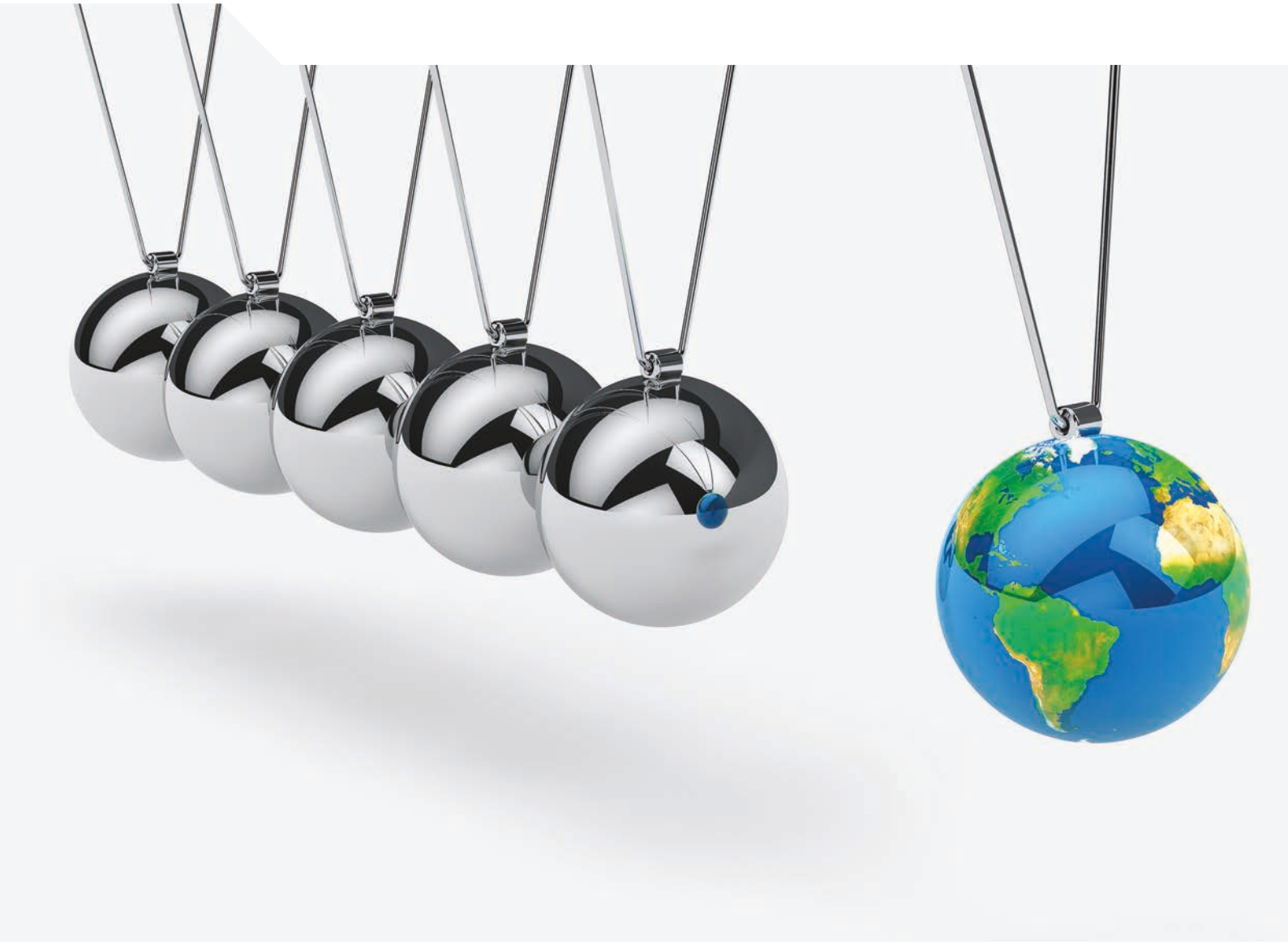
Global Scenarios 2035

EXPLORING IMPLICATIONS FOR THE FUTURE OF GLOBAL COLLABORATION AND THE OECD



OECD

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Preface

We cannot predict the future, but we can prepare for it. That is the conviction behind this report and the OECD's broader work in strategic foresight. Social, technological, economic, environmental, political and geopolitical changes are occurring arguably faster than ever before, and our unprecedented interconnectedness means that a development in one part of the world can quickly go global. Faced with this reality, human societies and their governments cannot afford to be passive or complacent.

Times of rapid change and high uncertainty call for greater investments to anticipate and prepare for the future. This includes scanning the horizon for emerging changes, exploring plausible future scenarios and their implications, and taking steps today to be more resilient and adaptive to whatever the future may entail. Change and uncertainty are also a source of hope and opportunity: by exploring alternative scenarios and expanding our understanding of the possible, we are also better equipped to imagine and bring about better futures.

Strategic foresight is vital for decision making on any issue involving lasting impacts and a context of high uncertainty. For this reason, the OECD continues to build its capacity to integrate strategic foresight approaches across all key policy areas, and we encourage all governments and organisations to do the same.

This report has a different purpose, however. It is not meant to serve any one policy issue, but rather to inform reflections about the near and long-term future of the OECD itself. One of the great strengths of the OECD has been its ability to evolve and adapt over time to changing realities in order to better serve the interests of members and of the broader global community. Our 60th anniversary and transition to a new Secretary-General creates an opportune moment not only to look back at our achievements, but also to look forward. The changes and disruptive scenarios described below are intended as an initial contribution to what I hope will be a rich, open and fruitful period of reflection and decision-making in the months and years ahead.

The OECD has established itself as a pillar of mutual learning and global collaboration in building better policies for better lives. With adequate foresight, the OECD will also play a pivotal role in helping the global community to successfully navigate both the perils and promise of the future.



Angel Gurría
Secretary-General
OECD

Foreword

This report is the result of a participatory, multi-stakeholder foresight process conducted over several months in 2020 and 2021.

The three scenarios presented herein stem from a horizon-scanning exercise conducted by the OECD Strategic Foresight Unit in order to identify change drivers that could have disruptive consequences for global collaboration and the OECD over the next fifteen years. Each scenario was developed with input from relevant OECD directorates and designed to challenge one or two key assumptions about the future that could have far-reaching implications for the Organisation (see scenarios comparison table in Annex A).

External consultation first took place during the October 2020 OECD Government Foresight Community Annual Meeting, attended by over 200 government foresight practitioners from 38 countries. Expanded versions of the scenarios were further explored with OECD foresight and subject matter experts, and key partners of the OECD Strategic Foresight Unit including the Strategic Futures Group of the United States National Intelligence Council and Policy Horizons Canada.

