wbcsd

The 2020-2030 Operating Environment.

Research in support of the Vision 2050 issue brief on macrotrends and disruptions shaping 2020-2030

Contents

Introduction: Why foresight matters for Vision 2050

Our collective ability to deliver on Vision 2050 (9+ billion people living well, within planetary boundaries) is dependent on our ability to understand and navigate the dynamic context within which we will be operating over the decades ahead. Business has considerable agency to shape the future but will have to operate within the context created by environmental, social, economic, technological, political and cultural forces that are beyond our control, though not necessarily beyond our influence.

How we respond to those forces is crucial. Will we be blown off course by headwinds and crosswinds that we failed to prepare for? Or can we develop strategies that are resilient in the face of predictable surprises and that harness the momentum created by forces outside our control to accelerate progress towards the goal of an inclusive, resilient and regenerative economy?

The ambition of this paper, written before the now rapidly unfolding COVID-19 crisis, is to help us answer no and yes (in that order) to these questions by offering up actionable foresight and analysis about the key trends shaping the operating landscape over the next 10 years. Although COVID-19 will change everything in the short-term, the 2020s remain a "make-or-break" decade for Vision 2050, and for the sustainable development agenda encapsulated in the UN Sustainable Development Goals (SDGs). We have not rewritten this paper in an attempt to integrate the fallout from the COVID-19 crisis – things are happening at such speed and scale that would likely deliver results of limited value. We have taken the view that the environmental, social, economic, technological, political and cultural forces that we have explored in this paper will remain just as relevant, in how they shape the decade to come, and now in how we respond to the COVID-19 crisis as well as how we begin to recover from its effects.

The paper is in two parts:

1. An **introduction to the art of foresight** and how to think about the future potential of the present moment.
2. A **detailed analysis of key trends across six different landscapes**: demographics, environment, economics, technology, politics and culture. For each landscape, we highlight a number of highly likely trends, as well as identifying potential "wildcard" disruptions that are less likely, but which could have a major impact if they were to materialize.

No crystal balls were used in the process: we cannot predict what the future will look like in detail. Rather, the task at hand is to understand, as best we can, the underlying forces shaping the emergent future and how these are likely to interact with one another.

This research serves primarily to underpin our Vision 2050 issue brief on the Macrotrends & Disruptions shaping 2020-2030.

1 The art of thinking about the future

Because our knowledge of the future can only ever be partial and based on hypotheses, foresight is more art than science. There are, however, some basic rules that underpin effective futures thinking.

This section covers three topics that are fundamental to the art of thinking about the future:

1. Learning not to think in straight lines.
2. What the past can and can't teach us about the future.
3. The impact of the highly improbable.

Lesson 1: **Change is very rarely linear - and yet we are by nature linear thinkers**

> We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten.
>
> **Bill Gates**

To think effectively about the future, we have to recognize and overcome our cognitive predisposition to extrapolate in a straight line from past experience. The world is full of exponential and non-linear change dynamics – in everything from the rate at which technologies develop to the way social movements emerge and spread.

Moore's Law[1] which states that processor speeds, or overall processing power for computers will double every two years, is one of the most famous examples of an exponential trend in the technology world. The exponential rate at which computing power has advanced over the last 50 years has underpinned a similar exponential rate of development across a wide range of digital technologies.

Not every technology develops along an exponential trajectory. For example, the evidence of the last 10 years strongly indicates that solar PV technology is in its exponential phase, whereas nuclear power is not. And even technologies that are exponential will eventually start to plateau as they reach the top of their S-Curve. There are signs that this may now be happening with processing power.

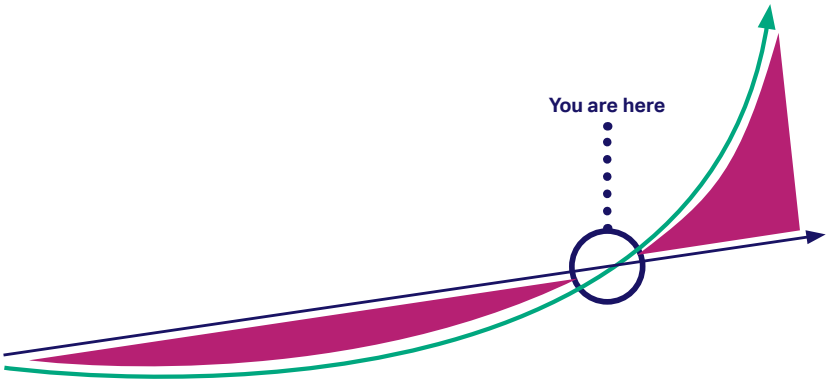
So, the ability to make judgments about where on their S-Curve trajectory different technologies currently are, is essential – but also extremely hard. Our default setting is to extrapolate in a straight line, which means we tend to be disappointed initially by the speed of change when it comes to exponential trends, only to be amazed at the sudden acceleration after a certain point.

It's not only technological change that sometimes follows this "gradually, then suddenly" dynamic.[2] Social movements can go exponential (or 'viral') too. Climate activism is an obvious recent example.

In August 2018, Greta Thunberg skipped school for a day to sit on her own outside the Swedish Parliament in protest against the government's failure to act with sufficient urgency and ambition to address the threat of climate breakdown; 13 months later, more than 6 million people took to the streets as part of a global climate strike, inspired by Greta's example.[3]

But of course, climate activism did not start with Greta: a small number of people have joined protests to raise the alarm about global warming for decades, but the numbers were low and didn't seem to be growing much – if at all. Greta was a catalyst that took climate activism from a decades-long phase of "gradual" progress into a new phase of "sudden" scaling.

Figure 1: Deception of linear vs exponential



[1] http://www.mooreslaw.org/

[2] https://www.oreilly.com/radar/gradually-then-suddenly/

[3] https://www.theguardian.com/environment/2019/sep/27/climate-crisis-6-million-people-join-latest-wave-of-worldwide-protests

Lesson 2: **Using the past as an imperfect guide to the present and future**

> History never repeats itself, but it does often rhyme.
>
> **Mark Twain**

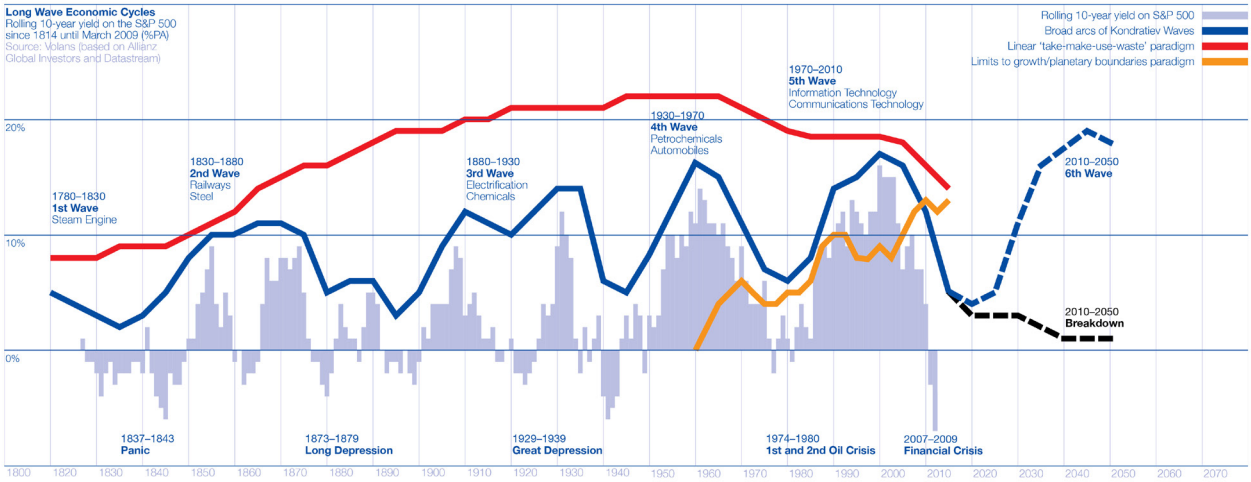
Does history have any kind of rhyme or rhythm to it that can help us make sense of where we are now and what might come next? Certainly, we cannot use the past to make accurate predictions about the future, but history does offer potential insights into the dynamics and patterns of change.

We often intuitively grasp for historical analogies to help us make sense of the present: the rise of populist nationalism today is compared to the 1930s; the economic impact of the COVID-19 pandemic is likened to that of the 2007-8 Financial Crisis or the Second World War; the notion that we are living in the midst of a 'Fourth Industrial Revolution' implies that there are certain similarities between our present moment and the three previous industrial revolutions. But what kind of explanatory power do these analogies have?

In both economics and political science, various scholars over the years have posited the existence of both short- and long-wave economic cycles. Short-wave cycles are fairly uncontroversial: it is widely accepted that market economies fluctuate between expansion and contraction. Likewise, we take it for granted that, in well-functioning democracies, a "pendulum effect" means that no party can monopolize power indefinitely.

Long-wave cycles are less well accepted. In economics, they are often associated with the early 20th century Russian economist Nikolai Kondratiev, who argued for the existence of 50-60 year long 'super-cycles' in capitalist economies.[4] A more recent proponent of the idea of long-wave cycles is the British-Venezuelan economist Carlota Perez.[5]

Figure 2: long-wave cycles or 'Kondratiev Waves' since the industrial revolution



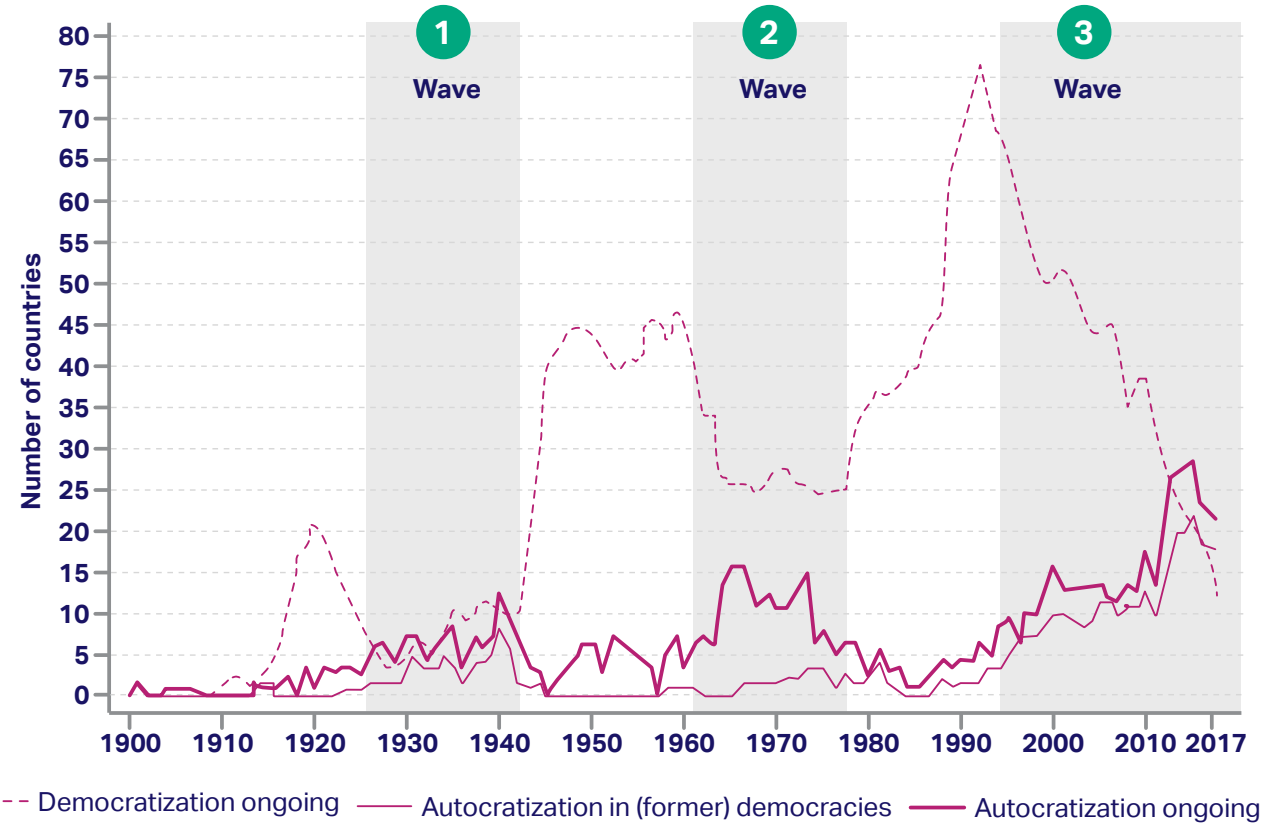
[4] https://www.investopedia.com/terms/k/kondratieff-wave.asp

[5] http://beyondthetechrevolution.com/wp-content/uploads/2014/10/BTTR_WP_2016-1.pdf

In the 2010s, the global economy defied the expectations of both short- and long-wave economic theorists. The post-2008 economic expansion was unusually long and slow – until the COVID-19-induced crash of 2020 finally brought it to an end. Meanwhile, contemporary long-wave economic theorists[6] expected the 2008 crash to mark a turning point and catalyze a new era of inclusive growth. This failed to materialize during the 2010s, and as the 2020s are starting off with potentially the deepest economic contraction in at least a century, theorists have little upon which to base predictions for the decade to come.

Some political scientists also posit the existence of long-wave cycles, oscillating between periods of democratization and periods of 'autocratization'. According to this theory, we are currently in the 'third wave of autocratization' – i.e. globally, momentum is shifting towards greater authoritarianism, even within many countries that remain democracies. During the last decade, the number of countries moving in an authoritarian direction has overtaken the number of countries moving in a democratic direction for the first time since World War II.[7] Covid-19 is acting as an accelerant for this trend,[8] particularly where the shift was already well underway, but it is not clear that it will be universal or unidirectional over the decade as a whole.

Figure 3: The three waves of autocratization



Source: Anna Lührmann and Staffan Lindberg, 2019

[6] http://beyondthetechrevolution.com/wp-content/uploads/2014/10/BTTR_WP_2016-1.pdf

[7] https://www.tandfonline.com/doi/full/10.1080/13510347.2019.1582029?

[8] https://www.nytimes.com/2020/03/30/world/europe/coronavirus-governments-power.html?smid=nytcore-ios-share

Lesson 3: **Prepare to be surprised**

> I know that history is going to be dominated by an improbable event, I just don't know what that event will be.
>
> **Nassim Nicholas Taleb**

Some things we simply cannot see coming. The world is a highly complex system with so many dynamic elements that we are nowhere close to fully understanding how the system works. Positive and negative feedback loops are at work all around us, meaning that seemingly small and unimportant changes can trigger unexpectedly big impacts in a way that appears arbitrary.

Nassim Nicholas Taleb wrote about the impact that such unpredictable outlier events have on the course of history in his 2007 bestseller, The Black Swan. Taleb concludes that, while some events are truly impossible to predict, others are only impossible to predict from a certain vantage point. For a turkey, Thanksgiving may be a Black Swan event, but it isn't for its butcher.

COVID-19 is not a Black Swan: the pandemic was both predictable and predicted[9] – yet it caught most governments and businesses unprepared. In this regard, it is behaving a lot like a Black Swan because it seemed, from the perspective of today's heads of government and industry, highly improbable that a virus like this would strike on their watch.

The key to lowering the risk of being blindsided by a Black Swan event (or 'being the turkey', as Taleb writes) is to pay attention to diverse perspectives and weak signals – and to treat any consensus amongst forecasters with a healthy dose of skepticism.

Even then, we should prepare to be surprised – in both good and bad ways – by the way events unfold over the next 10 years. That means designing in resilience and agility to our forward strategies: resilience to cope with the Black Swan events that take us in the wrong direction, and agility to capitalize on what Volans founder John Elkington has dubbed 'Green Swans' that have the potential to take us very rapidly in the right direction.

[9] https://www.mercurynews.com/2020/03/25/coronavirus-bill-gates-predicted-pandemic-in-2015/

② Detailed analysis of key trends across six different landscapes

DEMOGRAPHICS

Key themes for the 2020s include: aging populations; generational handover; population growth – especially in Asia and Africa; urbanization; rising levels of migration; spread of non-communicable diseases.

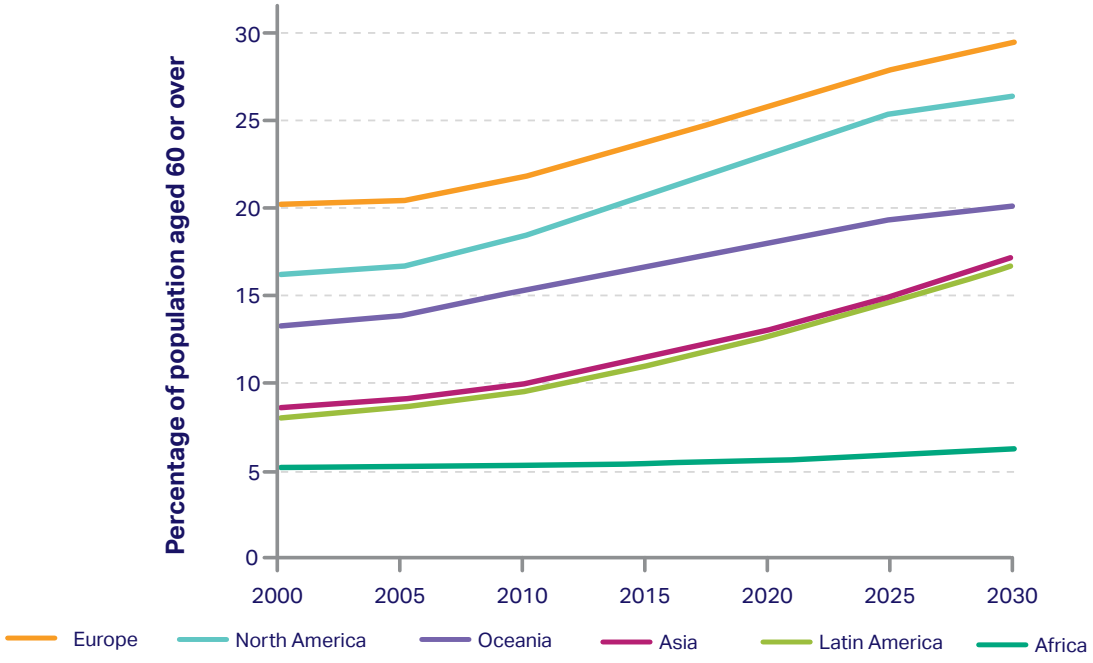
1. An older world

By 2030, 12% of the global population is expected to be over 65 – up from about 8.5% in 2015. That equates to more than a billion over 65s.[10] China's population is ageing significantly faster than Europe and the US. Its median age is expected to surpass the US median age early in the 2020s – and then pull away as the decade progresses. This is partly a legacy of China's 'one child policy'.

