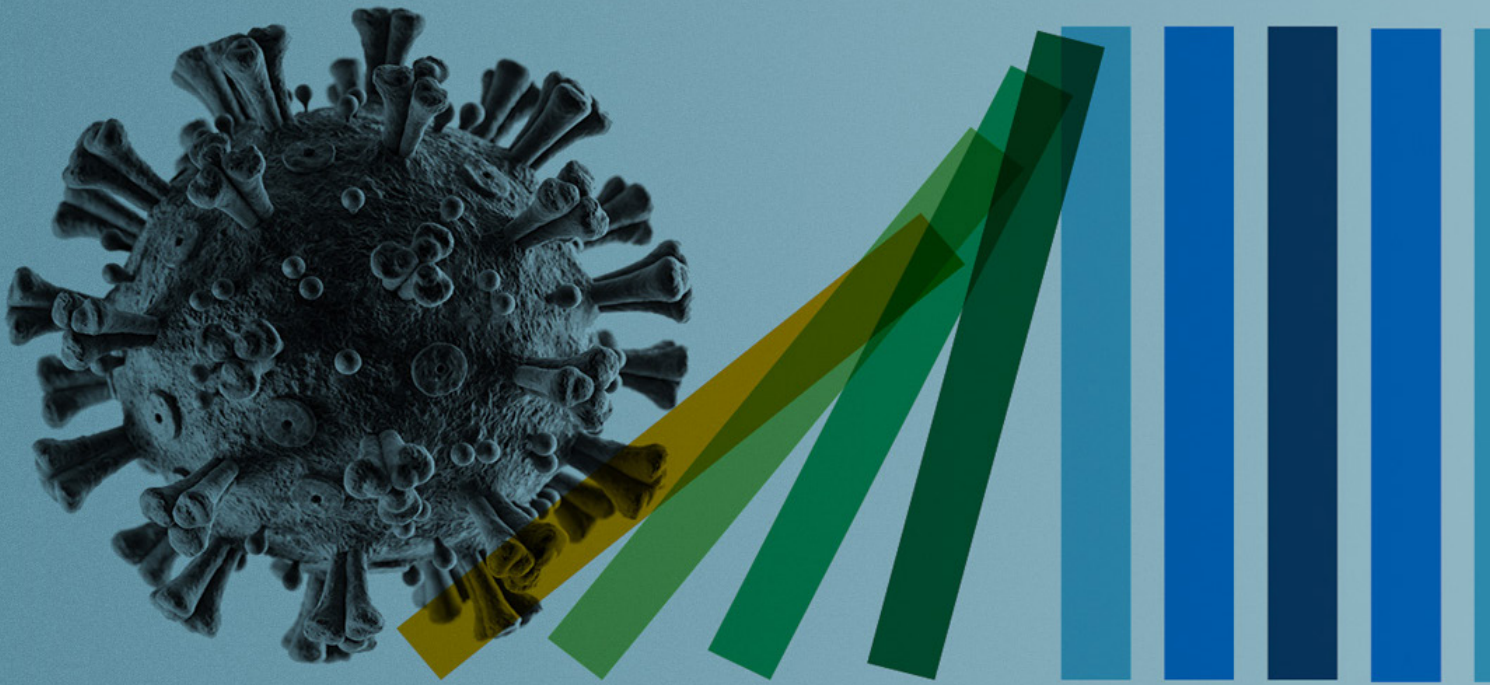


INSURANCE FUTURES

# COVID-19: The great acceleration

By Peter Kingsley of The Oracle Partnership

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Towards the end of 2019 and early 2020, we published Insurance Futures, a series of essays exploring the possible futures of the insurance landscape to 2035, commissioned by Milliman.

Beneath the surface, yet clear on our risk horizon, was the near certainty that a pandemic would emerge—a major wild card event well-known to governments and major corporates around the world. The uncertainty was timing.<sup>1</sup>

This essay looks back at the main themes of Insurance Futures, after what we call ‘the great acceleration’. We explore geopolitics, climate change, financial stability and trade. We take another look at cities, sustainability and radical innovation.<sup>2</sup>

The original essays shared a common narrative about a world of fragile, tightly coupled systems and growing risks of extreme events. The pandemic, put simply, has accelerated many of the developments we explored. It has, for example, given new urgency to action on climate change. Cultural transformations that might have taken decades are happening in weeks. We are seeing radical economic development and invention, particularly amongst medical research teams around the world.

We begin by focusing on how individual countries responded to the pandemic. We illustrate some of the lessons to be learned, to draw out how the future may unfold. After the reset, recovery of complex societal systems will depend on the new ‘initial conditions’. Countries that acted quickly and implemented well-designed public health measures will emerge with better long-term prospects. In the short-term, country risk will be a primary factor as the cycle of lockdown and recovery continues.



We then move on to explore the impacts of the crisis on some of the themes of the earlier essays. We illustrate the implications for the insurance industry. Finally, we examine the idea that amidst the volatility and uncertainty, insurers, the public sector and the wider community have an opportunity re-invent risk management. Novel approaches to systemic risk and exponential innovation will shape the future.

