also equipped the EU with 'state-of-the-art technologies capable of addressing threats deriving from cyber, hybrid, space collaborative and autonomous systems based on connectivity and Artificial Intelligence' (European Commission 2022a). The Council of the European Union then approved the new EU Strategic Compass for security and defence

(Council of the European Union 2022). Among other actions, investments and partnerships with NATO and the UN, it will establish an EU Rapid Deployment Capacity for different types of crises, enhance military mobility, develop the Cyber Diplomacy Toolbox and set up an EU Cyber Defence Policy.

2.2 Global supply chains

Global trade was heavily affected by Covid19 and the Omicron variant (Singh et al. 2021). Moreover, offshoring and global sourcing and the continuing zero-Covid policy in China, combined with the war in Ukraine, also had an impact on supply chains. This highly volatile environment contributed to high operating costs, shortages and the interruption and disruption of manufacturing and logistics operations, and triggered severe shortages in the production of alcohol (affecting pharmaceuticals and medicines), car parts, cereals, fertilisers, food and semiconductors, among other goods and resources. This happened both globally and locally. Beyond 2023, it may be necessary to set about digitalising and localising the supply chain and rethinking the meaning of efficiency (Pujawan and Bah 2022).

2.3 Worldwide inflation

Global inflation – partly driven by the increasing supply chain costs – has been the biggest economic event of 2023. Even though supply chain disruptions eased in the second half of 2022 and consumer and business demand started to slow down (Filippino 2022), inflation is not yet a thing of the past. Russia's invasion of Ukraine has also had a major impact, pushing up energy prices around the world, which in turn has put up housing rent and the cost of groceries, food, alcohol and tobacco, non-energy industrial goods and various services (EUROSTAT 2022; Flowers 2022). Furthermore, the World Health Organization has forecast that nearly 670 million people (8% of the world's population) 'will still be facing hunger in 2030' (United Nations 2022).

2.4 Global warming

Europe faced serious heatwaves during the summer, breaking all-time temperature records in an area covering much of western Europe (Chandler 2022). According to the United Nations Environmental Programme (UNEP 2022), the most important climate goal is to limit the Earth's warming to 1.5 degrees Celsius. However, the current policies 'with no additional action are projected to result in global warming of 2.8°C over the twenty-first century'. The UN report also found that there was 'no credible pathway to 1.5°C in place', as 'only an urgent system-wide transformation can deliver the enormous cuts needed to limit greenhouse gas emissions by 2030'. This calls for shifting people's diets, protecting natural ecosystems, improving food production and decarbonising the food value chain (UNEP 2022). At COP 27, the international climate meeting held by the United Nations in Egypt, this

situation was recognised, and negotiators agreed to establish a dedicated fund for financial assistance to vulnerable countries in the Global South and to establish mitigation measures including a coal phase-down, although not a phase-out (Harvey 2022).

2.5 Socio-economic and political unrest across the world

Civil society has expressed dissatisfaction with the socio-economic situation. In Europe, countries have faced strikes and social protests because of high energy prices, job insecurity, mounting costs of living and the first fall in real wage growth this century (ILO 2022; Reuters 2022). In Taiwan, pro-independence activists demonstrated in favour of independence. In Iran, there were reports of strikes, starting in schools and universities and extending across the country after the public executions enforcing the Islamic Republic's mandatory dress code laws (Hafesi 2022). The effects of Covid19 and the Omicron variant have hit health, the economy, the environment and society. In China, the three-year zero-Covid policy, which was fully lifted in January 2023, has been linked to deaths resulting from delayed or denied healthcare and suicides (Davidson 2022).

In Africa, the climate crisis is combined with increasing social and political instability. In Latin America, several complex situations have led to serious social and political unrest. Economic inequality, lack of access to quality healthcare, high levels of violence, the increasing power of drug cartels and the health crisis caused by Covid19 are affecting the lives of millions of people. In Brazil, Luiz Inácio Lula da Silva won the presidential election against Jair Bolsonaro. In Peru, impeachment charges were brought against President Pedro Castillo for moral incapacity and corruption (Rojas Sánchez 2022). In Mexico, President Andrés Manuel López Obrador attempted to push through an unprecedented reform of the National Electoral Institute, the body that guarantees the elections, but he faced increasing public pressure and scrutiny. In Argentina, another financial crisis engulfed the country, with thousands of people queuing at banks to withdraw cash from their accounts, hoping to keep their savings safe. Haiti, a country already regularly hit by natural disasters, including earthquakes and hurricanes, faced unprecedented corruption levels and the extreme violence of youth gangs.

The critical voice of civil society has played a role in many countries and has taken a stand against human rights abuses. Iran's anti-government protests were accompanied by demonstrations across the world in solidarity. China relaxed its strict zero-Covid restriction rules after several nationwide demonstrations (Smith et al. 2022). Civil society, both within countries and internationally, has played a key role in maintaining support and funding for Ukraine (UNDP 2022).

2.6 Fast-moving technological development

Artificial intelligence (AI) continued to evolve in an exponential continuum, with prospects of achieving general AI within less than a decade. Generative AI seems to have reached a tipping point with publicly available apps such as Chat-GPT and Stable Diffusion (Future Today Institute 2022). As a result of the success of the gaming industry, a trend has emerged in developing immersive experiences. Synthetic data, images, chatbots and augmented reality (AR) are driving society to consider what is real and what is not, opening up new challenges, such as algorithmic confounding, and transforming the meaning of 'authenticity' (Daugherty et al. 2022). Businesses have massively increased their investments in the use of virtual worlds and the metaverse (Deloitte 2022b). In terms of resources, data continued to grow, and computing power for AI became a key resource that countries will begin to measure. Aside from the shortages in microchips, semiconductors were an essential element for technological development and equally critical for many other industries. In 2023, the chip industry is expected to grow (Deloitte 2022b). In terms of players, India occupies the fourth position in AI computing power after the US, China and the EU27 (Fatima 2022).

2.7 New EU rules for the digital single market

In the EU, major legislative instruments were negotiated for the digital single market. The Digital Services Act entered into force, under which larger internet platforms (very large online search engines) face an extra layer of rules. The Digital Markets Act aims to ensure fairer competition in European digital markets. It sets rules to prevent large companies from abusing their market power and allows smaller players to enter the market. Its rules also apply to intermediaries with gatekeeper levels of market power.

AI was boosted as an economic sector. Other legislative proposals such as the AI Act, the AI Liability Directive, the Cyber Resilience Act, the Machinery Regulation and the Platform Work Directive are in the legislative pipeline.

