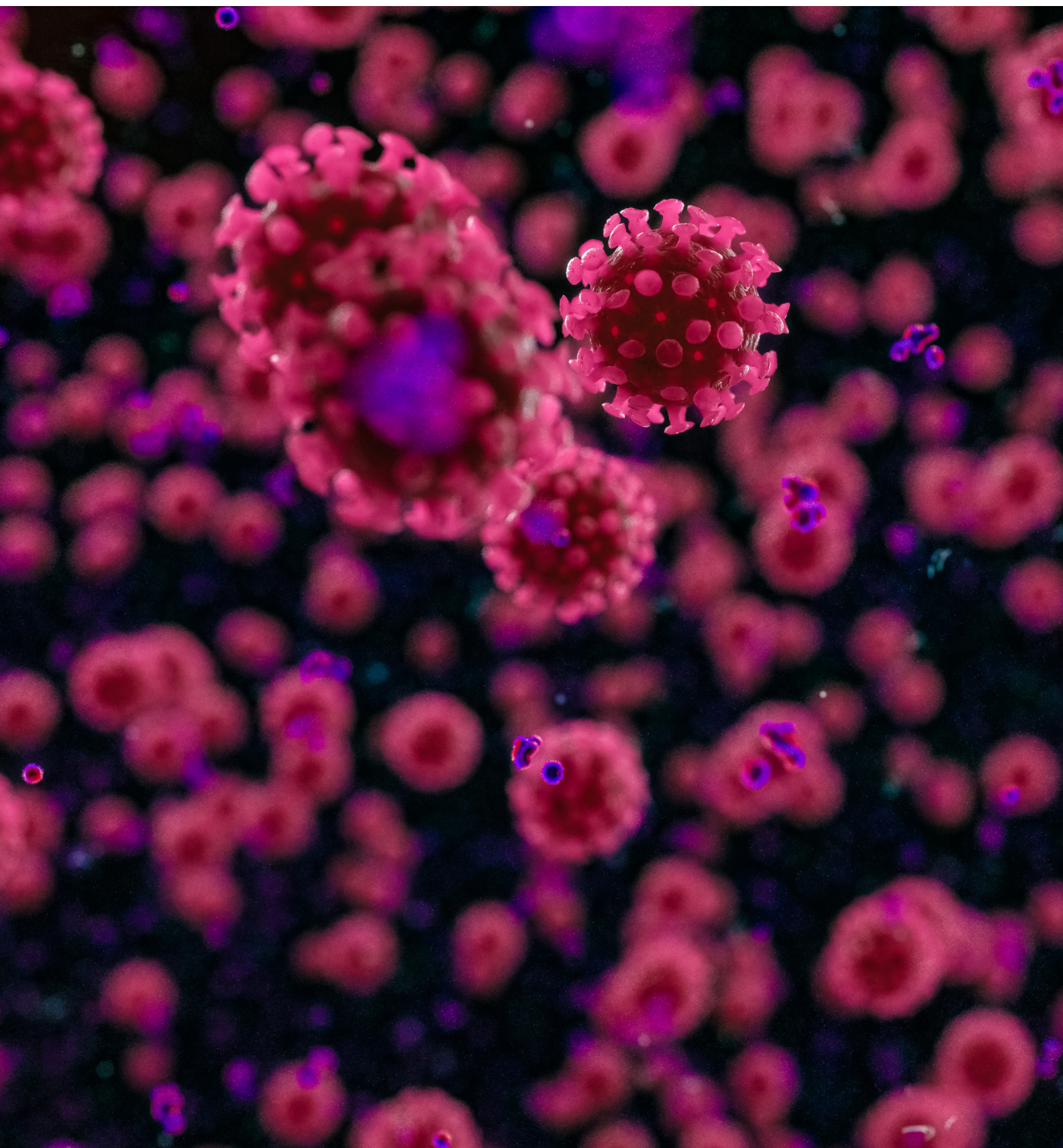


## COVID-19

Implications for the transition to a more sustainable economy

FOR PROFESSIONAL INVESTORS ONLY - THIS DOCUMENT IS A MARKETING COMMUNICATION.



## Philosophy and mission

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Founded in 1998, Impax Asset Management has pioneered investment in the transition to a more sustainable global economy and today is one of the largest investment managers dedicated to this area.

### We believe:

The world is being profoundly shaped by global sustainability challenges, particularly climate change, increasing pollution, inadequate infrastructure, resource scarcity and rising inequality. These factors are creating commercial opportunities that are driving growth for well positioned companies as well as substantial risks for those unable or unwilling to adapt.

Fundamental analysis which incorporates long term risks, including environmental, social and governance (ESG) factors is essential to identifying well-positioned companies and enhancing investment returns.

### We invest:

In companies and assets that are well positioned to benefit from the shift to a more sustainable global economy. We seek higher quality companies with strong business models and governance that demonstrate sound management of risk.

### We offer:

A well-rounded suite of investment solutions spanning multiple asset classes aiming to deliver superior risk adjusted returns over the medium to long term.



