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INSTITUTE
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STUDIES



MEGATRENDS

The foundations of long-term change

**COPENHAGEN
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STUDIES**



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Introduction

We can't know the future. Yet not all aspects of it are equally unpredictable. In a principally uncertain and complex world, megatrends help us recognise that there are also relatively stable, yet powerful forces at work in shaping outcomes.

Megatrends are part of the structural backdrop that shapes the conditions under which societies, individuals, and organisations operate, and under which every long-term decision is ultimately made. Ignoring them means being blindsided by changes we could have seen coming.

The term *megatrends* was first popularised in 1982 by futurist John Naisbitt, building on a long-running tradition of futures work focused on understanding the high-level drivers shaping societies over the long term. In the decades since, the term has been applied across many contexts. Today, megatrends remain widely recognised for their usefulness in framing structural conditions for the longer term. Yet, despite this usefulness, megatrends have also become subject to arbitrary application and conceptual inflation. Among foresight professionals, the term is increasingly treated with caution. This is a shame, since megatrends can do something few other foresight tools can. They provide a shared vocabulary for exploring long-term structural change that is durable without overclaiming predictive precision.

The motivation behind this megatrend publication is twofold. First, megatrends need to periodically be revisited and stress-tested, and it is necessary to introduce new perspectives on the prevailing megatrends. Since our latest megatrends update, published in 2021, the world has changed in ways that alter the context in which long-term developments ought to be understood. Readers of previous CIFS megatrends publications will notice that some megatrends have been recalibrated or reinterpreted, new ones have been introduced, while others are no longer included.

Second, but equally important, this publication aims to go beyond merely updating and recalibrating existing megatrends. We believe the time is ripe to revisit how megatrends are understood and applied, and work towards a clarification of what constitutes a meaningful engagement with them in foresight practice. Our aspiration is not to offer ‘yet another megatrend report’ but to untangle the increasingly arbitrary use of the term, to better connect conceptual clarity and analytical rigour with the practical realities in which megatrends are used.

As part of this untangling effort, we begin this publication by proposing an updated definition of megatrends that emphasises their global scope, society-wide impact, structural embeddedness, and historical specificity. Building on this, we introduce an accompanying model for megatrend diagnostics, developed by CIFS, before turning to the updated megatrend descriptions themselves. We close by considering the practical usefulness of megatrends analysis, including how to think about the issues that arise when two or more megatrends intersect.

We hope you enjoy reading.



PART 1





Untangling megatrends

ADDRESSING THE CONCEPTUAL DRIFT

In theory, megatrends have a reasonably clear and widely accepted definition. They are broadly understood as the *biggest, most fundamental forces changing societies across the world*. The “mega” in megatrends implies universality, endurance, and systemic force over the longer term. The analogy often used is that of tectonic plates of change.

However, different practitioners often ascribe their own practical and instrumental meanings to it, guided by their own specific strategic and operational contexts. A common conceptual drift occurs when “mega” is instead linked to a perceived scale of impact and strategic significance from a very specific – often operational – vantage point, rather than to deep, structural forces of change. Sometimes the term megatrend is even treated as something that is currently *mega-trending*, or as a development that is highly salient through a contemporary lens.

At CIFS, we observe this drift occurring most commonly when megatrends are force-fitted into existing strategic and decision-making practices, where they are expected to function as immediately actionable analytical inputs to explain outcomes rather than as frames for long-term context. These instrumental reinterpretations of the term lead to very different concepts, such as industry trends, consumer trends, and even weak signals being labelled “megatrends” despite their different depth, reach, and durability.

Research suggests that this misalignment goes deeper than this observed theoretical vs practical application gap. An extensive systematic review of megatrends publications since 1982 – including both peer-reviewed academic foresight literature and more applied non-academic grey foresight literature – found significant variations in how the term is applied and a lack of rigour around approaches. Notably, ~74% of 267 reviewed academic and non-academic applications did not explicitly define a megatrend, while ~71% of the studies did not explicitly report the methods or approaches used to define or apply megatrends.¹

This demonstrates how methodological ambiguity has surrounded the term since its inception. The problem has likely been compounded as the concept gained popularity and became increasingly commercialised over time, and as the rhetorical and communicative utility of megatrends became harnessed to package broad change into legible narratives. The volume of academic and non-academic megatrend publications evidently started to ramp up significantly in the 2010s,² arguably

alongside a surge in shallow trend reports, where the primary value is often marketing and positioning, further contributing to conceptual slippage.

UNDERSTANDING CHANGE AND TRENDS

Our conceptual clarification journey starts with a closer look at how we as humans perceive and understand change. We then turn to how we might best understand the nature of trends and how they behave as a phenomenon. This inquiry will ultimately help build a foundation for understanding megatrends and their usefulness in foresight practices.

We tend to imagine societal change in physical terms rather than as a complex and partly emergent process – something is *moving* because some other force is affecting it. Cognitive linguist Leonard Talmy has described how human cognition often frames change through the language of physics, referring to this as ‘force dynamics’. When we say that “AI is driving transformation”, for example, AI is made to sound like an agent exerting force, when really it is an ensemble of practices, decisions, and interacting conditions that ultimately may result in transformative developments.

When applied to the social world, this way of thinking has its limits. In social science fields such as sociology, anthropology, and futures studies, change is better understood as structural or internal transformation – as “reorganisation” rather than “movement”. This does not mean that causality is absent, but change is far more complex than what force dynamics descriptions capture. So, while using force dynamics descriptions is a convenient and necessary shorthand for capturing the complexity of the world, it is important to know that it is not representative of reality.

Sociologist Piotr Sztompka provides a useful way of understanding trends as the accumulated and combined effects of dispersed individual actions. In his account, trends can be understood as latent change emerging “from below”, where people’s actions unwittingly produce broader patterns. Trends, in this sense, are abstractions stemming from the mass of actions that generate them, observable at the pattern level.

Not all actions carry equal weight, of course. A world leader’s decisions ripple further than those of most individuals. And individual actions are not taken in isolation, but are influenced by existing structures and conditions. Yet even seemingly insignificant individual actions achieve meaning and importance in aggre-

gation, as patterns begin to emerge. This essentially implies that the complex system we call society is formed through the interwoven relationship between individual actions, their causes, and the effects they produce.

This understanding of trends as patterns aggregated from below applies across all levels of change. At a high enough level, some patterns become broadly impactful and structurally stable. These higher-order abstractions, which synthesise large-scale, persistent, and society-shaping developments, are what we call megatrends.

The scale, influence, and structural embeddedness of megatrends also mean that they transcend being merely larger or more persistent trends – size and duration alone do not make a megatrend. What distinguishes them is that they become part of the very backdrop that shapes how societies and systems evolve. Actors don't merely respond to megatrends the way they respond to a trend – they act *within* the reality megatrends have already reshaped.

These ontological considerations (i.e. what megatrends really are) matter for how megatrends are applied in foresight work. They are most usefully approached as a way to frame the structural context that constrains and enables how societies and systems develop, rather than as insights in themselves or discrete factors that explain specific outcomes on their own.

We recognise that people shouldn't need a philosophy of science dissertation to engage with megatrends in practice. We also don't want to pretend that even perfect ontological clarity would resolve their conceptual issues. However, we believe that strengthening the rigour around the foundational assumptions and understandings of megatrends will be a meaningful step toward a more consistent and disciplined application of them in foresight work.

References

- 1 Claire K. Naughtin et al., "Forty Years in the Making: A Systematic Review of the Megatrends Literature," *Futures* 157 (2024): 103329, <https://www.sciencedirect.com/science/article/pii/S0016328724000120>.
- 2 Naughtin et al., "Forty Years in the Making," <https://www.sciencedirect.com/science/article/pii/S0016328724000120>.

PART 2



Constructing megatrends

Any useful understanding of megatrends must emphasise both conceptual clarity and operational utility. Below, we offer our updated definition meant to fulfil both requirements, with the underlying considerations explained in detail in the following sections:

Megatrends are durable, directional structural forces that reshape the conditions under which societies, individuals, and organisations across the world operate. They are historically specific rather than permanent features of human societies, resilient to individual action and short-term disruption, and grounded in dynamics strong enough to persist for decades.

MEGATRENDS AS HISTORICAL, DURABLE, AND NON-LINEAR FORCES

While megatrends are always characterised as being long-term forces, they also have other time dimensions that are rarely explicitly considered. Our proposed definition specifies that megatrends are historically situated rather than trans-historical forces, which are permanent features of human societies. This latter category includes phenomena such as demographic change or technological development which are sometimes considered megatrends. While some megatrends can be understood as historically specific configurations of such transhistorical processes – the Inversion of the Population Pyramid as a configuration of demographic change, or the Rise of Embedded AI as a configuration of technological development – megatrends don't persist indefinitely. They emerge from a specific configuration of conditions (that could in principle be different), unfold through distinct mechanisms, and have systemic and directional effects that run their course over decades.

Technological development and demographic change do not exhibit these properties. They are features of every human society, take different forms across time and place, and do not depend on any specific configuration of conditions. Treating these as megatrends would be like treating “social change” or “conflict” as megatrends. They are too broad to be analytically useful and too permanent to tell us much about what makes the conditions of change in the present and immediate future distinct.

Megatrends also do not necessarily unfold in a linear fashion. Even though they persist over the long term, they can suffer temporary interruptions. “Temporary”,

in this context, is relative, and a disruption may last several years without necessarily spelling the end of the megatrend. The Green Transition (which includes the transition to green energy) provides the best example. This megatrend has faced several interruptions, including energy crises pushing some countries back toward fossil fuels in the short run, or powerful political leaders actively working against green energy. These disruptions may have temporarily slowed the trajectory but have not ended it. The structural conditions and imperatives that necessitate a green energy transition in the long term are too powerful to be counteracted by such short-term disruptions.

THE TYPOLOGY OF MEGATREND REPRESENTATION

Megatrends – and all trends for that matter – can be represented in various ways, owing in part to differences in the kind of evidence that can substantiate them. Some are primarily supported by measurable developments and data that can be tracked over time, while others are primarily explained through observation and interpretation that cannot be easily measured in quantitative terms. The latter is often the case with megatrends that relate to developments in systems, values, and social practices. The reality is, of course, that every megatrend always carries elements of both.

The simplest form of trend representation is *growth* or *decline* trends which track a continuous increase or decrease in a set of measurable variables. The trajectory for this type of trend is clear and well supported by statistical data, such as with the growth in urban populations as a share of the global total. Yet growth or decline can also be represented qualitatively. Through observation and interpretation, we can recognise a phenomenon to be increasing or decreasing in strength or significance, even where the evidence is too qualitative to be measured precisely.

Of course, not all trends are understood as growth or decline. Some are represented as *transitions* or *shifts* from one state to another, in which the elements of a system are rearranged into a new pattern. Examples of this type of trend include the shift from a unipolar to a multipolar world order. As with growth and decline, shifts like this can rest on both quantitative and qualitative evidence.

Taken together, the definition and this typology set the boundaries for what a megatrend is and how its direction can be expressed. Applying these criteria with consistency is a separate problem, and it requires something a definition can't sup-



ply on its own – a sequence to work through, so that every candidate is judged against the criteria in the same way.

MEGATREND DIAGNOSTICS

In order to make the megatrend definition useful in practice, we have developed a diagnostics tool that helps enforce consistency in our own megatrends work, and which we hope will find use beyond CIFS as well. The tool is designed to test a megatrend candidate against the definition’s criteria, so that the process of megatrend selection rests on a shared, transparent, and repeatable standard.

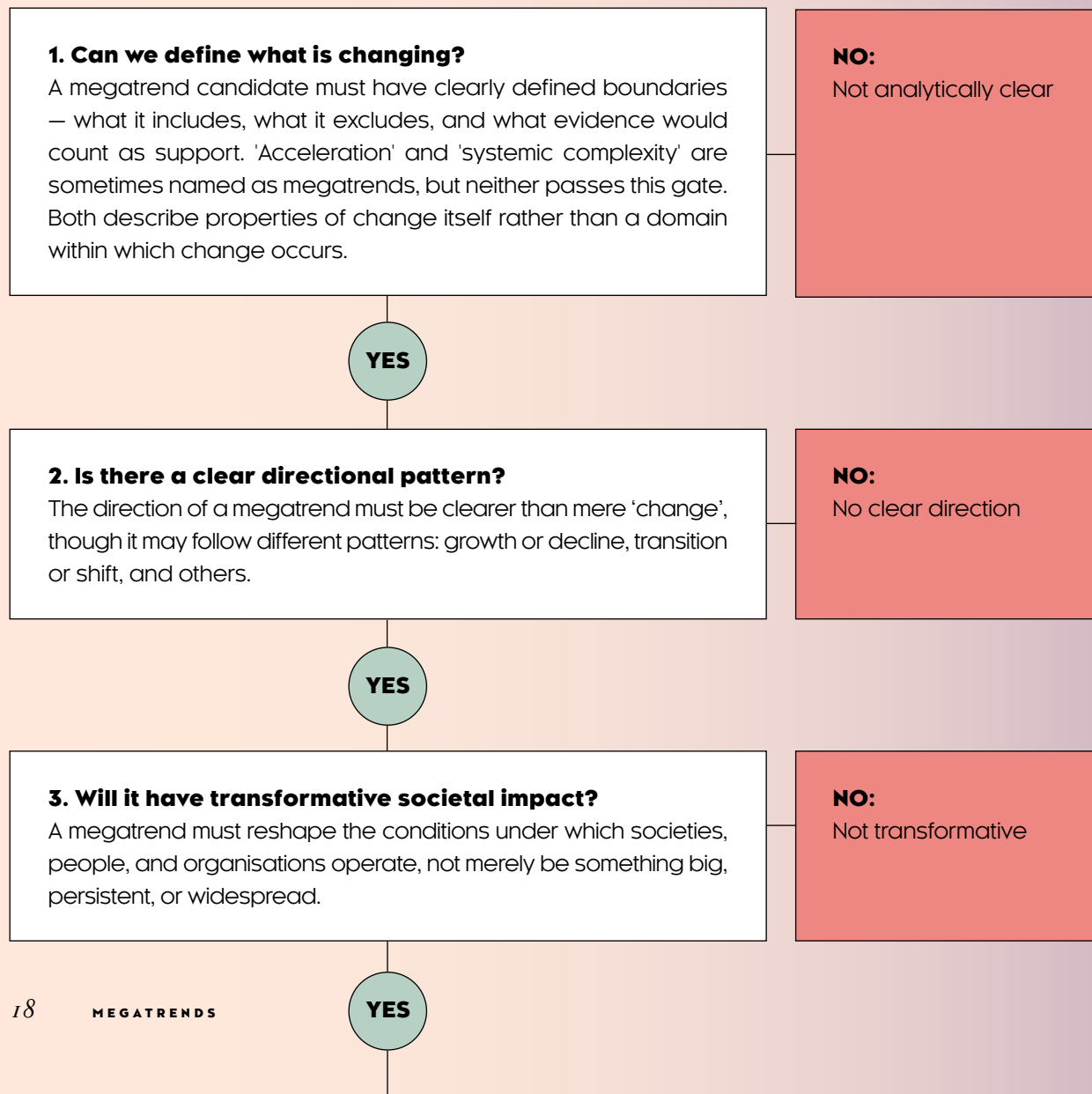
Apart from providing boundaries for the scope of a megatrend, the tool is meant to help conceptually distinguish megatrends as higher-order, structurally significant transformations from shorter-term developments, transhistorical processes, or overly diffuse descriptions of change. This is consistent with CIFS’ treatment of megatrends as analytically bounded aggregate patterns that help frame the long-term contextual environment rather than explain specific outcomes on their own.

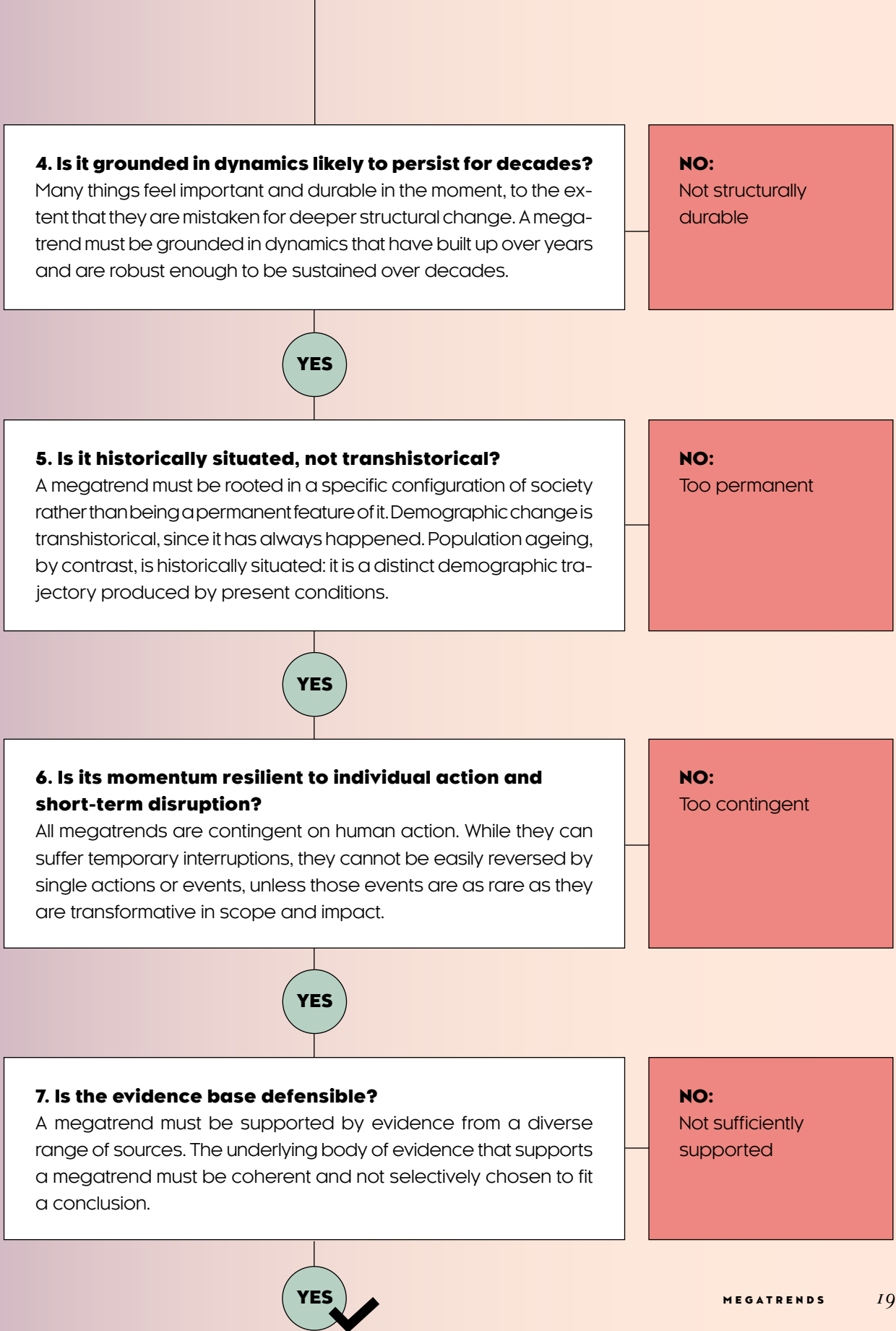
Each criterion on the chart (pictured on pp. 18-19) functions as a diagnostic gate. A “No” at any stage indicates that the phenomenon does not qualify as a megatrend candidate in alignment with CIFS’ definition.

Although the tool may seem to encourage binary yes/no assessments, each of its diagnostic gates calls for interpretation and judgement. As such, the definition does not point to one definitive set of megatrends, and the eleven trends defined by CIFS are not necessarily an exhaustive list. One organisation applying the same criteria, based on their own interpretation and judgement, might draw boundaries or weigh evidence differently, group developments in another way, or be motivated by different domain expertise in their framing. This is not a weakness of the approach but a product of the nature of megatrends as abstractions that we try to represent analytically.

CIFS megatrend diagnostics

Seven gates a candidate must pass to qualify under the CIFS definition





CIFS' MEGATRENDS METHODOLOGY

In the following, we outline our approach to developing our megatrends. This was an iterative process that moved through multiple phases of divergence and convergence to account for a broad spectrum of perspectives and insights.

We began with a hypothesis framing phase, in which we set out provisional megatrend hypotheses to be tested. This was followed by an evaluation and evidencing phase, in which candidates were interrogated and substantiated against evidence. Finally, we proceeded to the consolidation phase, in which the resulting megatrends were refined and given their final shape, individually and as a set.

Although we describe three distinct phases, in practice they were not strictly sequential. The process proceeded through iterative loops and evolved in exploratory ways. Something we uncovered while evaluating a candidate, or a challenge raised from a different perspective, could send us back to reframe the hypothesis or reopen questions we thought settled. This was deliberate and reflects how we at CIFS approach futures work as an iterative and exploratory practice. Additionally, although all megatrends should naturally align with the definition, in practical terms, every megatrend is also the product of analytical choices. Its composition therefore depends on the knowledge, interpretation, and judgement of the analyst, and our approach does not pretend otherwise.

The **hypothesis framing phase** was divergent by design. Its aim was to provide a provisional framing that gave the subsequent research and reasoning something to test, rather than casting an empty net at the world.

Our initial framing built on the foundation of our previous megatrends work, conducted in 2021. We considered which of these megatrends still held true and which ones had changed. We then reviewed the broader megatrends literature published by other foresight institutions, as well as academic and grey literature, to surface a wider range of ways the same underlying changes are being named and grouped.

This phase also included a series of internal workshops with a cross-disciplinary team at CIFS and a select group of external experts, drawing together knowledge, expertise, and perspectives from across domains to arrive at a set of candidate megatrend hypotheses that were deliberately broader and looser than the final set would be. These were the raw material to be interrogated and sharpened in the next phase.

1 Drafts were also reviewed by a large language model (Claude Sonnet 4.6 and Opus 5.0) configured with the diagnostics tool as its instructions, and revised where it judged a gate unmet. This checked the consistency of our own application of the criteria rather than validating the megatrends independently.

The **evaluation and evidencing phase** was where the broader set of megatrend candidates were subjected to scrutiny, separating those that held up as genuine megatrends from those that did not. The seven gates of the diagnostics tool (pp. 18-19) structured this scrutiny.

The first step was to gather the evidence that might substantiate a candidate. As this evidence accumulated, the candidates were evaluated against the diagnostic criteria.¹ Where the evidence was thin, contradictory, or pointed elsewhere, we either supported the candidate with more research, reframed it, or discarded it entirely. It was often here that something sent us back to reconsider the framing.

The evidence assembled for a megatrend must meet two standards. It must be coherent and converge on one structural transformation rather than a loose collection of developments we have only assumed to be related. And it must be representative rather than tendentiously selected to fit a given megatrend hypothesis. This kind of selection bias can creep in directly or indirectly. We guarded against this by working through the evidence as a cross-disciplinary team and by consulting external domain experts where needed, so that candidates were challenged from several perspectives.

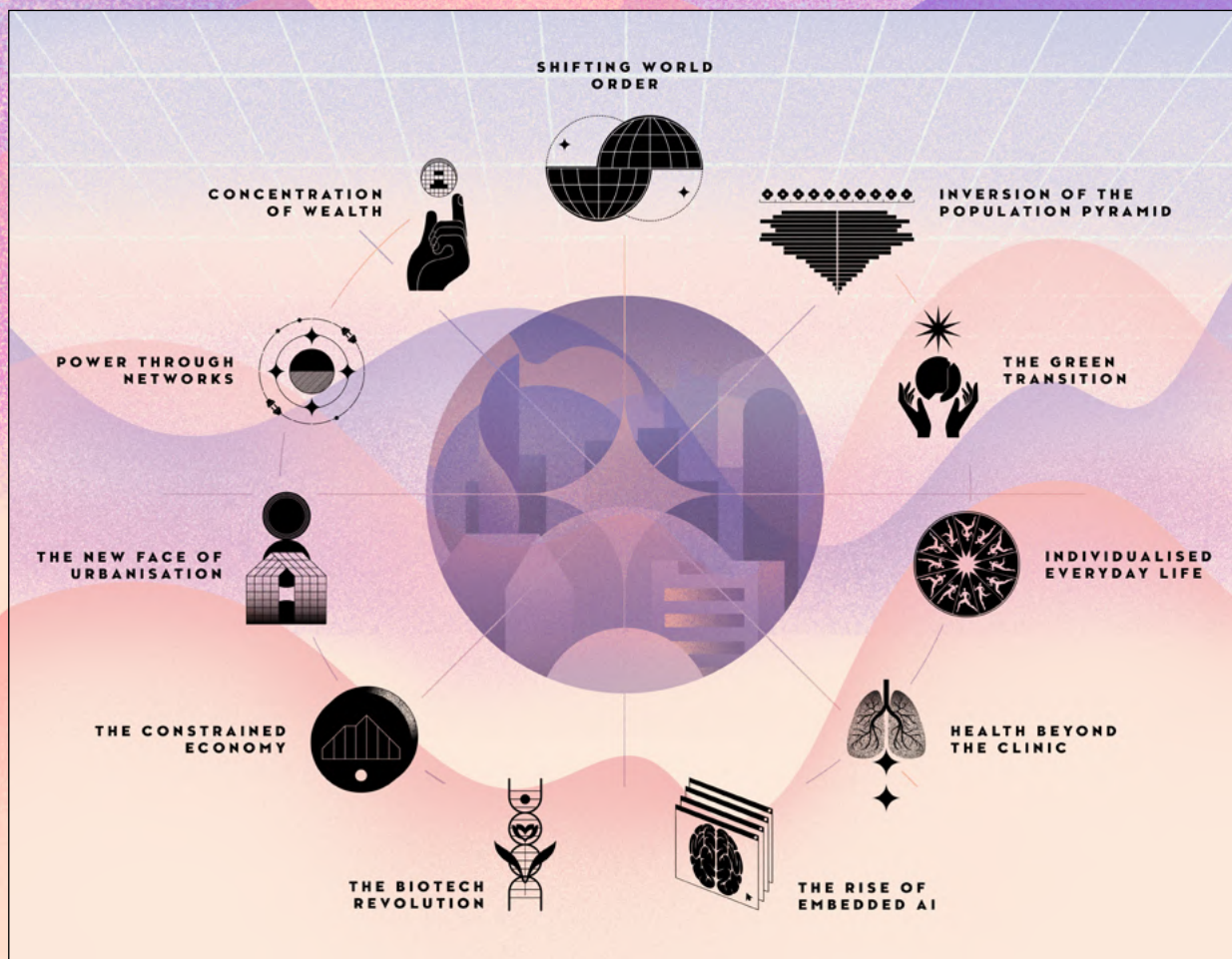
In our case, eleven megatrends passed through to the final phase, where they were refined and given their final shape.

The **consolidation phase** entailed shifting the focus from individual megatrends to the set as a whole. Here it was necessary to consider whether the set of trends sat at a comparable level, whether they overlapped or left gaps, and whether, taken together, they formed a coherent picture of long-term change rather than an arbitrary list.

In practice, this meant reviewing the qualified megatrends side by side and refining the set. We sharpened the boundaries and naming of each megatrend so that the distinctions between them were clear and understandable, and checked that the set was balanced across domains. As part of this process, we also shared a review copy with colleagues outside of the core team for validation purposes.

