RSA

Design for life: To regenerate people, place and planet

A new mission for the RSA

MAY 2022

FOREWORD

This paper marks the start of the latest chapter in the RSA's rich history as a social change organisation spanning almost 270 years.

By design, the paper is open in the programme of change it sets out, leaving space for the co-creation and co-design of this programme with Fellows and other partners. This is in the best traditions of the RSA's inclusive and participatory approach to social change, drawing on the expertise of the widest possible cross-section of society. Those ingredients will be essential for sustainable system-wide change in the future too.

Underpinning the RSA's new mission, and its accompanying programme of change, are three closely interlinked elements: *social impact, social opportunity* and *social innovation*. As a social change organisation, the historical success of the RSA has been defined by its social impact, locally, nationally, globally. Given the nature and scale of the 21st century's challenges, social impact should be the north star of the RSA's future programme of work. Our programme will be focused squarely on people and places where the RSA's social impact is likely to be largest and longest lived.

That social impact is, we believe, best achieved by unlocking the potential in people and places. At present, for a large and growing segment of society, that potential is not being fulfilled, their opportunities constrained. Generational improvement in living standards and lifespans is in jeopardy as a social norm for the first time since the 18th century. And that generational improvement has also come at some considerable cost, not least environmentally and, for some, socially too. The RSA's future programme of change needs to re-establish generational improvement in lived experiences as a social norm, while reversing the social and environmental costs of the past. We need to move from reactive crisis management, to proactive re-imagining of the future state; from doing less harm, to doing more good; from extracting for short-term gains to replenishing for the long-term and future generations.

It will do so by focusing on those people and places whose opportunities are currently most constrained – people and places most disadvantaged, whether at school or work, in communities and companies. In this way, the programme will seek to unlock *social opportunity* among those whose potential to rise is greatest, growing the pie for those whose slice has historically been smallest and, recently, has shrunk fastest. By focusing on those people and places, this programme stands to achieve the largest possible social impact.

Unlocking social opportunity is best achieved by providing people and places with the agency, skills, opportunities and connections to be innovative, creative and entrepreneurial at all stages of their lives, from early years to adulthood. That is what we mean by *social innovation*. Our proposed programme provides a life cycle of opportunities to unlock the potential in people and places. Success in doing so would not only transform the lives of individuals, but the communities in which they live and the environment in which they are embedded. It would be regenerative for people, place and planet.

This programme of change, motivated by social impact, rooted in social opportunity and delivered through social innovation, follows in the best traditions of the RSA. This paper sets out a clear diagnosis of the economic, social and environmental challenges facing us, a set of system-wide design principles for tackling these problems, and a practical menu of interventions, or pathways, through which the RSA can begin to tackle these problems. It seeks to provide both the deep diagnosis of, and the detailed prescription for, the world's 21st century challenges.

The paper is structured as follows:

- **Section 1** provides our overall *framework for understanding the world*. It describes the nested set of systems that combine to generate our complex, connected world. This comprises three nested systems (economic, social, ecological) each with its associated stock of 'capital' (economic, social, natural). If this complex, connected world is to flourish and grow, replenishment is needed in each system due to their mutual dependence. This mutual dependence is a force for good when systems are strong and naturally replenishing, in a virtuous cycle. But that same connectivity can amplify the forces of fragility, in a vicious cycle, if systems are weak. In that sense, our increasingly complex, connected world is a double-edged sword. The world's systems sit atop a knife-edge. While having the potential to flourish when in harmony, when in competition they are a source of increasing fragility.

- **Section 2** provides an *assessment of the evidence* on each of these systems. Taken together, this evidence points in a clear direction. Over the course of many years, the capital in each of the world's systems has been depleted, or has not been naturally replenishing itself. That can be seen in stalling or falling pay packets and productivity, worsening physical and mental health outcomes, erosions in trust and wellbeing and a decay in our environment, physical and natural. This means economies, societies and ecologies are at increasing risk of being in a vicious cycle, the wrong side of the double-edged sword. That puts them in a fragile position, vulnerable to being pushed over a tipping point that would cause adverse cascading effects. In short, evidence suggests the world is fragile, imbalanced, and extractive. There is a precarity in people, place and planet.

- If that is the world as it is, **Section 3** asks *how the world could be* - an act of futures thinking in the tradition of the RSA's approach to innovation. At a high level, success is easy to define. It would involve the world's nested systems satisfying the three R's: *resilient, rebalanced and regenerative*. The prizes from doing so – for people, place and planet – are potentially enormous and we provide some illustrative estimates. The harder question is how to harvest those benefits.
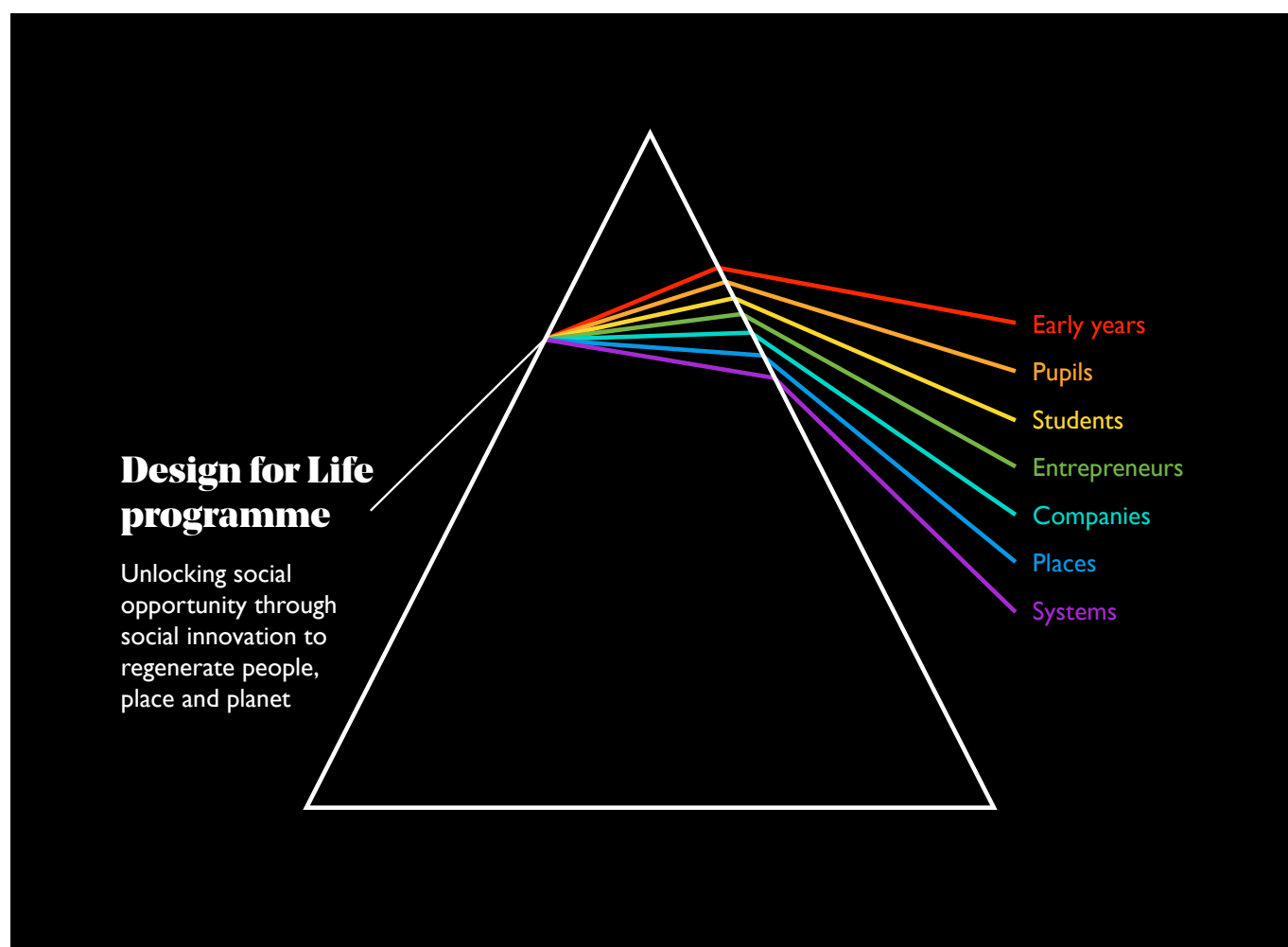
  Drawing on history and the experience of other complex systems, we set out 10 lessons:
  o   Unlocking innovation and creativity.
  o   Investing in entrepreneurship and experimentation.
  o   Shifting systems by design.
  o   Forging simplicity in the face of complexity.
  o   Growing coalitions across institutions.
  o   Committing to lifelong learning.
  o   Starting from glocal.
  o   Cross-sectoral systemic change.
  o   Working at the intersection between disciplines.
  o   Embracing adaptive interventions.