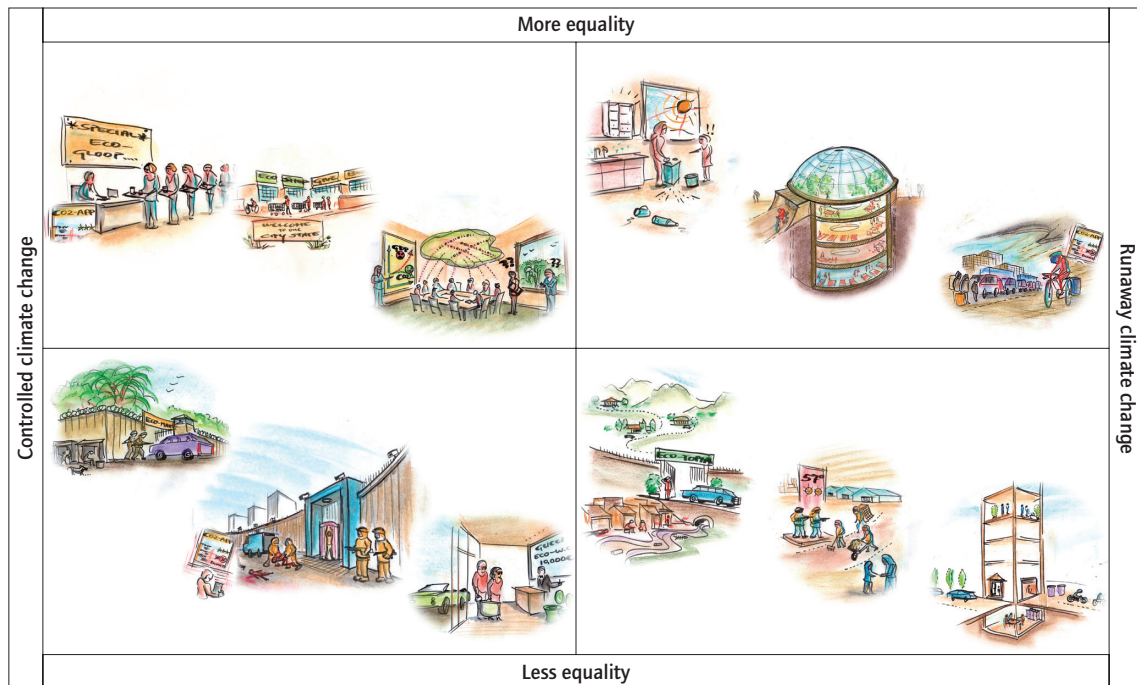
2.8 Transparency and corruption allegations against the European Parliament

In Europe, 2022 closed with allegations against the European Parliament. The transparency and resilience of EU political processes have been called into question. Several individuals, including MEPs and staff, are under investigation for 'alleged acts of corruption, money-laundering and participation in a criminal organisation' (European Parliament 2023). The Conference of Presidents of the European Parliament voted in favour of the 'early termination of an office' of one of its Vice-Presidents, as enshrined in Rule 21 (European Parliament 2022), while investigations by the Belgian authorities are ongoing. The events have affected European affairs both

within the EU and outside. The European Parliament is to initiate an internal reform process to ensure that transparency and accountability are reinforced.

3. ETUI future scenarios for 2050

Figure 1 ETUI future scenarios for 2050



Source: Illustration © Joe Ravetz.

Future scenarios are a tool to develop shared, plausible, coherent visions about the future and foster anticipatory knowledge and action (Iwaniec et al. 2020). In developing its scenarios, the ETUI started from the 'Axes of Uncertainty', a method that helps to identify the greatest uncertainties that a given foresight process is seeking to address. Then it tests the different uncertainties and variables and uses a 2x2 matrix to plot the chosen pair of the most relevant and unpredictable 'unknowns' or critical uncertainties. Each quadrant provides space to relate what would happen if the two extremes of the axes materialised (Future Today Institute 2022).

The two most relevant uncertainties chosen by the group were: (1) inequalities, ranging from power and wealth being equally divided to power and wealth both held by 1% of the population; and (2) global warming, ranging from less than two degrees to more than two degrees. Critical uncertainties provide the structure on which to build the narratives in each quadrant in a coherent and systematic manner (van't Klooster and van Asselt 2006; Meinert 2014). The time horizon chosen was 2050, enough time for trade unions to shape the future and promote change.

Critical implications for trade unions were developed and participants were asked to consider the question: 'What are the most important implications of the scenario for trade unions?' The responses were used in each quadrant to complement the narrative description or story of each scenario, which includes potential trade-offs, opportunities and alliances, as well as diverse perspectives and visions. The result yielded four different stories.

None of these scenarios will come true in its entirety, although some parts of each will. However, to anticipate better what could happen, it is important to recognise which fragments or situations are emerging, in order to be able to plan in advance the actions or initiatives to address or deal with societal needs and prevent inequalities, abuses of rights or the further expansion of the crises. The power of scenarios lies in mapping the possibilities so that one can anticipate what might happen and then choose whether or not to act.

The description of each scenario is structured as follows: a narrative for each specific scenario, followed by an account of a day as experienced by someone living in that future, a list of questions and signals to identify whether the future described is playing out and, based on the key uncertainties and events that occurred during 2021-2022, examples of implications to be considered in anticipation of future actions and governance.

3.1 Quadrant One – High-Tech Hives Power and wealth equally distributed with runaway climate change

Figure 2 Quadrant One – High-Tech Hives



Source: Illustration © Joe Ravetz.

Narrative

There are massive, destructive storms in the USA and lethal heatwaves across swathes of the Indian subcontinent, the USA and southern Europe, making parts of these regions uninhabitable. Across the Arctic, tundra permafrost is disappearing, releasing methane in vast quantities. Nature is killing increasing numbers of people, running into the tens of millions. A further pandemic (Disease X) has killed additional millions across the globe.

This self-evident climate change forces political upheaval and transformation, which results in the governing establishment of 2020 being overthrown. There is little support for leaving the old – who have destroyed the planet – in charge. The power of the lobbyist is not as great as the power of nature.

New leaders, many of them female, are young and charismatic. Voters worldwide are concerned, so they elect 'radicals'. Contrary to the expectations of the majority, when these people gain power, they actually do what they have promised. The new governments establish a transformative redistribution programme for power and money. They invest in social good and social infrastructure: health and education, public transport, libraries, arts and culture.

This has a knock-on effect, with younger people across the world increasingly coming to power. In China, although people have benefitted from levelling out, they are no longer willing to accept environmental damage as the cost. The government listens.

Energy needs to be available. However, not enough of it is renewable and green, so it still contributes to climate change. Even when the likes of Alexandria Ocasio-Cortez (AOC) and Greta Thunberg are elected and in power, this is not sufficient to control climate change.

