



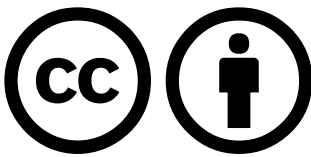
مؤسسة دبي للمستقبل
DUBAI FUTURE FOUNDATION

NAVIGATING THE FUTURE FOR GROWTH, PROSPERITY AND WELL-BEING: THE FOUNDATION OF THE GLOBAL 50 REPORT

FEBRUARY 2023



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EXECUTIVE SUMMARY

In 50 years, many of today's children will be grandparents. Like generations before them, they will find that the world changes profoundly over their lifetimes. It is impossible to predict the future and, indeed, there may not be just one future but many diverse futures, unfolding in parallel in different parts of the world. This concept metaphorically echoes some interpretations of the quantum nature of reality and provides the context to frame the next 50 years as the *Era of Quantum Shifts*, an era which indeed we may be in already. This raises the importance of, and the need to, understand and build a future that is characterised by growth, prosperity and well-being. This view forms the basis of The Global 50 report.

WHY GROWTH, PROSPERITY AND WELL-BEING

As people live in an increasingly wide range of socio-economic, political and environmental contexts, and as the world becomes even more interconnected and technological and scientific advances transform societies, **the task of managing global risks will stretch conventional systems and test values.**

People could face very different futures depending on the challenges that face their countries and communities and their capacity and preparedness to respond to risks and opportunities.

Other perspectives on the future may develop and we cannot predict how or when. However, we can be confident that **humans' basic needs and motivations for self-realisation will endure.** While this does not sound new, the challenge will revolve around finding new means to meet those fundamental needs in new forms, in the diverse, co-existing and constantly changing realities that the world will face in the future.

Over the next 50 years, people's needs will evolve and economic growth alone will not suffice to meet them: it must translate into greater prosperity and well-being. Hence, the **focus on growth, prosperity and well-being.**

NAVIGATING THE ERA OF QUANTUM SHIFTS

Growth, prosperity and well-being represent elements commonly considered to be essential for individuals and societies to thrive. Our conceptions of these ideas have evolved over history and are likely to change further over the next 50 years. A sense of prosperity and well-being is relative – to our neighbours, other social groups or other countries. Equally, definitions of growth change as we become better able to measure the things we value in more comprehensive and comparable ways. In 50 years, our concept of thriving may well have changed significantly to one that is unfamiliar to us today.

As widely diverging futures are possible, preparing for the future is not merely an intellectual exercise. It is about:

- understanding how people's expectations are changing and validating assumptions;
- anticipating the new risks and opportunities people could face in their daily lives;
- navigating uncertainties to create the conditions for individuals to thrive;
- understanding and monitoring megatrends where future opportunities and challenges may be present; and
- monitoring shorter term trends to identify short term initiatives.

The Dubai Future Foundation uses these guiding principles to think about the future and related future opportunities, 50 of which are shared in The Global 50 report. This report further elaborates on these guiding principles and decision-makers can apply them to their own circumstances.

ASSUMPTIONS AND UNCERTAINTIES

Drawing on published research and consultations with experts, our approach to understanding how growth, prosperity and well-being could evolve is based on **four assumptions and five uncertainties that are likely to be critical over the next 50 years** – to governments, to businesses and to people’s experience of daily life. **Assumptions and uncertainties are easier to identify over a 50-year horizon and are less likely to change within a 10-year time frame.**

The first assumption is that technological advances would accelerate; though research differs on the extent to which this will bring benefits or create risks, such as making human skills redundant and increasing social control. Second to this, people – though not necessarily everyone – will live longer and enjoy healthier lives, and this will create the need for new models of working and retirement.

While clarity on the extent to which new technologies, policies and behaviour change might limit the damage of climate change and other environmental problems, we assume that their impact will be significant for decades to come. And finally, global inequality in prosperity and well-being will remain a source of tension.

When it comes to uncertainties, each uncertainty represents a continuum of possible outcomes between two extremes. Where any given community lies on each continuum could differ from place to place and time to time, and there are many possible combinations of points on each continuum. This could lead to people around the

world living in a wide range of radically different socio-economic, political and environmental contexts. While these uncertainties are not new, what is new is the challenge of meeting people’s rising expectations of better growth, prosperity and well-being in the diverse, co-existing and constantly changing realities that the world will face in the next 50 years.

The first uncertainty continuum is about collaboration: to what extent will governance and international collaboration advance at a global level, reorganise around multiple new poles, retreat or take on new forms according to the challenge or issue?

The role of values in shaping people’s lives is the next critical uncertainty. Towards one end of the continuum, countries and communities could converge towards shared values – or at least become better equipped to manage diverging values. Towards the other end, we could see value differences increasingly dividing communities or nations.

Technology is the third uncertainty continuum. At one extreme, it could become our master, with people experiencing in their daily lives a sense of being controlled by technologies. At the other extreme, technologies could be more of a multiplier, with people benefiting from their use to spread solutions for the individual and common good.

The fourth critical uncertainty concerns nature. Over the next 50 years, climate change and

environmental degradation could accelerate and worsen. At the same time, humans could find new ways to minimise environmental risks and harness nature's capacity to restore itself.

The final uncertainty covers the systems that

societies and economies rely on and which could become more fragile in the face of crises or be continually redesigned for greater resilience. The continuum here is about how well those systems will evolve to manage people's changing needs.

GLOBAL MEGATRENDS AND TRENDS

In the process of trying to imagine what the future of growth, prosperity and well-being may look like and what opportunities and challenges may be ahead, the uncertainties mentioned will interact not only with each other, but with long-term global megatrends and trends.

Over a 50-year time frame it is harder to identify global trends rather than uncertainties, but this report identifies 10 megatrends and 17 trends that could have a significant impact on economies and societies globally, affecting prosperity and well-being - positively or negatively. They could affect a large majority of countries and several industry sectors with an impact over decades.

These were identified based on the review of strategically selected reports and studies on long-term global trends and future scenarios along with a thematic analysis of discussions with experts.

The megatrends are not exhaustive and others may become apparent over the next decade as the future unfolds. As patterns, they could be used as guidance to identify opportunities and challenges people could face in their daily lives to create the conditions for growth, prosperity and well-being. The 17 global trends deal with subjects from connectivity and urbanisation, advanced intelligence and energy, to mobility and water.

How to use this report

The view of the future covered in this report forms the foundation of The Global 50 report. This view can also inform discussions, thinking and action about the future in order to:

- 1 develop a common language and align understanding around a common framing of the future;
- 2 identify risks and opportunities that could derail or accelerate a country's, city's, or an organisation's development path;
- 3 assess the costs and benefits of action and inaction for each of the megatrends and global trends (impact/likelihood for risks and potential/capacity for opportunities); and
- 4 identify actions that are needed and make plans to implement them.

DEFINITIONS

The following terms and definitions are applied in the report:

Assumption: An assumption is something we think is probable or will happen even though it lacks evidence or evidence may point elsewhere.

Uncertainty: An uncertainty arises when differences in important contexts – such as socio-economic, political or environmental conditions – could result in radically different trend trajectories and futures. Though they are often presented in a simple binary manner for emphasis, there is usually a continuum between two extremes. Critical uncertainties can influence trends at global and/or regional level.

Signal: Events, hypes, new technologies, products and services, local and regional disruptions that have the potential to grow to become drivers or trends.

Driver: Drivers include phenomena, events, policies, strategies or scientific and technological advances that create the conditions for a trend to manifest itself and/or accelerate its impact. They can be deliberate or spontaneous and create shifts in demand, behaviour and policies.

Global Megatrends: A megatrend is a pattern evolving from global trends and research that is expected to have significant impact on economies and societies globally, affecting prosperity and well-being – positively or negatively. It could affect a large majority of countries and several industry sectors.

Global Trends: A sustained socio-economic, environmental or technological change that has a measurably rising influence, such as physical or financial impact.



A GUIDE TO THIS REPORT

Section 1 explores the era of quantum shifts and what it means when it comes to the future of growth, prosperity and well-being.

Section 2 covers the guiding principles on how countries, organisations and civil society can navigate this era for future growth, prosperity and well-being.

Section 3 introduces the 4 assumptions, 5 critical uncertainties and implications on future growth, prosperity and well-being. These are easier to identify over a 50-year horizon and are less likely to change within a 10-year timeframe.

Section 4 introduces the 10 megatrends and 17 trends that are set to shape the future of growth, prosperity and well-being. While megatrends are expected to materialise beyond 10 years, global trends can change every 2–3 years.

Appendix 1 outlines the methodology of this report.

Appendix 2 comprises a deep-dive into the 17 trends including recommendations on what to monitor, map and measure.

Appendix 3 depicts a list of the main studies and reports reviewed to identify long-term global trends.

References contain all other supporting literature.

1. The Era of Quantum Shifts and the Future of Growth, Prosperity and Well-being

Growth, prosperity and well-being represent elements commonly considered to be essential for individuals and societies to thrive. Our conceptions of these ideas have evolved over history and are likely to change further over the next 50 years.

A sense of prosperity and well-being is relative – to our neighbours, other social groups or other countries. Equally, definitions of growth change as we become better able to measure the things we value in more comprehensive and comparable ways. In 50 years, our concept of thriving may well have changed significantly to one that is unfamiliar to us today.



Most future-focused reports present sets of trends, often on a single-issue area. This report takes a systemic approach to build a global picture of possible futures for growth, prosperity and well-being. To do this, we draw on consultations with experts and a desk-based review of published reports on the future in 10, 20, 30 years and beyond from which assumptions, uncertainties and trends are extracted. While this report does not specify where the world will be in 50 years, as there are many possibilities, it does draw on findings to understand what future we might be ushering in.

AN ERA OF QUANTUM SHIFTS

Compared to 50 years ago, people and places are experiencing change at different speeds and to different degrees and responding in different ways. There are both new ways to prosper and new challenges to deal with. As these trends continue to accelerate, even more radically different ways of life than we see today could co-exist in parallel in different parts of the world, with people living in an increasingly wide range of socio-economic, political and environmental contexts.