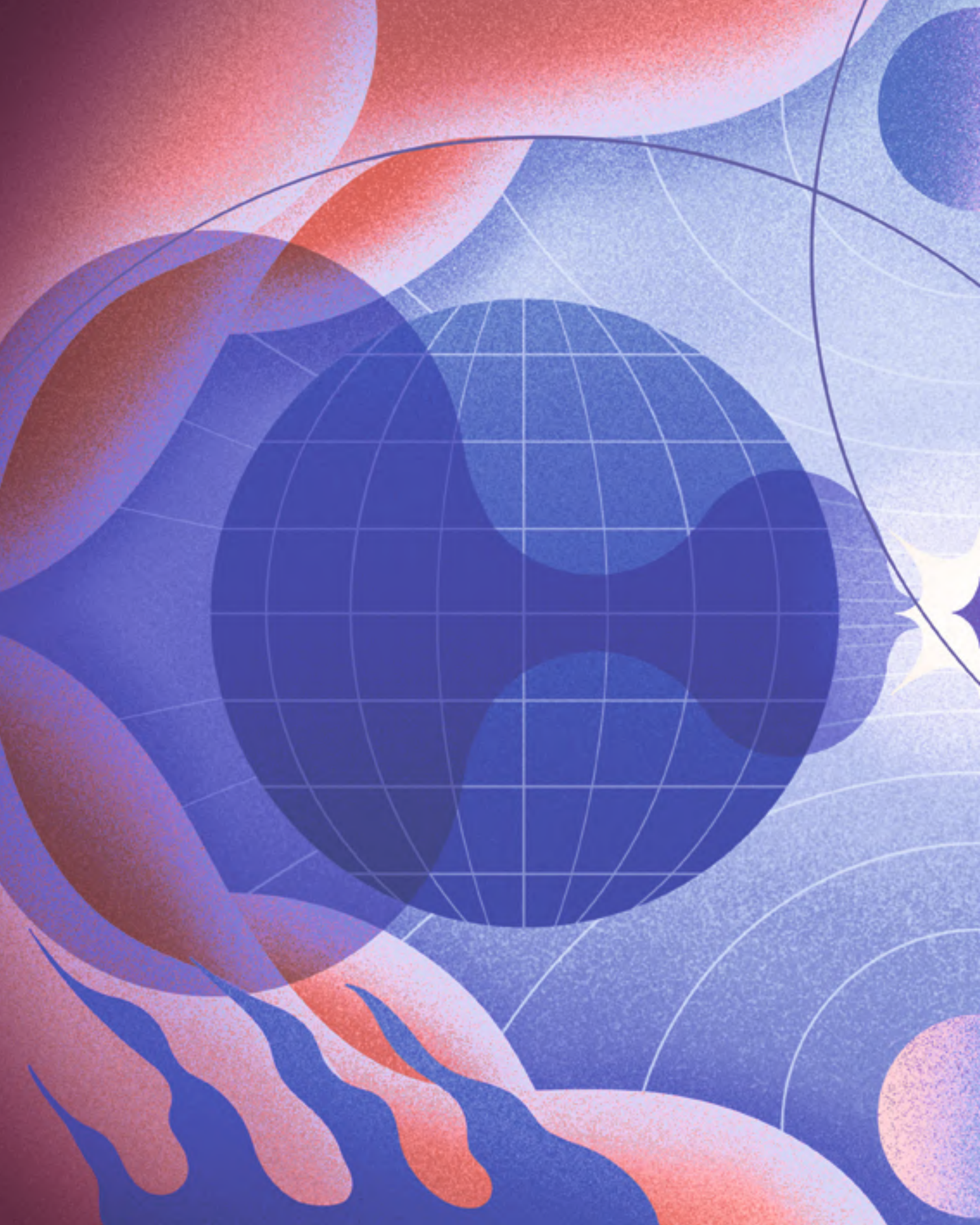
In this way, CIFS arrived at eleven structurally distinct megatrends that span geopolitics, economics, demographics, climate and sustainability, social life, health, technology, infrastructure, and urbanisation. Together they provide a coherent picture of many of the major transformations shaping our societies over the long term.

PART 3



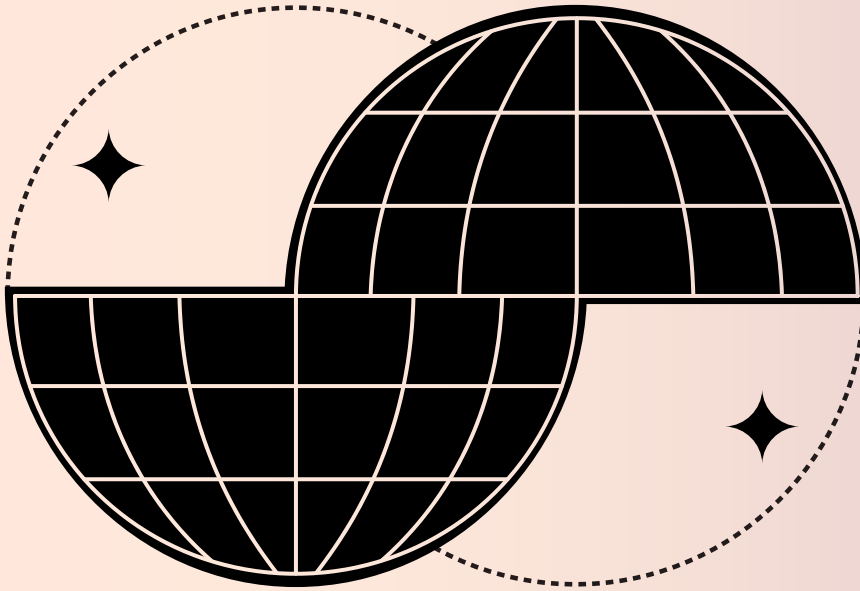


CIFS' 11 Megatrends



Shifting World Order





SHIFTING WORLD ORDER

Sub-trends:

- ✦ From alliances to pragmatic and transactional bonds
- ✦ Middle powers multi-aligning
- ✦ The rise of China
- ✦ Breakdown in governing mythologies (e.g. the rules-based order)
- ✦ Rearmament and global growth in military spending
- ✦ Technological leadership rivalry
- ✦ Old institutional order challenged

Uncertainties:

- ✦ Which new governing mythologies will become dominant after the transition?
- ✦ Will the Thucydides trap¹ spring, leading to direct conflict between the US and China?
- ✦ How will the distribution of power between the world's multiple geopolitical poles be weighted?
- ✦ Will we see effective global standards and agreements to address cross-border issues, ranging from IP rights and standardisation to climate policy?
- ✦ Will democracy continue its global decline? If not, what might spark its revival?
- ✦ How will the declining legitimacy of Western institutions and frameworks affect the development paths of nations across the world?

The structural erosion of the US-led unipolar order and its replacement by a multipolar configuration means that no single power holds uncontested authority over the rules, institutions, and norms governing international affairs. The rise of China takes centre stage in the reconfiguration of the geopolitical arena, but an equally important part of the story is played by middle powers with newfound autonomy and diverging interests.

“We are moving to a multipolar world, but we are not there yet. We are in a purgatory of polarity. And in this purgatory, more and more countries are filling the spaces of geopolitical divides, doing whatever they want with no accountability.”

– UN SECRETARY-GENERAL ANTÓNIO GUTERRES, 2024.

“Multipolarity is what the international landscape should look like.”

– CHINESE FOREIGN MINISTER WANG YI, 2026.

Since the end of the Cold War, American power – military, economic, cultural, technological – has dominated international affairs. That era of near-uncontested hegemony has ended. The rise of China, the reassertion of Russian ambition, the fracturing of Western consensus, and the rise of new middle powers on the world stage have set in motion a transformation of the international order.

Some of the building blocks for this transition were laid decades ago. The early 21st century saw a high-point in US imperial overreach with the invasion of Iraq taking place without a UN mandate in 2003, after which the credibility of American global leadership and the rules-based order it championed began a steady decline. China’s rise to an industrial, economic, and military powerhouse, decades in the making, has facilitated its ability to mount a growing challenge to the Western-led order. And although Russia’s newfound assertiveness came to a culmination with the full-scale war in Ukraine started in 2022, the beginnings of it can be traced back to its incursion into Georgia in 2008 (and the preceding Munich conference in 2007) and the annexation of Crimea in 2014. In the West, the democratic decline witnessed over the last decade has eroded trust in the institutions established in the 20th century to provide the scaffolding of the post-WW2 world order.² Taken together, what may have started as weaker signals of a potential transition have converged into the unravelling of the “unipolar moment” that began at the end of the Cold War in 1991, signalling a deeper shift away from this established world order and towards a new multipolar state.

Although the most visible fault lines of the shifting world order run between Washington, Beijing, and Moscow, great power competition is only part of the story. An equally important aspect is the growing tendency toward multi-alignment among the world's middle powers, which have a newfound sense of agency in the new international arena.

Türkiye, a NATO member since 1952, illustrates a broader structural trend among mid-sized powers navigating an increasingly fluid geopolitical environment. Positioned at the intersection of Europe, the Middle East, and Asia, Türkiye operates within multiple overlapping spheres of influence. Its strategic posture reflects a pragmatic approach to maximising autonomy rather than a definitive rejection or embrace of any single alliance system. This includes balancing long-standing ties with Western-led institutions alongside deepening economic, energy, defence, and diplomatic relations with non-Western partners. Such behaviour is an expression of a wider pattern, with states seeking to hedge risks, diversify dependencies, and maintain room for manoeuvre in a context where global power is more diffused and less predictable.

Singapore is another example of a middle power practising pragmatic geopolitical hedging, perhaps best illustrated by how Singapore hosts US military assets while refraining from directly supporting US goals in the region (including regarding Taiwan and in the South China Sea) that run counter to Chinese ambitions. Singapore also participates in both China's Belt and Road Initiative (BRI) and the US-led Indo-Pacific Economic Framework for Prosperity (IPEF).

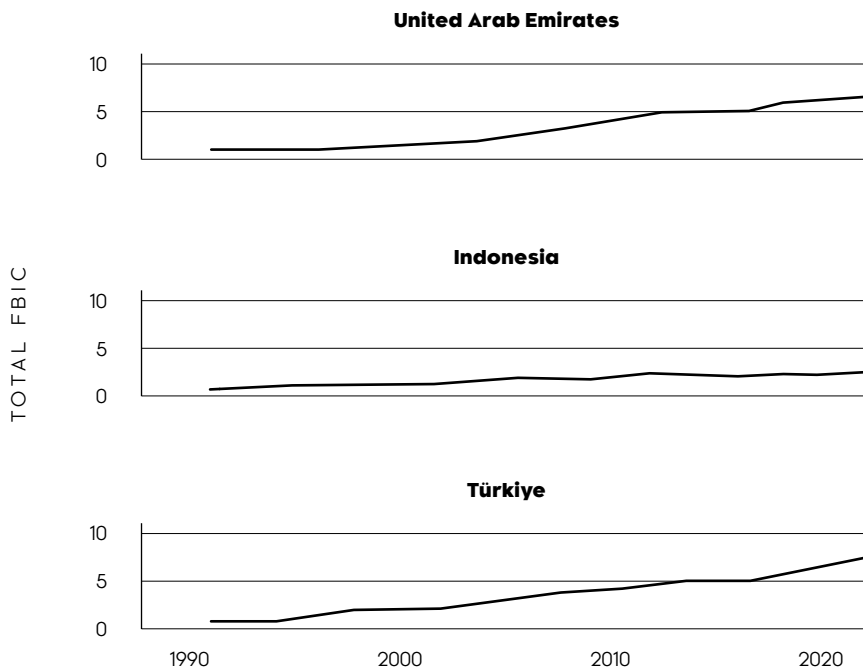
India, of course, deserves a separate mention. As a middle power with great power aspirations, the world's most populous country is simultaneously a member of the Quadrilateral Security Dialogue (QUAD) with the US, Japan, and Australia, a founding BRICS state, a longtime buyer of Russian arms and (since 2022) discounted Russian oil, and a vocal advocate of strategic autonomy as an explicit doctrinal term.³

As we transition away from the unipolar order towards one characterised by regional hegemons, multi-alignment like that of Türkiye, Singapore, India, and other middle powers is becoming a structural feature rather than a novel phenomenon.

Different concepts and frameworks have been proposed to help understand the transition period where no clear successor architecture to the Western-led order has yet crystallised. Proposed terms include "Multipolarity" and "Multiplex world".⁴ Yet no consensus has so far emerged, perhaps owing to the uncertainties around how exactly this new constellation will look, what the relative power balance between states will be, and which institutions, if any, will govern.

Terminological uncertainty aside, a range of key indicators support consideration of the shifting world order as a megatrend with long-term staying power rather than a phenomenon rooted in our present historical moment of global volatility and the cast of characters currently inhabiting the world stage. Some of these indicators are macroeconomic. When measured across regions, the share of global GDP is amid a multi-decade shift from the Global North to China and emerging Asian economies.⁵ ‘De-dollarisation’ (a reduction in the use of USD for international trade and financial transactions) is another signal that relative financial and geopolitical power is shifting away from the US, although this trend’s future trajectory is highly contingent.⁶

FORMAL BILATERAL INFLUENCE CAPACITY OF THREE MIDDLE POWERS, 1991-2023



Formal Bilateral Influence Capacity [FBIC] measures the capacity for influence between pairs of states across economic, political, and security relationships. By this measure, countries like the UAE, Indonesia and Türkiye have seen their influence in the international system increase since the end of the Cold War, demonstrating the growing agency of middle powers in a more fluid geopolitical environment.

Source: Institute for Economics & Peace (2026): *The Great Fragmentation: The rise of Middle Powers in a fractured international order*.

China's BRI represents both an economic and a geopolitical instrument in this shifting order. Through large-scale investments in infrastructure, energy, and connectivity across Asia, Africa, Europe, and Latin America, the initiative has expanded China's economic footprint and deepened interdependencies with participating countries. Beyond physical infrastructure, BRI also facilitates the diffusion of standards, technologies, and governance approaches aligned with Chinese interests. While the initiative has faced criticism related to debt sustainability, transparency, and local impact, it nonetheless reflects a broader trend, representing the emergence of alternative frameworks for global integration that operate alongside, or in competition with, Western-led institutions. As such, BRI is less a singular project than part of a wider reconfiguration of how global connectivity and development are financed and governed.

The rise of the Global South has often been framed as a story of economic catch-up. But it is equally one of increasing geopolitical agency and confidence, evidenced in the willingness of countries in Southeast Asia, Sub-Saharan Africa, the Middle East, and parts of Latin America to resist alignment pressures, assert independent policy positions, and demand greater representation in global governance institutions.⁷ This contributes to a world where legitimacy is no longer conferred primarily by Western-led institutions but increasingly negotiated across a broader and more diverse set of actors, which is also visible in the voting data from the UN General Assembly, where the alignment of many countries in the Global South with Western goals is now less pronounced.⁸

Technological leadership is becoming a central axis of geopolitical competition, and here China has emerged as a credible systemic contender. Over the past decade, China has moved beyond catch-up dynamics to establish leadership positions across critical domains such as artificial intelligence, clean energy technologies, advanced manufacturing, and space capabilities.⁹ This is underpinned by a combination of state-led industrial policy, scale advantages in data and infrastructure, and an ability to mobilise capital and coordinate long-term strategic priorities. In areas such as solar photovoltaics, battery production, and electric vehicles, China already holds dominant global market positions, while in AI and space it is rapidly narrowing gaps with the US. Meanwhile, the EU is on a downward slope of relative innovation capacity in many of the same domains. This evolution signals a shift from a unipolar technological order to a more contested landscape, where standards, platforms, and innovation ecosystems may increasingly diverge along geopolitical lines.

Global democratic backsliding and the growing appeal of more autocratic forms of government is another feature of a shifting world order, although whether this should be considered a contributing cause (indicator), a symptom (implication),

or perhaps a combination of the two, is an open question. Uncertainty also prevails as to whether democratic backsliding will continue, since democratisation is a process that is highly historically contingent, its strongest waves flowing from changes to geopolitical power dynamics such as with allied victory in the Second World War and the dissolution of the Soviet Bloc.¹⁰ Nevertheless, autocracies, in the present moment, seem to be winning the competition. In 2004, according to the V-Dem Institute, the number of countries autocratising was just 12. In 2024, that number was up to 45. Countries democratising were at 26 in 2004. In 2024, it had declined to 19. Amid the current wave of autocratisation, features of strong liberal democracies like freedom of expression and quality of elections are on a global decline.¹¹ Notably, the US is amid a decade-long democratic backsliding trend, with attacks on the judiciary, the abolition of accountability institutions, military purges, and attacks on the freedom of the media as key contributors.¹²

Crucially, the shifting world order also manifests in the breakdown of the governing mythologies¹³ that have underpinned the international order for decades. One such mythology is the association between liberal democracy and “the good life”: While levels of democracy have decreased globally, the provision of public goods – that is, quality of life – is on the rise across both illiberal and democratic states.¹⁴

In international politics, too, the foundational myths of the post-Cold War era are losing their hold. The “rules-based international order”, some argue, was always at least partly a mirage – a set of norms and institutions designed to provide legitimacy to powerful states acting out of self-interest. Peace, in this order, was maintained through mutual understanding, diplomacy, and a balance of power rather than through a dedicated commitment to uphold international law.

Recent events in Gaza, Ukraine, and Iran, and the different responses to them, have illustrated that Western appeals to a “rules-based order” differ from appeals to “international law” as administered by institutions such as the International Court of Justice and the International Criminal Court (ICC).¹⁵ The same US House of Representatives that had welcomed ICC proceedings against Vladimir Putin for the deportation of Ukrainian children¹⁶ voted in favour of the “Illegitimate Court Counteraction Act”, which would impose sanctions on ICC officials over the decision to issue arrest warrants for Benjamin Netanyahu and his former defence minister Yoav Gallant based on allegations of war crimes and crimes against humanity.¹⁷ Invoking “the rules” while applying them selectively to one’s own conduct only serves to deepen perceptions of Western hypocrisy. Yet Western actions alone do not explain the weakening of the legitimacy of supra-national governance. Crucially, it is also counteracted by China’s position, which emphasises the primacy of consent and the supremacy of state sovereignty.

On a more structural level, the growing appeal of non-Western governance frameworks, such as BRICS and Global East forums, the Mecca Defence Alliance between Türkiye, Saudi Arabia, and Pakistan, and others constitutes an intensifying legitimacy contest over whose norms, institutions, and governing mythologies get to define the international system in the future. A key question is whether one set of institutions and narratives will dominate or if the field will remain contested.

The post-Cold War period was characterised by a relative decline in interstate conflict along with disarmament and a sustained reduction in military expenditure across much of the Western world. This “peace dividend” enabled a reallocation of resources towards economic integration and domestic development. That period is now clearly ending. Military spending is rising globally, with significant increases across Europe, Asia, and the Middle East, reflecting a renewed focus on deterrence, territorial defence, and strategic competition.¹⁸

At the same time, the nature of conflict is expanding beyond traditional domains to include cyber operations, economic coercion, weaponisation of migration and information, and technological rivalry. Space is also emerging as a new frontier of great power contest, marked by growing militarisation and competition. The 1967 Outer Space Treaty, once the foundational agreement maintaining space as a peaceful domain, faces growing strain as spacefaring nations increasingly prioritise military applications – deploying satellites for missile warning, surveillance, and nuclear command and control. Space is also a site for competition for resources, especially ones that are needed in such large quantities that transportation from Earth is not feasible. As national space agencies and private enterprises establish permanent settlements on the Moon, we may see them become increasingly controlling over access to certain natural resources found there, including ones that are not necessarily of strategic concern on Earth.

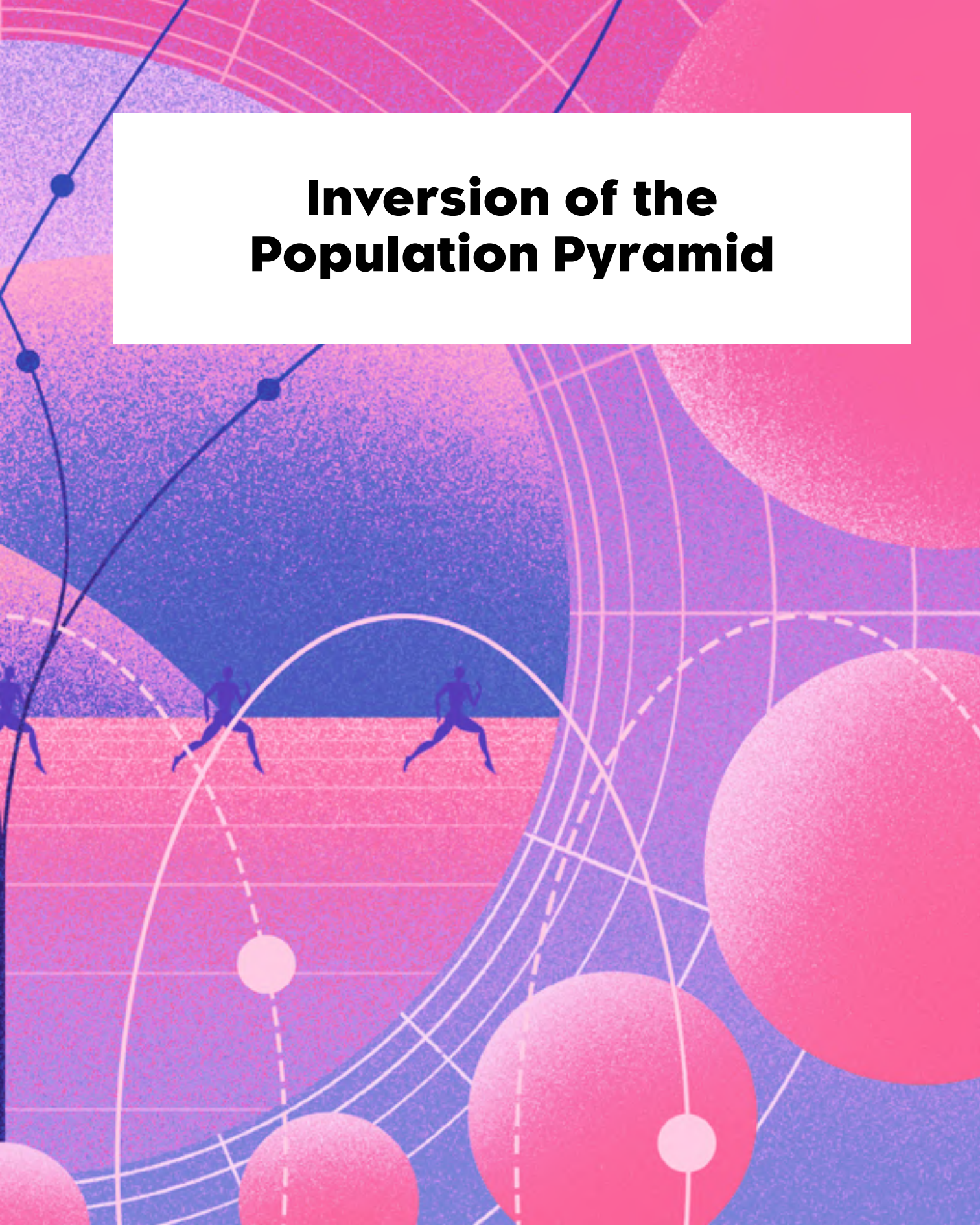
Together, these developments point to a structural transition away from an era defined by expectations of peace and towards one where conflict, both direct and indirect, is a more persistent feature of the international system. Yet conflict does not need to be the inevitable conclusion to a contested transition. The alternative is painful adjustments and negotiated accommodation by the world’s new hegemons and the new cast of middle powers. Some will need to accept a diminished role while others must exercise restraint in their newfound influence and agency. Whether the right balance can be struck will be among the defining questions of the coming decades, with the answer shaped not only by Washington, Beijing, and Moscow, but by the cumulative choices of the dozens of states now hedging between them.

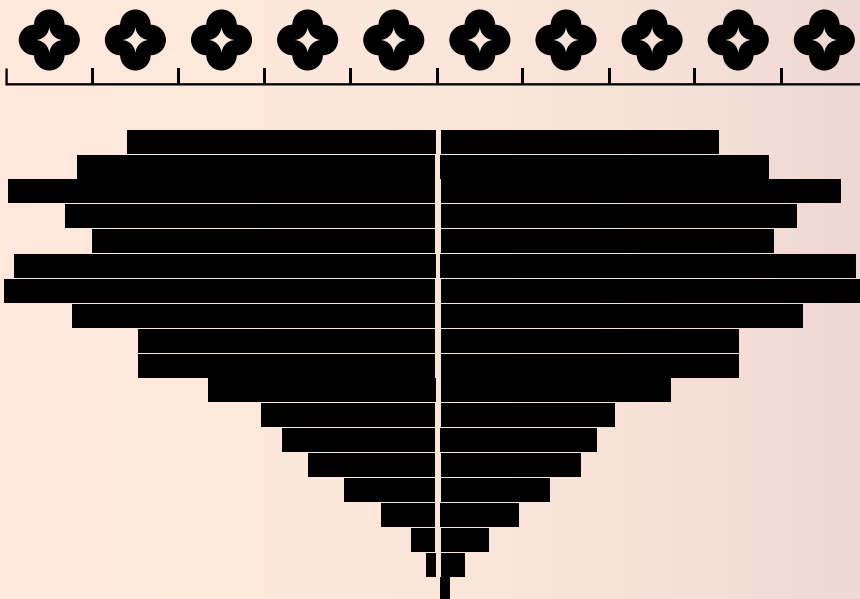
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Inversion of the Population Pyramid





INVERSION OF THE POPULATION PYRAMID

Sub-trends:

- ✦ Uneven population growth concentration
- ✦ Sustained decline in fertility rate
- ✦ Rising life expectancy and ageing
- ✦ Increasing dependency burdens
- ✦ Migration pressures

Uncertainties:

- ✦ Will barriers to family formation – including housing costs, labour market insecurity, gender inequality and changing social norms – persist or intensify, further suppressing fertility rates?
- ✦ To what extent will international migration cushion the effects of ageing and workforce contraction in low-fertility countries?
- ✦ Is migration managed or disruptive, both at point of origin and destination?
- ✦ To what extent can productivity gains through technology and automation offset the economic effects of shrinking or ageing workforces?
- ✦ Will governments be able to adapt social systems such as pensions, healthcare and education to match changing population structures?
- ✦ Will lower-income countries be able to keep up with the needs of their rapidly growing young population?

The global population is being fundamentally restructured through a shift from youth-heavy to increasingly senior-heavy societies, driven by sustained fertility decline and longer life-spans. This transition is universal in direction but uneven in pace. Some countries are already experiencing rapid ageing and population decline, while others still face continued population growth and younger age structures for decades to come. The result is a period where ageing, shrinking population, and youth expansion coexist globally. The knock-on consequences of this demographic inversion extend across societal domains. They strain pension, healthcare, and education systems built for populations that were, on average, younger. They create imperatives for investment in AI and automation to offset a shrinking labour supply. They drive migration flows and affect intergenerational relations. And they shift the political calculus around conflict, innovation, and institutional risk-taking.

“The population of Earth is a lot like the stars. The total population is still growing, but when we track total increase, we’re looking at the star that seems to be shining brightly but has already imploded.”

– JENNIFER D. SCIUBBA, EXPERT IN POLITICAL DEMOGRAPHY, 2023.