- **Section 4** sets out the *institutional pillars that have underpinned the RSA* as a social change organisation over the past two and a half centuries. Whether by accident or design, the RSA embodies many of the institutional foundations necessary to tackle today's challenges. These include its focus on social innovation and entrepreneurialism, its expertise in social design and experimentation, its history of institution-building and its use of cross-sectoral, cross-disciplinary and participatory approaches. The evolution of these foundations is reflected in the RSA's *Living Change* approach to system-wide change. Put differently, if the RSA did not already exist, there would be a strong case for inventing an institution with its characteristics, given the nature and scale of today's challenges.

- Building on the diagnosis in Sections 1-4, **Section 5** sets out the prescription: seven pathways that will define the RSA's future change programme – the *Design for Life* programme. By design, each pathway seeks to unlock the potential of people from the earliest years through to adulthood, in companies and communities. By design, this programme seeks to establish, or re-establish, generational improvement in people, place and planet. By design, the pathways seek to grow the agency, skills, creativity and connections important for a good life and a flourishing economy, society and environment. By design, these interventions are based on practical projects, working across sectors, disciplines and generations. And by design, all are focused on people and places whose opportunities are most constrained and the potential for large and lasting social impact is thereby greatest.

- Some of these pathways build on the successes of past RSA interventions, re-scaled and refreshed for today's challenges. Others are entirely new and experimental, as befits the sort of social innovation needed for today's new challenges. The pathways do not seek to articulate and execute *best* practice. Rather, they seek to design and deliver *next* practice. They are not where the frontier of thinking and practice is today. They are where we think both will need to be tomorrow. These seven pathways are:

    o **Early years for change:** what if all children, from their early years, were given the best start in life as future change agents, transitioning their communities, places and planet to be more resilient, rebalanced and regenerative? For example, through co-creating places and spaces in and around early years settings that nurture the creativity and connection of children to community and nature – such as through a nature-based learning programme for early years children, inspired by Eden's work.

    o **Pupils for change:** what if all school-aged children were nurtured and supported, through practical exercises in social design, to contribute towards creating more resilient, rebalanced and regenerative futures? For example, through expanding the scale and scope of the RSA's Pupil Design Awards, building a global movement of schools, and growing the social agency of pupils by creating participatory fora.

    o **Students for change:** what if all tertiary education students across all disciplines were supported and inspired, through practical projects in social design, to initiate the career trajectories necessary for the transition towards more resilient, rebalanced and regenerative futures? For example, through expanding the scale and scope of the RSA's Student Design Awards to be discipline-agnostic, to include students in all tertiary education settings and to develop apprentice programmes with companies to take forward their joint commitment to people, place and planet.

    o **Entrepreneurs for change:** what if all excluded entrepreneurs-in-the-making were supported and connected to seed and scale the innovations necessary for the transition towards more resilient, rebalanced and regenerative futures? For example, through a new Marie Curie Catalyst incubator and accelerator, focused on otherwise excluded entrepreneurs, offering financial support, learning experience, mentoring and the connections necessary for their innovations to flourish and shape better futures.

    o **Companies for change:** what if all intrapreneurs and business leaders were supported to transform their organisations to lead the transition towards more resilient, rebalanced and regenerative futures? For example, through a new social intrapreneur leadership programme, and the creation of business innovation directories of emerging next practice, that help businesses establish and implement next practice in respect of the often silent S in ESG (environmental, social and governance).

    o **Places for change:** what if all place and community leaders were supported to connect, participate and collaborate for the transition towards more resilient, rebalanced and regenerative futures? For example, through a new *Urban Futures Commission* providing an audit and action plan for cities and regions, with tailored initiatives that build collaborative and participatory place-based social infrastructure, including supporting place-based lifelong learning through *Cities of Learning*.

    o **Systems for change:** what if the *Design for Life* pathways formed a prism of evidence, learning, impact and movement-building that accelerates the whole system's transition towards resilient, rebalanced and regenerative futures? For example, by setting up a *Social Impact Observatory* that grows collective insight and foresight on system-wide change, from and beyond the pathways. This could be supported by an *Open Living Change Playbook*, a knowledge commons by, and for, Fellows and partners, so that social change tools and techniques are widely available as a public good.

- While distinct, these pathways naturally combine to create integrated pathways for people, companies and communities. In time, the first four pathways could be brought together into a single learning journey, rooted in social change and social design, with graduated progression steps – an RSA *Social Change Award Scheme*. Programmes of skills development among young entrepreneurs (externally) and intrapreneurs (within companies) could be brought together through a *Social Change Leadership Academy*. And overarching and informing all of this would be an *Open Living Change Playbook*, a public good for actual and prospective changemakers.

- **Section 6** sets out the forward agenda. To make a success of this ambitious programme of change, the RSA will need to draw more heavily than ever on the support and expertise of a wide spectrum of partners including global affiliates, Fellows and partners in communities and companies. Our *Design for Life* programme has been configured to embed co-creation, co-design and co-delivery with them. We outline the practical steps for doing so, including through the enabling role of the RSA's new digital platform and through a new governance structure for the programme. This will deliver a programme global in ambition and scale, local in focus and delivery, and cross-sectoral, cross-disciplinary and cross-generational in impact.

This is a far-reaching and ambitious programme of change across all systems (economic, social, ecological) and at every level (from hyper-local to global). We make no apology for that level of ambition. Our complex connected world – fragile, extractive, imbalanced - demands nothing less. This programme builds on the best traditions, and the strong historical foundations, of the RSA as a social change organisation. But it builds on these foundations with a programme shaped to 21st century challenges and opportunities. We hope you feel inspired to join us on this new mission.

Design for Life programme

Unlocking social opportunity through social innovation to regenerate people, place and planet

Early years
Pupils
Students
Entrepreneurs
Companies
Places
Systems

CONTENTS

1 THE COMPLEX CONNECTED WORLD

A double-edged sword

1. THE COMPLEX CONNECTED WORLD
## A double-edged sword

It is often said that the world faces challenges that are complex and systemic. This understates the challenge. In fact, the world is a complex, interconnected *system of systems* or set of *nested systems*. These complexities and interconnectivities amplify the global challenges facing us, whether economic, social or environmental. They also mean that a deep understanding of the behaviour of these systems, individually but especially collectively, is crucial for beginning to solve these pressing systemic problems, durably, sustainably and at source.

One useful way of characterising the world is as a nested set of three distinct, but interdependent, complex systems (Figure 1).[1]

These three systems are:

o **The economic system** (economy). This is defined by *financial* exchanges between people in all sectors of the economy (public, private and civil society). These exchanges or transactions are typically (but not always) mutually-beneficial, satisfying people's desires for goods and services, work and leisure. Collectively, activity in the economic system generates income, employment and wealth for the people involved, if not necessarily equally. When the economic system is failing to work, the result is a lack of growth in incomes, jobs and wealth and a rise in inequalities in their distribution.

o **The social system** (society). This is defined by *non-financial* exchanges or interactions between people in all sectors of society (public, private and civil society). These exchanges or interactions are typically (but not always) mutually-beneficial, building trust, relationships, agency and goodwill between individuals, communities and countries. Collectively, these interactions in the social system generate cohesion, stability and wellbeing for people and places. When they do not, the result is a fall in social cohesion and trust, in health inequalities, and a rising risk of social or political unrest.

o **The ecological system** (environment). This is defined by interactions between natural eco-systems on the planet, and by interactions between these natural eco-systems and socio-economic systems. These interactions between people and planet can often be mutually-beneficial, given the importance of nature for our personal wellbeing and lived experience as well as for our livelihoods. But these interactions can be mutually-destructive too, when extractive activity damages natural eco-systems or man-made environmental crises damage the economy and society.

FIGURE 1: NESTED SYSTEMS

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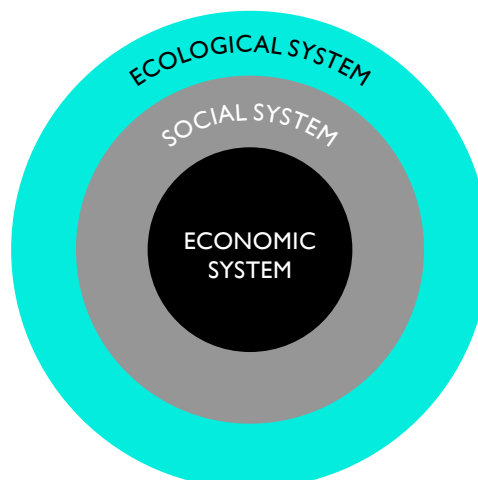
1 See, for example, Raworth, K (2017). Doughnut economics: seven ways to think like a 21st-century economist. Chelsea Green Publishing.