The idea of not just one future but many diverse and connected futures, unfolding in parallel in different parts of the world, metaphorically echoes some interpretations of the quantum nature of reality – hence framing the next 50 years as the Era of Quantum Shifts. Quantum-related metaphors in the social sciences are not new. Over the past two decades, they have been increasingly deployed in areas such as philosophy, politics, psychology and international relations. Amid the different approaches through which phenomena can be interpreted using quantum theory, the concept of ‘entanglement’ (Wikipedia, n.d.) may provide a particularly relatable way to think about the intertwined relationships and interconnections that underlie the way that the future will play out.

The next 50 years is set to be an era in which some countries and societal groups will be better able than others to manage uncertainties, meet unprecedented challenges and take advantage of the vast new technological possibilities that emerge. The divergence and gradients in futures could be extreme and **the challenge will revolve around finding new means to create growth, prosperity and well-being in new forms, in the diverse, co-existing and constantly changing realities that the world will face in the future.**

Long-term trends will create both new ways to thrive and new challenges to survive. As these trends accelerate, uneven access to life-changing opportunities and technologies could increase divisions. Of course, we cannot predict how or when other perspectives may develop, but we can be confident that **humans’ basic needs and motivations for self-realisation will endure.**

As widely diverging futures are possible, preparing for the future is not merely an intellectual exercise: it is about understanding how people’s expectations are changing, anticipating the new risks and opportunities they could face in their daily lives and navigating uncertainties to create the conditions for individuals to thrive. **The focus on growth, prosperity and well-being is ultimately a focus on people:** understanding how people’s expectations are changing, anticipating new risks and opportunities they could face in their daily lives and navigating uncertainties to create the conditions for individuals to prosper.



FRAMEWORK FOR GROWTH, PROSPERITY AND WELL-BEING

Growth, prosperity and well-being are not abstract or quantitative economic and social goals.

They are measures of how well economic and societal models meet individual and collective fundamental needs and go on to enable people to attain higher-order needs. Today, the motivation to satisfy more complex needs goes hand in hand with higher levels of economic development and new opportunities. But it places greater expectations on societies and therefore will continually raise the bar on what constitutes prosperity and well-being in the future.

The further ahead we look, the harder it is to imagine what new knowledge and technologies will come into being. In 50 years, even the terms 'growth', 'prosperity' and 'well-being' will have taken on new meanings as societies become more sophisticated: measures of growth, for example, could account for negative externalities such as environmental damage; societies could be seen as prosperous when they offer citizens a wide range of life choices; notions of well-being could centre more on feelings of self-realisation.

In an increasingly uncertain era, more people in the future may more aggressively seek out places where they can have their basic needs met as they feel they cannot rely on any existing social structures. Those who cannot have their needs met may disengage or move elsewhere. Governments, industries and civil society organisations therefore need to undertake policies and actions to look at how best they can meet people's basic needs and higher-order needs.

Maslow's hierarchy of needs (Maslow, 1970) has long been recognised as a simple yet insightful way to represent the evolution of human motivations which underlie concepts of prosperity and well-being. The table below summarises Maslow's hierarchy today and offers an example of how economic and societal models might respond to those needs in the future – by managing scarcity, improving access to services, making individuals feel connected to communities, recognising their role in society and allowing them greater self-realisation. Other perspectives may develop – we cannot predict how or when, but we can be confident that humans' basic needs and motivations for self-realisation will endure.



		MASLOW'S HIERARCHY OF NEEDS TODAY	MEETING THOSE NEEDS IN THE FUTURE
IMPORTANCE TO GROWTH, PROSPERITY AND WELL-BEING	SELF-FULFILMENT	Personal development, growth, creativity	SELF-REALISATION HOMO SAPIENT Enabling individuals and communities to innovate, build and play
	PSYCHOLOGICAL NEEDS	Self-esteem, agency, control, autonomy, recognition	EGO EGO-BOOSTERS Supporting individuals' agency and recognising their role in society, through employment, entrepreneurship and social engagement, parenting or caring
		Love, belonging, inclusion, community, 'fairness'	SOCIAL COMMUNITY CONNECTORS Promoting social cohesion and inclusion through new systems and distribution models
	BASIC NEEDS	Safety and stability, mental and physical health	SAFETY AND STABILITY ACCESS PERSONALISED Personalising access to advanced health, education, living and mobility solutions
		Air, food, water, shelter	PHYSIOLOGICAL SOLVING SCARCITY Eliminating worry about basic needs through new models of resource stewardship and supply and environmental safeguarding

This research uses Maslow's framework as a useful way to identify key questions about the factors that could determine an individual's sense of prosperity and well-being in the future and range of potential

future contexts for growth, prosperity and well-being. What might change? How important is perceived vs real prosperity and well-being? What influences that sense or perception?



DEFINITIONS OF GROWTH, PROSPERITY AND WELL-BEING

In defining and exploring the future of growth, prosperity and well-being that any decision-maker wants to capture for citizens, residents and others around the globe, identifying key measures needed to monitor and develop the definitions of growth, prosperity and well-being will be a key area of competitive advantage. It means playing a leadership role in redefining what growth, prosperity and well-being means for the entire world as global citizens seek similar needs and higher-order needs.

Growth today – the increase in the total real output of goods and services in an economy over time.

Growth tomorrow could go beyond economic factors, for example by accounting for negative impacts, to create a measure of net-positive growth.

Prosperity today – a life of dignity and stability, free from the threats of poverty or harm, with access to decent employment opportunities and services such as education and healthcare.

Prosperity tomorrow may encompass the same factors but set the bar higher: societies seen as prosperous will offer open access to highly personalised education and healthcare services and widely varied means to earn a living, whether through employment, entrepreneurship or creativity. People will have more life choices and a more supportive environment in which to make them.

Well-being today – a good state of mental and physical health and feelings of life satisfaction.

Well-being tomorrow could be more about feelings of self-realisation as advances in medicine and technology lead to a greater ability to address mental and physical health issues. Positive social interactions and a sense of belonging conducive to self-esteem may take on greater weight in well-being, placing new demands and expectations on support from the state and society.



2. Navigating the Era of Quantum Shifts

We cannot assume that all societies will take the same paths to prosperity and well-being. Those paths, and the speed at which different societies evolve, will largely depend on the implications of how others anticipate and manage different risks and opportunities as a sense of prosperity and well-being is relative.



As widely diverging futures are possible, preparing for the future is not merely an intellectual exercise. It is about:

- **understanding how people's expectations are changing and validating assumptions;**
- **anticipating the new risks and opportunities people could face in their daily lives;**
- **navigating uncertainties to create the conditions for individuals to thrive;**
- **understanding and monitoring megatrends where future opportunities and challenges may be present; and**
- **monitoring shorter term trends to identify short-term initiatives.**

Practically, decision-makers can use this report to analyse which aspects of the uncertainties they are already well equipped to face and which require new capacity or fresh solutions. From there, they can explore policy or strategic options and capacity needs to manage the risks and opportunities that are most important for future growth, prosperity and well-being.

While the uncertainties and megatrends are global, and each could have significant impacts across regions and industries, these impacts could also play out differently in different locations around the world. Factors such as geography, local economic factors, social conventions, stakeholder groups and values all shape how a country envisions its future and how the decisions taken by members of society collectively create that future. For any given country, some global trends will be more pertinent than others.

Each country will also sit at a different point of the continuum on each of the critical uncertainties and might be able to influence their direction of travel – though all but the most closed of societies will be exposed to the risks and opportunities generated by global shifts.

Decision-makers need to identify the megatrends and global trends that could have the most impact on their local models of work and life and the local stakeholders who could play an important role in standard setting for critical systems, such as those for data, finance and trade flows, and for technological interoperability, as technological advances continue and play an increasing role in development.

GUIDING PRINCIPLES

To support decision-makers in managing uncertainties and monitoring and capturing future opportunities, we have identified four questions that are central to the process of understanding uncertainties, risks and opportunities. Decision-makers can apply these to their own circumstances by asking how they relate to their current situation and to their vision of the future.

In answering these questions, decision-makers may need to review and engage in capacity building, looking at better measurement at the micro level, new metrics and strengthened capacity to deal with different stakeholders and better manage complexity. This includes the resources and tools needed to anticipate shifts in trends, megatrends, risks and opportunities.

- 1 How are people's expectations changing and what new risks and opportunities will people face in their daily lives in the era of quantum shifts?
- 2 Technological progress is hard to predict but, drawing on the assumptions in this report, what assumptions and technological advances should we anticipate as possibly playing a greater role in development?
- 3 What aspects of the uncertainties are they already well equipped to face, and which require new capacity or fresh solutions?
- 4 Which global megatrends and trends could have the most impact on models of work and life? For example, if advances in productivity – through automation or advanced intelligence – disrupt employment for large groups in society, what measures could ensure people still feel engaged in and recognised by their community?

A STRUCTURED APPROACH TO MONITOR, MAP, MEASURE AND MANAGE OPPORTUNITIES AND RISKS TO GROWTH, PROSPERITY AND WELL-BEING

Growth, prosperity and well-being are ultimately measures of how well a society meets the needs and motivations of its members.

Finding new means to create growth, prosperity and well-being – and in new forms – in the future will require foresight, strategic choices and innovation which may be beyond the areas of focus set out in an existing future vision.

Using the structured approach below to identify what to **monitor, map and measure** for each of these can inform thinking, planning and policymaking aimed at **managing opportunities and risks**.

Through crowd-sourcing or other research approaches, governments can engage citizens and residents in discussions about what growth, prosperity and well-being means to them.

Governments can also explore what growth, prosperity and well-being means to global societies as feelings of prosperity and well-being are relative to others.