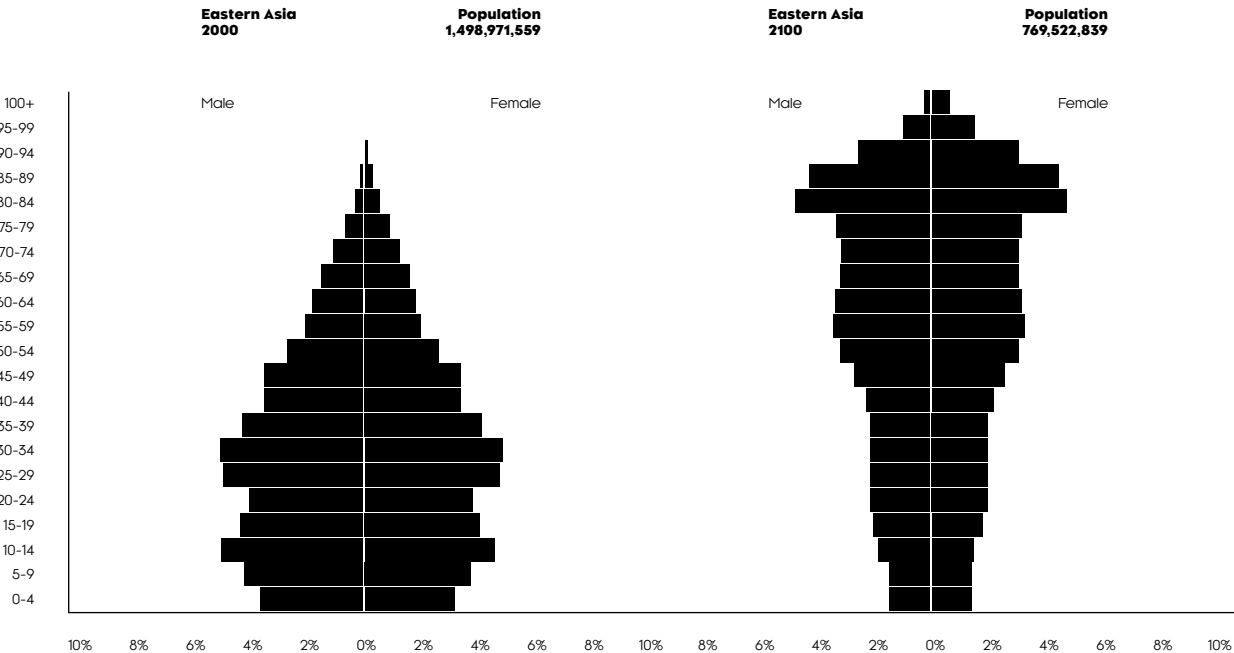
The latest century of human history has been marked by unprecedented population growth. For millennia, the global population was on a slow but steady increase, as high birth rates were largely offset by high death rates. Beginning in the mid-20th century, this rough equilibrium was broken. At no other time has the world population grown so quickly, and although this growth is now slowing its pace, the world will have a few billion humans more than it does today before it peaks. The world population is projected to rise to around 10.3 billion in the mid-2080s (up from 8.2 billion in 2024).¹ This future growth will occur mainly in Sub-Saharan Africa and Asia. In fact, more than one fifth of population growth between 2024 and 2054 is expected to come from just nine countries, including Angola, the Democratic Republic of Congo, Niger, Somalia and Tanzania, where populations are projected to at least double over the same period.²

While the global population explosion that began in the 20th century is historically unprecedented, equally unique is the fact that it will eventually transition into population decline. Today, more than one quarter of the global population already lives in countries where population growth has peaked, including China, Germany, Japan and the Russian Federation. Countries such as India, Indonesia, Nigeria, Pakistan and the US are projected to continue growing, with population peaks expected later in the century or beyond 2100. This means that in the long term, even some of the most populous countries today will face a future where labour force expansion can no longer be taken for granted, where dependency ratios begin to rise, and where economic growth becomes increasingly reliant on productivity rather than demographic momentum.³

THE EAST ASIAN DEMOGRAPHIC INVERSION

Falling fertility and rising life expectancy are changing the age structure of populations. In 2000, Eastern Asia – China, Japan, North and South Korea, Mongolia, Taiwan, Hong Kong and Macau – was home to just under 1.5 billion people, and its most populous age groups were those below age 40. The figure shows this structure as a pyramid, with each horizontal band giving the share of one five-year age cohort. By 2100, a sustained fertility decline will have narrowed the base while longer lives have filled out the top, and the shape has inverted, as the largest cohorts now sit in the older brackets. The region's population is also expected to fall over the century, to around 770 million – roughly half its size in 2000.

Source: UN DESA, Population Division, World Population Prospects 2024, 'Eastern Asia, 2000 and 2100,' visualisation from <https://www.populationpyramid.net/eastern-asia/2000/>.



The defining demographic shift of the 21st century concerns this growth and decline, which brings with it the slow inversion of the population pyramid, with smaller younger generations and rapidly expanding older cohorts. This inversion occurs across all regions, but at an uneven pace, with some countries experiencing rapid ageing and decline, and others continuing to grow and maintain younger age structures for decades to come. What's true for all societies, however, is that they face a demographic race against time. Some countries will be pressured to fundamentally restructure their economic and social welfare systems to account for rapidly ageing populations and shrinking workforces while others will need to make sure that their expanding, youthful population is converted into a productive, healthy, and utilised labour force.

At the core of this shift lies a sustained decline in fertility. Globally, fertility rates have fallen to around 2.3 children per woman, less than half the level observed in the 1950s.⁴ Even in many of the world's most populous countries, including India and China, fertility has dropped below the replacement level of approximately 2.1, making long-term population decline increasingly likely without sustained immigration.⁵

In many countries, people have fewer children than they desire, pointing to a gap between fertility intentions and outcomes driven by factors such as high child-care costs, job insecurity and difficulties in reconciling work and family life, and reproductive health.⁶ While governments have increasingly responded with financial support for families, evidence suggests that fertility outcomes depend not only on such measures but also on gender dynamics. In countries such as France and Sweden, for example, a combination of family policies with more equal care structures helps sustain relatively higher fertility. In Japan and South Korea, where gender inequality and work-life imbalance persist, increased spending has had limited impact.⁷ In other countries, the preference to have fewer or no children is the deciding factor in fertility levels. This is even the case in Hungary which introduced some of the strongest policy incentives. Its baby loans and income tax exemptions for mothers are among the most generous in the world, yet they have produced no durable rise in fertility.⁸

Alongside declining fertility, rising life expectancy is extending the upper end of the age distribution. Improvements in healthcare, nutrition, and living standards have increased longevity across most regions, contributing to increasingly "top-heavy" age structures. By 2060, 28% of the OECD population will be aged 65 or older, with the share rising to roughly 37% in Italy and Japan.⁹

This growing imbalance will fundamentally alter the relationship between working populations and dependents.

Ageing leads to various other financial constraints. Alzheimer and other dementias alone will cost the world economy USD 14,513 billion between 2020 and 2050,¹⁰ putting pressures on pension and healthcare systems that were designed for a very different demographic outlook.¹¹

The shift towards top-heavy population pyramids will increasingly be reflected in how societies are governed. As populations age, the growing political weight of older cohorts influences fiscal priorities, with evidence showing increased support for pensions, healthcare and other forms of social protection.¹² Ageing populations are also associated with a relatively lower public spending in areas such as education, and a lower economic growth rate in the long run, reflecting a shift towards present-oriented welfare over future-oriented expenditure.¹³

Although the Inversion of the Population Pyramid is most often thought of as an issue of fiscal and labour constraints, there are other byproducts that will impact societies over the long-term. One clear intersection is with technological change, specifically technologies of automation. In countries such as Japan, faced with steep population decline, increased automation efforts can be seen in the context of the country's acute need to expand labour productivity and extend working lives. China, too, is heavily investing in automation and AI to offset the negative economic impact of an ageing population.¹⁴

Ageing and population decline may also have less obvious impacts than fiscal constraints. For example, researchers working in the intersection of demographics and international relations have examined how ageing lessens both the preferences and capacity for warfare in aged countries.¹⁵ A scarcity of young people tends to make 'wasting' their lives in war more costly, and their labour will be needed elsewhere in the economy, potentially (and all else being equal) pulling the international arena in the direction of a *geriatric peace*.

Risk-averseness is a general characteristic of aged electorates, who tend to be more conservative than younger ones.¹⁶ Ageing populations will increasingly come to represent a governance dilemma evident in the tension between systems and institutions that function as investments in the future (such as education, climate and the environment, or infrastructure) and those oriented toward managing the present (such as pensions, sick care and eldercare). As retirees crowd out workers, the notion that each generation supports the previous one in old age will come under increased pressure, as upholding it comes at the expense of other priorities.

One could imagine a future society that is more peaceful, perhaps, but also more stagnant, less innovative, more nostalgic in its culture and politics, and much more

demanding on the youth to perform their role as custodians of an ageing society rather than innovators. The generational tensions already evident today in countries where young people feel locked out of housing and asset markets could risk intensifying in a future where the youth become simultaneously the most protected and the most extracted-from demographic.

Other social and cultural implications, some less obvious, will follow from the demographic inversion. In most societies, informal eldercare is performed primarily by women (sometimes at the cost of labour market participation). An ageing society thus heightens the risk of a structural reinforcement of gender inequality. It may even exacerbate the problem of declining fertility rates, as one of the documented drivers of declining fertility is the unequal domestic burden on women.

The pressures and effects of ageing are, of course, not felt everywhere – not yet at least. While ageing dominates in some regions, others currently face the inverse challenge. Countries such as Nigeria, Tanzania and the Democratic Republic of Congo, for instance, face very different challenges than Germany or Japan do. In youthful countries, the primary concerns relate to absorbing rapidly expanding labour forces into productive employment and ensuring sufficient investment in education, job creation, housing, and infrastructure. Where this is achieved, it could generate a demographic dividend; where it is not, it could increase the risk of persistent unemployment, informality and social instability.¹⁷ In many cases, this demographic momentum coincides with mounting pressure on food systems and essential resources, even as fast-growing countries are expected to account for a growing share of global economic expansion in the coming decades.¹⁸

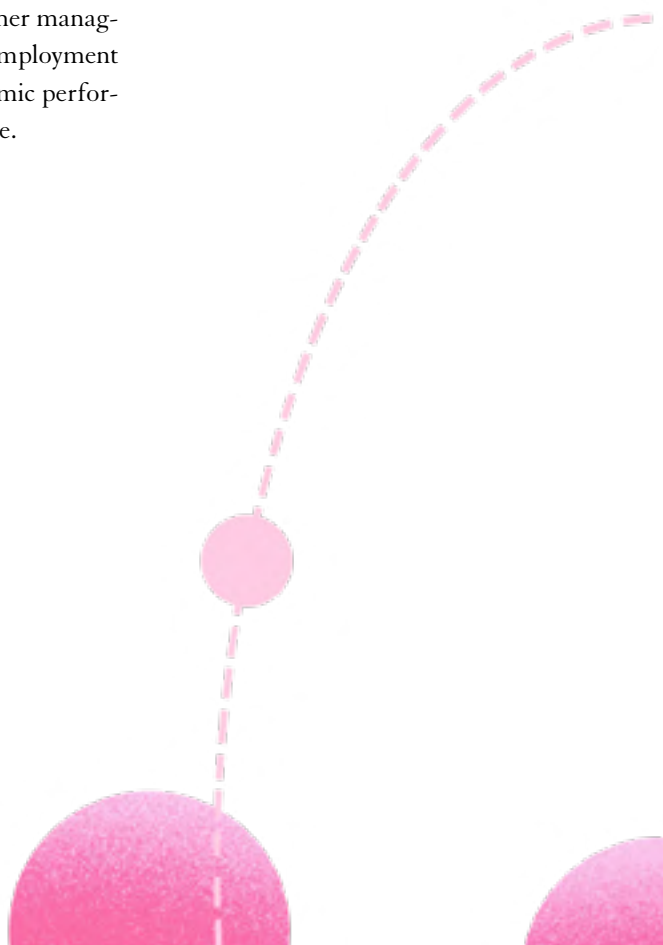
Migration is often seen as a solution to the twin challenges of population growth and decline. The global stock of international migrants has indeed been increasing, reaching 304 million in 2024, which is nearly twice as many as in 1990.¹⁹ And in several low-fertility destinations, including the United Arab Emirates, Germany, Italy, Portugal and the Czech Republic, immigration has already accounted for all population growth between 2000 and 2020, effectively offsetting natural population decline.²⁰ Over the century, as more and more countries experience labour shortages, large-scale migration will be harder to resist politically, but it won't be without costs. Already today, advanced economies experience societal polarisation and a rise in nativist politics which are partly a response to immigration. In the future, the impetus to grow the labour force in receiving countries will need to be continuously balanced with the risk for political backlash. In countries with an outward flow, issues related to brain drain and loss of economic momentum become pressing.²¹ The African Development Bank estimates that 10 to 12 million young Africans enter the labour market each year, while only around three million formal jobs are created. Where this gap persists, a youth population that could

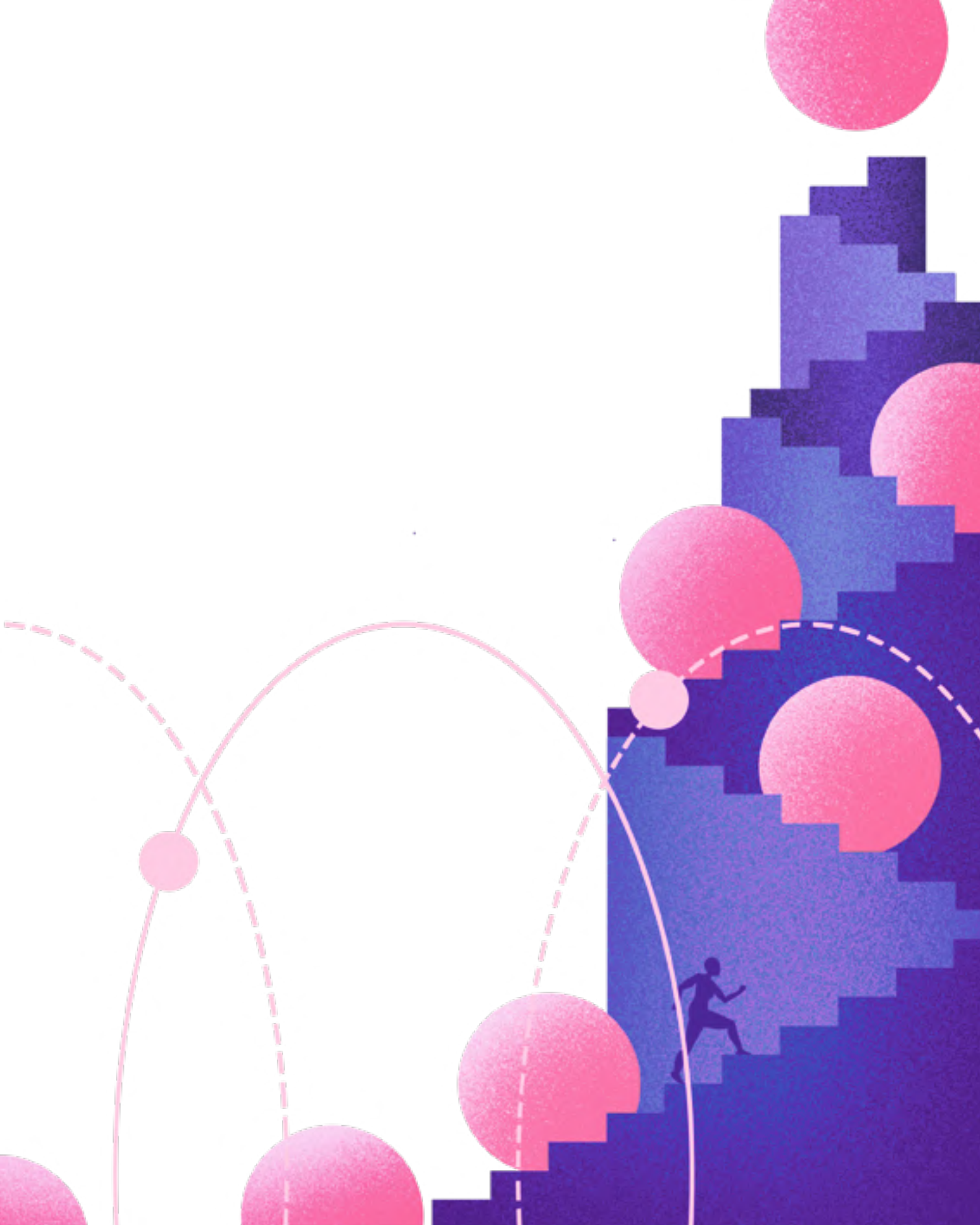
have powered growth is instead pushed into unemployment and informality and are pressured to seek opportunity abroad.²²

Overall, there will be an increasingly uneven distribution of labour, capital and institutional capacity. A growing share of global labour force expansion will be concentrated in Sub-Saharan Africa, while capital, financial depth and institutional capacity will remain concentrated in higher-income economies. This divergence is expected to reshape patterns of global interdependence and could generate new tensions around migration and investment flows.

Two potential futures emerge from this. One in which intensifying competition for younger workers becomes the focal point of geopolitical bargaining. And another where automation and AI displace jobs at scale, meaning that labour scarcity might not be as big of an issue as otherwise expected. This second path places economic and social systems on new foundations, raising new questions about who owns the output and how it is shared, not to mention the value of care work that markets still do not price.

The great demographic inversion will not produce a single global outcome. While population structures are shifting universally in the same overall direction, the speed and context of this transformation will differ markedly across regions. As a result, economies will face fundamentally different challenges, whether managing labour scarcity and fiscal pressure in ageing societies or creating employment and opportunity in younger ones. These asymmetries will shape economic performance, social organisation and political dynamics for decades to come.





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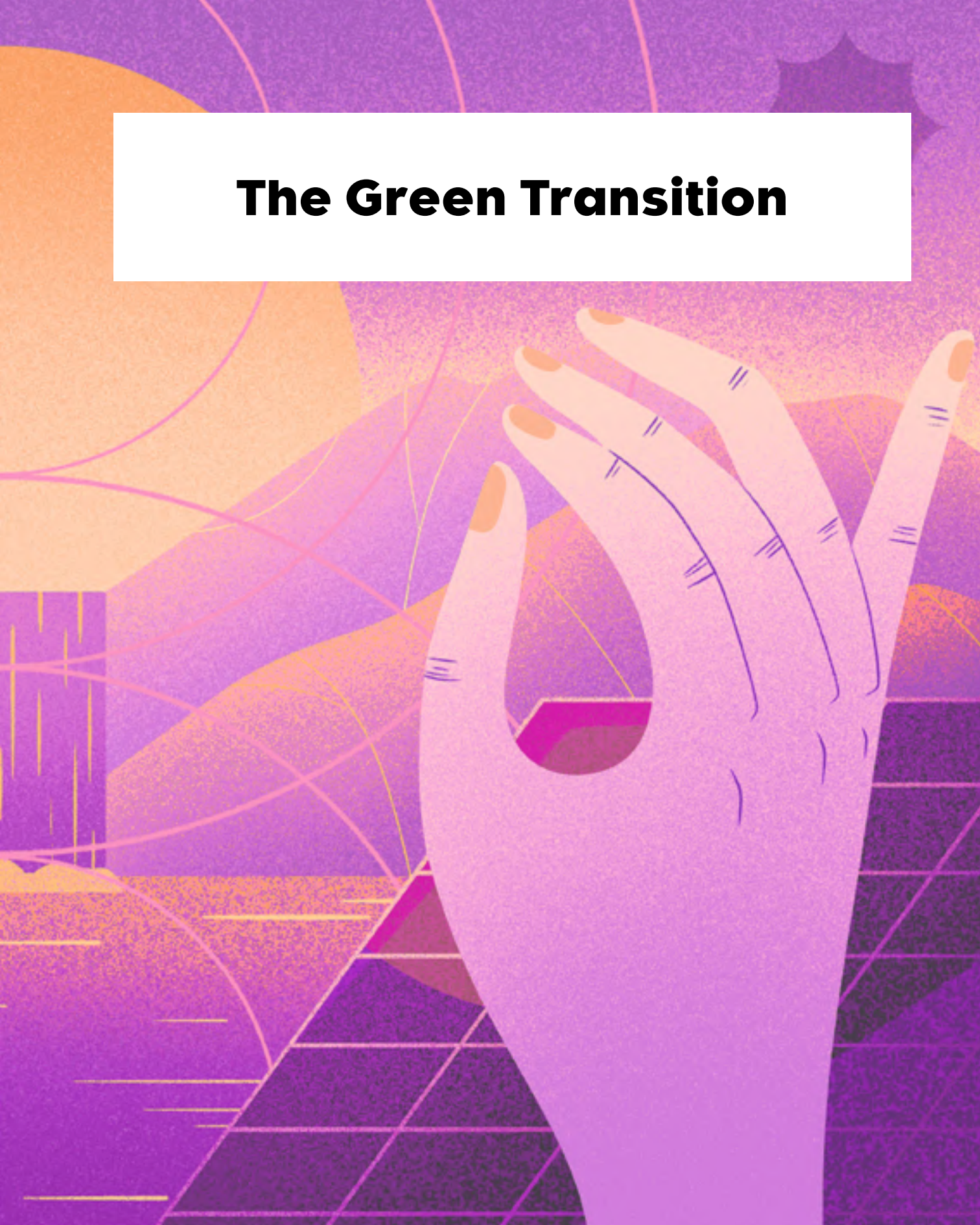
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The Green Transition





THE GREEN TRANSITION

Sub-trends:

- ✦ Energy transition from fossil fuels to renewables
- ✦ Circular economy and sustainable resource use
- ✦ Electrification
- ✦ Increase in policies to prevent environmental degradation
- ✦ Increase in nature-related financial disclosures
- ✦ Growing climate mitigation and regulation efforts
- ✦ New regions and countries stepping up in climate leadership

Uncertainties:

- ✦ What will be the duration and impact of the current backlash against renewables?
- ✦ Will new energy storage technologies achieve major gains in efficiency and propel the pace of electrification and renewable energy use?
- ✦ What would it take for consumer awareness to translate into a widespread shift in consumer choices?
- ✦ Will Earth system tipping points be reached, resulting in runaway climate calamities, before the transition can prevent them?
- ✦ Will the restoration of natural habitats keep in step with the energy transition, or will biodiversity loss continue to worsen?
- ✦ Will the world unite around climate action, or will efforts be regionalised?

Climate change, ecological degradation, and breached planetary boundaries are forcing a shift away from the fossil-fuel-based, resource-intensive economy of the 20th century. That shift is increasingly reinforced by economics, as renewables are quickly becoming the cheaper option in many markets. The Green Transition encompasses both the shift to renewable energy and efforts to halt the environmental degradation driven by resource-intensive production. This transition is underway, but it proceeds unevenly, both in terms of geographies and efforts. Renewable energy capacity is expanding, and CO₂ emissions are measurably lower than they would otherwise be, while progress on protecting natural habitats and reducing material consumption lags further behind. Political backlash against sustainability agendas in several major economies creates noise and distracts attention, but it has not reversed the trajectory of the megatrend. The visible pressures – intensifying climate impacts, worsening ecological degradation, and the economic costs associated with both developments – continue to build. But these dynamics alone are no guarantee that the transition will happen fast enough to avert severely disruptive climate risks.

“We’re in a race between the energy transition and massive climate disruption. The jury’s out as to which of those happens first.”

– NAOMI ORESKES, HISTORIAN OF SCIENCE AT HARVARD UNIVERSITY, 2023.

The trajectory of the global economy is shifting. For most of the past century, economic growth came at a measurable cost to the natural world. Livestock now outweigh wild mammals and birds tenfold, air pollution alone accounts for approximately seven million premature deaths each year, and climate change proceeds at a pace that inches us closer to dangerous tipping points in the planet’s climate systems.¹

As climate change accelerates, the resulting physical impacts in the form of severe weather events and ecosystem collapse will place increasing adaptation demands on societies. The need for robust, science-based tools to anticipate risk, manage uncertainty, and design resilient systems will grow over the long term, regardless of short-term political cycles. The transition to a sustainable economy is therefore not only an environmental necessity but increasingly an economic and strategic one, as the need to navigate climate risks grows.

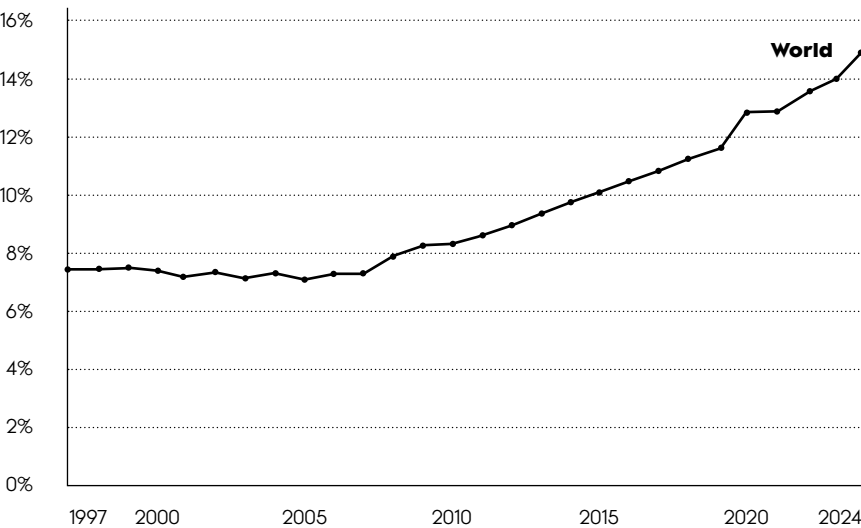
In spite of this underlying need for change, the Green Transition does not present a clear-cut or uniform picture. As a megatrend, it represents an aggregate of sub-trends and indicators that change at different paces – and not all of them in a positive direction. These underlying forces span the degradation and restoration of natural environments, as well as climate- and energy-related developments.

The overall picture is one of mixed signals. Across key areas, improvements are happening. The global deforestation rate is slowing down (from 17.6 million hectares per year in 1990-2000 to 10.9 million hectares per year in 2015-2025).² Meanwhile, the average proportion of key biodiversity areas under protection has increased (from roughly 25% in 2000 to about 45% in 2025.)³ The share of renewables in the global energy mix is also growing at a steady pace. Yet other indicators are trending in a negative direction. The Red List Index – an indicator showing the overall extinction risk – has been continuously worsening for decades.⁴

**SHARE OF PRIMARY ENERGY CONSUMPTION
FROM RENEWABLE SOURCES**

Measured as a percentage of primary energy using the substitution method (estimating the amount of fossil fuel input that would have been required to generate the same electricity). Renewables include hydropower, solar, wind, geothermal, bioenergy, wave, and tidal, but not traditional biofuels, which can be a key energy source, especially in lower-income settings.

Source: Our World in Data, 2026, with data from Energy Institute, *Statistical Review of World Energy*, 75th ed. (London: Energy Institute, 2026); Vaclav Smil, *Energy Transitions: Global and National Perspectives*, 2nd ed. (Santa Barbara, CA: Praeger, 2017), appendix A; and U.S. Energy Information Administration, *International Energy Data* (2026).