A well-functioning and efficient economy is one which creates good jobs and incomes for its citizens and satisfies their everyday needs for goods and services. While necessary conditions for a good economy, these are not sufficient ones for a successful *society*, however. For example, an economic system that is unequal in the opportunities and outcomes available to its citizens will erode trust, social cohesion and wellbeing among people and in places. History, recent and distant, shows that these erosions of trust and belonging ultimately flow back to damage the economy. Economies without trust and social cohesion fail. That underscores the nested nature of the economy in wider society.

By the same reasoning, an efficient economy and stable society, while necessary, do not guarantee environmental sustainability. If the socio-economic system relies for its success on exploitation of the natural environment, in ways which damage its longer-term health, this will cause fractures in natural eco-systems and, ultimately, a rising incidence of man-made natural disasters. History, recent and distant, shows that these ultimately flow back to damage the economy and society. That underscores the nested nature of our economy and society in the wider environment.

These nested systems affect every sector and segment of society. They affect us as individuals (people), as communities (place) and at the level of the planet – if you like, the micro, the meso and the macro. They also affect every sector of society – private, public and civil society – and every segment of society – socio-economically, ethnically and generationally, if not always equally. By their very nature, problems within these nested systems span people, communities, countries, eco-systems and generations. That is what is meant by systemic.

The health and stability of these nested (economic, social and ecological) systems is not guaranteed. History is full of examples of damaging fractures or failures, from economic recessions and financial crises, to social unrest and wars, to environmental crises and catastrophes. This experience tells us that active nurturing and management of these systems is often necessary to avoid, or repair, fractures and failures in them. And success in doing so typically requires some means of measuring the health of these systems. What is not measured tends not to be managed, at least well.

Good progress has been made over recent years towards measuring the health, growth and sustainability of these systems. One widely-used metric of the health of a system comes from defining a set of 'capitals' – the stock of assets or endowments embodied and embedded in each of the systems.[2] For the economy, health is measured by the stock of *economic capital*, for society the stock of *social capital* and for the environment the stock of *natural capital*. This is probably the closest we currently have to a common currency when measuring the health of these nested systems.

Taking each of these capitals in turn:

- o **Economic capital.** This captures the stock of economic or financial resources in the economy, both human (the skills, health, education and experience of people) and non-human (the quantity and quality of machines, buildings, technologies and ideas).[3] This stock of resources gives rise to a flow of incomes or transactions in the economy. This is what is typically referred to as Gross Domestic Product (GDP) and rises in GDP are what is typically taken to mean economic growth. By growing the stock of (human and non-human) economic capital, an economy can be expected to generate a higher future flow of income and activity, higher GDP and living standards for its citizens over time.

- o **Social capital.** This captures the stock of non-financial resources in society, among citizens and within communities.[4] This includes endowments of trust, relationships, belonging and agency among people, together with the social infrastructure that supports these assets, including civic and community institutions. This stock of social assets generates a flow of improved wellbeing among citizens. This is often captured in subjective measures of life satisfaction and happiness from surveys of citizens. By growing its stock of social capital and social infrastructure, a society can be expected to generate higher levels of life satisfaction and wellbeing among its citizens over time.

2 See, for example, Coyle, D (2021) Cogs and Monsters: What Economics is, and What It Should Be. Princeton University Press.
3 See, for example, Coyle D (2015) GDP: A Brief but Affectionate History – Revised and expanded Edition. Princeton University Press.
4 Coyle, D (2020) Valuing Wealth, Building Prosperity: The Wealth Economy Project on Natural and Social Capital, One Year Report. Bennett Institute for Public Policy Cambridge. Available at: www.bennettinstitute.cam.ac.uk/wp-content/uploads/2020/12/WER_layout_online_July_2019_final_doubles.pdf

o **Natural capital.** This captures the stock of natural assets on the planet, from lakes and oceans, to forests and soils, to animals and the biosphere. Though these assets largely have no meaningful market value, they can be given accounting or user values for the essential services they provide to sustain people, biodiversity and places. Estimates of natural capital have been produced, including in the recent Dasgupta Review of the Economics of Biodiversity. Ultimately, higher levels of natural capital generate an increased flow of both economic benefits and improved levels of life satisfaction among citizens over time.[5]

FIGURE 2: THREE TYPES OF CAPITAL
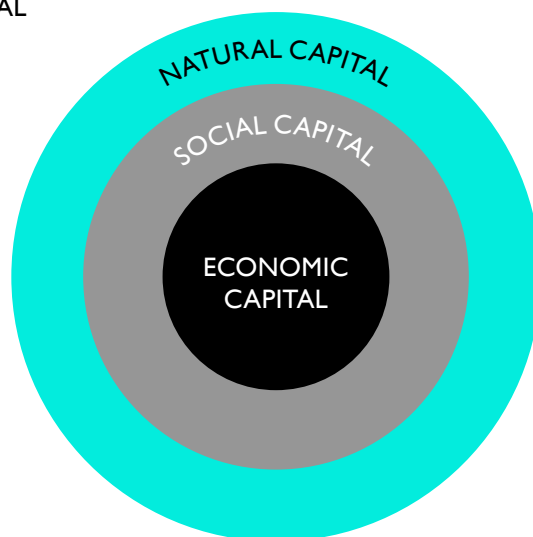
Success for the economy is associated with growth in its stock of economic capital over time. That means investment in people and technologies. By doing so, we would expect the income and living standards of citizens to be high and to rise over time – an inclusive economy, for people and place, and through that for planet. A successful economic system is also one, however, which is resilient in the face of shocks. In other words, following a recession or natural disaster, it can quickly restore the living standards of its citizens.

By the same taken, a successful society is one whose stock of social capital is growing over time. That means investing in people, communities and the social infrastructure that support them. By doing so, we would expect the wellbeing and satisfaction of citizens to be high and rising over time. A successful society is also one, however, which is resilient. In other words, following social or political upheaval, it is able to regenerate trust, relationships and wellbeing among its citizens.

Completing the nested set, a flourishing environment is one whose natural capital is being replenished and regenerated, rather than extracted, over time. That means investing in supporting natural eco-systems. By doing so, we would expect the economic health and wellbeing of citizens to remain balanced and replenished. A flourishing ecological system is also one, however, which is resilient. In other words, following natural or man-made environmental disasters, it is able naturally to replenish or regenerate its stocks of natural capital over time.

Regenerating these systems, and their capitals, is necessary if they are to avoid eventually reaching tipping points – points where the stock of capital is so low it cannot be regenerated and causing systemic collapse. These tipping points are a natural feature of all complex systems. They arise from negative cascading effects among the moving parts in these systems when they are weakened.[6] These cascading effects can be seen in the systemic collapse of eco-systems, but also in the collapse of physical, natural, economic and financial systems through history.

5 Dasgupta, P (2021) Final Report – The Economics of Biodiversity [PDF] HM Government. Available at: assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf
6 Ibid p91.

The greater the complexity of these systems, the larger their number of interacting parts and the greater their susceptibility to systemic collapse due to negative cascades, particularly when their capital is depleted. This is an intrinsic feature of any complex system. It means that complex nested systems, because of their interconnectivity, have an even greater likelihood of systemic collapse.[7] Failures in any individual system are then capable of cascading *across* systems, triggering tipping points and generating fragilities. The greater the connectivity of these systems, the greater the potential for cascades and the higher their intrinsic degree of fragility.

These features of complex, connected webs have important implications for their management. It means strength and resilience of any one of these systems is a necessary, but not sufficient, condition for success and resilience of the nested systems as a whole. All of the capitals – economic, social and natural – need to be naturally replenishing if the global system or systems is itself to satisfy the three R's: *resilient, rebalanced and regenerative*. The world is only as strong and stable as its weakest link, whether economically, socially or environmentally.

This means that our complex, connected world operates as a double-edged sword, at the same time both robust *and* fragile. This, too, is an intrinsic feature of all connected webs. They exhibit a knife-edge property.[8] When these systems are strong and their capitals naturally high and regenerative, they are self-supporting and mutually-replenishing. An inclusive economy nurtures a thriving society and a flourishing natural environment supports a thriving and inclusive economy and society in a virtuous cycle. Socio-economic and eco-systems then operate in mutual partnership.

But there is a dark side to interdependence, the other blade of the sword. Failures or fragilities in any of the nested systems can then more easily cascade to other systems, in a mutually-destructive vicious cycle. An excluding and weak economy makes for a more fragile society and risks a more extractive approach to the environment, and a depleted natural environment brings costs, both financial and non-financial, to its citizens and to biodiversity. The greater the degree of connectivity and complexity of these systems, the sharper edged this knife-edge.

Complex, connected systems, if depleted of their capitals, can then amplify fragilities in the world's nested systems. They can generate tipping points beyond which these systems cannot recover, damaging both the incomes and wellbeing of citizens on a permanent basis. The more complex and interdependent the world's systems, the sharper this knife-edge. This can act to our advantage, if stocks of capital are high and nested systems mutually-replenishing in a virtuous cycle. But, when capitals are depleted, that same complexity and connectivity increases the risk of the world's nested systems becoming trapped in mutually-destructive cycle of fragility.