In the future, our concepts of growth, prosperity and well-being could change completely to ones that are unfamiliar to us today, however, the future is not shaped only by trends or events - expected or unexpected - but by choices and actions, or failures to act.

Detailed examples of what to monitor, map and measure are included in Appendix 2.



Monitoring divergence: A sense of prosperity and well-being among any community is relative and subjective, often depending not on absolute levels of wealth or income but on the direction of change, whether positive or negative. Perceptions of what wealth and growth consist of may also change over time, for example with considerations such as well-being and environmental sustainability being factored in alongside conventional metrics such as gross domestic product (GDP). There is extreme divergence between countries and groups in terms of their capacity to manage risks and seize opportunities due to differences in income, technological capacity, governance models and values. Tensions are likely to arise in societies less able to adapt when people’s expectations diverge from actual delivery and as they see new possibilities to achieve prosperity and well-being but feel that they are denied access to them.



Mapping complexity – uncertainties, assumptions, megatrends and global trends: There are many possible ways in which an individual community may see itself on the continuums of the five uncertainties and the different ways they can interact with each other and with the megatrends. Collaboration among a wide range of stakeholders is needed to uncover risks and opportunities. People’s needs and motivations could change radically over 50 years, adding new layers of complexity to efforts to build and safeguard growth, prosperity and well-being. All of this complexity needs to be continually mapped to enable a systemic approach to understanding how global-and country-level issues and stakeholders intersect. Behavioural science approaches are potentially needed to enable a nimble response – in needs, motivations, systems, stakeholders and trends.



Measuring change: Understanding the impact of uncertainties will necessitate finding new measures, beyond quantitative ones. The availability of more data – especially more granular and real-time data – could be used to capture changes in people’s perceptions of growth, prosperity and well-being and identify what drives those changes. New measures of societal well-being, for example around social cohesion or life satisfaction, could reveal risks to be mitigated and provide indications as to the most effective policies. New tools to track experience, perceptions and the subjective sense of prosperity and well-being will guide leaders in defining objectives for countries and organisations that go beyond economic growth to pursue people’s wider aspirations.



Mitigating risks and capturing opportunities: The future may be uncertain, but through monitoring, mapping and measuring, decision-makers can continuously watch for ways of mitigating risks and capturing opportunities. In some cases, mitigating risks can itself be a source of opportunity. By applying the first three Ms, this fourth becomes a natural process. Drawing on foresight work, decision-makers can use this approach as a guide, even amid uncertainty, to generate innovative ideas for changes that meet the needs of their societies and organisations. Risks and opportunities would come not only from one’s own economic sector but could also come from others.

3. ASSUMPTIONS AND CRITICAL UNCERTAINTIES

Our approach to understanding how growth, prosperity and well-being could evolve is based on five uncertainties that are likely to be critical over the next 50 years – to governments, to businesses and to people’s experience of daily life. Each uncertainty represents a continuum of possible outcomes between two extremes. Where any given community lies on each continuum can differ from place to place and time to time, and there are many possible combinations of points on each continuum. This could lead to people around the world living in a wide range of radically different socio-economic, political and environmental contexts.

ASSUMPTIONS

Many futures are plausible and this report offers a guide to the uncertainties and trends that could influence paths to the future, but it also raises questions and informs long-term thinking about what risks and opportunities we can mitigate or anticipate today, to prepare for the future. Our interviews with experts were open, engaging them in conversations to share their thoughts about possible futures. We especially asked them to think about and articulate what assumptions they were making. These could be about which trends could be more important, or how quickly they might evolve or not. Despite their diverse backgrounds and areas of expertise, we found that the experts aligned strongly on four assumptions:

1 Technological advances will accelerate.

The experts assume that technologies far superior to today's will be omnipresent in 2071. Over the next five decades, they see a high likelihood that new general purpose technologies will emerge, driving radical change in everyday life across multiple systems in much the same way as electricity and the internet have done over recent decades. The experts assume that automation, miniaturisation, artificial intelligence and real-time data collection and analysis will be applied in a far wider range of areas than today, bringing widespread benefits and two main risks: technologies being used to control people's daily lives, and the socio-economic impacts of machine capabilities making human labour and skills redundant.

2 Lives will be longer and healthier. The experts assume that advances in human augmentation – neurological and physical – and genotyping and phenotyping will enable much more personalised medicine and nutrition, leading people to seek new forms of self-realisation while radically improving disease prevention. When diseases cannot be prevented, affordable, rapid, non-invasive diagnostic procedures will allow early intervention and more successful treatment. Longer life expectancy and higher quality of life will have significant implications for education, employment, working life and retirement with a need for new income, saving and consumption patterns.

3 Climate change and environmental problems will continue.

The experts assume that systemic effects will not be reversible within 50 years, raising two main risks: climate migration from uninhabitable areas, mostly intraregional, and resource scarcity. They also broadly assume that novel technologies, policies and widespread behaviour change will limit damage. Many assume that novel materials will enable sustainable alternatives in value chains and mitigate risks, for example through carbon capture or synthetic bacteria capable of eliminating non-biodegradable waste. Experts assumed that ecosystems, biodiversity and natural resources will be valued more highly in future, potentially leading to new ways of creating and measuring value.



4 Global inequality in prosperity and well-being will persist. The experts assume that unequal access to the benefits of new technologies and resources will remain a source of tension. Many assume that water and food security will not be fully solved, lower-income economies will grow but not uniformly and urbanisation – especially of Africa – will present both huge risks and opportunities. Experts assume that regionalism will continue to rise, driven by demographic changes, economic development and ideological divides between states with strong control and more liberal markets.

In our expert interviews and desk research we identified further, more general assumptions about the 50-year timeframe:

- The pace of change will increase in most areas of life.
- The world will become more interconnected technologically and interdependent economically.
- People expect scientific breakthroughs to have larger, more immediate impacts than they do.
- Disparities within societies will persist.
- Life satisfaction and self-realisation will grow in importance as societies develop.

The implications of these assumptions are tied into our conceptual view of the world in 50 years but, should these assumptions change, nations would have to understand the implications and be ready for them from a risk management perspective. Also, while these are generalised assumptions, they do not imply that they apply to all places and in the same extent. Though widely held by respected institutions, these assumptions risk trapping us into certain views of the future. Our research therefore also looked for critical uncertainties that could derail these assumptions and open up a range of new potential future contexts for growth, prosperity and well-being.



FIVE CRITICAL UNCERTAINTIES

Our research identified five uncertainties that could be especially critical over a time horizon of 50 years. While they are usually on a continuum rather than binary, in varied combinations these uncertainties can shape radically different socio-economic, political and environmental contexts. For each uncertainty it is possible to identify two extremes, between which lie a continuum of conceivable outcomes that could differ from time to time and place to place:

	From...		to...
COLLABORATION:	MULTIPOLAR	↔	MULTILATERAL
VALUES:	UNIQUE	↔	UNIVERSAL
TECHNOLOGY:	MASTER	↔	MULTIPLIER
NATURE:	DEGRADATION	↔	RENEWAL
SYSTEMS:	FRAGILE	↔	RESILIENT

We deliberately set out a neutral view: the world, regions or societies could move in either direction on each uncertainty continuum – and not all at the same time or to the same degree. We also examine each of the uncertainties against how the world might thrive over the next five decades – or merely survive. We looked for uncertainties that met four criteria:

- Their impact is highly systemic, with implications for multiple systems that can range from negative to positive.
- They are relevant at global, regional and country level.

- They are beyond the control of any one country or region.
- They are subject to events such as economic downturns that could drive them in different directions over multiple decades.

In this section of the report, we analyse these five critical uncertainties – explaining why they matter, pinpointing key risks and opportunities, and identifying which of the 16 trends we introduce in the second part of the report are most strongly dependent on how they play out.



COLLABORATION:

A CONTINUUM FROM MULTIPOLAR TO MULTILATERAL

Global interconnections are growing, as are the number of risks requiring transnational effort to manage. Many commentators regard the global landscape as shifting between a 'multilateral' structure, where power is dispersed and international governance provided by institutions such as the UN or World Bank ensures all countries have a voice, and a 'multipolar' pattern, where power is concentrated among a limited number of 'poles' represented by countries or blocs. In the future, governance and international collaboration could advance at global level, reorganise around new poles, retreat or present differently for new issues.

WHY IT MATTERS

On many emerging issues from data flows and bioethics to space exploration, there is a clear need for global efforts to collaborate and harmonise scientific and technical standards to protect citizens. Over the coming five decades, more collaboration is likely to be needed about more issues.

Existing institutions could become nimbler and more proactive. New tools and data sources could allow better real-time oversight. Collaboration could take new forms, from new international institutions or regional institutions with significant influence over large parts of the global population and economy, to novel forms of governance such as decentralised self-regulating bodies reporting to oversight agencies.