This is not a reset in the sense that we can expect stability or a return to ‘normal’. The pandemic emerged at a time when many global systems—from finance and trade to multi-lateral governance and the earth’s biosphere—were, as we illustrated in the original essays, vulnerable.

The crisis has created a ‘hyper-turbulent’ environment, characterised by two inter-related factors. Complexity, radical uncertainty and exponential rates of change coincide with the inability of many global, national and corporate leaders to adapt. ‘Inter-systemic’ failures that coincide in time create ‘perfect storms’ and present major challenges. Policy levers no longer work or have unintended consequences.

One lesson is that long-term thinking, good governance and stewardship are vital.

For the insurance industry, a vital socio-economic sector that both underwrites strategic risk and, as a primary asset owner, investment in the future, the pandemic amplifies both the risks and opportunities.

## Shockwaves

In these conditions, we can expect wave after wave of shocks and policy errors, primarily because leadership teams are often flying blind.

The public health crisis may create casualties for years, even if treatments and vaccines emerge. The full political and social impacts of the virus remain uncertain, even before the humanitarian crises in the poorest communities emerge.

The economic impacts will last for a decade or perhaps a generation. GDP is in free-fall and the mountain of debt rising by the day. To put this in context, according to the Institute of International Finance, global debt rose to 322% of GDP in 2019 before the pandemic—40 per cent higher than the onset of the 2008 financial crisis.<sup>3</sup>



Massive job losses and falling demand in major economies have compounded the problems. How or if the debts are repaid will determine financial outcomes but more important, the investment landscape in vital public services, pensions, health care and infrastructure. There are competing theories. Some argue that debt deflation is the primary risk. Others fear that inflation may take off. The question is ‘who will pay?’ Above all, the pandemic will shape responses to the ‘climate emergency’.

The dilemma for policymakers is not just if, how and when to ease lockdown, but whether to follow austerity measures that primarily raise taxes, embrace publicly funded investment in a ‘green’ renewal, or rely on central banks to manage public debt. Some argue that open trade is the

best solution. The idea that controlled inflation may be the best way to reduce national debt has momentum. The overarching challenge is to develop novel approaches to both monetary and fiscal policy amid unparalleled uncertainty. In the extreme, governments and central banks may run out of options. Sovereign defaults are on the horizon.

One of the vital lessons to emerge from catastrophes such as 9/11, the Challenger disaster and the financial crisis of 2008 was that leadership groups frequently lack imagination and reject possible extremes. Failure of imagination and ‘too little, too late’ go together. By the time the evidence is irrefutable, synchronised ‘inter-systemic’ failures often create runaway conditions. Decision-making in uncertainty is both imagination and science.

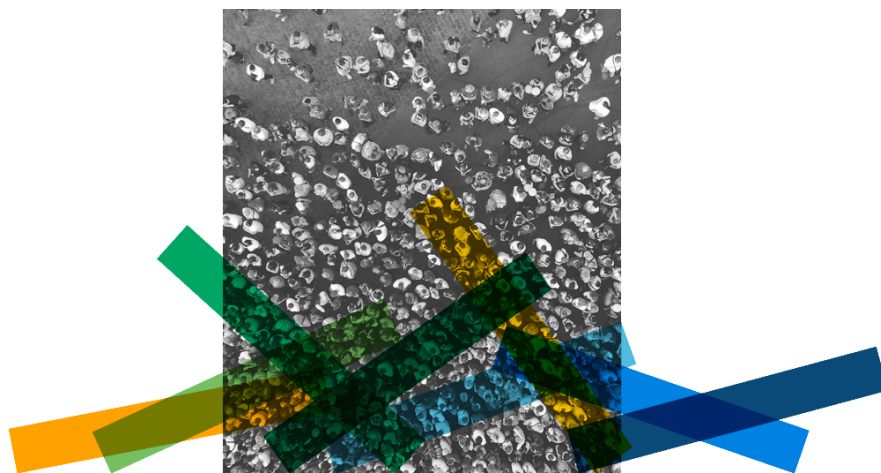
The crises that followed the initial outbreak of the virus were as much **political and cultural** as about public health. This should serve as a warning for world leaders on climate risk—a more profound crisis on the near horizon. The pandemic may have brought forward the tipping point feared by Mark Carney back in 2015: “Once climate change becomes a defining issue for financial stability, it may already be too late”.

Fortunately, renewed multilateralism is not beyond the imagination and exponential innovation may yet transform the risk landscape. Seeing risk in systems terms, rather than as isolated events, has the potential to create a philosophy focused on early warning and precautionary principles.

The time to begin is now, above all for the insurance industry. History never repeats itself, but there are lessons. A crucial theme of the earlier essays is that cultural transformation, contrary to conventional wisdom, can change quickly, particularly in times of chaos, as we argued in our essay on Climate and Culture.<sup>4</sup> Novel ideas emerge. Statesmen start thinking early to re-imagine better worlds and strategies to shape them. The Atlantic Charter was developed by Roosevelt and Churchill in 1941, paving the way to the UN. In the UK, the Beveridge Report, published in 1942, created the blueprint for the Welfare State and the National Health Service. In 1944, the Bretton Woods conference shaped the post-war financial infrastructure.