**US\$20bn+**

of assets under  
management<sup>1</sup>



**20+ years**

of specialist  
manager experience



**55+**

Investment team  
members,  
(UK, US, HK)

<sup>1</sup>As of 30 June 2020. Assets under advice represent -2.5%.

## Executive summary

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The contours of the post-COVID landscape are yet to fully come into focus. Unlike in the wake of the Global Financial Crisis however, there are clear signs that concerns about environmental issues have been elevated by what we have recently experienced.

The pandemic and associated response have reinforced the imperative to transition to a more sustainable economy. It has reminded us of the fragility of human society in the face of a natural phenomenon and has triggered the kind of collective response that will be needed to address climate change and other sustainability challenges.

Over the summer, our research team has taken a step back from the immediate market volatility to consider implications for the firm's investment thesis. Their observations are the basis of this report which is not intended to be a forecast, rather a framework for thinking about how the future may look.

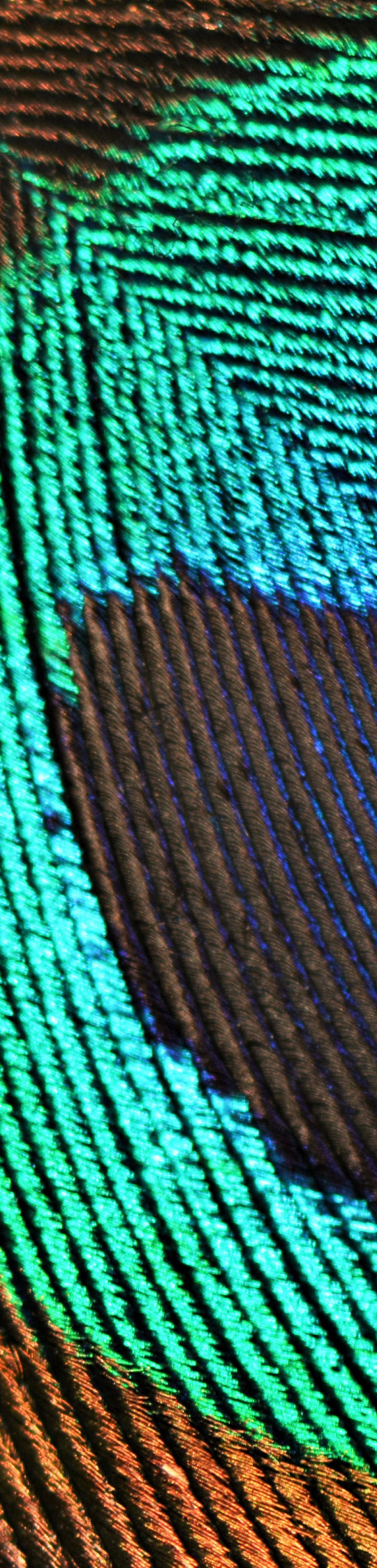
The report draws three key conclusions:

1. Four structural changes are disrupting business models — a heightened awareness of systems-level risks; exposure of supply chain vulnerabilities; the social distancing measures changing behaviour; acceleration towards a digital economy;
2. The reaction of policy makers as they move from lockdown to rebuilding economies, will likely incorporate societal feedback that simply returning to the old normal is not enough;
3. Tangible investment opportunities include industrial automation advances, digitisation acceleration and an underscored importance of health, safety & well-being theme. In addition, risks associated with areas such as human capital management, diversity, climate change and biodiversity are becoming relevant to fundamental analysis across sectors.

Impax's investment process, particularly its Sustainability Lens, Environmental and Gender focused investment universes and integrated ESG risk management practices already address the main COVID-19 challenges, yet certain aspects will gather renewed importance:

- **Recognising the value of biodiversity**, and protecting wild areas from further encroachment, could reduce the risk of further zoonotic transmission and improve our quality of life.
- **Tackling persistent inequalities** of gender, race and opportunity would equip companies with a broader talent pool and reduce operational and reputational risk through supply chains.

As we start to rebuild from the human and economic damage inflicted so far in 2020, we believe that tackling these two critical topics will increase resilience.



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## Introduction

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COVID-19 (C19) is not the first, nor will it be the last pandemic. The Spanish Flu, H2N2, H3N2, HIV/AIDS, Severe Acute Respiratory Syndrome (SARS) — each has had their own effect on consumption and society, policy and the economy. C19 is unique relative to previous health crises particularly in its infection-to-death-to-impact profile: a comparatively high infection rate, low mortality rate and high economic and social damage. It therefore presents an opportunity to critically examine the underlying factors that have contributed to this pandemic in particular.

The global community has lived through numerous epidemics over the last century. However exposure to pandemics has been dramatically less so. In some cases, management of this pandemic has been effective — arguably, the fact the global community, largely through government intervention and emergency measures, is still carrying on and some economies have begun to reopen is indicative of this. Lessons learned from C19 will enable better management of future events, including non-health related events like climate change, and further underscore the necessity of the transition to a more sustainable economy.

## Four structural changes disrupting business models

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Material implications of C19 manifest at all levels of the system. Broadly speaking, they are likely to be observed through four overarching trends and applied at four key organisational levels. The permanence of the following implications is uncertain, yet the significance of their potential effects over the long-term make them important.