The fact that the Green Transition, in the short term, is a muddled story where not all indicators and sub-trends show a positive trajectory does not mean the megatrend itself is any less real. Humanity's shift away from a resource-intensive economy is an accelerating trend, unlikely to be reversed by short-term political backlash. But it also does not guarantee the arrival at a stable end state. Rather, the transition is to a future in which we will likely be forced to mitigate, and adapt to, climate change and environmental degradation simultaneously. While more governments submit National Biodiversity Strategies and Action Plans (NBSAPs) and more companies are disclosing a biodiversity policy, the Earth system is still in the high-risk area, as evident from the fact that seven of Earth's nine planetary boundaries are now breached.⁵

Unlike most megatrends, which concern human actions in the social system, the Green Transition occurs in a complex physical system with feedback loops and system thresholds that can produce sudden reversals in indicators. In other words, human action can improve a wide range of parameters, such as the net forest area, but physical mechanisms such as the die-off in the Amazon could still be triggered, which would fundamentally disrupt the indicator we are trying to improve.

With these caveats in mind, it is worth examining the megatrend's constituent parts in turn – starting with energy, where the transition is furthest along.

The global transition from fossil fuels to renewables, once a distant ambition, is now proceeding at pace. Global clean energy investment already stands at USD 1.8 trillion annually, against USD 1 trillion in fossil fuels.⁶ Across major economies, there has been a decoupling of GDP growth and CO₂ emissions.⁷ Renewables may account for a relatively small share of primary energy consumption, but that figure conceals the higher efficiency of electricity. Around 40% less renewable energy than fossil fuel energy is needed to perform the same task – reflected, for example, in the higher mechanical efficiency of electric motors compared to internal combustion engines. By adjusting for this increased efficiency, the actual substitution share of renewables is higher and rising quickly. (See figure on page 50).⁸

Meanwhile, structural changes in how energy is produced and consumed are reshaping emissions trajectories and redefining industrial systems. Nowhere is this transformation more evident than in China, with its scale and policy direction making it a deciding factor in the broader global outcome. China has emerged as the dominant force in clean energy deployment, leading the world in installed capacity of both solar and wind power and accounting for a substantial share of new additions each year.⁹ Massive investments in utility-scale solar farms and off-shore wind projects have driven down costs globally through economies of scale and manufacturing dominance. At the same time, China's grid modernisation

efforts, including ultra-high-voltage transmission lines, are enabling renewable energy generated in remote regions to reach dense urban centres efficiently. Globally, the electrification of transport is another critical trend. The electric vehicle (EV) share of global car sales stands at 25% in 2026 and rising quickly.¹⁰ In Norway, for example, this transition is nearly complete, with EVs' share of new Norwegian passenger vehicle sales at 96% in 2025.¹¹

The energy transition might present a positive story, but unfortunately it cannot be seen in isolation. It is a clear instance of change happening, but not fast enough. While national emissions plans are contributing to bending the emissions curve globally and are expected to cut emissions by 12% in the next 10 years, this is not sufficient to curb accelerating climate change – a shortfall best measured against the Paris Agreement's own targets.¹² The Agreement established a global framework to limit warming to well below 2°C above pre-industrial levels, with efforts to cap it at 1.5°C, yet the world is currently on track for 2.6°C.¹³ The planet is on average already 1.41°C warmer than pre-industrial levels, and the Copernicus Climate Change Service projects that we will breach 1.5°C as early as May 2029 rather than March 2042 – 13 years earlier than anticipated when the Agreement was signed.¹⁴

The great risk, of course, is that the climate is approaching a high risk of Earth system tipping points such as the polar ice sheets melting, permafrost thawing and warm-water coral reefs dying, which would be catastrophic and irreversible. Modestly reduced emissions curves are not likely to prevent one or more of these tipping points from being reached. This is no argument against increased efforts to halt climate change, but it does mean that planning on the assumption of an intact climate system is no longer prudent. Every tenth of a degree still counts, and so does the possibility that some thresholds are passed anyway.

Beyond energy systems, international environmental governance is expanding, highlighting an increased institutional embeddedness of the preservation effort. Agreements such as the High Seas Treaty in 2025 mark a significant step toward protecting marine ecosystems in international waters, addressing a longstanding gap in global environmental law. The UN Convention to Combat Desertification, adopted in 1994, has recently gained renewed momentum, with parties pledging to restore one billion hectares of degraded land by 2030.¹⁵ Trade in endangered species is being restricted as well. But by and large, despite these positive developments, the restoration and protection of natural habitats are still lagging behind the energy transition, for several reasons. First, nature preservation efforts do not scale in the same way that renewable energy does. Second, institutional frameworks are still at an early stage compared to climate mitigation. Third, protecting natural environments often means *not* doing something, or forgoing short-term economic gain for the long-term prosperity of the environment. Natu-

rally, this can be harder to incentivise. And fourth, since industrialised agriculture and food production are the leading cause of both deforestation and biodiversity loss worldwide, effectively addressing the root causes of environmental degradation means reforming the very systems that sustain a growing global population and on which the livelihoods of billions depend.

The societal and economic knock-on effects of the Green Transition are already evident. Clean energy jobs (direct and indirect) surpassed those from fossil fuels for the first time in 2021, and the International Energy Agency (IEA) estimates that the clean energy sector accounted for 10% of global GDP growth in 2023 – including 20% of China’s GDP growth and nearly one-third in the EU.¹⁶ The transition away from last century’s energy technologies, such as coal, to photovoltaic solar cells (PV) is happening, as solar paired with 4-hour battery storage is now cheaper than new coal generation in major markets.¹⁷

The Green Transition is also experienced through changing product choices and new regulation. Businesses face regulatory pressure in the form of carbon pricing mechanisms and supply chain due diligence laws. Companies that once treated sustainability as a voluntary commitment are now navigating it as a compliance obligation. For many, the pace of regulatory change is itself a challenge, as rules shift and standards evolve faster than they can keep up. Another major obstacle is that even companies committed to driving sustainable choices are challenged by slow consumer uptake. Surveys consistently show that large majorities consider climate change a serious threat, yet this concern rarely translates into proportionate changes in behaviour.¹⁸ Most people still fly, consume, and buy as many products as they can afford to, motivated by convenience and comfort more so than ethical or moral considerations. This gap between values and behaviour is one of the defining tensions of the Green Transition.

Yet it is important to recognise that this consumer society is also a product of deliberate psychological and cultural pressures. For decades, industries engineered products and devised marketing to exploit reward circuits and trigger dopamine loops while, in the process, systematically eroding the expectation of quality. Meanwhile, the environment absorbed the cost. This does not necessarily need to be the default. A ‘degrowth’ future may be doubtful, but a forced re-emphasis on quality over volume is quite possible. The EU’s Right to Repair Directive (adopted 2024, applicable from 2026) and the Ecodesign Regulation for Sustainable Products (2024) are landmark pieces of legislation in this regard, aimed at combatting planned obsolescence.¹⁹

The evolving climate risk landscape is another major force pushing in the direction of a transition. As carbon is increasingly priced into major markets and institu-

tional investors are required to account for climate risk, the economics are beginning to shift in ways that reach beyond the energy sector. Decisions once made purely on cost and convenience now increasingly involve assessing climate risk and finding ways to meet new and stronger regulations.

Finally, a part of the story of the Green Transition is also the public resistance that will come to change on this scale. The costs of the transition are sometimes immediately felt in the form of higher fuel prices, restricted choices, or the disruption of livelihoods. The benefits, by contrast, can feel distant or abstract, and so political backlash often follows. Farmers block highways, yellow vests flood the streets, lobbyists roll up their sleeves, and governments that moved ambitiously on climate policy find themselves walking back commitments under electoral pressure. None of this reverses the transition, but it will continue to shape how it proceeds, slowly, unevenly, and through periods of contest and friction.

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Individualised Everyday Life





INDIVIDUALISED EVERYDAY LIFE

Sub-trends:

- ✦ The decline of traditional social institutions
- ✦ Household downsizing
- ✦ Blurring of life-phases
- ✦ Expansion of the global middle class
- ✦ Expansion of access to education
- ✦ Increasing integration of women into the labour force
- ✦ Lifestyle and consumption as identity markers
- ✦ Individual life becoming 'place-polygamous'
- ✦ Alternative family formations

Uncertainties:

- ✦ What will be the extent of the current wave of traditionalist backlash (visible in legislative rollbacks and cultural and political movements)?
- ✦ Will societal efforts to counteract social atomisation, loneliness, and other mental health concerns be sufficient to alleviate the negative fallout of individualisation?
- ✦ Might economic constraints and precarity become further barriers for individualised practices?
- ✦ Will renewed spirituality, religion, and other forms of cultural community offer an alternative to the isolating effects of individualisation?
- ✦ Does individualisation produce more trust overall (because relationships are chosen rather than inherited) or less (because shared frameworks erode)?

As individualisation in its various expressions becomes a world-wide condition, the standardised communal scaffolding of the past is giving way to a manifold, negotiated and self-authored pluralisation of everyday life. Across very different societies the underlying indicators point the same way: smaller households, more people living alone, postponement of marriage and child-birth, and less defined and linear life-phases. On the level of individual consciousness, identity shifts from something that is given to something that is constructed, maintained, and revised. The forms and expressions of individualisation vary sharply by culture, social structures, and political system, yet its overall direction is unmistakable. This also comes with a cost, in the form of rising loneliness, isolation and social fragmentation.

“The more tradition loses its hold, and the more daily life is reconstituted in terms of the dialectical interplay of the local and the global, the more individuals are forced to negotiate lifestyle choices among a diversity of options.”

- ANTHONY GIDDENS, SOCIOLOGIST, 1994.

Individualisation is a concept that has typically been connected to the progression of developed nations and (Western) values like personal autonomy, self-direction, and individual rights. Sometimes, individualism is invoked as the ideal that stands in contrast to the constraints of traditionalism and communal living. The realities of social life are of course not that simple. Humans are individuals but also social animals, and the idea that we can strip away the layers of collective belonging, social values, and culture to arrive at our true authentic selves is little more than a myth. And while it is true that individualisation can rhyme with empowerment, it can also rhyme with fragmentation, loneliness, and isolation.

Yet when individualisation is considered less as an abstract ideal and more as a composite of concrete underlying indicators – how people live, what their social and relational arrangements are, their goals and values, what they teach their children – it is a trend that is growing worldwide (and has been for decades). Consequently, many of the social norms and institutions that have long provided a shared communal scaffolding for everyday life are dissolving. Socially, we are moving from more standardised configurations towards more diverse, hybrid, negotiated, and context-dependent arrangements. Some of these old configurations are destabilising more quickly than others, in different ways across societies. Yet the global direction is clear: individualisation, and the pluralisation of everyday life that sits closely by its side, is a megatrend felt across much of the world.

Individualism has increased significantly over recent decades, and across a diverse range of societies. Since the 1960s, a general, documented trend has been a rise in both individualist practices (indexed by household size, the share of single-person households, and the ratio of divorced or separated to married or widowed people) and individualist values (the relative importance of friends versus family, whether independence rather than obedience is endorsed as a value to teach children, and preference for self-expression goals).¹

This shift began in the mid-twentieth century when perceptions, norms, and behaviours built around the male-breadwinner household, traditional family formation and household patterns, and a relatively predictable life sequence that organised everyday life across much of the world started to break down.

Changes to households are a particularly interesting indicator to watch, as the home is the primary site for the manifestation and reproduction of many of our most fundamental social arrangements. Here, the shift is towards smaller households as well as more individual living arrangements. Household sizes have been declining by approximately 0.5 people per decade over the past five decades.² The change is linked primarily to the global increase in people living alone, in one-person households, but declining fertility rates, smaller families and increasing life expectancy also have parts to play, as do new, smaller household formations arising from divorce or single parenthood.³

Each society has historically supported one or more dominant family-and-household norms. Examples include the extended-family household in South Asia, the nuclear family household in much of the post-war West, polygynous arrangements in parts of West Africa and the Middle East, and the matrifocal household across parts of the Caribbean.⁴ With decreases in household size comes the weakening grip of these locally dominant family forms and the proliferation of alternative arrangements alongside them.

The consequences of these changes are visible across regions and take culturally distinctive forms. South Korea and Japan have produced perhaps the most extreme expressions on the planet – *honbap* (solo eating),⁵ *ohitorisama* (party of one) culture,⁶ some of the world's lowest fertility rates, and *kodokushi* (lonely deaths) as a social category in its own right.⁷ China's post-1980 generations have been described by the anthropologist Yan Yunxiang as undergoing a 'rise of the individual', visible in the 'single economy', in *tangping* ('lying flat'), and in mass migration from close-knit villages to anonymous megacity life.⁸ India's urban middle classes have largely shifted away from traditional forms of arranged marriage in a single generation.⁹ In Latin America, secularisation and fertility decline run alongside vibrant urban self-expression cultures. Urbanists working in African cities document deeply aspirational, individualised urban subjectivities.¹⁰ And the global ubiquity of platforms like TikTok, Douyin, Instagram, KakaoTalk and WhatsApp, all of which structurally reward individuality and self-presentation, reinforces these dynamics from the digital side.

In the decades to come, smaller and more diverse family household manifestations, increasingly decoupled from marriage and distributed across multiple households and locations,¹¹ will greatly impact how individualisation continues to be nourished and how everyday life will be reorganised and lived. These changes extend from consumption patterns and needs, abilities and constraints, over to mobility and communication practices and demands, and much more.

Other contributing factors include the effects of globalisation, technology, and media, which have connected individuals to large abstract systems in a new way, on both a local and a worldwide level.¹² Through technologies, the internet, increased mobility possibilities, and mass media, the individual has become 'place-polygamous' – people are connected to several places at once that in concert help to form their identity.

The social theorist Anthony Giddens links this to what he calls "the institutional reflexivity of modernity" and the reorganisation of time and space, whereby life has become separated from its previous forms and structures and has become more fragmented, unstructured and uncertain. What emerges is the self as a 'reflexive project'.

An examination of the underlying indicators that provide the megatrend's empirical grounding shows that evidence for the trend's worldwide diffusion and longevity is substantial. One of the areas where growing individualisation is most strongly expressed is in the blurring of life-phases, replacing the old linear script of school, career, marriage, and retirement with a fluid and more self-authored sequence. Specific age brackets for when individuals are perceived to be 'young'

or 'adult', for when they settle down and start a family, or how old they are when they retire are changing, and life-phases are becoming more liquid, extended, and overlapping.

One of the clearest indicators of life phases changing is family formation increasingly being deferred across the world.¹³ The age at which women give birth to their first child began to increase steadily in industrialised countries in the 1960s, and the age span for when the family life phase is initiated also began to widen (at its extreme, family life for women can now start before their 20s or around their 50s).¹⁴ In former Soviet countries, a similar trend began in the 1990s, and across many countries in South America and Africa, the same postponement transition is visible today as well.¹⁵

In many countries, marriage is also postponed and becoming less common overall. Average marriage age for women has increased across much of the world, from the early-to-mid-twenties to the late twenties or even the early thirties in some countries. Unmarried couples are increasingly choosing to live and have children together, leading to a 'decoupling' of marriage and parenthood.¹⁶

These changes in household structure and life-phase sequencing do not unfold in isolation. They are the visible outcomes of underlying socioeconomic shifts. Among the most consequential are the global expansion of education, especially for girls and young women, and the steady integration of women into paid work. Other key drivers include the move from rural to urban living, and the growth of white-collar employment. Together these forces are the structural engines beneath individualisation and the reconfiguration of social life.¹⁷

The global middle class (defined by Pew Research as people who live on between 10 and 20 USD a day)¹⁸ now comprises over 4 billion people, making up around half of the world's population.¹⁹ The rapid economic development in Asia means that this income group is expected to continue to grow, with another billion people added within the next decade, reaching 5.7 billion individuals out of a world population of 8.7 billion by 2035.²⁰ Here, World Values Survey data show 'self-expression values' rising in step with economic development across many cultures, not only Western ones.²¹

Taken together, these developments do not describe a uniform shift but a clearly directional one. Individualisation moves at different speeds and takes different shapes across societies – refracted by class, gender, region, culture, and political system. It also comes with significant collateral effects. Individual freedom is accompanied by rising loneliness and isolation; self-expression by fragmentation; and in many places by a vigorous re-traditionalising backlash, particularly around

gender, religion and family. Yet across the variation, the structural direction is unmistakable. As households continue to shrink and diversify, life-phases loosen, access to education expands, and the global middle class grows, the standardised social scaffolding of the twentieth century gives way to more plural, negotiated, and self-authored arrangements of everyday life.

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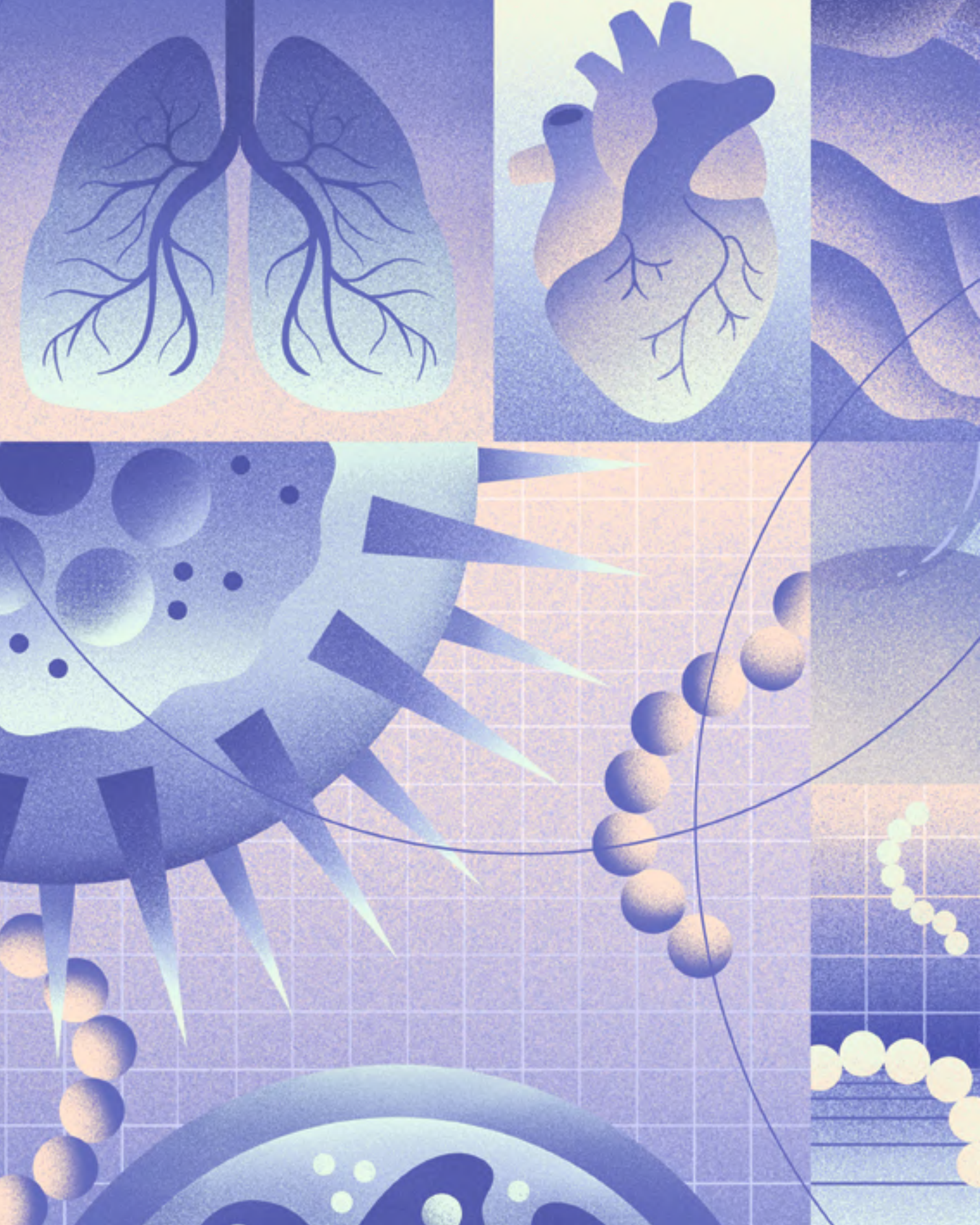
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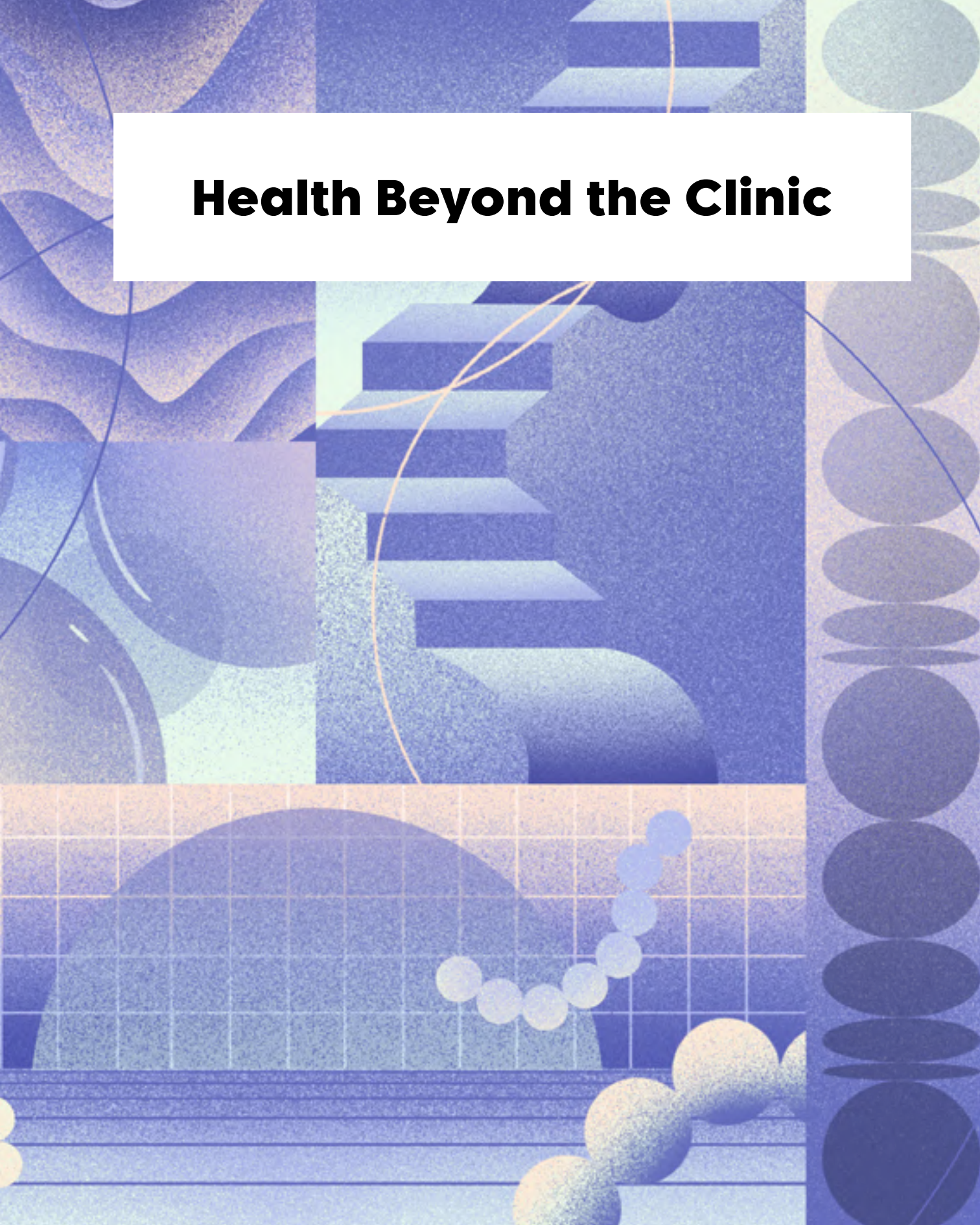
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The background is a complex abstract composition. It features a central white rectangular box containing the title. Surrounding this box are various geometric and organic shapes in shades of blue, purple, and orange. On the right side, there is a vertical column of overlapping circles. In the lower right, there are several spheres of different sizes. The overall aesthetic is modern and artistic, with a focus on geometric forms and a cool color palette.

Health Beyond the Clinic

HEALTH BEYOND THE CLINIC



Sub-trends:

- ✦ Rise of chronic diseases
- ✦ Health risks embedded in everyday systems
- ✦ Recognition and growth of mental health needs
- ✦ Expansion of self-managed healthcare
- ✦ Growth of digital health tools
- ✦ New actors and business models
- ✦ Inequality in access to care, health literacy, and prevention

Uncertainties:

- ✦ Will government interventions in areas such as food security and housing quality mitigate health risks, or will structural drivers of chronic risk remain embedded in systems and infrastructures?
- ✦ How will misinformation and trust (or lack of) in science-based health information affect attitudes towards public health interventions, medications, and diagnostic tools?
- ✦ How will health innovation impact health systems and preventive models of care?
- ✦ Who will have the overview and ownership of all relevant individual health data? Will a balance be struck between data protection/privacy and interoperability of systems/institutions?
- ✦ Who will be held responsible when decision-support tools, AI-mediated or otherwise, produce adverse health outcomes or behaviour?
- ✦ Will health financing and incentive structures evolve to reward innovation, outcomes-based reimbursement for medical professionals, and preventive, healthier-living behaviours among individuals? Conversely, will financing instead remain anchored to volume-based care and treatment of illness after the fact, leaving current incentive structures largely intact?

Health management is shifting from a matter of communicable disease and acute treatment to one of chronic, long-term management embedded in everyday life. A century ago, infectious disease dominated mortality. Today, non-communicable diseases account for most non-pandemic deaths. This reflects not only ageing, which means people live longer with chronic conditions, but also health outcomes being shaped by people's environment and circumstance well before they reach a doctor. The future of health is marked by a series of challenges which include growing self-management (and the inequality in who can do it well), healthcare systems strained by long-term care, and an ageing population whose extra years do not necessarily translate proportionately into extra years of health. New tools like wearables and AI guidance offer partial help but create new risks around reliability, health literacy, and trust. Whether interventions can close these gaps – and how – remains a central question.

“Health does not begin in a hospital or clinic. It begins in our homes and communities, with the food we eat and the water we drink, the air we breathe, in our schools and our workplaces.”

– DR TEDROS ADHANOM GHEBREYESUS, WHO DIRECTOR-GENERAL, 2021.

A century ago, infectious diseases such as tuberculosis, influenza and pneumonia were the leading causes of death across much of the world, and only one in six deaths were due to a chronic condition. This began to change in the mid-twentieth century, when sanitation, clean water, vaccination programmes, and the widespread adoption of antibiotics and public health measures greatly extended life expectancy, allowing populations to live long enough to develop chronic conditions.¹ Meanwhile, dietary shifts toward calorie-dense processed foods and increasingly sedentary lifestyles compounded the prevalence of these same chronic conditions.^{2,3} Today, non-communicable diseases (NCDs) account for 75% of all non-pandemic deaths globally.⁴ The conditions driving this burden (such as heart disease, diabetes, cancer and chronic respiratory disease) are not resolved through a single treatment but are lived with and managed over years. The consequence is that living with multiple chronic conditions at once has become much more common.

The worldwide prevalence of cardiovascular disease, diabetes, and chronic respiratory conditions provides a clear example of how the rise of chronic conditions is moving the responsibility for health management out of clinical settings and onto individuals and their support network. An estimated 650 million people were living with cardiovascular disease in 2023, and some 468 million with a chronic respiratory condition in 2021, while the International Diabetes Federation projects that 853 million people will be living with diabetes by 2050, equating to nearly one in ten adults alive today.⁵ Most of them will not only be treated in a hospital but will also be managing their conditions at home or at work. They will do so through apps, medication adherence, dietary choices, and daily decisions made without clinical support. This reflects the broader trend of health management becoming a permanent condition of life.

