

Scenarios for a
post-pandemic world

GOING VIRAL

2020

IN PARTNERSHIP WITH

**COPENHAGEN
INSTITUTE
FOR FUTURES
STUDIES**





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Overview

The coronavirus pandemic has provided the world with its toughest stress test in more than 80 years. It has given rise to complex moral choices – not only for governments and businesses but also communities and families. Such has been the upheaval caused by Covid-19, that it is difficult to envisage a return to the life we knew before the virus struck.

Indeed, the history of pandemics shows that public health crises are profoundly disruptive. Their economic, societal and geo-political effects tend to be long-lasting, often unfolding over years if not decades.

FIG. 1



All of which means investors should expect governments to change their priorities, companies to embrace new business models and citizens and consumers to reassess their needs.

Upheaval is certain. Yet there are several different paths the world could take. At Pictet Asset Management, we have conducted a study in partnership with the Copenhagen Institute for Futures Studies to better understand how the investment landscape might evolve in the next five to 10 years. The research presents investors with four scenarios that might plausibly unfold in the wake of the coronavirus pandemic – scenarios that depend on the choices we make.

These future states have been devised using a technique popular in the field of futures studies: the scenario matrix. Under this framework, we have identified what we believe are the two factors (variables) that will have the greatest impact on the economic, geo-political and societal conditions in a post-Covid world. The first variable concerns the values that citizens and consumers embrace – the principles that guide their decision making. The second is governance – the nature of inter-country relations and the influence of international institutions.

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Each variable has its own clearly defined extremes. For societal values, the end states range from a world in which the welfare of society as a whole is the primary concern to one where individualism and self-preservation are dominant.

For inter-country relations, meanwhile, full multilateralism sits at one end of the scale and unilateralism at the other.

Using different combinations of these variables and their extremes, we have produced a scenario grid that maps out four possible futures (see [FIG. 1](#)).

Each scenario is characterised by a distinct economic, societal and geopolitical landscape. And each has its own implications for investors – industries and companies that thrive in certain environments might struggle for their very survival in others.

Scenario A

Under scenario A, Act local, think global, citizens emerge from the public health crisis with a new moral purpose, having come to accept that that inequality and environmental degradation can only be reversed through collective action. National governments, by contrast, turn inwards, introducing measures to protect national industries and intellectual property. In this scenario, global productivity and trade suffer as protectionism inhibit international co-operation. On the other hand, localism thrives, boosting industries that are able to adapt products and services to meet consumers' changing needs.

FIG.2

SCENARIO VANTAGE POINTS	
CITIZENS & CONSUMERS	Consumer preferences and values Voter preferences and priorities Degree of engagement in political process
GOVERNANCE & GEOPOLITICS	Nature of inter-country relationships Globalisation vs regionalisation Role and influence of international organisations
GLOBAL ECONOMIC TRAJECTORIES	Trend economic growth rates Developments in international trade Fiscal policy and state intervention
INDUSTRY 4.0 AND AUTOMATION	Automation and the speed of its adoption Impact on labour markets Consumer attitudes towards privacy and data security
URBANISATION & SMART CITY DEVELOPMENT	Urban density and investment in sustainable development Urban populations' confidence/trust in tech Advances and investment in new smart city tech
NEW SOCIAL PARADIGM	Attitudes towards risk Attitudes towards privacy and data protection Attitudes toward health and work
INFRASTRUCTURE & LOW CARBON FUTURE	Consumer attitudes towards sustainable products, renewables Investment and advances in renewables, energy storage, clean fuels and transport Evolution of sustainable agriculture and food supply chains

Source: Copenhagen Institute for Futures Studies,
Pictet Asset Management

Scenario B

In scenario B, All together now, the world recovers from the ravages of the pandemic with a renewed sense of solidarity. Governments and citizens the world over come to a shared vision for a more inclusive and sustainable economy and work in tandem to achieve that goal. The world transitions from a largely unipolar one directed by the US into a multi-polar one in which nation states and international organisations collaborate more closely to tackle climate change and deep-rooted societal problems. Under this scenario, investments in environmental technology and renewables increase while governments also introduce new policies to protect vulnerable communities and give workers enhanced rights. Such measures come with a cost, however. Rates of economic growth fall below the long-term trend as tighter regulations and higher corporate tax rates stifle innovation and competition.

Scenario C

In scenario C, Not my problem, the pandemic has alerted policymakers to deep-rooted problems they had long neglected. There is broad agreement among the world's largest economies that inequality, poor social mobility and environmental damage are global threats that require global solutions. Citizens take a different view, however. The experiences of the pandemic have left large swaths of society feeling overwhelmed by the sheer complexity of life in the 21st century. Turning inwards, citizens prioritise their own livelihoods and financial security and disengage from political discourse and community life. All of which means government efforts to transition to a more inclusive economy struggle to deliver in the face of intransigence from the wider population.

Scenario D

In scenario D, Going it alone, the world is a less optimistic place. Citizens emerge from the shadow of Covid-19 with little or no confidence in governments' ability to address the problems laid bare by the virus. They are more pessimistic about their own future, disengaging from the political process. Ethical and environmental considerations and the idea of 'shared sacrifice' no longer hold sway. For their part, and similarly stung by the experiences of the Covid-19, nation states turn inwards in an effort to safeguard their own natural resources, industries and workers. International co-operation is limited, which means little or no progress is made in tackling global problems such as environmental degradation and social inequality.

The prevalence of protectionist measures worldwide reduces the growth potential of the global economy significantly over the longer-term.

It is important to point out that none of the scenarios we have constructed are forecasts. Neither do we see one future state as being more likely than another. Rather, the scenarios should serve as a starting point for long-term planning and strategic asset allocation. In other words, our aim is to ensure investors are asking the right questions.



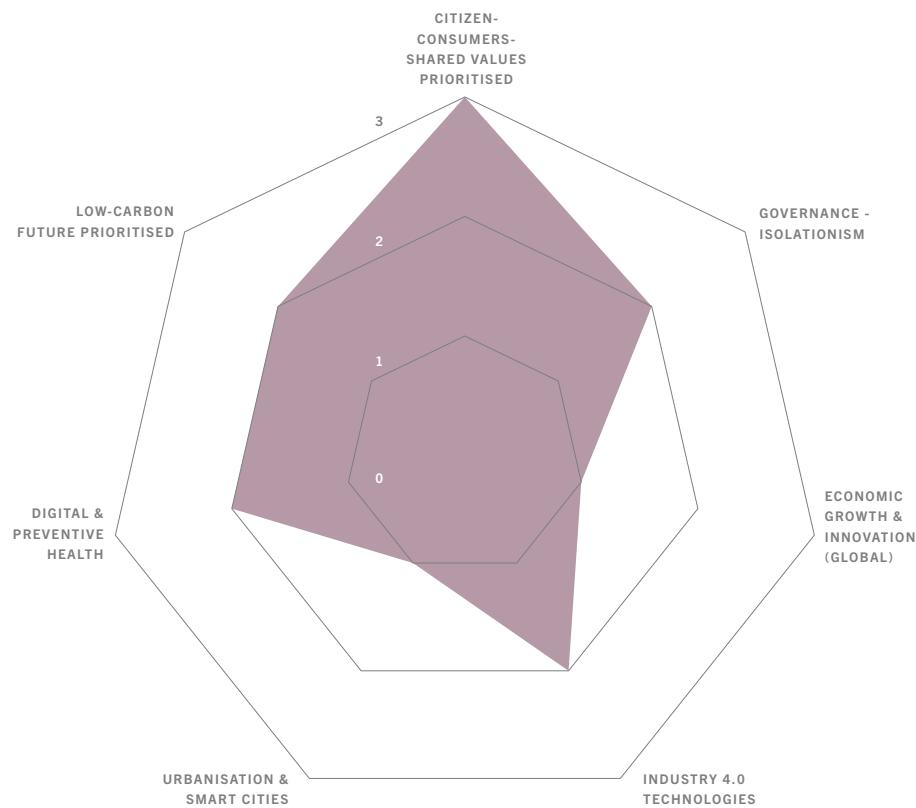


Scenario A: 'Act local, think global'

In a post-pandemic world, people have become increasingly civic- and socially-minded, acknowledging that climate change, environmental degradation and economic inequality can only be addressed through changes in individual behaviour and collective action. However, trust in 'globalism' and intergovernmental institutions has declined rapidly, as global agreements have repeatedly failed to mitigate the fallout from Covid-19. Instead, citizens fo-

FIG.3

SCENARIO A: ACT LOCAL, THINK GLOBAL



Scale: 0 = Decrease; 1 = Status quo; 2 = Increase; 3 = Significant Increase
Source: Copenhagen Institute for Futures Studies, Pictet Asset Management

cus on what they themselves can do to bring about change, particularly in their consumption choices. Governments, meanwhile, have moved in the opposite direction, turning inward, and prioritising their own national interests. In many cases, the result is conflict over trade, jobs, and national employment, the sustainability agenda, and more fundamental questions around values, rights, and political systems. Countries experiment with different democratic models, particularly at the local, city and state level, with citizens gaining greater power to influence policies.