The scenarios also benefitted from a multi-generational perspective. Students from Emlyon business school, the University of Oxford and the Josef Korbel School of International Studies at the University of Denver all contributed at various stages of the development process.

The finalised scenarios were discussed in workshops with OECD Ambassadors, senior management and staff members, as well as with key stakeholders such as development foundations. All were invited to weigh in on the following questions:

- What implications and considerations could the scenarios raise for the future of global collaboration and for the OECD?
- What new challenges and opportunities could the scenarios raise for the OECD's future purpose, values, relationships, and operations?
- What is one new action step the OECD could take today to be better prepared for these and other future scenarios?

Responses and insights from these informal consultations were distilled into a set of initial strategic considerations offered at the end of this report. Going forward, the Strategic Foresight Unit will continue to work with the OECD community as well as foresight experts and innovative futures thinkers from around the world to explore key areas of uncertainty and possible future disruptions and their implications for collaboration on global public policy.

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Executive summary

In 2021, both the world and the OECD are at crossroads. The COVID-19 global pandemic has brought sudden disruption and heightened uncertainty on top of existing transformational changes such as digitalisation, geopolitical realignments, rising social inequalities and division, environmental crises and new threats to democratic governance. In this context, organisations everywhere face the challenge of modernising and adapting to remain relevant, without knowing what the future will look like or entail. The OECD in particular is entering an important period for reflection about its future, coinciding with the Organisation's 60th anniversary and transition to a new Secretary-General.

This report uses a strategic foresight approach to inform reflection on how best to prepare the OECD to meet the needs of a highly unpredictable future. It was developed by the OECD's Strategic Foresight Unit to demonstrate how navigating the future of global collaboration and the Organisation's role within it will require ongoing exploration and dialogue about what may be possible, and desirable, in the future.

The report begins by exploring **drivers of change** that could significantly affect the future of global collaboration in public policy. For example, geopolitical realignments and heightened rivalries may undermine trust just as emerging risks to humanity make global collaboration more essential than ever before. The growing centrality of digital technologies may lead countries to develop separate digital ecosystems, threatening interconnection and interdependence between states. Platform companies are gaining significance in – and influence over – human lives, and may be poised to play an even greater role in shaping global standards and societal outcomes. Accelerated uptake of virtual reality could create new patterns of human settlement and interaction, and foster new powerful social movements and identities. Finally, an emerging bioeconomy and circular economy may transform global value chains, while a rapid expansion of private sector involvement in space opens new areas of economic activity.

Next, the report presents **three scenarios** for how the world could be very different than expected in 2035. While representing just three of an infinite number of possibilities, these scenarios were selected and developed for their potential to challenge current assumptions and raise important questions for the future of global collaboration and the OECD.

1. *Multitrack World* explores a scenario where humanity has formed into several separate and largely parallel clusters, each operating within its own data infrastructure and digital ecosystem. This scenario raises questions about how the OECD could best serve as a bridge between competing entities, and how to advance universal global principles in a context of potentially diverging values and definitions of well-being.
2. *Virtual Worlds* explores a scenario where the majority of human experience takes place in highly immersive and engaging virtual reality spaces, and where there is strong pressure by citizens for such spaces to be globally connected and interoperable. This scenario raises questions about what kinds of governance may be needed to address policy issues in and concerning virtual space, and what relationships with non-state actors the OECD may need in order to make an effective contribution to global collaboration in this newly dominant dimension of human life.

3. *Vulnerable World* explores a scenario where humanity faces a number of critical existential threats and opportunities that require an unprecedented level of near-perfect global collaboration in order to safeguard its vital common interests. This scenario raises questions of how effective governance of the global commons can be realised in these key areas, and the potential contribution of the OECD.

Taken together, these scenarios suggest a number of **strategic considerations** for how the OECD could prepare to meet the evolving needs of the global community in the face of a highly dynamic and uncertain future. These considerations relate to the purpose, values, representation, operations and future readiness of the Organisation.

In terms of **purpose**, the possibility of different future divisions and alliances in the global system suggest the OECD may need to strengthen its bridge-building role, particularly on key issues of global concern. This in turn requires an assessment of which **values** should guide various aspects of the Organisation's work, with an emphasis on evidence-based analysis and well-being serving as a potential framework when working across competing economic and political systems.

In terms of **representation**, the OECD may need a greater ability to work closely with non-member governments and various non-state actors in a world where these have a growing influence over global policy standards and outcomes. The scenarios also raise a number of **operational** considerations, including ensuring the OECD's capacity to play a leadership role in virtual space. Finally, the scenarios suggest the OECD needs to strengthen its ability to prepare for **uncertainty** and respond to emerging priorities such as existential threats.

The aim of this paper is to inform discussion on how best to prepare the OECD to meet the needs of a highly unpredictable future. Its intended audience is all those who have a stake and role in decisions about the future of the Organisation. This includes first and foremost member countries and OECD management and staff, but also the much broader community of countries, organisations and citizens who participate in and benefit from the activities of the OECD.

Global Scenarios 2035: Exploring implications for the future of global collaboration and the OECD

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Introduction

Strategic foresight is a structured approach to exploring possible future changes and their implications for decision making today. It entails scanning the horizon for new developments and emerging trends, constructing alternative scenarios about what future changes could occur, and designing forward-looking strategies for advancing values and objectives under a wide range of possible circumstances. Foresight helps to prevent poor decisions based on unquestioned assumptions about the future. Practicing foresight enables one to spot new challenges sooner, so as not to be caught by surprise, and to perceive a broader universe of positive opportunities.

This report explores three possible scenarios for how the world could look very different by 2035: *Multitrack World, Virtual Worlds* and *Vulnerable World*. While relevant to a wide variety of organisations and policy areas, the scenarios have been designed to stimulate refection and dialogue around the future of global collaboration and the future role of the OECD in particular. These scenarios represent only a fraction of the infinite possibilities that may actually occur by 2035. Nevertheless, they facilitate a form of exercise or rehearsal for how an organisation like the OECD can adapt to unexpected developments that, much like the current COVID-19 crisis and its aftermath, its members and leadership might be forced to confront. Thinking through and discussing different (and sometimes uncomfortable) scenarios and their possible implications helps to break free of limiting assumptions and explore how the OECD can become more adaptive and effective in the face of future challenges.

Box 1. Foresight at the OECD

The OECD has long been a champion of the use of strategic foresight to inform and improve public policy. Pioneering futures work by the OECD in the 1960s and 1970s included significant efforts to explore alternative scenarios for the economy and environment, societal change, development, and international collaboration. This work laid the foundation for the creation of the International Futures Programme in 1990, which aimed to help decision makers in government and industry assess the economic, social and technological trends shaping the future. This involved conducting influential

foresight studies in areas of common global concern, and led to the establishment of important new areas of work for the Organisation.