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7 Haldane, A and May, R M (2011) Systemic Risk in Banking Ecosystems.
8 Ibid.

2 THE WORLD AS IT IS
Fragile, imbalanced, extractive

2. THE WORLD AS IT IS
Fragile, imbalanced, extractive

Using this framework, how is the world currently faring? On which side of the doubled-edged sword are the world's complex, connected systems now operating? Are these systems, and their capitals, resilient, balanced and naturally replenishing in a virtuous circle? Based on the evidence presented below, the short answer to these questions is a resounding 'no'. The economy, society and the environment are instead showing signs of fragility, imbalance and are not naturally regenerative. Moreover, these forces of fragility appear to be strengthening over time in a vicious cycle.

A) Economy

Starting with the economy, standard metrics of economic success have been static, or in some cases have retreated, for a rising share of the population in a growing number of countries. That can be seen most clearly in slowing rates of growth in aggregate productivity and pay, together with anaemic rates of economic growth.[9] While these trends pre-date the global financial crisis, they have been amplified by it, causing a further slowing of aggregate pay and productivity growth. This suggests a lack of resilience in the global economy and a more limited capacity to replenish itself than in the past.

The US and UK are striking case studies of this economic stasis. UK growth rates since the global financial crisis have averaged less than 0.5 percent per year, relative to an average of around 2 percent over the past century. More strikingly still, real pay for the median UK worker has been broadly unchanged, compared with an average of 2-3 percent growth over the past century. The US has shown a similar pattern (see Charts 1 and 2). This is the longest period of statis in pay packets in the UK and US since the middle of the 19th century. And this flat-lining in pay has been mirrored in aggregate productivity, also its longest period of statis since at least the 19th century.

What is true of pay and productivity is also true of health outcomes for people. In a number of advanced economies, there has been a notable slowing in growth rates of life expectancy over recent years. In the UK, and to an even greater extent the US, average healthy life expectancies show signs of having stalled.[10, 11] This would be the first time this has happened since the Industrial Revolution. It, too, is symptomatic of reduced resilience in the world's economic and health systems.

Against the backdrop of slowing or stalling trends in economic and medical health, two recent global shocks have compounded these problems: the Covid crisis with its large and lasting economic, social and health costs; and, most recently, the global cost of living crisis, hitting the finances of billions of households. These global shocks will inevitably worsen pre-existing trends in real pay (see Chart 3) and health outcomes. They, too, would tend to further deplete the capital, and erode the resilience, of the world's economic systems.

9   See, for example, United Nations Department of Economic and Social Affairs (2022) World Economic Situation and Prospects 2022. Available at: www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-2022/
10 Office for National Statistics (2021) National life tables – life expectancy in the UK: 2018 to 2020 [Online] ONS. Available at: www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/nationallifetablesunitedkingdom/2018to2020
11 Woolf, SH and Schoomaker, H (2019). Life expectancy and mortality rates in the United States, 1959-2017. Jama, 322(20).

CHARTS 1 AND 2: MEDIAN REAL PAY AND PRODUCTIVITY IN THE UK AND US

Overall and net decoupling in the UK (1981-2019)
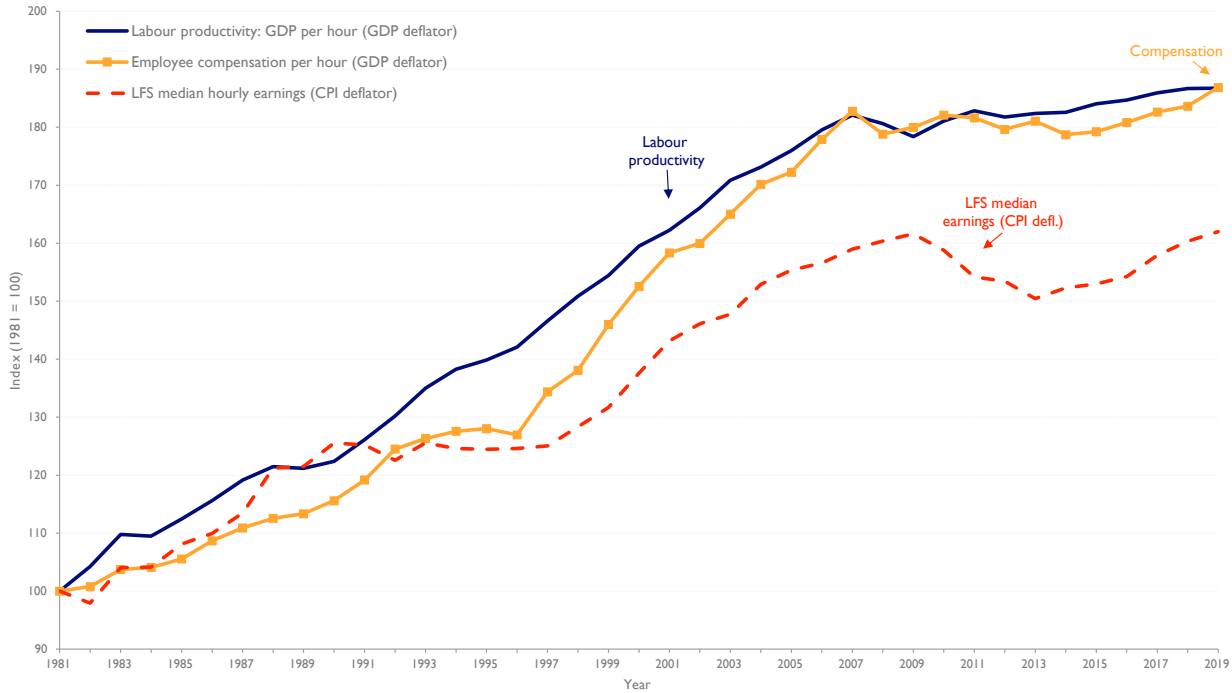
NOTE: LFS, ONS, and OECD data. Values are shown as an index (1981=100). Labour productivity is total GDP divided by total hours worked deflated by the GDP deflator. Employee compensation is divided by total employee hours and also deflated by the GDP deflator. LFS median hourly earnings are deflated by the CPI deflator. We refer to the difference between the growth rates of labour productivity and average compensation as 'net decoupling', and the difference between labour productivity and LFS median earnings as 'overall decoupling'.

Growth of average compensation and productivity in the US (1981-2019)
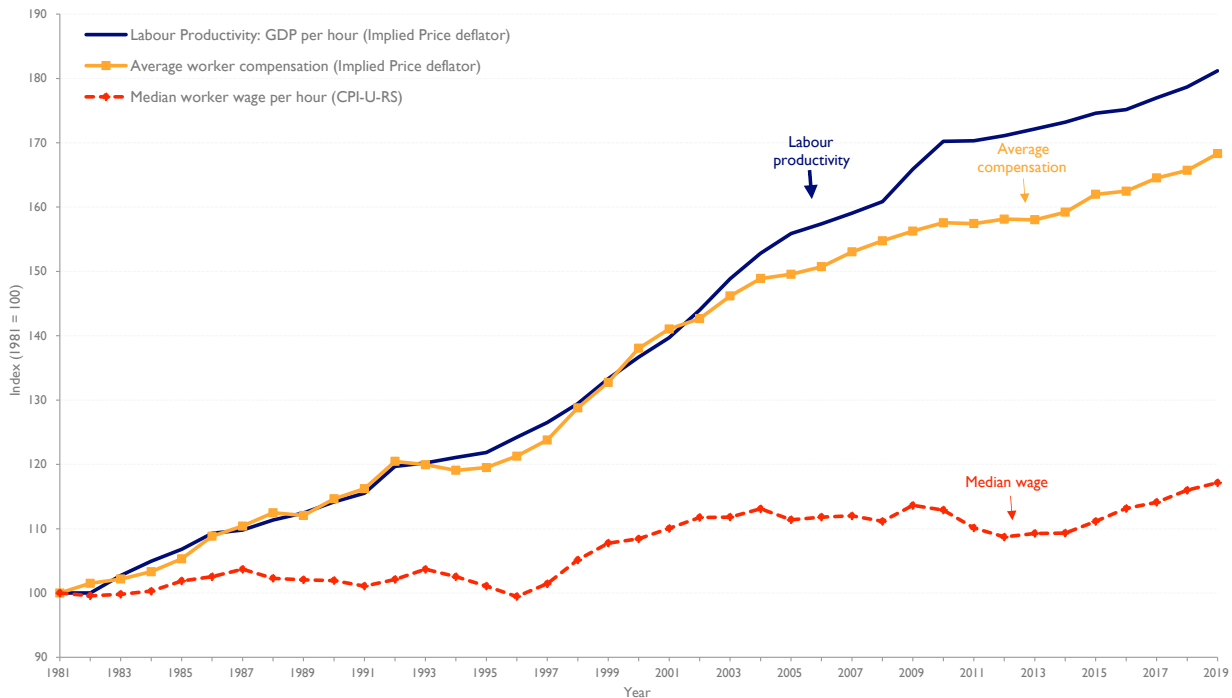
NOTE: Data from Bivens and Mishel (2021). GDP data come from Bureau of Economic Analysis (BEA). Compensation is approximated via a wage to compensation ratio based on BEA and BLS data and includes all workers (ie including self-employed). Hours worked also come from the BLS. GDP and average compensation are deflated by the implied price deflator (we later refer to the difference between these two series as 'net decoupling'), and median wages by the CPI-U-RS. 'Average' refers to the mean.