Part of the radical transformation is to all but ban the extractive industries. This is done by means of a ban on extracting minerals and oil from the ground when these can be recycled or created by zero-carbon methods instead. In a sense, however, this is shutting the stable door after the horse has bolted. That is why climate change in this scenario is so extreme.

There is a return fee on material goods (such as mobile phones, computers, fridges, clothing and appliances) under 'Project Take-Back'. When people return the goods to the manufacturer, a small refund is paid, and the company is required to take them back and recycle or reuse them. Manufacturers are obliged to design recycling and reuse into their products.

People are fined for not recycling, reusing and renewing. In an attempt to put the genie back into the bottle, governments are also funding research: replacing plastics, cleaning the seas, cleaning the air and removing CO₂. Funding is allocated to stop extinction events and look after wild animals – rewilding and bringing extinct animal species back to life through gene editing and DNA extraction.

The gap between the top 1% and the rest of the population has been radically reduced. A wealth tax high enough to fund all the above has been introduced. This tax has been agreed on and is enforced all around the world – there is nowhere to hide money. The rich are expected to take a 'haircut' (to a globally agreed amount, such as 10 million euros), failing which all their funds will be seized.

While there is federalisation within countries, there is a globalisation of governing concepts. Under pressure from natural disasters and convergence on the Disease X pandemic response, the basic underlying concepts of government have become generalised. There is a consensus that all people in the world share in its future, so there is an acceptance of rationing, which covers everything from food to electricity use. This 'citizens' quota system' is managed by a wristband ID, which monitors aspects such as carbon budget, food, power and travel allocations. In some places, this may be tied to social credit, in others it is not. Different methods of social control exist. Some are consensual (along the Nordic model) and some are more regulated (such as in China).

A day in the life

Before Ariel even got out of bed, she checked the weather forecast on her wristband SA (Social Assistant). It was going to be a hot one. Alongside the weather were her duties for the day. She sighed. She didn't have enough credit to use transport to go and see her friends, because she was overdrawn on her carbon budget for the month. But she had to go and pick up the week's food quota, which meant a long bicycle journey and a heavily laden trip back. She'd have to fit that in between virtual meetings.

Ariel's role as a trade union health and safety adviser on climate change issues meant that her first task was scanning the news and recording natural disasters, storms and air quality. Bad weather days always meant more enquiries, and, because of the forecast heatwave, many workplaces would need to close down temporarily until the extreme heat had passed. But first, she needed to get her three-minute shower in before the water was turned off.

As she towel-dried her hair, she made herself a hot drink of stimbean (coffee had been wiped out by climate change). She dressed in a spring-green bamboo culotte suit for easy cycling later in the day. She called up her SA for the day's news, which included an interview with the Senior Convenor. The black market for carbon credits was exploding, and the Senior Convenor was very clear that, when found, offenders would be deployed to plastic clear-up duties.

There wasn't much left in the fridge for breakfast, just a few slices of bread and some New Cheez. She didn't even have any margarine left. She eked out her stimbean as she ate, as she didn't have enough quota left for another cup.

Ariel turned on her desk. The holograph of her director shimmered into view as she logged on. She clicked past and entered her virtual workspace. She tapped Zachary on the shoulder. 'How are you getting on?' she asked. He was working on their new climate mitigation strategy. He grimaced. 'This time, we're going to see 15% more workplaces closing down,' he replied, pointing at his screen to show her the figures. She nodded. It was only going to get worse.

She spent the morning working on the new EU Transnational Health and Safety Directive. Her SA pinged her that it was time for a break. She turned the desk off and shook out her arms and legs. She applied her factor 50 sunscreen, grabbed her face mask and headed outside to the bicycle park. She dreaded the long journey ahead to pick up her food, but needs must.

How do we know that the 'High-Tech Hives' scenario is happening?

If you can answer 'yes' to any of these questions, we might be in High-Tech Hives:

- Has global warming gone above 2°C?
- Is the EU receiving climate migrants?
- Have continuous heatwaves become an annual event?
- Has Europe (and the world) seen a rising level of flooding and extreme weather events?
- Has the sea level risen?
- Has poverty declined?
- Have income gaps narrowed?
- Has the world seen political upheaval and change? Is there a trend towards younger politicians?
- Has there been a shift from extraction of minerals and fossil fuels to use of recycled energy sources and renewables?
- Is there a wealth tax on the richest members of society?

Issues to be monitored beyond 2023	
Global warming	Reactive and 'crisis-response mode' measures need to be stopped to try to control uncontrolled global warming.
Equality/inequality	There is an opportunity to tackle wealth redistribution and make it transparent, and to raise the minimum wage.
Global inflation	Issues related to food supply and food safety need to be addressed and anticipated for the future.
Global supply chains	A solution needs to be found to dependency on Taiwan, China and South Korea for resources, including electronics and semiconductors.
Economic, social and environmental impacts of wars	There is a need to make sure that the EU's commitment to humanitarian action is sustained, as well as its support for integrating refugees from Ukraine and other conflicts into the labour market and support for defence capability.
Democratic governance	There is an opportunity to tackle governance fragmentation to maintain a solid, democratic European Union.
Technological development	There is a need to adopt sustainable and hybrid technological solutions, to assess and reduce risks and to recover from the impacts of climate change.
Social issues	There is a need to guarantee that existing social and human rights of people affected by superstorms, megafires, melting ice caps and rising sea levels are protected.
Social dialogue	New forms of work organisation and structured and unstructured telework need to be looked at, data portability portfolios need to be developed and cyber-security measures strengthened.
Data protection, health, safety, security and well-being	There is an opportunity to protect jobs and professions from the impact of AI systems, learn how to work alongside AI systems and further investigate data, security and disinformation-related risks that can affect workers.

3.2 Quadrant Two – (Dis)-connected Ghettos Power and wealth are held by 1% of the population with runaway climate change

Figure 3 Quadrant Two – (Dis)-connected Ghettos



Source: Illustration © Joe Ravetz.

Narrative

Since 2020, the world has simply carried on as before – this scenario is very much 'business as usual'. More and more wealth is concentrated in the hands of fewer people. Government and taxation continue to favour the rich over the poor and large corporations over small. Financial systems remain opaque. Money can easily be hidden in tax havens. Traditional political parties have lost ground to populist movements, which promised to empower the poor but have simply enriched themselves. Public services have contracted to the bare minimum. Education enjoys very little government support – access is very unequal.

Populism has led to a rise in nationalism, which has put enormous pressure on the EU and international bodies. The EU has been fractured along north/south lines because of increasing migration from the south under the stresses of climate change.