The most significant outliers to the trend are in sub-Saharan Africa and south Asia, where several countries have a significant "youth bulge".

The proportion of the African population projected to be over 60 by 2030 is roughly one-fifth the proportion in Europe (c.6% vs c.30%). This is partly due to lower life expectancies in many African countries.

Figure 4: Percentage of population aged 60 or over, by region, 2000-2030



Source: United Nations (2015). World Population Prospects: The 2015 Revision.

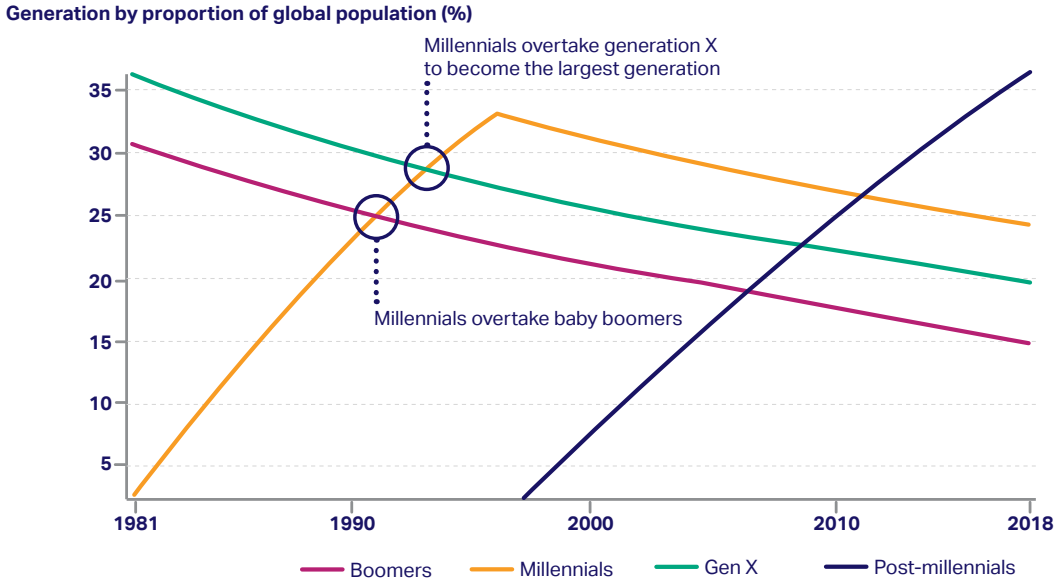
[10] https://www.census.gov/content/dam/Census/library/publications/2016/demo/p95-16-1.pdf

2. Generational handover

Globally, those born after 1980 now outnumber those born earlier. A generational handover of political, cultural and economic power is already underway and will continue throughout the 2020s.

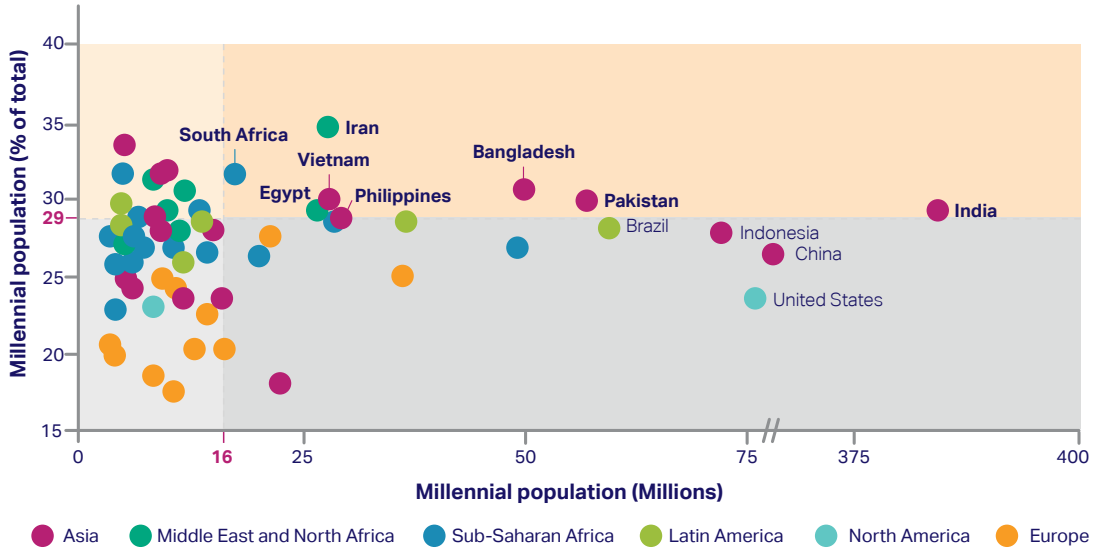
About 58% of global Millennials live in Asia, including 385 million in India – by far the largest domestic population of Millennials in the world. The next largest regional concentration is in Sub-Saharan Africa, which accounts for about 13% of all Millennials. AT Kearney has dubbed eight countries the "Millennial Majors" because of their unusually high number of Millennials – both in absolute terms and relative to population as a whole. These countries are: Bangladesh, Egypt, India, Iran, Pakistan, the Philippines, South Africa, and Vietnam.[11]

Figure 5: Globally, millennials have outnumbered baby boomers for more than a quarter of a century



Source: UN Population Division © FT

Figure 6: The eight "Millennial Majors" stand out for their substantial Millennial populations



Note: In bold, the eight "Millennial Majors". The dividing lines are drawn at the value for the 20th-highest ranked country in the world on each of the Millennial population measures

Source: UN World Population Prospects 2015. IMF World Economic Outlook; A.T. Kearney Analysis

[11] https://www.atkearney.com/web/global-business-policy-council/article/?/a/where-are-the-global-millennials-

3. Population growth – especially in Asia and Africa

The world population is expected to reach 8.5 billion by 2030 – up from an estimated 7.8 billion today. The vast majority of this population growth will happen in Asia and Africa (see table below).[12]

4. A more urban world

By 2030, projections suggest that ⅔ of the global population will live in cities.[13] India, China and Nigeria are at the forefront of the urbanisation trend. Megacities of 10 million+ people will be an important feature, but less than 10% of the total urban population will live in megacities: in terms of scale, the future is more Munich than Cairo.

Millennials are particularly likely to live in (or migrate to) cities.[14] An urban-rural values divide will therefore be overlaid onto a generational values divide, which may exacerbate polarisation. Older citizens in rural communities will be more likely to espouse conservative values and retain a strong attachment to place, while younger urban populations will embrace liberal values and will typically understand their own identity more in terms of achievements and interests than nationality or where they live.

Urbanisation will also accelerate the development of new norms around sharing: everything from shared housing to shared mobility becomes more practical and more appealing as population density rises.

Figure 7: Population of the world and regions according to the medium - variant projection

POPULATION (Millions)				
REGION	2019	2030	2050	2100
World	7713	8548	9735	10875
Africa	1583	2.009	2872	4699
Asia	4326	4654	4907	4301
Europe	747	741	710	629
Latin America and the Caribbean	648	706	762	680
Northern America	367	390	423	491
Oceania	42	48	57	75

Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects (2019)

[12] https://ec.europa.eu/assets/epsc/pages/espas/chapter1.html

[13] https://apnews.com/40b530ac84ab4931874 e1f7efb4f1a22

[14] https://www.ft.com/content/f81ac17a-68ae-11e8-b6eb-4acfcfb08c11

5. A world on the move

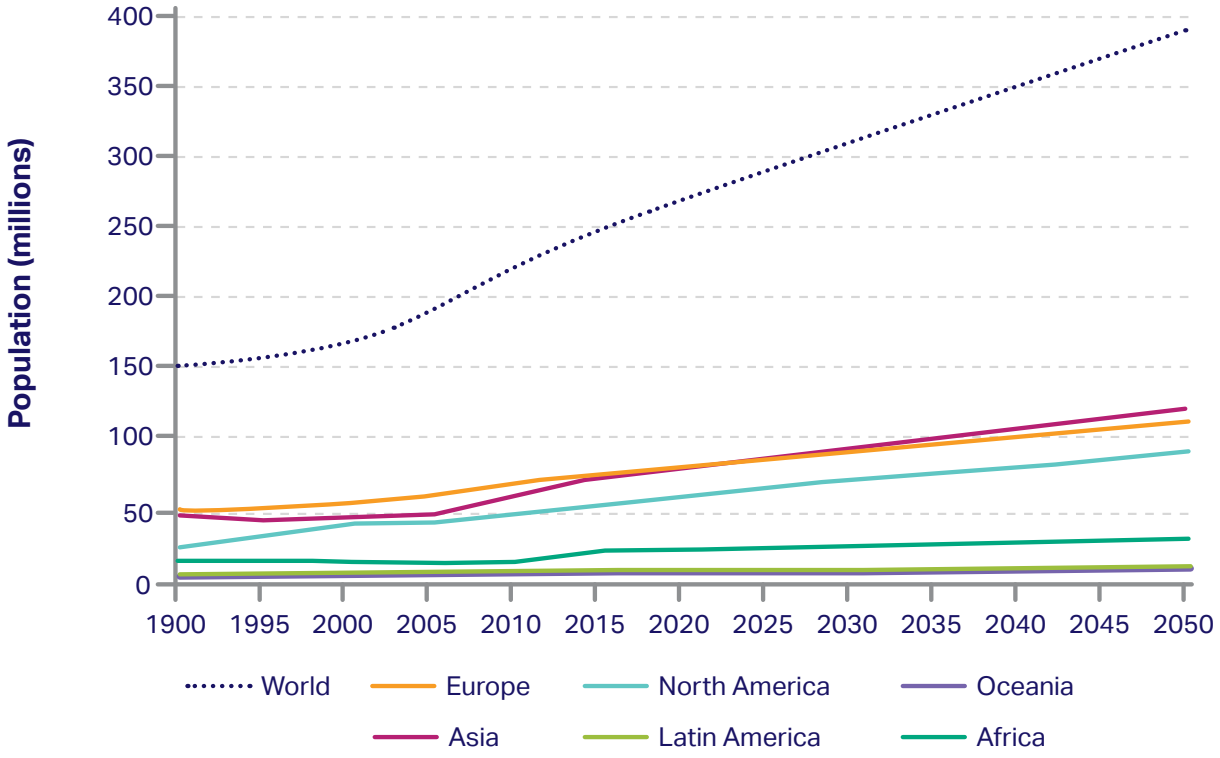
Levels of cross-border migration have been rising steadily for decades. In 2015, 244 million people (3.3% of the global population) were living in a country other than that of their birth. In 2000, the equivalent proportion was 2.8% of the population. In Europe, North America and Oceania, international migrants account for at least 10% of the total population.

By contrast, in Africa, Asia, Latin America and the Caribbean, fewer than 2% of the population are international migrants. These figures do not capture the much larger number of people migrating within countries.

This trend is likely to continue through the 2020s for a mix of economic, political and environmental reasons.

Climate breakdown in particular is likely to become a more important factor in causing more people to move from one country to another. In 2018, climate-related factors resulted in the displacement of around 16.1 million people. By 2050, the figure could be as high as 150-200 million.[16]

Figure 8: Total international migrant population



Sources: United Nations, Department of Economic and Social Affairs, Population Division

[16] https://www.weforum.org/agenda/2019/06/how-climate-change-exacerbates-the-refugee-crisis-and-what-can-be-done-about-it/

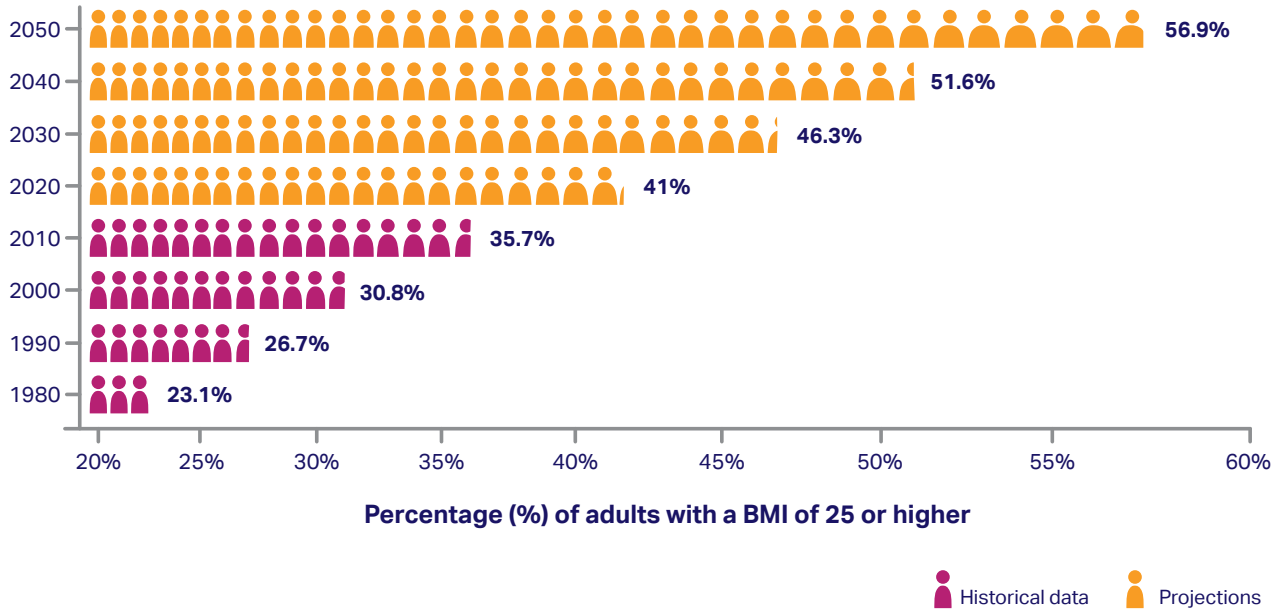
[17] https://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight

6. Less healthy, but more health conscious

Globally, obesity is on the rise: according to the World Health Organisation, rates of obesity have nearly tripled since 1975 - and this trend seems unlikely to go into reverse any time soon given the close correlation between urban living and obesity levels. This is a worldwide phenomenon: as the WHO notes, it is not uncommon to find undernutrition and obesity co-existing within the same country, the same community and the same household.[17] This trend is also causing a range of other health conditions - from heart disease to diabetes - to become more prevalent.

At the same time, people in much of the world are becoming more health-conscious. Interest in wellness, healthy eating, quality of life and self-improvement is on the rise. For many citizens in both high- and low-income economies though, investing in personal wellbeing often still feels like a luxury they can't afford.

Figure 9: Adults with a body mass index (BMI) of 25 or higher



Source: World Health Organization

ENVIRONMENT

Key themes for the 2020s include: the worsening impacts of global warming; water stress; biodiversity loss; soil and land degradation; and increasing pressure on scarce mineral resources.

Potential "wildcard" disruptions include: mass migrations, conflicts or severe economic disruption caused by runaway climate change, water shortages or resource scarcity.

1. A warming planet

By 2030, we could already be approaching the 1.5°C above pre-industrial levels threshold. Climate impacts will continue to worsen throughout the decade, irrespective of how effectively governments, citizens and companies mobilise to reduce emissions. Climate scientists are unable to predict with certainty at what threshold tipping points will be reached, but suffice to say, climate breakdown will progress in a non-linear fashion. There will be more extreme weather events – droughts, wildfires, tropical storms, floods, crop failures etc. Sea levels will be higher, making storms and floods more destructive.

Global warming will have significant consequences for the economy, society and politics:

- Climate impacts could push an additional 100 million people into poverty by 2030;
- The WHO estimates that climate breakdown will contribute to 250,000 additional deaths per year by 2030, as a result of heat exposure, diarrhoea, malaria and child malnutrition.
- Climate will also be an important factor in causing humanitarian funding needs to rise from USD $21.9 billion in 2019 to a projected $50 billion a year in 2030.[18]
- Climate-induced displacement is already on the rise (there are millions of people currently displaced) and this will inevitably have a knock-on impact for politics: large influxes of climate refugees may fan the flames of the nativist, anti-immigrant sentiment in certain countries.[19]
- The role of climate change in destabilizing Syria, contributing to the origins of Syria's civil war and the consequent influx of Syrian refugees to Europe, should serve as an early warning of what is to come.

2. Water stress

Two-thirds of the world population could be living in water-stressed countries by 2025 if current consumption patterns continue.[20] Already, more than 1 billion people lack access to clean water, and more than 2.5 billion find water scarce for at least one month of the year. Inadequate sanitation is also a problem for 2.4 billion people.[21]

This problem will be exacerbated by climate change as desertification becomes a growing problem, particularly in Africa. The lack of access to water and the degradation of land previously used for agriculture will cause significant human suffering and force people to migrate to less arid regions. Water scarcity is not just a problem for agriculture: the experiences of Cape Town in the late 2010s should serve as a warning for the many cities that are located in regions that face growing water stress.