Citizen and consumer values

The pandemic brought into sharp relief some of the failings of market economies and liberal democracies. Deep-rooted problems such as social inequality, inadequate public health care systems and an inability to address environmental damage become lightning rods for political dissent worldwide. Citizens emerge from the public health crisis with a new moral purpose: they have become more civic- and socially-minded.

The wider public has come to accept that climate change, environmental degradation and economic inequality could pose significant threats to society's wellbeing.

There is also a broad recognition that these problems can best be addressed by collective action and changes in individual behaviour. Making consumption choices that are socially- and environmentally-friendly becomes the global norm. Corporations that are able to respond rapidly to shifting consumer preferences and offer products and services that reflect society's new priorities prosper. Those that fail to make the grade suffer severe financial distress.

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At the same time, citizens lose confidence in 'globalisation'. Trust in international institutions and inter-governmental organisations declines rapidly, as agreement after agreement between nation states either breaks down or fails to deliver meaningful progress in tackling problems such as climate change and inequality. The notion that global problems such as environmental degradation require global solutions and global standards is now considered unrealistic and unachievable.

Governance and geopolitics

While citizens become more socially and environmentally aware, governments head in the opposite direction, turning inward. Stung by the experiences of the pandemic, politicians come to prioritise national resilience and move to protect local and national industries at any cost. In many cases, this leads to international disagreements and conflicts over trade, jobs, and immigration policies. Divisions also form over the sustainability agenda and, more fundamentally, over societal values, human rights, and political systems. Protectionist policies become the norm in many countries. However, governments find it challenging to unwind or reverse the previously-implemented pandemic mitigation policies, as the public has grown accustomed to national economic and social support programmes.

As government and citizens' priorities clash, countries continue to experiment with new democratic structures and models. This includes more direct forms of governance and participatory democracy – a trend aided by the adop-

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tion of new technologies. Citizens now find they have much greater political influence at the local level. As a result, policymaking becomes more decentralised, with cities increasingly bypassing national governments. Programmes such as the Bloomberg Cities initiative, which aim to encourage broad cooperation and collaboration among the world's urban centres, now shape the 'international' policy agenda with more local empowerment around a set of local 'shared values' and under the inverted mantra 'act local, think global'.

Global economic trajectories

Global productivity and trade suffer as governments turn inwards and prioritise national resilience. Yet this is widely considered a price worth paying to safeguard national security, domestic industries and supply chains. Public spending comes in the form of traditional stimulus

such as infrastructure projects and national employment programmes. Governments take on greater responsibility in managing the economy and national debt levels remain high and in some cases increase. The result is that the economic fortunes of individual countries diverge to a greater extent than in the past. In the near-term, Asia fares better thanks to a rapid recovery in regional trade, but over the longer-term grows more slowly as economies become increasingly reluctant to share technology with one another. The US suffers a double dip recession in the years immediately following the pandemic, as sub-sequent waves of Covid-19 and a lack of decisive leadership impair the American economy. But the US rebounds in the second half of the 2020s, with growth driven by domestic innovation and next-generation technologies. The EU struggles to coordinate a broad recovery plan, and economic growth remains sluggish over the decade. Africa and Latin America are largely stuck on modest economic trajectories, because of poor access to new technology and as global supply chains are dismantled and large western companies reduce the offshoring of jobs.

Industry 4.0 and automation

A lack of genuinely global standards limits the adoption of emerging next-generation technologies (i.e. Industry 4.0). Technologically-advanced nations able to re-shore production (sourcing, supply chains, jobs) using automation technologies have managed to lower their input costs. Significant investments in industrial automation are made across the private sector, reducing labour-intensive jobs and leading to a spike in unemployment among the ‘blue-collar’ working class. Corporations defend such moves by arguing automation is essential to halting the spread of Covid-19 and future pandemics. Unemployment levels are higher than they were in the early 2000s.

Governments find it difficult to maintain domestic political support as workers suffer side-effects from the adoption of new technologies. Citizens demand greater transparency from – and regulation of – tech firms. Nevertheless, in a bid to safeguard their national interests and intellectual capital, governments throw a protective ring around domestic tech companies, treating them as strategically important. Consequently, they largely ignore calls to enhance regulatory oversight. Citizens grow increasingly frustrated with such political posturing, while policymakers go one step further and develop national technology strategies to outpace rival countries in the race to develop transformational technologies (AI, 5G, nanotech, etc.)

Urbanisation and Smart Cities

Urbanisation remains a major demographic trend across much of the world, though urban centres have been reinvented by changes the pandemic wrought in how people live and work in cities. Smart city technologies, such as sensors, IoT, and big data, proliferate and are significant features of infrastructure development, though their use differs from city to city. Adoption is uneven due to differences in technological standards and the diverging economic priorities of local and national governments. City inhabitants embrace smart city technologies for their perceived efficiency as well as their ability to reduce consumption, waste, and pollution. Tech that can offer strong cybersecurity and data privacy protection is also in high demand. Urban density remains relatively high, but some people relocate away for lifestyle reasons (for example working from home, disease risk). In many parts of the world, smart city technologies have proven effective at detecting emerging pandemics in real-time. In urban areas, community initiatives such as urban farming and mixed-use spaces grow in popularity.

New social paradigm

With countries becoming less internationally cooperative, social, development and climate policies are often devised unilaterally. Global agreements are considered less effective and inefficient. International bodies gradually lose legitimacy and simply serve to rubber stamp national policies. Some regional bodies have, however, gained in importance, and the African Union has been resuscitated. Interest in politics is particularly strong among younger generations, and there is continued acceptance of ‘new normal’ restrictions around travel and public health.

Remote working is increasing, but with trade-offs and tensions as some companies expect employees to take pay cuts for the convenience of working from home and living in more affordable locations. Health provision is also transformed. The post pandemic world has ushered in contact tracing, widespread temperature checks, and other preventative measures. Policies such as social distancing and the wearing of face masks are widespread. Border closures also become a more popular measure in some countries to contain infectious disease. Citizens accept this trade-off and are for the most part willing to give up individual liberties and freedoms for an increased sense of security and the greater common good. In many parts of the world, health surveillance becomes conflated with political-surveillance. This raises concerns over human rights. Personal health data is mostly shared freely with recognised and secure apps or providers, and health apps are in most cas-

es state-controlled through national health services. Even so, digital health ecosystems include a broad range of organisations, including pharmaceutical and tech companies. Data and machine learning models are used to identify people most at risk of falling ill, while wearable medical technology becomes the norm as individuals seek to take control of their health needs. Preventive measures become increasingly important, with consumers focused on staying healthy through good nutrition and lifestyle choices.

Infrastructure and a low-carbon future

Consumer pressure forces companies to embrace more sustainable business models. An ever-growing number steer away from the more traditional ‘take, make, and dispose’ approach in favour of practices that form part of the ‘circular economy’. This involves significant investments in technologies that reduce waste and pollution across the chain of production and consumption. Spending on renewable technologies for energy generation and storage varies by region, driven mostly by the private sector.

Alternative fuels and modes of transport increasingly become the norm in countries where citizens have attached an especially high priority to environmental protection. Local and national regulatory standards develop independently of one another, however, presenting an obstacle to broad-based adoption of common green measures.

The building of sustainable agriculture and food chains has also become a priority for several countries. Regenerative agriculture gains traction in select locations due to health concerns, while healthy soils function as carbon sinks. Citizen-consumer efforts have focused primarily on animal rights, targeting the eradication of practices such as factory farming. Tensions between groups lobbying for animal rights and those demanding agricultural job protection are rising. Adoption of clean tech has helped to reduce the carbon footprint of the agricultural sector in some countries. Yet global progress is held back as differences in national regulatory and tax regimes are often exploited by a broad range of companies from different sectors, including multi-national food corporations.

Investment implications

Resources, Energy & Environment

For investors, the dismantling of global supply chains and labour markets is, on balance, an unwelcome development. Reshoring and domestic employment initiatives prove less efficient alternatives as they increase production costs and reduce profit margins.

What is more, localism is not necessarily a more environmentally friendly and sustainable economic model: there are many industries for which global supply chains generate lower carbon emissions than local ones.

Nevertheless, the growth of 'ethical consumption' serves to boost the prospects of industry sectors whose business models are already local in some sense, such as sustainable construction, agriculture and infrastructure.

Although global agreements on climate change struggle to gain momentum, the EU remains at the forefront of the environmental movement thanks to continued investment in green infrastructure and tighter regulations.