There are massive, destructive storms, forest and bush fires and natural disasters in the US and lethal heatwaves across swathes of the Indian subcontinent, southern Europe and Africa, making parts of these regions uninhabitable. Across the Arctic, permafrost is melting, releasing methane in vast quantities. Death tolls from these various disasters are enormous – in the hundreds of millions. Pandemics continue to rage through global populations.

There is no support from international institutions, since most countries have withdrawn from them or pay only minor heed to their calls for change. Overseas aid has come to a halt. National governments look after themselves and their wealthy supporters at the expense of the general population. Wars of necessity are springing up. These wars are motivated by the need for space, e.g. as a result of the rising sea levels affecting Bangladesh that lead to the loss of 20% of its productive land, or for access to water, e.g. as a result of the heatwaves affecting regions like the Middle East, parts of India and Pakistan, the southern US and southern Europe, or to resources and agricultural land, such as in Africa.

The move towards cleaner energy has stalled under the influence of oligarchic power. For the poor, energy still comes predominantly from diesel generators and coal-fired electricity generation.

Technological developments are funded by the rich and used for their own benefit. These range from spacecraft and planning for off-planet habitats to climate-secure estates on land and on the seas. Life extension technologies, including cancer cures, are available to those who can afford them. Life expectancy rises among the rich and falls dramatically among the rest of the population. The easy availability of cheap manual labour reduces the demand for robotics.

Pressure on farming land and the desire for luxury foods has stimulated the development of biotechnology and synthetic crops. Synthetic biology promises better pharmaceuticals at high cost. Progress does happen; it just happens mainly for the rich.

Highly advanced, gated, secure communities of the wealthy are surrounded by the informal settlements of the rest of the population. These informal settlements are characterised by poor water and electricity supply, the absence of waste removal services and endemic poor health. In the advanced communities, on the other hand, the Internet of Things (IoT), ubiquitous internet use and surveillance technologies provide a secure, interconnected, highly technological lifestyle.

Employment is generally precarious. The most stable jobs are in the military and in the service sector for the rich. The role of women remains largely unequal.

Revolutionary movements are held at bay by pervasive AI surveillance and a violent, capricious security force; populist governments are successful in persuading their citizens that their best interests, such as they are, lie in maintaining the status quo. Most people can find work, although very often they struggle to make ends meet and need more than one job. Food is available, but there is little variety, and what is available for the majority lacks sufficient nutritional value. People have very little free time.

The climate change impacts themselves help to maintain the status quo. When a natural disaster occurs, it is up to the people affected to recover – mostly on their own. There is no time for revolution.

Self-help structures do exist (churches, charities, community organisations) but they have very little political power. Support comes from family members and one's 'own people'. Crime is mainly poor-on-poor; the rich do prey on each other, but violence in their communities is controlled.

Social attitudes are surprisingly liberal: the rich can afford to tolerate difference, the poor cannot afford to exclude people from their groups. In mature economies, women take an outsized share of labour, whether domestic or in the workplace. There has been a reversal of and a deterioration in their role under populist rule. Homeschooling and unpaid care is primarily provided by women on top of their day jobs.

Globally, population numbers are falling. There are continuing deaths from natural disasters and pandemics, and the majority of the population live shorter, less healthy lives than they did in 2020.

A day in the life

Barron straightened his tie nervously as the taxi approached the building. He had chosen his attire carefully to reflect modest chic: slightly fraying cuffs, an obvious repair on his jacket and worn shoes. The office was in a 'sandwich zone' between rich and poor neighbourhoods. It was non-descript. The road leading to it was potholed and muddy.

He narrowly avoided a puddle when he stepped out of the taxi. It took him 20 minutes to clear security. He was then led up to a rather shabby meeting room on the fourth floor and given some instant coffee that had clearly never seen a coffee bean.

The team from the ETUI entered the room; the team leader, Yvette, shook his hand and they all sat down. Yvette was head of fundraising and her team, Victor and Urkki, were just as curious as she was to meet this strange American. They were all worried about why he was there. Was he a spy? A money launderer? Or was he what he claimed to be: a relatively well-off man from a gated community in the city, who wanted to use his money for benevolent purposes. That in itself had set alarm bells ringing. Most importantly, with

pervasive surveillance, would anything be said that could implicate them as members of an ‘illegal anti-social organisation’?

‘How can we help you?’

‘I have a small inheritance, and I’d like to use it to do some good. I imagine you need funding.’ He leaned back in the old-fashioned chair. ‘I have an unpopular belief. I think we’d all be better off if there was less inequality and people could lead a decent life. Maybe I can help you with that.’

Yvette began to panic; she thought he was trying to lead her into admitting what the ETUI actually did – which wasn’t exactly what it said in public. But they did need money: the surviving unions needed their intelligence and research; the poor needed educating; and links with union movements overseas needed to be sustained.

‘You do realise that what you just said is almost seditious. We all have to be very careful about what we say. We can’t continue our work if we are disbanded and prosecuted. Walls have ears.’

Barron smiled and pulled a device from his pocket. ‘Not with this running,’ he said as he indicated its flashing light. ‘We’re quite safe to talk.’

‘Well, that trumps everything,’ thought Yvette, as she nodded and opened her folder.

How do we know that the ‘(Dis)-connected Ghettos’ scenario is happening?

If you can answer ‘yes’ to any of these questions, we might be in (Dis)-connected Ghettos:

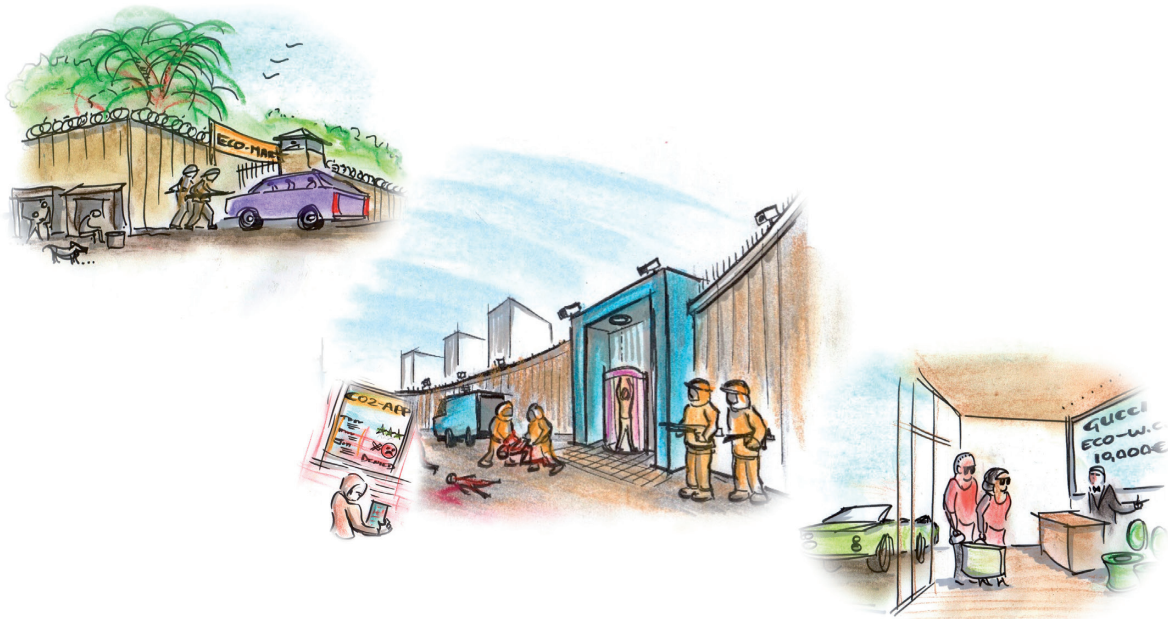
- Has global warming gone above 2°C?
- Has the sea level risen by more than a few millimetres?
- Are numbers of climate refugees rising?
- Have continuous heatwaves become an annual event?
- Has Europe (and the world) seen a rising level of flooding and extreme weather events?
- Have unions been outlawed in some countries and regions?
- Do the wealthy live in gated communities?
- Are informal settlements expanding?
- Has infrastructure (not just physical, but also social) been eroded?
- Are there ever-increasing gaps between the rich and the rest of the population?
- Is the middle class almost non-existent?

Issues to be monitored beyond 2023	
Global warming	Intense inequalities arising from runaway climate change need to be tackled.
Equality/inequality	The systemic redistribution of power and wealth of individuals that 'behave' like states and raise tax revenue on their capital needs to be addressed.
Global inflation	Tax policies on the income of the richest and policies to ensure food and health provision to the poorest need to be adapted.
Global supply chains	Policies to establish end-to-end traceability of supply chains, including the labour practices of suppliers, need to be adapted.
Economic, social and environmental impacts of wars	There is a need to make sure that the EU's commitment to humanitarian action is sustained, as well as its support for integrating refugees from Ukraine and other conflicts into the labour market and support for defence capability.
Democratic governance	The rise of populist leaders needs to be tackled, and systemic governance inequalities need to be resolved.
Technological development	There is an opportunity to develop zero-carbon technologies, data-driven solutions and the IoT to make CO2 offsetting more effective.
Social issues	Connections and networks to develop diverse alliances and communities need to be identified.
Social dialogue	Innovative methods to structure social dialogue in companies operating on the platform business model need to be developed.
Data protection, health, safety, security and well-being	There is an opportunity to negotiate on the worsening of occupational health, safety and psychosocial issues, the rise of workplace accidents and (new) diseases related to digitalisation and less protected sectors.

3.3 Quadrant Three – Green Castles

Power and wealth are held by 1% of the population with controlled climate change

Figure 4 Quadrant Three – Green Castles



Source: Illustration © Joe Ravetz.

Narrative

Hi-tech solutions have succeeded in combatting climate change. Carbon capture and storage have worked. Battery technology has progressed – costs have come down, and storage capacity has increased exponentially. Many of the mega-rich have bought vast tracts of Africa and the Amazon, in order to preserve species and ensure a clean environment for themselves and their families in these areas.

Further technological developments are in progress, including the development of space mirrors and global dimming technologies, which herald a start to weather control. Some spectacular fortunes have been made in the environmental technology sector.

International government preserves the wealth and status of the people in power. Whilst radical environmental policies have been carried out by individual countries and at a global level, government remains largely by the rich, for the rich. There are only a few outliers.

Inequalities exist between those countries that have been severely affected by climate change and those that have suffered less.

Inequalities have shifted; the 'Green Bourgeoisie' are the new wealthy. These new green-industry owners now create economic value. Green competencies are in demand; people who do not have them will be left behind. The role of women depends very much on their economic circumstances: there is generally liberal and equal treatment in rich enclaves, whilst, for the rest of the population, gender is only one of many inequalities.

Large parts of the world have become a 'free-market ecology': carbon trading schemes are managed at the individual level. Higher energy prices mean that poorer people cannot afford zero-carbon mobility systems and, therefore, are less able to travel.

The rich – who own the governmental systems – avoid taxation. There is a severe crunch on state finances.

The elite move out of cities, leading to a decline in the quality of urban life. Life expectancy in cities falls sharply, as the levels of healthcare, education and public services struggle to keep up amidst funding cuts. There is a disparity between the rich and the rest of society in the availability of services: healthcare is privatised, leading to higher mortality amongst the uninsured; minimal, poor-quality education is all that is available at state-run schools; and there is an increase in crime in non-gated areas.

There are essentially two types of jobs: well-paid ones for people working in technology and the green economy; and poorly paid, 'gig economy' (zero-hours contracts) roles, predominantly in service jobs, focused on the desires of the rich. The widening gap between rich and poor means that the middle class hardly exists. The affluent have large homes with big gardens in gated communities. Everyone else lives closely packed in unhealthy conditions in cities or towns near to the gated communities.

The population is decreasing; rich people do not necessarily want to have children, and others cannot afford to have them. Families are multi-generational, either through need – because younger family members cannot afford to leave home to set up their own families – or because the rich all live in gated communities together.

Because the majority of the workforce are employed in the gig economy, there are virtually no unions, which are largely banned. Social organisation takes place on a street-by-street, floor-by-floor, small locality basis, somewhat akin to the panchayat system of the Indian subcontinent.

There are fewer illnesses linked to poor air quality or polluted environments. Outdoor leisure is free and plentiful if you can travel to reach it.

A day in the life

Camille was a little excited, but she smoothed her smock and checked to make sure that she looked immaculate. It was Theodore's regular day to have his nails done, and he was her next (and last) client. He often fed her tidbits of useful news. She wasn't sure whether he knew he was doing this, so she remained very polite and distant. However, all the things he had told her – a few at each session – had been helpful for the underground movement.

Theodore was in green tech and had several relatively new start-ups. He was a great partygoer, and his gossip was fantastic. Not only was it interesting and full of famous names, but, somehow, he always seemed to be meeting the people she was interested in hearing about. The owner gestured to her that Theodore had arrived, and she led him to her treatment room.

He began almost straight away, even before he had sat down. 'They got another one today – one of those union leaders. Caught him on the dark web inciting gig workers to unite. As if we'd ever let them. I gather they took him away.'

Camille kept her eyes down and encouraged him to carry on with a non-committal nod and an 'um-hum?'

Theodore continued, 'It's not as if people need unions, is it? Practically everyone has a job, unemployment is low. What do they want unions for?'