Over the past decade, the OECD has expanded foresight practices across many areas of its mandate. Significant foresight and futures-focused initiatives have supported the work of many directorates and committees, including in development and development co-operation, education, employment, environment, migration, cities and rural areas, policy innovation, science and technology, tax, tourism, transport and many others. Further embedding foresight practices such as horizon-scanning and scenarios development can benefit all areas of policy analysis and advice. This will be particularly important to ensure the viability of COVID-19 recovery plans and investments.

The OECD's Strategic Foresight Unit helps to drive the adoption of strategic foresight approaches across the Organisation and bring a stronger future focus to global dialogue on key policy issues. The unit works with OECD directorates and committees to identify possible future developments and disruptions and explore potential implications for their policy areas and programmes of work. Drawing on a range of strategic foresight and futures thinking methodologies, the aim is to enable more robust, adaptive and forward-looking public policies. The unit leads collaborative foresight processes on cross-cutting futures issues relevant to multiple policy areas and develops common foresight products to support the work of both the OECD and governments.

Interest in foresight for public policy is increasing globally, and the topic was a focus of the OECD's Centres of Government meeting in 2019. The OECD's global Government Foresight Community, led by the OECD Strategic Foresight Unit, brings together leading foresight practitioners from governments and international organisations around the world to exchange experience and best practices, build awareness of the importance of foresight for policy making and strengthen practices on how to do it well.

Drivers of Global Change

A number of forces are changing the world in unpredictable ways and have the potential to transform it profoundly in the coming decades. Evidence of this can be found in well-established trends such as demographic change and digitalisation, and in early signals of new changes and developments that could grow over time. The following are emerging changes and trends that could have a significant impact on the future of global collaboration and on international organisations including the OECD.

Effectiveness and alliances of states

- COVID-19 has renewed questions about the role of **states vs. markets** in guiding the economy and society. Going forward, it is uncertain what balance of state- and market-led approaches will prove most effective in achieving outcomes such as innovation and technological prowess, well-being, and societal resilience to shocks. A similar uncertainty is whether **more democratic or more authoritarian** regimes will prove most effective at overcoming societal challenges and responding to emergencies. In an era of widespread disinformation and conspiracy theories, what gradual or sudden reversals could affect political ideology and systems, and what new ideological framing could emerge?
- There is a marked **shift in power** globally from West to East and from advanced to emerging economies, but the pace, extent and shape of this dynamic is highly uncertain. The nature of **geopolitical alliances** will depend on many factors, including shifting sources of national power and ability of various actors to deploy both hard and soft power on the priorities most valued by their potential allies, such as access to newly strategic regions and resources in the context of a

changing climate. This in turn may influence who is predominant in setting regional and **global standards**.

Common risks to humanity

- The frequency and intensity of disruptive events with unpredictable, cascading impacts may grow, in particular as a result of **environmental change.** The IPCC now estimates that as little as one to two degrees Celsius of warming risks reaching unstoppable tipping points, for example sea-level-raising ice sheet collapse, and loss of natural carbon sinks such as the Amazon rainforest. Reductions in the biodiversity represent a catastrophic loss to the natural systems upon which our economies and societies depend, with one million species expected to become extinct within decades. Meanwhile, continued deforestation and human encroachment on natural habitats increases the risk of transferring pandemic-causing pathogens.
- Technology has led to an unprecedented increase in the ability of humans to destroy all that our species has built, with one expert estimating there is a one in six chance of self-inflicted extinction this century. Inability to align climate change mitigation efforts suggests that institutional architecture to address shared human challenges, such as the multilateral institutions created after WWII, may not be equipped to guard against emerging **existential risks** such as unaligned artificial intelligence and engineered pandemics.

Shifts in value and values

- Interfaces, data storage and content are sources of value creation in a digital economy. However, there is growing concern about the **deflationary effects** of digitalisation, raised by reduced friction in digital service delivery and the low marginal cost of reproducing digital goods. Digitalisation has so far been shown to support firm productivity, though its effects are differentiated, and it can also enable more localised forms of production such as distributed manufacturing when combined with technologies like 3D printing.
- For decades, the progress of societies has been defined in terms of material standard of living and measured by proxy through GDP. However, new national budgets based on a **broader understanding of well-being** are being developed, while organisations such as the OECD are finding more holistic ways of measuring human well-being, and leaders are embracing new economic standards. The speed and shape of the economic recovery from the deepest recession since WWII, especially how effectively countries can address concurrent challenges including rapid ageing, inequality and disinformation, is likely to influence the direction and degree of these shifts.

Influence of non-state actors

- Digitalisation is linked to the **accumulation of power and wealth by technology companies**, to the degree that some are influencing democracy and diplomacy and acting as "net states" with country-like powers, for instance Microsoft opening offices to the United Nations and European Union. In turn, governments around the world are acting on issues such as the tax challenges arising from digitalisation, antitrust violations, and "fake news", but their willingness and ability to effectively regulate Big Tech remains unclear.
- Social media has given rise to **highly networked social movements** with the capacity to rapidly mobilise within and between countries. In 2020, the Black Lives Matter movement saw half a million protestors in the US alone at its single-day peak, and similar protests against race-related police violence have taken place in many countries. 2019 was marked by social uprisings across the world. Similarly, the global, youth-led Fridays for Future movement has been ongoing since 2018.

To what extent might such movements acquire institutional capacity and other sources of power in the emerging digital economy and society?

Digital interconnectedness across borders

- The original vision of the Internet as an open platform allowing borderless access to information, opportunity and collaboration is being increasingly contested in favour of state-based digital sovereignty. Security concerns have led to scrutiny, and even bans, of foreign-owned technology companies by multiple countries, effectively drawing technology directly into geopolitics. Despite legitimate interests in digital privacy, security and sovereignty, an excessive hardening of digital borders could deprive millions of cross-border human connections and become a growing impediment to global commerce and interdependence.
- By contrast, simultaneous forces are driving greater **digital unification** across borders. More and more aspects of life are taking place in the digital world, a trend accelerated by the COVID-19 crisis, including live concerts, art museums and virtual reality church services. Over 3 billion people currently participate in online gaming, prompting politicians to start campaigning in video games and release Twitch streams, and the International Olympic Committee to pilot an e-sports competition prior to the Tokyo Games. Major investments in realistic 3D avatars, mixed-reality technology and virtual reality workplaces aim to render geography less relevant to most jobs and could improve the speed of learning. Tech companies have expanded Internet access to millions in emerging markets, sometimes with state collaboration, as in China's Digital Silk Road initiative.