## Public Health

COVID-19 began as a public health crisis. Then a governance crisis. It soon became an economic crisis. It may yet become a humanitarian catastrophe. While it is a global challenge, requiring global solutions and collaboration, the outcomes are in the hands of national leaders short-term.



There will be a wide variety of pathways towards recovery, defined primarily by national responses, but also by how the wider international community develops both shared understanding and a sense of collective purpose.

In the next few months, we can expect countries that create the best ‘system conditions’ and strategies will be more resilient, recover quicker and experience fewer setbacks, until and unless treatments and vaccines emerge.

Some countries and regions will fare better than others. The relative success of countries like South Korea, Singapore, New Zealand, Taiwan and Germany is best explained by rapid implementation of multi-threaded, strategic responses. To illustrate, lockdown is essential because the movement of people is a critical factor in halting the spread of the disease, but without test, trace and isolate it will not work.<sup>5</sup>

In the best cases, both infection and death rates were limited and levelled within three months of the start of the first wave. In contrast, delays in Italy, Spain, Iran, the UK and the US demonstrated that speed was vital.<sup>6</sup> By mid-April, more than 20,000 had died in Italy, against little over 220 in South Korea. Strategies to exit the lockdown will be at best haltingly successful.

Looking ahead, individual country risk profiles and credit ratings will depend on the quality of ‘exit’ strategies, prospects for post-pandemic resilience and economic recovery.

There is, however, positive news. Open knowledge sharing between medical researchers around the world is playing a critical role in developing a response to the crisis. The Allen Institute for Artificial Intelligence (AI) created an ‘Open Research Dataset’ that brings together about 44,000 published papers on the virus. Deep Mind released an open-source version of their ‘Alphafold’ system, designed to predict protein structures. A project led by the Darpa Advanced Research Projects Agency (DARPA) promises to publish results of research into blood tests that identify virus carriers 24 hours after infection and before they show symptoms.

This is linked to the ‘open data’ principles promoted by Tim Berners-Lee. The argument is that publicly funded information, in particular, should be shared in machine-readable formats, to encourage knowledge transfer and accelerate innovation. High-quality data drives the current generation of AI.

The evidence suggests that where there are shared international interests, particularly in public health, sustainable development and financial security, open innovation will accelerate.

## Financial Stability and Hedging

To recap, as we put it in our original essay on financial stability and hedging, the world’s financial system was overstressed before the pandemic.<sup>7</sup> Fine-tuned to finding yield and profit at the cost of resilience and security, the system was long over-leveraged.

Fears of ‘secular stagnation’, Japanisation and recession were already in the air. Climate change was seen a ‘force multiplier’:

The world’s financial system is fragile and vulnerable. Long-ignored structural weaknesses range from public, private sector and corporate debt to the challenges facing pension funds and insurers in matching long-term liabilities to investments in a low-interest-rate environment.

There are fears that the end of the US dollar era will create instability and that cryptocurrencies will undermine financial structures. Trade fears and growing political risks, some driven by inequality, compound the problems.

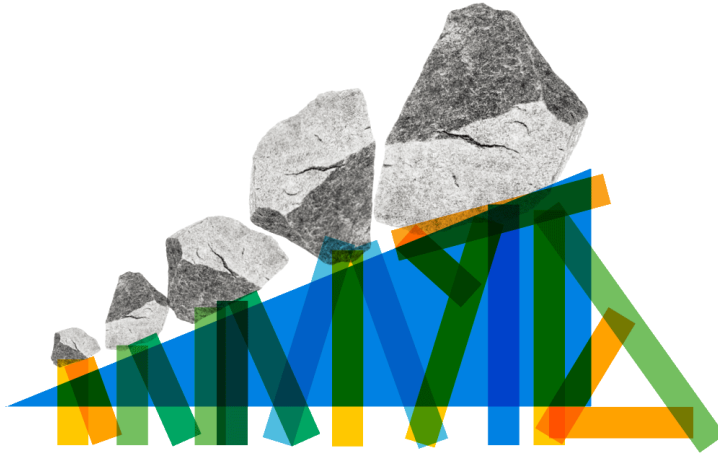
We argued that the combination of trade and currency wars, restrictions on technology and intellectual property, ‘deglobalisation’ and risks to security in the Middle East darkened the horizon.

The underlying problem was that some sectors, such as “aviation and the major carbon emitters, cannot re-invent quickly enough”.

In other words, the seeds of the ‘hyper-turbulent’ world were there. Few had hedging strategies in place to respond to climate risk, nor the wider perfect storm created by the pandemic.



The overarching narrative is now about debt and credit defaults that may evolve into stories not about debt and liquidity, but solvency. Corporate weakness was evident before the crisis. According to Morgan Stanley's Ruchi Sharma, "Today, 16 per cent of American public companies are 'zombies', meaning they earn too little to cover the interest payments on their debt and stay alive only by issuing new debt."<sup>8</sup> The simple story is debt creates vulnerability to systemic shock.