The prevalence of these conditions is, of course, not only a product of us living longer. Rapid urbanisation (linked to environmental risk factors like poor diets, physical inactivity, and air pollution), rising global obesity rates, tobacco use, and increasingly sedentary jobs are more important contributors. This illustrates a key point at the heart of the megatrend. Health risks are increasingly embedded in everyday systems, like food environments, work life, transport patterns, urban environments, and housing conditions. Health outcomes, by consequence, are often shaped long before people even consider contacting their doctor.⁶

The burden of this new health landscape falls heaviest on the countries where resources are scarcest. 82% of premature deaths from non-communicable diseases occur in low- and middle-income countries, where prevention infrastructure is limited, diagnosis often comes late, and chronic disease compounds rather than replaces the existing infectious disease burden.^{7,8}

Many of these contributing causes have been decades under development, and because chronic disease develops slowly, today's prevalence figures reflect exposures accumulated across a generation rather than recent changes in behaviour. When it comes to ultra-processed foods, annual per capita sales rose 40% across lower-middle income countries between 2007 and 2022. In the only low-income country assessed, Uganda, it rose by as much as 60%. Sales in high-income countries, meanwhile, stayed flat. The same pattern holds for how people work and move around. Today, 31% of adults worldwide do not meet minimum physical activity levels (150 minutes of moderate-intensity exercise weekly, and 75 minutes of vigorous-intensity exercise). This share is projected to rise to 35% by 2030 if present trends hold.⁹

Pollution in rapidly developing urban areas is another tenacious and long-running cause of chronic illness. Today, air pollution in megacities in Asia such as Delhi,

Dhaka, and Lahore routinely exceed WHO limits – sometimes more than ten-fold.¹⁰ As a result, illnesses and deaths from pollution become more frequent.¹¹ As climate change intensifies, extreme weather and its associated health risks also become a permanent part of everyday life in large parts of the world, especially in Africa and Asia. Extreme heat, for instance, doesn't just compound droughts and food insecurity, but significantly accelerates the progression of chronic kidney disease and can trigger acute cardiovascular problems among those exposed.¹²

In this way, the health outcome of a worker in an Asian or African megacity is decided less by their genetic makeup or whichever communicable disease they may unluckily contract, than by systemic factors like the city they live in, the air they breathe, the food they can access or afford, the way they must conduct their work, and the whims of more extreme weather. Health is a systemic challenge like no other and will thus need to be addressed in a systemic manner as well.

In addition to this, health conditions are of course not only physical in nature but also intertwined with mental wellbeing. WHO estimates that nearly one in seven people live with a mental disorder, most commonly anxiety and depression.¹³ This also relates to suicide being the third leading cause of death among people aged 15 to 29 worldwide where men are twice as affected as women. The geographic difference in exposure is also remarkable here, with 73% of the world's suicides happening in low- and middle-income countries.¹⁴ Mental disorders, such as depression, also frequently co-occur with physical chronic conditions.¹⁵

Taken together, these shifts produce a health landscape that is more structurally determined, more interconnected, and increasingly encompassing of everyday life. Health management now stretches across childhood, education, work, family formation, and old age. Consequently, care increasingly relies on tasks that patients and their families carry out themselves. Meanwhile, individuals must navigate an immense and sometimes overwhelming amount of health information drawn from various sources: clinical portals, apps and wearables, insurers, employers, and social media, with varying degrees of reliability or alignment.¹⁶

This naturally presents challenges related to health literacy, access to resources, and the availability of a support network, not to mention whether it is even within an individual's power to make the life-altering changes necessary to prevent illness over the course of their lives. Health literacy in particular tends to track the socioeconomic gradient. Those with more education, more time, and more stable circumstances are best placed to engage with a system that requires self-management, while those with the least of these things are offered the least structured support in acquiring it. The democratisation of health technologies, and of AI-mediated health guidance in particular, has begun to narrow parts of this gap

by making tailored information available to people who would previously have had no route to it at all. But the same tools also deliver unverified or unverifiable information at scale, and the capacity to tell the difference is itself a function of health literacy, which is in shortest supply among those most reliant on them. For one group, the new health landscape means flexibility and autonomy. For the other, it's an added burden.

The rise of chronic conditions also creates a financing challenge for health systems, because care must be paid for over many years rather than at a single point of treatment. The pattern is already visible in what households pay for. In nearly three-quarters of countries with data, medicines account for at least 55% of out-of-pocket spending, rising to a median of 60% among people living in poverty.¹⁷ In 2022, 2.1 billion people experienced financial hardship due to out-of-pocket health spending, raising the risk that more responsibility for health management will also mean higher costs for individuals and families.¹⁸

Truly effective solutions require change at the system level, but one key component lies in new technologies designed to enable both individuals and health systems to provide better access, or to better monitor and act on health data. Health wearables are further supporting continuous individualised health monitoring through the tracking of one's heart rate, nutrition, stress levels, and sleep patterns.¹⁹ With AI-powered chat bots, individuals can now seek guidance regarding any health-related question in a matter of seconds. It may, however, not always be accurate (some researchers have found that the error rate of AI-generated health answers is twice as high as for human physicians²⁰). The high error rate of chatbots illustrates that individualisation of health management is not without its risks. People's confidence in their own ability to make health decisions has fallen sharply, down ten points globally in a single year, suggesting that *more* input alone (from doctors, AI tools, social media creators, and other sources) does not create a better or more empowering information environment.²¹ Considering that one needs to weigh the wearable's alert against the chatbot's answer and what the doctor said six months ago, this development is perhaps not surprising. The erosion of trust in scientific authority, however, predates generative AI, which has entered a pre-existing information environment already shaped by social media and few trusted intermediaries between researchers and the public.

Longer lives do not automatically mean healthier ones, and the central question in an ageing world is what the additional years actually consist of. The number of years people live in poor health (also called the morbidity gap) widened globally from 8.8 years in 1990 to 10.7 in 2023. The largest gaps are found in the wealthiest countries, led by the United States, Australia, and Canada.²² Those years of poor health are not exclusive to the end of life but spread across adult-

hood, which translates into more years lived with conditions that have to be managed. This burden is already significant today, with 80% of long-term care in Europe being performed by informal caregivers (the majority being women).²³

Ageing also presents a structural challenge to health systems. Long-term care is the fastest-growing component of age-related public spending.²⁴ It is projected to almost double across OECD countries by 2050 to 2.8% of GDP, and it is the component least amenable to the productivity gains that have contained costs elsewhere.²⁵ As the OECD notes, care requires human interaction, which places hard limits on how far it can be made more efficient.

Ageing gives rise to politically and ethically difficult questions as well. If medicine is increasingly capable of extending life without proportionately extending the quality of it, societies will have to decide what they are extending life for. Assisted dying legislation has surfaced in many countries and is under active consideration across a widening set of European jurisdictions. The contested path of Portugal's 2023 law concerning euthanasia and assisted dying, adopted by parliament but held up by presidential veto and constitutional challenge, illustrates how unsettled the terrain remains.²⁶ Whether this becomes routine end-of-life policy, or remains as contentious as it is today, is among the more consequential uncertainties in the ageing agenda.

There are signals that offer glimpses of a different, perhaps healthier future. Tobacco use, for instance, has fallen worldwide continuously over the last 20 years, achieved through tobacco control efforts by governments around the world (although these gains are being partly offset by a shift rather than a cessation, as e-cigarettes, heated tobacco, and nicotine pouches are growing rapidly).²⁷ Awareness of the importance of engaging with one's own health is also high. In a recent study across four countries (the US, UK, Germany, and China), consumers now rank wellness as a top or important priority, with mental and cognitive health among the areas where people report the greatest unmet need.²⁸ Hence, it is not a surprise that the global wellness economy has roughly doubled in value since 2013, although it does remain concentrated in high income markets, where disposable income makes health a viable consumer category.²⁹

Yet a major question remains how to close the gap between those who can manage their health proactively and those who can't. If this challenge is left unsolved, growing health inequality will become a defining feature of this century. Traditional healthcare systems will likely remain the bedrock of health, but they may only handle a fraction of what health management will entail over the coming decades. The rest will be distributed across everyday life – our homes, workplaces, devices, family and friends.

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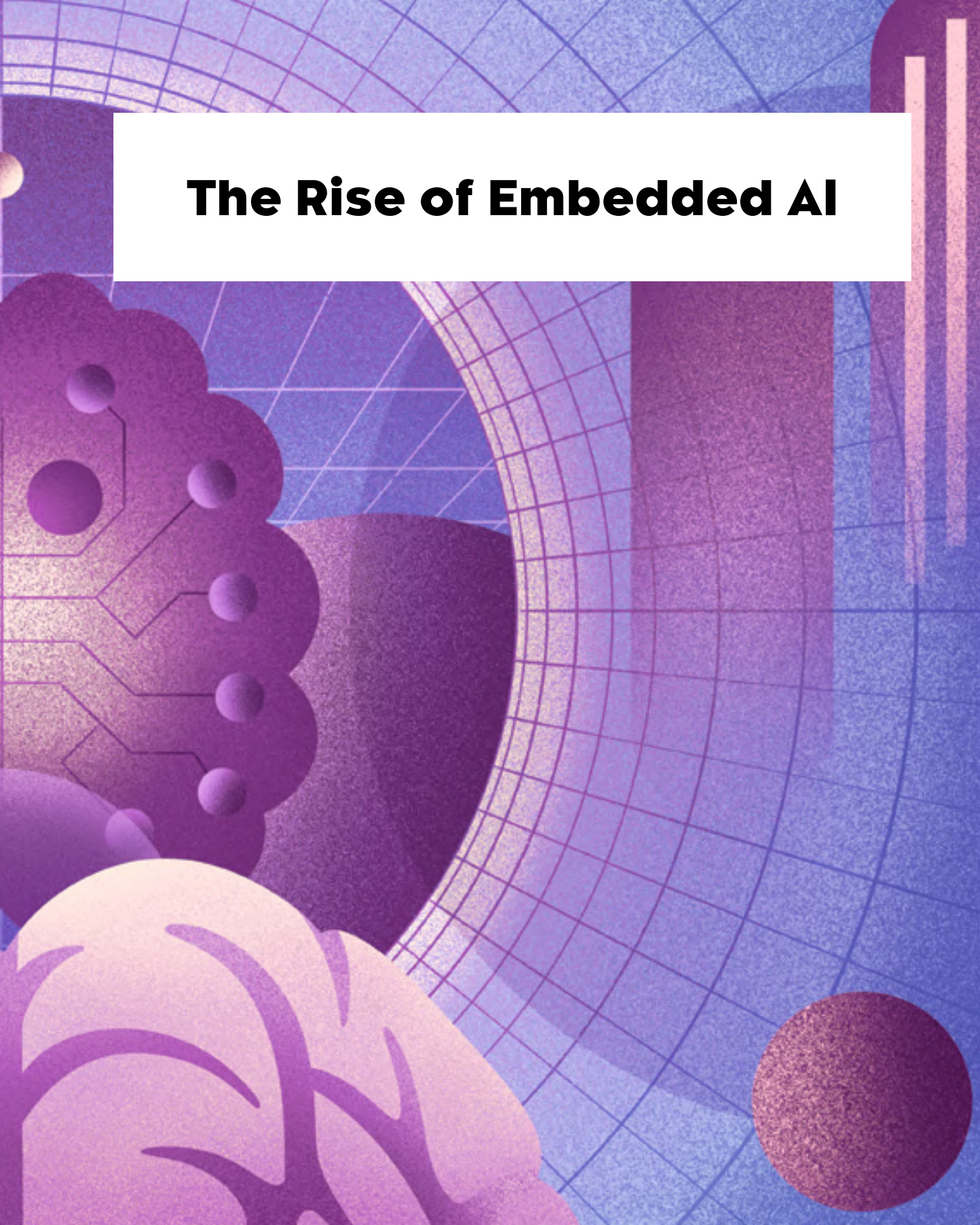
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The Rise of Embedded AI

THE RISE OF EMBEDDED AI



Sub-trends:

- ✦ Increasing automation and augmentation of cognitive tasks and jobs
- ✦ Embodied human competencies – judgement, discernment, and deep expertise – as a growing source of value
- ✦ AI and robotics/humanoids converging – the rise of ‘physical AI’
- ✦ Personal AI assistants, agents, and algorithms as gatekeepers for information, consumer preferences, and spending behaviours
- ✦ AI as our ‘second brains’ – individual, collective, and organisational
- ✦ Cognitive offloading and the changing nature of cognitive agency in human-AI work
- ✦ AI-mediated relationships and synthetic companionship
- ✦ Concentration of ownership and control of AI infrastructure

Uncertainties:

- ✦ Will AI infrastructure become more open and interoperable or consolidate around a small number of proprietary ecosystems?
- ✦ Will humans stay ‘in the loop’ (actively signing off on AI decisions), move to ‘on the loop’ (stepping in only if needed), or end up ‘out of the loop’ (fully autonomous system with no human check)?
- ✦ Will the advancement of AI provoke job-preserving regulations?
- ✦ Will the energy demand of AI slow down either the energy transition or the rollout of AI?
- ✦ To what extent can the human capability to oversee and validate the labour of AI itself be augmented?
- ✦ Will AGI (a system that matches or exceeds human capabilities across all thinking and working tasks) emerge, and can its alignment with human goals be ensured?
- ✦ Will AI systems mainly be designed to remove cognitive friction, or to strengthen learning, judgement, and cognitive agency through their use?
- ✦ Will we see robust and effective AI governance to safeguard humanity from existential risks?
- ✦ Will the gains from AI be broadly shared, or captured by those who already own capital and compute?

The Rise of Embedded AI represents the shift from AI as a tool to AI as infrastructure. As AI becomes embedded into more facets of our lives, society and the economy, new questions and uncertainties related to the relationship between humans and machines start to appear, highlighting that the shift does not imply one predetermined future. The same developments that augment human capabilities can also deepen dependencies on systems few people fully understand, reshape where the value of knowledge work lies, and raise unresolved questions about retaining cognitive ownership and control as more decisions are delegated to machines.

“It is customary to offer a grain of comfort, in the form of a statement that some peculiarly human characteristic could never be imitated by a machine. I cannot offer any such comfort, for I believe that no such bounds can be set.”

– ALAN TURING, MATHEMATICIAN AND COMPUTER SCIENTIST, 1951

Digitalisation has transformed society so thoroughly that digital technologies now function as the invisible infrastructure that ties the world together. Microprocessors are built into nearly everything – traffic lights, vehicles, payment systems, coffee machines – and if these systems suddenly failed, society would cease to function. AI represents the newest wave in this development, in which intelligence, interpretation, and agency are being embedded into that same infrastructure.

Earlier waves of digitalisation connected people, information and services. Computers, the internet, and smartphones revolutionised how people access information and blurred the boundaries between work and leisure. AI systems can now interpret context, generate outputs, recommend actions, and increasingly act across digital environments. The rise of embedded AI is characterised both by augmentation and mediation: AI can enhance an individual’s capabilities while simultaneously reshaping the organisational structures within which those capabilities are exercised.

Within white-collar work, AI is already automating human work tasks in fields including legal work, architecture and engineering, business and financial operations, office and administrative support, and sales.¹ A ‘reshuffling’ of human-machine capabilities is underway, in which AI brings down the economic value of specific individual tasks and causes a revaluation of human competencies.² This sets our era of cognitive enhancement apart from previous waves of automation which primarily impacted manual labour.

AI’s capacity for cognitive enhancement is developing rapidly, but not along a single smooth curve. Performance can advance quickly in domains with clear feedback and verifiable outputs, while remaining weaker or less reliable in tasks requiring contextual judgement, ambiguous goals, or interaction with messy real-world environments. This jaggedness makes simple extrapolations from one benchmark to “AI capability” as a whole misleading.

These uneven capabilities also mean that bottlenecks are likely to move rather than disappear, meaning that the evolution of AI capabilities is not a one-way street towards better output at a higher rate. As the technology evolves and is applied to new tasks, novel constraints and unforeseen bottlenecks arise.³ This is a key restraining factor that the wildest AI predictions tend to ignore.

In a future where machines execute more of the current tasks of knowledge workers, and thus greatly expand potential work output, the inelastic human capability for validation, auditing, and underwriting meaning and responsibility becomes relatively scarcer.⁴ This constitutes a limit to the productive potential of AI and a roadblock on the way to a truly automated cognitive economy. As AI graduates from systems with easily verifiable outputs (chatbot text, images, code) to more autonomous, agentic models employed for higher stakes tasks, verification will only become more necessary, difficult, and time consuming.⁵

That is not to say that human oversight will remain as inelastic as it is today (it, too, may be augmented with technology), or that AI models and agents will not improve to make fewer mistakes and require less oversight. In the immediate future, however, this constraint signals a need in parts of the knowledge economy to rethink the value chain, how companies are organised internally, and what gives them an edge over competitors. It will likely include a demand for new forms of work as well. Agentic workflow management, data privacy oversight, output verification, AI literacy (a basic understanding of how AI works and where its limits lie), and AI fluency (the ability to use, question and collaborate with AI effectively and intentionally) are all becoming necessary tasks and competencies in an AI-mediated workforce. Naturally, intelligent platforms also need to function with legacy structures. If the systems are not trusted, they get overridden and

worked around, and if the digital layer never gains internal legitimacy, it never delivers real value.

The workforce effects of AI are also expected to be very uneven. Weaker early-career hiring in some AI-exposed occupations⁶ is an early signal that the transition may alter not only jobs, but the pathways through which people build expertise and acquire tacit knowledge. Capabilities that are (at least for now) difficult to synthesise will be at a premium, yet the path to building these capabilities will also become steeper. This ‘missing junior loop’⁷ constitutes a real challenge to an augmented economy and could mirror the problems witnessed during the 2008 Financial Crisis, when youth unemployment skyrocketed.

How societies respond to these shifts in employment, income, and pathways into expertise will become an increasingly important policy question. Without a total restructuring of income redistribution, perhaps in the form of the introduction of Universal Basic Income (UBI), regulations will likely be used to limit the effects on unemployment, since history has shown that high unemployment undermines social cohesion and destabilises governments. But such interventions will need to be applied carefully.

Efforts to preserve social stability in a scenario where AI severs the link between labour and income – such as in the form of a UBI – could also risk dulling incentives to work and retrain or become a way to pacify displaced workers with a cheque rather than address the underlying loss of bargaining power and leverage that comes with being economically unnecessary.

AI’s capacity to extend human thinking – arguably to a degree unlike any other technology in history – also raises questions about cognitive offloading and cognitive debt. Delegating more cognitive tasks to AI may free up attention and expand human capabilities, but it also changes which skills we practise, retain, or come to depend on machines to perform. This effect of technology on human cognition is not new, but generative AI extends it across a much broader range of activities. It adds increased urgency to questions about technological dependence, agency, and ‘digital dementia’.⁸ The key uncertainty is how different forms of AI use and design shape cognitive agency over time. On a deeper level, it forces more fundamental existential questions, including what it means to remain human in increasingly machine-mediated environments.

Perhaps unsurprisingly, the proliferation of ‘AI slop’, the notion of loss of cognitive ownership, along with a wider sense that systems are influencing how humans think, feel, and make sense of the world, are fuelling resistance to broader AI adoption in both workplaces and everyday life. It also raises questions about who

controls society's emerging 'thinking infrastructure', and how commercial incentives, public interests, and individual agency will be balanced.

In the longer term, AI will become less visible as a distinct set of tools and more embedded across the environments people use. Instead of repeatedly opening a chatbot or application, individuals and organisations may increasingly rely on assistants, agents and 'second brains' that carry context across tasks, devices, and services. A growing competitive and societal question will be who builds, structures, protects and activates the data and context that these assistants carry.

Another sign of the increasingly autonomous and embedded nature of AI is the parallel machine-readable layer that is beginning to emerge alongside the human-facing internet. Information is increasingly valuable not only when people can read it, but when AI systems can interpret, combine and act on it. Already, automated traffic accounts for a larger share of web page requests than human traffic.⁹ While not all bot traffic is AI-driven, the rapid growth of agentic AI points towards an internet increasingly used not only by people, but by machines acting on their behalf. Machine-readable data, provenance, permissions, interoperability, and access therefore become part of the infrastructure itself. This could fundamentally reshape how institutions work with AI – not merely through chatbot subscriptions, but through the systems people use across their workflows, devices and organisations.

This shift also depends on other connectivity technologies such as direct-to-device satellite networks, wearables, connected vehicles, edge computing and smart environments. Together they let AI systems operate across contexts and in more places than just phones and laptops. The kind of digital mapping that this interconnectivity makes possible will only grow more sophisticated as well. With wearable devices equipped with built-in sensing capabilities, for instance, the input for AI (in the form of radio waves carrying data and bouncing off objects) can effectively turn each personal device into a sensor¹⁰ – providing continuous feeds of location and motion data into spatial models that enable services that act as a digital-physical sensing layer. This can lead to more immersive experiences and real-time coordination as well, while also highlighting the importance of resilience, cybersecurity, sovereignty, and dependency on the infrastructure providers that connect these systems.

When it comes to the merging of machine intelligence with physical technologies, autonomous robots – long a feature of science-fiction fantasies – are perhaps the most anticipated development. As technologies of automation, they will impact the relationship between machines, labour and human value – just as the mechanised loom, the steam engine, the conveyor belt, and industrial robots have done

throughout modern history. With humanoid robots that combine flexible hardware with AI, the service economy will eventually face the same technological pressures now reshaping knowledge work. These machines can adapt to different environments, learn human tasks via demonstration, and transfer them to other machine actors. The dynamic is sometimes referred to as ‘the codifier’s curse’, where expert professionals, by sharing their tacit knowledge with AI, accelerate the automation and displacement of their own jobs.¹¹ Over time, machine intelligence becomes less tied to screens and more capable of perceiving and acting within physical systems – although the timing and scale of general-purpose robots becoming mainstream remains uncertain.

AI becoming more embedded in society also means that its role extends beyond work tasks into more relational and social aspects of life. Already, generative AI is being used to guide couples in their relationships, inform medical decisions, help people parent, or keep people company when they are lonely. This kind of synthetic connection may certainly be valid on its own terms, but this does not resolve the thornier question of what happens to human relationships once the more demanding parts of them can be outsourced and the difficult friction of social interaction thus bypassed.

AI companionship remains outside the norm for most people today. Yet cultural norms around technology have shifted before, and as AI becomes even more personalised and embedded in everyday life, the boundaries of what we consider socially acceptable or meaningful may shift as well. In an AI-mediated and agentic future, the lines between the human and artificial blur, and what will be considered taboo and what will be socially permissible is not necessarily clear to us today.

The benefits and risks of AI-mediated systems will not be evenly distributed. Well-designed AI could lower barriers to expertise, education and sophisticated services, but access to high-quality compute, data, contextual knowledge, and trustworthy systems may become an important source of inequality.

Like past evolutions in digital infrastructure, AI will eventually become part of the background conditions through which societies organise information, coordinate activity, and make decisions. But infrastructure is designed and governed, and it matters who owns it. The future will depend on choices made between open and closed ecosystems, cognitive augmentation and passive dependence, distributed and concentrated control, and different models of human-AI agency.



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The background is a complex abstract composition. It features a dark blue grid pattern overlaid with various organic and geometric shapes. A prominent DNA double helix is rendered in shades of orange and yellow, winding across the center. To the right, a large, semi-transparent orange circle contains several smaller white circles, resembling a cell or a molecular structure. The bottom right corner shows a stylized, light blue shape that looks like a splash or a wave. The overall color palette is dominated by deep blues, purples, and oranges.

The Biotech Revolution

THE BIOTECH REVOLUTION

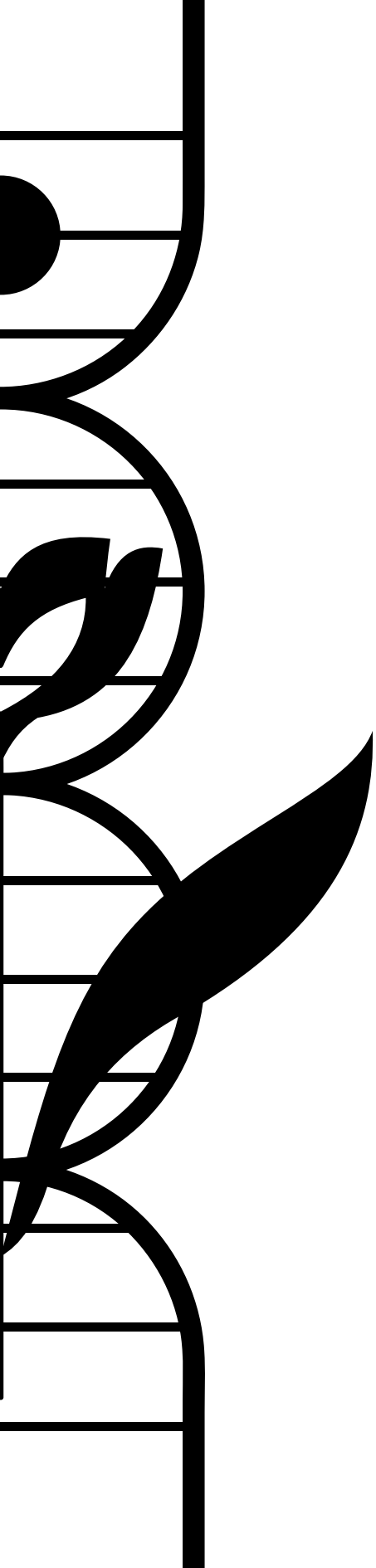
Sub-trends:

- ✦ Genomics becoming the operating system of life's essentials – medicine and food production
- ✦ Bioenergy leading to more sustainable heat and fuels
- ✦ Rise of biological carbon sequestration
- ✦ Emergence of bio-based materials
- ✦ Bio-enhanced food production
- ✦ AI-enhancement of biotech innovation

Uncertainties:

- ✦ Will ecological engineering be applied on a wide enough scale to counteract the effects of climate change?
- ✦ What regulatory frameworks will shape the rollout of emerging biotechnologies?
- ✦ Can cultivated (lab-grown) foods move from niche innovation to mainstream acceptance?
- ✦ How successfully will synthetic biology deliver on its promise of designing organisms fit for a changed world?
- ✦ What role will ethics play in an accelerated biotech revolution – if any?





Biotechnology – the use of living organisms to make products and raw materials – is set to revolutionise the world over the next half-century. It enables us to transcend natural limitations, understand and manipulate genetic codes of plants and animals, create modified crops that are more resilient or require less fertiliser, develop new treatments for hereditary illnesses, and increase life expectancy – perhaps drastically. Over the course of this century, biotechnology will be integrated deeper into nearly all facets of modern society, including healthcare, food production, material design, and energy production.

“I predict that the domestication of biotechnology will dominate our lives during the next fifty years at least as much as the domestication of computers has dominated our lives during the previous fifty years.”