Winners¹

- Renewable energy supply and supporting technologies, including solar panel manufacturers.
- Firms that develop distributed ledger technology (DLT); such services will be in demand due to the efficiency gains they offer.
- Pollution control.
- Energy and material efficiency technologies, including waste recycling.
- Companies operating in sustainable and energy efficient construction and infrastructure.
- Local agriculture producers; they benefit from the support for local production and the dismantling of global supply chains.
- Precision farming becomes a widespread practice; not only is it more resource and efficient but its effectiveness is also enhanced by the expansion of the Internet of Things (IoT).
- Electric vehicle (EV) manufacturers continue to gain traction, as do energy/utility firms operating within the EV ecosystem, including battery producers.
- Green products become new luxury goods for EU market, including alternative proteins and plant-based meat.

Losers²

- Conventional agriculture suffers a setback, struggling to transition to less resource intensive production.
- Companies with older manufacturing facilities and traditional automotive firms.
- Energy utilities suffer as growth in solar is eroding daytime energy demand.
- Conventional beef producers challenged by alternative proteins
- Environmental laggards in extractive industries, such as chemicals and mining.

¹ Categories expected to benefit from developments in this scenario

² Categories expected to be challenged by developments in this scenario.

Healthcare and healthy living

The rise of populism and economic nationalism has politicised healthcare systems worldwide. Strategic planning gives way to short-term incentives, hampering the development and diffusion of technology and innovation within the health sector. A lack of co-operation and co-ordination among national governments (as well as between national governments and the private sector) causes an overall increase in the price of healthcare products and endangers vital innovation and R&D in virtually every area of health. For many companies operating in the sector, the slowdown in innovation and R&D will have a negative effect on their long-term prospects.

Winners

- Biotech and pharmaceutical companies with broad product portfolios will be stronger than more specialised biotech firms relying on a few, previously protected products.
- Established players that already possess strong customer relationships, a recognised brand name and a significant market share should fare well because they can bundle products and negotiate better terms.
- Rising interest in preventive healthcare boosts demand for in-home diagnostics, outpatient diagnostic and self-care procedures. Cloud connected devices worn on the body are popular and are developed through health-tech partnerships; companies operating in the health supplements sector also see their prospects improve considerably.
- Health-tech companies that can enter partnerships with the government and administer state-controlled apps or sell software-as-a-service, have a significant competitive advantage.
- Real-time devices and wearables that can inform better nutritional choices and be coupled with other apps gain in popularity. Strategic partnerships between tech giants and nutrition companies create sophisticated diagnostic and self-care tools, while food companies that can provide the 'close to home touch' that consumers demand thrive.

Losers

- Greater government intervention in price setting leaves healthcare companies that have spent heavily on speculative and high-risk R&D having to retrench.
- Private hospitals find themselves in the firing line from the politicization of healthcare.
- Specialist high-tech solutions lose out to tech that can be coupled with everyday life, informing better consumer choices.
- Smaller start-ups struggle as they lack the resources to create profitable partnerships, while larger tech giants can re-bundle offerings to suit many customer segments.
- Consumer companies with portfolios that lack healthy products are squeezed by the bigger players.
- Protectionism weighs on consumer sector multinationals.

Technology

With governments prioritising national resilience and self-reliance, they increasingly use technology for enhanced surveillance, security and policing. However, citizens increasingly demand greater transparency on how tech companies collect, analyse, and use personal data.

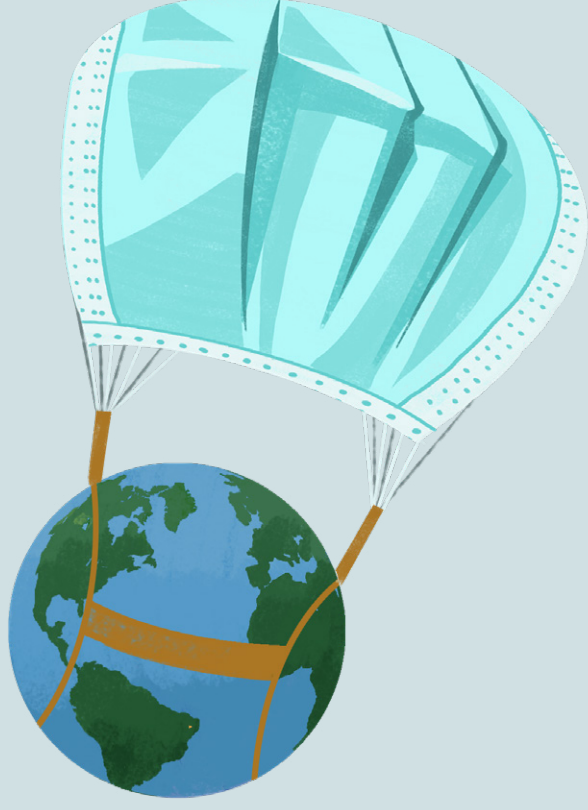
Winners

- Tech firms which combine advanced surveillance and big data analysis with demonstrably high ethical standards around data usage and protection.
- A cybersecurity arms race between rival countries boosts investment in quantum computing and advanced encryption methodologies, benefiting firms operating in such industries.
- Firms operating in the fields of robotics and other advanced automation see strong demand among the growing number of manufacturers reshoring their operations.
- Parts of the semi-conductor value chain, such as electronic design automation (software for chip design) and semiconductor capital equipment, capitalise on growing chip demand to design new applications and robots.
- Early movers within distributed ledger technology (DLT). Demands for greater government transparency and tighter cybersecurity accelerate the adoption of DLT, which promises better accountability, transparency and data privacy.

Losers

- Data companies that fail to win consumers' trust on privacy matters struggle at a time when EU privacy legislation is becoming stricter.
- Industries based in countries embroiled in a tech war.
- Firms operating within traditional areas of cybersecurity face an existential threat. This is because investors prefer new encryption technologies to those of traditional encryption mechanisms.
- Tech companies focused on smaller domestic markets, with less access to large data pools.
- Small companies having to invest heavily to comply with an increasingly complicated web of different national and regional legislation.



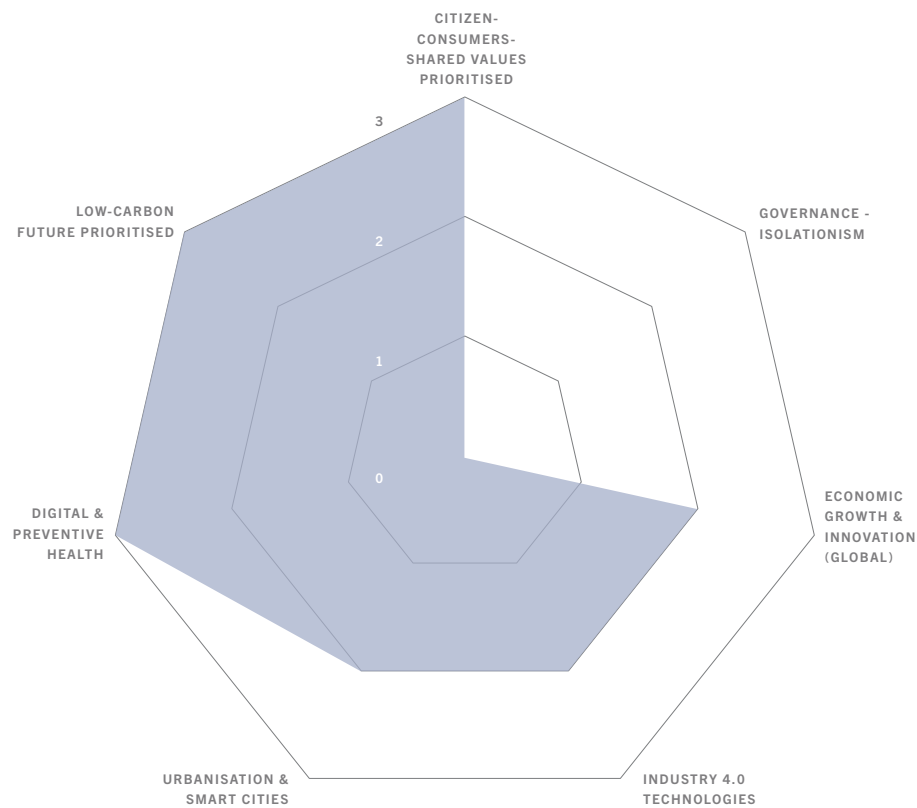


Scenario B: 'All together now'

Inspired by successful collective efforts in the battle against Covid-19, there is optimism about the future among citizens and governments worldwide. The population and their political leaders have a shared vision for a more inclusive and sustainable economy and work together to achieve that goal. Globalisation dominates trade. This results in a less 'unipolar world' – directed and constrained by US power and values - and greater 'multilateralism',

FIG.4

SCENARIO B: ALL TOGETHER NOW



Scale: 0 = Decrease; 1 = Status quo; 2 = Increase; 3 = Significant Increase
Source: Copenhagen Institute for Futures Studies, Pictet Asset Management

where the benefits of economic development are more evenly distributed. However, there are serious trade-offs. Focusing on sustainability and social responsibility leads to lower levels of competition, higher taxation, more state intervention in markets, slower economic growth and potentially less disruptive innovation.