The combination of corporate weakness, major job losses, weak consumer demand and lack of confidence in government heralds a fundamental shift in corporate prospects. Many will lose export markets or see supply chains cut. Government interventions place the public sector and state power at the centre of the capital, corporate bond and equity markets.

Tracking the emerging narrative over the last two months, the momentum has changed, from 'recession' to 'deep recession', to 'depression'. Initially, corporate credit defaults dominated the news. The emphasis then shifted to sovereign debt and the ability of national governments to reconcile growing demands for health and pension funding with income in a world hit by pervasive supply and demand shocks.

All this points to fundamental structural change. Both monetary and fiscal interventions will dominate short-term. We may then see the emergence of a world of wealth redistribution, greater regulation, higher savings rates and a new balance of priorities between capital, labour and societal resilience. Consumer confidence, the foundation of growth over decades, may not bounce back. Discretionary spending on everything from tourism to restaurants may be replaced by spending on the essentials of life, security, health and the environment. Demand for new forms of insurance may gain momentum.

The story will first revolve around competing versions of public health safety nets and financial, economic and social resilience. The absence of safety nets has long been the elephant in the room. Second, the debt overhangs have deepened the risks that funding to meet the growing challenge of climate change may be beyond both national governments and international leadership. Public sentiment will shift from focusing on security to how to deal with global warming, increasing pressure on banks, insurers and asset owners to demonstrate transparency.

Meanwhile, further wild card events lay in wait. Super volcano eruptions, a major earthquake along the US North West coast and superstorms may emerge at any time. Nuclear confrontations cannot be ruled out, particularly involving weak or failed states. Following SARS and COVID-19 and given the structural weaknesses caused by the destruction of natural habitats, a second and third novel coronavirus cannot be ruled out.

On a more positive note, at the other extreme, treatments or vaccines to combat COVID-19 may emerge earlier than consensus forecasts assume.

## Geopolitics: alternative futures

The pandemic has also deepened the global political crisis. As Mat Burrows put it:

The political risk landscape is being rapidly transformed. Among the factors driving this are a new era of geopolitical competition; increased migration flows; the rise of national populism; rapid and destabilising technology change; a new and apparently more easily manipulated media environment; climate change; and new and more disruptive forms of conflict. Many of these feed off each other, creating a more volatile and unpredictable environment than at any time since perhaps the 1940s.

Relations between the US and China have since deteriorated, with accusation and counter-accusation about the response to the virus dominating world headlines.<sup>9</sup> The Trump administration appears set on confrontation with China. The lack of mutual understanding points to a 'lose-lose' outcome. Both the US and China are vulnerable. In the extreme, US and China tensions may slide towards a cold war and even long-term confrontation.

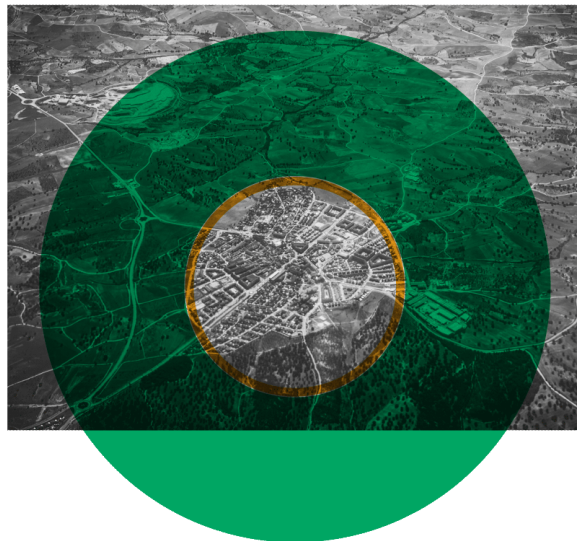
There is a more positive possible outcome: the US and China may find common ground, particularly in global health, climate and financial security. Multi-lateral trade may re-emerge, in new forms, driven in part by mass-scale digital innovation and automation. The US and China may ultimately both seek to preserve the world's rules-based order.

Whatever the outcome, the shift in the balance of economic, cultural and political power from West to East has new momentum. To put this in context, the Asia-Pacific Economic Cooperation (APEC) countries accounted for about 60 percent of the world's estimated GDP in 2019. This excludes India, estimated at around 8 percent.

As 'the great acceleration' gathers pace, the fortunes of Western countries that failed to respond decisively to the pandemic contrast with those of East Asia and parts of Europe.<sup>10</sup> Good governance counts. The formula that has led to relative success in the first wave of the pandemic is a guide to how the rest of the world will emerge. This is vital because global health is only as strong as the weakest link.

## Trade: local, regional and virtual

In the short-term, amidst the chaos, many of the themes we identified in our work on trade have new momentum. Closed borders, restrictions on the movement of people and supply chain failures seem to point to isolationism.



Localisation already had momentum. As Philippe Legrain put it:

Vertical urban farms and locally produced synthetic alternatives to meat ('alt-meats') could trim agricultural trade. A shift to renewable energy could cut fossil-fuel trade. And if robots and artificial intelligence can take over many more human tasks, why rely so much on foreign factories in countries with cheaper labour? Thus trade in food, fuels and factory goods may fall, especially since these sectors are likely to continue shrinking as a share of the global economy, which is increasingly dominated by services and intangibles.