Four structural changes are already disrupting business models previously considered secure:



Their articulation is important from an investment perspective as it gives way to new or different risk and opportunities sets.

## A heightened awareness of systems-level risks

C19 reaffirmed the link between physical health, environmental health and economic health thereby demonstrating the complex interrelations between environmental, societal and financial systems<sup>1</sup>. We now have an increased awareness of the context in which seemingly isolated risks are situated. A multidisciplinary approach will be key to understanding underlying systems-level risks<sup>2</sup> and opportunities for their improved management. We are already seeing signs that risk management is becoming more holistic as second - and third - order materiality is becoming better understood.

**Climate change risk:** At Impax, we are not alone in noting that climate change is another long identified but uncertain risk for which the global economy is unprepared. We look forward to more coordinated alignment of national and international institutions, in an effort to finance the transition to a lower carbon economy, as the necessity of building resilience into our infrastructure is reinvigorated.

**Biodiversity risk:** In the last two decades there has been an increasing spread of zoonotic, infectious diseases that emerge and re-emerge at the interfaces between animals and humans. This situation is the result of several factors, including the exponential growth in human and livestock populations, rapid urbanisation, changing farming systems, closer interaction between livestock and wildlife, forest encroachment, changes in ecosystems and globalisation of trade in animals and animal products.

We see the pandemic as another likely catalyst for a renewed focus on ecosystem services and biodiversity and something that will be focused upon increasingly by corporates, investors and governments.

### Implications for Consumers:

- Implicit connectivity between inputs and outcomes becomes clearer and cognition of such relationships is heightened.
- Origins of C19 lead to increased scrutiny of farming practices, food distribution, animal welfare practices and the fundamental relationships consumers have with food.

### Implications for Society:

- Tolerance for 'business as usual' wanes as certain industries demonstrate adaptability without material operational consequences.
- Perceived thematic and industry- and issue-specific silos are broken down and systems complexity becomes a forethought.
- Concerns precipitated by C19 — such as health and safety, financial security, job stability and resilience — are considered in the context of other systems-level risks like climate change, natural resource depletion, water insecurity and cyber warfare.

### Implications for Policy:

- Management of low probability, high impact risks becomes a greater focus.
- C19 serves as proxy for systems-level crisis management and informs resilience and preparedness strategies and the necessary funding to realise such outcomes. Multidisciplinary frameworks<sup>3</sup> are adopted for prudent policy design, risk management and investment decision making.
- Mechanisms to directionally support broad recovery and resilience are imposed; complacency, misplaced comfort, short-termism and changes in administration likely dilute their effectiveness over time.

### Implications for the Economy:

- Risk management becomes more holistic as second- and third-order materiality are better understood.
- Stakeholder management evolves to better reflect the importance of key internal and external stakeholders.
- Existing trends towards long-term resilience are reinvigorated.
- Coordinated alignment of international economies and financial institutions gains traction in an effort to finance the transition to a more sustainable economy.

<sup>1</sup>Systems are comprised of interrelated common-pooled resources that underpin the functionality of a common purpose. <sup>2</sup>In this context, 'systems-level risk' are risks that threaten the stability of the overarching system and include climate change, natural resource depletion, water insecurity, cyber warfare, income inequality, poverty, poor health among others. <sup>3</sup>The One Health framework, a multidisciplinary initiative supported by the World Health Organization and Center of Disease Control, is an example of an existing framework that stands to see greater adoption following C19. The concept was introduced in 2003 following the SARS epidemic and offers a multidisciplinary framework for understanding the complex human-animal-environment interface and therefore catalysing more judicious solution-building.

## Exposure of supply chain vulnerabilities

Direct and indirect exposure to areas of weak governance and opacity have long been considered within the context of supply chain management. C19, however, has illuminated the dependence on key countries in terms of both supply and demand — notably China — and elevated the risks of supply chain complexity and rigidity. These risks will be of greater focus going forward — as will the management of workers throughout these chains.

Long term concerns over poor labour standards in the food and textile industries have been reinforced. Employers seeing outbreaks within their facilities are facing economic as well as reputational consequences.

We therefore see company level analysis of human capital management, from 'front-line and/or essential staff' to those who contribute throughout the supply chain, as an increasingly valuable part of investment due diligence. As well as improving health, safety and well-being, this focus may result in greater diversification of supplier locations for those dependent on activities requiring closer proximity.

### Implications for Consumers:

- Product and price disruption.
- International travel becomes a point of introspection.

### Implications for Society:

- 'Essential' workers are redefined.
- The costs of globalisation are elevated in the social consciousness.

### Implications for Policy:

- Use of low tax jurisdictions are more critically examined.
- Protectionism and Nationalism gain new momentum but are challenged by efforts for international cooperation.
- Resilience of critical goods and services and vital infrastructure is reconsidered.