Citizen and consumer values

The world emerges from the ravages of the pandemic with a new sense of solidarity. People identify as ‘global citizens’. There is now broad agreement among governments and the majority of the population- on the most pressing societal, economic and environmental problems and how they might be solved collectively. A more inclusive, sustainable economy is central to achieving that ambition.

Consumers acknowledge this will require profound changes in their own behaviours – convenience is to be sacrificed for sustainability. At the same time, citizens expect their governments to take responsibility too. Policy-makers are under increasing pressure to address inequality and protect the environment.

High levels of civic engagement are possible thanks to new technologies that enable individuals to participate in direct democracy and collective decision-making. As a result, governments enjoy a greater degree of trust among the general population. Corporations do not enjoy the same levels of trust. While consumers accept companies are be-

———— The population and its political leaders have a shared vision for a more inclusive and sustainable economy and work together to achieve that goal.

ginning to embrace sustainable business practices, they remain wary about the sharing of personal data.

Governance and geopolitics

Solidarity and deeper coordination characterise international relations in the next decade. Globalisation is reinvented, with the international expansion of digital media and communications helping the world’s citizens establish a shared vision for tackling societal problems.

The world transitions from a largely ‘unipolar’ order – directed and constrained by US power and values – to a multi-polar, multilateral system. In this new world, the US, China and Europe work closely together to ensure that the benefits of economic development are more evenly distributed, even if the cost is lower growth and less innovation.

Improved Sino-US relations result in several ambitious international agreements on trade, climate change, technology, and social inequality.

Greater coordination between countries leads to more effective taxation of fossil fuels and polluting industries. The UN's Sustainable Development Goals are integrated into global trade standards. International rules for new technologies spread the benefits of advances such as AI and 5G.

Global economic trajectories

Building a more inclusive, sustainable economy involves trade-offs. And these come in the form of reduced competition, higher taxation (including levies designed to limit carbon emissions and encourage more sustainable consumption), as well as more state intervention. Those in turn stifle innovation and lead to slower long-term economic growth. Private sector spending on research and development is lacklustre due to the uncertainty of commercial rewards.

Southeast Asia suffers more than most in the near-term due to its dependence on manufacturing exports; longer term, however, its prospects are improved somewhat by

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embracing advanced technologies shared by developed countries. China succeeds in rebalancing its economy from exports to consumption and fares better than its neighbours as a result. Africa emerges as a growth engine thanks to its increased integration into the global economy and its embrace of digital technology — particularly e-commerce and fintech. The US and Europe both battle higher unemployment — partly a legacy of the pandemic, and partly because of job losses caused by automation. Europe's recovery plan — Next Generation EU — fosters sustainable and socially inclusive economic development. The recovery plan ensures that the costs of economic rebuilding are met by those with the broadest shoulders, evening out the playing field within the EU and ensuring the bloc's survival.

Industry 4.0 and automation

The quality of infrastructure and the speed of adoption of existing technologies are – in aggregate – higher than before the pandemic, particularly in the emerging world. This helps narrow the development gap between emerging and advanced economies. The diffusion of technology is possible thanks to healthy competition between American and Chinese tech giants.

Cyber security becomes a major problem even though state-sponsored attacks are less frequent. This, in turn, spurs innovation in – and the adoption of – distributed ledger technologies, such as blockchain. Longer term, significant improvements in hyper-secure digital environments go some way towards allaying consumer fears about personal data privacy and security.

The biggest cost of the tech boom is unemployment. But targeted (re)training programmes – run by public-private partnerships and partially funded by robotics and automation taxes – help prevent a major spike in long-term joblessness.

Urbanisation and Smart Cities

Urban areas remain popular as places to live and work. In response to the Covid-19 crisis, efforts to reduce pollution and energy use and improve mobility gather strength. However, in return for the convenience that smart city technology brings, city inhabitants must accept share their data. The increased use of sensors and big data – across infrastructure, buildings, energy, waste and water management, and transport and mobility – leads to the gathering of vast amounts of personal information. Regulatory oversight is limited, which reduces public trust in tech companies.

New social paradigm

The pandemic is seen as a once-in-a-generation opportunity to reshape the relationship between society, the state and the economy. Measures such as enhanced worker rights, significant increases in minimum and living wages and the expansion of job protection schemes feature prominently across advanced economies.

Growing concerns about the quality, sourcing and nutritional content of food result in the adoption global safety and labelling standards. Consumers prioritise ‘local’ products, food quality and nutrition, and prefer goods that are produced using sustainable and transparent supply chains.

Healthier food is just one manifestation of consumers’ desire to lead healthier lives. They also wish to take greater control of their personal health and medication.

There is strong appetite for digital health care, including apps that drive ‘digital twin’ diagnostics as well as highly personalised, preventive health management.

Health passports, data-monitoring, and intermittent social distancing are now the norm worldwide. Standards and practices governing preventive health measures are global, even if there are difficulties in monitoring and enforcing such protocols. Restrictions on international travel are now widely accepted, with only those deemed ‘healthy’ permitted to cross borders.

In response, there is a small but significant rise in ‘anti-surveillance’ and ‘anti-globalist’ activists, who engage in cybercrime against governments, tech giants and health care corporations.

Infrastructure and low carbon future

As consumers and governments prioritise the environment, the switch to renewable energy and sustainable infrastructure gathers pace, spurred on by a re-invigorated United Nations. Investments in renewable technologies, low-carbon infrastructure and more sustainable agriculture increase as environmental regulations and technology standards align globally. The principles of the circular economy are also pursued by both governments and corporations with renewed determination.

Product prices rise – as does the cost of capital – to more accurately reflect environmental risks associated with food and energy production.

Investment implications

Resources, Energy & Environment

As governments and citizens across the world embrace sustainability, the volume of investment directed toward green sectors grows exponentially. This increases the investment appeal of most environmentally oriented industries. A more robust carbon pricing regime is established, resulting in extra taxation for greenhouse gas emitters and boosting demand for clean energy and energy efficiency technology (heating, cooling, monitoring) among both corporations and households.

Winners

- Tighter rules governing how companies control pollution and manage waste creates new growth opportunities for companies operating in these sectors.
- The pricing of 'externalities' into companies' cost of capital also extends to water use; in other words, water now commands a market price. This accelerates the privatisation of the global water infrastructure, enhancing the prospects of companies operating in water technology industries.
- Sustainable forestry expands as an increasing number of countries see it as a carbon sink.
- With regulatory and tax burdens rising to facilitate the shift to a sustainable economy, large cap firms find themselves at an advantage, able to capitalise on their economies of scale. This results in an increase of pricing power.
- Companies investing in circular economy solutions across global value chains, who achieve a clearer sustainability profile on top of efficiency gains.

Losers

- A more robust carbon pricing regime has negative repercussions for several heavy industries, especially those most closely associated with fossil fuels, where there are several sustainability laggards.
- Stranded assets become a significant problem for oil and gas producers.
- Auto manufacturers and resource-intensive industries such as cement, mining and steel companies face a sharp rise in the cost of doing business.
- Embracing sustainable business practices also puts pressure on the meat production industry given its outsized environmental footprint.
- Heavy water users, who now must pay a higher price for the use of water, experience a sharp rise in their cost of capital.
- Sectors such as traditional biofuels (with high water consumption), and lithium-ion batteries, risk falling foul of more stringent regulations; traditional, resource-intensive agricultural firms also struggle.
- As the overall cost of doing business increases, smaller companies find themselves at a disadvantage to their larger peers, whose economies make it easier to absorb additional expenses.

Healthcare and healthy living

Global integration encourages the expansion of cross-border supply chains, while consumers increasingly demand common standards and supply chain transparency. People also take a more active interest in their own health and nutrition and focus increasingly on preventive healthcare measures. Healthcare providers come under pressure to meet rising environmental and social standards. Greater scrutiny of marketing practices of pharmaceutical companies increases the cost of doing business.

Winners

- Companies with advanced, transparent and increasingly sustainable supply chains.
- Large and established companies that can make the necessary significant R&D investment to remain competitive on a global scale.
- Firms working on genomic and predictive analysis apps see rising interest from consumers and governments.
- Businesses developing blockchain/distributed ledger technology to create health passports as well as related services.
- Companies with access to global data, particularly those that achieve significant scale.
- Greater international coordination of drug prices results in an oligopoly among large players. Companies with global supply chains enjoy success faced limited competition.
- Anti-microbial resistance is a key concern, significant research on this area gains momentum – public and private.
- Health and tracking data attract increased investment and at a time of intermittent social distancing, monitoring, and enforcement. Health tech companies new solutions to track people and combine with health-specific data (temperature from watches and contact tracing) are successful.