We argued that debate about globalisation was too often framed as a simple binary question: 'is globalisation set to go into reverse'?

More likely, in the immediate post-pandemic world, technology will drive both localisation *and* new forms of globalisation. Trade may open up in regional groupings. For all the talk about globalisation, the majority of physical trade takes place between near neighbours. On average, a 10 per cent increase in distance cuts bilateral trade by about the same amount.<sup>11</sup> Virtual trade and services follow similar patterns, shaped by cultural alignment.

Even so, the crisis may yet bring globalisation to an end. Borders may remain closed. The pandemic has exposed the vulnerability of a global economic system dependent on complex transnational supply chains tuned to efficiency rather than resilience. This in itself will transform the risk landscape, reducing complexity and shifting attention from international networks to country risk.

From another perspective, the current economic and trade assumptions about digital technologies are about to be tested. The future of virtual trade will remain uncertain until fundamental challenges about privacy, trust, propaganda and cyberwar are resolved. The US and China are likely to shift quickly towards self-sufficiency, particularly in key strategic and dual-use technologies. Social control, surveillance, 5G communications, AI, synthetic biology and quantum computing, are all subject to growing restrictions. The race to dominate the world of ideas is more intense than ever.



'Re-shoring' and localisation will gain momentum. Trade in ideas, designs and more broadly intellectual property—already dominant features of the global economy—will become the focal point of innovation. At a time when shipping goods across borders and moving people has been put on hold, remote 3D manufacturing, together with renewed waves of investment in robotics and automation, may dominate the trade landscape.



Amongst the winners during the crisis and long-term are health, strong national champions with sustainable domestic demand, media, virtual and remote service providers, and technology platforms. The digital economy will see growth, but also become a prime target for taxation reform, which many argue is long overdue. It may become the focal point for competing national rules and regulatory models. Risks associated with cybercrime will continue to be primary sources of insurance demand as criminals seek to exploit weaknesses.

## Global Warming: the deeper crisis

The climate emergency has not gone away. Recent reports suggest that 2020 will be the hottest on record. The post-pandemic response to global warming by national leaders may go in any direction. Yet the green agenda has fresh momentum. Culture and public sentiment are important indicators:

“Contrary to conventional wisdom, in chaotic economic and political conditions, culture can change abruptly. This has potentially profound implications for insurance, both because cultural attitudes to the long-term will be felt short-term and because they will impact risk appetite. This is more about emotion and sentiment than analysis and logic. We can expect culture shocks to reverberate through the financial system long before the physical impacts of climate change—such as irreversible damage to low-lying cities—emerge. The imagined future shapes short-term asset management.

As the climate debate unfolds, all industries face reputational risk. Insurance has an opportunity to position itself for the endgame in the public mind and as a key player in the transition to a sustainable world.”<sup>12</sup>



There are specific messages from the EU that the ‘Green Deal’ will shape the future investment and innovation agenda. The same sentiment characterises much of Asia. The IMF has joined in the chorus of voices calling for the pandemic recovery to build around action on climate change. The US appears to be in opposition to both multi-lateral cooperation and domestic sustainable development measures, in contrast to the increasingly resolute action by many major US cities.

As we said in our original essay on cities:

Cities concentrate creativity, jobs and economic power. They also concentrate risk. At the same time, they are playing a leading role in driving the sustainability agenda, often in the face of weak national political commitments to large-scale, urgent change.

We also pointed to the scale of the challenges:

Many of the challenges might be met over generations, not a decade or two. Some of these demands they impose are in conflict: find a path to zero emissions and zero waste; cut pollution; secure water and food supplies; generate jobs; re-invent mobility; and transform well-being and health.

There is growing evidence that even though many of the world's cities have experienced the worst of the pandemic, they are also redoubling commitments to a green recovery. Global warming, public health, security and pollution are deeply intertwined. Rising temperatures and urbanisation increase the risks of further pandemics in densely populated communities. Images of clear skies over Wuhan and clean water in Venice made headlines in the early stages of the pandemic. Clean air means better health.

To illustrate, the drastic 40% reduction in the average level of nitrogen dioxide pollution and a 10% cut in particulate matter during April 2020 has avoided 11,000 deaths in Europe, according to research by The Centre for Research on Energy and Clean Air. Power generation from coal has dropped 37% and oil consumption by about one third. More broadly, there have been 6,000 fewer cases of asthma in children.

The International Energy Agency forecasts energy demand will fall by 6% in 2020 “in absolute terms, the decline is unprecedented—the equivalent of losing the entire energy demand of India”.<sup>13</sup>

“At the same time, lockdown measures are driving a major shift towards low-carbon sources of electricity including wind, solar PV, hydropower and nuclear. After overtaking coal for the first time ever in 2019, low-carbon sources are set to extend their lead this year to reach 40% of global electricity generation – 6 percentage points ahead of coal. Electricity generation from wind and solar PV continues to increase in 2020, lifted by new projects that were completed in 2019 and early 2020.”