'I wouldn't know, sir. I've never believed in them myself.'

Theodore happily prattled on with further gossip he'd picked up at parties, name-dropping as he went. When he left, he gave her his usual paltry tip, which she thanked him for and gratefully pocketed. She cleaned up her treatment room, leaving everything shipshape, so that the owner would have no reason to dock her wages.

She changed out of her uniform into street clothes and dashed out of the door. She needed to be out of the gate by closing time or risk being detained, which might mean she would lose her job. There wasn't enough regular work to risk doing that. She barely got by as it was. Her second job in the settlement wouldn't pay for her carbon permit, and that meant no electricity, and she might not be able to pay her rent.

Normally, she dawdled on the way to the gate. The rich surrounded themselves with parkland and gardens, flowers, trees and water features – it was so very different from the dirt roads and close, cramped quarters of her settlement. She was careful not to raise suspicion by walking too quickly.

Once she was outside the gate, the beggars congregated. They knew she didn't have any money, but some of them tried their luck anyway. Stepping past them, she began the long walk back to her settlement. She had some really important information to share, and she needed to meet her underground

contact as soon as possible. If they'd arrested Seamus, then they were all in trouble; they needed to make a new plan.

How do we know that the 'Green Castles' scenario is happening?

If you can answer 'yes' to any of these questions, we might be in Green Castles:

- Has the world embraced the idea of caring for the planet?
- Is achieving Net Zero the top priority of governments, international organisations and multinational companies?
- Has global warming stayed below 2°C?
- Is carbon capture technology capturing more carbon than is being emitted each year?
- Has deforestation been turned around?
- Is global biodiversity improving?
- Do the wealthy live in gated communities?
- Are informal settlements expanding?
- Has infrastructure (not just physical, but also social) been eroded?
- Are there ever-increasing gaps between the rich and the rest of the population?
- Is the middle class almost non-existent?

Issues to be monitored beyond 2023	
Global warming	There is an opportunity to agree on global policies to keep global warming under control and keep energy prices low.
Equality/inequality	The role of education and skills development needs to be challenged in order to produce a more equal society.
Global inflation	There is an opportunity to keep energy prices low.
Global supply chains	The issues arising from imports of metals, such as nickel, copper and iron, and raw materials, such as neon, palladium, titanium and platinum, critical for several industries, including defence and semiconductors, need to be dealt with.
Economic, social and environmental impacts of wars	Further conflicts over water and food supply and safety need to be prevented.
Democratic governance	There is an opportunity to strengthen EU policy-making with input from society to achieve socio-economic transitions.
Technological development	Trade unions need to become actors in the 'new' field of environmental technology.
Social issues	There is an opportunity to construct a more resilient society, with the co-construction of bottom-up movements and development of policies that address wider psychosocial issues.
Social dialogue	There is a need to control pervasive surveillance and digital technologies and an opportunity to support data-driven sectors and platform, internet and tech workers.
Data protection, health, safety, security and well-being	There is an opportunity to anticipate occupational risks and diseases related to the impact of climate change and security-related risks.

3.4 Quadrant Four – Eco-Villages Power and wealth equally distributed with controlled climate change

Figure 5 Quadrant Four – Eco-Villages



Source: Illustration © Joe Ravetz.

Narrative

In 2028, a severe worldwide heatwave kills countless millions of people. In the shock that follows, the internationalist green movement wins overwhelming majorities in elections throughout the world. Many states worldwide seize all privately held wealth above a fixed ceiling. This money is used to fund a universal basic income (UBI), climate mitigation and remediation, universal health and social care, and education.

International institutions have been strengthened, and global agreements govern large areas of state activities. Homogeneity is developing across cultures and nations.

State surveillance is endemic. The state knows not only how much you earn, but how much rubbish you throw out and what your carbon footprint is. Most countries have a system of social credit. The main method of control is an embedded chip, connected to government surveillance databases, which monitors consumption and compliance. So there is far less individual freedom, and individuals cannot avoid taking part in community life. There is increased citizen participation in government decisions, with decisions being pushed down to the most local level possible. There is absolute equality for women.

Companies have overwhelmingly been nationalised or have become cooperatives. There is very little competition, and raw materials production and the use of raw material quotas are strictly regulated, as is adherence to the circular economy. There is a lack of innovation and entrepreneurship. Although individuals can earn extra income by making things themselves, such as furniture, handicrafts and food, these are also heavily taxed, and the related carbon use is closely monitored.

Full-time work is a thing of the past. The advent of the UBI has allowed people to branch out and work in activities that previously would not have been viable. This has led to an explosion of cultural activity, and people have more time for learning. Union membership is now compulsory, and almost everyone is a union member. This is an additional method of state surveillance and control.

Collective activities have grown; there is more social interaction and cooperative working for the benefit of all. The expansion of social activities has led to a harmonisation of social norms. Divisiveness is not allowed, and equality is very nearly absolute.

Technology focuses on climate mitigation and remediation and agriculture, based on synthetic biology such as vat-grown meat and other protein and dairy products. The nationalisation of technology companies allows the state to develop AI, robotics and the Internet of Things. There is pervasive social media controlled by governments. However, progress is slow, certainly compared with 2020, and there is no incentive to undertake projects such as building spaceships or hyperloops: there are no rich people who will pay to develop them.

There is still a long road to travel to reduce global warming to pre-industrial levels, but the will is there to accomplish this. Society has become quite stifling. In some ways similar to life under lockdown, what is there to look forward to? Where are the challenges?

A day in the life

Like most mornings, Deok-su could not wait to get into the office. He grabbed his solar-powered bicycle and added human power to increase his speed. He arrived well in time for the day's first all-staff meeting.

The morning meetings were always full of union news, covering everything from progress on carbon budgets to impressive new ideas and initiatives. The ETUI's focus was on fighting to maintain what had been achieved. Everyone, even someone as young as Deok-su, could remember what things had been like before the One World Party had won the elections. Before then, the world had clearly been careering over a cliff edge, and, against the odds, One World had brought the situation under control. Deok-su, like so many other people, was determined that society should not return to the old ways.

Each function was split into two, internally termed ‘carrot’ and ‘stick’. ‘Carrot’ incentivised and developed people who had accepted the changes and were committed to them, while ‘stick’ carried out remedial work with people who found the ways of the new world a struggle.

Deok-su adored his job as a trainer in the ‘carrot’ section. His class was genuinely excited by the changes and new initiatives. They wanted to create a better, more equitable world.

The UBI had made a major difference. People came to his classes because they wanted to, not because their jobs depended on them. They had slept well in warm houses, they had come to work after a decent breakfast, they were not worried about the need for a second job. It all added to the pleasure of working together.