[18] https://www.unocha.org/sites/unocha/files/GHO2019.pdf; https://reliefweb.int/sites/reliefweb.int/files/resources/%5BHLP%20Report%5D%20Too%20important%20to%20fail%E2%80%94addressing%20the%20humanitarian%20financing%20gap.pdf

[19] https://www.weforum.org/agenda/2019/06/how-climate-change-exacerbates-the-refugee-crisis-and-what-can-be-done-about-it/

[20] https://www.weforum.org/agenda/2019/03/water-scarcity-one-of-the-greatest-challenges-of-our-time

[21] https://www.worldwildlife.org/threats/water-scarcity

The way in which water scarcity is likely to play out is a classic example of "gradually, then suddenly" change. Until it reaches a certain threshold, water scarcity is a manageable cost and inconvenience, but once a tipping point is reached, the potential for chaos and conflict rises dramatically. The five most vulnerable hotspots for potential "water wars" are the basins of the Nile, Ganges-Brahmaputra, Indus, Tigris-Euphrates, and Colorado rivers.[22]

3. Biodiversity loss

The devastating rate at which biodiversity has been lost over the last 50 years shows little sign of slowing as we enter the 2020s. The current global rate of species extinction is estimated to be tens to hundreds of times higher than the average rate over the past 10 million years and is accelerating.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) estimates that between $235 billion and $577 billion in annual global crop output is currently at risk as a result of pollinator loss.[23]

4. Soil and land degradation

A third of the planet's land is severely degraded and fertile soil is being lost at the rate of 24bn tonnes a year.[24] Soil is being lost 100 times as fast as it is being formed.[25] Land degradation is estimated to cost more than 10% of annual global GDP in lost ecosystem services such as carbon sequestration and agricultural productivity.[26] Land degradation has also reduced productivity in 23% of the global terrestrial area.[27]

Once again, the issue of soil and land degradation is interconnected with other environmental challenges such as water scarcity and climate breakdown. Soil's role as a store of carbon makes it particularly important in the climate story. Shifting to regenerative agricultural practices that rebuild the carbon content of soil is a vital climate solution.[28] While regenerative agriculture is gaining momentum in some parts of the world, it is still very niche compared with the scale of industrial agriculture.

Meanwhile in China, tree-planting has long been used as a tool to combat desertification: while this approach has co-benefits in terms of climate because of the CO_2 sequestered by young forests, some scientists worry that it exacerbates water scarcity because many of the plant species being introduced use more water than native vegetation.[29]

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[22] https://www.weforum.org/agenda/2018/10/where-the-water-wars-of-the-future-will-be-fought

[23] https://www.ipbes.net/system/tdf/ipbes_7_10_add.1_en_1.pdf?file=1&type=node&id=35329

[24] https://www.theguardian.com/environment/2017/sep/12/third-of-earths-soil-acutely-degraded-due-to-agriculture-study

[25] https://www.theguardian.com/environment/2019/aug/08/how-climates-impact-on-land-threatens-civilisation-and-how-to-fix-it

[26] https://www.ipbes.net/global-assessment-report-biodiversity-ecosystem-services

[27] https://www.ipbes.net/system/tdf/ipbes_7_10_add.1_en_1.pdf?file=1&type=node&id=35329

[28] https://www.drawdown.org/solutions/food/regenerative-agriculture

[29] https://www.nature.com/articles/d41586-019-02789-w

5. Pressure on scarce mineral resources

The current trajectory of global development will put a growing strain on several key mineral resources - from cobalt, copper, lithium and nickel needed to supply the growing market for batteries and electric vehicles, to sand required for the production of glass, concrete and other building materials - over the next decade.

In Vietnam, for example, high demand for sand could cause the country to run out as early as 2020, according to the country's Ministry of Construction.[30]

Rising demand for sand is driven in part by rapid urbanisation – and over time, further pressure on supply will come as a result of rising sea levels: as more coastal cities invest in climate adaptation and building flood defences, this will require more sand.

Lithium demand, meanwhile, is set to more than triple between now and 2025, rising from 300,000 tons per year to over 1 million tons per year.[31] As supplies come under increasing pressure, producer countries – notably Chile, Argentina and Australia in the case of lithium – will become a focus of intense international competition.

Resource scarcity has the potential to act as a double-edged sword in terms of the transition to a sustainable economy:

- On the negative side, shortages of lithium, cobalt and copper could slow the clean energy transition by making key technologies such as batteries, solar panels and electric vehicles more expensive to manufacture.
- On the positive side, scarcity will almost certainly drive innovation – in particular bolstering the shift to a more circular economy by making material recovery a growing opportunity and necessity. Several big players in the consumer electronics industry are already acting in recognition of this emergent future by investing in closed loop innovation.

[30] https://www.businessinsider.com/global-sand-shortage-could-cause-damaging-effects-2018-12?r=US&IR=T

[31] https://finance.yahoo.com/news/really-facing-battery-metal-shortage-170000022.html

ECONOMICS

Key themes for the 2020s include: the rise of Asia continues; intergenerational transfer of wealth from baby boomers to millennials; the COVID-19 crisis and the longer-term prospects for global growth; the future of globalization; the impact of technology on patterns of production and consumption; the continued rise of global wealth inequality; and the increasing centrality of social and environmental factors in value creation.

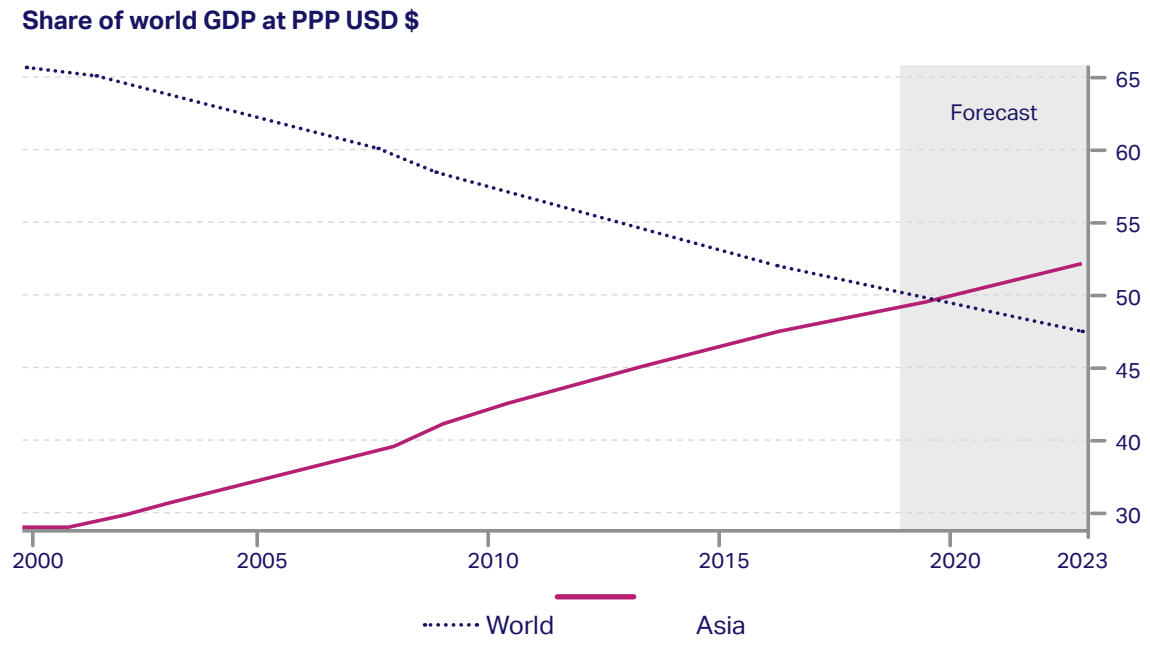
Potential "wildcard" disruptions include: another major economic crisis; a political shift in favor of strong action on wealth redistribution.

1. The rise of Asia continues

The 2020s will see the global economy's centre of gravity shift decisively to Asia. Asia's share of global GDP will go past 50% early in the 2020s and continue to rise throughout the decade.[32]

By 2030, the Chinese economy is expected to be more than twice the size of the US economy in purchasing power parity (PPP) terms, with India not far behind.[33]

Figure 10: The Asian century is about to begin



UNCTAD definition of Asia

Source: IMF, @valentinarome © FT

[32] https://www.ft.com/content/520cb6f6-2958-11e9-a5ab-ff8ef2b976c7

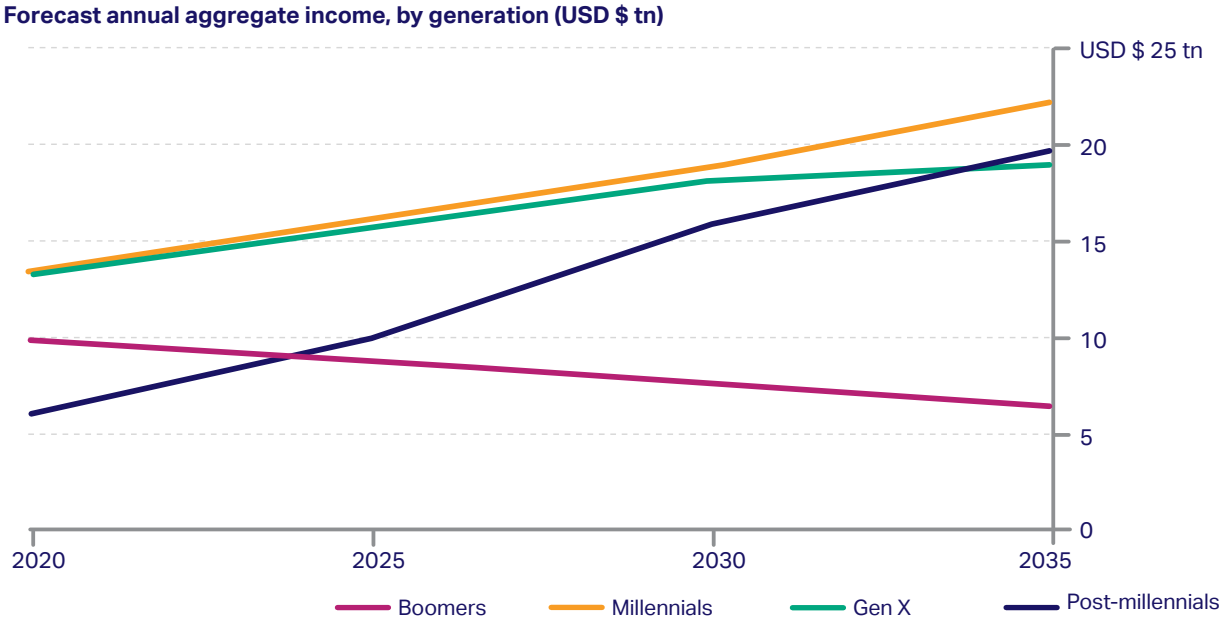
[33] https://www.theatlas.com/charts/rk8ilxXGE

Early in the 2020s, Asia will also become home to half of the world's middle class – defined as those in households with daily per capita incomes of $10-100 at 2005 PPP. With this comes a significant shift in the locus of global demand: by 2030, Asians are expected to buy more vehicles than the rest of the world combined.[34]

2. Intergenerational wealth transfer and the rise of Millennial spending power

The 2020s will see Millennials overtake Gen X as the generation with the greatest spending power worldwide.[35] In the US alone, a $30 trillion wealth transfer from baby boomers to the generations that follow them (Gen X, Millennials and Gen Z) is expected to take place over the next two decades.[36]

Figure 11: Global millennial spending power is set to overtake Generation X by 2020 and will continue to rise



Source: World Data Lab

[34] https://www.ft.com/content/520cb6f6-2958-11e9-a5ab-ff8ef2b976c7

[35] https://www.ft.com/content/f81ac17a-68ae-11e8-b6eb-4acfcfb08c11

[36] https://www.cnbc.com/2018/06/28/wealth-transfer-baby-boomers-estate-heir-inheritance.html

3. The COVID-19 recession – and then what?

The COVID-19 pandemic, combined with an oil price war between Russia and Saudi Arabia has triggered what looks to be the worst economic crisis since the Great Depression. Forecasts from March 2020 suggest that world GDP may fall by 4% or more in 2020 – significantly more than the last global recession in 2009.[37]

Even before the pandemic hit, global growth was slowing as a result of longer-term factors. These include:

1. Chronic under-investment in productive assets;
2. Weak consumer demand and low productivity growth driven in part by high levels of inequality;
3. An asset bubble that some describe as the largest in history; [38]
4. A (public and private sector) debt bubble (in October 2019, the IMF warned of a $19 trillion corporate debt 'timebomb' and estimated that the ratio of public/private sector debt to GDP is 225%); [39]
5. A 'carbon bubble' caused by the over-valuation of fossil fuel assets (estimates of the size of the 'stranded assets' problem vary: a 2018 study published in Nature Climate Change put it at $1-4 trillion).[40]
6. The negative impact of climate change on both labour and agricultural productivity (one study estimated the impact of a warming planet on labour productivity at £1.5 trillion a year by 2030, with India, China and SE Asia bearing the brunt of these costs).[41]

Now, as a result of COVID-19, massive fiscal stimulus packages have gone from unthinkable to inevitable. Opinion is divided on whether these will help deliver a U-shaped recovery or whether we are instead destined for an L-shaped recovery, with slow growth throughout the rest of the decade.

Given the weaknesses the global economy was carrying before COVID-19 hit, the latter is certainly plausible, but a lot will depend on whether policymakers are able to seize the opportunity post-crisis to address some of these underlying weaknesses and set the global economy on a more sustainable and inclusive growth trajectory.

One factor that is likely to help drive economic growth this decade is the projected expansion of the global middle class: the Brookings Institute estimates that there will be 5.3 billion middle class people in the world by 2030, up from approximately 4 billion in 2020 (other estimates vary, but not by much).[42]

[37] https://cebr.com/reports/a-world-recession-is-now-almost-a-certainty-with-global-gdp-set-to-decline-twice-as-much-as-during-the-financial-crisis-the-challenge-now-is-to-prevent-the-recession-from-turning-into-a-1930s-style/

[38] https://www.scmp.com/comment/insight-opinion/article/2126952/global-asset-bubble-will-burst-only-question-when-and-how

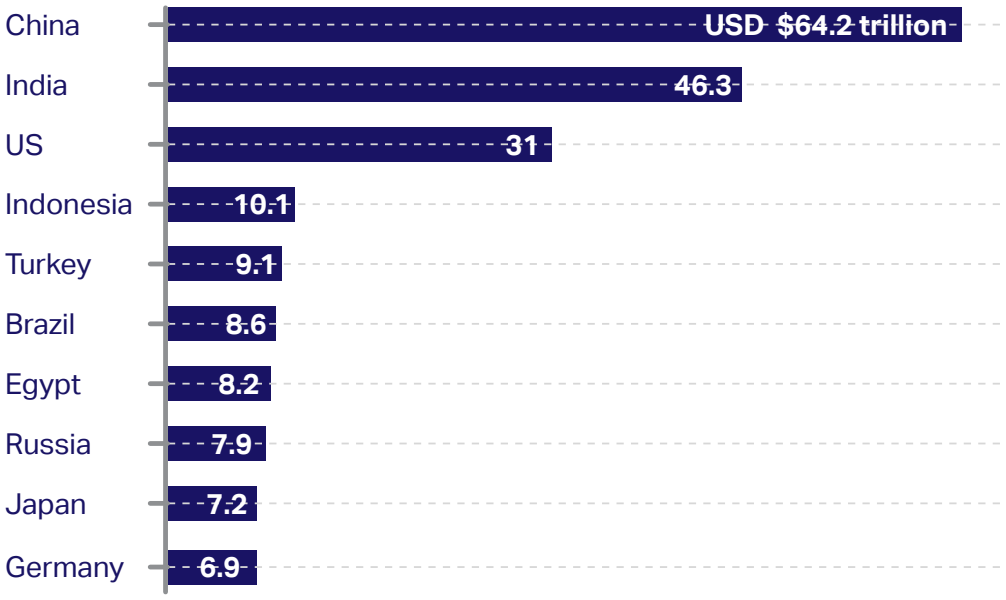
[39] https://www.theguardian.com/business/2019/oct/16/global-economy-faces-19tn-corporate-debt-timebomb-warns-imf; https://blogs.imf.org/2019/01/02/new-data-on-global-debt/

[40] https://www.theguardian.com/environment/2018/jun/04/carbon-bubble-could-spark-global-financial-crisis-study-warns; https://www.nature.com/articles/s41558-018-0182-1.epdf

[41] https://www.independent.co.uk/environment/global-warming-climate-change-economic-effects-jobs-too-hot-to-work-india-china-a7143406.html

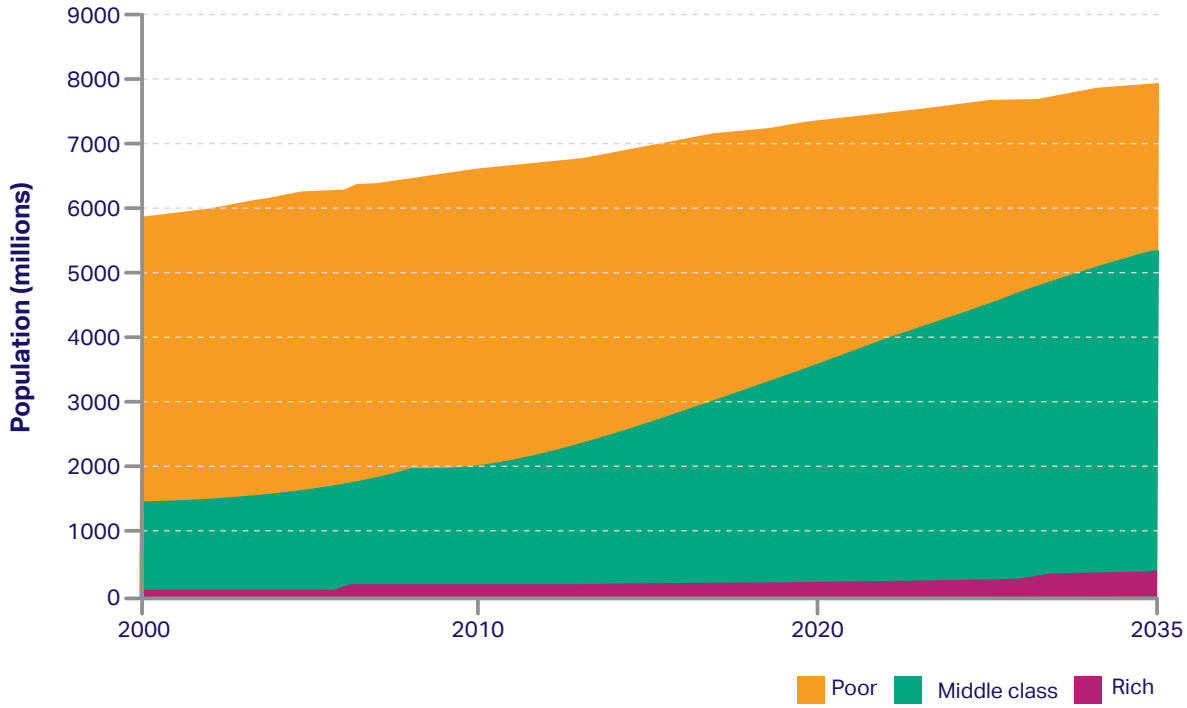
[42] https://www.brookings.edu/blog/future-development/2018/09/27/a-global-tipping-point-half-the-world-is-now-middle-class-or-wealthier/