On this evidence, ‘the great acceleration’ is gaining momentum.

## Post-Industrial Landscape

There is further evidence that a green post-industrial world may emerge from the disaster. A group of narrative threads have new momentum. ‘Stakeholder capitalism’ and ‘environmental, social and governance’ (ESG) initiatives dominate the agenda. In the midst of the COVID-19 crisis ‘asset owners’ at the top of the investment hierarchy, including private offices, insurers and pension funds, have increased pressure on companies to meet the UN’s Sustainable Development Goals (SDG) goals.

A series of studies have shown that ‘good governance’ is a crucial indicator of credit ratings and resilience in the crisis. Specialist governance funds have outperformed the main financial markets. So too have companies with strong ESG and SDG credentials.

Major asset management firms like Blackrock, have said they will ‘punish’ companies that fail to link executive pay to long-term outcomes and climate change, irrespective of the pandemic. As CEO Larry Fink put it recently: “we are on the edge of a fundamental shaping of finance”, signalling that the firm will withhold investments from companies that fail to act.

In other words, the investment community is shaping a post-COVID-19 and post-fossil fuel business environment. Corporate leaders must re-invent businesses from first principles and above all, address strategic, long-term risk.

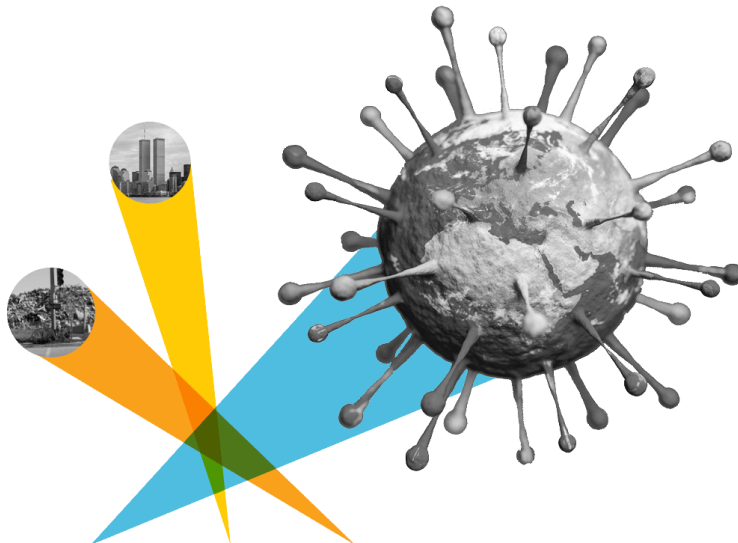
Regulatory change is converging towards the same agenda. The Bank of England has introduced frameworks for banking and insurance that call for scenarios and strategic plans that look decades ahead, to 2050.<sup>14 15</sup> Similar rules will follow for listed companies around the world.<sup>16</sup>

Insurance is a pivotal sector. In some cases, the challenge is strategic and focuses on re-inventing business to develop new models. In late 2017, [AXA](#) announced withdrawal from both underwriting and portfolio investment in fossil-fuel related businesses. They cut Eur 100 million from premium income. At the time, this was a novel strategy designed to align the corporate risk group to the future cultural environment.

In early 2020, Allianz, Swiss Re, Munich Re and Zurich [announced cuts](#) to their fossil-fuel underwriting and investment exposures, aligning to SDGs to align to the emerging environment, as well as reduce credit and liability risk.

## Re-Inventing Threat Management

The insurance industry has been hit hard. As the head of Lloyds of London put it recently, the pandemic is likely to be the most expensive event in insurance industry history “dwarfing other major disasters such as Hurricane Katrina in 2005 and the 9/11 terror attacks”. Over time, losses of tens, perhaps hundreds of billions may emerge. The fact that Lloyds has put aside £ 15 million to fund research how better to handle pandemics and other major events in future illustrates that the industry was ill-prepared.



In Financial Stability: inventing the big hedge, we explored the readiness of insurers and the wider market to respond to different scenarios, particularly in relation to climate risk.<sup>17</sup> The ‘big hedge’, in simple terms, is defined by what insurers and their key clients can develop as strategic responses to possible future worlds. The principle is that resilience and sustainability are defined by strategies that ‘work’ in all scenarios, even the most extreme, yet are optimised to achieve the most positive outcome.

The starting point is to develop long-term scenarios, explore emerging ‘weak signals’ and monitor ‘wild card’ events.

To put this in context, our core scenarios explore three alternative futures to 2050.<sup>18</sup> ‘Dark Ages’ is a world at war, with nature and with itself—a chaotic world of public health, economic and climate failures that accelerate at exponential rates, beyond the adaptive capacity of national and international leaders. A world of runaway crises. ‘Walled Gardens’ is a world of enlightened and inclusive nationalism, self-sufficiency and a patchwork of winners and losers. Global collaboration is limited to vital shared interests, like climate change. ‘Renaissance’ describes a vision of mutual understanding and multi-lateral collaboration that creates a form of global governance, focused on shared risks and a common sense of purpose.