Resource management for the digital and green economy

- The share of **renewables** in energy production accelerated in 2020 despite the pandemic, and more aggressive net-zero emissions commitments suggest the fossil fuel economy is waning. The burgeoning bioeconomy is bringing forth **game-changing technologies** that could transform sectors such as chemicals, agriculture, forestry, and waste management towards more circular and decentralised modes of production. Meanwhile, raw materials and **rare earth elements** essential to the functioning of digital and green technologies are increasing in strategic importance. Many of these are concentrated in non-OECD countries, where their access may be sensitive to political circumstances.
- The planned launch of tens of thousands of satellites is expected to expand digital access around the globe, but also to increase orbital traffic and intensify the risk of collisions that could disrupt communication, deter scientific exploration and threaten crewed spacecraft. Breakthroughs in space exploration capacity include China's Chang'e-4 mission successfully sprouting a seed on the moon, and a NASA spacecraft collecting samples from Bennu, an asteroid which may have accessible water, making it a prime target for possible extra-terrestrial resource extraction.

Three Scenarios for the World in 2035

The following scenarios draw from the drivers listed above to elaborate a set of alternative futures in which the OECD and its members could plausibly find themselves operating. They are not prescriptions or predictions, nor are they exhaustive or mutually exclusive. Rather, they represent possible future disruptions that could create significant strategic considerations for global collaboration, as well as for the OECD.

Multitrack World explores a geopolitical shift whereby humanity forms into several separate and largely parallel clusters, each operating within its own data infrastructure and digital ecosystem. *Virtual Worlds* sees the majority of human experience take place in highly immersive and engaging virtual reality spaces,

combined with strong pressure by citizens for such spaces to be globally connected and interoperable. *Vulnerable World* brings the emergence of critical existential threats and opportunities requiring unprecedented levels of near-perfect global collaboration to safeguard humanity's common interests.

Multitrack World

In 2035, the world is running on multiple separate tracks. Different systems and standards in different parts of the world have solidified, creating several parallel clusters of states. Attitudes towards key determinants of well-being such as inequality, freedom of expression, and surveillance are highly divergent between clusters. Clusters have separate digital infrastructures and largely equivalent corporate actors, which have adapted to unique regulatory and cultural standards. Few firms or civil society organisations are able to operate successfully in multiple clusters. Large-scale movement away from globalisation and distrust between clusters has led to diminished interest in and incentive for international co-operation. This is a world of diversity rather than universality, where ideas of what constitutes better policies, best practices, and how to measure both vary significantly based on the value systems of individual clusters.

How we got here: The desire of states (and their populations) to preserve autonomy, protect themselves from foreign interference and promote domestic economies led to different digital infrastructures between clusters. As each cluster developed their own separate and increasingly incompatible ecosystems of digital hardware, software and services, interactions between clusters became more difficult. Global factors affecting domestic politics, including frequent cyber-attacks and growing labour market competition through task-based work platforms, raised political pressure to strengthen digital borders. At the same time, reliance on intercontinental supply chains fell due to advances such as bioproduction of organic materials, distributed manufacturing, an efficient circular economy facilitated by robotics and automated logistics, and energy autonomy in some clusters supported by renewable energy generation and uptake of biofuels. States within clusters actively worked to build deeper economic and social ties. Each invested heavily in their own distinct cultural industries in an effort to differentiate themselves and foster a sense of shared identity. A decline in global economic growth in the short term was justified as a worthwhile sacrifice for greater political autonomy and localised control over production and supply chains in the longer term.

By 2035…



Several distinct clusters have emerged based on a combination of historical, geographical and technological factors. They are governed in different ways: some are highly centralised, others are dominated by a hegemonic power, and some are loose confederations of allies with shared interests. Some clusters include member states on multiple continents. Each cluster prioritises strategic autonomy, and controls – through investment in local capacity or alliances – the majority of necessary elements to run an independent economy.

The shifting global balance and competing digital ecosystems present both challenges and opportunities for states that are not firmly aligned with a cluster. Some **non-aligned states face limited growth opportunities** as market access requires investment in cluster-compatible digital infrastructure, and the financial and political costs of constructing multiple infrastructures are prohibitively high. Still, other non-aligned states find creative ways to leverage their position as independent outliers.

Major economic changes follow the move away from globalisation, with both benefits and costs. More local production means more opportunities for local businesses whose value chains could effectively adapt,

but in clusters that are not technologically self-sufficient, consumers face higher prices and fewer choices. Increased localisation leads to a reduction in emissions generated by shipping, and curbs the transfer of environmental impacts from resource extraction and production to other parts of global supply chains. Not all clusters have access to all the resources needed for the functioning of their independent digital economies. Tense negotiations, for example over trade in critical resources not abundant in all clusters, persist.

Trade and mobility within clusters are high and benefit from low transaction costs from shared currencies and regulatory structures. The drop-off in trust between clusters is matched by growth in trust within clusters. Still, the internal stability and ideological coherence of clusters can be greatly disrupted by domestic political shifts, with regime changes potentially resulting in costly realignments of states from one cluster to another.

Different **cultural influences** flourish within clusters. Arts, sports, spirituality and philosophy are all means of asserting superiority in terms of culture and quality of life, as well as attracting non-aligned states. There are economic opportunities for artists and entrepreneurs who can hold an audience's attention. **Civil society** has taken different forms within each of the clusters, with few values-based groups being able to operate beyond a single sphere.

Clusters have different exposure levels to the effects of **climate change** such as rising temperature and extreme weather events. They hold fundamentally different values about what price, in terms of resources or rights, is worth paying to address certain problems. International appetite for co-ordinated disaster response has greatly diminished in favour of intra-cluster responses.

Considerations raised by this scenario for the future of the OECD:

- What roles could a future OECD play in supporting members and bridging divides that might cut across OECD members?
- How could the OECD best promote global well-being and prosperity while still serving governments that may pull back from multilateralism?

Virtual Worlds

Welcome to the metaverse of 2035, an interconnected virtual platform where the majority of all human interaction, for business or leisure, now takes place. Technology companies provide the hardware and software, competing to provide customers with new features and experiences. States control what hardware and creative freedoms are made available to their citizens within the virtual universe through regulatory measures, balancing state security requirements with the desire to be on the cutting edge of technology. In this scenario, diplomacy is more important and complex than ever before: relationships between states, platform companies, and users (as customers and creators) need to be delicately managed.