Losers

- Smaller companies with innovations are taken over rather than allowed to grow into large players in the pharma/health sectors.
- Companies with specialist offerings struggle, while large health tech firms grow.
- Global standards for home and food care products increase barriers to entry for new entrants.
- Capital constrained companies and those with low R&D productivity lack the ability to launch large, expensive studies and fall behind competitively.
- Private hospital operators come under greater regulatory scrutiny.

Technology

The efficiency of robotics and automation has reached a point at which countries with high labour costs can begin to compete with those operating with lower cost bases. The healthy tech rivalry between the US and China improves economic productivity and well-being but hampers the growth of tech firms outside those countries. China manages to maintain its position as the “world’s production plant”, raising some concerns over privacy in smart technologies such as IoT and 5G. Against this backdrop, companies with large big data and AI divisions thrive as they succeed in monetising large data sets while simultaneously addressing privacy and cybersecurity concerns for consumers.

Winners

- China, as the main producer of technological equipment. The country manages to maintain its pole position by upgrading its capabilities within robotics and automation.
- Large companies, which can manage encryption and cybersecurity risks more effectively to compete in this contested space.
- Companies investing in decentralised ledger technologies (DLT) to drive accountability, as well as transparency, privacy and anonymity could offer significant gains in a ‘winner-take-all’ world at a time when non-EU countries struggle to meet calls for transparency.
- Autonomous electric and mobility producers thrive as demand for such systems grows in major cities.
- Resource efficiency-oriented companies within industrial software and automation outperform thanks to growing demand from business customers for green solutions.
- Power semi-conductor manufacturers whose products help boost energy efficiency (e.g. in industry and transport). Firms which integrate renewables into the power grid will also fare well.

Losers

- The EU seeks no further data privacy legislation beyond GDPR. This makes it challenging for EU-based companies to compete and collaborate.
- Companies using outdated protective encryption systems are vulnerable to cyber attacks.
- Companies too small or weak to compete in a disruptive world – including those in logistics and transportation that are slow at digitising and embracing automation.



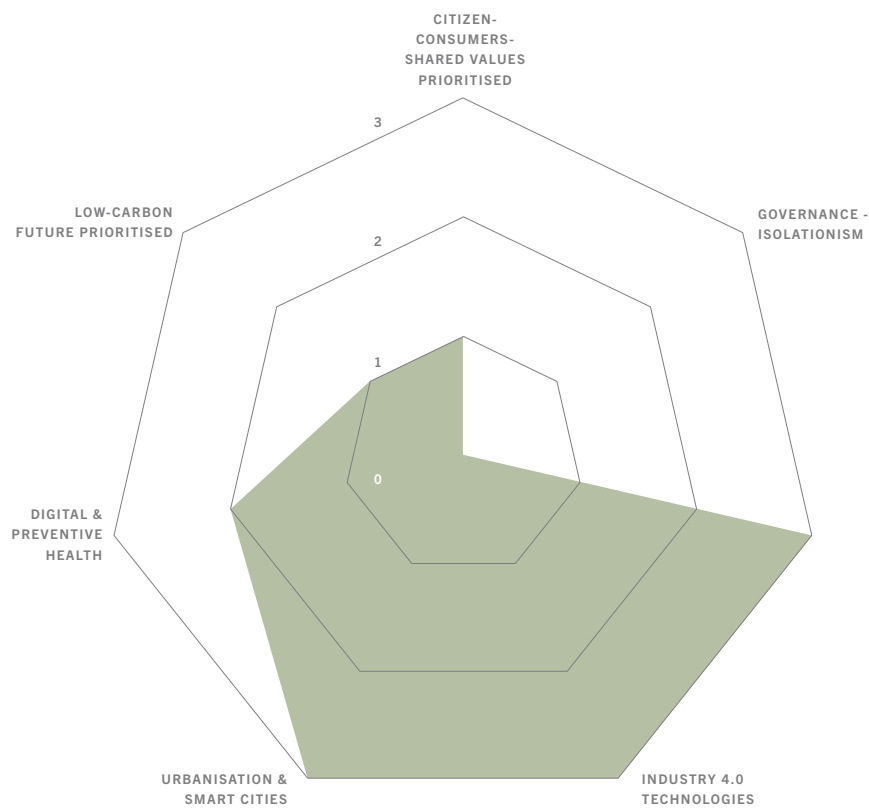


Scenario C: 'Not my problem'

The pandemic has alerted governments to deep-rooted problems they had long neglected. Inequality, poor social mobility and environmental damage are now considered global threats that require global solutions. Countries consequently approach international relations with renewed determination and ambition; they pursue deeper agreements on trade, technology, the environment, and worker protection. Still, complications abound. Governments find

FIG.5

SCENARIO C: NOT MY PROBLEM



Scale: 0 = Decrease; 1 = Status quo; 2 = Increase; 3 = Significant Increase
Source: Copenhagen Institute for Futures Studies, Pictet Asset Management

it difficult to convince their own citizens that they are also part of the solution. That is primarily because large segments of society emerge from the upheaval of Covid-19 nursing a deep sense of insecurity – the lower and middle classes fear for their livelihoods and financial wellbeing. They consequently turn inwards and disengage from political discourse; they view government attempts to create a more responsible, stakeholder economy with scepticism.

Governments can however count on some assistance from the technology industry; advances in artificial intelligence, big data and automation technology allow for significant improvements in the health and wellbeing of society at large.

Citizen and consumer values

The experiences of the pandemic have left citizens overwhelmed by the sheer complexity of modern life. Turning inwards, they prioritise their own financial security, and disengage from political discourse and community life. While they accept that environmental degradation and social inequality pose challenges to future prosperity, they reject the idea that changes in individual behaviour can make a difference. It is not for individuals to solve global problems, but governments and international institutions.

————— **Countries approach international relations with renewed determination and ambition; they pursue deeper agreements on trade, technology, the environment, and worker protection. [But] governments find it difficult to convince their own citizens that they are also part of the solution. This is because large segments of society emerge from Covid-19 nursing a deep sense of insecurity.**

Consumers emphasise convenience and cost rather than environmental, societal and ethical considerations in their purchasing decisions. Sustainable products and services remain a niche industry.

Governance and geopolitics

The devastation caused by the pandemic has served as a wake-up call for governments worldwide; mainstream political leaders now recognise that problems such as inequality, inadequate health provision and climate change can only be tackled through international coordination. China assumes greater responsibilities on the world stage, working more closely with the US and Europe. The Sino-US relationship also improves thanks to China's conciliatory approach. Against this backdrop, international institutions such as the World Trade Organization, the United Nations and the International Monetary Fund attempt to modernise their governance structures to maintain their relevance.

Their funding remains limited, however, as governments prioritise spending on domestic social, health and environmental programmes. Efforts to transition to a cleaner and more inclusive economy are hampered somewhat by the general apathy of citizens. With large sections of society prioritising their own security and wellbeing in the wake of the pandemic – household finances and employment are bigger concerns than societal or environmental problems – a sustainable economy fails to become a genuinely ‘shared endeavour’. Large technology companies acquire influence in the setting of international standards.

Global economic trajectories

Economic growth is buoyant across the world as governments and businesses focus on revitalising trade in the aftermath of the pandemic. A thriving tech sector – and the improved diffusion of technology from country to country – makes a strong contribution to productivity and world output. International capital flows and foreign direct investment rise.

———— With large sections of society prioritising their own security and wellbeing in the wake of the pandemic – household finances and employment are bigger concerns than societal or environmental problems – a sustainable economy fails to become a genuinely ‘shared endeavour’.

China diversifies into new sectors beyond manufacturing and raw materials. Africa, Latin America and emerging Asia benefit from rapid and deeper integration with the global economy and access to advanced technologies. The US also enjoys strong growth, capitalising on its position as the global leader in technology. Europe’s tech sector lags behind those of its peers due to the implementation of tougher regulatory standards there.

Governments around the world have borrowed extensively during the worst phase of the pandemic but their debt levels are gradually falling thanks to higher tax revenues from increased economic growth. Governments are cautiously optimistic about balancing their budgets, funding spending programmes and servicing debt in the medium to long term.

Industry 4.0 and automation

Tech giants are a dominant force in 2030, and their influence has a big impact on society. Demand for technology accelerates as consumers seek products and services that deliver convenience at a lower cost. A handful of big tech companies offer common, integrated technology platforms; many of which include systems that warn users of future pandemic risks. Governments outside Europe loosen some technology regulations, or even directly support such corporations and platforms.