### Implications for the Economy:

- Intense scrutiny of global supply chains leads to more comprehensive risk management and resilience; fragile supply chains give way to more resilient networks where possible.
- Supply chain transparency becomes expected and is integrated into risk management more broadly.
- The importance of investment in workers - specifically in terms of workplace safety, reskilling, and family friendly benefits - is recognised as a critical component of risk management and business continuity.
- Re-shoring of manufacturing becomes vital for independence and resilience in some sectors.

<sup>1</sup>Systems are comprised of interrelated common-pooled resources that underpin the functionality of a common purpose. <sup>2</sup>In this context, 'systems-level risk' are risks that threaten the stability of the overarching system and include climate change, natural resource depletion, water insecurity, cyber warfare, income inequality, poverty, poor health among others. <sup>3</sup>The One Health framework, a multidisciplinary initiative supported by the World Health Organization and Center of Disease Control, is an example of an existing framework that stands to see greater adoption following C19. The concept was introduced in 2003 following the SARS epidemic and offers a multidisciplinary framework for understanding the complex human-animal-environment interface and therefore catalysing more judicious solution-building.

## Social distancing measures changing behaviour

The invisibility and transmissibility of C19 has rocked the status quo and personal space and hygiene have become nearly synonymous with safety. Though the fear of contracting C19 may only last until effective treatment and prevention is established, the fear of an invisible threat will fundamentally shift how people relate to their environments.

While public safety outweighs economic continuation in the short-term, and remains a key consideration in the long-term, we expect small - and medium - sized enterprises to be disproportionately vulnerable if lacking effective crisis management and/or dependent on physical presence. A wave of new building codes to add spatial and hygiene features could trigger investment in infrastructure commensurate with the introduction of energy efficiency standards of recent years.

### Implications for Consumers:

- Consumer safety is, and continues to be, paramount.
- Transportation is forced to accommodate spatial and hygiene related expectations.
- Business travel wanes; leisure travel is largely unchanged in the long-term.
- Access to products and services is further diversified and serviceable networks are expanded.
- Entertainment is re-imagined to accommodate spatial expectations prompting the acceleration of at-home and virtual reality alternatives.
- E-commerce continues to accelerate and expand into new segments; online sales grow.
- Consumption shifts to 'One-stop' collection.

### Implications for Society:

- Societal perception of safety and risk are redefined.
- Preferential shift from urban to sub-urban areas affects communities and the way they are designed, serviced and governed.
- Where possible, working from home becomes a viable option for many more workers leading to an increased disparity between the service sector and knowledge economy.
- Healthier natural environments become compatible with full operation of business.

### Implications for Policy:

- Businesses and societies are rearranged to accommodate spatial preferences.
- Retrofitting of existing infrastructure becomes a more urgent consideration to achieve increased resilience and flexible adaptability.
- Building codes are reconceptualised to align with societal expectations of safe distancing.

### Implications for the Economy:

- Public safety outweighs economic continuation in the short-term and remains a key consideration in the long-term.
- Small and Medium Enterprises (SMEs) are disproportionately vulnerable, and the need for agile crisis management planning is underscored.
- Importance of e-commerce and virtual technology is underscored.
- Pervasive shift towards automation and digitisation.



## Acceleration towards a digital economy

Forced economic shut downs acted as an accelerant in the adoption of technology and digital infrastructure. Moving beyond proof of concept in many areas of the economy, further adoption, expansion and development of digital technology has reaffirmed its role as the cornerstone of a functional modern economy.

Companies able to leverage digital capabilities are proving more resilient in the pandemic stricken economy, especially one more dependent on cashless transactions. The transition to a more digital economy has been linked to a more sustainable one, with lower transport pollution and greater flexibility around working practices. While many will embrace this acceleration, we are mindful that a labour force transformed towards more digitisation and automation risks leaving many behind. This underscores the necessity of policy and corporate consideration of how to enable a Just Transition.

### Implications for Consumers:

- Dependence on digital infrastructure increases.
- Growing comfort with technology enables further integration into the consumer experience.
- Popularity of digital and in-home entertainment and education rises.

### Implications for Society:

- Data security and privacy becomes a mainstream concern among the masses.
- Distinguishing facts from disinformation, speculation and propaganda becomes even more challenging.
- Social polarisation widens.
- Better work-life-balance becomes increasingly attainable for many as distributed office setups accommodate varied realities.

### Implications for Policy:

- Meaningful aggregation of new data fuels debate on global surveillance.
- Tension between centralised data storage and data autonomy mounts.
- Increased misinformation - resulting from more users and more data - erodes trust in institutions and each other.
- The principles of the Just Transition become an increasingly essential component in governing policies around the future of the labor force.
- Universal access to technology becomes a necessity bringing with it generationally stratified implications.

### Implications for the Economy:

- Companies able to leverage digital capabilities become more resilient and better prepared for the transition to a more sustainable and post-pandemic economy.
- Labor force is transformed as digitisation and automation are widely adopted further entrenching the necessity of a Just Transition.
- Dependence on cashless transactions increases.

## Policy response to environmental improvements and reaction to inequality

We believe the 2020 C19 pandemic and reaction to the inequality it exposed has created a tipping point in social consciousness around both environmental and social challenges.

As policy makers move from lockdown to rebuilding economies, we expect them to incorporate societal feedback: that simply returning to the old normal is not enough.