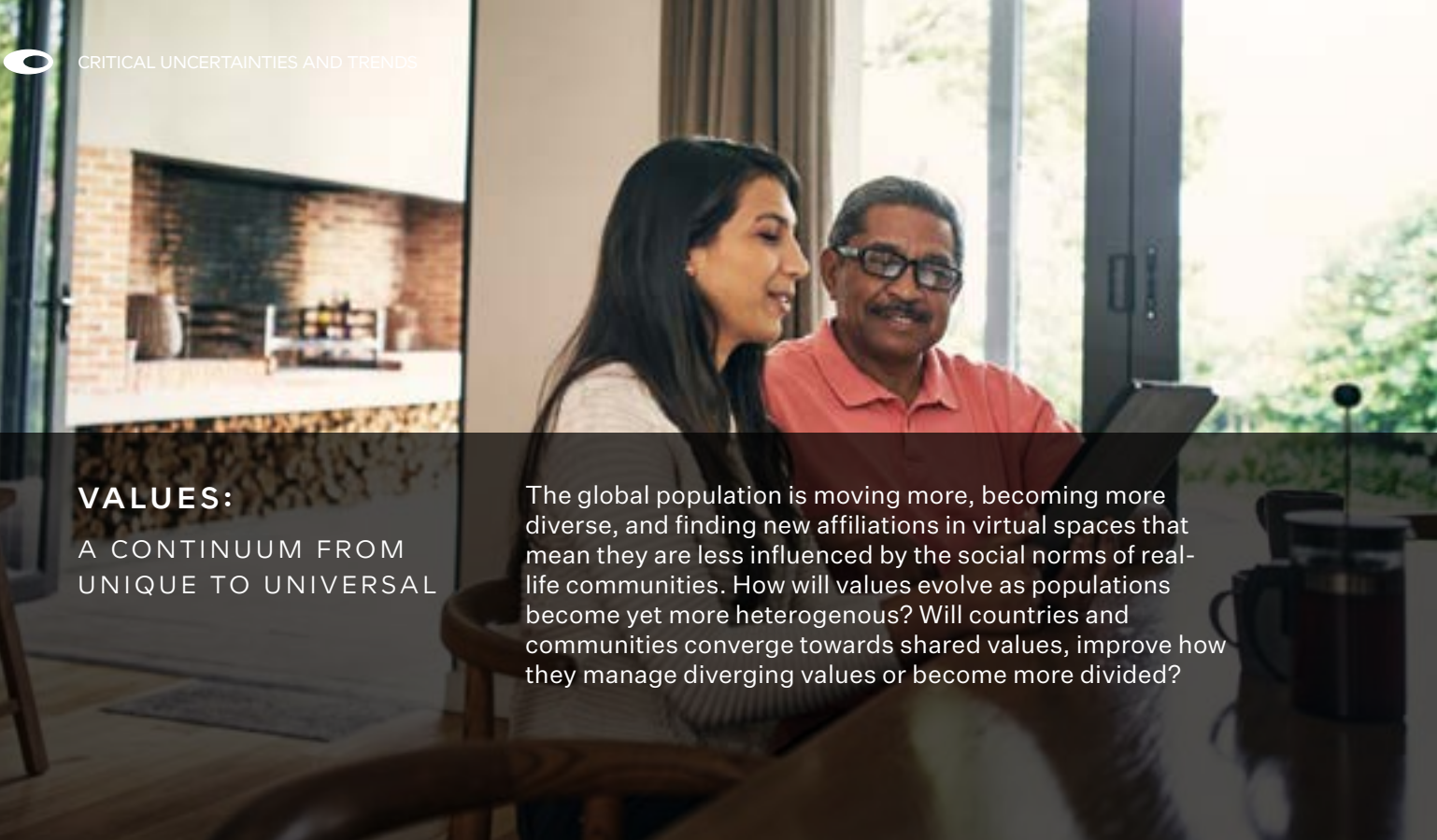
Alternatively, support for supranational governance could decline. Ideological differences, competition for markets or technological dominance could create competing governance systems or governance gaps, resulting in a lack of global collaboration which increases the threat of systemic risks.

QUESTIONS ABOUT THE FUTURE

To what extent will governance and international collaboration advance at a global level, reorganise around multiple new poles, retreat or take on new forms according to the challenge or issue? Multilateral collaboration could break down in some ways, although new forms of collaboration could contribute to greater shared prosperity and well-being.

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Lack of collaboration results in interoperability problems, hindering innovation and slowing progress in areas such as scaling mobility or resource solutions.
- Failure to reach global agreement on ethical or scientific standards, for example permissible degrees of human augmentation or cloning, leads to radical differences in health, capabilities and ideas about what it means to be human.
- More effective governance models build trust, enabling data flows, for example widespread health data sharing.
- New models allow regions and cities to collaborate, promoting innovation.
- Decentralised but coordinated governance models could enhance new trade flows and development.



VALUES:

A CONTINUUM FROM UNIQUE TO UNIVERSAL

The global population is moving more, becoming more diverse, and finding new affiliations in virtual spaces that mean they are less influenced by the social norms of real-life communities. How will values evolve as populations become yet more heterogenous? Will countries and communities converge towards shared values, improve how they manage diverging values or become more divided?

WHY IT MATTERS

As societies become more prosperous and more exposed to a wider range of influences through multiple sources of media and information, tensions can emerge between individual and collective values. Technology enables people to form transnational coalitions based on aspects of identity – such as gender or faith – that they feel more strongly than connections to their local area or nation state.

Groups could increasingly diverge from social norms or seek to impose new norms on societies. Community cohesion could be stressed by waves of migration, whether deliberate to bring workers into ageing societies or through climate refugees. The sense of real-world community could weaken as more people retreat from physical interactions and live their entire lives in the digital world.

Or the world could converge on more common values. Growth of the middle-class in diverse countries may lead to diminishing disparities in incomes, education and opportunities. Artificial intelligence could debunk false information that underlies division. More educated and connected individuals and communities around the world could increasingly find common ground.

QUESTIONS ABOUT THE FUTURE

Towards one end of the continuum, countries and communities could converge towards shared values – or at least become better equipped to manage diverging values. Towards the other end, we could see value differences increasingly dividing communities or nations.

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Values diverge about issues such as data privacy, health technologies, environmental stewardship, or resulting in different growth and well-being.
- Value divisions damage social cohesion and threatens social stability.
- Neutral sources of information are eroded - media divide along value-lines.
- Online communities outnumber any physical groups and try to control agendas.
- States and cities actively promote inclusion and social cohesion.
- Education improves understanding and tolerance.
- Societies become more diverse and innovative and share new values.

TECHNOLOGY:

A CONTINUUM FROM MASTER TO MULTIPLIER

Unlimited connectivity, ubiquitous sensors and intelligent systems are progressively making many aspects of life more convenient while raising the prospect of widespread surveillance and control. Will we have found the fine line between enabling and invasive technology in the future? Will people feel more mastered and controlled by technologies, or appreciative of how they multiply solutions for individual and common good?

WHY IT MATTERS

Future advances in areas such as quantum cryptography and predictive algorithms could see public opinion increasingly divide among those who are willing to relinquish their privacy for convenience and security, and those who demand firm limits on state surveillance.

With almost unlimited access to data about their citizens' lives, sentiments and economic impact and resources, governments could personalise policies to better meet citizens' needs. Intelligent systems could better anticipate people's needs and optimise utilities and services, resulting in greater efficiency and well-being.

Governments could use new technological powers to give themselves extraordinary access to information about individuals, exert more control over people's lives and influence their thinking and behaviour.

QUESTIONS ABOUT THE FUTURE

At one extreme, technology could become our master, with people experiencing a sense of being controlled by technologies in their daily lives. At the other extreme, technologies could be more of a multiplier, with people benefiting from their use to spread solutions for the individual and common good. Of course, different kinds of technologies could follow different paths.

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Surveillance becomes all-encompassing, diminishing privacy and well-being.
- People are obliged to relinquish privacy in the interest of the common good.
- Automation and machine intelligence reduce employment at all levels, from low- to high-skilled, posing problems for incomes and distribution systems.
- Intelligent, connected systems improve access to services and quality of life.
- Technologies optimise mobility and resource usage, reducing costs and environmental impact.
- New models for data protection allow sharing for the common good, e.g. for health, and privacy.
- By improving productivity, technology frees up people's time for more rewarding activities.
- Access to advanced artificial intelligence open up new ways to realise human potential.



NATURE:

A CONTINUUM FROM
DEGRADATION
TO RENEWAL

Environmental degradation and climate change are increasingly affecting people's lives and livelihoods – damaging growth, prosperity and well-being in multiple regions. In decades to come, the world could struggle to cope with deepening impacts – or find new ways to manage environmental threats and harness nature's capacity to restore itself.

WHY IT MATTERS

From rainforests to ice caps, glaciers and deep oceans, systemically important natural environments face unprecedented pressure from human activities in the coming decades. If the population continues to grow but consumption models change only slowly, the environment, and land and water, will come under increasing strain.

Challenged by the rising costs of climate-related risks and environmental degradation, including climate migration, countries could finally step up efforts to improve sustainable resource management and adopt treaties to protect the natural world – the ultimate global commons. Or new technologies could enable decoupling of consumption from environmental impact, for example through new food systems, circular models and novel materials.

QUESTIONS ABOUT THE FUTURE

Over the next 50 years, climate change and environmental degradation could continue to intensify and worsen. Alternatively, humans could find new ways to minimise environmental risks and harness nature's capacity to restore itself. How well we develop and apply those new solutions will probably shape where people land on this continuum.

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Growing cities and global middle classes increase environmental pressures, through demand for food, water, and energy.
- Systemically important ecosystems degrade, creating a domino effect.
- Climate change effects force mass migration in the most affected regions.
- Rising ocean temperatures impact marine food chains and exacerbate weather events (frequency and severity).
- Novel materials reduce waste and offer new solutions for food, water and energy systems.
- Growth in middle-class incomes and education results in more sustainable consumption.
- Restorative land use and shift to renewables and alternative fuels reduce emissions
- Cities lead the way on energy, waste and food and water security solutions.



SYSTEMS:

A CONTINUUM
FROM FRAGILE
TO RESILIENT

Diverse global and regional systems are increasingly interconnected – and at risk from resource pressures, catastrophic events or financial and macro-economic crises. Might the systems of the future be fragile in the face of crises, evolving to manage new needs, or redesigned for greater resilience?

WHY IT MATTERS

The accelerating shift to digitalisation and the high degree of interdependence among economies and societies makes the world more vulnerable to shocks. Individuals and non-state actors have greater power to threaten or damage critical systems, such as energy, water, health, finance or autonomous mobility. Neuro-digital interfaces could leave humans even more directly subject to system fragility. The more systems multiply, the greater the risks posed by interoperability problems.

Yet new technologies also offer the potential to improve risk analysis and prevention and build new systems with more redundancy and stronger resilience by design.

QUESTIONS ABOUT THE FUTURE

The continuum in this area is between systems that become more fragile in the face of crises and those that are continually redesigned for greater resilience. The major question for the future is how well these systems will evolve to meet people's changing needs.