SOURCE: CHARTS 1 AND 2 – Teichgräber and Van Reenan (2021). Available at: https://poid.lse.ac.uk/PUBLICATIONS/abstract.asp?index=8611

While there is clear evidence of slowing or stalling growth in *aggregate* outcomes for pay, productivity and life expectancy in a rising number of countries, the underlying picture is in fact much more concerning than that. That is because this fragility and weakness has not been distributed equally. Rather, it has fallen disproportionately on cohorts of society already financially fragile, disadvantaged and excluded. Notable among these cohorts would be the young, the poor, ethnic minorities and those living in poorer places.

CHART 3: UK WAGE GROWTH IN THE 21ST CENTURY, ACTUAL AND EXPECTED

Nominal and real wage growth, 2000-2022

Legend: Average weekly pay in real terms — Average nominal weekly pay — Projected real pay — Projected nominal pay

SOURCE: Real income based on ONS data from the Annual Survey of Hours and Earnings. Projected real income growth based on ONS CPI data and Resolution Foundation forecasts. Available at: www.resolutionfoundation.org/app/uploads/2022/03/Living-Standards-Outlook-2022.pdf

That unequal burden is reflected in high and rising disparities in living standards and lifespans across people and places. We see those widening disparities *generationally* (with the young bearing more of the burden than the old),[12] *socio-economically* (with the poor faring less well than the rich)[13] and *geographically* (with deprived places falling further behind thriving places).[14] Already high inequalities in economic and health outcomes, between people and places, have tended to widen further over recent decades.

Taken alongside the slowing in aggregate economic performance, this has resulted in a fall in *absolute* living standards and life expectancies for a rising share of the population and in a rising number of countries. This fall in absolute, as well as relative, living standards and lifespans bucks trends in place for the past 250 years. Economically, we have entered what economist Paul Krugman has called the Age of Diminished Expectations. And these expectations have been diminished most among those already least-advantaged, including the young, the poor and the excluded.[15]

Where this leaves us, then, is that for the first time in living memory – indeed, the first time in post-industrial history - the *social norm of generational improvement* in living standards and lifespans is in jeopardy for a rising share of the global population. A rising number of the current generation of young people may find themselves poorer, their opportunities more constrained, than their parents. This is decisive breakpoint from the past for many people, economically and socially, and outside of the vast majority of people's lived experience.

12 Cribb, J (2019) Intergenerational differences in income and wealth: evidence from Britain. Fiscal Studies Vol 40, no 3, pp 275-299
13 Bell, T et al (2022) Inflation Nation: Putting Spring Statement 2022 in context [PDF] Resolution Foundation.
    Available at: www.resolutionfoundation.org/app/uploads/2022/03/Inflation-nation.pdf#page=22 p22
14 McCann, P (2016) The UK Regional-National Economic Problem: Geography, Globalisation and Governance, London: Routledge.
15 Krugman, PR (1997) The Age of Diminished Expectations: US economic policy in the 1990s. MIT press.

This can be seen in the trajectories for real pay seen across different generations of UK citizens (Chart 4).[16] The real pay trajectory of those born in the 1980s is currently tracking *below* those born in the 1970s. This follows a period, stretching right back to the Industrial Revolution, when real pay ratcheted upwards generationally and near-continuously. Yet Millennials today are earning around £8,000 less per year during their 20s than their predecessors in Generation X at a comparable age.

Given the combined effects of the global financial crisis and, more recently, the cost of living crisis, this reversal in generational pay fortunes seems unlikely to abate and may even be amplified by recent events. And the upshot is clear: for the first time in centuries, there is now evidence of *generational regress* in living standards, not progress. That would truly be an age of diminished expectations.

CHART 4: GENERATIONAL PROGRESSION IN PAY

Today's young adults are earning less than the generation before them did at the same age
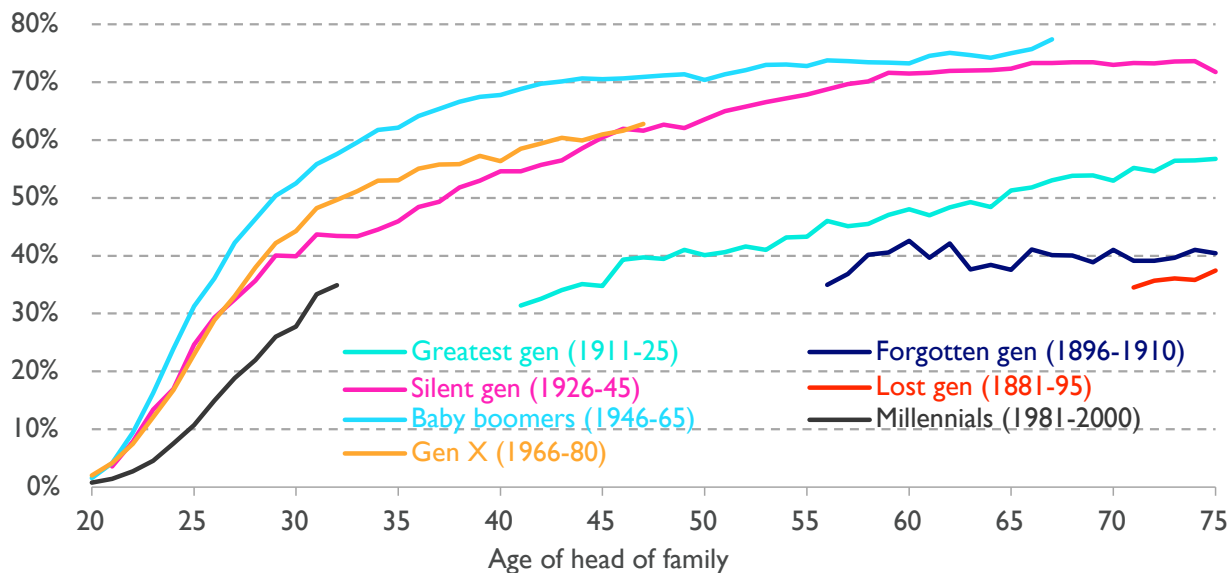Median real weekly employee pay (CPIH-adjusted to 2017 prices), by age and generation: UK, 1975-2017
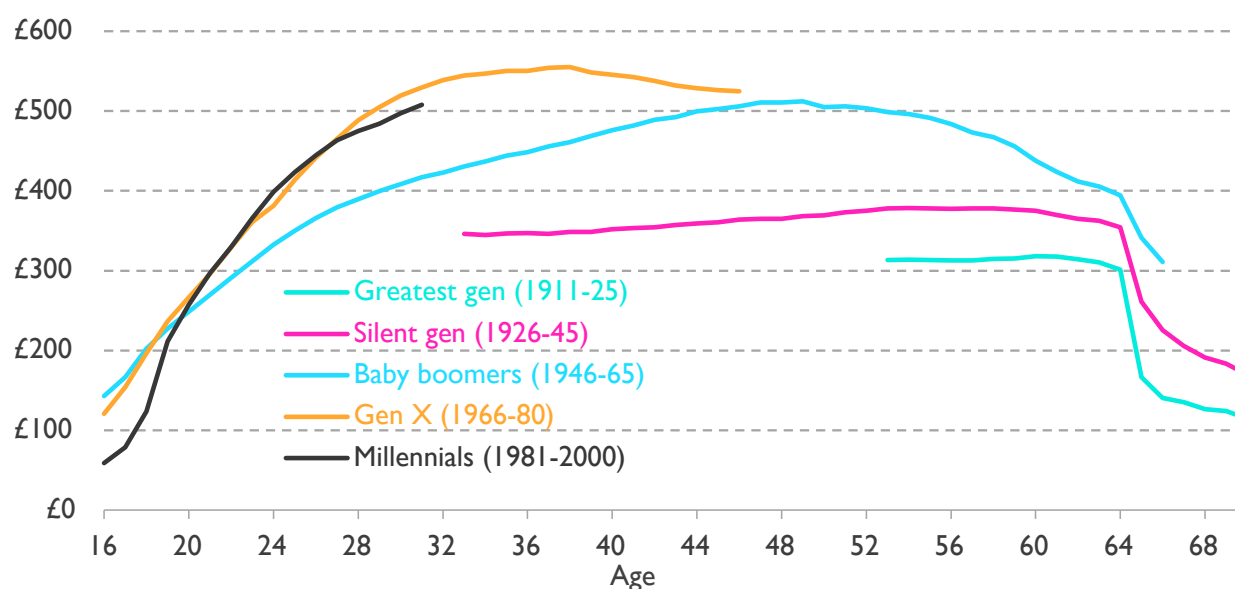
SOURCE: Intergenerational Commission, based on Resolution Foundation analysis of ONS, Labour Force Survey; ONS, Annual Survey of Hours and Earnings; ONS, New Earnings Survey Panel Dataset. Available at: www.resolutionfoundation.org/app/uploads/2018/05/A-New-Generational-Contract-Full-PDF.pdf

The same pattern is evident, more starkly, when it comes to a different dimension of economic security - home ownership. Among those born in the UK in the final decades of the 20th century, home ownership rates are significantly lower not only than the baby-boomers born after the war, but those born in the 1930s (Chart 5). This suggests a significant reversal in historical patterns of economic progression, at least as measured by housing tenure. It, too, suggests an age of diminished expectations among the young, poor and most vulnerable.