The strategic question for the insurance industry is what strategic options ‘work’ in each scenario? The answers are both general and specific. In general, insurers have a pivotal role in supporting resilience against physical climate risk and extreme events. From an investment perspective, there are strong arguments for investing in companies and communities that are ‘future-ready’ and meet the standards set out by the SDGs.

More specifically, the insurance industry has opportunities to meet the challenges of systemic risk and to drive strategic innovation. The pandemic has created a new sense of urgency.

## Systemic Risk

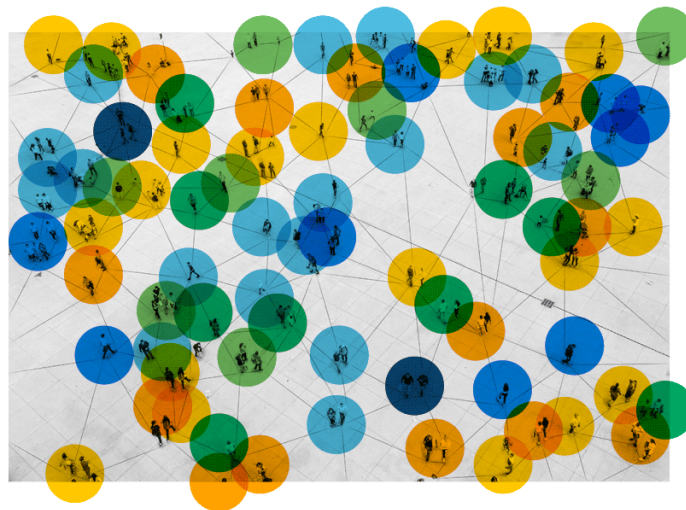
To recap, in chaotic environments, foundational cultural values can change rapidly. Faced with profound uncertainty, entire communities search for new imagined futures and stories of long-term hope amidst harsh short-term realities.

This is an important principle: we act in the present on imagined futures, which are cultural realities. As we put it in an earlier essay on Inventing the Big Hedge:

*“The world’s financial institutions have barely explored risks to the global system as investors position themselves in the short-term against the long-term climate change scenarios – well before the events themselves emerge.”<sup>9</sup>*

In other words, shocks emerge when underlying narratives break down.

This is important, because in this crisis, as in all others, backwards-looking statistics and simulated models are not reliable guides to the post-pandemic world. Financial markets are non-linear because institutions and groups of people behave in unique ways. Algorithmic methods fail, as illustrated by the losses of several prominent computer-based hedge funds during the first months of the pandemic. In times of crisis, mapping the stories protagonists tell is a better guide than complex statistical models and simulations alone.



Resilience and adaptive capacity carry costs. Fine-tuning for efficiency creates fragility, as we have seen. Policymakers, the financial markets, insurers, primary asset owners and governments face choices about how to balance risk and profitability. The implication is that there will be growing demand from companies, governments and cities for insurance to cover a wider range of ‘tail risk’ events, as well as systemic failures. The primary lesson of the pandemic is that complex, systemic risks, possible major shocks and the weak signals that foreshadow them cannot be ignored.

Insurers have an opportunity to provide services that map and measure system fragility, since this in itself delivers early warning. Complexity must be understood in ways that reflect not just numbers and financial prospects, but the interdependencies and dynamics of relationships between protagonists and everything from public health, climate risk, propaganda, cyberwar, global governance and trade. In summary, the opportunity is to create insurance services that address underlying systemic risk and deliver early warning.

## Exponential Innovation

There is, however, a more important theme that has growing momentum: exponential, systemic innovation. Put another way, invention at machine speed. The waves of innovation in the search for COVID-19 treatments and vaccines illustrate that machine-based knowledge management and AI are pervasive.

Speed has long been a defining characteristic in military and commercial worlds. The race for technological leadership drives political and economic investment. Bewildering rates of change are a defining characteristic of ‘hyper-turbulent’ environments. Yet there are blind spots between risk management practice that typically emphasises downside threats over ground-breaking invention.

Amongst the primary inter-related technological developments, three are particularly relevant:

- Internet of Things (IoT), by which we mean sensors of all kinds, from smartphone, wearable and embedded health monitoring devices used by individuals to image recognition devices in vehicles, workplaces, and public spaces that can monitor and distribute behavioural, health and environmental data;
- Real-time operations of large-scale IoT-based 5G networks capable of instant responses; and
- AI and real-time predictive models that exploit IoT, fusing ‘all-source’ content—personal, public, environmental and proprietary insurance data.

There is evidence that sensor-based early warning, prediction and machine control systems will become pervasive, particularly in cities. This has the potential to transform the risk landscape and the underlying structure of insurance. Sensor-based ‘mass automation’ infrastructure is already accelerating the growth of green transport systems, as we illustrated in our essay on Radical Innovation, particularly to cut traffic volumes, density, energy use and pollution.<sup>20</sup>

One of the lessons of the ongoing crisis is that sensor-based public health and personalised services are essential in crises. In the early research for Insurance Futures, public health and security were ‘white space’ opportunity areas: there was a gap between the public good and both public and private sector invention. So too was privacy and ‘de-identification’. The signs were there.