– FREEMAN DYSON, THEORETICAL PHYSICIST AND MATHEMATICIAN, 2007

Every day when we open our fridge, we see the products of biotechnologies: bread made from selectively bred wheat, fruit juice with enzymes, or the meat and dairy products from animals raised on genetically modified (GM) feeds. Biotechnology, though its effects are often unnoticed, is central to the workings of the modern world – so central in fact that many of us wouldn’t be alive without it. High-yielding crop varieties, enabled through biotechnology, increased yields by 44% between 1965 and 2010, reducing famine and helping sustain the rapidly growing populations of the late 20th century.¹ The Nobel Laureate considered the father of the Green Revolution, Norman Borlaug, is often cited as “the man who saved a billion lives”.²

The impacts of biotechnology will continue to be profound in the 21st century. And food production continues to be one of its most important frontiers. This is not only true in terms of total yield but increasingly also of what eventually ends up on a plate. Cultivated meat grabs the most headlines, but an arguably more significant prospect for the coming years is the use of precision fermentation in dairy production. What may sound like a marginal development suddenly becomes much more significant when we consider that 6 billion people regularly consume milk or dairy products and that the land and water use demanded by conventional livestock – along with the emissions it produces – is a major driver of climate change and environmental degradation.³ Research from CIFS estimates that based on the technology price curve, milk protein from precision fermentation might reach parity with milk from cows in 10-15 years' time, and from then on start disrupting milk production.⁴

Biotechnology impacts animal food production in other ways as well. Direct emissions from livestock production are a major source of greenhouse gases, making improvements in animal agriculture an important climate strategy. A particularly important research frontier is uncovering the relationship between the rumen microbiome (a complex community of microorganisms in the stomach of ruminant animals like cows and sheep), feed composition, and cattle genetics. By understanding and optimising how these factors interact, biotechnology may help lower methane emissions significantly while maintaining productivity.⁵ Biological carbon sequestration in crops is another promising combination of food innovation and climate mitigation. Although these techniques are still at a very early stage, crops like wheat can be genetically modified to sequester more CO₂ underground while at the same time increasing food productivity.⁶ Finally, grass-to-protein production offers another promising path towards more sustainable food systems. 'Upgrading' grass for human or animal consumption could reduce the structural dependence on imported soy that ties American and Asian food systems to land-use decisions in South America. The feedstock is abundant, the land already in use, and the supply chain implications of even modest substitution are significant.

Although food innovation represents a significant and transformative frontier of biotech, it is far from the only one. Biotech is poised to transform our energy systems as well. The big story in energy transition today is electrification, and the shift from fossil fuels to clean, renewable sources like wind, solar, and hydro. Yet in some areas, notably shipping and air traffic, electrification is not a viable option.

Advanced biofuels (fuels made from non-food biological material) are poised to help fill this gap. It's a transition that hasn't been an easy one so far, due to how past generations of biofuel production have competed with food production for

agricultural land. The implications have sometimes stretched far beyond food systems themselves. During the 2010-11 global food crisis, for example, rising food prices – with land use for first-generation biofuels as a contributing factor – caused riots in Egypt that eventually contributed to the toppling of President Mubarak.

Unlike first-generation biofuels, advanced contemporary biofuels largely avoid the dilemma of land use, as they are designed to use feedstocks that don't require agricultural land at all. This has since led to a shift to second- and third-generation biofuels as a long-term option. And these fuels are set to play a significant role in greening the transport sector. The EU's RefuelEU Aviation Regulation (adopted in 2023), for example, mandates the use of 20% sustainable aviation fuel (SAF) in 2035 and 70% in 2050. Most of this will come from advanced biofuels.⁷

Biotech will significantly impact health as well. An increasingly promising area, still at the fringes of biotech, is longevity research. In January 2026, the US Food and Drug Administration (FDA) approved something that would have seemed like science fiction a decade ago, when Life Biosciences, co-founded by Harvard geneticist David Sinclair, received permission to begin a human clinical trial testing a gene therapy targeting vision loss in patients with glaucoma and rare optic nerve conditions. The overarching ambition is driven by a far more radical prospect, namely the possibility of reversing ageing itself.⁸ Although longevity research is often at odds with mainstream medical science, the money flowing into the field makes it difficult to disregard, with patrons like Amazon's Jeff Bezos and Saudi Arabia's Crown Prince turning their attention this way.⁹ Saudi Arabia's Hevolution Foundation, chaired by Crown Prince Mohammed bin Salman, has bankrolled USD 40 million of a USD 101 million XPrize competition for the first team to demonstrably reverse aspects of ageing by ten years.¹⁰

Longevity research is hugely contested, not just for scientific reasons, but also due to the ethical questions it raises. Perhaps the most significant is who gets access to treatment. And if treatment to extend life significantly eventually becomes mainstream or even universally accessible, what then happens to pension systems, housing markets, and inheritance? On a more global level, we will be forced to consider its impacts on population growth and the Earth's already strained resources.

The dilemmas are many and profoundly different from those we have faced before. Scepticism is warranted, but as with Artificial General Intelligence (AGI), considered science fiction just two decades ago, longevity research may yet prove to be one of those rare fields where the science outpaces what human imagination thought was possible.

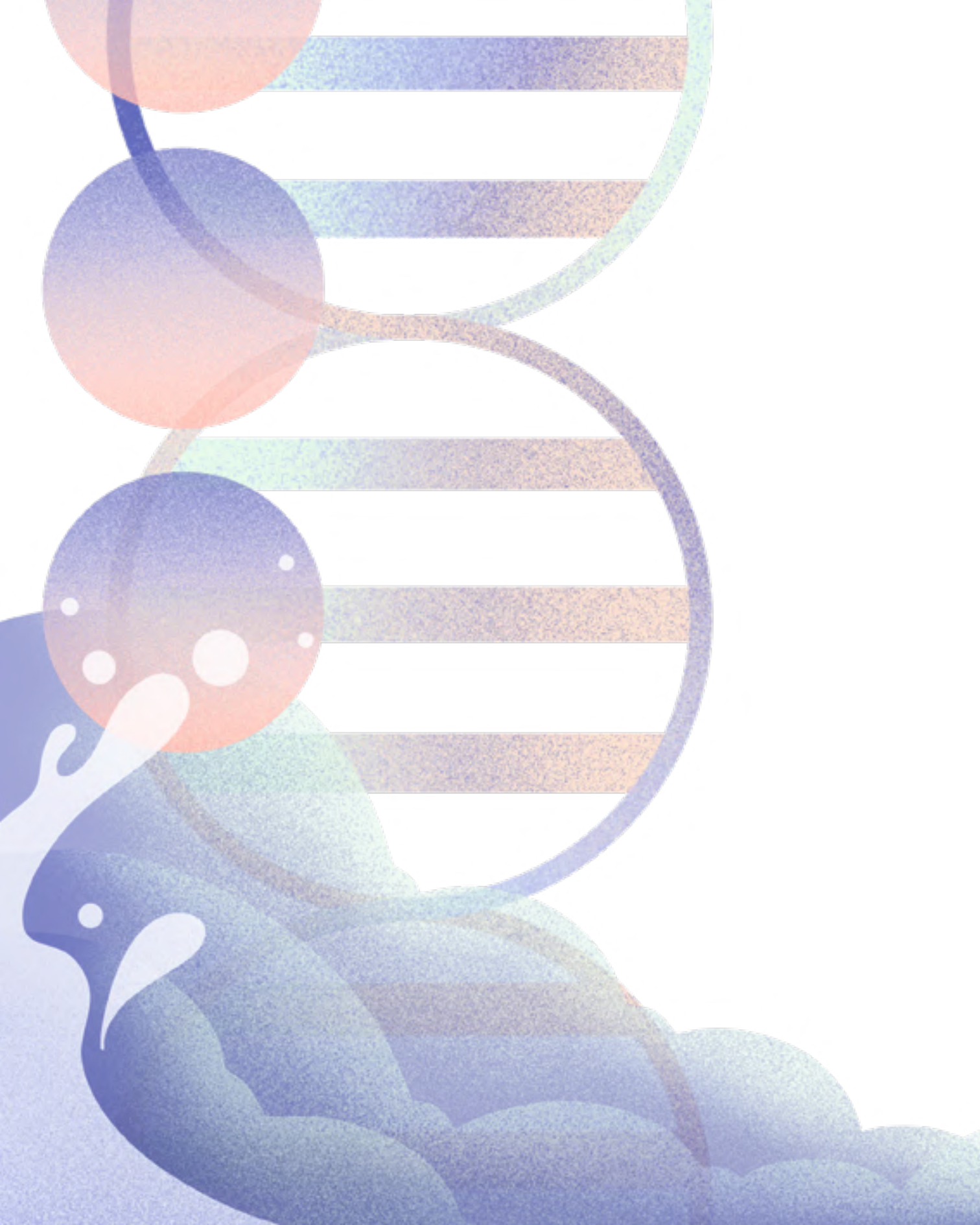
The scale of the Biotech Revolution may be difficult to absorb. For the 200 million people worldwide dependent on insulin, manufactured using recombinant DNA techniques, the life-sustaining necessity of biotechnology is self-evident, but even for the rest of us, the impacts of this megatrend will also become apparent in the coming decades.¹¹ The COVID-19 pandemic offered an immediate demonstration. Within a few years of the viral genome being published, mRNA vaccines were manufactured and administered to billions of people worldwide – perhaps the fastest and largest deployment of a biotechnology product in history. Christopher Voigt, one of the leading researchers in synthetic biology at MIT, assesses that by 2030, most people in the developed world will have consumed, worn, used, or received medical treatment from products that involved synthetic biology somewhere in their production chain.¹²

The convergence of biotech with artificial intelligence may accelerate progress in the field even further. AlphaFold, Google DeepMind's protein-structure prediction system, solved a problem in a matter of months that had occupied structural biologists for half a century, leading to its creators winning the Nobel Prize in Chemistry in 2024. Drug discovery pipelines that once took vast infrastructure and decades of research are being compressed into years and can now be made computationally, by smaller teams, at a fraction of the cost.¹³ Neglected diseases, including several tropical diseases affecting hundreds of millions of people, are a prime target for AI-powered drug discovery, which has the potential to accelerate the identification of drug candidates and cut the time and cost of bringing new treatments to market.¹⁴

The use of biotechnology has been riddled with controversy in the past, particularly surrounding GMO and human cloning. As for the latter, there is no single worldwide treaty that legally prohibits human reproductive cloning. The closest is the UN Declaration on Human Cloning (2005), which calls on member states to ban all forms of human cloning that are contrary to human dignity and the protection of human life. A powerful taboo around cloning has nevertheless helped prevent an international biological arms race during a period when the technology remained unsafe and its benefits uncertain. The real test of that taboo will come if human enhancement becomes demonstrably safe and effective.

The controversies will not disappear and will continue to shape the direction, speed of rollout, and impact that biotech can have in the future. Concerns and risks include ecosystem impacts, monopolisation issues (such as with seeds preventing farmers from saving and replanting their own seed stock), and public trust issues, particularly regarding health. The very plausibility of the claim that COVID-19 was engineered in a laboratory and escaped – whatever its truth – shows the potentially very negative consequences that biotechnology could have.

Despite risks and controversies, biotech will enable the redesign of biological systems for better health, more resistant food, sustainable fuels, and new materials. The challenges of this century will not be solved by any single discipline. But it is hard to construct a credible path through them that does not, at some point, run through biotechnology.



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The Constrained Economy



THE CONSTRAINED ECONOMY



Sub-trends:

- ✦ Rising fiscal and private financial stress
- ✦ Constrained global growth
- ✦ Fading demographic tailwinds leading to shrinking labour supply
- ✦ Geopolitical uncertainty
- ✦ Rise in trade and supply chain disruptions
- ✦ Growing resource constraints

Uncertainties:

- ✦ Will rising public debt and underfunded pension systems constrain fiscal space and slow long-term growth, particularly in ageing economies and highly indebted countries?
- ✦ How will geopolitical tensions and shifting trade and industrial policies reshape global trade, investment flows and the resilience of the global economy to external shocks?
- ✦ How large will the economic costs of climate mitigation and adaptation be?
- ✦ Will financial innovation outside the regulated banking system strengthen economic dynamism or create new systemic risks and financial instability?
- ✦ To what extent will the expansion of AI lead to productivity increases – and where in the economy?
- ✦ Can ageing economies reconcile their need for migrants and talent with rising nationalist and anti-immigration politics?

The global economy is undergoing a structural shift from the expansionary configuration of the post-Cold War era to a more constrained one. Many of the enabling conditions that drove growth, integration, and convergence for three decades have either exhausted themselves or gone into reverse. Lower growth is one consequence of this shift, but the deeper change is the constraints and conditions under which states, companies, and individuals now pursue economic activity.

“We’ve come to learn about new layers in uncertainty. We have uncertainty in the economic fundamentals and what we’re now seeing is even uncertainty in what I call the ‘superfundamentals’. Uncertainty, about the legal system, about democracy, about so many fundamental things.”

– SANDRA PHILIPPEN, CHIEF ECONOMIST AT ABN AMRO,
WEF CHIEF ECONOMISTS OUTLOOK, MAY 2025.

The story of the global economy in the late 20th and early 21st century has been one of convergence and expansion. The hallmark features of this period were rising international trade, aided by deeper multilateral engagement and developing nations opening to trade. This was accompanied by the emergence of a truly global economic system, following China's opening (late 1970s) and the USSR's collapse (1991), alongside the proliferation of bilateral trade and FDI deals. Underpinning this was a unique set of monetary conditions – dollar hegemony and cheap capital – combined with falling marginal tax rates, privatisation, and deregulation. Industrial policy, meanwhile, was treated as a controversial, even taboo, topic.¹

The global economy is entering a new and very different phase defined less by the structures that enabled its expansion and more by those that constrain it. This includes an exhaustion of many of the conditions that made the post-1990 growth era possible. As the demographic tailwinds of the 20th century are fading in many regions, labour supply growth is reduced. In OECD's long run scenarios, global annual potential output growth is projected to moderate over time – from around 2.9% today to 2.7% in the early 2030s, to 2.1% in the early 2040s – reflecting declining working age population growth and a slowing trend in labour productivity growth in emerging market economies.² Investment has also weakened, which feeds directly into slower productivity growth and, in turn, lower output growth. Trade has also lost momentum as policy uncertainty rises and fragmentation increases trade costs.³

Debt is a further constraint. High levels of debt have translated into high debt service burdens. Over the last decade, an increasing number of low-income economies spend more on servicing public debt than on health, education, and public investment.⁴ Higher interest rates amplify this pressure by raising refinancing costs and narrowing fiscal space for areas like infrastructure, education, and industrial policy.⁵

At the same time, the distribution of gains from growth remains highly uneven – with significant local and national variations. The key dynamic in the past couple of years has been an increase in the share of wealth of the 0.01% richest people globally.⁶ Such concentration matters economically and politically because it can shape consumption patterns, investment allocation and political stability, even when headline GDP growth remains positive.

Geopolitical conflict and war have also become a more visible economic constraint. Beyond the human cost, conflict increases risk premia, disrupts supply chains, raises energy and food price volatility and accelerates strategic decoupling. With tensions at their highest since the end of the Cold War, the resulting uncertainty tends to depress investment and trade and can lock economies into lower growth paths. Rising defence spending compounds this pressure on public finances by drawing resources away from budgets without the same long-term productive return as other public investment, even if it can provide some short-term economic stimulus.

Alongside these pressures, the structure and complexity of global finance is evolving. The US dollar remains the dominant reserve currency, but official central bank reserves have slowly diversified over time toward non-traditional reserve currencies such as Australian dollars – i.e., currencies other than the US dollar and the euro. Shifts in reserve composition influence liquidity conditions, capital flows and the resilience of the international monetary system in periods of stress.⁷

Resource constraints become more pressing and apparent as well. Money still matters, but it cannot simply buy access to what is scarce or politically restricted. Certain inputs are becoming more strategically important for electrification and advanced manufacturing, including lithium, cobalt, nickel, copper and graphite. The International Energy Agency (IEA) frames these as critical minerals with rising demand and growing supply chain concentration risks.⁸ If access to these inputs becomes a binding constraint, it can reshape industrial competitiveness and slow the pace of transition investments that many growth strategies now rely on.

Lower growth rates are the most visible symptom of this structural shift in the economy, but they are a consequence rather than the story itself. Goldman Sachs notes that global growth slowed from an average of 3.6% per year in the decade before the Global Financial Crisis (1998-2008) to 3.2% in the decade prior to the Covid pandemic (2010-2020).⁹ The World Bank similarly argues that restoring growth to earlier decade averages will require a very large collective policy effort, including stronger cooperation, larger financing, and mobilising private capital.¹⁰

In the long term, weak growth may be offset by AI, primarily through productivity gains. The International Monetary Fund (IMF) describes AI as a potential force that could jumpstart productivity, boost global growth and raise incomes, while also warning that benefits may be uneven and could deepen inequality without policy responses.¹¹ Goldman Sachs Research estimates that generative AI could raise global GDP by 7% over a ten-year period and lift productivity growth by 1.5 percentage points per year over that period, conditional on adoption and task exposure.¹² The OECD similarly frames AI as a general-purpose technology with the potential to influence productivity, distribution and growth, while emphasising uncertainty around macro level outcomes and diffusion beyond leading firms.¹³

But regardless of whether AI eventually offsets weaker growth rates, the Constrained Economy's underlying structural reconfiguration of labour, capital, trade, debt, and resource conditions is more persistent. An economy that grows at 3% through AI-driven productivity gains while operating under demographic constraint, fragmented trade, and resource scarcity is structurally different from one that grew at 3.6% through demographic expansion, open trade, and cheap energy. Growth rates can recover while the structure underneath them – debt capacity, labour supply, trade openness, input access – remains permanently more constrained and different from the previous period.

What, then, will be the downstream consequences of this more constrained economic environment?

Some things seem certain: nations and companies will increasingly pay a premium for security in the form of redundant supply chains, strategic reserves, domestic capacity and trusted partners. What once looked inefficient may now become economically rational. Governments will also face harder choices with regard to defence, climate, welfare, pensions, and more, in an environment where the economic pie expands more slowly and prioritisation thus matters more.

The implications related to shrinking domestic labour forces particularly are wide-ranging. For one, productivity becomes even more important. In this environment, AI, automation, and organisational innovation become strategic imperatives – while people face growing pressure to continuously adapt their skills. A smaller workforce will also be asked to finance larger ageing populations. For nations, this means difficult choices on pensions, healthcare, and taxation. For younger people, the implicit promise that each generation will become wealthier than the last could become harder to sustain. On the global level, we may expect to see heightened competition for migrants and talent. Individuals with scarce skills gain bargaining power – while others face greater pressure to reskill.

Uncertainties abound as well. Some relate to the security premium nations and companies now appear willing to pay. Redundant supply chains, strategic reserves and trusted-partner sourcing all come at a cost that becomes difficult to sustain amid the rising fiscal and financial stress driving the trend in the first place. Will resilience remain a priority, or does it become one of the first casualties when governments and firms are forced to economise?

When it comes to labour force constraints, a crucial question is whether the expected heightened competition for migrants and talent will materialise as open competition, or whether rising nationalist and anti-immigration politics in ageing economies foreclose migration as the lever that could offset shrinking labour supply.

Finally, AI's effect on productivity growth remains, of course, a major uncertainty as well. Even in an optimistic scenario, the question remains whether AI-driven productivity growth arrives quickly and broadly enough to ease the financing burden on ageing populations, or whether it stays concentrated in leading firms and high-skill workers, thus doing little to relieve the distributive strain.

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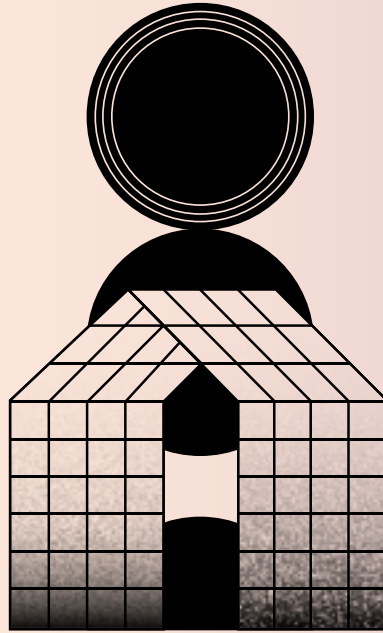
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The background is a complex abstract composition. It features a dark blue and purple color palette. On the left, there are stylized, blocky shapes representing a city skyline. A large, semi-transparent circle with a blue-to-purple gradient is positioned in the center-right. Below this circle, there's a smaller, similar circle. At the bottom, three vertical, glowing blue cylinders are visible. The overall design is modern and geometric, with various lines and shapes creating a sense of depth and movement.

The New Face of Urbanisation

THE NEW FACE OF URBANISATION



Sub-trends:

- ✦ Ascension of megacities (10+ million residents)
- ✦ Urbanisation happening earlier in economic development
- ✦ Growing prevalence of informal housing
- ✦ Housing affordability pressures
- ✦ Rural-to-urban influx
- ✦ Forced migration and displacement

Uncertainties:

- ✦ Will governance be able to adapt in the fastest urbanising regions to prevent entrenched poverty at scale?
- ✦ What will be the balance between public and private ownership and governance of the urban infrastructure?
- ✦ To what extent will climate and environmental constraints disrupt urban growth trajectories?
- ✦ Will urban concentration generate broad-based prosperity or deepen inequality between formal and informal zones?
- ✦ Will the new megacities leapfrog to design paradigms suited to emerging needs, or will they be built on models designed for a world that no longer exists?

Over the course of this century, urban milieus (primarily in Asia and Africa) will undergo developmental changes with unprecedented speed and complexity. The new urban epicentres will expand faster than institutions can adapt, often at lower income levels, and under demographic, climate and governance pressures that make comparison to any previous wave of city-building difficult. The central question is not only how many people will live in cities, but also what kinds of urban worlds will emerge and who will be included in them.

“Africa will still be young, even at the end of this century. The continent will be dominated by super cities – chaotic and badly planned, no doubt... but also vital and vibrant and bursting with new ideas. We have a hunch that the really exciting music and theatre, the truly groundbreaking innovations, the revolutionary new thinking in the last decades of this century will more likely come from Lagos or Mumbai than from Paris or Tokyo.”

- DARRELL BRICKER AND JOHN IBBITSON IN “EMPTY PLANET”, 2019¹

Cities have always been where human civilisation experiments on itself. Novel ideas emerge there, and radical solutions often get tested there first, long before they reach anywhere else. They are microcosms of the plurality of futures ahead. More than half of the world’s population currently lives in urban areas, and it is projected that by 2050, this share will rise to 68% of the global population (6.6 billion people). The epicentres of this urbanisation will be in Asia and Africa, which will host around 90% of the additional urban population in the next three decades.² Dhaka in Bangladesh, for instance, is expected to become the world’s largest city by the mid-century with 52 million inhabitants, roughly the size of South Korea’s total current population.^{3 4} Towards 2050, OECD estimates that Africa’s urban population will double, increasing from 700 million to 1.4 billion, which is almost the equivalent of the entire populations of the United States and the European Union moving into cities within less than 30 years.

Historically, cities have been associated with economic expansion and rising incomes. But this relationship is not straightforward. What makes the current wave historically distinct is the income level at which it is happening. Sub-Saharan Africa and much of South Asia are urbanising far earlier in their economic development than Latin America or East Asia did, for instance.⁵ Therefore, these regions cannot always supply the infrastructure, institutions, and services that dense urban populations require, leaving them in a permanent state of catch-up. Yet, even under these conditions, cities tend to offer substantially higher incomes and better access to services than the areas people are leaving, which is precisely what sustains the migration.⁶

As such, the world's new urban epicentres will not follow neat formulae of growth and development. Nor will they necessarily be considered as the pinnacle of urban achievement. Instead, given the speed of their expansion, these urban epicentres will face circumstance-specific obstacles and completely novel forms of urban environments will emerge. The makeshift and the intermediary have traditionally been presented as developmental problems to solve, but cities that have had to improvise their way forward have also developed a particular kind of resourcefulness. Coupled with their relatively youthful populations, these new urban epicentres and the agency they contain provide fertile ground for novel solutions to local and global problems to emerge.

What will some of these novel changes to urban environments look like? One example can be found in Asian and African *megaregions*. Here, immense urban growth is causing neighbouring cities to expand outwards until they merge into continuous urban corridors, such as India's emerging Delhi-Kolkata corridor along the Indo-Gangetic Plain and the Lagos-Abidjan corridor which spans five countries. Both megaregions offer examples of urban systems exceeding the capacity of governance infrastructures designed for individually separated cities.⁷

Megaregions can either be products of megacities (above 10 million inhabitants) subsuming urban areas within their reach, or the result of several closely located cities morphing together. The number of megacities has also quadrupled from eight in 1975 to 33 in 2025 and is projected to reach 37 by 2050.⁸

Rapidly expanding cities and their corresponding megaregions will increase informal settlements globally. As these new urban epicentres draw in new workers, housing costs within them will often exceed what is affordable to low-income migrants, who settle on the urban fringes. Informal settlements are therefore not aberrations from planned urban development. Rather, they are its predictable offshoots.⁹ They are often characterised by self-organised construction, emerging along new highways or railways, as these areas provide crucial access to the formal

city economy. In this way, informality moves into the periphery, to the spaces in-between, also called “gray spaces”. This produces a tension between the formal core, built with a bias toward planned development, and the gray zones that formality itself generates at the margins. But it is also in these margins where ideas and solutions to novel challenges might be sown.