Figure 12: Top 10 countries by nominal GDP in 2030



Source: Standard Chartered (estimates in trillions of international dollars by PPP)
https://www.theatlas.com/charts/rk8ilxXGE

Figure 13: A surge in the global middle class[43]



Source: World Bank, Kharas H

4. The uneven impact of technology on workers and regions

Estimates about the aggregate impact of technology on the number of jobs in the global economy vary so wildly that it's best to take any forecast with a large pinch of salt. In any case, the focus on the possibility of mass unemployment risks obscuring two trends that are much more predictable and significant:

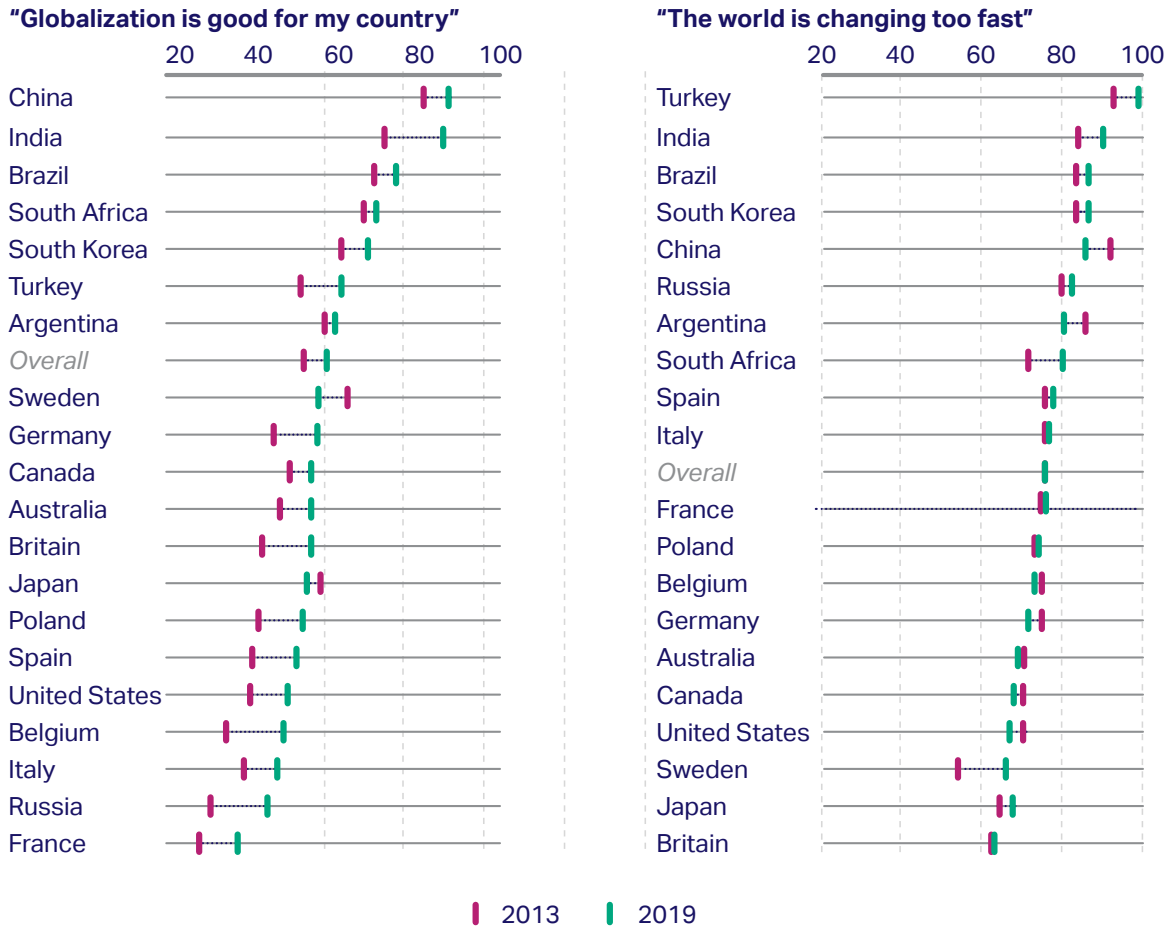
1. The rise of the "gig economy"/ increased precariousness of employment: Morgan Stanley predicts that freelancers could account for more than 50% of the US workforce by 2027 - up from an already high (compared with historical averages) 35% in 2018.[44] Other countries are on a similar trajectory, albeit at different points on the curve depending on local labor laws and the level of technology diffusion. The current COVID-19 crisis is acutely demonstrating the vulnerability of these workers and the knock-on effects of large employment swings on the economy.[45]

2. Technology may not destroy jobs in aggregate, but it will destroy plenty of jobs for specific workers in specific industries - notably in manufacturing, textiles/apparel, agriculture and transportation – and locations (there will be impacts both within countries and between them).

These trends have the potential – even in the absence of a significant hit to overall job numbers – to create a world in which the link between work and economic security is further weakened for large numbers of people, fueling anger and disillusionment that will feed into politics.

Figure 14: Flatter and faster

Respondents agreeing, %



Source: The Economist

5. Globalisation slows – and even goes into reverse in some places

In January 2019, The Economist heralded the era of 'slowbalisation', noting that 'cross-border investment, trade, bank loans and supply chains have all been shrinking or stagnating relative to world GDP' in recent years.[46]

A mix of turbulent geopolitics and new technologies is encouraging multinationals across a wide range of sectors to shorten supply chains. 'Onshoring', 'reshoring' and 'nearshoring' have all emerged as new terms in the corporate vocabulary. For example, according to McKinsey's 2019 State of Fashion report, 60% of apparel procurement executives surveyed expect their companies will be sourcing more than one-fifth of their total volume from "nearshore" sources by 2025.[47]

Globalization's popularity varies widely by country. In India and China, more than 80% agree with the statement "globalization is good for my country." In France, Russia, Italy, Belgium and the United States, less than 50% of the population thinks globalization is good for their country.[48] Even in those countries that have benefited most from global integration, most people think the world is changing too fast.

Rather than one single globally integrated economic bloc, what seems to be emerging is a more fragmented world of regional blocs. In Asia and Europe most trade is already intra-regional, and the share has risen since 2011. Asian firms made more foreign sales within Asia than in America in 2017.[49] Businesses that rely on intangible assets and a good internet connection are more likely to continue on a path towards greater global integration – though the case of Huawei indicates that we may see a division of the digital economy into two hemispheres, one dominated by the US and one by China, as mutual suspicion grows.

6. The "materiality" of social and environmental issues is becoming unignorable

Sustainability advocates have been warning for a long time that social and natural capital are integral to the way economic and financial value is created by businesses. The 2020s will be a decade in which many more businesses feel the reality of this assertion as 'ecosystem services' that have long been taken for granted start to falter.

This trend will manifest itself in myriad local and industry-specific ways e.g., reduced soil quantity/ quality will impose rising costs on agricultural firms, landowners and farmers. Meanwhile, climate change will be a major disruptor across the board – from crop failures to damage to coastal real estate.

In some instances, stocks of natural and social capital can be rebuilt through local, business-led action e.g., regenerative agriculture as a way of restoring soil health on a particular farm – while others require systemic action e.g., reducing global emissions. This reality means that finding ways to support systemic solutions to systemic challenges will become increasingly urgent and important as the decade wears on.

The fact that it will become increasingly difficult to argue that ESG issues are not financially material to businesses could also drive much more widespread and rigorous adoption of ESG metrics and strategies in the financial industry. This will happen unevenly across global markets, though the shift from niche to mainstream, when it comes, is likely to happen fast. Financial analysts can change the tools and metrics they use more or less overnight, so when they decide that paying attention to ESG really does help them generate alpha and lower the risk profile of their investments, they will switch on to ESG very suddenly.

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[43] http://siteresources.worldbank.org/EXTABCDE/Resources/ 7455676-1292528456380/7626791-1303141641402/7878676-1306699356046/Parallel-Sesssion-6-Homi-Kharas.p

[44] https://www.morganstanley.com/ideas/freelance-economy

[45] https://www.ft.com/content/42aae86a-5ec5-11ea-b0ab-339c2307bcd4

[46] https://www.economist.com/leaders/2019/01/24/the-steam-has-gone-out-of-globalisation

[47] https://www.mckinsey.com/~/media/McKinsey/Industries/Retail/Our%20Insights/The%20State%20of%20Fashion%202019%20A%20year%20of%20awakening/The-State-of-Fashion-2019-final.ashx

[48] https://www.economist.com/graphic-detail/2020/02/27/countries-that-have-benefited-most-from-globalisation-are-the-most-fearful-of-change

[49] https://www.economist.com/leaders/2019/01/24/the-steam-has-gone-out-of-globalisation

TECHNOLOGY

Key themes for the 2020s include: the world is becoming more data-driven and more automated; the disruption of mobility; food and agriculture; financial services and banking; energy (supply and demand).

Potential "wildcard" disruptions include: a serious societal and/or regulatory "techlash"; cyber attacks to critical infrastructure.

A brief introduction: TECHNOLOGICAL HYPE CYCLES

One of the most commonplace and important frameworks for thinking about technological progress is the Gartner Hype Cycle.[50] Gartner identifies five overlapping stages in a technology's lifecycle:

1. Technology Trigger: the point at which a technology becomes conceptually exciting, triggering the start of a hype cycle.
2. Peak of Inflated Expectations: the point at which a technology starts to shift from conceptual to functional and early adopters begin to embrace it.
3. Trough of Disillusionment: at a certain point, it becomes apparent that the technology in question has been overhyped – both/either in terms of transformative potential and/or in terms of how quickly it will mature and diffuse into the economy.
4. Slope of Enlightenment: as the media spotlight shifts elsewhere, continued investment starts to pay off as the potential for different applications becomes more broadly understood and an increasing number of companies implement or test the technology.
5. Plateau of Productivity: this final phase is when a technology becomes widely implemented; its place in the market and its applications are well-understood.

Identifying which stage of the hype cycle any given technology has reached is critical for making an assessment of which technologies will have the biggest impact over the next 10 years. Gartner's latest iteration of the Hype Cycle (published in August 2019) identifies 29 emerging technologies – the majority of which are still on their way towards the 'peak of inflated expectations', but many of which Gartner expects to reach the 'plateau of productivity' within 5-10 years i.e., during the second half of the 2020s.[51]

[50] https://www.gartner.com/smarterwithgartner/5-trends-appear-on-the-gartner-hype-cycle-for-emerging-technologies-2019/

[51] https://www.gartner.com/smarterwithgartner/5-trends-appear-on-the-gartner-hype-cycle-for-emerging-technologies-2019/

Digital technologies can be clustered into two broad categories in terms of their real-world impact:

1. Technologies that enable data to be more effectively synthesised and analysed.
2. Technologies that enable automation of physical or cognitive tasks.

We will consider the impact of each of these types of technology during the 2020s, before moving on to a closer look at four key industries that could experience particularly significant levels of technological disruption during the 2020s: mobility, food and agriculture, energy and financial services. These four were selected out of a much longer list of industries because of the relatively high magnitude and imminence of disruption they face.

A DATA DRIVEN WORLD

The rising importance and value of data - and the ability to amass it, mine it for insights and use those insights to influence behaviour - has been one of the major stories of the 2010s. This story will continue - and may become even more important as critical technological capabilities (e.g. machine learning, data processing power, Internet of Things) mature and become more pervasive – during the 2020s. These technologies will be harnessed by both businesses and governments for surveillance purposes to predict, influence and manipulate individuals' behaviours.

China's social credit system, which is expected to come online nationally in the early 2020s following local trials, is the most prominent example of a government initiative in this space. The system's stated purpose is to facilitate trust and incentivize trustworthiness, but many observers are concerned about how the system could be used by the Chinese state to exert social control.[52]

The COVID-19 pandemic has accelerated the deployment of surveillance capabilities in many countries as authorities seek to control the spread of the virus. It is highly likely that many of these new capabilities will continue to be deployed after the health crisis has passed – partly because emergency measures always have a habit of outlasting emergencies, and partly because the pandemic is likely to leave a lasting impact on popular opinion, tilting the balance in favour of safety and security over privacy.

In the private sector, the 2010s have seen the meteoric rise of what the academic Shoshana Zuboff has dubbed 'surveillance capitalism'.[53] A handful of very large companies (primarily US- or China-based) that gather behavioural data and use this to predict and influence future behaviour, have been extremely successful in recent years.

The fact that success in the surveillance capitalism model requires access to vast quantities of data means that the market is extremely concentrated: most of the world's data is currently owned by a handful of companies.

In the absence of government intervention to fundamentally alter patterns of data ownership, surveillance capitalism will continue to be dominated by a small elite of global firms in the 2020s.

Government intervention of this kind should not be entirely ruled out. One of the potential wildcard disruptions on the horizon in the 2020s is the possibility of a societal "techlash". Rising disillusionment and dissatisfaction with the way digital technologies are being used to serve the interests of a narrow economic elite could cause governments to shift tack quite dramatically from the current light-touch regulatory model that dominates in most countries, to a much more heavy-handed, interventionist model.

On the positive side, many of the same technological trends (Big Data, AI etc.) that underpin the rise of surveillance capitalism will also enable massive efficiency and productivity gains across almost every industry - though these gains too are unlikely to be evenly distributed. Non-data-driven businesses will increasingly struggle to compete in many industries. This may create new barriers to entry for smaller firms and accentuate the significant inequality between firms that is already pervasive today.[54]

In the retail industry, e-commerce will continue to disrupt traditional "bricks and mortar" retail, though an emerging preference amongst consumers for "buying local" and prioritising experience may help to at least slow this trend in some regions.

[50] https://www.gartner.com/smarterwithgartner/5-trends-appear-on-the-gartner-hype-cycle-for-emerging-technologies-2019/

[51] https://www.gartner.com/smarterwithgartner/5-trends-appear-on-the-gartner-hype-cycle-for-emerging-technologies-2019/

[52] https://www.wired.co.uk/article/china-social-credit-system-explained

[53] https://www.theguardian.com/books/2019/feb/02/age-of-surveillance-capitalism-shoshana-zuboff-review

[54] https://hbr.org/cover-story/2017/03/corporations-in-the-age-of-inequality

AN AUTOMATED WORLD

Automation of both physical and cognitive tasks will continue apace during the 2020s. This will have multiple consequences:

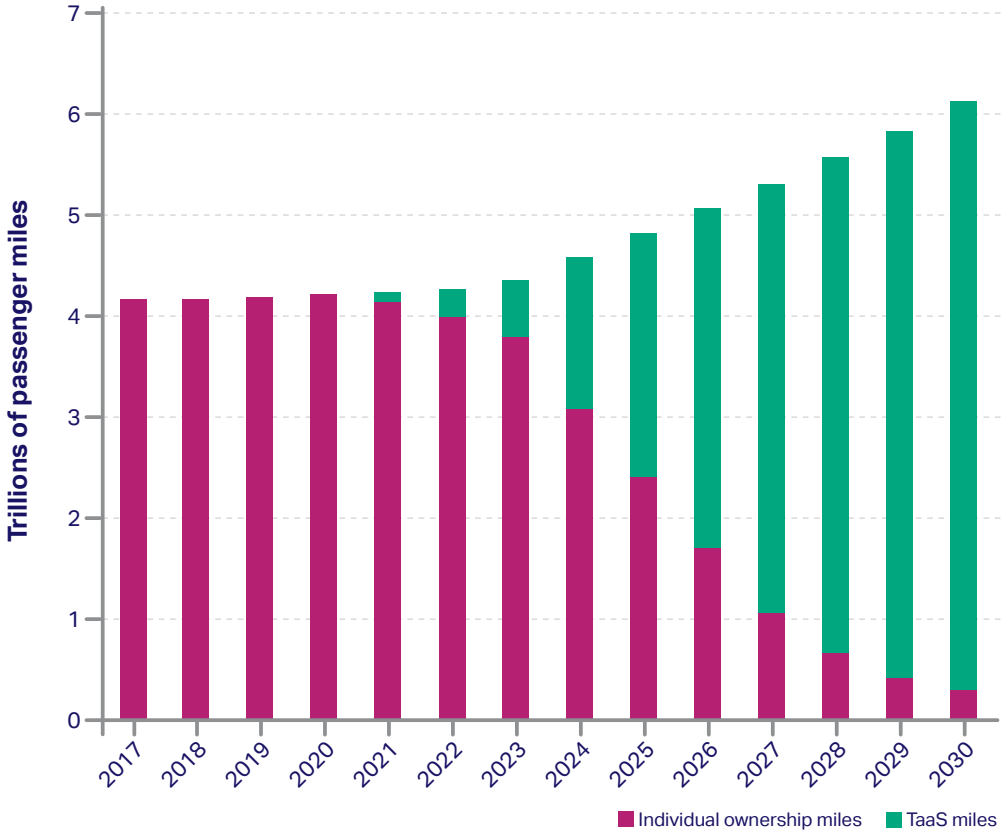
1. It will further undermine the link between work and economic security for many workers across a wide range of industries and geographies – particularly areas reliant on manufacturing.
2. It will reshape supply chains, as automation will mean that cheap, low-skilled labor becomes less valuable to global firms and technological capabilities become more important.
3. It will deliver a boost to the productivity of industries that traditionally rely on large quantities of low-skilled labor – though, once again, these gains are likely to be captured primarily by those already at the top, just as they have been for the last 30 years, unless there is a rebalancing of the power dynamics in the global economy.

1. The Disruption of Mobility

The combination of improvements in battery performance, autonomous driving and transport-as-a-service business models have the potential to cause significant disruption in the automotive and transportation sectors during the 2020s.