16 Intergenerational Commission (2018) A New Generational Contract: The Final Report of The Intergenerational Commission [PDF] Resolution Foundation. Available at: www.resolutionfoundation.org/app/uploads/2018/05/A-New-Generational-Contract-Full-PDF.pdf

CHART 5: GENERATIONAL PATTERNS IN HOME OWNERSHIP

Millennials have secured lower rates of home ownership than predecessors

Home ownership rates, by age and generation: UK: 1961-2017

Legend:
- Greatest gen (1911-25)
- Silent gen (1926-45)
- Baby boomers (1946-65)
- Gen X (1966-80)
- Forgotten gen (1896-1910)
- Lost gen (1881-95)
- Millennials (1981-2000)

X-axis: Age of head of family

SOURCE: Intergenerational Commission, based on Resolution Foundation analysis of ONS, Family Expenditure Survey; ONS, Labour Force Survey. Available at: www.resolutionfoundation.org/app/uploads/2018/05/A-New-Generational-Contract-Full-PDF.pdf

Predictably, these generational reversals in living standards have been accompanied by a stalling in measures of social mobility in a number of advanced economies, including the UK and US. Opportunities for economic and social progression, particularly among those from poorer backgrounds, have fallen across a variety of social mobility metrics, including parental occupation.[17] Raj Chetty's influential work has illustrated the striking differences in levels of social mobility across different part of the US.[18] As generational progress has reversed, economic opportunities among poorer people have also gone into reverse.

The causes of this reversal in levels of social mobility, and reduced social opportunities, are many and varied. They are likely to include rising inequalities in access to educational and entrepreneurial opportunities. For example, there is evidence of a high and rising educational divide between rich and poor at every stage of the educational life cycle, beginning in the early years and branching thereafter.[19] These differences have shown up, increasingly, in the tertiary education sector too, with a large pay premium for those with a university degree.

Those differences are larger still when it comes to opportunities to become an inventor or entrepreneur. Evidence suggests a dramatic drop-off in probabilities of exercising these options among young people from poorer backgrounds. This has been called the 'lost Einstein' (or 'lost Curie') phenomenon.[20] It is believed to be caused by barriers to risk-taking among less advantaged young people, both financial (limited access to seed-corn finance, lack of financial security) and non-financial (limited access to entrepreneurial mentors and useful social networks).

17 Social Mobility Commission (2021) State of the Nation 2021 [PDF] HM Government. Available at: assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003977/State_of_the_nation_2021_-_Social_mobility_and_the_pandemic.pdf

18 Chetty, R et al (2014) Where is the land of opportunity? The geography of intergenerational mobility in the United States. The Quarterly Journal of Economics, 129(4), pp1553-1623.

19 UNICEF Office of Research (2018) An Unfair Start: Inequality in Children's Education in Rich Countries, Innocenti Report Card 15, UNICEF Office of Research – Innocenti, Florence.

20 Bell, A et al (2019) Who becomes an inventor in America? The importance of exposure to innovation. The Quarterly Journal of Economics, 134(2), pp647-713.

At root, these patterns of stagnation and rising inequalities in the economic system can be traced to a depletion in the capitals that drive the economy, human and non-human. This can be seen in slowing rates of growth of investment in physical capital (plant, machines, technology) across advanced economies over recent decades, something particularly acute among poorly-performing companies. And it shows up too in slowing patterns of human capital investment (education and skills), with these effects felt most sharply by poorer cohorts and communities.

These slowing or stalling patterns in investment, human and non-human, explain the slowing and stalling seen in aggregate rates of pay and productivity in economies, the age of diminished expectations. They explain the diminished capacity of these economic systems to self-regenerate capital as its stock has depleted over time, with the young and poor finding it increasingly difficult to progress. And this capital depletion has in turn resulted in both economies, and the people in them, becoming more financially fragile over time.

This rising financial fragility can be seen clearly in the response of the global economy to two large, recent deeply-scarring shocks – the global financial crisis and the Covid crisis. These resulted in a severe hit to the economy and people's living standards. By raising uncertainties about the future, they also reduced incentives to invest, whether in people or machines. That further depleted economic capital, amplifying the hit to living standards and increasing the fragility of the economy to future shocks, in a vicious cycle.

In the face of these economic shocks, and its diminished capacity to self-replenish, many governments globally were forced to intervene to support economic activity and living standards through large-scale support programmes for incomes, jobs and investment. While necessary, this support has not been costless. It has led to levels of government debt globally rising alarmingly. In the UK, US and euro-area, government debt in relation to GDP has more than doubled over the past 15 years, on average reaching levels in excess of 100 percent of GDP.

These government interventions have been necessary to save jobs and support incomes. But the upshot has been a ratchet upwards in levels of debt, public and private. This debt will need, ultimately, to be paid back by future generations. It will present a further headwind to generational progress and, potentially, an amplifier of generational regress. It also makes the global economic system more vulnerable to future shocks, that could push debt costs up or debt beyond its limits.

So while necessary, rising levels of debt are a diagnostic on the fragility of the global economy, the threat to the generational social contract and a potential cause of future fragility if debt tipping points were to be breached. Debt, too, is a double-edged sword for the global economy. The higher its level, the sharper the knife-edge. Recent global shocks have sharpened this blade significantly.

B) Society

Turning to society, many of the same features are apparent, with depleted capital and fragile systems. Twenty years ago, Robert Putnam highlighted the crisis in trust, relationships, agency and belonging among communities in the US.[21] These have been intrinsic features of a successful society since the dawn of man. These features were named 'social capital'.

Putnam suggested low social capital was both a reflection, and cause, of the under-performance of these places. It showed up in high levels of crime and anti-social behaviour and poor mental and physical health. It manifested in decaying high streets and communities and declining trust and relationships. These operated in a vicious cycle, reducing incentives among people to invest in themselves and their communities and further lowering both economic and social capital.

21 Putnam, RD (2000) Bowling Alone: The Collapse and Revival of American community. Simon and Schuster.

Many of these same forces are at work right around the world, including in the UK. In many countries, there has been an erosion in trust and belonging, agency and satisfaction. This erosion shows up in various indices of trust to have emerged recently, as well as in surveys of satisfaction among the general public. As with economic capital, this erosion has also been felt disproportionately by the disadvantaged and vulnerable, both people and places. This has compounded the economic problems of low land falling living standards and longevity among these people and places.

These trends in economic and social capital, acting in parallel, have generated a widening divide in levels of life satisfaction and wellbeing between rich and poor, between young and old, and between well and poorly-performing places. This has mirrored the widening division in living standards and longevities. And as with them, among the least-advantaged the loss of social capital has resulted in falls in absolute, as well as relative, levels of life satisfaction. For many, we have seen the emergence of an 'era of anxiety'.

This era of anxiety has shown-up in a rising tide of adverse societal side-effects. One is the growth in global mental health problems as social networks and trust in communities has splintered. The number of people with common mental health problems rose by 20 percent between 1993 to 2014, in both men and women. It can be seen too in the global pandemic in loneliness. A meta-analysis of 39 studies of loneliness among older people in high-income countries found it amongst almost one in three of the population.[22]

In perhaps its most extreme form, this crisis in social capital and wellbeing has given rise to a phenomenon known as 'deaths of despair' in the language used by Anne Case and Angus Deaton.[23] This refers to the reduced life expectancy among (in particular white) males in the US due to alcohol and drug abuse, and suicide. Deaths from these causes have increased between 50 and 400 percent, depending on age cohort, over the past two decades in the US. From a lower base, deaths of despair are rising in the UK too. These deaths of despair have been linked to a lack of life opportunities – in other words, the stalling or reversal of generational improvements in economic and social outcomes, the break in the social norm in place for several centuries.