Despite the majority of urbanisation growth occurring in Asia and Africa, urban populations in the rest of the world are also expanding on average, although generally at a much slower pace.¹⁰ In Europe and North America, built-up areas expand faster than urban populations can occupy them, which is the opposite dynamic from fast-growing cities in Africa and Asia, where populations are increasing faster than the housing, infrastructure, and services needed to accommodate them.¹¹ Yet, affordability of housing is an issue even across the OECD countries where close to half of low-income owners spent over 40% of their disposable income on a mortgage in 2022. This also applies to low-income renters.¹² The flip side of this trend is the rapid depopulation of smaller cities and rural areas, risking their potential collapse. Around 3,000 cities experienced population decline globally between 2015 and 2025 (most of them with fewer than 250,000 inhabitants) with over a third in China and 17% in India – showing that urban growth and decline often occurs simultaneously within the same country.¹³

In contrast to emergent informal urban milieus is the wave of master-planned satellite cities in Africa, South-East Asia, and the Middle East. Over 90% of urban planning projects announced in the 21st century have or will take place in low-income economies.¹⁴ Many of these projects are motivated by practical considerations, such as relieving congestion or spreading out economic activity. Others are planned due to more existential necessities. Certain parts of Jakarta – currently the world's most populous city with nearly 42 million inhabitants – are sinking by as much as 25 centimetres per year, with sections of the city at risk of being submerged by 2050. This has prompted Indonesia to develop Nusantara, a new political capital located over 1,000 kilometres away from Jakarta.¹⁵

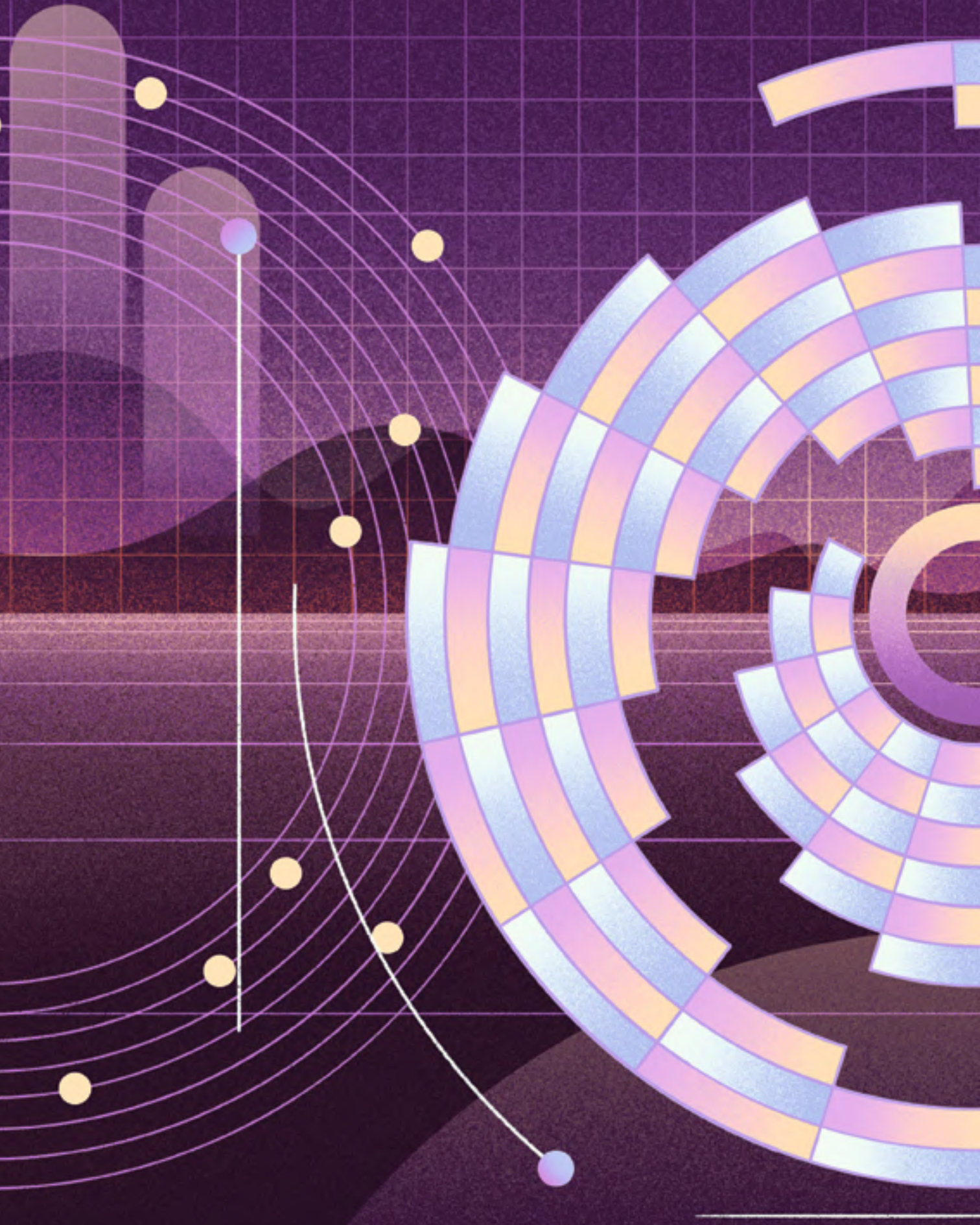
Other projects are the product of ambitious plans aimed at drawing in foreign investment and building technologically mature cities from scratch. This includes Egypt's New Administrative Capital – a 270-square-mile (700 km²) development east of Cairo – built to house government ministries and relieve pressure on a city of over 22 million people.¹⁶ Similarly, Tatu City near Nairobi, Kenya, has been designed as a self-contained urban hub to attract investment, similarly to Nigeria's Enyimba Economic City.¹⁷ Saudi Arabia's flagship megaproject, The Line, is perhaps the most spectacular example of futuristic urban planning. The project, now heavily scaled back from the original plan, was meant to be a model concept city built for liveability, sustainability, and urban innovation.

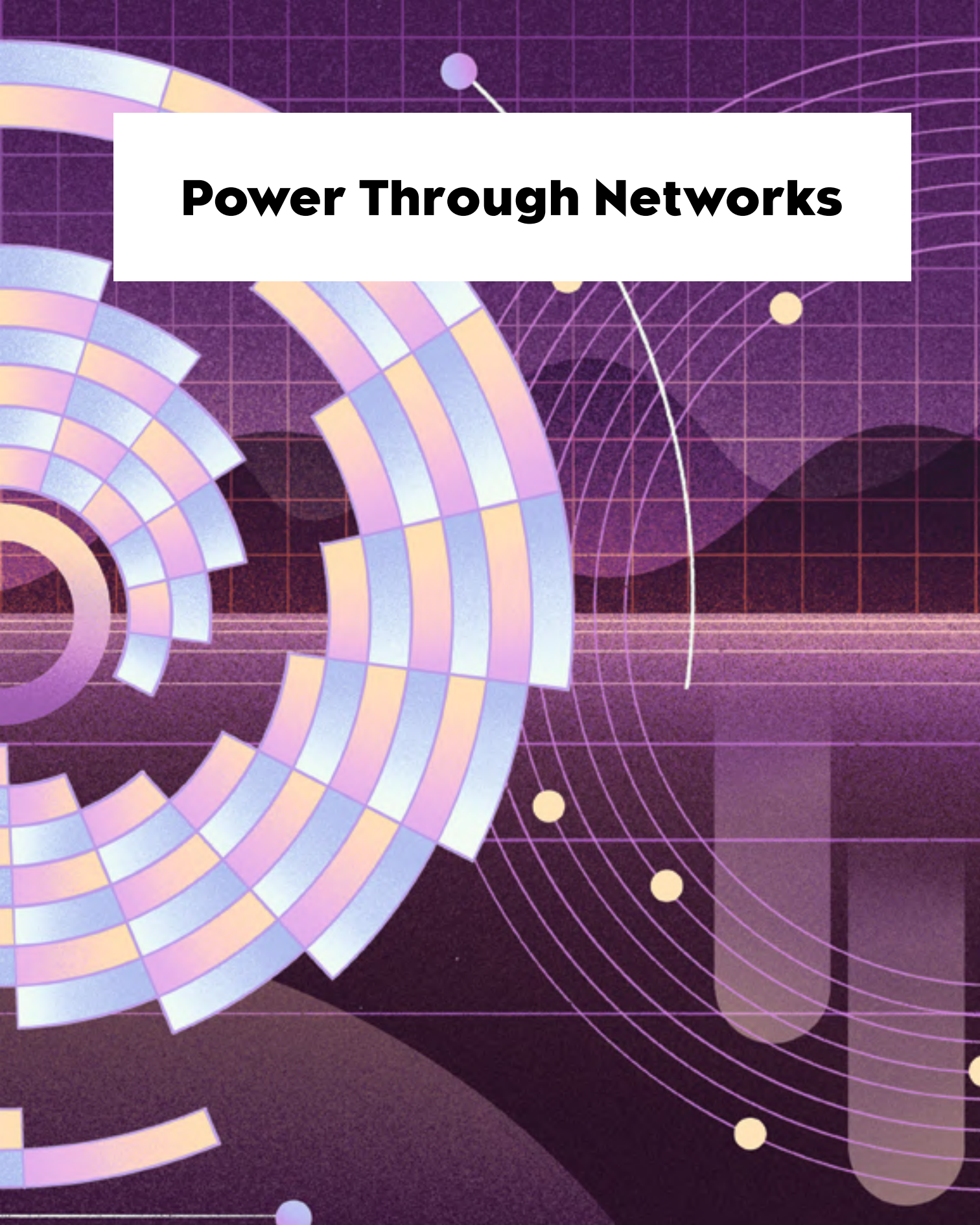
The future of urbanisation will be a set of deeply divergent urban worlds, shaped by the specific pressures bearing down on each city, including the speed of its expansion, the capacity of its institutions, the climate vulnerability of its location, and the income level of the populations it is absorbing. In some places, informal self-organisation will prove more adaptive than formal planning. In others, the gap between population growth and service delivery will become self-reinforcing, locking communities into persistent precarity. In others still, planned city experiments will attract capital and expertise while leaving the surrounding urban fabric largely untouched.

What ties these divergent trajectories together is the structural momentum behind them. The forces driving urban growth – the economic pull of cities over rural alternatives, the displacement effects of climate stress on agricultural land, and the concentration of infrastructure investment in urban centres – mean that even where urban governance fails to keep pace, the cities will grow. The central question is what kinds of places this urbanisation produces and who bears the cost of the gaps it could leave behind.

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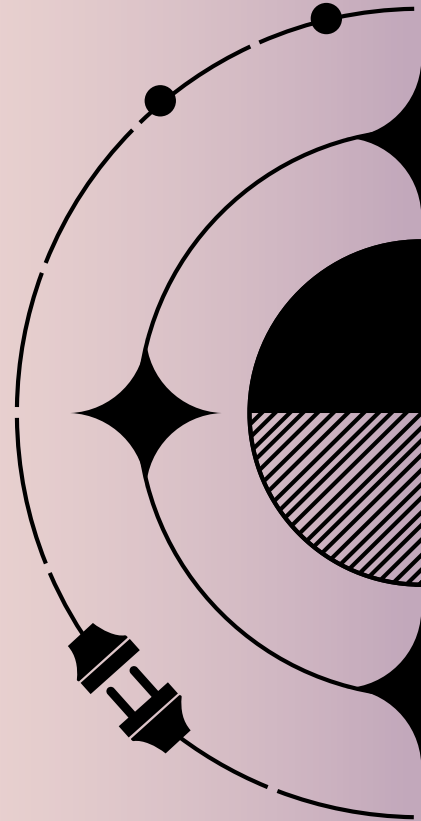
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The background is a deep purple with a fine grid pattern. On the left, there are several concentric circular segments in shades of light blue, pink, and orange, resembling a stylized spiral or a network diagram. On the right, there are faint, thin white concentric circles and several small yellow dots, suggesting a celestial or orbital theme. A white rectangular box is centered in the upper half of the image, containing the title text.

Power Through Networks

POWER THROUGH NETWORKS

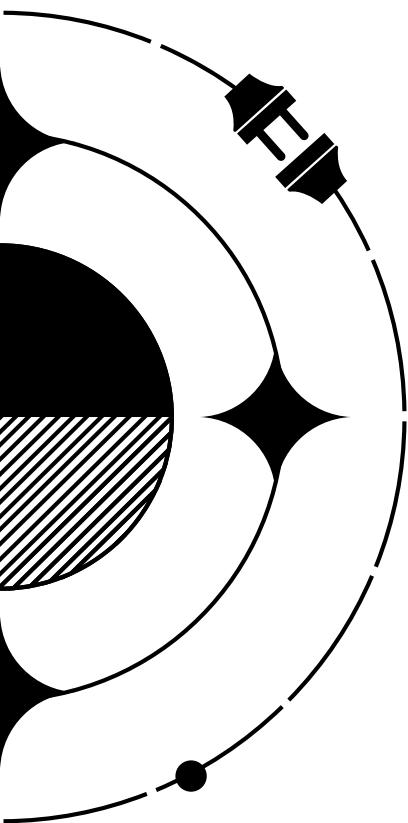


Sub-trends:

- ✦ Hyperscaler dominance over critical digital infrastructure
- ✦ Divergence of competing infrastructure models: US commercial, EU regulatory, Chinese state-aligned
- ✦ Shift from 'territorial' to 'operational' sovereignty (from jurisdiction over territory to control over infrastructure)
- ✦ Increasing state and public sector dependency on private networks
- ✦ Growing political influence of US-based and Chinese tech sectors, domestically and internationally
- ✦ States projecting power through privately operated infrastructure

Uncertainties:

- ✦ Will most developing economies come to depend on US or on Chinese digital infrastructure and solutions?
- ✦ Which public institutions will struggle to discharge their mandates when the infrastructure they depend on sits outside their jurisdiction?
- ✦ Will service suspension become a routine instrument of statecraft, or remain exceptional enough to be shocking?
- ✦ To what extent will Europe succeed in its goal of achieving digital sovereignty through homegrown digital infrastructure?
- ✦ Will the gap between governing role and governing seat ever close formally?



Power Through Networks describes the long-term shift from territorial, state-centred sovereignty and power towards authority that is distributed, networked, and overlapping. Critical social, economic and security functions increasingly depend on transnational digital infrastructures that no single state controls. Authority is redistributed rather than drained away, since the same networks that put a function beyond one state's reach can extend another's.

"When Denmark says that its relations with Google are as important as those with any other state, we should take this as wisdom."

— BENJAMIN BRATTON, PHILOSOPHER OF TECHNOLOGY, TO FARSIGHT MAGAZINE, 2024

In 2017, as Mark Zuckerberg grappled with Facebook's unanticipated influence on the recently concluded US election, the tech CEO said that "in a lot of ways Facebook is more like a government than a traditional company." He wasn't wrong. Meta (then Facebook), Alphabet, Amazon, and other infrastructural giants defy easy categorisation as mere market participants. They are companies, but also much more – private entities grown into para-states with unprecedented political and economic power and geographical reach. They have achieved this status through ownership of the crucial infrastructure that the daily functioning of society, the operation of global commerce, and the functioning of states increasingly depend on. They exercise power in their own interests, sometimes even to the point of influencing elections. But the reverse holds as well. States, too, govern through these private networks, treating their reach as an extension of national jurisdiction and their services as levers that can be tightened or withdrawn. Smaller states have become dependent on infrastructure owners but also benefit from the capabilities and services that only they provide, especially in times of stress and conflict.

Ownership of this infrastructure is increasingly concentrated, and in most of the world that concentration sits with a handful of US-based hyperscalers. As of 2025, Amazon, Microsoft, and Alphabet held 63% of the worldwide cloud market.¹ Undersea cables (sometimes described as the arteries of the digital world) were historically built by regulated, route-neutral, and multi-stakeholder carrier consortiums.² Today, digital giants are vertically integrating this infrastructure with their services. In 2010, Google, Facebook, Microsoft, and Amazon had invested in just one long-distance undersea cable between them. By the end of 2024, they had stakes in more than 60 cables (of about 600 worldwide). The consumption share of total international cable capacity by content providers like Google, Facebook, and Microsoft was just 6.3% in 2010. By 2027, it is expected to reach 78%.³ Add to these other material components of the modern digital society, such as data centres, fibre optic lines, cloud servers, and cellular towers, and it's clear that the megatrend rests on deep structural foundations which suggest long-term durability. As a consequence, the question of who governs, operates, and holds authority over the systems that facilitate the functioning of societies and states has become a defining question for the 21st century.

As a megatrend, Power Through Networks has its origins in the transition of the internet from a government-sponsored network to a commercial one in the mid-1990s.⁴ Yet its historical roots arguably go deeper, as power exercised through commercial networks is not new. Britain's "All-red Line" telegraph system (19th – 20th century) safeguarded imperial communications, though it was mostly privately owned and operated – a past version of today's sovereign cloud. The entanglement of state and commercial power is even more apparent in today's digital world where nations, to a much greater extent than in the past, exercise their power alongside and sometimes *through* the "virtual" or "supplemental" sovereigns – terms that have been used to describe how tech companies and digital platforms exercise "commercial development of and control over critical software and hardware".⁵

This also highlights how Power Through Networks isn't merely a story of privatisation, or of the power, agency, and sovereignty of nations being universally contested by non-state entities. The general picture is a dynamic and fluid reconfiguration, of "new territories superimposed on older territories", as philosopher of technology Benjamin Bratton has described it.⁶

This 'rerouting' of agency and control is expressed in many different domains. Governments may issue currency and maintain monetary sovereignty, but everyday payments and transactions of national currencies are increasingly mediated by private transactional networks. Public infrastructure like roads, electrical grids, and postal services remain vital to functioning states and societies, but newer,

privately owned and built infrastructure – undersea cables, cloud computing, satellite networks, and data centres – have become just as crucial, or even more so.

This dependency in the public sector is demonstrated by statistics from the United Kingdom, which show that 95% of central and local public sector organisations spent budget on hyperscale cloud services in fiscal year 2023/24, mostly relying on US-based providers.⁷

The emergence of digital and private architectures and standards is also evident when it comes to issuing and authenticating the identity of citizens. As passports and driving licences as forms of identification are supplemented by digital IDs, biometrics, and verification via social media, citizens, in addition to being national subjects, become “users” as well. A similar dynamic applies to individual health data, which is simultaneously personal information safeguarded by national law and a valuable resource for private actors in the healthcare and insurance industries. In politics, maintaining a presence in the “new public square” – digital social platforms hosted by private firms – is a necessity in reaching constituents and potential voters and thus for achieving political success. Tellingly, political critique of the power of these platforms must often take place on the platforms themselves to reach an audience. Governance on the public sector level, too, relies heavily on private software and utilities, so that even functions only the state is authorised to perform are executed on systems it does not own.

Not everything is being uprooted. In many domains, sovereignty remains more classically territorial. Land and property, many welfare functions, and criminal justice are examples. Yet this is no guarantee that the question of where sovereignty and power lie and who exercises them will not become more difficult to answer. Recent evidence that these boundaries are moving rather than static came in August 2026 in the form of a presidential memorandum issued by the United States. The memorandum authorised vetted private cybersecurity firms to carry out offensive cyber operations against international criminal networks targeting Americans, breaking from decades-old policy that restricted private entities strictly to network defence.⁸ Here the state extended its own reach through private actors rather than ceding ground to them.

The structural dependency of functions of state governance on private digital infrastructure may not always be apparent, but it comes into focus in times when the systemic resilience of nations faces sustained pressure, as it did during the Covid-19 pandemic. Emergency pandemic response is a core function of territorial sovereignty. Yet functionally, Covid showed that the ability to digitally track the viral transmission and respond to it effectively hinged on smartphone operating systems, cloud services, and API standards outside of state control.⁹

State dependence on private digital infrastructure for the exercise of power likewise became apparent after Russia's invasion of Ukraine in 2022. In March of that same year, Ukraine appealed to the Internet Corporation for Assigned Names and Numbers (ICANN), a US-based non-profit organisation that coordinates the Domain Name System (DNS), to exclude Russia from the network. Although ICANN opted for neutrality, the refusal was itself an exercise of authority.¹⁰ It shows that infrastructure owners are, in effect, in governing roles but without formal governing seats. As the logic of the network supersedes the logic of the map, the borders of authority and agency are becoming vague and overlapping.

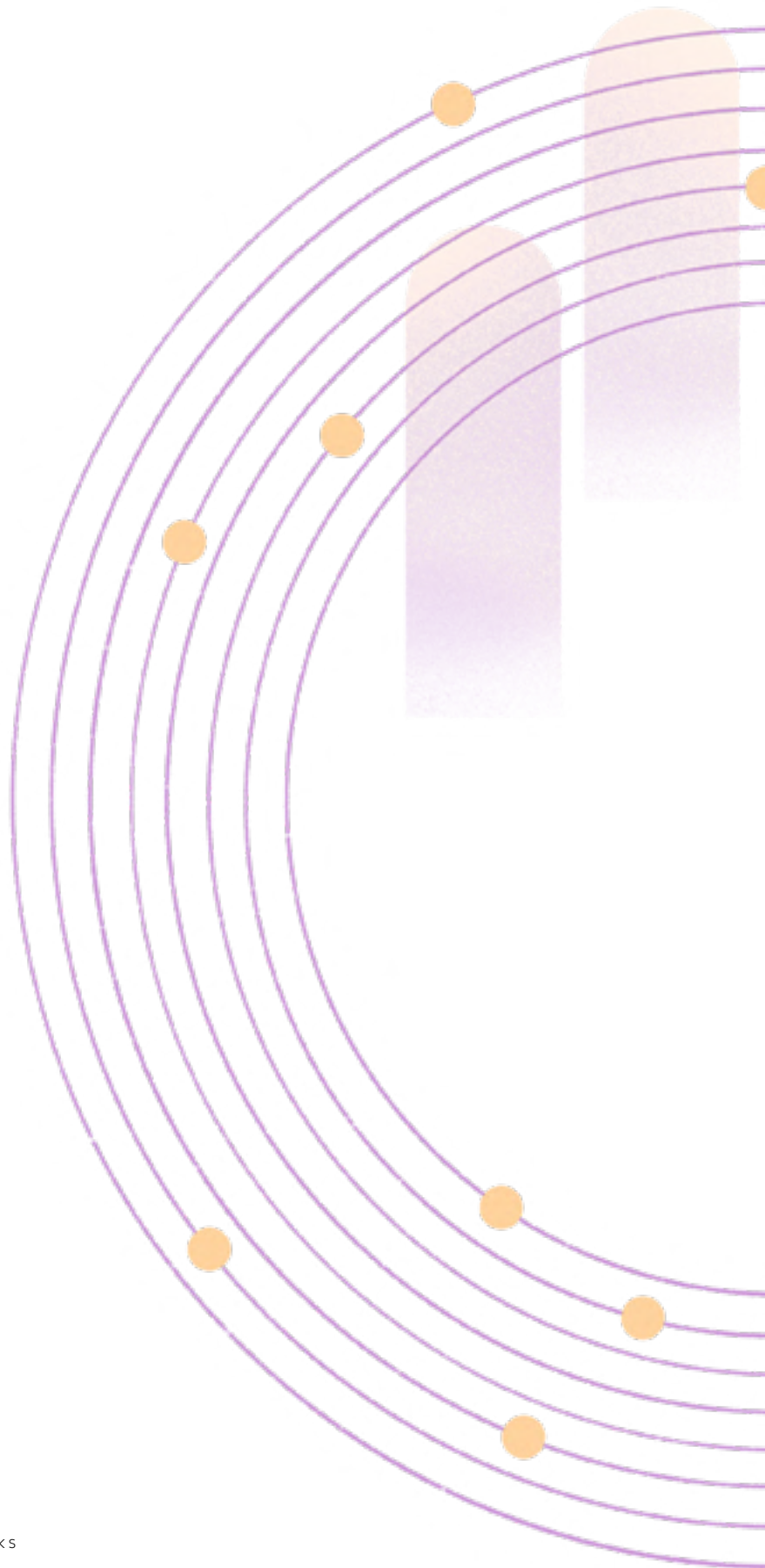
The war revealed other entanglements and dependencies as well. Starlink, a privately owned civilian network, became essential to Ukraine's ability to defend itself (perhaps the most fundamental component of state sovereignty there is), used particularly for drones and artillery targeting. For Ukraine, this created a new reliance on a foreign, private actor (as of 2026, Starlink operates roughly 59% of all active satellites¹¹). But it also allowed for force multiplication through access to capabilities they would not otherwise have. The same reliance on a network Ukraine neither owns nor controls made its military more effective, but that effectiveness could be revoked by decisions taken elsewhere.

In these cases, it's clear that power, agency and sovereignty are not zero-sum, and that for the states reliant on private networks, augmentation can coincide with vulnerable dependence. That is not to say that digital infrastructure owners do not also pose more direct challenges to traditional notions of territorial sovereignty – both things are true at the same time. In the EU, a sustained institutional response to the power of Big Tech has taken the form of a digital sovereignty agenda and an effort to reduce dependency on non-EU infrastructure and services through both regulation and targeted investments. Yet even the most ambitious programme will only reshape the terms of dependency – perhaps resulting in a more even balance between homegrown and US-based providers – rather than eliminating it. A more fundamental change in ownership patterns (from private to fully public) would require a momentous historical shake-up, perhaps in the form of a forced breakup or nationalisation of digital infrastructure. The (comparatively) more measured regulatory backlash seen today in the EU should then probably be understood as a negotiation of the terms of dependency rather than a potential disruption of the trend.

Crucially, the megatrend extends beyond Silicon Valley and Europe's push for digital sovereignty. In China, it takes on a somewhat different form that nevertheless demonstrates that the mutual entanglements of state and infrastructure owners are a decidedly global phenomenon. China's own tech giants – companies like Alibaba, Tencent, ByteDance, and Huawei – have built the country's critical

platform and network layers as formally private companies. Instead of seeking to replace them, the Chinese state has spent the past decade attaching itself to them through mechanisms that ensure they work in alignment with the goals of the state. This includes ownership of “special management shares” that give privileged voting rights and the existence of party cells within companies.¹² Sometimes it takes the form of more overt pressure tactics or forced rectification of business leaders as well. Perhaps the most famous case is that of Alibaba founder Jack Ma who disappeared for months from public view after having openly criticised the government’s financial policy – only to resurface later as a reformed state loyalist.¹³ Beyond its borders, China’s Digital Silk Road (the technological arm of the Belt and Road Initiative) has financed fibre-optic cable, mobile networks, satellites and cloud capacity across Africa, Southeast Asia and Central Asia. Participation in the Digital Silk Road comes with improved connectivity through Chinese infrastructure, but on the terms of the Chinese state and tech providers. It’s a clear case of public-private infrastructure as a tool of great-power politics. The difference from the American arrangement is one of directness rather than of kind.

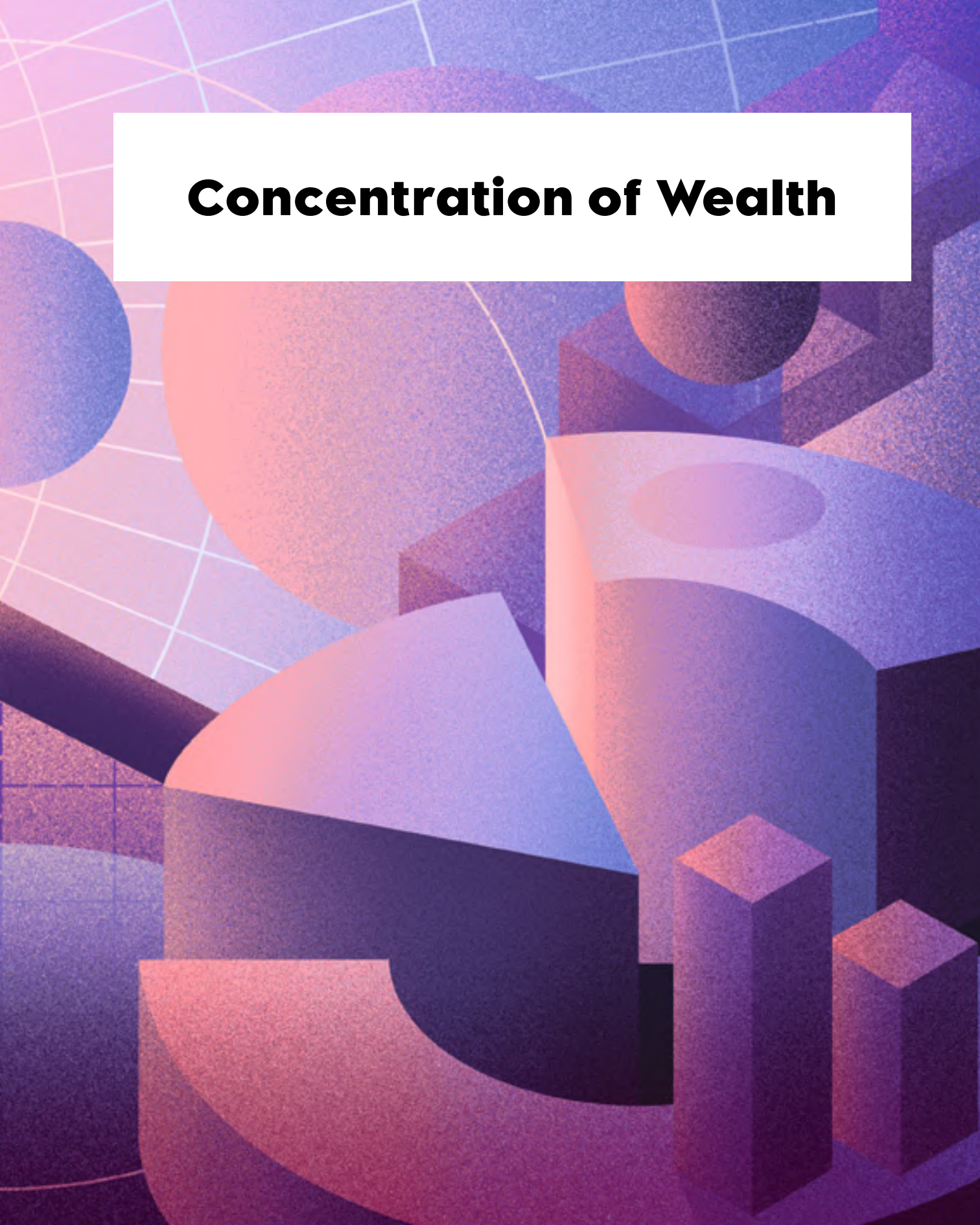
The next phase of the megatrend may be determined by the global struggle over *whose* infrastructure model becomes the default, and where, as the private infrastructure on which sovereignty depends may increasingly be Chinese rather than American in origin in significant portions of the world. The rerouting of sovereignty may then be replicated under a different flag but would nevertheless remain a defining feature of the 21st century.