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Interconnected intelligent systems create new vulnerabilities for critical infrastructure but also for digitalised services, e.g. finance, banking, legal services.
- Supply chains complexity grows faster than capacity to mitigate more risks, from cyberattacks to extreme weather events.
- Larger, more interconnected, automated financial markets become less stable.
- Improvements in AI's problem-solving capacity redesign or continually adapt systems for greater resilience.
- Novel forms of trade, manufacturing and markets enable more flexibility, improving resilience.
- Advanced security systems offer widespread protection for systems



4. Global Megatrends and Trends

Uncertainties that apply over a 50-year horizon are easier to identify than global trends that are applicable over 10 years. However, these global trends and related megatrends are what help us to identify future opportunities and challenges – and indeed enable us to put Dubai in the forefront of change. When it comes to the future of growth, prosperity and well-being, the megatrends and global trends will interact with the uncertainties and with each other to create opportunities for people to thrive and risks that will push people to seek means to survive.



WHY MEGATRENDS

The megatrends represent common themes underlying global trends and are included to spark thinking about future opportunities and risks to growth, prosperity and well-being. These megatrends are not exhaustive and others will become apparent as the future unfolds. Megatrends inform discussions about future opportunities and future challenges.

Each megatrend itself involves multiple uncertainties and global trends, with potential impacts – negative and positive – on multiple systems. Events such as economic downturns or technological disruptions could drive them in different directions over multiple decades. They are relevant at global, regional and country levels while also being beyond the control of any one country or region. Decision-makers will have to seek to manage the risks and opportunities that people could face in their daily lives, assessing how the 10 megatrends below interact with the five uncertainties covered above to create the conditions for growth, prosperity and well-being.

GLOBAL TRENDS

The megatrends represent long-term patterns evolving from global trends. Global trends are harder to predict over 50 years. Nevertheless, this report shares 17 global trends with the following selection criteria:

- **Impact:** the trend is expected to have significant impact on economies and societies globally, affecting prosperity and well-being – positively or negatively.
- **Plausible in 50 years:** the trend is highly likely to follow its foreseen trajectory for several decades and/or the trend could start to manifest in 50 years given certain breakthroughs or changes.
- **Scope:** the trend is global, i.e. it will affect a large majority of countries and several industry sectors.
- **Time horizon:** structural trends will impact over the next years and decades.
- **Research-led:** the trends discussed in this report have been identified through desk research and expert consultation. A metareview of these sources is included in this appendix.

Each of the global trends consists of a sustained socio-economic, environmental or technological wave of change that is likely to have a measurably growing influence, such as physical or financial impact, over the next several decades. Over a time horizon of 50 years, it is significantly more challenging to be confident about global trends rather than uncertainties, and variations in their trajectories can have longer-term implications.



Global trends include:



URBAN PLANET

Cities are reimagined to meet the needs of rapidly growing populations.



GDP&

People see success as needing more than economic growth.



ADVANCED MOBILITY

New technologies mean more people and goods travel further and faster.



MIDDLE CLASSES REMODELLED

Middle classes in emerging markets expand their influence.



G2G - A MULTI-GENERATIONAL WORLD

More generations living together than ever before.



NOVEL MATERIALS

Revolutionary new bio, biodigital and synthetic materials.



HUMANS: OPTIMISED

Longer life, better health and new ways to augment body and brain.



WASTELESS WORLD

Waste is avoided, reused or valued economically and environmentally.



ADVANCED INTELLIGENCE

The rise of mind-to-machine and mind-to-mind connectivity.



POWERFUL PLANET

New solutions in electricity and unconventional fuels meet rising demand.



VALUES HETEROGENEITY

Groups have more widely diverging views on values and ideologies.



LAND REVALUED

Land is valued for its ecosystem services, from carbon sinking to biodiversity.



HYPERCONNECTIVITY

Seamless and embedded connectivity enables limitless exchange of data.



WATER (DE)STRESSES

The value of water rises as stresses on fresh water supply increase.



TECHNOLOGICAL DIVERGENCE

Countries and groups within them have unequal access to technologies' benefits.



TRADE TRANSFORMED

New types of trade emerge in data, and supply chains are reconfigured.



A NEW SPACE AGE

Investment in space exploration and off planet life intensifies.

The supporting materials of this report explore the trend set in more detail.



EXPLORING THE MEGATRENDS

- 1. Materials revolution:** Researchers are studying nature to find inspiration for synthetic biological materials with novel physical properties that can be made in a laboratory. Over the next few decades, technological advances in materials science could result in wide-ranging applications to enhance the sustainability, durability and efficiency of materials. Supply chains may be re-engineered as individuals become producers in a regenerative or self-sufficient economy. Novel bio, bio-digital and synthetic materials can revolutionise medicine, energy, food, consumer goods, transport and the built environment.

Global trends:



Urban planet



Human: optimised



Advanced intelligence



Novel materials



Wasteless world



Powerful plant

Related uncertainties: Technology; Nature

- 2. Devaluation of Raw Data:** Ubiquitous real-time data is increasingly challenging the viability of business models based on asymmetric information. As more data becomes open, competition shifts from the question of who has the best data to that of who can best analyse the data that is available to everyone. New kinds of data – such as open-source DNA of living organisms, brain mapping and microbiome analysis – can provide platforms for innovation in areas such as disease prevention and treatment.

Global trends:



Advanced mobility



Advanced intelligence



Technological divergence



Trade transformed



GDP&



Hyperconnectivity

Related uncertainties: Values; Technology; Systems



-
- 3. Technological vulnerabilities:** The more data becomes open, and the more interconnected and intelligent systems become, the more vulnerable a range of critical infrastructure and services will be – from finance to supply chains to potentially hackable DNA-based personalised medicine systems. Complexity could grow faster than the capacity to mitigate risks of system failure and cyberattacks. Quantum-proofing the internet will require new solutions and may be very complex. Societies, countries and communities may advance along different technological trajectories with unequal access to their benefits (within and among countries).

Global trends:

Urban planet



Advanced mobility



Human: optimised



Advanced intelligence



Hyperconnectivity

Related uncertainties: Systems; Collaboration; Values; Technology

-
- 4. Energy Boundaries:** New solutions for electricity generation and storage are set to enable new models of energy distribution when combined with smart grids and superconductors. Examples include facilitating peer-to-peer electricity sharing across buildings and bringing cheap and consistent power to remote communities through standalone renewable power-based systems, allowing them to develop rapidly. Fusion could make energy limitless and bring immense benefits worldwide. Investment and research will help to drive energy solutions and infrastructure to meet increasing energy demand.

Global trends:

Urban planet



Advanced mobility



Novel materials



Wasteless world



Powerful plant



Water (de) stresses

Related uncertainties: Values; Nature; Technology

5. Saving Ecosystems: Environmental impacts are seen less in terms of specific processes and more in terms of ecosystems. Ecosystem services are valued more highly, with a greater understanding of their role in innovation and climate change mitigation and the connections between the biological world, humans and the digital world. More accurate assessments of the value to humanity of the natural habitats of different countries could drive the emergence of new models to invest in ecosystem services. Community- and building-level ecosystems can become regenerative micro-economies that need to be served differently by governments and utilities. Land value may be increasingly decoupled from its food production capacity. Instead, land value will come from its ecosystem services such as carbon sink provision, biodiversity and wildlife habitats and its value for well-being. Waste is avoided, with products being reused or valued economically and environmentally.

Global trends:

- | | | | | | | |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| Urban planet | Advanced mobility | Novel materials | Wasteless world | Powerful plant | Water (de) stresses | Land revalued |

Related uncertainties: Values; Nature; Technology

6. Borderless World - Fluid Economies: Health, education and other services increasingly cross borders, pointing to a digital future with minimal transfer of physical goods. There is a growing need to clarify jurisdictions for cross-border transactions and set up international dispute resolution mechanisms that can resolve issues for everyone, wherever they are in the world. More people and goods travel further and faster as transport solutions and systems are automated and revolutionised by new technologies for land, maritime, air and space travel. Global trade is transformed by the emergence of new trade relationships and new types of trade, particularly in data and knowledge products and reconfigured supply chains.

Global trends:

- | | | | | | | |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| Urban planet | Advanced mobility | Human: optimised | Advanced intelligence | Trade transformed | Technological divergence | Hyperconnectivity |

Related uncertainties: Systems; Collaboration



7. Digital realities: Digital platforms evolve into digital realities beyond today’s digital twins that simulate the processes of physical infrastructure. Brain–computer interfaces could lead to a new symbiosis between the human and virtual worlds, allowing people to touch, smell, feel, see and hear surroundings in which they are not physically present. This would enable many aspects of life to be replicated in virtual spaces, including work and legal systems. It would also raise policy questions, such as how physical-world legalities and ethics apply in virtual spaces. Increasingly powerful, seamless and embedded connectivity enables limitless exchange of data among machines, devices, systems, people and the environment.

Global trends:



Urban planet



Advanced mobility



Human: optimised



Advanced intelligence



Wasteless world



Hyperconnectivity

Related uncertainties: Systems; Technology; Collaboration

8. Life with Autonomous Robots: Humans may come to trust robots more than other humans because they act predictably, ensure confidentiality and make better decisions. But robots also pose ethical questions. How far should they be granted rights? When should they be made available, and for whom? A sharing economy could involve robots that create opportunities to aid greater growth, prosperity and even well-being.

Global trends:



Urban planet



Advanced mobility



Wasteless world



Advanced intelligence



Hyperconnectivity

Related uncertainties: Values; Technology; Systems

9. Future Humanity: Advanced artificial intelligence can open new ways to realise human potential and reconfigure our purpose in the future. Intelligent, connected systems are enabling more personalised access to goods and services within people’s homes. Mental health conditions may be remedied by brain–computer interfaces and real-time testing and monitoring. People will seek income in different ways in future, with the economy set to revolve more around creative problem-solving – for example, there is potential for people to initiate inventions and solutions and own part of the intellectual property. Throughout history, technological shifts have led to new kinds of occupations emerging, suggesting that fears about job displacement can be alleviated if we know how to mentor people to operate in a more efficient world.