One forecast – from RethinkX, a think tank – estimates that, by 2030, 95% of US passenger miles could be served by on-demand autonomous electric vehicles (EVs).[55]

Figure 15: Speed of TaaS adoption



Source: © 2017 RethinkX

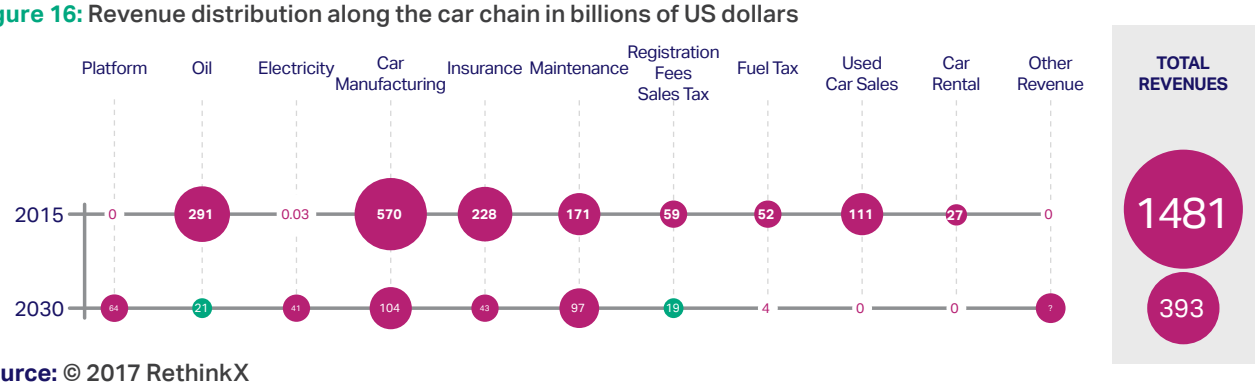
[55] https://www.rethinkx.com/transportation

The implications of this would be profound for actors across the automotive value chain: RethinkX projects a more than three-fold shrinkage of revenues across the value chain, rising to more than five-fold for car manufacturers specifically.

This is an extreme – and US-centric – view. More mainstream forecasters, e.g. McKinsey, project growing global vehicle sales, driven by urbanisation and macro-economic growth, with the decline in private ownership only making a dent in the speed at which the market is growing - from the 3.6% per annum of the past 5 years to 2% pa to 2030.[56]

Meanwhile, Bloomberg New Energy Finance forecasts that EVs' sales penetration will start to rise sharply as the 2020s progress – led by China and Europe.[57]

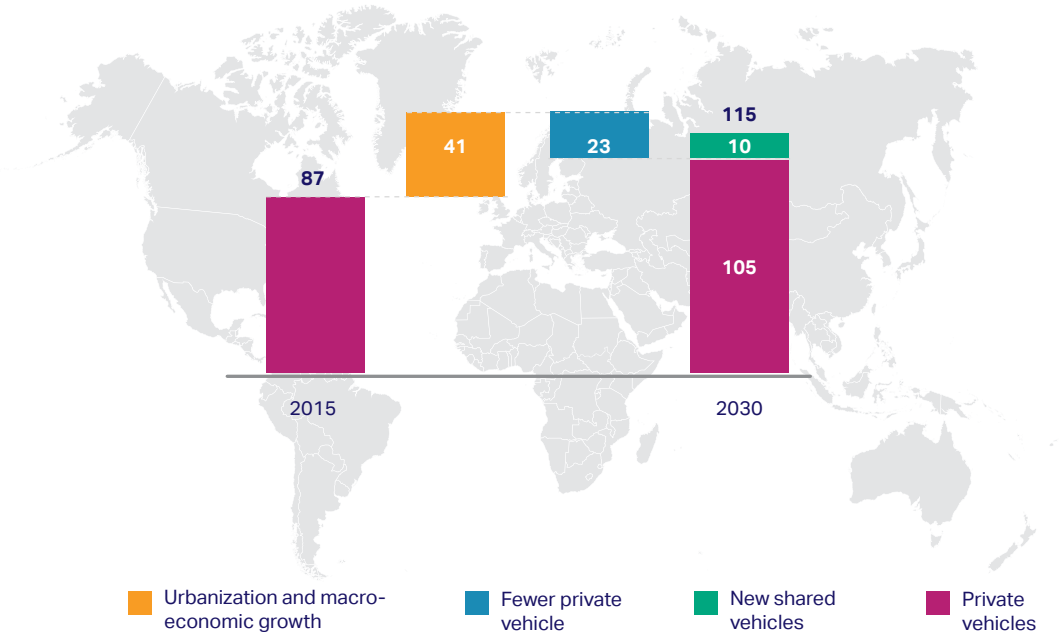
Figure 16: Revenue distribution along the car chain in billions of US dollars



Source: © 2017 RethinkX

Figure 17: Driven by urbanization and macroeconomics, global vehicle sales will continue to grow, although at a slower pace

Current and future annual vehicle sales, millions (Global, High-disruption scenario)



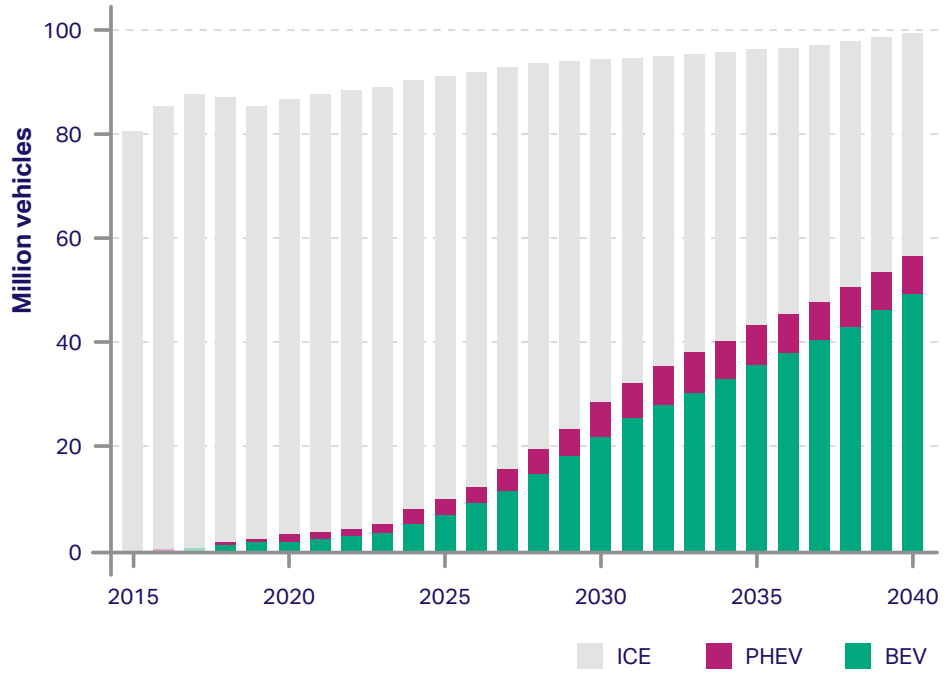
Source: IHS Automotive; McKinsey

[56] insey.com/~/media/McKinsey/Industries/High%20Tech/Our%20Insights/Disruptive%20trends%20that%20will%20transform%20the%20auto%20industry/Auto%202030%20report%20Jan%202016.ashx

Without a doubt, all of these forecasts will be wrong about the specifics. Nonetheless, while RethinkX's analysis may underplay some roadblocks (e.g. regulatory approval for autonomous vehicles) and negative feedback loops (if the shift to shared ownership really does decimate the automotive industry's earnings, this will also have an impact on the level of investment going into new technologies and business models), it has important lessons to teach, namely that:

1. The disruption of mobility will be exponential rather than incremental;
2. The key to understanding the future of the industry is to look at how new technologies and new business models combine, rather than looking at different trends such as the rise of EVs, the development of autonomous driving and transport-as-a-service business models in a siloed way.

Figure 18: Global long-term passenger vehicle sales by drivetrain



Source: BloombergNEF

[57] https://www.bloomberg.com/opinion/articles/2018-11-04/electric-cars-face-a-6-trillion-barrier-to-widespread-adoption; https://about.bnef.com/electric-vehicle-outlook/

2. Food and Agriculture

Population growth and rising prosperity will lead to increasing food demand throughout the 2020s. This will put a significant strain on global agricultural production, which already faces various headwinds in the form of climate change, soil degradation and constraints on the quantity of new land available for agriculture.

The strain will be somewhat lessened by dietary changes in the developed world as more people reduce the amount of meat they eat, but this effect will likely be offset by increased meat consumption amongst those joining the global middle class this decade.

Reducing food loss and waste would make a significant dent in this challenge, given that currently a third of food produced globally is either lost or wasted. Unfortunately though, while incremental improvement during the 2020s is likely, there are no major breakthroughs in sight that will radically reduce food loss and waste.[58] Therefore, the combination of rising global demand and constraints affecting agricultural production will likely prompt a decade of serious innovation in the way food is produced.

There are two main trends to watch:

1. Digital agriculture: this term covers the application to agriculture/aquaculture of a wide range of technologies to collect and analyse data and to automate processes that together have the potential to significantly boost efficiency and productivity.[59]

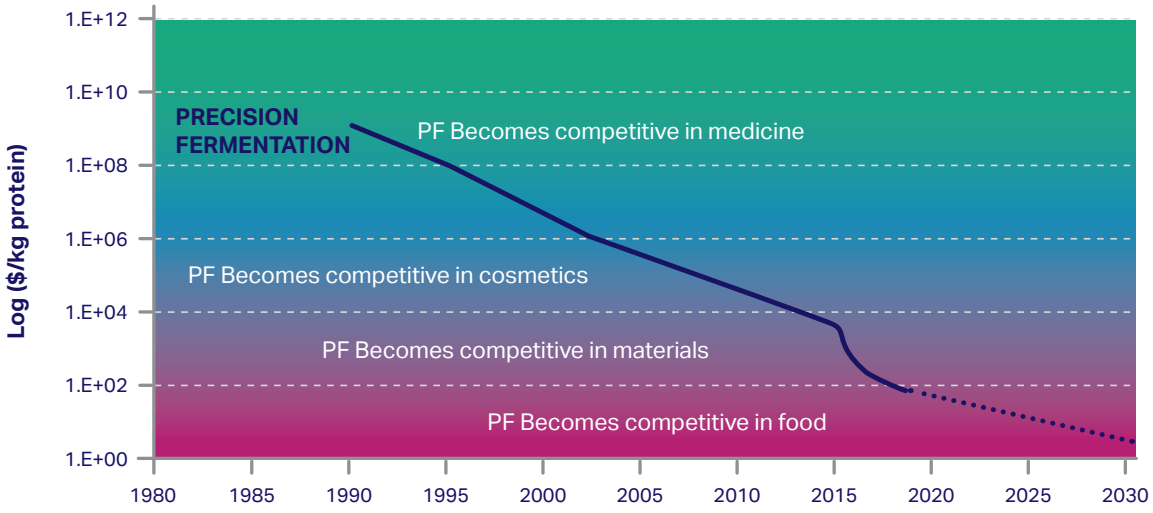
2. Synthetic biology: a recent report by RethinkX argues that we are on the cusp of a profound transformation of the meat industry, based on rapid cost reductions in precision biology that will make lab-grown meat and meat alternatives cost competitive in the early 2020s.

Precision biology refers to 'the coming together of modern information technologies like artificial intelligence (AI), machine learning, and the cloud, with modern biotechnologies like genetic engineering, synthetic biology, metabolic engineering, systems biology, bioinformatics, and computational biology.'[60]

The application of these technologies to programme micro-organisms to produce complex organic molecules – referred to as 'precision fermentation' – is what will drive disruption in the meat industry during the 2020s, just as, in previous decades, precision fermentation caused disruption in the pharmaceuticals, cosmetics and materials industries.

Based on the cost curves for precision fermentation, RethinkX projects that beef produced in this way will become cost competitive with traditional beef from cows in the early 2020s and could be as much as five times cheaper by 2030.

Figure 19: Precision Fermentation (PF) disrupting more industries as costs fall



Source: © 2017 RethinkX

[58] http://www.fao.org/save-food/resources/keyfindings/en/

[59] http://breakthrough.unglobalcompact.org/disruptive-technologies/digital-agriculture/

[60] https://www.rethinkx.com/food-and-agriculture

3. Financial services and banking

The use of algorithms for financial decision-making is already widespread in the investment industry. A shift from active to passive fund management is well underway (e.g., vast majority of funds managed by Blackrock, Vanguard, State Street are already algorithm-run).[61]

Financial services firms will increasingly harness the power of Big Data and AI to assess potential loans and investments. Reliance on information provided directly by companies will diminish as investors and analysts tap into a vast array of data sources. The extent to which this trend will be harnessed to make better assessments of ESG risks and impacts is an open – and vital – question.

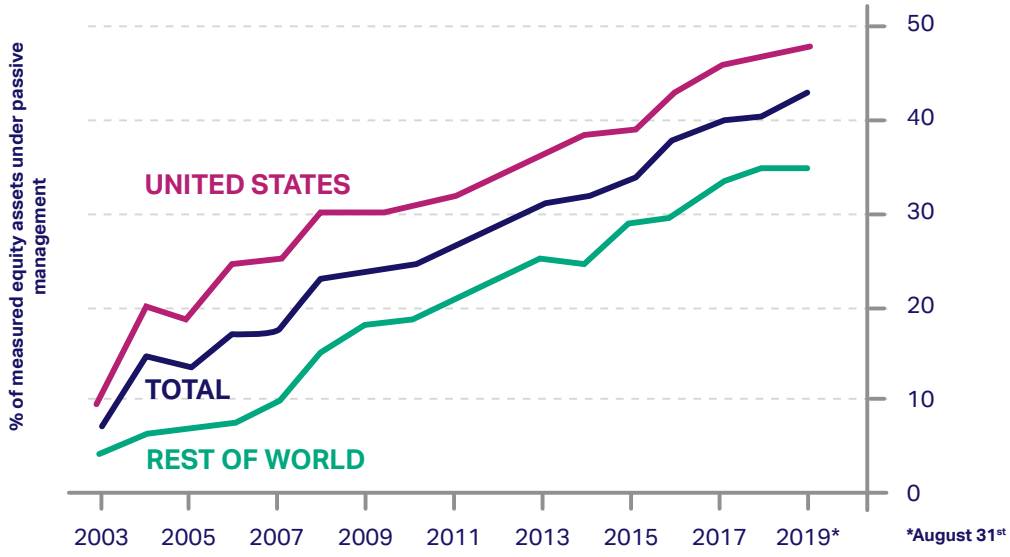
Meanwhile, the global mobile-payment market is on track to surpass $1 trillion in 2019 – up from $450 billion in 2015.[62] Mobile money has already had a significant transformational effect in parts of Africa and Asia, where the mobile money revolution of the past decade enabled millions of people to gain access to basic banking services for the first time. As it has transferred to more developed markets in Europe and North America, the benefits have primarily been in terms of efficiency, convenience and security rather than financial inclusion. Whether or not countries go completely cashless during the next 10 years, the long-term trajectory away from reliance on cash is clear.

AI is also expected to play an increasingly important role in the retail banking sector over the next 10 years: by 2030, the vast majority of banks' customer interactions will be app-based and AI-powered. This will have an impact both in terms of jobs in the sector and in terms of customer experience, but, at present, there are few signs that it will fundamentally disrupt the industry. A recent analysis by Deloitte concludes that 'applications [of AI in the banking sector] that can instill transformational innovation are rare. The majority of AI applications enable core and adjacent innovations focusing on increasing efficiency.[63]

4. Cyber security/ cyber warfare

We live in an age of cyber dependency which makes the potential threat posed by cyber-attacks significant. Cyber-attacks score highly in terms of both likelihood and impact in WEF's 2019 Global Risks Report – as do data fraud/theft and critical information infrastructure breakdown.[64] Cyber-crime now costs an estimated $600bn a year – up from $445bn in 2014. This compares with a 10-year average economic loss from natural catastrophes of $208bn.[65]

Figure 20: Passive aggression, assets tracking an index



Source: JPMorgan Chase US Equity Strategy & Global Quant Research, EPFR

[61] https://www.economist.com/leaders/2019/10/03/the-rise-of-the-financial-machines

[62] https://www.statista.com/statistics/226530/mobile-payment-transaction-volume-forecast/

[63] https://www2.deloitte.com/uk/en/pages/financial-services/articles/the-ai-powered-bank-what-impact-will-ai-technologies-have-on-a-banks-operating-model.html#

[64] http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf

[65] https://www.agcs.allianz.com/content/dam/onemarketing/agcs/agcs/press-releases/global/AGCS-PressRelease-Risk-Barometer-2019.pdf

The costs to businesses and governments of cyber-attacks are likely to increase significantly over the next decade for a combinations of reasons:

1. The more cyber-dependent we become – and all the indications are that we will become more cyber-dependent over the next decade – the juicier a target our digital systems and infrastructure will be for criminals, terrorists and states seeking to undermine the stability of their enemies.

2. As geopolitical tensions rise, cyber-warfare and the weaponization of information technologies will become an increasingly important front in global conflicts – perhaps especially because the chances of actual armed conflict between major powers is relatively low.

5. Energy (supply)

Very few analysts a decade ago predicted quite how fast the cost of key renewable technologies (wind turbines, solar photovoltaics, batteries) would come down during the 2010s. Since 2010, the benchmark price for solar has dropped 84%, offshore wind by more than half and onshore wind by 49%. The price of lithium-ion battery storage has dropped by more than three quarters since 2012.[66]

A key question for the 2020s is how quickly those cost reduction curves will bottom out – as this will impact when economic tipping points are reached, causing oil and gas demand to peak and renewables capacity to scale rapidly and increase market share. The International Energy Agency forecasts a 50-60% rise in the combined capacity of hydro, wind, solar and biomass over the next 5 years.[67] Some analysts (e.g., Carbon Tracker) suggest the peak for oil and gas could come during the 2020s;[68] others (e.g. McKinsey) opt for the early 2030s.[69]

Though global coal demand peaked in 2014, China, India and Vietnam are all expected to commission new coal power stations in the next 10 years. In developing Asian countries, the average age (12 years) of coal-fired power stations and typical longevity of these, means that energy supply from coal is locked-in and unlikely to drop below 20% before 2030 (compared with 25% today).

According to DNV GL, gas will surpass oil to become the largest primary energy source by 2026 but then decline towards 2050.[71] Under the IEA's Stated Policies Scenario, gas will increase to 24% of primary energy demand by 2030. Energy security concerns are likely to mean that many countries import Liquefied Natural Gas (LNG) to mitigate their reliance on pipeline natural gas supplies.