How we got here: Massive breakthroughs in augmented reality (AR) and in artificial intelligence (AI) in the early 2020s created a watershed moment for wearable technologies and the Internet of Things. Visual displays on smart glasses replaced handheld devices as the most efficient way to leverage the benefits of technology in day-to-day life. As cloud-connected technology became integrated into all facets of life, consumers no longer accepted being limited to one brand of technological ecosystem. A global movement for interoperability forced tech companies to build devices that work seamlessly with the products of competitors.

No longer having monopolistic control over their respective ecosystems, major tech companies competed to provide the most immersive visual experiences. Innovation accelerated a migration from augmented into

fully virtual reality (VR) free from the limitations of the physical world. The result was the metaverse, a shared platform upon which thousands of virtual worlds are built. The move to VR increased uptake substantially as previously untapped groups – such as senior citizens looking to counteract loneliness and limited mobility – became some of the most enthusiastic users.

States accepted the creation of the metaverse as they faced the same popular pressure for interconnectivity and recognised the economic benefits of removing spatial constraints on countless activities. States and corporations found themselves in a delicate dance over responsibility and regulation in these new worlds.

By 2035…

Much of many people's everyday lives now takes place within one room. People begin the day by turning on their mixed reality (AR and VR) headset and choosing one of an ever-growing number of hyper-realistic worlds. VR stimulates the senses to the extent that everything in the virtual world looks, sounds and feels as if it were real. As a result, most human needs, with exceptions such as food and water, can be satisfied in ways that are equivalent and often superior to the physical world. For those who still leave their homes, AR allows people to interact with a digitally enhanced version of the physical world. Technology monitors a wide range of biometric levels on a constant basis and can nudge users towards activities that will improve their mood or otherwise promote well-being.



Much work in the metaverse is creative, focused on creating enhanced experiences for people in the virtual world. Businesses work to construct spaces for connection and multisensory experiences such as virtual pubs, parks, art galleries and fully fledged digital Disneylands. Organisations and institutions have virtual campuses where employees gather each day. In other forms of work, such as construction and medicine, VR allows for interventions to be simulated and perfected before taking place. Mental health professionals are able to choreograph therapeutic sessions for clients anywhere in the world. Real-time translation allows seamless communication and collaboration between people who speak different languages. AR enables tradespeople such as plumbers and electricians to provide on-demand services by connecting to customers' visual displays and walking them through fixes.

A handful of tech giants provide the hardware needed to access the metaverse. Companies negotiate with states about how new products can be adapted to regulatory or cultural standards in order to be sold to citizens. Larger **states are able to leverage access to their populations**, who are both customers and important sources of behavioural data, in product development negotiations with firms desperate to keep up with their competitors in the race to innovate.

Numerous **new policy issues** related to citizens' participation in virtual worlds have emerged. Complex debates rage over how to balance creative freedoms for users and businesses while ensuring adequate recourse in the event of fraud, manipulation and harassment. Related to this are questions about ownership and appropriate uses of behavioural data collected by both states and companies. These questions determine which citizens can access spaces whose creator-imposed rules may be incompatible with state standards, either in terms of protection for citizens or mandatory monitoring requirements.

The functioning of the multiverse creates considerations in the physical world. These range from access to **critical raw materials** required for a dematerialised digital economy, to where automated factories and servers are located, as well as where hardware is manufactured, due to the economic and political benefits such activities could bring. Complex social dilemmas arise from **new ways of forming relationships**, including rights and freedoms for primarily virtual relationships ranging from marriage and taxation to immigration and unification.

Digital infrastructure dictates **inequality between states**. Some states with younger populations are experiencing massive growth, "leapfrogging" into wealthy nation status at a time when production, employment and innovation are less dependent upon geography than ever before. Others find themselves on the wrong side of an ever-widening digital divide. Some larger economies fall behind as their aging populations struggle to adjust to the new socio-economic reality, while smaller, more agile economies have been able to adapt quickly.

Inequality within states persists, with only the relatively privileged able to access the most cutting-edge technology. Some states are considering paying large subsidies, at significant public cost, to provide universal and equitable access to the metaverse. While digitalisation is undercutting millions of people's income streams through automation and deflationary pressures, pensioners with a state-provided fixed income are seeing a substantial rise in their purchasing power as the cost of many goods, services and experiences plummets. A massive industry is emerging that combats loneliness among senior citizens by providing engaging experiences that users can participate in regardless of physical ability.

Cybersecurity is a major concern globally. Many of the liberating elements of virtual reality, such as being able to present oneself as any age, gender, or body shape, can also be exploited to malicious ends. Interconnectedness means vulnerabilities can affect many actors. The elevated costs of cybersecurity are a barrier to many states trying to bridge the digital divide.

Considerations raised by this scenario for the future of the OECD:

- How could the OECD further contribute to establishing policy frameworks and rules for a far more virtual world?
- What new relationships may the OECD need to establish with increasingly powerful non-state actors such as global technology platforms and civil society movements?

Vulnerable World

The year is 2035, and humanity is at a precipice. Technological innovation has progressed faster than expected, bringing a multitude of benefits while simultaneously generating existential risks that require urgent global collaboration. Major breakthroughs have enabled dramatic reductions in greenhouse gas (GHG) emissions, but have not prevented dangerous levels of environmental degradation in other areas. Artificial intelligence, synthetic biology and space development have advanced rapidly, creating tremendous productivity benefits but also vulnerabilities that could prove catastrophic for civilisation. Automated production has created enough goods and services to meet basic material needs, but has led to extreme inequality and concentrations of power that are eroding the foundations of democracy. In this context, multilateral institutions face fundamental questions about their role in safeguarding humanity against the unprecedented power it has to destroy its own potential.

How we got here: The 2020s saw a surge of innovation in science and technology, spurred by massive investment and collaboration among scientists to tackle the COVID-19 pandemic. Attention then turned to the next looming crisis: climate change. A lack of sustained agreement and action among national governments on climate meant that reliance on technological innovation emerged as the primary route forward, driving down the cost of technologies like renewable energy and electric vehicles relative to their fossil fuel predecessors. Public subsidies, investments in R&D and low interest rates played a role initially, but the private sector came to lead the energy transition, superseding innovation by governments in all but a few areas judged essential for national security. Major powers competed fiercely, for fear of falling behind, particularly in quantum computing and artificial intelligence (AI); however, little was done to ensure a human-centred approach. Publics and politicians around the world celebrated the unexpected speed and success in tackling GHG emissions, and the achievement ushered in a wave of political optimism based

on technological promise. By 2035, the combined effect of this innovation surge has been to transform societies faster than any previous period in human history, but with uneven impacts.