Global trends:



Urban planet



Advanced mobility



Human: optimised



Advanced intelligence



GDP&



Technological divergence



Values heterogeneity



Middle classes remodelled



A new space age



Hyperconnectivity



G2G

Related uncertainties: Values; Collaboration; Technology; Systems; Nature

10. Advanced health and nutrition: Biofoundries that harness biological processes to produce sustainable products, including novel agritech and foods, have the potential to improve individual and collective outcomes while reducing environmental stresses. Personalised metabolic and genetic nutritional profiles can enable huge advances in addressing a range of physical and mental conditions, boosting longevity, productivity and well-being. Food and nutrition may become more regenerative, with sustainable food production systems that do not deplete resources but help to preserve and restore ecosystems. Health diagnoses may become instantaneous and treatment more available, either in people’s homes or through nutrition and use of robots for therapy. More accessible gene editing and gene therapy can, with appropriate regulations, bring many benefits.

Global trends:



Human: optimised



Advanced intelligence



Novel materials



Hyperconnectivity

Related uncertainties: Nature; Systems; Values; Technology; Collaboration



AT THE INTERSECTION OF UNCERTAINTIES AND TRENDS

Both the uncertainties and the 10 megatrends above have implications on growth, prosperity and well-being. Besides that, uncertainties can also interact with global trends to create new risks and opportunities. The box below presents examples of how exploring these interactions help identify additional risks and opportunities to growth, prosperity and well-being.

Combinations of uncertainties and global trends are signalled here by the multiplication sign X.



UNCERTAINTIES AND TRENDS THAT COULD PUT GROWTH, PROSPERITY AND WELL-BEING AT RISK

Systems X Divergence = Interoperability problems increasingly hold back progress as systems and regulations multiply.

Technology X Hyperconnectivity = Data protectionism and privacy concerns limit the scope of data to drive progress.

Values X Hypermobility and hyperconnectivity = Weakened social ties, threatening well-being and social stability.

Technology X IQXAI = Automation and machine intelligence displace human skills and labour, destabilising employment.

Values X Urban Planet = Megacities and vast urban areas see rising inequalities and social tensions.

Collaboration X Land and Water = Systemically important ecosystems degrade, creating a domino effect.

The choices made to decide on the nature of a desirable future are informed by the values and identities of institutions, such as governments, businesses and others. Such decisions determine the choices made regarding various possibilities in governance and international collaboration, global and societal values, advancing technologies and their role in people's lives, nature's response to our efforts to control environmental degradation

UNCERTAINTIES AND TRENDS THAT COULD SUPPORT GROWTH, PROSPERITY AND WELL-BEING

Systems X AIXIQ = Advanced intelligence enables systems to be continually adapted for greater resilience, lessening the likelihood and impact of economic or financial shocks.

Intelligent, connected systems lead to more personalised **access to goods and services, making them more affordable and improving daily life.**

Technology X Augmented Human = Technologies free up people's time and offer new ways to **realise human potential, improving mental health and well-being.**

Nature X Urban Planet = Cities compete to lead the way in finding solutions to energy, waste and urban transport.

Technology X Trade = New manufacturing models and hyper-adaptable logistics open up new trade opportunities.

Nature X Biomaterials X Powerful Planet = New food and resource systems re-order trade and environmental outcomes.

and the strength of the systems that societies and economies rely on. We cannot assume that all societies will take the same paths to prosperity and well-being as their senses of prosperity and well-being are subjective and may differ. The paths chosen, and the speed at which different societies evolve, will largely depend on the implications of how each community anticipates and manages different risks and opportunities.



CONCLUSION

Thinking about the future is complex and as the foundation for The Global 50, the purpose of this report is to encourage fresh thinking and provide a framework to reflect on how to build resilience to risks and leverage opportunities for growth, prosperity and well-being over the long term.

Growth, prosperity and well-being are ultimately measures of how well a society meets the needs and motivations of its members. This report offers a view of the future of growth, prosperity and well-being as one where countries, organisations and civil society could use to navigate the era of quantum shifts to remain competitive. However, many different trajectories could lead to many possible and plausible futures for growth, prosperity and well-being, hence agility across systems will be key.

As countries, cities and organisations apply this report in planning for the future, decision-makers in government, business and civil society should seek to understand the uncertainties and megatrends that they will be exposed to and map them against their own value propositions and strategies to identify gaps or risks.

This also requires finding or building tools to track citizens', customers' or individuals' experiences and subjective perceptions of prosperity and well-being, beyond economic growth.

The next 50 years are set to bring both unprecedented challenges and vast new technological possibilities. However, **some countries and societal groups will be better able than others to manage the uncertainties, meet the challenges and take advantage of the opportunities.**

In sharing our view of the future and the foundation of The Global 50 report, through the uncertainties and megatrends, the purpose of this report is to shift thinking from 'What will happen in the future?' to **'How can we best prepare to improve or protect growth, prosperity and well-being?', whatever that future might be.**



APPENDIX 1: METHODOLOGY

The development of this report – including the identification of long-term global and novel trends, uncertainties, assumptions and their implications, shaping our prosperity and well-being in the future – consisted of:

1 Desk research: a review of over 100 studies, reports, books and articles published by business and scientific sources, governmental and international organisations, and mainstream media (carried out between 16 July and 17 August 2021). Please see Appendix 3 for the main studies and reports used in the metareview on long-term global trends and future scenarios, and the References section for the list of other publications.

2 Expert consultations: a series of individual interviews and virtual roundtables with subject-matter experts in various fields (held between 2 and 17 August 2021) to validate or identify trends, uncertainties and futures. Please see the Future Opportunities Report: The Global 50 (2022).

The desk research, specifically the metareview, served as the basis for identifying long-term global trends and contributed to our thinking about uncertainties, assumptions and novel trends. The expert consultations helped to form and finalise our views on future growth, prosperity and well-being in the future.



APPENDIX 2: GLOBAL TRENDS DEEP-DIVE



URBAN PLANET

With the global urban population growing annually, reimagining urban life and well-being, re-engineering and connecting cities is one of the century's biggest projects.

DRIVERS

- Concentration of economic, market and employment opportunities in cities
 - » *Lack of development and limited employment in rural areas*
 - » *Demand for skills and labour*
 - » *Access to better services (education and health) and amenities (e.g. culture and entertainment)*
- Climate migration

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Unmet demand for affordable housing in fast-growing cities
- Growth of slums
- Pressures on services, utilities and environment
- Environmental footprint of cities increases unchecked
- Rural depopulation adds to food security issues
- Personal and property security risks
- Megacities and vast urban areas attract too much economic power, leaving smaller conurbations and rural areas behind
- Increased concentration of wealth, rise of inequalities
- Cities continue to or become hubs for collaboration, innovation and entrepreneurship with growing job opportunities

WHAT TO MONITOR, MAP AND MEASURE

Number of start-ups, headquarters and universities or third-level institutions. Growing or diminishing environmental footprints, in terms of resource use and waste. House prices as a multiple of median salary, housing needs and income gaps, rate of population growth vs growth in revenues and infrastructure investment. Risks of poor housing damaging well-being, and opportunities to lead in city design and mobility concepts.

NOVEL TREND

Perfect Homecare

Homes become health-centric; bathroom mirrors scan for pre-cancerous skin cells; beds improve sleep via temperature and position control; sensors for real-time identification of infection/ chronic disease markers used in utilities at home and in wider areas.



ADVANCED MOBILITY

More people and goods travel further and faster as transport solutions and systems are automated and revolutionised by new technologies for land, maritime, air and space travel.

DRIVERS

- Demand for improved global and regional supply chains
- Urban growth and infrastructure investment
- Novel transport solutions and clean fuels for land, air, sea and stratospheric travel
- Increased travel by growing global middle classes
- Megaproject developments

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- New transport solutions ‘shorten’ supply chains – offering greater resilience?
- Novel transport solutions will reduce environmental impact
- Urban transport solutions will be a source of competitive advantage
- Infrastructure investment drives growth
- Access to affordable and time-saving transport benefits health and well-being
- Business and leisure travel will be faster
- Risk of rising inequalities for access to cutting-edge solutions
- Autonomous and autonomy – time-saving network approach to offering personalised transport solutions, without ownership

WHAT TO MONITOR, MAP AND MEASURE

Number of transport options, travel times around the city, supply chain related dependencies, environmental footprint, accessibility, inclusion, population growth in urban centres, number of urban units available, occupancy levels.



HUMANS: OPTIMISED

Exponential improvements in medicine and technologies enabling improved health, longevity and well-being and the augmentation of human physical and mental traits and capacities.

DRIVERS

- Desire for longer, healthier lives and to correct/enhance both physical and mental characteristics
- AI analysis and modelling of health data
- Breakthroughs in neuroscience and neuropharmacology, personalised medicine and nutrition
- Genetics (editing; selection; therapies)
- Implantable devices
- Greater understanding of the role of environmental (i.e. non-genetic) factors on health

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Food industry and systems
- Increase in global healthcare spending
- Healthcare becomes a central element of the economy and human life
- Health insurance and pharmaceutical business models
- Education becomes less about knowledge transmission
- Societies' norms and values evolve in response to technological development

WHAT TO MONITOR, MAP AND MEASURE

Number of AI-enabled health services, age distribution, health insurance, chronic diseases, education and well-being, life expectancy, household income, poverty, crime.

NOVEL TREND

Perfect Education – programming plasticity

Advances in brain science, and a rise in the demand for non-replicable human skills, see education reinvented for the 22nd century. Learning knowledge is superfluous so brains connect directly to education programmes to stay plastic, analytic and creative.