He was especially excited that day. It was the first time he would be running his new course. He would be teaching about the interface with the recently updated social chip. There was so much more they could do with it now. It was going to make peoples’ lives much better.

Some people found the increased frequency of messages from the administration irritating, but he liked to know what was going on, and sometimes to be told what to do.

As he left the staff meeting, he bumped into Radhika, one of his colleagues from the ‘stick’ side of training.

‘Hi, great to see you! How’s it going today?’

She rolled her eyes, ‘Ugh. I’ve got two “capitalists” on my course today. It’ll be all about them asking what’s wrong with making a profit and why we need to look after everyone equally. It’s such a bore! Really, Deok-su, why can’t they get it?’

Deok-su nodded sympathetically. ‘I know what you mean,’ he said. ‘Sometimes, even my father seems to be harking back to what he calls the “old days”. Frankly, I think it sounds horrible. What good is it to me to have enough to eat when others don’t?’

‘I think some of them really just don’t understand. And, what’s worse, some of them refuse to understand. Some of them genuinely *want* a world of little countries and constant rivalry. As if that were a good thing!’

They had reached the door of Deok-su’s classroom. He smiled even more widely and pushed the door open. His class was about to begin.

How do we know that the 'Eco-Villages' scenario is happening?

If you can answer 'yes' to any of these questions, we might be in Eco-Villages:

- Has poverty declined?
- Have income gaps narrowed?
- Has the world seen political upheaval and change? Is there a trend towards younger politicians?
- Has there been a shift from extraction of minerals and fossil fuels to use of recycled energy sources and renewables?
- Is there a wealth tax on the richest members of society?
- Has the world embraced the idea of caring for the planet?
- Is achieving Net Zero the top priority of governments, international organisations and multinational companies?
- Has global warming stayed below 2°C?
- Is carbon capture technology capturing more carbon than is being emitted each year?
- Has deforestation been turned around?
- Is global biodiversity improving?

Issues to be monitored beyond 2023	
Global warming	There is an opportunity to keep global warming under control and an opportunity for trade unions to become active agents of the transition to a net zero economy.
Equality/inequality	There is an opportunity to adopt degrowth policies to keep the socio-economic inequality gap narrow.
Global inflation	There is an opportunity to adopt early warning systems to anticipate possible increases in food and resource prices.
Global supply chains	There is a possibility of achieving 'strategic autonomy' for regions to attain a geopolitical strategic positioning and make supply chains resilient for the long term.
Economic, social and environmental impacts of wars	There is a need to prevent further conflicts over water and food supply and safety. There is an opportunity to adapt the recovery plans to mitigate the impacts of war.
Democratic governance	There is an opportunity to adjust policies to address sustainable energy efficiency strategically.
Technological development	Technology needs to be focused on tackling climate change and on the limits of data production, and the role of low-tech needs to be reconsidered.
Social issues	There needs to be a cultural change to help people live with climate change and the energy transition.
Social dialogue	There is an opportunity to redefine education to focus on 'green skills' for the transition to a sustainable, resource-efficient society, respectful of climate.
Data protection, health, safety, security and well-being	There is an opportunity to negotiate better levels of prevention of occupational health, safety and well-being risks, particularly at regional level. There is an opportunity to address cyber-security risks.

Conclusion

The four global crises – climate and energy; rising inflation; wars and changing geopolitical order; and social inequalities – that the world is facing are complex and constantly evolving. Foresight helps leaders and decision-makers to monitor, identify future trends and anticipate the risks and opportunities that may materialise. This gives them the ability to take proactive measures and shape the future.

There are various arguments in favour of implementing foresight. Firstly, forward-looking exercises and long-term planning enhance the ability of decision-makers to understand and cope with complex and uncertain scenarios (Eriksson and Weber 2008). Secondly, the authors believe that foresight goes beyond a focus on improving the capability of organisations to react, to create a buffer capacity or to become more resilient. Thirdly, foresight is an evidence-based and systematic approach to decision-making with anticipatory strategies and plans.

This report presents the four ETUI future scenarios for 2050 and reflects the state of the art in current circumstances, adding further developments and issues emerging from the four crises that occurred during the course of 2021 and 2022. These issues need to be considered in coherent decision-making and well-coordinated planning actions. For this purpose, it is essential to develop a proper framework with roadmaps and action plans.

This is also a practice-oriented report that you, the reader, can use. We encourage you to use the four scenarios presented here in your own environment, to be attentive to the signals of change you come across and to identify the many other possible uncertainties that the four crises will undoubtedly bring about. Choosing to ignore what can be learned from these scenarios is also an option: one that may leave you and your organisation vulnerable to unexpected events, and may hinder your ability to adapt, respond effectively to changing circumstances and take control of your future. You can also use the future scenarios to monitor change, using the sections on the questions and ‘Issues to be monitored beyond 2023’ that follow each scenario. These will help you to determine whether or not you are ‘in that future’ and which plan you need to implement, if any.

However, strategic foresight goes beyond developing future scenarios, which are only snapshots in time and can evolve in many different ways between the moment they are produced, the moment they are published and the moment

they are used. It is important to explore the four possible futures described earlier and to reflect on how your current and future strategies may or may not help you to navigate through them. If one of these futures was your reality today, what strategies do you have in place? Which plan would you need to implement to ensure that you stay relevant as an organisation and true to your mission? Which policies would you need to advocate for? Then, by creating a plan for each future – and possibly identifying strategies that work in more than one future – you would have more than just a Plan A, and you would be able to adapt to a changing environment. We hope that you will find this report useful and trust that it will help you to make robust and sustainable decisions.