There is also compelling evidence of a decline in trust or trustworthiness within and among the institutions shaping our societies. Indices point towards a depletion in levels of public trust in politics and politicians, government, business and finance, charities, tech and media platforms and companies.[24] These institutions are seen as both lacking trustworthiness and eroding people's agency over their lives. Yet these institutions are known to be fundamental to societal success.[25] This means the loss of trust in them adds to the fragility of our economic and societal systems.

This depletion of trust in civic institutions may also have sowed the seeds of widening disparities in political attitudes and waning satisfaction and support for democracy (see Chart 6), particularly among larger democracies and in Anglo-Saxon countries. In the mid-1990s, a majority of people in OECD countries were satisfied with their democracies. Since then, the number of those dissatisfied has risen by 10 percentage and is now in the majority.[26] This mistrust appears to be greatest among younger generations, perhaps reflecting that breach of the generational social contract. This political fragility is likely to amplify societal fragility, in another vicious cycle.

22 Chawla, K et al (2021) Prevalence of loneliness amongst older people in high-income countries: A systematic review and meta-analysis. PloS one, 16(7), pe0255088.
23 Case, A and Deaton, A (2020) Deaths of Despair and the Future of Capitalism. Princeton University Press.
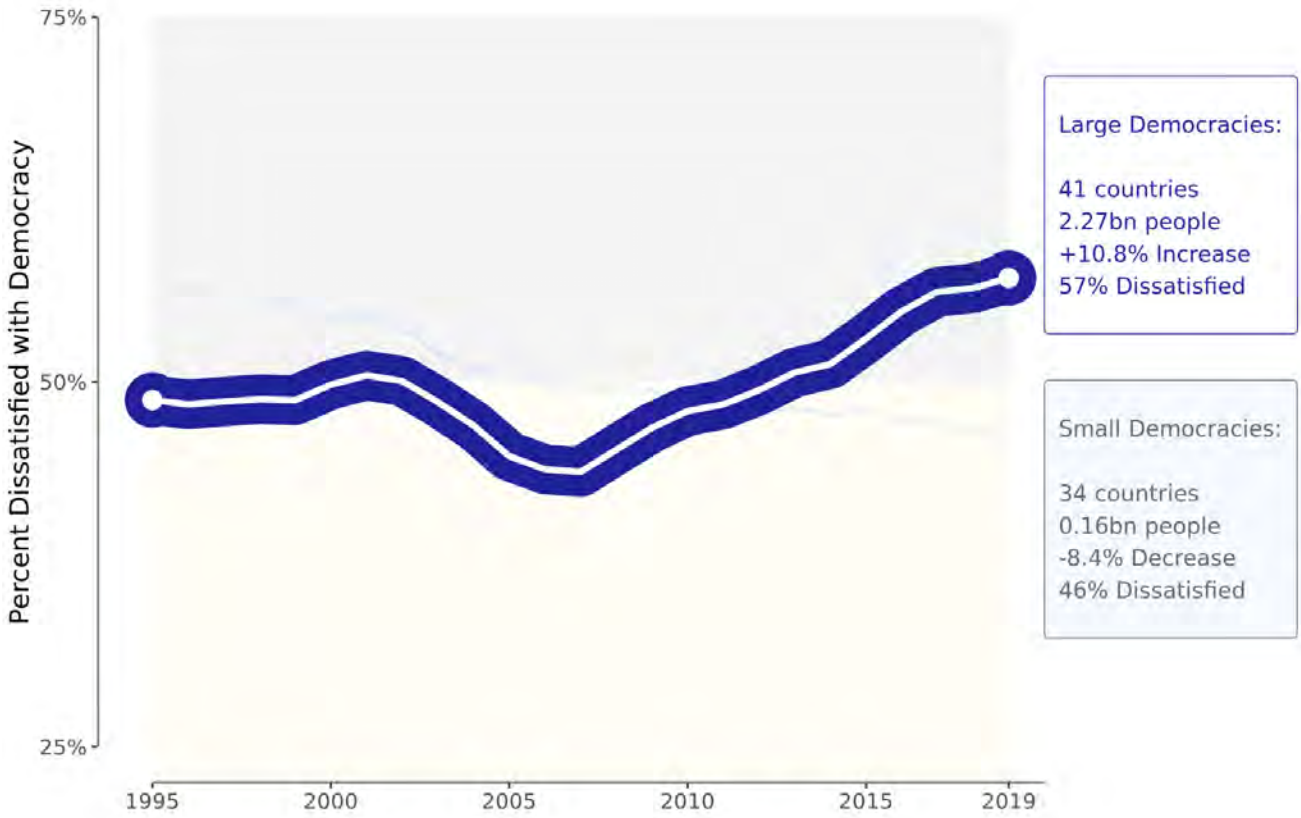24 Botsman, R (2017) Who can you trust?: How Technology Brought us Together and Why it Might Drive us Apart. Penguin UK.
25 Acemoglu, D, Robinson, JA and Woren, D (2012) Why nations fail: The origins of power, prosperity and poverty (Vol 4). New York: Crown Publishers.
26 Foa, RS et al (2020) The Global Satisfaction with Democracy Report 2020. Cambridge, United Kingdom: Centre for the Future of Democracy.

CHART 6: DECLINING SUPPORT FOR GLOBAL DEMOCRACY

Changes in levels of democratic dissatisfaction within large democracies (population above 10 million) and small democracies (population below 10 million). The thickness of the lines is relative to the total population of each group. While each grouping contains a similar number of countries – 34 vs 41 – large democracies here contain 93 percent of the total population of the two groups.

Large Democracies:

41 countries
2.27bn people
+10.8% Increase
57% Dissatisfied

Small Democracies:

34 countries
0.16bn people
-8.4% Decrease
46% Dissatisfied

SOURCE: Centre for the Future of Democracy. Available at: www.bennettinstitute.cam.ac.uk/wp-content/uploads/2020/12/DemocracyReport2020_nYqqWi0.pdf

At a time of greater social connectivity than ever in human history, the depletion of social capital is a striking diagnostic on the increased fragility of our societies and polities. As with the economy, some have speculated that societies could be approaching a tipping point, a point where social capital can no longer be easily repaired or regenerated. If so, this fragility could manifest itself as social or political instability, with adverse knock-on effects to economic stability and growth.

C) Environment

Finally, the world's ecological systems are well known to be facing the twin threats of depleted levels of natural capital and increasing fragility over time. While similar to the patterns seen among socio-economic systems, these environmental trends have been in place for far longer and the degree of depletion and damage to these ecological systems is correspondingly larger. Several centuries of extractive practices and over-use have generated an environmental 'tragedy of the global commons', whose scale is vast and still rising over time.

It is estimated that three-quarters of the terrestrial environment, and two-thirds of the marine environment, has been severely affected by human actions. Relative to their estimated natural baselines, there has been an almost 50 percent reduction in the extent and health of the world's eco-systems. Estimates of the stock of natural capital, produced in Partha Dasgupta's review of the economics of biodiversity, suggest a depletion of around 40 percent between 1992 and 2014.[27]

This depletion of natural capital has shown up in an almost two-thirds reduction in global forest areas. Since 1970, there has been almost a 70 percent drop in the population of mammals, birds, fish, reptiles, and amphibians (Chart 7). Around one million animal and plant species – almost a quarter of the global total – are believed to be threatened with extinction. And there has been an almost one third deterioration in the integrity of terrestrial habitats. These are staggering depletions of the world's natural eco-systems.