The 2020s will likely also see major investments in energy storage technologies as a result of rising demand: CDP projects that global demand for battery energy storage will grow twelve-fold between 2018 and 2030.[72] The battery value chain is expected to grow by 25% a year over the next decade, according to the World Economic Forum.[73] Developments in battery technology to bring costs down, decrease battery weight and recycling of battery materials, will accelerate the transition to electric vehicles. Digitalised networks, in which car batteries or in-home batteries provide grid services could help manage the variability of renewable electricity generation. Developments in thermal energy storage systems could also play a significant role in improving the energy efficiency of buildings. The future of the nuclear industry in the next 10 years will be affected more by politics and geopolitics than by technological change. During the 2020s, new capacity will come on stream in China and other countries including UAE, Bangladesh, Belarus and Turkey. Elsewhere (North America, Europe, OECD Pacific and North East Eurasia), nuclear capacity will decline as older reactors are decommissioned (DNV, 2019). The promise of nuclear fusion remains present on the horizon, but even fusion's strongest advocates are not predicting a meaningful breakthrough in the next 10 years.[74]

Technologies for carbon capture, utilization and storage (CCUS) will also continue to attract investment during the 2020s – and could have a significant impact in specific niches across heavy industry. At the end of 2019, 19 operating carbon capture and storage projects had captured a total of 260Mt CO2. Four more projects are under construction, with 29 in development.[75] The forward cost curves of CCUS are still largely unproven and the evidence from the past decade does not provide much cause for optimism on this point.

Green hydrogen, electrofuels and sustainable biofuels are all also expected to play a role in the energy transition during the 2020s.

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[66] https://www.weforum.org/agenda/2019/05/this-is-how-much-renewable-energy-prices-have-fallen/

[67] https://www.carbonbrief.org/analysis-renewables-could-match-coal-power-within-5-years-iea-reveals

[68] https://www.carbontracker.org/reports/2020-vision-why-you-should-see-the-fossil-fuel-peak-coming/

[69] https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-energy-perspective-2019

[71] https://eto.dnvgl.com/2019#ETO2019-top

[72] https://www.edie.net/blog/Machine-makers-are-leading-the-way-to-low-carbon/6098560

[73] https://www.weforum.org/press/2019/09/decade-of-the-battery-sustainable-batteries-represent-the-best-prospect-for-meeting-paris-climate-goals/

[74] https://eto.dnvgl.com/2019#ETO2019-top

6. Energy (demand)

There is also likely to be significant change on the demand side of the energy system. By 2030, industry is expected to be responsible for almost half of global energy demand, with the remainder being for buildings and transport. Across all three, there is considerable scope for efficiency gains, but whether these will be sufficient to offset underlying growth trends in energy demand remains to be seen.

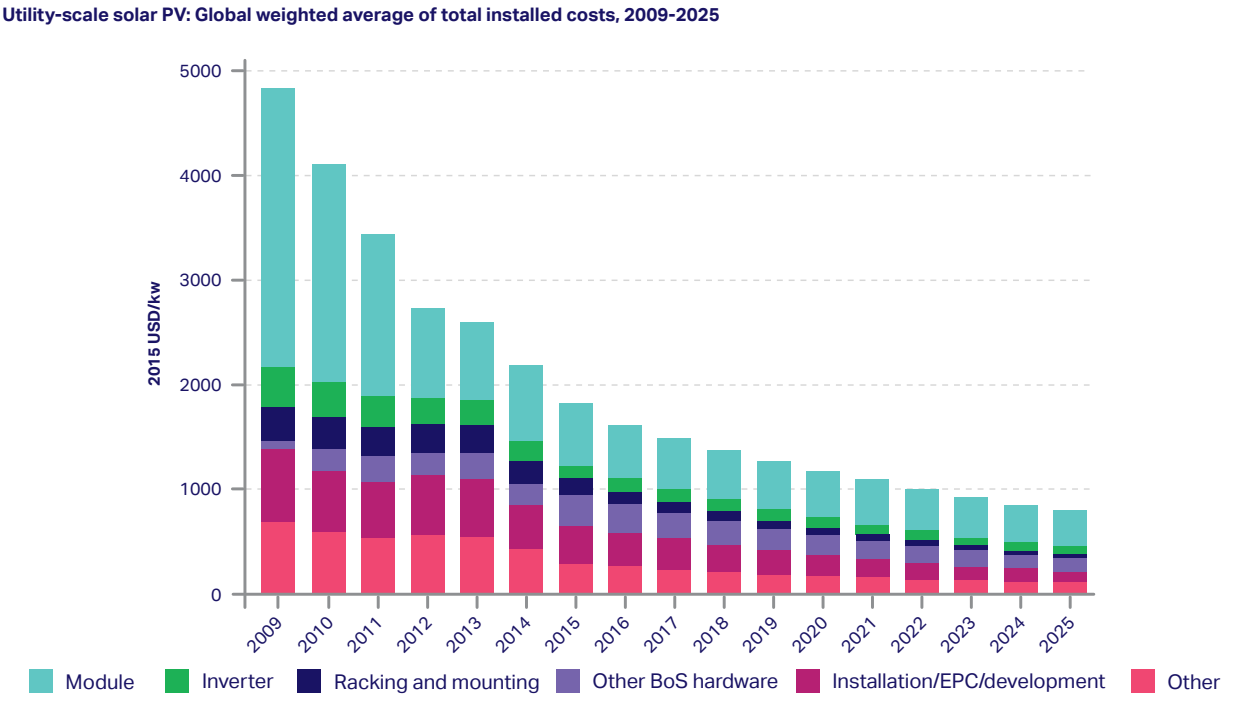
In the **industrial sector**, energy efficiency improvements and increased material efficiency to promote efficient design, use and recycling of materials such as steel, aluminium, cement and plastics could be enough to halt the growth in emissions from these carbon-intensive industries. Innovative use of digital tools to shift electricity demand to cheaper and less emissions-intensive hours of the day, would improve economic performance and help reduce emissions.

In the **buildings sector**, population growth, rapid urbanization and rising prosperity (which tends to come with a more energy-intensive lifestyle) will drive up energy demand in the absence of other factors. Cities are increasingly setting standards for energy efficient buildings that will drive improvement. Measures to improve efficiency include: improvements in older buildings such as installation of better insulation; installation of technologies such as thermal energy storage and heat pumps; and a change to lower GHG chemicals for air conditioning units.

As we have already seen, the **transport sector** is likely to see considerable disruption during the 2020s. Turnover of older passenger cars and light commercial vehicles to modern vehicles with higher efficiency internal combustion engines, full electric vehicles (EVs) and hybrids will reduce demand on liquid fuels. Innovations that change vehicle ownership patterns, and encourage a greater use of public transport and shared mobility options will also come into play. Transport demand can also be reduced through better urban planning and remote working.

Road freight transport currently accounts for 25% of emissions from transport. While demand for road freight transport will continue to increase over the next 10 years, measures including optimisation of truck utilisation, electrification of power trains, efficiency improvements and a shift toward renewable energy carriers will be increasingly deployed.

Figure 21: The power to change: Solar and wind cost reduction potential to 2025[70]



Source: IRENA (International Renewable Energy Agency

[70] https://www.irena.org/newsroom/articles/2016/Jun/Dramatic-Price-Drops-For-Solar--Wind-Electricity-Set-To-Continue

[75] https://www.globalccsinstitute.com/resources/global-status-report/

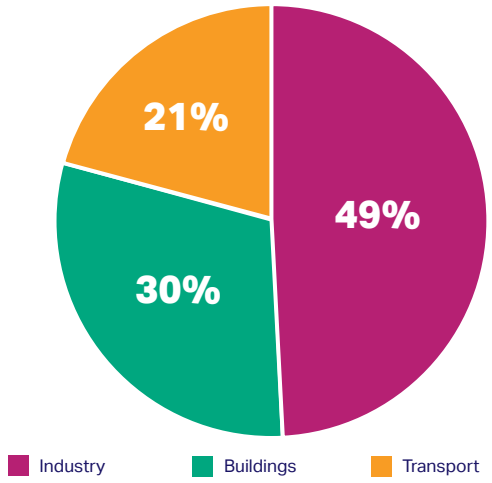
These measures are expected to lead to a 70% reduction in the average life-cycle CO_2 emissions of new heavy-duty trucks by 2050.[76]

In the rail industry, a key uncertainty is how rapidly electrification happens. Currently, one-third of rail tracks are electrified (IEA, 2019). The trend for electrification of rail transport varies from country to country. South Korea, Japan, Europe, China and Russia have electrified over 60% of their rail tracks (IEA, 2019). Electrification of the rail network in India is likely to be complete by 2030.[77] However, in the USA, railways are expected to remain predominantly diesel powered through the 2020s.[78]

In aviation, notwithstanding the temporary disruption to the industry as a result of COVID-19, air travel for both passengers and freight is expected to drive growth in energy demand throughout the 2020s. Jet engines will continue to dominate international flight for at least the next decade as no viable alternatives are approaching readiness. That means that sustainable biofuels will be critical to making progress on emissions reduction goals this decade, though it remains to be seen whether production can scale up fast enough to meet demand: only 15 million litres of sustainable biofuels were produced in 2018; by comparison, under the IEA's Paris Agreement-aligned Sustainable Development Scenario, 31 billion litres a year will be needed by 2030.[79]

The maritime shipping industry expects to see global growth in marine traffic and consequent energy demand through 2030. The International Maritime Organization (IMO) has set a target for a 50% reduction in total annual GHG emissions by 2050 compared to the 2008 baseline level. For inland waterways and short distance coastal service, battery electric and hybrid engines are in the early stages of deployment. Smart (digital) technologies will help optimise the logistics chain, both in reducing port congestion and in reducing distances travelled without a cargo. Shore-to-ship power technologies will enable ships to connect to the electricity grid while berthed and avoid engine emissions. Use of liquefied natural gas, sustainable biofuels and electrofuels is also likely to increase over the next decade. Finally, advanced ship designs with better hydrodynamics and more efficient propulsion technologies are emerging, but fleet turnover to such new designs will take at least 10 years.

Figure 22: 2030 Energy demand by sector (Million tonnes oil equivalent per annum)



Source: BP Energy Outlook 2019

[76] https://www.concawe.eu/wp-content/uploads/low-carbon-pathways-until-2050-deep-dive-on-heavy-duty-transportation-executive-summary.pdf

[77] https://www.financialexpress.com/infrastructure/railways/railways-to-miss-electrification-target-by-a-wide-margin-The-financial-express

[78] https://www.eesi.org/articles/view/electrification-of-u.s.-railways-pie-in-the-sky-or-realistic-goal

[79] http://www.ethicalcorp.com/long-haul-getting-aviation-biofuel-ground

POLITICS

Key themes for the 2020s include: populism and nationalism; major power rivalry; the technological disruption of democracy; intergenerational tensions and the rising electoral influence of millennials; the increasing centrality of climate change as a political issue, with carbon pricing, climate-related financial disclosures and climate litigation all on the rise; the evolution of fiduciary duty; employment law and the gig economy; antitrust enforcement; regulation of data and AI; circular economy legislation.

Potential "wildcard" disruptions include: a major war or terrorist incident; the government of one or more large economies embracing a Green New Deal-esque reform package.

1. Populism and nationalism

The rise of populism has been one of the most marked global trends of the last decade - and shows little sign of having peaked. The long-term fallout from the COVID-19 pandemic may well add fuel to the fire, particularly if short-term bailouts and post-crisis policies perpetuate – or are perceived to perpetuate – high levels of inequality and unfairness (as was the case following the 2007-8 Financial Crisis).

Trust in government and other institutions has been low for much of the last decade. A 2017 survey of 18,000+ people across 23 countries found that 71% of people agreed with the statement "my government does not prioritize the interests of people like me."[80]

Figure 23: Crisis of the elites

Source: Ipsos MORI, 2017 (23 countries, 18,000+ respondents)

[80] https://www.slideshare.net/IpsosMORI/ipsos-global-trends-2017

Definitions of what and who is a populist vary, which makes it difficult to quantify the speed and scale of populism's rise.

Nonetheless, several organizations have tried:

1. The Tony Blair Institute for Global Change finds that there were 20 populist governments in power in 2018 – up from just four in the early 1990s.[81]

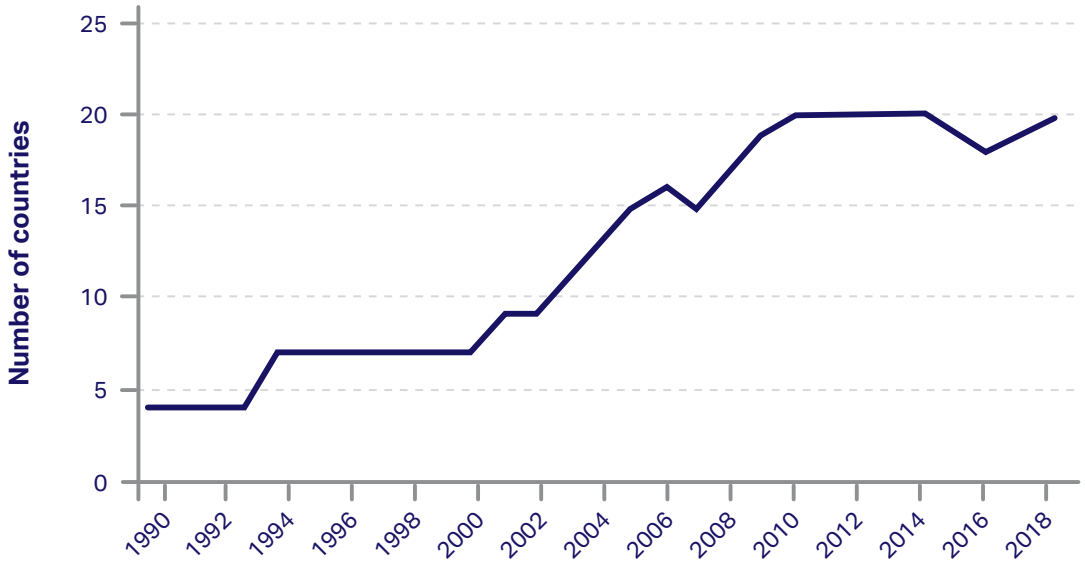
2. The Timbro Authoritarian Populism Index finds that, in 2019, the average voter support for populist parties in Europe (the Index covers 33 countries) was 22% – up from 16.3% a decade ago, and approximately double the average vote share that populist parties received between 1980 and the early-mid 2000s, which is when support for populist parties in Europe began to swell.[82]

This figure of 22% underestimates the true strength of populism in Europe, because it does not account for the way that populism has also infected traditional parties that are not classed as populist by the compilers of the index. For example, in the UK, both the ruling Conservative and opposition Labour parties are currently exhibiting many populist traits. Something very similar has happened with both the Republican and Democratic parties in the US.

One of the surprises of the last decade is that right-wing populism (the people in opposition to liberal cultural elites and outsiders) has been so much more electorally successful than left-wing populism (which pits the people against economic and financial elites).

Most forecasters in 2009, against the backdrop of the Occupy protests and the fallout from the 2008 crash, would have predicted the opposite: that anger at "the 1%" would translate into votes for left-wing populists during the 2010s. But, electorally, the 2010s have belonged to right-wing populists like Trump, Modi, Bolsanaro, Erdogan, Duterte and Orban. These leaders now represent what the Financial Times refers to as 'an international nationalist movement', with leaders taking inspiration from - and supporting - one another.[83]

Figure 24: Number of countries with populism in power 1990-2018



Source: Tony Blair Institute for Global Change: Populists in Power Around the World 7th November 2018

[81] https://institute.global/insight/renewing-centre/populists-power-around-world

[82] https://populismindex.com/

[83] https://www.ft.com/content/59a37a38-7857-11e8-8e67-1e1a0846c475

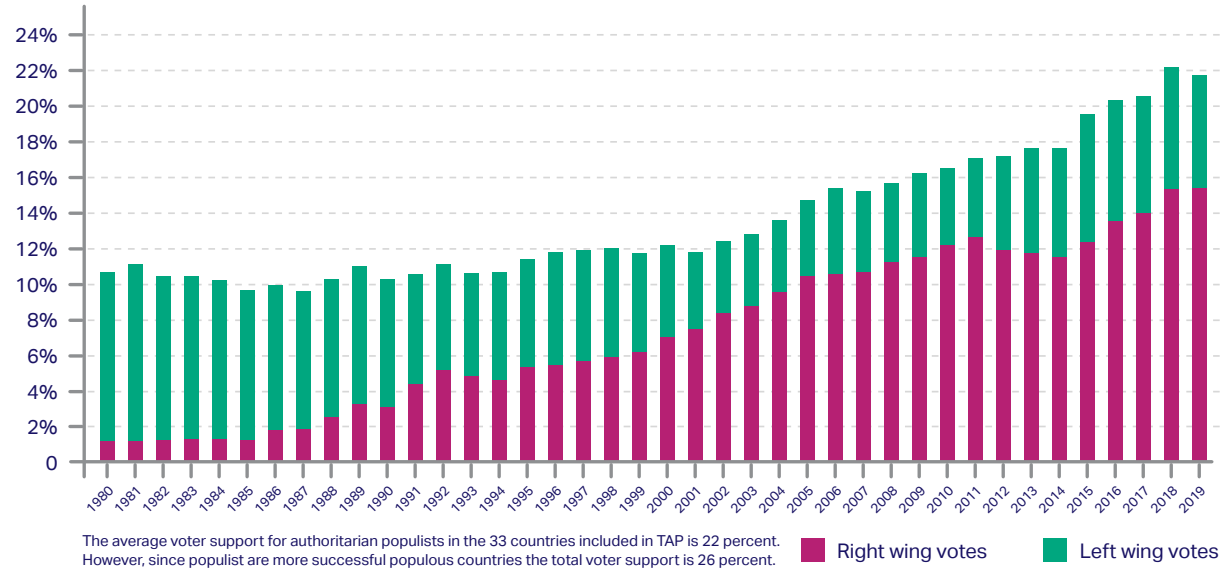
Key implications of the continued dominance of nationalist politicians such as these during the 2020s include:

- A further weakening of multilateralism as nationalist leaders tend to be hostile towards international institutions and treaties. Eurasia Group recently dubbed these nationalist leaders the 'coalition of the unwilling', highlighting their lack of support for global institutions as a key risk facing the global economy.[84]
- The risk of a descent into conflict: populist nationalists tend to ignore the complexity of the modern world and have little time for defending the interests of allies or investing money and lives to maintain stability (witness Trump's handling of Middle East policy, especially Iran and, more recently, the Kurdish issue) – all of which makes the world a more dangerous place. Worryingly, history suggests that the taming of nationalism tends to happen only after a major crisis or conflict (as in the 1930s/40s). Initial reactions to the COVID-19 crisis remain restrictive and nationalistic, although deep collaboration is occurring amongst the scientific community. It is too early to tell whether this will be able to provide the foundations for greater international cooperation.[85]

It is also possible that the 2020s will see the pendulum swing towards a more left-wing populist agenda – partly driven by the failure of the policies pursued by right-wing populist governments (e.g. Brexit, trade wars etc.) to deliver the promised boom in living standards, and partly driven by the rising influence of millennial voters who are more likely to identify as anti-capitalist or socialist than the older cohorts who have provided right-wing populists with their electoral base.