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Concentration of Wealth

CONCENTRATION OF WEALTH



Sub-trends:

- ✦ The 'oligarchising' of politics
- ✦ Ownership of platforms – democracy's news and information 'infrastructure' – in the hands of the super-wealthy
- ✦ Accounting and tax rules lagging new models of wealth and value creation
- ✦ Declining labour share of income
- ✦ Intergenerational wealth transfer and the concentration of inheritance
- ✦ Asset-based stratification

Uncertainties:

- ✦ Can governments act on wealth redistribution before inherited wealth concentrations become too entrenched to reverse?
- ✦ Can democracies effectively counteract 'oligarchising' when wealth easily evades national jurisdictions?
- ✦ How will wealth concentration among platform owners evolve under potential regulatory pressure?
- ✦ Can global collaboration on taxation and financial market controls become a stronger counterweight to inequality?
- ✦ Can redistributive instruments such as a universal basic income (UBI) compensate for a falling labour share of income – and can a national tax base in the exposed country fund them when the productivity gains accrue elsewhere, i.e. Chennai vs. California?

The gains of economic growth have never been distributed evenly across the globe – not between countries, not within them, and not between those who own capital and those who sell labour. But the present configuration of global wealth accumulation constitutes something historically distinct, not least in its extremity. As the world gets progressively richer, more productive, and more populous, the benefits of this sustained growth are far from shared equally. Growing wealth inequality presents future challenges to state capacity, the ability to meet existential challenges, and perhaps even to the future of democracy itself.

“Wealth inequality is not just very large; it is persistent and self-reinforcing. Over the past three decades, the wealthiest individuals have pulled away at an extraordinary pace; this has also affected the distribution of opportunities and power worldwide.”

– WORLD INEQUALITY REPORT, 2026

The world has never been wealthier – yet that wealth is far from equally distributed. Wealth is being concentrated at the top at a pace and scale with no equivalent in the post-war period. A few staggering statistics paint the picture vividly. Between 2000 and 2024, the richest 1% of the world population captured 41% of all new wealth, while the bottom half received just 1%.¹ The top 10% own three-quarters of global wealth, while the bottom half holds only 2%.² The top 1% alone, roughly the adult population of the United Kingdom, now controls 37% of global wealth.³ Wealth concentrates the most among the very wealthiest people, so much so that fewer than 6,000 individuals now hold 3% of all wealth, more than the entire bottom half of the world’s adult population.⁴

Some of the causes of this extreme divergence have been decades in the making. Among the reasons often cited are the deregulation of capital markets, capital accumulation outpacing economic growth, and the gradual weakening of workers' bargaining power relative to capital across much of the world.⁵ Other structural drivers are newer. Platform monopolies generate returns at near-zero marginal cost, enabling rapid wealth accumulation. The list of top wealth holders today has an overrepresentation of technology platform owners whose fortunes were built on this mechanism.⁶

The rise of platform-based business models has opened a gap between where economic value is created and where it can be measured, taxed and redistributed. Through the 2010s, some of the world's most valuable companies generated extraordinary returns with comparatively little physical capital. Most of their value sat in intangible assets, networks and globally scalable digital infrastructure. However, that may now be changing. The same firms have spent several hundred billion dollars in 2026, with plans to spend more, on data centres, chips and power, which ties their value back to places, grids and permits.⁷

Yet accounting, financial and especially taxation systems remain poorly adapted to both versions of the model. The OECD mechanism for shifting taxing rights to the countries where the users are, Amount A of Pillar One, has still not come into force, and more than twenty national digital services taxes have filled the gap.⁸

Corporate tax revenues have broadly held up, so the central dispute is therefore not only how much tax is collected, but which country has the right to collect it. Personal wealth presents a different challenge. Much of the wealth of the very rich is held in appreciating shares, which generally generate tax revenues only when sold, giving their owners little incentive to realise their gains. Governments must therefore determine where economic value is created, where multinational profits should be taxed, and how rapidly accumulating private wealth can be brought within existing redistributive systems. Recent international tax negotiations suggest that the principal barriers are political rather than technical: many of the necessary mechanisms already exist, but access to them is shaped by the relative bargaining power of states and corporations. The clearest example is the January 2026 "side by side" agreement, which largely exempts US multinational companies from the OECD's global minimum tax rules. The taxation of concentrated corporate and platform wealth is thus becoming less a question of institutional design than a contest over who has sufficient leverage to determine, and benefit from, the rules.

The structural character of wealth polarisation is also changing. For the past four decades, the concentration of wealth at the top could be attributed, however un-

evenly, to market processes. A new, and perhaps more durable, dynamic is now overlaying them, which is the transmission of accumulated wealth between generations on a scale unprecedented in recent history. Market-generated wealth concentration is, in principle, reversible through labour market dynamics, taxation, or shifts in competitive conditions. Generational wealth is considerably more durable. It does not depend on the continued performance of the inheritor and is protected by legal and financial structures like trusts, foundations, or offshore vehicles specifically designed to minimise erosion through taxation or market risk.⁹ The generations (concentrated, on the available data, in the top few percent of households) set to inherit the so-called Great Wealth Transfer¹⁰ – primarily Generation X and Millennials – are the first to do so after four decades of intensified wealth accumulation at the top. This qualitative shift in the social logic of wealth may further widen the gap between economic position and social contribution – something close to the emergence of a new aristocracy.

The outcomes and consequences of wealth concentration at the top could potentially challenge state capacity, democratic stability, and the ability of systems of governance to respond to future challenges. Wealth polarisation does not in itself produce these risks. But the ‘uneven’ playing field it creates contributes to hollowing out the democratic process and makes policies and outcomes that systematically favour the interests of the wealthy more likely.¹¹

The conversion of concentrated wealth stocks into political influence – the ‘oligarchising’ of politics – is effectuated by actions that range from buying political support to consolidating ownership of key societal institutions and infrastructure.¹² A study covering 120 countries over 23 years found a negative effect of economic concentration on a nation’s level of democracy and suggested that corporate political activity may provide a mechanism through which this negative effect is exercised.¹³ These pressures are both direct and indirect and include the funding of foundations, think tanks, and policy-planning networks; political campaign finance; the longer-term shaping of public opinion through media and expert commentary; and constitutional provisions that protect property and create veto points at which change can be blocked.¹⁴ There are more structural tensions between growing wealth inequality and the long-term stability of democratic societies as well. Increasing wealth inequality has been associated with a reduction in the proportion of individuals identifying with the subjective middle class, which tends to be the group most supportive of democratic governance.¹⁵

Another more direct challenge to democracy runs through ownership of the platforms through which public perception is shaped, both because they host the information and news that reach citizens and because politicians must depend on them to reach their constituents and potential voters. These platforms are not products

of wealth concentration, but they shape how that wealth comes to bear politically. When the greatest fortunes sat in oil, retail, or property, the asset and the political voice these things afforded were separable. When the asset is society's information, news, and communications infrastructure, the asset and the megaphone are the same object.

2026 marked the first year when social media and video network consumption was ahead of other sources as the most widely used source of news globally (54% of all audiences).¹⁶ As the attention of citizens is increasingly captured by social media, legacy media must lean on corporate scaling or partner with massive tech ecosystems to maintain audience reach. The result is that social media networks and algorithmic search engines – voting-controlled, in several cases, by a single individual – act as primary news and information gatekeepers worldwide. The algorithmic push that ranks content by predicted engagement creates new risks which are only accentuated by the fact that dissemination precedes fact-checking.

AI represents a potential economic hinge point in more ways than one. When read through the lens of wealth concentration, what stands out is its properties as a “capital-biased” innovation whose returns flow disproportionately to capital rather than labour.¹⁷ As AI graduates from being a tool to becoming embedded infrastructure, one potential outcome, even if it leads to productivity growth, is that absent political intervention, it contributes to widening inequalities. This *winner-takes-most* dynamic is echoed in past industrial revolutions and their driving technologies, from textile mills to industrial robots, which concentrated ownership of capital-intensive machinery while lowering skill requirements and creating an oversupply of replaceable workers. An important part of those stories, of course, was the subsequent establishment of counterbalances represented by organised labour movements, government regulations, and the expansion of the welfare state. What the redistributive institutions of the future will look like is presently an open question. Universal basic income (UBI) is one proposition, yet it is unclear how it would be financed. The productivity gains of platform and AI infrastructure accrue to owners concentrated in a small number of jurisdictions and locations, while the labour markets those technologies reshape are global. Said more directly, a parliament in Delhi cannot legislate a tax rate in California. Proposals for a coordinated minimum tax on the very wealthy, and the ongoing negotiation of a UN framework convention on international tax cooperation, are attempts to close exactly this gap.

Wealth concentration has other societal ramifications. For the non-inheriting majorities, the shift towards wealth-based stratification means labour market participation may be increasingly insufficient to generate the asset accumulation necessary for retirement security and housing access. The concentration of capital

returns also does not map evenly across territories and tends to be concentrated in metropolitan areas where asset prices tend to be highest. A deepening territorial divergence that produces so-called “geographies of discontent” means that political backlash becomes a risk in a future of increased spatial concentration of capital returns.¹⁸

In this way, wealth concentration can be considered a driver of other risks stemming from the social polarisation it foment. Those same democratic systems which are eroding through elite capture face another angle of attack from the political mobilisation of those who believe they are not seeing their fair share of economic growth. The rise of populism in the 2010s and 2020s is also a story of the inequalities produced by a globalised and increasingly stratified economy. And the potential risks are substantial. Some of the most significant upheavals in modern history were preceded by periods of intense inequality – pre-revolutionary France, tsarist Russia, or Weimar Germany – where the resulting social and political tensions paved the way for state collapse.

The wealth concentration of our time may not lead to such dramatic outcomes. Yet the risks are arguably heightened by the lock-in of structural constraints, which make course-correction increasingly difficult. In a future where governments increasingly depend on private capital to finance public functions – through debt, de-risking, and public-private partnerships – the range of democratic choice available to elected governments narrows, constrained by the preferences of the private wealth on which fiscal states depend. Further, the rebuilding of redistributive institutions, while possible, requires coalitions that wealth concentration makes harder to assemble, heightening the risk that wealth accumulation becomes a self-reinforcing dynamic creating an increasingly stratified society. This could create legitimacy problems, too, for a social contract resting on the premise that effort, skill, and participation generate a proportional meritocratic reward.

The unprecedented concentration of wealth, and the power over societies’ institutions that it enables, has so far not been matched by any comparable growth in the capacity to solve shared problems, whether stemming climate change or eradicating hunger. The rise of ‘mega-philanthropy’, itself a product of wealth concentration, shows that where public capacity recedes (or was never present), what replaces it is defined by those who own the capital. But that replacement is largely unaccountable, and its priorities follow donor preference rather than public consensus. The question for the coming decades is therefore whether fiscal, regulatory and democratic capacity can be rebuilt at the scale at which capital now operates. How it is answered will determine whether the concentration of wealth remains an economic outcome or hardens into a structural feature of how societies are governed.



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PART 4



The background features a series of overlapping, wavy, organic shapes in shades of purple, pink, and orange. Overlaid on these shapes is a grid of thin, light green lines that create a perspective effect, receding towards the top right.

Megatrends applied

PRACTICAL CONSIDERATIONS FOR MEGATRENDS IN FORESIGHT WORK

Megatrends serve as one of the important foundations for foresight work. They provide vantage points for exploring the external forces that impact societies across the world and for framing discussions around the structural context that constrains and enables how these societies and their underlying systems evolve. The value of megatrends lies less in the description of any single trend, and more in the assessment of how their implications, and the connections between them, provide depth to strategic decision making. Surface-level megatrend analysis – noting that “demographics are changing” without tracing the specific second- and third-order effects of this change or identifying which specific developments are particularly worth paying attention to over time – generates little strategic advantage.

Below, we consider more specific approaches to applying megatrends to futures inquiry.

Identifying indicators to monitor from megatrends

A megatrend is not, on its own, operational. The analytical work for an organisation lies in translating those broad conditions into the specific developments, shifts, and uncertainties in its operational environment that warrant sustained strategic attention. When used in this way, megatrends help achieve a future-oriented, context-specific view of where to direct attention.

In practice, this often begins with the megatrends deemed most relevant to an organisation's strategic outlook. From these, a set of quantitative and qualitative indicators worth monitoring are identified. These can reveal whether the relevant parts of the operating environment are developing along their expected trajectory or deviating from it.

What to monitor depends on the organisation's context, which also determines the domain the megatrend is read against. A single megatrend generates entirely different implications from one domain to the next. The Inversion of the Population Pyramid, read through labour markets, points to shrinking working-age cohorts, wage pressure, and contests over migration. Read through the lens of consumption patterns, it points to a reweighting of demand toward the needs and preferences of older households. Read through healthcare innovation, it points

to demand for age-related care technologies and the reorganisation of provision around chronic conditions. The megatrend is the same, but its manifestations differ across operating environments – and hence different indicators worth monitoring over time.

Discovering megatrend implications with the Futures Wheel

Working with megatrends doesn't need to be a long and demanding process. Their implications can be explored through simpler and more accessible foresight exercises.

The Futures Wheel is a graphical visualisation of the direct consequences and ripple effects of a particular change or development. Megatrends, by virtue of their stability, persistence, and resilience, provide an ideal starting point for the exercise. By placing each megatrend at the centre of the model and working outward through its first, second, and higher order consequences, a visual web of interconnected outcomes can be discovered. In this way, the Futures Wheel guides the analyst a few steps beyond merely considering the immediate outcomes of a given megatrend, highlighting the less obvious implications as well.

Throughout this process, repeated for each relevant megatrend, the organisation's own context provides the frame for assessing how the mapped-out multi-order consequences might bear on its operating environment. Usually, the goal of this 'outside-in' exercise is to guide the exploration of potential risks and opportunities that are not currently in the organisation's scope of attention.

Here, megatrends function as the foundation to explore a variety of future outcomes. Yet megatrends never operate in isolation – they interact, overlap, and compound one another. Below, we consider the usefulness of treating megatrends in combination rather than individually.

IN THE NEXUS OF

MEGATRENDS

Megatrends are highly visible, to the extent that they can sometimes appear almost self-evident. We know that urbanisation is accelerating, wealth is becoming increasingly concentrated at the top, and the global order is shifting. These developments are reported on daily, making it easy to question how they can contribute to the development of novel yet plausible futures, which is the very purpose of foresight work. Although we have presented our eleven megatrends separately,

in practice they should rarely be seen or understood in isolation. It is in the cross-section of megatrends that the space for genuinely novel and interesting perspectives and outcomes emerges. This is where new issues, uncertainties and ripple effects are revealed which, once surfaced, can be probed further, allowing for a better understanding of how the large-scale and general societal transformations ahead might translate into more context-specific developments.

There is an almost infinite number of interesting dynamics emerging as outcomes in these ‘Megatrend Nexuses’. Where the journey of discovery takes us will depend on what matters for the explorer (an organisation, public body, a company, or any other group of people).

The purpose of such an exercise is to use megatrends as stable analytical foundations in an inherently uncertain future, enabling creative and exploratory thinking rather than treating them as sufficient explanations of future outcomes. Shifting the focus from individual megatrends to their interactions and combined effects also moves attention away from what is resilient and stable towards what is more fluid and uncertain. To help illustrate how this can be approached, we consider an example that takes the megatrend implications documented elsewhere in this publication as the starting point for a more exploratory perspective. It is intended to serve as inspiration for how organisations and individuals can build on and work with megatrends in their own contexts.

Nexus outcome: From chronological age to biological capacity

What happens to societies and economies organised around chronological age if human biological capacity becomes increasingly measurable, manageable and potentially modifiable? The intersection of three megatrends, Inversion of the Population Pyramid, Health Beyond the Clinic, and the Biotech Revolution, points towards a future in which age may become a less suitable measure and representation of what people can do.

As described in Inversion of the Population Pyramid (p. 34), the age structure of societies is being restructured fundamentally. Sustained fertility declines and longer lifespans mean that many countries are moving towards older populations, putting pressure on labour markets, pension systems, healthcare provision, and relations between generations. For individuals, this may mean longer working lives; for businesses, a greater need to retain older workers; and for governments, a growing pressure to sustain economic participation while supporting larger older populations.

If we add Health Beyond the Clinic to the mix, the implications begin to change. Health is increasingly managed throughout everyday life rather than through

episodic encounters with healthcare systems. Chronic conditions require longterm management, while digitalisation and personalised care expand possibilities for monitoring and managing health outside traditional clinical settings. In an ageing society, this makes maintaining health and functional capacity increasingly important. Healthy ageing – a long ‘healthspan’ – means more independence, higher social engagement, and better quality of life. It is therefore not only a health outcome, but an economic and institutional concern. Individuals have stronger incentives to maintain physical and cognitive capacity throughout their longer lives. Businesses have stronger incentives to maintain the capacity of ageing workforces as well as developing services and products that cater to the vast new consumer group. Governments have an interest in extending healthy and independent life as they respond to growing age-related expenditure and changing dependency ratios.

Last, but not least, adding the Biotech Revolution to the picture alters it once more. Advances in genomics and other biotechnologies are improving our ability to understand and manipulate biological systems. Combined with continuous health management, this could eventually create a feedback loop in which biological condition is measured, future trajectories predicted, interventions applied and their effects continuously monitored. If biotechnology eventually allows some aspects of age-related decline to be delayed, the object being managed would no longer simply be health. It could increasingly be human biological capacity itself.

The three megatrends consequently perform different roles in the nexus. The Inversion of the Population Pyramid creates the pressure to maintain capacity for longer, Health Beyond the Clinic creates the infrastructure for continuously managing it, and the Biotech Revolution could make biological capacity increasingly available for monitoring and hence actionable. Together, they raise the possibility of a shift from chronological age to biological capacity as a measurement.

Today, chronological age is an implicit and often invisible institutional pillar. It helps determine the retirement age, pension schemes, age-related benefits, and sets the expectations for our choices and priorities at different stages of life. Its advantage is simplicity and universality. Its weakness is that two people of the same age may differ considerably in their physical and cognitive capacity.

If the differences between chronological age and biological capacity become increasingly measurable, predictable and modifiable, institutions may face pressure to take them into account.

Instead of asking “how old is this person?”, the more relevant questions would be “what is this person capable of?”, and “how is that capacity likely to develop?” This could lead us down very different trajectories.

In a positive trajectory, longer healthy lives alleviate the constraints traditionally associated with age and create new opportunities. The boundaries between education, work, leisure, and retirement become more flexible as people remain capable for longer. Someone might change career paths in their sixties or work well beyond today's conventional retirement age. Businesses could invest in biological interventions to maintain experienced workers, while governments could start building more preventive healthcare systems that keep people healthy for longer rather than wait for them to need treatment. They could also start developing more flexible transitions between employment and retirement. A focus on biological capacity could even enable more responsive forms of social protection – a person experiencing substantial health deterioration at 55 may have greater need for support than a healthy and independent person at 70.

A more ambiguous or dystopian trajectory emerges when biological capacity becomes economically legible. What can be measured can also be classified, and what can be predicted to the extent that it has public-budget implications can potentially be requested and priced. Insurers could ask for updates of people's biomarkers and differentiate according to predicted health trajectories. Employers might finance interventions to preserve employee capacity or prefer those who share their private data with the organisation to those who don't. Mortgage providers could weigh healthy working life expectancy against chronological age. Pension systems could use differences between people of the same age whose expected healthspan differs substantially as grounds for differentiation, punishing those who exhibit lower self-care – or, again, choose not to share their private data.

Initially, such systems might appear more individualised and even fairer than in the past. But they would also create a new category of economically related information, namely the predicted future value of someone's biological capacity, and hence their 'usefulness' or 'burden estimate'.

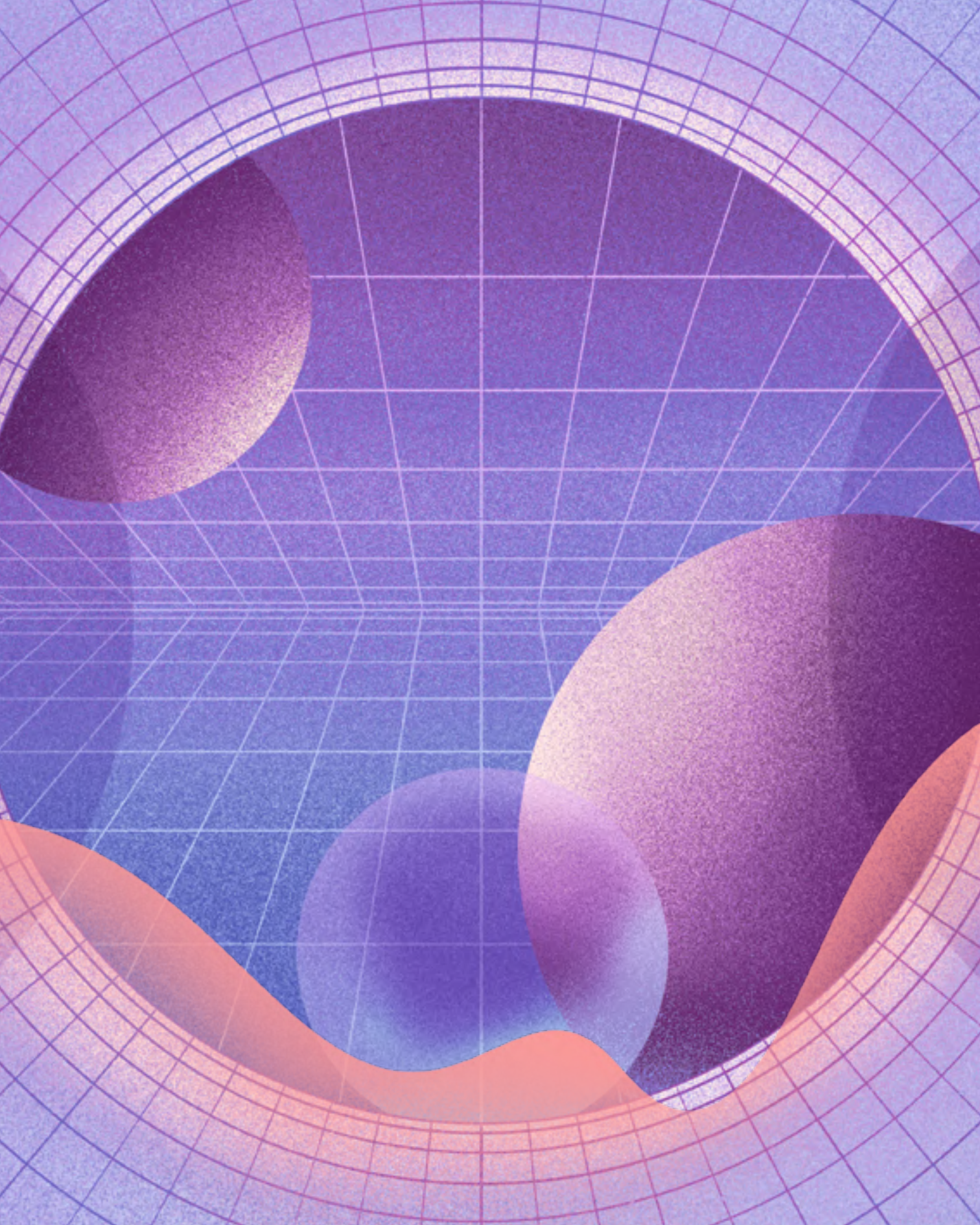
Health optimisation could gradually move from an individual opportunity towards becoming a public obligation. The question would no longer simply be whether someone remains capable of working, but whether they have done enough to remain capable of healthy living. People unwilling to share biological information or undertake available interventions could face higher costs or fewer opportunities.

Unequal access could compound the problem. Those able to afford advanced monitoring and biological interventions might maintain their capacity for longer, extending both their healthspan and economic opportunities. Biological capacity could therefore become not simply another expression of inequality, but a mechanism through which inequality reproduces itself across the life course.

None of these outcomes follows inevitably from the three megatrends. This thought experiment does not establish that biological ageing will become broadly modifiable or that employers, banks, insurers or pension systems will use biological information in these ways. These are exploratory extensions of the structural developments described by the megatrends.

The intersection instead exposes new questions: what happens to institutions built around chronological age when biological capacity becomes increasingly measurable, what products and services become obsolete, and which new opportunities or challenges arise?

The optimistic answer is greater freedom from the constraints associated with ageing and physical and cognitive decline. The gloomier answer is a society that increasingly monitors, prices, and expects us to optimise our biological capacity. The same underlying capabilities could enable both.



Conclusion

The motivation behind this publication was twofold. First, we saw a need to investigate how megatrends – a longstanding but loosely applied concept in foresight – could achieve greater conceptual coherence and add more practical value. Second, we wanted to apply the results of this investigation to CIFS’ own megatrends, to see how they could be improved and refined.

Our starting point was the observation that megatrends are too often reduced to either fashionable talking points or little more than “big trends” or claims that sound authoritative in a slide deck but lack analytical depth and clarity. Worse, they can be stretched or repurposed to mean whatever an analyst needs them to mean at a given moment. This was not merely an observation about the wider foresight field. The conceptual drift described in Part 1 was also an internal problem that needed to be addressed at CIFS. After decades of using megatrends in foresight work across different groups and contexts, our own experience has been that megatrends, due to their vast scope, are too easily treated as catch-all categories broad enough to encompass almost any trend, development, uncertainty, or outcome we might encounter. Applied in this manner, they make useful conversation starters, but rarely offer analytical value beyond that. This is a convenient overreach we have not always resisted. Nor are we the first to recognise the problem.

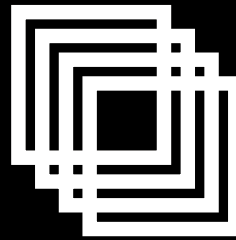
This publication has, therefore, combined a necessary conceptual untangling and tightening with an updated set of megatrends. The two needed to happen together. Doing one without the other would have meant either a sharper framework applied to an elastic set of trends, or the same conceptual looseness dressed in a new list. It is our hope that this work provides clarity instead of muddying the waters further – we will leave it to our readers to judge whether we have succeeded.

We also hope this publication inspires further work on megatrends beyond CIFS. When properly defined and used, megatrends can provide a valuable foundation for asking the harder, more exploratory questions about what emerges in their interactions and intersections, and ultimately, what futures might they make possible in the long run.





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