References

- Andersen A.D. and Andersen P.D. (2014) Innovation system foresight, *Technological Forecasting and Social Change*, 88, 276–286.
- Averin D. et al. (2022) The environmental cost of the war in Ukraine, *Green European Journal*. <https://www.greeneuropeanjournal.eu/the-environmental-cost-of-the-war-in-ukraine/>
- Borrell J. (2020) Why European strategic autonomy matters, *European Union External Action*, 3 December 2020. https://www.eeas.europa.eu/eeas/why-european-strategic-autonomy-matters_en
- Chandler D. (2022) 3Q: why Europe is so vulnerable to heat waves, MIT News Office, 11 October 2022. <https://news.mit.edu/2022/europe-heat-waves-climate-change-1011>
- Council of the European Union (2022) A strategic compass for security and defence - For a European Union that protects its citizens, values and interests and contributes to international peace and security. <https://data.consilium.europa.eu/doc/document/ST-7371-2022-INIT/en/pdf>
- Daugherty P., Carrel-Billiard M. and Biltz M. (2022) Tech trends 2022: meet me in the metaverse, Accenture. https://www.accenture.com/_acnmedia/Thought-Leadership-Assets/PDF-5/Accenture-Meet-Me-in-the-Metaverse-Full-Report.pdf
- Davidson H. (2022) China's zero-covid policy explained in 30 seconds, *The Guardian*, 29 November 2022. <https://www.theguardian.com/world/2022/nov/29/china-zero-covid-policy-explained-30-seconds-lockdowns-outbreaks>
- Deloitte (2022a) 2022 semiconductor industry outlook analyzing key trends and strategic opportunities. <https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/semiconductor-industry-outlook.html>
- Deloitte (2022b) Tech trends 2023. https://www2.deloitte.com/content/dam/insights/articles/us175897_tech-trends-2023/DI_tech-trends-2023.pdf
- Eriksson E.A. and Weber K.M. (2008) Adaptive foresight: navigating the complex landscape of policy strategies, *Technological Forecasting and Social Change*, 75 (4), 462–482.
- European Commission (2020) Strategic foresight report – Charting the course towards a more resilient Europe (reader-friendly version). https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight/2020-strategic-foresight-report_en
- European Commission (2022a) Commission contribution to European defence. https://commission.europa.eu/document/d53b0f4f-939f-4044-ab16-e8fc44d35b84_en
- European Commission (2022b) Strategic foresight. https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight_en
- European Parliament (2022) Eva Kaili no longer Vice-President of the European Parliament, Press Release, 13 December 2022. <https://www.europarl.europa.eu/news/en/press-room/20221213IPR64610/eva-kaili-no-longer-vice-president-of-the-european-parliament>
- European Parliament (2023) MEPs to assess corruption allegations, Press Release, 24 January 2023. <https://www.europarl.europa.eu/news/en/press-room/20230123IPR68618/meps-to-assess-corruption-allegations>

- EUROSTAT (2022) Inflation in the euro area. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Inflation_in_the_euro_area#Euro_area_annual_inflation_rate_and_its_main_components
- Falconbridge G. (2022) Explainer: blood, treasure and chaos - The cost of Russia's war in Ukraine, Reuters, 24 February 2022. <https://www.reuters.com/world/europe/blood-treasure-chaos-cost-russias-war-ukraine-2022-07-28/>
- Filippino M. (2022) Political turmoil in Peru, FT News Briefing, 8 December 2022. <https://www.ft.com/content/536f3a88-73a4-4a11-a21d-762588b55d04>
- Flowers A. (2022) What is causing inflation: the factors driving prices high each month, The Washington Post, 26 June 2022. <https://www.washingtonpost.com/business/2022/07/26/inflation-causes/>
- Future Today Institute (2022) FTI tech trends 2022. https://futuretodayinstitute.com/mu_uploads/2022/03/FTI_Tech_Trends_2022_Book00.pdf
- Hafesi P. (2022) Iran carries out second execution linked to wave of popular protests, Reuters. Middle East, 12 December 2022. <https://www.reuters.com/world/middle-east/iran-carries-out-second-execution-linked-anti-government-protests-2022-12-12/>
- ILO (2022) Global wage report 2022-23: the impact of Covid-19 and inflation on wages and purchasing power. <https://www.ilo.org/digitalguides/en-gb/story/globalwagereport2022-23#intro>
- Iwaniec D.M. et al. (2020) The co-production of sustainable future scenarios, *Landscape and Urban Planning*, 197, 103744.
- Kerr C. and Phaal R. (2021) Roadmapping and roadmaps: definition and underpinning concepts, *IEEE Transactions on Engineering Management*, 69 (1), 6–16.
- van't Klooster S.A. and van Asselt M.B. (2006) Practising the scenario-axes technique, *Futures*, 38 (1), 15–30.
- Lustig P. (2017) *Strategic foresight: learning from the future*, Triarchy Press.
- Meinert S. (2014) *Scenario building: field manual*, ETUI. <https://www.etui.org/publications/guides/field-manual-scenario-building>
- Miles I. et al. (2008) The many faces of foresight, in Georghiou L. (ed.) *The handbook of technology foresight: concepts and practice*, Edward Elgar, 3–23.
- NATO (2022) NATO's response to Russia's invasion of Ukraine. https://www.nato.int/cps/en/natohq/topics_192648.htm
- Pollack T. et al. (2021) Emerging Covid-19 success story: Vietnam's commitment to containment, *Our World Data*. <https://ourworldindata.org/covid-exemplar-vietnam>
- Ponce Del Castillo A. (2019) Anticipating change, staying relevant: why trade unions should do foresight, ETUI. <https://www.etui.org/publications/guides/anticipating-change-staying-relevant-why-trade-unions-should-do-foresight>
- Pujawan I.N. and Bah A.U. (2022) Supply chains under Covid-19 disruptions: literature review and research agenda, *Supply Chain Forum: An International Journal*, 23 (1), 81-95. <https://doi.org/10.1080/16258312.2021.1932568>
- Reuters (2022) FACTBOX-strikes, protests in Europe over cost of living and pay, Reuters, 19 October 2022. <https://www.reuters.com/world/europe/strikes-protests-europe-over-cost-living-pay-2022-10-18/>
- Rohrbeck R. and Schwarz J.O. (2013) The value contribution of strategic foresight: insights from an empirical study of large European companies, *Technological Forecasting and Social Change*, 80 (8), 1593–1606.
- Saritas O., Burmaoglu S. and Ozdemir D. (2022) The evolution of foresight: what evidence is there in scientific publications?, *Futures*, 137, 102916.

- Singh S. et al. (2021) Impact of Covid-19 on logistics systems and disruptions in food supply chain, *International Journal of Production Research*, 59 (7), 1993–2008.
- Smith G., Jones G. and Smith S. (2022) FirstFT: China relaxes restrictions, *Financial Times. Global Economy*, 12 May 2022. <https://www.ft.com/content/c19d4aca-9fbd-45fa-b96d-d061a5620608>
- Termeer C.J., Dewulf A. and Biesbroek R. (2019) A critical assessment of the wicked problem concept: relevance and usefulness for policy science and practice, *Policy and Society*, 38 (2), 167–179.
- UNDP (2022) European Union and UNDP support Ukrainian civil society in emergency response, Press Release, 4 August 2022. <https://www.undp.org/ukraine/press-releases/european-union-and-undp-support-ukrainian-civil-society-emergency-response>
- UNEP (2022) Emissions Gap Report 2022 - The closing window: climate crisis calls for rapid transformation of societies. <https://www.unep.org/resources/emissions-gap-report-2022>
- Williams H. (2021) To resilience and beyond, Working Paper 2021/10. <https://samiconsulting.co.uk/wp-content/uploads/2021/11/WP21-10-TO-RESILIENCE-AND-BEYOND.pdf>

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