Whether right-wing or left-wing populism is more successful in the 2020s, the degree of political polarization will remain high (and may increase further), meaning that centrists will generally struggle to win votes and we are likely to see more radical politicians, who are determined to disrupt the status quo, in power at all levels.

Figure 25: Aggregated populist votes 1980-2019



Source: Timbro Authoritarian Populism Index 2019

[84] https://www.eurasiagroup.net/live-post/risk-7-coalition-of-the-unwilling
[85] https://www.nytimes.com/2020/04/01/world/europe/coronavirus-science-research-cooperation.html
[86] https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/deloitte-2019-millennial-survey.pdf
[87] https://www.ipsosglobaltrends.com/financial-security-youth-better-or-worse-than-parents/
[88] https://www.pwc.com/jp/en/press-room/world-in-2050-170213.html
[89] https://edition.cnn.com/2018/10/07/politics/how-millennials-could-kill-politics-as-we-know-it/index.html
[90] https://www.people-press.org/2018/03/01/the-generation-gap-in-american-politics/

2. The rising influence of millennial voters – but don't write off Baby Boomers too soon

The 2020s will be the decade in which millennials become the dominant political force in every democracy. Given that there are about 2 billion millennials globally, any generalisation about their political interests is fraught with danger, but a number of key themes stand out:

1. Climate change is one of the things they worry about most: 29% of both millennials and Gen Z cite 'climate change/ protecting the environment/ natural disasters' as one of the top three issues they are most concerned about.[86]

2. They are disenchanted and pessimistic about the future: in most developed - and many middle income - countries, millennials expect to live less well than their parents (at least in terms of financial security/affluence).[87] The most notable exception to this trend of millennial pessimism is Indonesia - and with good reason: Indonesia is expected to jump from 7th to 5th in the list of the world's largest economies in PPP terms during the 2020s.[88]

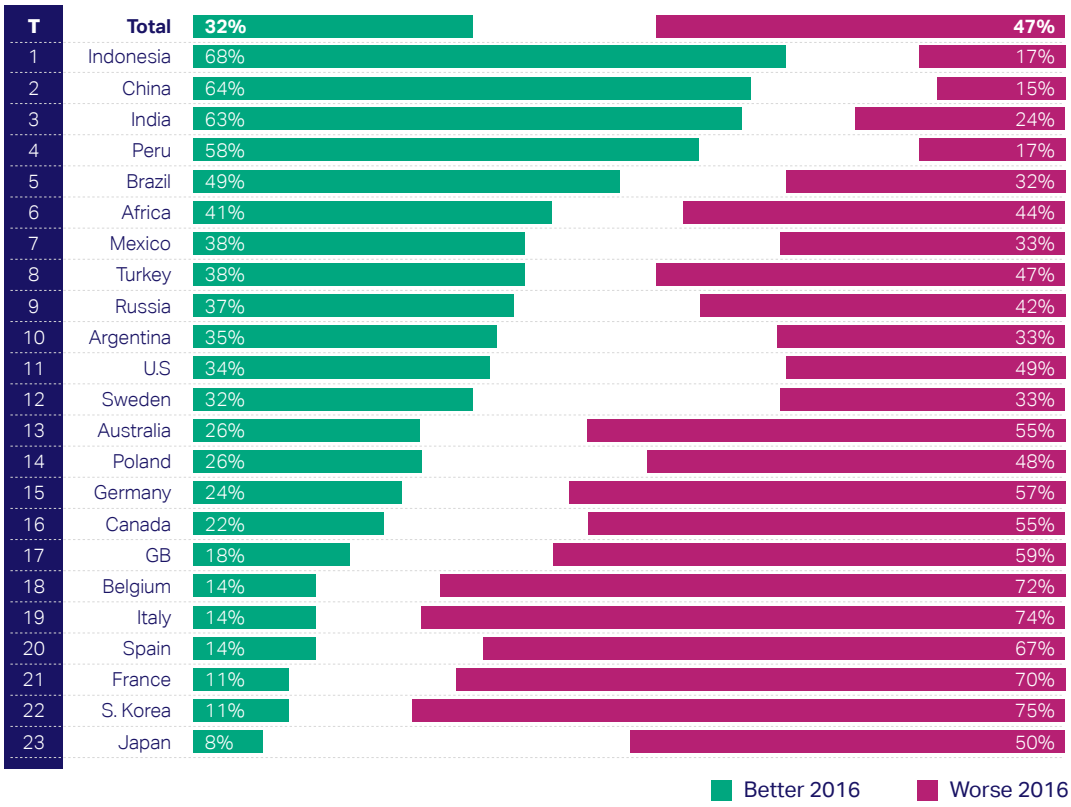
3. They have relatively low faith in institutions and current leaders (political, business, religious). They may lean left in most countries, but this won't necessarily translate easily into electoral majorities for traditional left-wing parties. A 2018 poll by the Pew Research Center found that, of US millennials, 35% identify as Democrats, just 17% as Republicans and fully 44% as independent.[89] A 2016 global poll by Ipsos MORI found that just 20% of Gen Y (i.e. Millennials) considered themselves a supporter of a specific political party, compared with 38% of Baby Boomers.

Conversely, the 2020s will also be the last decade in which Baby Boomers constitute a major political force - and in most countries they lean right. An intergenerational struggle for power is likely to be a major factor in the politics of most countries. In the US, for example, 2017 polling data from Pew Research Center indicates that 57% of Millennials hold liberal views (versus just 12% with conservative views). The equivalent figures for Baby Boomers are 39% and 32%.[90]

By the end of the 2020s, the baton of power in most democracies will have passed to millennial voters, but, before we get there, expect plenty of resistance to a "progressive" turn in global politics from older age cohorts with vested interests to defend.

Figure 26: Today's youth - Better/worse life than parents

And which of there do you think is or will be better or worse for today's youth than for their parents? **Having enough money to live well**



Source: IPSOS https://www.ipsosglobaltrends.com/financial-security-youth-better-or-worse-than-parents/

3. Major power rivalry

The US-China trade wars and the political fallout from the COVID-19 pandemic may well be just the prelude for a turbulent decade of escalating rivalry between the world's two largest economic and military powers. While a complete shift away from free trade and towards protectionism is not in either country's interest – the US and China are too economically interdependent for that – it's also unlikely that the 2020s will see a return to the 1990s/2000s trend of an ever more liberalized world trade system.

The likelihood of trade wars turning into armed conflict is slim but not impossible. Most likely, the US will continue its reversion to isolationism, which has been its default setting for most of its history. Having more or less achieved energy independence – thanks to the shale boom, the US is now a net exporter of oil – the US may well continue its retreat from the world stage that has begun under Trump.

China, meanwhile, will continue to expand its sphere of influence through Central and South East Asia, the Middle East, Africa and Europe via the Belt and Road Initiative. This will not be universally welcomed – for example, within Europe, there is already a clear divide between Italy, which has eagerly embraced the Belt and Road Initiative, and Germany, which is much more concerned about the impact that competition from China will have on its economy.[91]

The quest for technological supremacy – and particularly AI supremacy – is fast becoming an important element of US-China rivalry, following China's so-called "Sputnik moment" in 2017 when an AI system built by Google's Deepmind – AlphaGo – beat the world champion (who was Chinese) at the fiendishly complex game of Go.[92] Diplomatic spats over Huawei may be a harbinger of what is to come.

The rivalry between the US and China is unlikely to be the only significant geopolitical story of the 2020s though. There are various wildcards in the geopolitical pack, notably:

- Russia, Saudi Arabia, Iran and other 'petrostates': if the tide turns on the fossil fuel era as quickly as some expect it to[93] and the economies of the world's largest fossil fuel producers start to suffer, they are likely to become key sources of instability. Indeed, in the cases of Russia and Iran, this trend is already well underway.
- Failed – or failing – states: The Fund for Peace's 2019 Fragile States Index ranks five countries as 'very high alert': Yemen, Somalia, South Sudan, Syria and the Democratic Republic of Congo. It highlights Brazil and Venezuela as the two 'most-worsened' states over the last 12 months.[94]
- Europe: having been a bastion of stability for 70 years, Europe may become a source of political instability once again during the 2020s. The Brexit farce may have quietened Eurosceptics in the EU27 for now, but the Eurozone remains fragile - and could prove vulnerable in the case of a major economic shock, such as the one provided by COVID-19.[95] At the time of writing, it remains to be seen whether the EU will ultimately pull together in response to the crisis, but the initial response of several European countries (unilaterally closing borders; refusing meaningful support to neighbors) is not encouraging. And Europe's global leadership on issues like climate change could increasingly be challenged from within by Central and Eastern Europe's 'illiberal democrats'.

Significantly, none of the world's major powers is likely to stick up strongly for global governance, coordination and institutions during the 2020s. The UN may struggle to wield influence and nationalist leaders will undermine its legitimacy when it suits them to do so.

4. Age of disinformation: the disruption of truth and democracy

The issue of fake news burst onto the scene in 2016. With the advent of deepfakes – AI-generated video or audio footage that is nigh on impossible to distinguish from real footage – the difficulty for citizens of parsing fact from fiction will get worse in the 2020s.

The combination of deepfakes and social media will pose a threat to all democracies, but the challenge is likely to be greatest in countries where media literacy is lowest and the use of closed communications channels (e.g. WhatsApp) is highest. This includes countries like India and Brazil.[96]

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[91] https://www.ispionline.it/en/pubblicazione/bri-or-not-bri-europes-warring-member-states-22786

[92] https://asiasociety.org/blog/asia/chinas-sputnik-moment-and-sino-american-battle-ai-supremacy

[93] https://www.carbontracker.org/reports/2020-vision-why-you-should-see-the-fossil-fuel-peak-coming/

[94] https://fragilestatesindex.org/wp-content/uploads/2019/03/9511904-fragilestatesindex.pdf

[95] https://www.thetimes.co.uk/article/the-euro-cant-take-its-survival-for-granted-n2l7pwcb8

[96] https://www.ft.com/content/4bf4277c-f527-11e9-a79c-bc9acae3b654

Technology will also influence politics in other ways. The 2010s have been bookended by popular uprisings that owe a great deal to social media: the Arab Spring at the start of the decade; unrest in Chile, Hong Kong, Lebanon and elsewhere today.

In October 2019, the Financial Times heralded the 'age of the leaderless rebellion', arguing that social media has enabled protest movements to organize in a decentralized manner.[97] The absence of identifiable leaders makes these rebellions difficult for repressive regimes to quell, though some will try to turn these same technologies into tools of surveillance to do just that. This tension is likely to make online privacy a hot political topic.

5. The politics of tax and tax avoidance

Fiscal policy action has been notable for its absence during the 2010s, with monetary policy (Quantitative Easing, low or negative interest rates etc.) picking up the slack in the wake of the 2007-8 Crash to re-start and sustain growth.

Fiscal policy is almost certain to make a comeback in the 2020s for a variety of reasons:

- The nature and scale of the economic crisis triggered by COVID-19 requires both short- and long-term fiscal policy interventions (bailouts and stimulus packages in the near-term and post-crisis, very likely followed by new revenue-raising measures in the medium- to long-term). Central banks simply do not have the tools to foster a recovery without finance ministries playing an active role.
- Beyond COVID-19, ageing populations will continue to put additional strain on already under-resourced public services, so governments will likely have to look again at tax policies to raise much-needed revenues.
- Tax avoidance makes this issue worse. According to the IMF, tax havens cost governments $500-600 billion a year in lost corporate tax revenue. This is in addition to an estimated $200 billion a year in lost income tax revenue from individuals who use tax havens.[98]

Scarcity being the mother of innovation, the 2020s will likely see governments experimenting with new approaches to stimulating growth, raising revenues and redistributing wealth. A significant shake-up of international tax rules to address the problem of 'base erosion and profit shifting' (i.e., tax avoidance) is possible during the 2020s, though, given the weight of vested interests that stand to lose from such a shake-up, progress cannot be taken for granted.

The most promising initiative in this space is the OECD/G20 Base Erosion and Profit Shifting (BEPS) Project, which is, in theory, meant to deliver 'a consensus-based solution to overhaul the rules-based international tax system' by 2020.[99] The principal focus of the OECD's work to date has been the digital economy, though clearly the issues go much wider than that.

Taxes on wealth, financial transactions, or carbon emissions are all likely to feature more prominently on the political agenda over the coming decade.

6. Green New Deals

The concept of a Green New Deal has been around for more than a decade, but, from its inception in 2008 to 2018, the idea had very little traction outside the world of policy wonks and think tanks. Then in 2018, it suddenly went mainstream – most notably in the US, but also in several other countries. Now there is a very real probability that the next US President (whether elected in 2020 or 2024) will be a Green New Dealer. Meanwhile, in Europe, there is talk of the EU's Green Deal becoming integral to the continent's post-COVID-19 economic recovery – in effect, a Green Marshall Plan.[100]

The package of policies espoused by Green New Dealers has polled well with voters in the US and elsewhere. Political dysfunction in the US will nonetheless make it extremely hard for an incoming Democratic administration to implement a Green New Deal worthy of the name: other countries may well get there first.

Ultimately, periods of extreme political polarisation can generate some very abrupt shifts in public policy. Just as the 1930s produced both the Third Reich and the New Deal, the 2020s may offer up a combination of resurgent populist nationalism and Green New Dealism.

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[97] https://www.ft.com/content/19dc5dfe-f67b-11e9-a79c-bc9acae3b654

[98] https://www.imf.org/external/pubs/ft/fandd/2019/09/tackling-global-tax-havens-shaxon.htm

[99] http://www.oecd.org/tax/oecd-leading-multilateral-efforts-to-address-tax-challenges-from-digitalisation-of-the-economy.htm

[100] https://www.euractiv.com/section/energy-environment/news/eu-leaders-back-green-transition-in-pandemic-recovery-plan/

7. Pricing carbon

A global carbon price is unlikely to materialize during the 2020s, but the overall trend is for a greater share of global emissions to be covered by some sort of pricing scheme and prices are trending upwards, albeit from a low base in most jurisdictions.

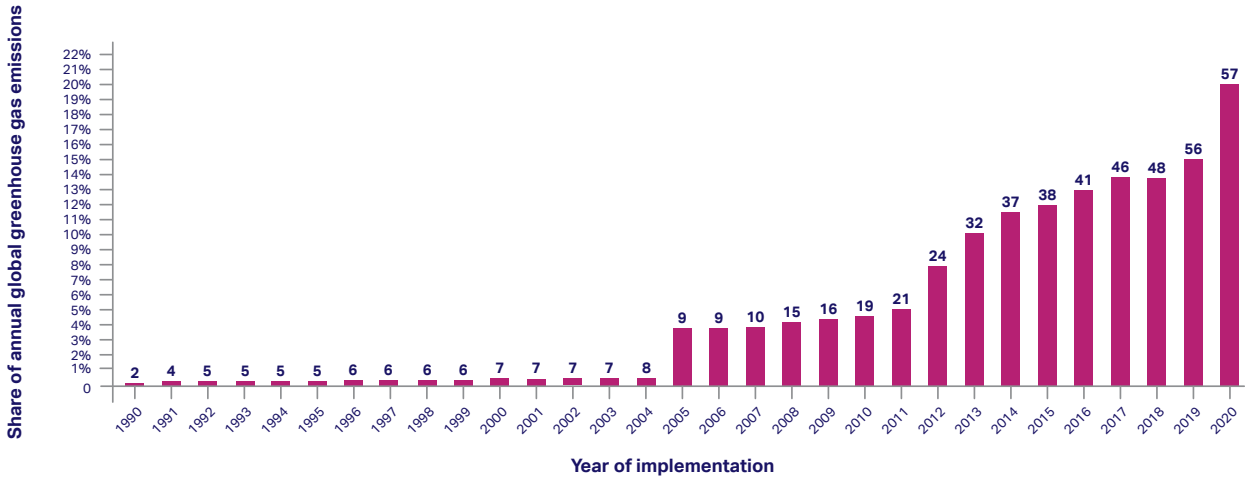
There are currently 57 carbon pricing schemes across 46 countries that have either been implemented or are scheduled for implementation in 2020. Assuming the Chinese national ETS comes online as planned in 2020, approximately 20% of global GHG emissions will be priced – up from approximately 5% in 2011.[101]

Price levels are all over the place – from more than $120 a ton in Sweden to less than $1 a ton in Ukraine. Reforms to the EU ETS mean that prices have gone up significantly in the last 12 months in what is, until China's ETS comes online, the world's largest carbon pricing scheme by volume of GHG emissions covered. Even after this surge, prices in the EU (and in most other jurisdictions that put a price on carbon emissions) remain well below the level recommended by the High Level Commission on Carbon Prices of $40-80 a ton by 2020.[102]

While the overall direction of travel on carbon pricing is clear, there have been – and will be – reverses. Notably in Australia and Canada, carbon pricing is an extremely contentious political issue. Meanwhile, as of 2017, pre-tax subsidies for fossil fuels still stood at $296 billion.[103]

There's also a good chance that the 2020s will see the introduction of 'Border Carbon Adjustments'[104] (effectively a tariff on imports from countries with lower or non-existent carbon prices) by some countries, which may help to ratchet up carbon prices globally as exporting nations seek to tax emissions embedded in their exports, rather than see importing nations gobble up the revenues.

Figure 27: Regional, national and subnational carbon pricing initiatives selected: share of global greenhouse gas emissions covered



Source: World Bank Carbon Pricing Dashboard https://carbonpricingdashboard.worldbank.org/map_data

[101] https://carbonpricingdashboard.worldbank.org/map_data

[102] https://www.carbonpricingleadership.org/report-of-the-highlevel-commission-on-carbon-prices

[103] https://www.theatlantic.com/science/archive/2019/05/how-much-does-world-subsidize-oil-coal-and-gas/589000/

[104] https://climatestrategies.org/wp-content/uploads/2017/10/CS_WP2-Brief_FINAL-1.pdf

8. Climate-related financial disclosure

In October 2019, while still Bank of England Governor, Mark Carney said that he expects climate-related financial disclosures to start becoming mandatory within two years.[105] Whether or not Carney is right about the timeline, it is a near certainty that at some point during the 2020s, climate-related disclosures will become mandatory.