ADVANCED INTELLIGENCE

Advanced intelligence (mind-to-machine and mind-to-mind connectivity) transforms education, working life, communication, business models and social interactions.

DRIVERS

- Desire to mimic and improve on human intelligence
- Desire to drive further scientific and technological breakthroughs in health and medicine but applicable to all fields
 - » *Neural networks – mapping and replication*
 - » *External and tissue (biological)/tech interfaces*
 - » *Nano-medicine*
- Advanced processing power

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Services that operate where the virtual and real world meld
- Immediate responses and solutions to malfunctions
- Interactions and communication transformed by 'immediate' knowledge
- New approaches to knowledge, learning and skills; immersive learning for skills
- Artificial neural networks aim to replicate the human brain (with 100 billion neurons, capable of parallel processing at just 20 watts/hour)

WHAT TO MONITOR, MAP AND MEASURE

Metadata on services carried out autonomously, digitisation, extent of IoT, machine-to-machine communications, wireless connectivity, interruptions, cybersecurity attacks.

NOVEL TREND

Perfect Mind maps

The interfacing of organic and non-organic multiplies solutions in materials, medicine, energy production and storage. Materials become responsive and adaptable. Wet neural networks can carry out parallel processes like a human brain and be connected at light speed. Neural linking between machines and humans expands human intelligence, opening new forms of creativity and communication.



G2G – A MULTIGENERATIONAL WORLD

With greater longevity, more of the global population will be older while a few regions remain ‘young’, creating a world shared by larger cohorts of each generation than ever before.

DRIVERS

- Rising longevity and converging life expectancy
- Declining fertility rates
- Female workforce participation
- More preventative and affordable healthcare
- Advances in medicine
- Health and education policies

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Consumption and economic growth may slow with aging populations
- Health and pensions: healthier ageing and delayed retirement will be the norm
- Business models: robo-carers, modular age-adaptable homes
- Households and family structures are more varied and less age-specific
- Youth: new generations with new consumption patterns, needs, values and expectations
- Life long training and retraining
- A multi-career life
- Personalised medicine, based on genotype and phenotype, could add 10–15 years to our lifespan

WHAT TO MONITOR, MAP AND MEASURE

Conservation and ecological patterns, life expectancy, demographic shifts, gender parity, income generation partition, population.



VALUES HETEROGENEITY

Globally, regionally and within countries, numerous diverse groups emerge with diverging views on values and/or socio-economic or ideological questions.

DRIVERS

- Economic development and education
- Mobility and hyperconnectivity
- Human augmentation
- Generational divides
- Splintering of media and channels – ‘echo chamber’ effects
- Changing norms around ethnic, faith, political, and gender identity – desire for self-realisation

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Hypermobility and hyperconnectivity loosen traditional social ties
- New social movements and political parties
- Possibility of virtual ‘nations’ led by identity-groups
- More people choosing life off-line, off-grid
- Rise of issue-driven identities as well as gender, faith or ethnic identities
- Cognitive and physical diversity could rise as more forms of human augmentation emerge

WHAT TO MONITOR, MAP AND MEASURE

Levels of social cohesion, generalised trust, ethnic diversity, income distribution, participation in voluntary activities by age groups, social relations.



HYPERCONNECTIVITY

Increasingly powerful, seamless and embedded connectivity enables limitless exchange of data among machines, devices, systems, people and the environment.

DRIVERS

- Convenient access to basic and advanced goods and services
- Preventative and proactive healthcare solutions
- Cost, efficiency and speed improvements in processing power, storage and communication
 - » *Novel sensors*
 - » *High interoperability*
 - » *Safety and security concerns*

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Improved connectivity in mobility, healthcare, manufacturing, and retail increase global GDP
- Low earth orbiting (LEO) satellite networks (e.g. Starlink) and high-band 5G
- Novel materials and miniaturisation increase data capture and transmission, including to, among and from natural organisms
- New government solutions and tools, e.g. personalised micro-taxes
- Personal cybersecurity services
- Personalised virtual and augmented environments
- Touchless, voice-controlled environments

WHAT TO MONITOR, MAP AND MEASURE

Data that is becoming valuable, why and who is collecting it. Systems and solution providers that are too big to fail (e.g. cloud services, processors, networks), how online behaviours change, with shifts to new services and platforms and risks to data privacy and opportunities for improved access to health and education.

NOVEL TREND

iQuantum

Commercially viable quantum computing and communications becomes affordable and ubiquitous, decoupling computing power but enabling communication faster than the speed of light.



TECHNOLOGICAL DIVERGENCE

Societies and countries/communities advance along different technological trajectories with unequal access to their benefits (within and among countries).

DRIVERS

- Protectionism and growing national security concerns
- Growth interoperability problems as systems and regulations multiply
- Privacy concerns result in a rise of private parallel networks
- Lack of collaboration around regulation and standards
- Lack of investment
- Distributed ledger (blockchain-type) solutions to ensure data integrity

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Parallel networks emerge to compensate – creating more divergence
- Systemic and smart solution areas: trade; energy; mobility; communications; food systems
- Interoperability of critical systems
- Regulation and standards diverge around hardware, networks, surveillance and privacy, data ownership and data-sovereignty
- Rise of cyberthreats to industrial IoT and critical infrastructure drives rise of national cyber-sovereignty strategies
- Individual power over data and privacy decisions

WHAT TO MONITOR, MAP AND MEASURE

The rise of competing or parallel standards and protocols for critical industries (networks, devices and solutions). Tightening of data sovereignty rules, change in gaps between the most-connected and least-connected countries and regions, risks of competing standards making systems more fragile, and opportunities to become a standard-setter rather than taker.



A NEW SPACE AGE

Public and private interest and investment in space for communication, travel, exploration and life off planet intensifies.

DRIVERS

- Advances in rocket design and fuels reducing payload cost and increasing speed and range
- Novel materials are developed to offer greater resistance at lower weight – and are used for other applications; demand for sustainable substitutes and products
- Competition to develop
 - » *new satellite communication networks*
 - » *commercial space travel and tourism*
 - » *off-planet bases and service them*
- Human desire to explore and discover
- Advances in food and water technologies
- Military and intelligence goals

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- New research and development and innovation
- Rocket design and novel fuel/energy solutions lead to commercial supersonic or even hypersonic flight
- Low earth orbit satellite networks for global connectivity
- Space stations, moon or near-planet bases become test beds for new food, water and waste solutions

WHAT TO MONITOR, MAP AND MEASURE

Space budget and spending, space-related patents, satellite deployments, revenue earned in space economy, R&D levels focused on space, goods and services supporting the space economy.



TRADE TRANSFORMED

Global trade is transformed by the emergence of new trade relationships, new types of trade, particularly in data and knowledge products, and reconfigured supply chains.

DRIVERS

- Demographic shifts
- Growth of new models, markets and products
- New manufacturing technologies and models
- Faster and lower-cost transport solutions
- Increasing weightlessness trade
- Increase in data volume, computing power and speed

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Manufacturing bases are agile geographically, development paths change completely: reshoring – offshoring – regionalism
- Hyper-adaptable logistics and supply chains with faster transport
- 3D printers could account for 50% or more of manufactured products significantly reducing cross-border physical global trade
- New trade blocs or greater integration with further trade liberalisation leading to an increase in global trade
- Data sovereignty measures could become barriers to entry

WHAT TO MONITOR, MAP AND MEASURE

Market entry and price decline of technologies such as 3D printing that drive new types of trade, emergence of sectoral global production hubs.

NOVEL TREND

Perfect Autonomy

In the face of resource scarcity and climate risks, states and metropolises accelerate plans to develop perfect autonomy: ensuring food, water and energy security. Investment drives innovation in intelligent infrastructure, closed loop resource systems and food production models.



GDP & NEW MEASURES OF VALUE

Value and value creation, prosperity and well-being are measured for a wider range of 'success' factors in real-time.

DRIVERS

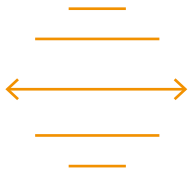
- The need to measure the new forms of value (ecosystems and services, well-being, digital flows) and their connection to growth
- Rise in volume and quality of real-time data for a wider set of measures: advanced intelligence and predictive modelling capacity
- Social inclusion pressures
- Connectivity

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Granularity: linking social security to activities
- Fiscal policies; real-time policy targeting at individual level
- Moves to more efficient means to measure – and tax – the value generated by digital and data-driven business models
- Massive, real-time data allows new measures and indicators capture environmental, well-being, wealth inequalities, benefits of parental work, e.g. GPI, real-time sentiment analysis
- Well-being is a competitive advantage
- Value creation progressively transfers from humans to machines, and from knowledge creators to knowledge distributors

WHAT TO MONITOR, MAP AND MEASURE

Demand for ethical products in key markets, regulatory change in consumer and financial markets. New capture possibilities for large data sets. Financial and fiscal authorities imposing obligatory common non-financial reporting standards. Countries developing new social strategies or non-economic goals. Risks of old measures failing to capture new forms of value, and opportunities to introduce more efficient forms of taxation.



MIDDLE CLASSES REMODELLED

The size and economic power of advanced economies' middle classes declines relative to rising power of middle-class consumers in emerging and middle-income economies.

DRIVERS

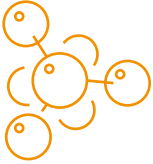
- Demographics
- Economic development: growing irrelevance of geographic distance due to faster transport and weightless economy
 - » *Access to markets*
 - » *Digital flows*
- Higher education

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- More discretionary spending
- Impact on saving rates and pensions
- Health and education
- New consumers drive new taste and new product development
- More environmental-conscious middle classes
- New measures and elements of wealth
- Changing talent and skills landscape

WHAT TO MONITOR, MAP AND MEASURE

Rising middle-class populations in large Asian and African cities, new models of urbanisation under development, increasing demand for products and services related to well-being in advanced markets.



NOVEL MATERIALS

Novel bio, biodigital and synthetic materials revolutionise medicine, energy, food, consumer goods, transport and the built environment.