Local air quality improvements and global fall in CO<sub>2</sub> emissions has highlighted environmental priorities. Numerous academic studies have already identified significant improvements in local urban air quality related to the reduction in traffic in major cities.

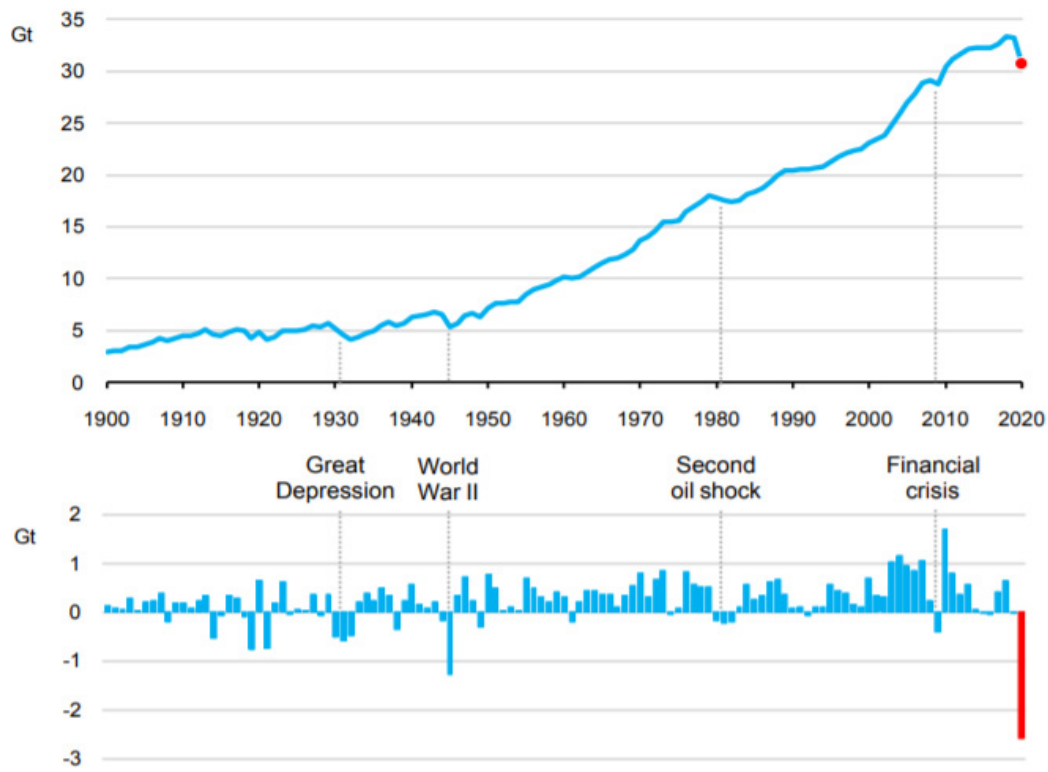
**Figure 1: Selected studies into urban air quality improvements related to lockdown measures**

City	Air pollution study	Comments
Barcelona	Tobías et al. (2020)	Investigated changes in air pollution levels during the lockdown in terms of urban background and traffic air quality observed.  After two weeks of lockdown, the authors found a substantial reduction in BC <sup>1</sup> (-45%) and NO <sub>2</sub> (-51%), mostly related to traffic emissions. PM <sub>10</sub> also decreased from -28 to -31%, whereas levels of O <sub>3</sub> increased from +33% to +57%.
New Delhi	Mahato et al. (2020)	Analysed PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , CO, O <sub>3</sub> and NH <sub>3</sub> over 34 monitoring stations in Delhi during prelockdown periods and during the lockdown.  Air quality significantly improved during lockdown, with reductions of 60% (PM <sub>10</sub> ), 39% (PM <sub>2.5</sub> ), 53% (NO <sub>2</sub> ) and 30% (CO) compared to 2019.
New York	Saadat et al. (2020)  Chauhan and Singh (2020)	When compared with 2019 data, air quality in 2020 improved by 50% in New York (USA).  Decline in PM <sub>2.5</sub> concentration in March 2020 compared to March 2019 in New York (32%).
Sao Paolo	Nakada and Urban (2020)	Assessed impacts of partial lockdown in São Paulo on concentration levels of CO, NO, NO <sub>2</sub> , and O <sub>3</sub> .  CO, NO, NO <sub>2</sub> , and O <sub>3</sub> concentrations reduced by 65, 77, 54 and 30%, respectively, during the lockdown period.

Source: Studies referenced within Figure 1: Temporary reduction in fine particulate matter due to 'anthropogenic emissions switch-off' during COVID-19 lockdown in Indian cities, Global Centre for Clean Air Research, University of Surrey. <https://www.sciencedirect.com/science/article/pii/S221067072030603X?via%3Dihub>. <sup>1</sup>BC: Black Carbon.

The International Energy Agency (IEA) has predicted an 8% fall in global CO<sub>2</sub> emissions in 2020 linked to the change in energy related emissions as travel and industrial output fell significantly.