The pandemic has accelerated innovation in public health and security, sensors, smartphone applications and real-time monitoring, as well as collaboration between the ‘big tech’ platforms and medical science. It is bringing ‘open data’ services front and centre, already illustrated by medical knowledge-sharing and the waves of Covid-19 mapping applications now in the public domain.

The white space gap is closing as national governments and technology companies like Apple and Google race to deliver services that trace suspected COVID-19 sufferers. There are other new entrants. Roche is focusing on personalised healthcare, bringing together digital technologies with core pharmaceuticals and diagnostics businesses. IBM is using the Watson AI platform to deliver monitoring services in partnership with municipal governments. These developments point to convergence, with governments, city leaders, technology firms and insurers vying to both reduce systemic risks, particularly in urban environments and provide insurance and risk management services.



Since individual well-being, health and risk are inextricably linked to social groups and the wider environment, dynamic risk modelling and risk mitigation may become more effective than premium-based insurance pricing, based on historical data.

It may also be more profitable for insurers and new entrants, who will have an in-depth understanding of the complex interactions that make up the realities of daily life for individuals and commercial organisations, in cities and industrial high-risk environments.

If we set this against the surge in ‘big tech’ interest in health insurance, the move by health insurers into the social and environmental determinants of health and new service models, we can expect partnerships to be forged and the landscape to change fast. There are early examples of ‘computational biology’ firms integrating personal sensors, medical-grade privacy and predictive algorithms to deliver personalised control of their own well-being. Some are collaborating with insurers to provide patients with well-being, health and insurance services.

This model has broader implications for casualty insurance, life, pensions and health insurance. The emerging narrative is that over time, pervasive sensors, real-time data, novel privacy models, and AI will form new insurance and risk platforms. This is both a source of opportunity and a strategic threat to the insurance industry.

There are, however, constraints on the development of these technologies, above all ethical, cultural and public attitudes to human rights, privacy and surveillance. In the West, there are tensions and trade-offs between personalised services and public security. Alphabet’s Sidewalk Labs ‘smart city’ initiative in Toronto has been closed amidst a backlash. In contrast, in China, surveillance is largely culturally accepted, in the interests of public safety and security. This explains why China and Chinese insurers have developed a leading role in mass-scale data aggregation and surveillance technologies.



There is, however, evidence that in the West, the technology industry is keen to respond to fears surrounding what Shoshana Zuboff calls ‘surveillance capitalism’.<sup>21</sup> If this holds true, we can expect, over time, solutions that deliver public security while guaranteeing privacy. This is not far-fetched. Privacy and virtual trust are innovation hotspots. The Web Foundation’s ‘Contract for the Web’, led by Tim Berners-Lee, has been endorsed by major technology firms, including Microsoft, Google, Twitter and Facebook.

The overarching challenge for the insurance industry is to play an active role in this fast-moving emerging and controversial environment. The COVID-19 pandemic has changed public attitudes. There is an opportunity to re-invent risk management as intelligent infrastructure, particularly in cities, becomes pervasive. Good governance and trust, involving all stakeholders, is crucial. The stakes could not be higher, both for public security and for the insurance industry itself.

- 1 <https://oraclepartnership.com/long-reads/covid-19-a-wild-card-event/>
- 2 <https://oraclepartnership.com/insurance-futures/>
- 3 [https://www.iif.com/Portals/o/Files/content/Research/Global%20Debt%20Monitor\\_April2020.pdf](https://www.iif.com/Portals/o/Files/content/Research/Global%20Debt%20Monitor_April2020.pdf)
- 4 <https://oraclepartnership.com/long-reads/climate-and-culture-shocks-ahead/>
- 5 Movement of people gives early warning about the spread of the virus: <https://www.nature.com/articles/s41586-020-2284-y>
- 6 Sample research: <https://theconversation.com/6-countries-6-curves-how-nations-that-moved-fast-against-covid-19-avoided-disaster-137333>
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Note: the regulators have allowed insurers more time to meet the demands, in the light of COVID-19: <https://www.bankofengland.co.uk/prudential-regulation/publication/2020/prs-statement-on-prioritisation-covid19>
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## About the author

**Peter Kingsley**, Chairman and Co-Founder of The Oracle Partnership, chairs PJR, a specialist foresight and strategic advisory firm. He has provided foresight and thought leadership to major financial institutions, corporate boards and wealth managers for more than 20 years. Earlier in his career, he held senior strategic positions at Reuters and Dow Jones, amongst other things designing information and editorial services. He was a partner at Stanford Research Institute's futures think tank. His more recent work has included advising the leadership teams of international banks; the senior partner of a major hedge fund; the leadership team of one of Lloyd's largest insurance underwriters; one of the world's leading software companies; a regulator; one of the world's largest water engineering firms; and several utility firms. He originated, designed and led the Coutts 'Futurescope' foresight and thought leadership programme.

More information on Insurance Futures and The Oracle Partnership can be found at:

[oraclepartnership.com/insurance-futures](https://oraclepartnership.com/insurance-futures)



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