DRIVERS

- Advances in bio and nanotechnology
- AI modelling, regulation and standards
- Demand for sustainable substitutes and products
- Financial need to reduce weight, costs and to increase speed, resistance

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Mobility: lighter, resilient materials for faster travel on land in air
- Infrastructure intelligent surfaces; new characteristics for energy generation, storage
- Intelligent materials monitor and adapt to surroundings
- Energy and computing, ambient temperature superconductors
- Biomaterials enable renewal of tissue and full organs

WHAT TO MONITOR, MAP AND MEASURE

Price volatility of materials, bio plastics market, technological advancements in recycling and sorting, material consumption, materials R&D spend, availability of raw materials.

NOVEL TREND

Megaproject Age

The upcoming decades see an unprecedented wave of large-scale projects requiring massive investment and know-how. Examples include: nuclear fission plants; stratospheric wind power; long-distance hyperloops; cross-ocean tunnels; off-planet nuclear power and space colonies. To mitigate risks and/or benefit from environmental/life-improving advances.



WASTELESS WORLD

Waste is avoided, reused or valuable economically and environmentally.

DRIVERS

- Global population growth accentuates need to reduce and reuse waste
- Rising resource costs and scarcity
- Waste-related risks
- Closed loop systems
- Substitute, biodegradable materials: new business models: sensors and optimised value chains

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- The environmental footprint of urban areas can be reduced through circular systems to reduce and reuse waste, generate energy and recycle resources, including water
- Buildings will be completely autonomous, with closed resource loops
- Food systems will be planned and designed for zero waste
- Manufacturing models and supply chains will be completely circular
- Consumer goods design and distribution
- Plastic replaced by biodegradable/perfectly recyclable materials
- 'Wastelessness' can be a new measure of socio-economic performance

WHAT TO MONITOR, MAP AND MEASURE

Material extraction, recycled waste, efficiency of waste disposal systems, material consumption, energy consumption overall and per capita, water consumption overall and per capita, circular rate, CO₂ emissions.



POWERFUL PLANET

Investment and research drives energy solutions (electricity and unconventional fuels) and infrastructure to meet increasing energy demand.

DRIVERS

- Emerging markets' growing energy needs
- Increased demand for data processing, storage and devices
- Emissions reductions and net-zero emission solutions
- Drive to reduce energy costs and improve efficiency
- New materials

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Powering critical networks and data
- Faster, long-distance transport solutions – land, sea and air
- Urban planning and building design
- Emissions reduction
- New materials for energy storage and carbon capture
- Divisions among older, advanced economies and younger, emerging economies

WHAT TO MONITOR, MAP AND MEASURE

Energy efficiency, source of power generation, energy consumption overall and per capita, transmission loss, renewable power generation, power generation by source, power generation per sector, energy prices, CO₂ emissions.



LAND REVALUED

Land value is increasingly decoupled from food production capacity/potential. Instead, its value comes from its ecosystem services: carbon sinking, biodiversity and habitat; value to well-being.

DRIVERS

- Population growth
- Advances in agritech and food science
 - » *Shift to less-intensive forms of food production*
 - » *Shift in meat consumption*
 - » *Animal protein substitutes, animal welfare concerns*
- Need to restore ecosystems for climate mitigation
- Political will and public sentiment

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- New food systems and production techniques – reduced pressure on land usage
- Shifts in global food trade, more local or more concentrated
- Switch from farming to land stewardship in critical areas
- Divisions among older, advanced economies and younger, emerging economies
- New dietary and nutritional behaviours
- Land's value as a natural carbon sink rises (harmony with nature)
- Value of biodiversity to ecosystem resilience and human health and well-being is understood

WHAT TO MONITOR, MAP AND MEASURE

Land usage, fertile land, desert farming, CO₂ emissions, soil carbon stock where applicable, methane emissions, native biodiversity, protected areas, budgets for biodiversity projects, natural habitats, initiatives for biodiversity, native and non-native species.



WATER (DE)STRESSES

The economic and strategic value of water rises as stresses on fresh water supply increase.

DRIVERS

- Population growth
- Urbanisation
- Increased water use in food, energy and industry – innovation in food and energy systems
- New technologies and materials for capture and reuse
- Climate change
- Infrastructure investment

POTENTIAL IMPLICATIONS FOR GROWTH, PROSPERITY AND WELL-BEING

- Food price volatility and security
- Migration from water-stressed regions
- Demand for novel solutions for water capture use and recycling
- New materials to replace water need or water itself for humans and other living organisms
- Infrastructure and urban planning
- Smart systems

WHAT TO MONITOR, MAP AND MEASURE

Droughts, notably in geographically close countries, water-related regulations and conflict. Infrastructure investment for resource management.



APPENDIX 3: METAREVIEW

The following reports and studies on long-term global trends and future scenarios were strategically selected and studied as significant and influential. They come from a range of sources: international organisations, governments, academia and the private sector. We present them here to showcase diverse points of view

on potential futures. These recent publications cover various trends – some comprehensively, others more focused – with time horizons varying from 2030 to 2070. The metareview served as a basis for identifying common long-term trends, and contributed to our thinking about assumptions and uncertainties.

Publication title

Publisher,

Year

International organisational sources

Demographics Will Reverse Three Multi-decade Global Trends
BIS,
2017

Global Trade and Specialisation Patterns Over the Next 50 Years
OECD,
2014

ITF Transport Outlook
OECD,
2019

OECD-FAO Agricultural Outlook 2021–2030
OECD-FAO,
2021

OECD Science, Technology and Innovation Outlook 2016
OECD,
2016

Policy Challenges for the Next 50 Years
OECD,
2014

Renewables 2020
IEA,
2020

Society and Lifestyles in 2050: Insights from a Global Survey of Experts
Institute for Global Environmental Strategies,
2019

The Future of Food and Agriculture
FAO,
2018

The Long View: Scenarios for the World Economy to 2060
OECD,
2018

Transforming the Energy System
IRENA,
2019

UNESCO Science Report: Towards 2030
UNESCO,
2015

World Energy Outlook
IEA,
2020

World Energy Scenarios 2019: Exploring Innovation Pathways to 2040
World Energy Council,
2019

World Energy Transitions Outlook: 1.5°C Pathway
IRENA,
2021

World Investment Report
UNCTAD,
2020

World Population Prospects
UN,
2019

World Urbanization Prospects
UN,
2018



Governmental sources

[A Review of Freight and the Sharing Economy](#)
UK Government Office for Science,
2019

[Economic Plan For a Productive, Sustainable and Inclusive Economy](#)
New Zealand Government,
2019

[Global Trends: The Paradox of Progress](#)
US National Intelligence Council,
2017

[Global Trends 2040](#)
US National Intelligence Council,
2021

[Government in 2071: Guidebook](#)
World Government Summit,
2018

[Renewal Strategy and “Japan in 2050”](#)
Japan Center for Economic Research,
2014

[Strategic Foresight Report 2020](#)
EU Commission,
2021

[The Future of the Transport Industry](#)
EU Commission,
2015

[The Next Digital Economy](#)
Policy Horizons Canada,
2019

Academic sources

[Forecasting Life Expectancy, Years of Life Lost, and All-cause and Cause-specific Mortality For 250 Causes of Death: Reference and Alternative Scenarios for 2016–40 For 195 Countries and Territories](#)
The Lancet,
2018

[Health Co-benefits from Air Pollution and Mitigation Costs of the Paris Agreement: A Modelling Study](#)
The Lancet,
2018

[Healthy Diets From Sustainable Food Systems](#)
EAT-Lancet Commission,
2019

[iHuman: Blurring Lines Between Mind and Machine](#)
The Royal Society,
2019

[SNF CoLab: Imagine a Better World](#)
Chatham House,
2021

[The Future of Ageing in Smart Environments: Scenarios of 2050](#)
Arizona State University,
2020

[The Future of Everything Podcast](#)
Stanford University,
2021



Private and other sources

Global Drivers Report 2020+
The Future Laboratory,
2020

Map of the Decade 2020–2030, Organizing for Future
Readiness: Anticipating the Future of Science and
Technology
Institute for the Future,
2020

Megatrends Report 2020-2025
Trend Hunter,
2020

Mining New Value from the Circular Economy
Accenture,
2019

Notes from the AI Frontier: Modeling the Impact of AI on the
World Economy
McKinsey & Company,
2018

Shaping the Future of Global Food Systems: A Scenarios
Analysis
WEF,
2017

The 5G Economy: How 5G Technology Will Contribute to
the Global Economy
IHS Economics & IHS Technology,
2017

The Flight of the Future
Foresight Factory,
2019

The Future of Electricity: New Technologies Transforming
the Grid Edge
WEF,
2017

The Future 100: Trends and Change to Watch in 2021
Wunderman Thompson,
2021

The Long View: How Will the Global Economic Order
Change by 2050?
PwC,
2017

The Unprecedented Expansion of the Global Middle Class
Brookings,
2017

3D Printing: A Threat to Global Trade
ING,
2017

Trends and Global Forces
McKinsey & Company,
2017

Update to Limits to Growth
KPMG,
2021

World Energy Model: A View to 2100
Shell,
2017



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ABOUT THE DUBAI FUTURE FOUNDATION



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DUBAI FUTURE FOUNDATION

Launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, the Dubai Future Foundation was established in 2016 to play a pivotal role in shaping the future of Dubai, as well as to collectively imagine, inspire and design the city's future in collaboration with the government and private entities within various industries.

Mandated to position Dubai as a hub for innovation and a leading city of the future, the foundation's main areas of focus are Future Foresight and Imagination, Content and Knowledge Dissemination, Capacity Building, Future Design and Acceleration, and Future Experiences.

Dubai Future Foundation builds bridges between government and the private sector, innovators, start-ups, talents and industry experts and creates an innovative ecosystem that enables innovations to take shape, promotes global dialogues, builds partnerships and cultivates disruptive mindsets.

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