By 2035…



Thanks to **game-changing technological breakthroughs** in renewable energy, electricity storage and carbon sequestration, **GHG emissions** have stabilised to the point that emissions-driven catastrophic climate change scenarios are no longer a clear and present danger. However, with the best-understood environmental issue apparently addressed, public and political momentum for action on other environmental issues, including **biodiversity loss, deforestation** and **overfishing** has waned. Ongoing biodiversity loss poses an existential threat to a large amount of animal life and tremendous dangers for humans.

A failure to act holistically on environmental issues has compromised critical **ecosystem services,** such as soil fertility and the provision of clean drinking water. Though localised ecological collapse has been responsible for, or significantly contributed to, the end of civilisations in the past, reaching **environmental tipping points** on a global scale is new. The possibility of cascading crises – such as the collapse of natural pollination, climate destabilisation and zoonotic pathogens reaching a global scale – is imminent. Much like GHG emissions, the sources of these challenges are complex and collective, but unlike emissions, technological solutions remain elusive.

Rapid technological innovation has led to significant gains, but also critical vulnerabilities, in other sectors. Cheap and easily accessible **gene sequencing and editing** technology, which enabled breakthroughs in medicine and agriculture, has led to instances of biohackers developing deadly pathogens in homemade laboratories. Massive **constellations of satellites** have bridged the digital divide by facilitating widespread Internet access and have reduced the impacts of frequent natural disasters with detailed, real-time environmental monitoring. But traffic in low earth orbit has reached a level where one accident could cause cascading collisions that knock out global communications capacity. Ongoing competition between countries over AI supremacy has pushed humanity closer towards **superintelligence**, but without globally recognised safeguards. Finally, **nuclear arms** control remains critical and is linked to fears of novel weapons of mass destruction, which by now can be manufactured by non-state actors. (See box below for more about novel risks on the horizon.)

While, significant progress has been made on overcoming basic material deprivation, **extreme inequality** and structural unemployment are growing in many countries. **Digital manipulation and disinformation** exacerbate deep societal divisions and support populism and corporate plutocracy. Multiple parallel realities have emerged and cemented, severely hindering political discourse and undermining democracies around the world. The failure in governance is in itself becoming an existential threat, as it prevents global consensus on critical issues such as addressing the alignment problem in artificial intelligence.

The dual dynamic of existential risks and unprecedented possibility creates compounding **global co-ordination** challenges and opportunities that require unprecedented efficacy in global collaboration. Past challenges such as GHG emissions and nuclear arms control operated on the Pareto Principle, i.e. a small number of actors creating the overwhelming majority of impacts; imperfect co-operation was therefore adequate to avert the worst impacts for humanity at large.

However, the diffusion and accelerated power of technologies such as self-improving AI algorithms have levelled the playing field. A single actor with relatively modest resources has the power to disrupt the balance across a number of fragile systems and tip civilisation towards collapse. Furthermore, countries' traditional baseline strengths in areas such as level of education, military and technological capacity have little power to protect them from experiencing deeply destabilising impacts. This is a world that requires unanimity and far greater infringements on states' sovereignty in some policy areas than most states would

have previously been willing to accept. Meanwhile, with inequality spiralling out of control, countries' ability to have meaningful dialogue on other issues, including known existential threats, is much more difficult.

Box 2. Novel risks on the horizon

New and emerging risks stemming from human technology and its large environmental footprint could create a multitude of unexpected, destabilising impacts. Truly existential risks could permanently destroy humanity's long-term potential to thrive. The following are examples of novel anthropogenic, or human-generated, risks that humanity could face in coming decades.

Engineered pandemics

Natural pandemics have occurred throughout history, and some, like the Bubonic Plague, had devastating mortality levels. However, genetic engineering and bioengineering have created a novel risk of deadlier pandemics than have been experienced at any point in human history. Engineered pandemics designed explicitly to cause human mortality pose an arguably greater risk in terms of their destabilising impacts to human society. Such a scourge could be released either accidentally or intentionally by a rogue actor. In contrast to nuclear arms, the relatively low costs of genetic engineering also make biological weapons potentially much more widely accessible.

Kessler Syndrome

Unprecedented increases in the number of satellites in orbit could bring benefits like affordable digital access to all areas of the earth, and generate tremendous economic and technological opportunities. However, it also heightens the risk of catastrophic cascading collisions. A chain reaction of satellite collisions, known as the Kessler Syndrome, could cause potentially irreversible damage to the world's communication capacity almost overnight, reversing decades of progress. Such a space disaster could also delay efforts to mine asteroids rich in minerals essential for digital technologies, and, taking a longer term view, the possibility of establishing life beyond our planet.

Unaligned artificial intelligence

Rapid advances in technological capacity are pushing humanity closer to the development of superintelligence. Further advances in machine learning and artificial intelligence could dramatically decrease the number of human inputs required for economies, governments and societies to function, as machines may be better suited to take on new tasks created by technological advancement. If technological capacity for unsupervised learning and self-improvement were to surpass that of the human brain, humanity could lose control of its future trajectory. No safeguards currently exist to guarantee that the values and interests of superintelligent systems would align with those of humans.

Source: OECD Strategic Foresight Unit.

Considerations raised by this scenario for the future of the OECD:

- How can the OECD develop the necessary evidence, capacity and networks of trust to contribute to addressing the most pressing future issues requiring global collaboration?
- What new systems of global collaboration may be required to achieve the unprecedented levels of effective co-ordination and enforcement that may be required to safeguard the future of humanity?

Table 0.1. Scenario summaries

	Multitrack World	Virtual Worlds	Vulnerable World
Description	The world has formed into several separate digital ecosystems/economic clusters with distinct systems and standards	Life has gone virtual on a global, interoperable digital platform run by tech companies and managed with state intervention	Humanity faces new existential risks following rapid, technology-driven progress on reducing emissions
How it happened	Digital decoupling led to proliferation of competing ecosystems that solidified as country clusters	Citizens demanded global connection and interoperability in virtual space	An innovation boom and government inaction resulted in the private sector leading the energy transition
Assumptions challenged	That globalisation will continue, or the world will become bipolar, with OECD countries in the same digital ecosystem and trade bloc	That growth of virtual life will be modest and marginal, and platform companies will remain subsidiary actors in the multilateral system	That future global challenges will be similar to those of the past, and the world can muddle through with limited global co-operation
Dominant narrative	Different Ideas of Better Lives	Different Policies for Different Worlds	Better Collaboration for Bigger Challenges

Strategic considerations for the future of the OECD

The three scenarios illustrate some of the ways in which the world could be substantially different in 2035. As such, they serve to broaden perspectives about what the future may require in terms of global collaboration, and what it could mean for organisations such as the OECD. Taken together, these scenarios reveal a number of strategic considerations for how best to prepare the OECD to meet the evolving needs of the global community in the face of a highly dynamic and uncertain future.