**Figure 2: Global energy-related CO<sub>2</sub> emissions and annual change, 1900-2020<sup>4</sup>**



Global energy-related emissions (top) and annual change (bottom) in Gt CO<sub>2</sub>, with projected 2020 levels highlighted in red. Other major events are indicated to give a sense of scale.

<sup>4</sup><https://www.iea.org/reports/global-energy-review-2020>.

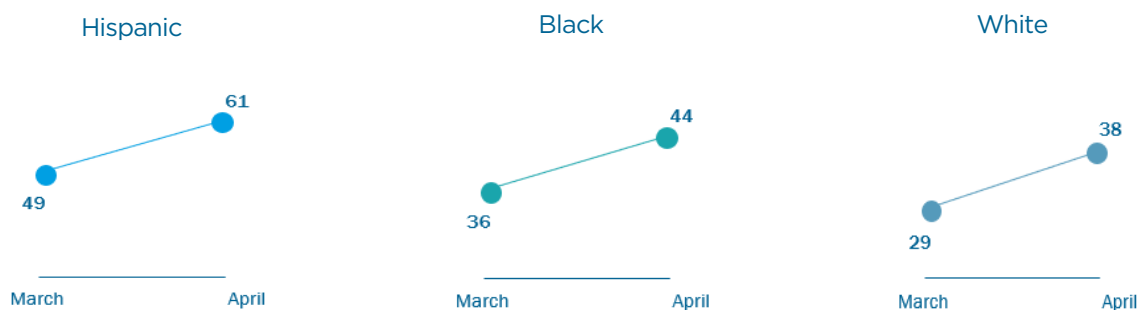
The C19 pandemic exacerbated existing inequality, but it also highlighted opportunities to address the root causes. Research is already emerging indicating that women, people of colour and those with lower income suffered disproportionately in several ways:

- More likely to be infected by the virus<sup>5</sup>.
- More likely to die after having been infected<sup>5</sup>.
- More likely to lose jobs due to the effects of the pandemic specific sectors where they dominate the workforce<sup>6</sup>.

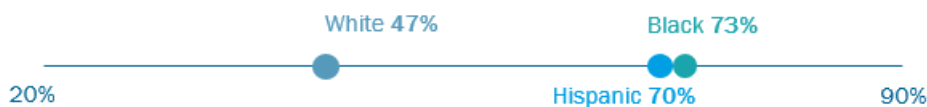
In the UK, The Institute for Fiscal Studies and the UCL Institute of Education<sup>7</sup> found that mothers were 47% more likely to have permanently lost their job or resigned, and 14% were more likely to have been furloughed since the start of the crisis in comparison to men in general.

In America, Hispanic and Black people have been hardest hit by C19 with wage and job losses. These groups are also much less likely to have savings.

**Figure 3: % saying they or someone in their household has lost a job or taken a payout due to Coronavirus outbreak<sup>8</sup>**



**Figure 4: % who said in April they do not have rainy day funds to covers expenses for three months in case of emergency<sup>8</sup>**



While the four structural changes identified in our research may exacerbate rather than solve this challenge, the social issues exposed during the crisis, particularly related to Black, Asian and minority ethnic people, is leading to a renewed determination to tackle diversity and inclusion challenges.

We therefore expect **significant developments in three key areas of public policy:**

### Climate change: 'Build Back Better'

We are encouraged that many governments are focusing their stimulus programmes on supporting a global green recovery which will simultaneously create new jobs and address climate change, air quality and other environmental challenges. A recent paper by Stiglitz, Stern and Hepburn<sup>9</sup> sets out the economic case that green stimulus will generate more jobs in the short-run. The study states that 'every US\$1m in spending generates 7.5 full-time jobs in renewables infrastructure, 7.7 in energy efficiency, but only 2.7 in fossil fuels'. The EU is leading the way in its policy response with 30% of the €1.8 trillion 'Next Generation EU' package agreed in July 2020 ringfenced for spending on green and digital transitions.