The spread of robotics and digital automation technologies increases “technological unemployment”; machines are not only replacing blue-collar workers but knowledge-based professionals too.

Increasing job losses and inadequate social support for the displaced feeds reactionary populism. In some instances, however, governments seek to mitigate the worst effects of automation on the workforce; many offer broad access to digital education and training opportunities to find high-skilled and knowledge-rich jobs.

Urbanisation and Smart Cities

In the aftermath of Covid-19, those living in densely populated cities accept that technology will inevitably play a bigger role in their lives. This allows for the expansion of smart city technologies and systems in metropolitan districts. The growth of such technology has in part been fuelled by multi-billion-dollar investments by global tech companies, which now enjoy considerable economies of scale. City dwellers use a wide range of security technologies, including the kind that aims to protect the public from disease, pollution, terror attacks and criminal behaviour. Concerns about data security and privacy are secondary to convenience and cost.

New social paradigm

Governments and their citizens emerge from the ordeals of the pandemic with differing priorities.

Citizens are disengaged politically as the upheaval unleashed by the virus leaves them concerned about their future. They prioritise their own financial wellbeing and livelihoods above all else; civic duties are a secondary concern. This often puts them at odds with their governments who see Covid-19 as a once in a generation opportunity to build a genuinely sustainable and inclusive economy.

There is, however, agreement on personal health. Governments and citizens both recognise the importance of preventive and predictive health measures. Digital health monitoring tools and apps are now part of general health provision; med-tech and artificial intelligence are also used to help individuals lead healthier lifestyles and contain virus outbreaks. The digital health industry is run by large pharma and tech firms armed with big personal and clinical data. Some national healthcare systems to decline in relevance as a consequence.

Labour markets also undergo change as remote working becomes mainstream and governments allow skilled workers move across borders.

Infrastructure and a low-carbon future

Governments and international organisations work to establish common standards for a more circular approach to infrastructure development. The ultimate aim is to direct investment to sustainable and energy-efficient building materials, renewable energy, public transport, and greener transportation fuels, including biofuels and Power2X –or renewable energy conversion and storage technology. However, the wholesale switch to such innovative technologies faces resistance from consumers. With a large number of households engaging in ‘precautionary saving’, consumers opt for convenience and low-cost options. Ethical considerations generally do not form part of purchasing decisions. Car and air travel remain popular. In turn, companies lack incentives to invest and develop environmental products and services.

Investment implications

Resources, Energy & Environment

In a world where cost-effectiveness and convenience have become a priority for consumers worldwide, spending on – and business investment in – sustainability-related products and services slows.

Although some governments are keen to shift their economies onto a more sustainable footing to mitigate externalities, improve public health and secure long-term energy supply, consumer apathy proves a major stumbling block to the realisation of such ambitions.

Winners

- Environmental industries whose products and services can be shown to lower production costs enjoy better growth.
- Energy-efficient green options for power generation – those whose costs were already falling during the pandemic such as utility-scale solar and onshore wind energy – maintain some momentum.
- Nuclear is seen as a viable long-term alternative with fewer direct externalities than fossil fuels, even if it is not cost competitive in every country.
- Industries once at risk from the introduction of higher carbon taxes, such as steel, cement, mining and fossil fuels remain viable investment opportunities.
- Technologies designed to extend the life of fossil fuels benefit, e.g. carbon capture and storage.

Losers

- Several environmental industries face an existential crisis, especially the ones relying on subsidies to function.
- Electric and hydrogen transportation suffers. Despite a raft of regulations intended to electrify public transport, weak consumer demand weighs on sales of electric vehicles. Such developments echo what occurred in the late 1990s and early 2000s, when subsidies intended to boost renewables across Europe failed as government plans were met with resistance from consumers.
- Companies producing environmentally friendly but higher cost alternatives to traditional fertilisers, transport fuels and plastics struggle to lift sales.
- More decentralised, less price effective options such as residential rooftop solar struggle as consumers place a premium on cheaper rather than sustainable options.
- Sustainable food and nutrition industries face a considerable obstacle in the shape of consumer apathy.

Healthcare and healthy living

Big tech companies and national governments contest the ownership of consumer health data and the apps used to gather and analyse it. Closer international regulatory collaboration serves to accelerate approval processes for drugs and medical devices. The strong focus on individualisation of medical care may have an impact on insurance models and risk pooling, as consumers are less willing to subsidise the health care of others, prompting a shift towards outcome-based pricing and raising the risk of two-class health care system. Pharmaceutical firms become takeover targets for tech firms, with tech companies taking advantage of their ability to leverage software and data capabilities/competencies to rapidly roll out services incorporating clinical health databases. Established tech companies are in a race to lock in customers with subscription services. The healthcare ecosystem is largely controlled by tech firms that have access to large databases, while biotech companies trail behind. Customers are fickle and want high value offerings. They are willing to share data and companies that can offer data security and anonymity are at an advantage.

Winners

- Data-driven health and nutrition-as-a-service companies, delivering low-cost, highly convenient, and customised health care services - subscription-based based healthcare providers.
- Tech companies providing AI / big data health solutions.
- Drugs, food and cosmetics companies that offer best value services and products.
- Multinationals with low costs and large scale.
- Data-driven insurance companies with scale.
- Health analytics companies.
- Insurers and other companies that offer individualised services.
- Small, but growing number of start-ups with novel offerings – incorporating data and behavioural data emerge. They have a small but loyal customer base.

Losers

- Multi-nationals run the risk of a significant public backlash if they are perceived to be pursuing profit at the expense of the health of the most vulnerable in society.
- Established players focusing on brand over value at a time where content matters.
- Premium sustainable products will suffer at a time when convenience dominates consumer choices.

Technology

Globalisation remains a potent force in this scenario. As a result, global tech giants emerge as dominant players. A few of them become more powerful than nation states.

Winners

- Global tech giants in the areas of AI and big data, the telecommunications value chain and semiconductors – all of which are able to satisfy consumer demand for customisation.
- Developers of extended reality (XR) technologies as growing demand from consumers less concerned about privacy boosts investment into the industry.
- Virtual platform operators with access to big data. Their competitive advantage stems from their ability to collect and efficiently and analyse big data and gather insights for decision-making. The bigger firms are, the more data they can potentially collect, which means the biggest platforms enjoy a clear advantage over smaller tech companies.
- Digital education businesses. People without access to traditional education can now benefit from significantly improved and scalable high-quality educational offerings, customisable to individual learning styles and taking place in virtual worlds.
- Organisations able to upskill and retrain staff facing redundancies.

Losers

- Traditional stores and commercial outlets, which are struggling due to the increased convenience of online purchases.
- Smaller tech companies relegated to in-world service offerings but without negotiating leverage/pricing power.
- Established public education systems, such as expensive and legacy-driven Western universities, whose alumni degrees are rapidly diluting in value.
- Public sector and municipalities highly dependent on public-private partnerships which lack bargaining power to keep costs down.
- Industry and manufacturing unable to capitalise on automation technologies.



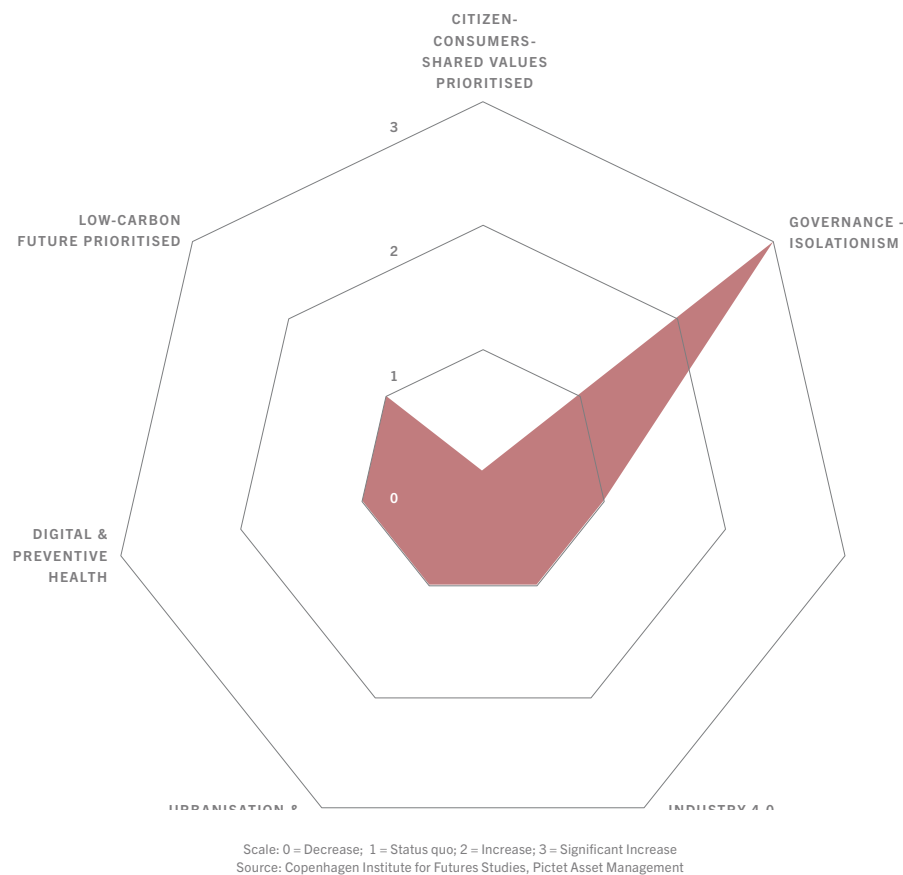


Scenario D: 'Going it alone'