Following each consideration are preliminary emerging priorities and possible actions the Organisation may need to consider taking in the years ahead. These are the result of engagements to date with OECD staff and other stakeholders, and are intended to provoke reflection and serve as examples of the kind of concrete outcomes that can result from a foresight exercise. They are not intended to be prescriptive nor to pre-judge the outcomes of further workshops, deliberations and decisions based on the contents of this report.

How might the core purpose of the OECD need to adapt in the future?

The world could evolve rapidly in any number of directions, each bringing new priorities for global collaboration. For instance, deglobalisation could divide former allies and force the OECD to determine more carefully where to focus its policy advice and implementation support among a small subset of global actors, and where to work to create shared understanding, learning and bridge-building across divergent economic and political systems. The Organisation will also need to decide where to prioritise its efforts as a pathfinder and pioneer of new concepts and policy responses. This may include safeguarding human well-being in the growing realms of virtual space and navigating unprecedented global risks that threaten to undo centuries of human progress. With the evolving scope and nature of global challenges, **what purposes should the OECD be prepared to serve?**

Emerging priority: Strengthening the OECD's potential role as a global bridge-builder on policy issues

Potential actions:

- Identify key issues of global interest (including existential threats) where the OECD is needed to play a role of neutral, evidence-based convenor, bridging different economic and political systems
- Expand collaboration (e.g. committees, initiatives) with non-member governments and other entities such as non-state actors, and optimise ongoing engagements
- Enhance global foresight collaboration for a greater understanding of emerging challenges and common aspirations for humanity's future

What values should remain (or become) central to the OECD?

The scenarios shed light on some of the ways in which the values, expectations and priorities of citizens could evolve. Polarisation over long-held economic assumptions such as the inherent value of technological progress may grow, while radically alternative lifestyles and values could proliferate in a multiplicity of virtual worlds that cut across geographic lines. Shared values among OECD members have enabled its consensus-based approach and are one of the key pillars supporting its competitive advantage on a crowded global stage – however, the Organisation could face growing contestation that strikes at the heart of some of its most long-held positions. In the face of growing diversity, complexity and transformation of human values, **what core ideals should the OECD strive to advance** (e.g. democracy, rationality, evidence-based policy)? Are there previously held positions that the Organisation should adjust?

Emerging priority: Updating core values and clarifying levels of values-based engagement

Potential actions:

- Debate, refine, and update the core principles of the OECD, including re-examining what constitutes "like-mindedness" for membership and partnership, and what level of commitment to tackling shared challenges is sufficient for collaboration
- Based on the above, define parameters of governance, decision making and the required level of adherence to core values for participation
- Lead global efforts to demonstrate the value of evidence-based policy for improving people's lives and to improve the quality, rigour and legitimacy of such practices in the face of a shifting data and information landscape
- Develop neutral analytical frameworks to assess policies across competing political and economic systems (e.g. based on contribution to well-being)

Who may need to be represented within the OECD?

The scenarios explore different possible futures where states and non-state actors could become more or less influential in global affairs and more or less capable of and legitimate in representing the interests and aspirations of citizens. In the face of this uncertainty, what forms of membership and other relationships may the OECD need to develop in order to best serve the most pressing needs of the global community? The Organisation may need to reconsider with which actors it needs to engage to remain relevant, and experiment with multiple configurations of structures and relationships to navigate the trade-offs between being a small and nimble organisation of like-minded entities and the reality that some global challenges cannot be resolved by a small group alone. Furthermore, it may need to choose a new primary identity (e.g. as a values-driven issue advocate versus a utilitarian negotiator) when building relationships and dialogue platforms. In short, **who should have a seat around the OECD's agenda-setting and decision-making tables,** and how can the Organisation further secure its future convening power?

Emerging priority: Strengthening relationships with an expanded range of actors

Potential actions:

- Update and expand legitimate and transparent mechanisms for relationships with the private sector in areas that are crucial to advancing the OECD's mission or require a whole-of-system response
- Incorporate community service organisations, civil society movements and other non-state actors in relevant bodies and policy discussions, with particular attention to underrepresented interests and perspectives
- Drawing on participatory democracy approaches, create new fora to include citizen experiences as part of policy debates

What new operational questions could the OECD face in the coming years?

The scenarios can also serve to highlight a number of potential questions for the OECD's structure and operations that could be highly impactful on the Organisation's ability to fulfil its desired purposes and roles. Does the OECD have the digital capabilities needed to play a key role in designing better policies for better virtual lives? Will it have access to data collected by platform companies and an understanding of their algorithms? How might the OECD's own accommodations and human resource practices need to adapt if people could increasingly work virtually from anywhere in the world? How does the OECD develop the staff and operational infrastructure to provide rapid and relevant policy support in a context where there are multiple concurrent global crises on the horizon? In sum, the OECD should ensure it has the **agility to rapidly shift resources and adapt structures and processes** in light of changing needs and realities.

Emerging priority: Investing in the infrastructure and capabilities required for a virtual world

Potential actions:

- Conduct OECD activities such as global meetings and skills assessments in virtual reality
- Strengthen capacity and agreements for the OECD to collect and analyse policy-relevant data from sources including platform companies
- Prioritise human interaction and connection in the transition to a more virtual working environment and more geographically distributed labour market
- Accelerate work on policies and regulation of virtual space
- Expand hiring from non-member countries to improve understanding of emerging policy frameworks, cultural developments and innovations in these countries

How could the OECD become better prepared for uncertainty?

Finally, the scenarios illustrate how political, social and technological developments can challenge institutions that operate on the basis of outdated or inflexible assumptions about how global systems function. The coming decades could be highly unpredictable, marked by complex and non-linear systemic change and bringing an acceleration of surprising changes of global significance. What are the best practices, programmes of work, horizontal projects, new areas of inquiry and institutional structures required to anticipate, understand and prepare societies for unprecedented challenges and disruptions? In this context, **how should the OECD evolve in order to be more forward-looking and future-ready?**

Emerging priority: Strengthening the OECD's ability to proactively identify and adjust to emerging priorities for global collaboration and action

Potential actions:

- Create an OECD body for existential risks

- Establish a ‘committee for the future’ to advocate for future generations and counter-balance pressures that privilege the immediate at expense of the long term
- Establish teams of innovation experts from multiple directorates to help committees tackle emerging cross-cutting challenges
- Strengthen foresight capacity across all areas of policy within the OECD and in member states

Conclusion and Next Steps

The scenarios presented in this report illustrate a small selection of the complex future challenges the international community could soon face. Addressing these and other issues on the horizon will require innovative and unprecedented approaches to collaborative problem solving. To be well-equipped for the future, the OECD will need a solid understanding of its purpose and objectives. The Organisation should decide what legacies and traditions to carry forward, and what new perspectives to embrace. It will also need to further develop the capacity to act in ways that advance its objectives under conditions of continuous uncertainty, and to prevent uncertainty from becoming a threat to well-being, prosperity and social cohesion. Strategic foresight is an essential tool for handling such uncertainty, for clarifying core objectives, and ensuring that the OECD can continue to provide better policies for better lives long into the future.