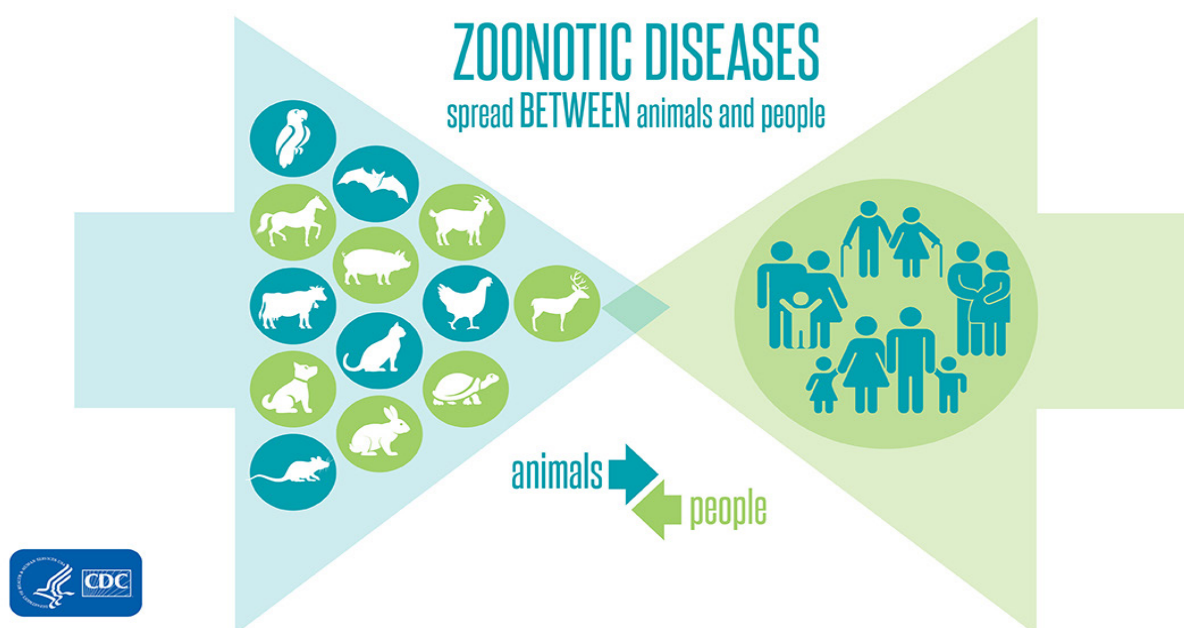
<sup>5</sup><https://www.theatlantic.com/ideas/archive/2020/04/coronavirus-exposing-our-racial-divides/609526/>. <sup>6</sup><https://news.iu.edu/stories/2020/05/iub/releases/14-data-behind-job-losses-labor-markets-unemployment-coronavirus-pandemic.html>. <sup>7</sup><https://www.ifs.org.uk/publications/14879>. <sup>8</sup>[https://www.pewresearch.org/fact-tank/2020/05/05/financial-and-health-impacts-of-covid-19-vary-widely-by-race-and-ethnicity/ft\\_2020-05-05\\_covidrace\\_01/](https://www.pewresearch.org/fact-tank/2020/05/05/financial-and-health-impacts-of-covid-19-vary-widely-by-race-and-ethnicity/ft_2020-05-05_covidrace_01/). <sup>9</sup><https://www.smithschool.ox.ac.uk/publications/wpapers/workingpaper20-02.pdf>.

## Biodiversity: Global frameworks for pandemic prevention

Following on from the 2003 SARS outbreak, the international community led by institutions such as the UN and WHO, developed the framework 'One Health', to enable global collaboration to prevent future outbreaks. The 'One Health' framework highlights the interconnectedness of animal health, environmental health and human health in the outbreaks and hence prevention of future pandemics.

We believe a much stronger global, multilateral framework will be formed in the aftermath of the C19 crisis, along the lines of 'One Health'. It is likely to highlight the importance of animal welfare, farming safety and hygiene, environmental and ecosystem health including biodiversity. We also predict a focus on preventive human healthcare, including tackling non-communicable disease, especially related to obesity and developing more effective diagnostics, drug-discovery and vaccines.

### UN One Health seeks to prevent future zoonotic outbreaks<sup>10</sup>



## Equality of opportunity

Inequality often begins long before people enter the workforce. Much of the world has already been dealing with a learning crisis before the pandemic, and that has worsened as more than 160 countries mandated some form of school closures that affected 1.5 billion young people<sup>11</sup>. The World Bank is supporting remote learning at scale and national education reforms to address education issues, but we have not yet seen any country advance a systemic solution to the problem of unequal access to education accentuated by lockdown measures.

Access to life-long education and reskilling, particularly as businesses adapt to a more remote work environment, is more important than ever. McKinsey has estimated that as much as 14% of the global workforce would need to switch occupations or acquire new skills by 2030<sup>12</sup>. While companies will be responsible for much of this effort we expect to see new policies emerge to support this transition.

<sup>10</sup>Source: One Health, <https://www.cdc.gov/onehealth/basics/index.html>. <sup>11</sup><https://www.worldbank.org/en/data/interactive/2020/03/24/world-bank-education-and-covid-19>. <sup>12</sup><https://www.mckinsey.com/business-functions/organization/our-insights/to-emerge-stronger-from-the-covid-19-crisis-companies-should-start-reskilling-their-workforces-now>.

## Investment implications of an accelerated transition to a more sustainable economy

The trends described in this paper have been underpinning our investment strategies for over 20 years. However, an acceleration in the transition to a lower carbon, more equal and more risk conscious economic model is emerging in the wake of the C19 pandemic. The long-term implications from C19 present both risks and opportunities across all GICS sectors. In many cases, C19 has accelerated existing trends; in some cases, it has introduced new risks and opportunities or changed the trajectory of others.

The Impax Sustainability Lens is a tool which helps us translate our investment philosophy into actionable investment ideas. It is based on the premise that economic transitions create winners and losers. For the most part the Impax's Sustainability Lens was capturing the majority of these trends.

The Environmental Markets universe identifies companies with exposure to the opportunities arising as the economy transitions to one in which pollution is lower and natural resources are used more efficiently. As well as low carbon technologies, this universe highlights companies across the water, waste and food value chain which can tackle ecological challenges to help protect biodiversity.