The world is a less optimistic place. The experience of living through the pandemic has left citizens feeling overwhelmed by the sheer complexity and unpredictability of modern-day life. They have lost confidence in governments' ability to address the problems laid bare by Covid-19, and are more pessimistic about their own future, disengaging from the political process. Ethical and environmental considerations and the idea of 'shared sacrifice'

FIG.6

SCENARIO D: GOING IT ALONE



no longer hold sway. For their part, and similarly stung by the experiences of the Covid-19, nation states turn inwards in an effort to safeguard their own natural resources, industries and workers. International co-operation is limited, which means little or no progress is made in tackling global problems such as environmental degradation and social inequality. Trade and economic growth both suffer.

Citizen and consumer values

The experience of living through the pandemic have left citizens feeling overwhelmed by the unpredictability of the modern world. They have lost confidence in governments' ability to address the problems laid bare by Covid-19, and are pessimistic about their own future, disengaging from the political process. Most societies have seen their sense of community decline. Notions of 'shared sacrifice' are abandoned while individualism, self-interest and, above all self-reliance, prevail.

Consumers become increasingly risk averse and 'austerity-living' becomes the norm as households seek to insure themselves against future pandemics and economic downturns. Neither ethical nor environmental considerations hold much sway in consumers' purchasing decisions and lifestyle choices.

———— [Citizens] have lost confidence in governments' ability to address the problems laid bare by Covid-19, and are more pessimistic about their own future, disengaging from the political process... For their part, and similarly stung by the experiences of the Covid-19, nation states turn inwards in an effort to safeguard their own natural resources, industries and workers.

Governance and geopolitics

A prolonged global economic downturn unfolds, testifying to a lack of political and corporate leadership. The world is a much less optimistic place; governments and businesses lack the confidence to invest in long-term projects. Nation states turn inwards, international alliances fragment. Hindered by the conflicting goals and agendas of individual nations, the world fails to take on problems such as climate change and social inequality. Sustainable and inclusive economic growth are widely considered unachievable. Governments reverse expensive pandemic mitigation programmes due to constrained budgets and lower tax revenues.

Many nations respond to the challenges stemming from Covid-19 by pursuing nationalistic agendas. They largely shun international institutions and focus instead on curtailing immigration and protecting domestic industries. State intervention is a feature of economic policy. This leaves a void in global leadership. Although multilateralism is in rapid decline, opportunistic bi-lateral agreements in the areas of trade, technology, and security proliferate. Examples include a free trade agreement between the UK and US, and a strengthening of the intelligence-sharing pact between Japan and South Korea. Global supply chains are replaced with more local ones to better insulate domestic economies from international disputes and disruptions.

China emerges as the only economic superpower with some spare political and financial capacity. The country uses its resources to expand its sphere of political, economic, and financial influence, and enjoys some success as the renminbi becomes the dominant currency in Asia. But tensions with the US are rising, co-operation areas such as trade and technological development deteriorate.

———— Many nations respond to the challenges stemming from Covid-19 by pursuing nationalistic agendas. They largely shun international institutions and focus instead on curtailing immigration and protecting national industries.

The risk of military conflict increases. While The US dollar remains the world's reserve currency, other currency zones – the euro, the renminbi – expand their influence. This leads to conflicts over trade and fragmentation of political and military alliances.

Global economic trajectories

The prevalence of protectionist measures worldwide reduces the growth potential of the global economy significantly over the longer-term. The dismantling of global supply chains, restrictions on immigration and the ringfencing of strategic industries by governments increase businesses' input costs, raising the prospect of stagflation. As international trade declines, nations that depend on exports – many of which are in the emerging world – suffer disproportionately and unemployment levels in those countries' rise. Aided by China's slow transition toward a more con-

sumer-based economy, Asian consumption is the main locomotive of growth. Some regional partnerships survive the shift to a more fragmented world. These include China's Belt & Road Initiative and a number of green infrastructure projects in the EU. The US concentrates capital spending on its own infrastructure, while Brazil is able to press ahead with development of the Amazon river basin ecosystem, as international efforts toward environmental protection break down and are ignored.

Industry 4.0 and automation

Most nation states engage in a race to gain technological supremacy, primarily as a geostrategic defensive measure. In general, countries follow the dominant technology standards in their region. Asia adopts Chinese standards while the EU and the US develop their own. This has economic consequences: the absence of global tech standards impedes the diffusion of technological advances, weighing on productivity. Each nation is determined to develop home-grown tech powerhouses capable of protecting its national security. This creates instability. In many ways, the tech rivalry has parallels with the Cold War. There is a strong undercurrent of mutual distrust while corporate espionage – much of it state-sponsored – becomes a fact of life.

Even if the technology industry is held back by the absence of global standards, regional and national protocols allow the robotics digital automation sectors to thrive. No longer able to rely on cheap immigrant labour, industrial and services companies turn to automation to meet their needs. Some governments attempt to mitigate job losses resulting from declining international trade and increased automation with social support programmes. In general, however, such measures are not generous enough to prevent unemployment from rising above its long-term average.

Urbanisation and Smart Cities

Even as the pandemic threatened to stall or reverse urbanisation, cities have continued to expand. Smart city development continues but at a more modest pace, due to competing technology standards and lower public and private investment. Governments take an active role in developing smart cities through public-private partnerships. Investments in smart cities are spread out across countries; new 'twin cities' spring up (urban-rural) to promote internal migration. Still, with the level of investment failing to keep pace with the growth of the population, urban de-

cay, pollution, and crime continue to be features of urban living. City inhabitants remain concerned about data security. Yet they are willing to sacrifice some privacy to benefit from the convenience that smart city technology delivers. Authoritarian governments use smart city technologies as a tool to manage perceived threats to safety and security – anti-establishment political groups and journalists are closely monitored.

New social paradigm

With individual nations acting with greater autonomy, policies aimed at addressing societal sustainability goals are devised unilaterally. Global agreements are no longer considered effective or desirable. At the same time, most of the population disengages from the political process, with citizens having little or no confidence in governments' ability to tackle the complex problems facing society. The breakdown in trust between the population and its political leaders reflects deeper fractures. Unsettled by the complexity of modern life, citizens turn inwards, becoming more self-interested and individualistic.

Law and order, and security are among the few issues voters care about. They are happy to trade some freedoms for security, enabling governments to maintain a fair number of the restrictions introduced during the Covid-19 crisis. There is a heavier police presence on the streets, large gatherings of people are restricted, and contact tracing becomes commonplace. Covid-19 remains a persistent threat to daily life and peoples' livelihoods. Individuals, worried about their jobs and personal finances, begin to save more and spend less.

Consumers increasingly value convenience and cost, while paying little attention to issues such as sustainability when purchasing goods and services. Habits such as recycling continue but only when convenient. Consumers are, however, inclined to spend more on personal health – wearable technology and other health-monitoring devices enjoy strong demand, as do products associated with healthier lifestyles. Technology occupies a prominent role in society, with individuals largely untroubled by matters such as data security and privacy.

Infrastructure and a low carbon future

Sustainability is no longer a priority for governments, companies or, indeed, the population at large. ‘Environmentalism’ is once again the preserve of activists. As a consequence, the environmental products and services market is now a niche industry that offers few opportunities for profitable growth.

Investment in new renewable technologies only occurs when exceptionally profitable. Most of the investment is directed towards local, small-scale projects. Even so, some governments attempt to co-opt the ‘sustainability agenda’ to justify protectionist policies. In agriculture, for example, reducing food mileage becomes an excuse for the ring-fencing of domestic food producers and the introduction of import tariffs. The same occurs in the renewables sector, where governments direct investment to protect jobs rather than to meet clean energy goals.

Investment implications

Resources, Energy & Environment

In a fragmented world in which governments and their citizens prioritise their own economic wellbeing, prospects for environmental products and services industries darken. Protectionist measures – higher tariffs and tighter product regulations – reduce exports, causing disruptions in global commodity supply chains, and exacting a particularly heavy toll on renewables.