Annex A. Scenario implications by category

Table A.1. Scenario implications by category

	Multitrack World	Virtual Worlds	Vulnerable World
Social			
Inequality	**Varies substantially** as not all clusters emphasise equality and inclusion as a component of social well-being, or define it on the same terms. Inequality between clusters grows on multiple dimensions	**Basic connectivity provided** globally as a universal human right. However, connectivity and VR equipment differences privilege the wealthy and allow greater opportunities in virtual space	**Inequality is exacerbated** by innovation-led growth, hindering political discourse to the degree that it threatens the viability of democratic governance
Migration	Migration levels are **high but concentrated** within clusters, where it is relatively frictionless. Job opportunities in ageing countries is a pull factor	Access to new hardware only released in some locations is a novel pull factor (and point of **complex negotiation**), while unemployment is less of a push factor	Environmental hazards and unemployment are major push factors for migration among **vulnerable communities** and is highly politicised
Identity	Each cluster actively fosters a sense of shared identity. Identity is strongly formed based on **othering between clusters**	**Individuals** can express themselves differently in different areas of the metaverse, provided they fall within state constraints	**Tribalism** has been cemented in many countries as people band together around newly formed ideologies
Technology			
Internet connectivity	**Splintered** between clusters, with extremely high barriers to reconnect	Common **global platform** with universal access as a human right	**Near-universal** access provided by saturated satellite networks
Artificial intelligence	**AI arms race** is accelerating with a high risk of artificial general intelligence being developed without sufficient safeguards	**Nuanced debates** over digital issues like AI and surveillance occur regularly within areas of the digital world where such discussion is permitted	**Competition** to achieve supremacy in AI has accelerated the arrival of general AI but prevented the creation of enforceable standards on alignment
Environment			
Climate change and environmental emergencies	**Bad and getting worse**, but not yet disastrous on a scale that breaks clusters apart. Each cluster is managing based on its own priorities	**Better**, due to massive shift to renewables for electricity and VR/AR displacing much transportation and mobility	Emissions reduced, but cascading, interconnected **environmental emergencies** are nevertheless imminent
Energy profile	Energy **security and independence** within clusters is priority, whatever the form; cluster with the raw materials, and R&D capacity are the most advanced on renewables	High levels of **electricity usage and lower levels of liquid fuels**, but the renewables supply has yet to be able to keep pace with demands of the digital economy	Private sector-led **transition to renewables** based on technological innovation came at the expense of a just and holistic sustainability transition

	Multitrack World	Virtual Worlds	Vulnerable World
Economy			
Economic paradigm	**Varies by cluster**, with some continuing to pursue growth above all and others taking a more well-being driven approach	Innovation- and entertainment-led **economic growth** is one of the main features of the global system	**Technology-driven growth** brought progress but may be reaching its limits due to collective action problems
Labour markets	**Local and protected** in the more decentralised clusters; **Highly connected** within more integrated clusters; **Largely sheltered** from competition from other clusters	**Single globally connected** labour market where unequal bandwidth is the main remaining barrier to perfect competition; wage stagnation, but also lower costs to achieve well-being	Many new technology-based and green jobs were created, but **automation** is accelerated inequality and structural unemployment is becoming a global challenge
International trade & monetary relations	Trade and currency flows are almost exclusively **limited to clusters**; some have single currencies and others are still diversified	Trade and investment are **global** and mostly on digital products using **digital** currencies; hard currencies exist as reserves	The **US dollar** remains dominant, and value chains are more localised and optimised to be adaptive to disruption
Governance			
Geopolitics	**The US and China** each head clusters, but other clusters include Europe, India, Russia, and **non-geographic** clusters of like-minded smaller powers	**Nation-states** similar to in 2020 but are less powerful actors in global governance, with corporations securing a seat the table and civil society knocking on the door	**Multilateral institutions** are becoming defunct as countries struggle with regional and domestic crises; private sector operates independently in a parallel infrastructure
Non-state actors	The position of many is weakened as global connections are broken or go underground; organisations **aligned with cluster**-based values systems do best	**Non-state diplomacy** is critical. Tech companies' role in hosting and curating virtual spaces gives them power, while new and persistent inequalities motivate civil society	Success in addressing emissions renewed **trust in the private sector**; civil society now pushing for technology- and innovation-based solutions

Source: OECD Strategic Foresight Unit.

Annex B. Questions for further reflection and consultation

1. Drivers of Global Change

- What important uncertainties about how the world could change in the coming 10-15 years could be most relevant for the future of global collaboration and the OECD's role within it (e.g. extent of possible US/China decoupling; inequality; severity of environmental emergencies, emerging global threats, etc.)?
- Are there uncertainties or disruptions currently "under the radar" that are not being adequately considered or prepared for by the international community in general, and the OECD and its members in particular?

2. Scenarios and Considerations

- What implications and considerations could each of the three scenarios presented for the world in 2035 raise for the future of global collaboration and for the OECD?
- Taken together, what considerations do the three scenarios (and others) raise for the OECD's future purpose, values, relationships, and operations?
- What steps might the OECD need to begin taking now to be better prepared to serve the global community under these (and other) potential future scenarios, and under ongoing future uncertainty?

Global Scenarios 2035

EXPLORING IMPLICATIONS FOR THE FUTURE OF GLOBAL COLLABORATION AND THE OECD

In the face of rapid change and high uncertainty, organisations must prepare for the unexpected. This report explores three scenarios – *Multitrack World*, *Virtual Worlds*, and *Vulnerable World* – and their possible implications for the future of global collaboration and for organisations such as the OECD. It includes emerging changes and trends that could affect the world in unpredictable ways over the next fifteen years, and offers potential strategic considerations and action areas aimed at ensuring the OECD's agility, resilience and future-readiness. Prepared by the OECD's Strategic Foresight Unit to commemorate the Organisation's 60 th anniversary, the report is intended to stimulate dialogue among all those sharing an interest in preparing the OECD to meet the evolving needs of the global community in the face of a highly dynamic and uncertain future.