Impax's proprietary Gender Score identifies companies which have been successful in fostering female leadership at board and executive level, as well as taking practical steps to enable retention of women throughout their business. A lead indicator of management quality, this tool has the potential to identify companies more resilient in the face of broader diversity challenges.

Looking forwards as we rebuild the global economy, using these tools, Impax has identified areas of the markets potentially benefiting from additional headwinds or facing greater challenges.

### Activities with more opportunity (the winners)

**Digitisation** – ecommerce, education, cloud, Internet of Things (IoT), remote working, business continuity, data security

**Industrial automation** – supply chain technology, efficient manufacturing, building information technology

**Health, safety and wellbeing** – natural ingredients, nutrition, personal diagnostics, immunity

**Bespoke medicine** - personalised medicine & diagnostics, telemedicine, antiviral/anti-infective drugs

**Solutions to high-impact environmental challenges** – low carbon technologies, sustainable food & water

**Personal transport** – electric vehicles, charging infrastructure, eBikes

### Activities facing more risk (the losers)

**Travel and leisure** - airlines, business travel, cruise liners, restaurants, entertainment

**Polluting mobility-related fuels** – diesel, petrol, jet fuel

**Commercial real estate** - office buildings, cement

**Unsustainable and unhealthy food production** – intensive farming, high-sugar products

**Close-proximity labour production** – meat and textiles

**Plastics alternatives** – multiple use solutions, biodegradable, fibre

## Cross sector risk analysis

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In addition to considering the markets to which a company is exposed, i.e. What a company does; Impax's investment process considers operational and governance related risks, i.e. How a company does it. The implications of C19 touch this area of company analysis across a range of topics including:

### Climate change

Climate change has been captured within Impax's ESG analysis in the context of transition risk and physical climate risk. Remote working and the technologies that make it possible and productive have the potential to make some of the reductions in emissions experienced during the pandemic more permanent.

### Biodiversity

The importance of biodiversity management will be elevated within resource intense activities given its ability to serve as the source of other secondary and far-reaching impacts. Activities that contribute to deforestation (soy, palm oil, beef and leather, forestry in delicate ecosystems like Siberia) or conversion of wild or agricultural land to urban use can also contribute to the loss of biodiversity, which is likely to have myriad impacts (e.g., loss of pollinators). It can also force existing animal populations into smaller areas with greater likelihood of contact with humans, exacerbating the spread of zoonotic diseases and contributing to future epidemics or pandemics.

### Human capital management

Using Impax's materiality approach, human capital management has been a key input within ESG analysis on a sector-by-sector basis. However, C19 has further demonstrated this is a universally material risk, whether directly or indirectly, and as such human capital will become a sector agnostic risk evaluated at the company-level.

Visibility and treatment of part-time, temporary and seasonal workers throughout the supply chain will be considered a material risk across all sectors. Particularly in industries with many workers with low pay and inability to work remotely (retail, health care, consumer staples, meatpacking, internet providers, utilities, food service) treatment of workers' pay and benefits is likely to mean more to performance. Past studies show that companies with better worker treatment weather downturns substantially better than those with average or lagging worker treatment. Paid sick leave, family friendly benefits and employee development and reskilling opportunities provide material insights into human capital management across all sectors.

### Diversity frameworks

Gender issues are becoming a common point of corporate engagement; specific sub-issues within gender are integrated into such dialogues on a situationally specific basis. Issues including gender bias within reskilling, gender-specific challenges within the context of the distributed office model, paid leave and the gender-pay and gender wealth gap are elevated in the post C19 discourse.

## Conclusion

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C19 has been an intense and high-stakes trial run for future systems-level risk management. It has revealed complex and interconnected externalities that have arisen from an unsustainable economy; yet in recognising this interplay, C19 has afforded investors, policy makers, corporations and consumers a chance to avoid the same missteps when the next low or uncertain probability/high impact crisis of this magnitude - i.e. climate change - hits.

As evidenced through this report, four structural changes stand to have long-term effects on business models- each elevating both risks and opportunities across varied time horizons.

Looking ahead, the reaction of policy makers as they move from lockdown to rebuilding economies, will likely incorporate societal feedback that simply rebuilding an unequal, fossil fuel powered economy is not enough.

In addition to continuing to incorporate these learnings into the investment process, Impax will support calls for both private and public sectors to invest in the green economy as part of post-C19 economic stimulus packages, as well as tackling persistent areas of inequality.

## Working Group members

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Thank you to the following Impax team members for their contributions to this report: Bruce Jenkyn-Jones, Mackenzie Clark, Harry Boyle, Chris Dodwell, Chris Eccles, David Loehwing, Jon Forster, Julie Gorte, Kirsteen Morrison, Lisa Beauvilian, Miriam Benarey, Nathan Moser and Paolo Macri.



## CONTACT INFORMATION

---

### IMPAX ASSET MANAGEMENT

T: +44 (0)20 3912 3000

E: [clientservice@impaxam.com](mailto:clientservice@impaxam.com)

 @ImpaxAM

 Impax Asset Management

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