Winners

- Traditional power sectors such as fossil fuels reign supreme, while energy- and resource-intensive industries such as steel and cement and mining also experience strong growth.
- Some areas of environmental technology manage to build on past successes, especially those proven to be cost-effective. For example, energy efficiency and circular economy due to the economic efficiency gains they bring.
- The European and American solar industries witness a revival of sorts as the technologies remain cost competitive with coal; restrictions placed on imports of Chinese solar panels also help boost the EU and US solar markets.

Losers

- The Chinese solar industry is among the worst affected. Solar panel costs rise sharply as the US and others hike import tariffs on China, the world's largest manufacturer of such equipment.
- In the absence of government and consumer support, production costs for alternative energy remain high relative to fossil fuels.
- The decline in international trade inhibits the diffusion of new environmental technology.
- Companies that have allocated considerable resources to become more sustainable find only a minimal return on that investment and many are forced into rethinking their priorities.
- As protecting the environment is no longer a priority, this negatively affects the environmental solutions and pollution control industries.
- The ESG premium on equity and stock investments shrinks.
- The traditional automotive sector sees production costs fall as regulatory burdens ease but are negatively affected by trade barriers.

Healthcare and healthy living

As many countries close in on themselves, and as international coordination and cooperation is limited, the case for increasing national health-related taxation and regulation is strengthened. This risks creating greater inequalities in health provision. Aggregate spending on health declines while the inequality of health provision grows across many countries.

Winners

- Internet-of-Things (IoT) related healthcare solutions such as remote monitoring, telemedicine, and wearables see growth. Despite relatively limited innovation in the healthcare sector, the integration of IoT with traditional medical devices creates new areas of growth as a solution to chronic conditions like sleep apnea, diabetes, kidney failure.
- Health and nutrition-as-a-service companies as well as national champions experience a tailwind in the less globalised world among convenience-driven consumers.
- The private sector targets areas such as age-related disease where a relatively low level of investment is required to repackage existing offerings.
- Digital health, diagnostics and self-care are growing segments, driven by consumer demand.
- Operators of private hospitals see continued growth as higher income groups devote greater resources on maintaining their own health.

Losers

- Private sector companies dependent on government spending.
- Public healthcare falls behind as it receives limited attention and support from citizens and governments.
- Health-tech start-ups see limited growth, as the healthcare market fails to seek or invest in innovations.
- Multinationals relying on global supply chains or markets, including large health lifestyle groups with large international footprints.

Technology

Geopolitical rivalry, the dissolution of trade agreements/alliances and governments' emphasis on national security prove extremely challenging for large multinationals and global technology companies. Global supply chains are increasingly fragmented, creating a complex regulatory framework and a web of competing national tech standards. Together, these curtail tech companies' ability to expand internationally and reap economies of scale.

Winners

- Smaller, more domestically oriented tech firms and start-ups benefitting from big tech's woes, especially those operating in online gaming and entertainment and app development. Regulators are keen to protect home-grown companies from the threat of takeover by large tech groups.
- European tech firms enjoy some success, as they benefit from the region's increased investment in digital infrastructure – funds that formed part of the region's EUR750 million pandemic recovery programmes.
- National governments wield more power as bilateral alliances and intergovernmental institutions weaken. Also, tech surveillance organisations and cybersecurity firms fare well as consumers are more relaxed about privacy and the protection of data.
- Automation enables manufacturers to bring production home, which shortens supply chains through local, automated production. Reshoring of production is aided by the development of 3D printing for temporary component manufacturing.

Losers

- Large tech companies; they struggle to deal with fragmented supply chains and more stringent regulatory frameworks, both of which serve to increase costs and reduce profit margins. For many, the cost of tailoring their offering to meet local regulations and product standards is prohibitively high.
- Tech firms based in China and the US; they both suffer the effects of increased conflict and trade wars.



Wildcards and Black Swans

When we map out scenarios, we also consider extreme events or wildcards. Wildcards are, by definition, less plausible than scenarios, but they are still possible and highly impactful when they occur. The following are considered wildcards, based on extremes that could be categorised as “black swans”:

- **China wins global cryptocurrency race**
The world moves quickly toward digital currencies, China wins the race with the West to set the global standard and displaces the dollar.
- **Thucydides trap**
The US and China fail to escape the historical pattern when a rising power challenges the established one – as Athens challenged Sparta in ancient Greece – and conflict breaks out in the South China Sea.
- **Global sustainability agenda blocks progress**
Traditional ideas and resistance to change limit imaginative thinking and disruptive innovation, blocking progress on climate change.
- **Failed global middle class**
The failure to halt the pandemic or slow climate change sees China and Africa fall permanently into the middle-income trap. Africa risks being left behind as it fails to industrialise in the face of cheap automated technologies.
- **Differentiation is dead**
AI-powered digital interfaces and assistants make all future decisions in a highly customised, personalised way, leaving little room for differentiation for brands or business models.
- **Synthetic biology and engineered global pandemics**
Genetic engineering enhances the virulence of pathogens, creating synthetic designer germs. The next global pandemic is deliberately created by malicious agents, killing tens or even hundreds of millions.
- **Civic-minded individuals demand mass surveillance**
Malicious, non-state actors use new technologies to mount attacks on key infrastructure - medical, cybersecurity and finance. Consumers pivot rapidly from data privacy and human rights to an acceptance of the need for mass surveillance.
- **Democratisation of technology and the demise of nation states**
New technologies provide individuals with ways to bypass traditional routes to bring about political and social change.



Appendix

Scenario methodology

How does CIFS work with scenarios?

CIFS has developed a customised engagement model around scenario planning and strategy development, known as The Copenhagen Method™. This approach is grounded in the use of various foresight and futures studies methodologies and tools as well as over 50 years of experience. While the specific methodologies and tools vary from case to case, The Copenhagen Method™ always includes the following elements:

(1) Analysis of megatrends and the contextual environment

Megatrends are long-term trends (lasting at least 10-15 years) that influence societies globally and locally and thus are central to scenario planning. Using megatrends as a framework, CIFS carries out a preliminary analysis of the contextual environment – STEEP, values, culture, and the built and natural environment – with a focus on how it may impact a particular sector, group, system, or concept both today and in the future.

(2) Engagement with and analysis of the interactional environment

Using the megatrends as a point of departure, CIFS works directly with scenario process participants to identify and prioritise themes that are specific to the focus of the scenario process. These themes emphasise developments both related to and between key actors within the focus of the scenario process.

(3) Development and impact analysis of polarities

Based on the identified trends and themes, CIFS develops polarities that propose two opposing directions in which the trends and themes could develop. CIFS and scenario process participants work together to identify the implications of the polarities.

(4) Future scenario building

CIFS and scenario process participants identify two sets of polarities that are determined to have the greatest impact on future developments in the focus area of the scenario process. These polarities are used to build a grid which lays out four plausible future scenarios. The scenarios take the form of narratives that include contextual information, implications for individuals, organisations, and societies, and insights that can be used for strategy planning.

(5) Strategy development

After co-creating a set of four plausible future scenarios, CIFS and scenario process participants focus on identifying a range of key strategic areas and goals to increase resilience across the scenarios. While no strategy will ever be robust to all scenarios, strategy development should consider a range of alternative futures when thinking about risk-reward trade-offs in a holistic perspective – to better ‘future-proof’ organisational strategy.



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About the Copenhagen Institute for Futures Studies

The Copenhagen Institute for Futures Studies (CIFS) is a leading global think tank and consultancy. It uses a wide range of research methods, developed over the last 40 years, which include megatrend analysis, scenario planning, risk management, and strategy development. CIFS works for and with public, private, and academic organisations around the world.

Pictet Asset Management has been a partner of CIFS for over a decade. Under this partnership, the two organisations jointly conduct scenario analysis and research into the effects of megatrends - structural, long-term changes in the environment, society, politics, technology and the economy.



Acknowledgements

Pictet Asset Management and the Copenhagen Institute for Futures Studies would like to thank the following for their contributions to this report

Sandrine Zerbib, Founder, Full Jet, China-focused consumer brand consultancy and member of Pictet Advisory Board

Tope Toogun, CEO of Cognition Advisory, a development consultancy specialising in Africa

Wolfgang Lehmacher, Consultant specialising in supply chain management, logistics and technology

Mathis Wackernagel, President of Global Footprint Network, a sustainability research group

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Dr Chris Kutarna, Author, historian, adjunct at Oxford Said Business School

Tore Duvold, Life sciences expert and board member at Coegin Pharma, a Norwegian pharmaceutical firm

Vaclav Smil, Distinguished Professor Emeritus, University of Manitoba

Carl Frey, Director, Future of Work Programme at Oxford Martin School, University of Oxford

Doron Bergerbest, Founder and CEO, Asero, a security consultancy

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Issued in September 2020
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