9. Climate litigation

There are a number of major climate-related lawsuits ongoing – and there has been a surge of litigation activity in the last decade: almost 90% of the cases included in the Sabin Center for Climate Change Law's database were filed in the last 10 years.[106]

While there have been some successes - for example, in 2018, a group of Dutch citizens succeeded in their claim against the Dutch government for inaction against climate change – there has not yet been a real breakthrough ruling that sets a precedent and opens the floodgates to further legal action.

Nonetheless, climate litigation is here to stay. The only questions are: how long will it take for that breakthrough ruling to arrive? And when it does, will litigation become an existential threat to the fossil fuel industry or a manageable cost of doing business?

10. The responsibilities of directors, investors and managers in the post-Friedmanite era

The Business Roundtable's 2019 statement on corporate purpose[107] may have been an attempt to forestall regulation by emphasising that companies already can and do commit to serving all stakeholders, but it signals a much broader shift in the zeitgeist that is likely to impact the way companies and investors are regulated over the next decade.

Whereas in recent decades corporate law has largely evolved in ways that increase the power of shareholders, the focus of legal and regulatory activity during the 2020s is likely to shift towards establishing greater rights and protections for other stakeholders, including customers, suppliers, workers, communities and the natural environment.

This will influence the fiduciary responsibilities of corporate managers, boards of directors and investors – in some cases via new legislation; and in some cases, via new interpretations of existing mandates.

11. Employment law and the gig economy

On the first day of the 2020s, a new law took effect in California – Assembly Bill 5 – which reclassifies independent contractors as employees, making them eligible for minimum wages, overtime pay and workers' compensation protections. Several other US states (particularly liberal coastal ones) are working up similar legislative plans.[108]

In 2019, the EU also passed legislation aimed at granting a set of minimum rights for gig economy workers, with EU member countries given three years to bring national legislation into line with the directive.[109]

Platform businesses like Uber, Lyft and Deliveroo will fight the impact of these laws via the courts and we can expect years of wrangling over where exactly the line between employment and self-employment lies, but it's clear that the gig economy's honeymoon period is coming to an end.

There remains plenty of uncertainty about how this will play out: will some big gig economy firms go out of business? Will it accelerate the shift to automation? Or will a new equilibrium establish itself that enables the gig economy to keep expanding whilst also extending the rights and benefits of gig economy workers?

[105] https://www.theguardian.com/business/2019/oct/08/corporations-told-to-draw-up-climate-rules-or-have-them-imposed

[106] http://climatecasechart.com/

[107] https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans

[108] https://www.cnbc.com/2019/06/04/gig-economy-bill-advances-in-calif-could-shape-battle-in-other-states.html

[109] https://www.europarl.europa.eu/news/en/press-room/20190410IPR37562/meps-approve-boost-to-workers-rights-in-the-gig-economy

12. Antitrust enforcement

Competition enforcement – particularly in relation to Big Tech firms – has become an increasingly hot topic in the EU and the US recently, with both governments imposing hefty fines on Facebook, Alphabet et al. A serious attempt to break up any of the US Big Tech firms is unlikely to succeed, but the imposition of further fines for abusing market power is a near certainty.

One key question is to what extent regulators will expand their focus to other industries that are over-concentrated during the 2020s. Big Tech is by no means the only sector in which anti-competitive practices are endemic, but it is drawing a lot of the fire for the time being.

Outside the US and EU, antitrust has garnered much less attention – and many governments around the world (particularly in countries where authoritarianism and/or corruption) remain positively committed to supporting de facto monopolies or oligopolies.

And within the US and EU, the spectre of vast foreign (particularly Chinese) state-backed monopolies stealing market share from US/EU companies is frequently cited as an argument for a laissez-faire approach to competition enforcement by both business and political leaders.

13. Regulation of data and AI

Privacy is guaranteed to be a key legal and regulatory battleground during the 2020s – with countries taking markedly different approaches. The introduction of GDPR is a sign that the EU is taking privacy seriously.

The EU's longstanding commitment to the "precautionary principle" in relation to the regulation of new technologies (e.g. genetic manipulation) means that it is likely to be at the forefront of regulatory intervention on tech-related issues during the 2020s. The US will be more reluctant to intervene, and China's track record suggests it has little interest in protecting its citizens' privacy.

As AI grows in importance, the issue of how to ensure it is used responsibly and ethically will increasingly be in the spotlight. So far, the response of governments has largely been to create voluntary frameworks, guidelines and principles (e.g. Singapore's Model Artificial Intelligence Governance Framework,[110] the eight principles for the governance of AI published by China's Artificial Intelligence Governance Expert Committee,[111] or Dubai's Ethical AI Toolkit).[112] As the 2020s progress, some governments will likely embrace approaches that go beyond voluntary principles and guidance.

Data ownership is another topic that will undoubtedly be on the agenda during the 2020s. Right now, a sweeping overhaul of regulation to give individuals comprehensive ownership rights over their personal data looks unlikely, but it can't be ruled out entirely.

14. Circular economy legislation

With plastics pollution having become a hot topic in the last couple of years, the circular economy has shot up the priority list for legislators and regulators in many countries. Regulatory approaches will likely include binding targets for increasing recycling rates, extensions of producer responsibility obligations and, in some cases, outright bans on particular products (for example, the EU is due to impose a ban on plastic cutlery, plates and straws by 2021).[113]

The EU and China have both already shown clear signs of taking circular economy legislation and regulation seriously. For example, the EU's Circular Economy Package includes 2025 and 2030 municipal recycling rate targets of 55% and 60% respectively for member countries.[114] The incoming European Commission President, Ursula von der Leyen, has signalled an intention to introduce a new Circular Economy Action Plan to cover textiles and the construction sector, as part of an overall focus on green issues.[115]

[110] https://www.nytimes.com/paidpost/imda/singapores-governing-framework-for-artificial-intelligence.html

[111] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3469784

[112] https://www.smartdubai.ae/initiatives/ai-principles-ethics

[113] https://www.theguardian.com/environment/2019/mar/27/the-last-straw-european-parliament-votes-to-ban-single-use-plastics

[114] https://resource.co/article/circular-economy-legislation-faces-final-vote-after-eu-approval-12440

[115] https://eeb.org/ursula-von-der-leyen-puts-environment-first-for-eu/

CULTURE

Key themes for the 2020s include: shifting values in relation to sustainability and social change; culture wars; continuing progress towards gender equality, but not without resistance; consumerism and post-consumerism; rising levels of activism; atomization; and the impact of technology on social norms and behaviors.

Potential "wildcard" disruptions include: a full societal awakening to sustainability.

1. Values shifts, sustainability and social change

The last decade has seen multiple examples of non-linear shifts in societal values, norms and cultural expectations: think #BlackLivesMatter, #MeToo, the "Blue Planet effect" and youth climate strikes. Movements for justice, equality and environmental protection will likely continue to grow in strength during the 2020s for the simple reason that the underlying issues have not yet been solved and progress is mostly happening too slowly to satisfy expectations.

The question is at what scale and speed these movements will grow. Having witnessed sustainability issues start to break through into mainstream consciousness during the late 2010s, it is possible that the 2020s will see a full-blown societal awakening to the profound social and environmental sustainability challenges we face and rising popular demand for action from governments and businesses to address these.

A key uncertainty is the effect a severe economic downturn, such as the one we are now experiencing as a result of COVID-19, will have on this trend. Historically, sustainability issues have tended to be de-prioritised in times of economic crisis, but this time could be different, particularly because of the strong youth element of the mobilisation that has happened in the last few years. The fact that so many of those driving this movement are in their teens and twenties is important for two reasons:

1. They have switched on to sustainability during a formative period in their own lives, which means they are more likely to stay engaged as they grow older;
2. The generation entering the workforce in the early 2020s will be doing so in the midst of, potentially, the worst economic crisis since the Great Depression. There is every chance that this will cause many to double down on their demands for system change, rather than to abandon them.

2. Culture wars

Values divides are deepening and ossifying within many nations around the world. Polarising events – from the Brexit vote in the UK to new Citizenship Laws in India – are both a symptom and cause of these divides. There is no single issue that defines the new culture wars: they are about attitudes to race, religion, immigration, gender, sexuality, place, globalism, nationhood and more.

Globalism versus nationalism is one of the key dividing lines – and, at present, many countries are split more or less down the middle. Globally, 47% of people feel more a 'citizen of the world' than a citizen of their country; 44% feel the opposite.[116]

These cultural splits map imperfectly onto demographic divides: in many countries, there is an urban-rural and/or old-young dimension to these culture wars; often education level is a strong predictor of people's cultural views.

The culture wars contribute to political polarisation and in turn feed off it. Given this reinforcing feedback loop, there is a risk that more clashes over identity will turn violent in the decade ahead.

3. Gender equality and its discontents

According to the SDG Gender Index, no country is currently on track to achieve full gender equality by 2030. The worst performing countries are in Africa, the Middle East and Southern Asia. Latin America, China and Russia are in the next tier up.[117]

[116] https://www.ipsosglobaltrends.com/2020/02/peak-globalisation/

[117] https://data.em2030.org/2019-global-report/

That said, women are expected to be responsible for ⅔ of the rise in all disposable income in the next decade and the employed female population is projected to increase by 14% globally between 2017 and 2030.[118] As women's economic clout – both as producers and consumers – grows, this will also feed into rising social status and political power that may help to accelerate progress on issues of gender equality.

As progress on gender and racial equality continues, this is also likely to trigger a backlash from some predominantly white men – particularly amongst those in wealthy countries who feel locked out of the rising prosperity they see around them. We are already seeing elements of this, particularly in North America, with the rise of White Supremacy and incel[119] culture online.

4. Consumerism and post-consumerism

The ways in which individuals measure their own status and success varies significantly by country. 70% of Chinese say they measure their success by the things they own. Only 21% of Swedes and Spaniards agree.[120] More people are starting to value experiences over ownership – but the consumerist lifestyle retains a strong appeal for those who have not yet had a chance to enjoy it.

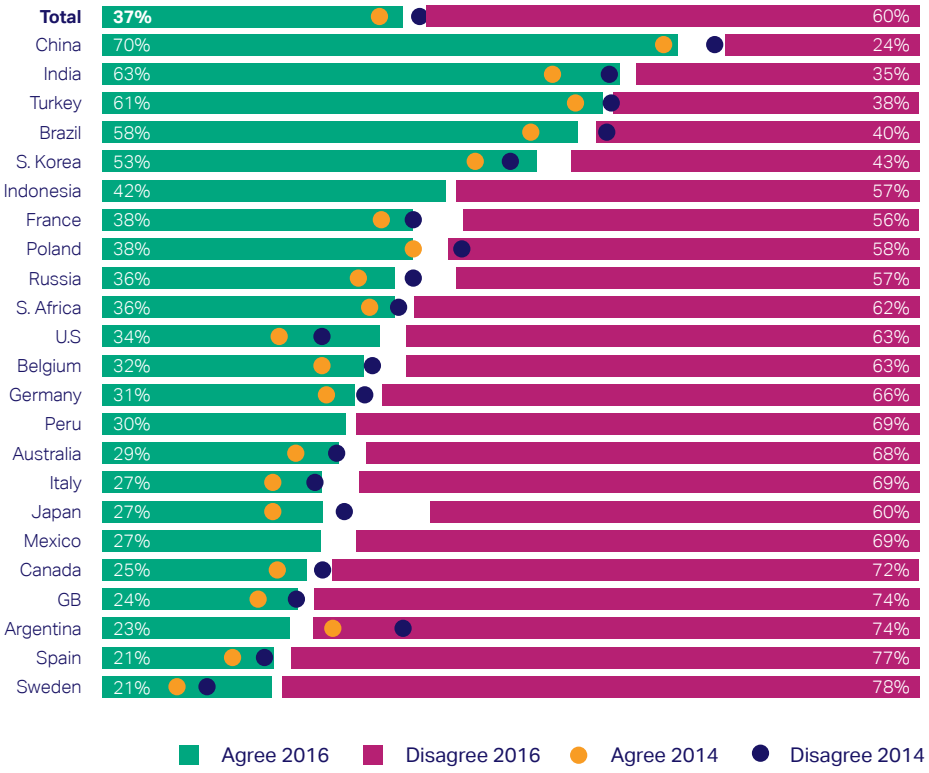
5. Faltering social progress triggers rolling, but not necessarily effective, protests

Social progress is expected to decouple from GDP growth. This projection is based on the fact that the correlation between GDP growth and social progress weakens the higher GDP per capita is – a trend that is already observable across a wide range of countries.

As we're already seeing everywhere from Chile to Lebanon, this has the potential to fuel a global wave of anger and protest – with social media making it easier to bring thousands of people onto the streets.

Figure 28: For consumer understanding, countries matter[121]

I measure my success by the things I own



Base: 18,180 adults across 23 countries, online, 12th Sep-11th Oct 2016

Source: Ipsos Global Trends 2017 https://www.slideshare.net/IpsosMORI/ipsos-global-trends-2017

[118] https://blog.euromonitor.com/the-impact-of-women-as-the-driving-force-of-shopping/

[119] Incel = 'involuntary celibate'; https://www.vox.com/the-highlight/2019/4/16/18287446/incel-definition-reddit

[120] https://www.slideshare.net/IpsosMORI/ipsos-global-trends-2017

[121] https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/dttl_socialprogressin2030_report.pdf

But protesters will not necessarily win the kinds of concessions and radical reforms they want. 20 years ago, 70% of protests demanding systemic political change got it – a figure that had been growing steadily since the 1950s. But over the last decade, that trend has gone into reverse, with just 30% of protests now achieving success, according to one study.[122]

There are multiple factors behind this, including:

1. Less responsive/more authoritarian governments;
2. The role of social media and the rise of 'clicktivism': the level of commitment required of protestors is often lower than in the past because of the relative ease with which large groups can be mobilised fast via social media; Pew Research Center found 'social networking sites distract people from issues that are truly important (77% feel this way), and 71% agree with the assertion that "social media makes people believe they're making a difference when they really aren't."
3. The polarisation of society makes it harder for protest movements that initially emanate from one particular social group to break out of that group and become an inclusive popular movement.

The potential upshot of this is an age of rolling protests that fail to deliver on the goals and aspirations of those protesting. In some regions, this lack of progress may cause some protesters to turn increasingly violent.

6. A more atomised world yearning for connection

Globally, society has been becoming more atomised for decades. This has worrying consequences for the strength of democracies and the resilience of economies. Social capital - a term that refers to a broad range of factors ranging from the strength of interpersonal relationships to norms around trust and cooperation - has been eroded by a number of factors: technology, rising levels of geographic mobility, and the relative peace and stability enjoyed by much of the global population (unfortunately, nothing replenishes stocks of social capital quite like a disaster or conflict).

Conversely, some grassroots movements may be gaining strength precisely because low levels of social capital cause people to yearn for a sense of belonging. From Extinction Rebellion to the Gilets Jaunes, many of the protest movements now bubbling up seem to be gaining traction partly because they fill this gap in people's lives.

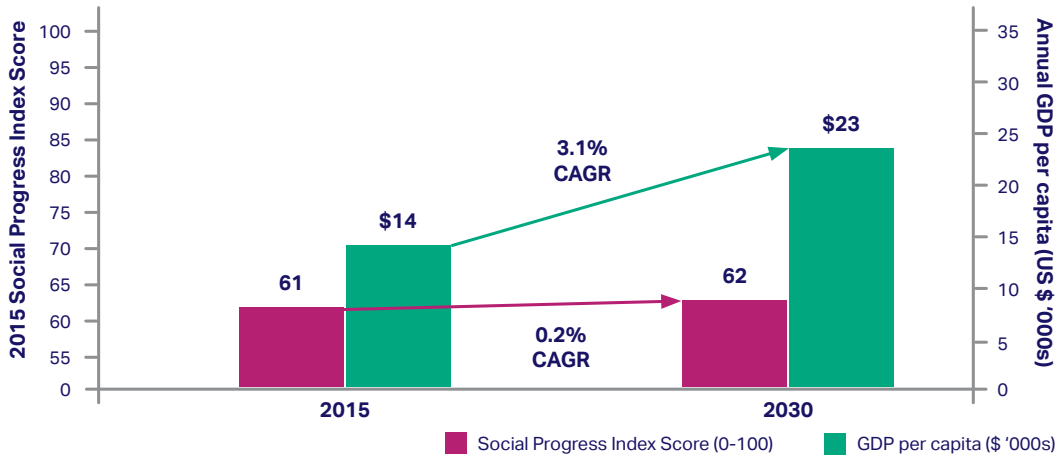
7. Welcome to your 'onlife'

Digital technologies are increasingly all-pervasive. This is already leading to a blurring between digital and physical realities. Any clear delineation between our offline and online lives is disappearing – particularly for younger age cohorts who are 'digital natives'. As augmented reality and virtual reality become more commonplace, this trend will accelerate.

There are significant potential upsides to the spread of these technologies: for example, augmented reality is already being applied in the retail space to allow people to see what furniture they haven't yet bought would look like in their home, or what clothes that they are shopping online for would look like on them.

One worrying side-effect of the ubiquity of digital technology and hyperconnectivity in our lives, however, is a declining ability to concentrate and shortening attention spans. Technology addiction is also on the rise – and the consequences of digital bombardment for mental health and wellbeing are just starting to be understood.

Figure 29: Average world SPI and GDP per capita for 2015 and 2030[121]



Source: Deloitte analysis

[122] https://www.researchgate.net/publication/316474594_Trends_in_Nonviolent_Resistance_and_State_Response_Is_Violence_Towards_Civilian-based_Movements_on_the_Rise

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Our member companies come from all business sectors and all major economies, representing a combined revenue of more than USD $8.5 trillion and 19 million employees. Our global network of almost 70 national business councils gives our members unparalleled reach across the globe. Since 1995, WBCSD has been uniquely positioned to work with member companies along and across value chains to deliver impactful business solutions to the most challenging sustainability issues.

Together, we are the leading voice of business for sustainability: united by our vision of a world where more than 9 billion people are all living well and within the boundaries of our planet, by 2050.

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