CHART 7: THE DECLINE IN GLOBAL NATURAL CAPITAL
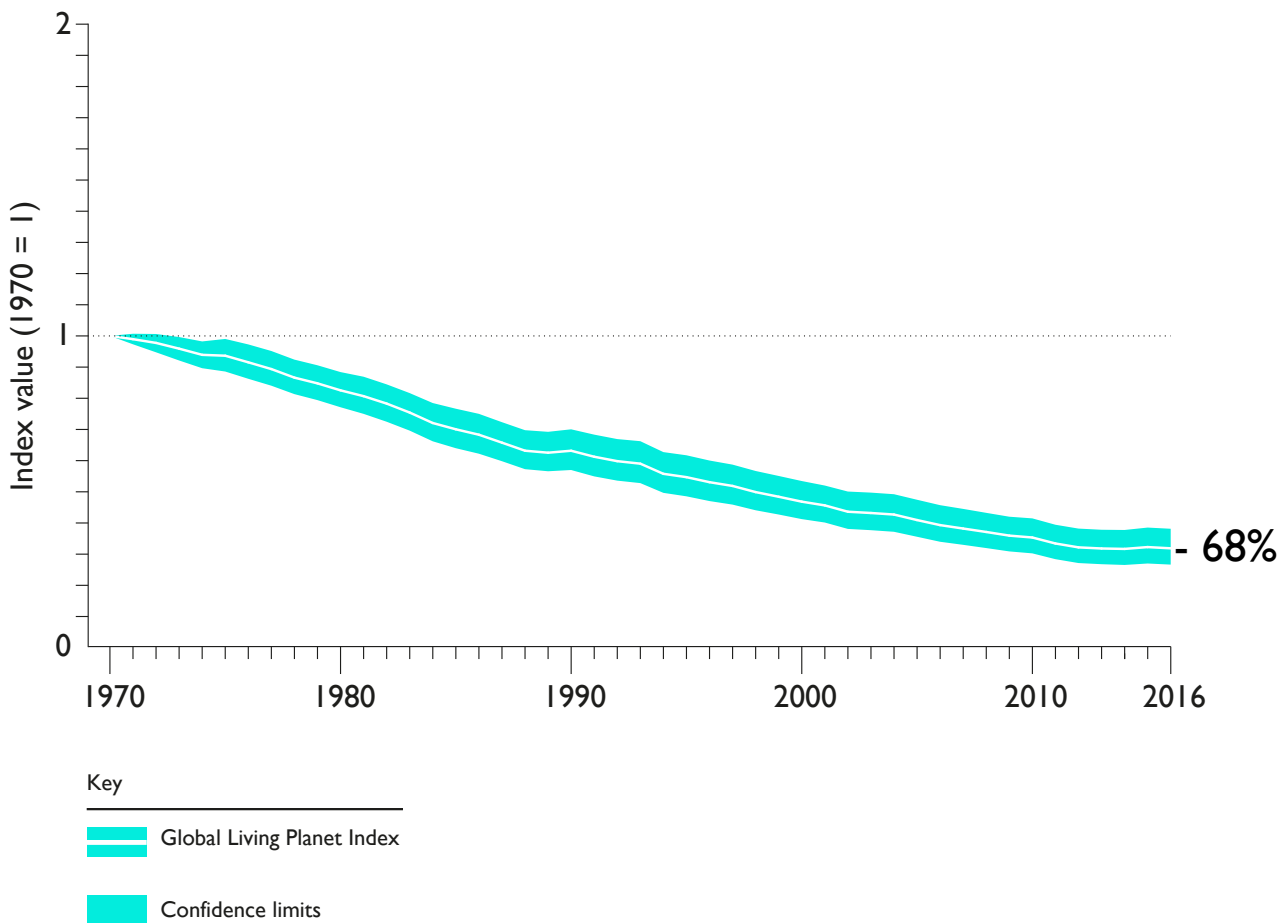
SOURCE: WWF Living Planet Index. Available at: www.wwf.org.uk/living-planet-report

27 Dasgupta, P (2021) Op cit.

The consequences of this erosion in natural capital, for economies and societies, are becoming clearer with every passing year. Since 1980, there has been a doubling in greenhouse gas emissions, raising average global temperature by at least 0.7 degrees. As with the erosion of economic and social capital, its effects are not being felt or distributed equally. Research suggests up to 132 million people in poorer countries could be pushed into extreme poverty by the climate crisis by 2030.[28]

The precipitate loss of natural capital has increased significantly the fragility of global ecological systems, increasing the chances of adverse cascading consequences. For example, climate change threatens to trigger tipping points in the biosphere across a range of ecosystems and scales.[29] Ocean heatwaves have resulted in mass coral bleaching, with 99 percent of tropical corals projected to be lost if the global average temperature rises by 2 degrees. This would result in a huge loss of marine biodiversity and have a large negative impact on both human livelihoods and lives.

The arctic is warming at twice the rate of the global average. That threatens to thaw permafrost which itself acts as a massive store of carbon – 20 percent of the world's remaining emissions budget if it is to have a 50:50 change of hitting 1.5 degrees. This could significantly amplify the effects of climate change. Warming temperatures will also lead to an increase in insect activity that will lead to the release of extra methane and carbon dioxide, in a further cascading fragility.

Deforestation and climate change are also in an adverse feedback loop of fragility. Estimates of the Amazonian rainforest's tipping point – the point where it is a net contributor, rather than net mitigator, of climate change - range from 20 percent to 40 percent of forest cover loss. Since 1970, 17 percent of the Amazon has been lost. There are early indications that the tipping point has already been reached in around one-fifth of the Amazon rainforest.[30] Of all the world's nested systems, perhaps the greatest threat and fragility arises in the world's natural systems.

28 World Bank Group (2020) Reversals of fortune. Poverty and shared prosperity 2020. [PDF] World Bank.
     Available at: openknowledge.worldbank.org/bitstream/handle/10986/34496/211602ov.pdf
29 Lenton, T et al (2019) Climate tipping points — too risky to bet against: The growing threat of abrupt and irreversible
     climate changes must compel political and economic action on emissions. Nature. Available at: www.nature.com/articles/d41586-019-03595-0
30 Gatti, LV et al (2021) Amazonia as a carbon source linked to deforestation and climate change. Nature.
     Available at: www.nature.com/articles/s41586-021-03629-6.

D) Nested systems

While these fragilities are worrying for each individual system, the mutual interdependence between them increases the chances of cascading, mutually-reinforcing fragilities in living standards, wellbeing and the environment. In other words, the age of diminished expectations, the era of anxiety and the tragedy of the global commons are inextricably inter-linked causes of concern for people, place and planet. It increases greatly the chances of the world finding itself on the wrong side of the knife edge, economically, societally, environmentally, and unable to reverse and regenerate.

Estimates of these adverse systemic spill-overs make for sobering reading. For example, recent research by the LSE and the Mental Health Foundation has provided some conservative estimates of the financial cost of mental health problems in the UK – the loss of social capital. This puts the cost at around £118bn per year, or around 5 percent of annual GDP.[31] This suggests a large and lasting adverse spill-over from fragilities in the social capital to the economy at large, a mutually-destructive feedback loop, a vicious cycle.

The spill-overs between ecological and socio-economic systems may be larger still. Between 3.3 and 3.6 billion people are estimated to live in countries and communities highly vulnerable to climate change.[32] Morgan Stanley estimate that climate-related disasters cost the world $650bn between 2016-2018.[33] In 2016, the UN environment programme estimated the cost of dealing with climate change at $140-300bn per year by 2030 and $280-500bn per year by 2050.[34]

All of this evidence suggests fragilities in the world's nested systems are far larger and longer-lived, the knife-edge far sharper, the double-edged sword far more dangerous, than at any point in human history. It also suggests that, without large and systemic change to all of the world's systems, the precarity facing people, place and planet will worsen over time.

31 Davidson, G et al (2022) Loneliness and Mental Health Report UK. Mental Health Foundation.
    Available at: www.mentalhealth.org.uk/sites/default/files/MHAW22_Loneliness_UK_Report.pdf
32 IPCC (2022) Summary for Policymakers: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth
    Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. In Press.
    Available at: report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf
33 Harmstone, A (2020) Five Sectors That Cannot Escape Climate Change. Morgan Stanley.
    Available at: www.morganstanley.com/im/publication/insights/articles/articles_fivesectorsthatcannotescapeclimatechange_us.pdf
34 Black, R (2022) Climate economics - costs and benefits. Energy & Climate Intelligence Unit.
    Available at: eciu.net/analysis/briefings/climate-impacts/climate-economics-costs-and-benefits

3. THE WORLD AS IT COULD BE
Resilient, rebalanced, regenerative

This is the world as it is – depleted, fragile, imbalanced. And what is true of each of the world's systems individually – economic, social, ecological – is true to an even greater extent of its nested systems given their mutual interdependence. This is a world, if not yet on a knife-edge, then at increasing risk of being on the wrong side of the double-edged sword. Given this starting point, how might we define and create a better world?

At a high level, this better world is relatively easy to define. It would be one where the world's nested systems (economic, social and ecological) were not fragile, imbalanced and extractive. Rather they would satisfy the three R's: *resilient, rebalanced and regenerative*. It is a world where the world's systems are mutually-supportive, rather than destructive. It is one where people, place and planet flourish in partnership, where opportunity is unlocked for those whose potential is currently most constrained and where inequality gaps in opportunities and outcomes are closing over time. It is a world where we have all moved from doing harm and doing less harm, to do doing more good for people, place and planet.

Given the starting position, the prize from securing any of these outcomes is likely to be large and growing, for people, place and planet alike. For *people*, the estimated benefits of improved social mobility and enhanced social opportunity are typically found to be large. We define social opportunity as a growth (1) in personal agency to take action, (2) in skills needed for shaping the future, (3) in ideas that change the world, and (4) in connections that spread movements of change. For example, research published by the Sutton Trust in the UK has found that increasing the levels of social mobility by a modest amount – to the Western European average – could lead to an annual GDP boost of 2 percent on a permanent basis.[35]

For *place*, it is also possible to estimate the benefits of closing regional disparities.[36] These might arise from lifting the tail of places where productivity and living standards are lowest, from improvements in educational and skills attainment, or from better health outcomes and wellbeing. Some illustrative estimates of those benefits are shown in Table 1 for the UK, in annual GDP-equivalent terms. They suggest the benefits from unlocking the potential in place are large, for the UK approaching 5-10 percent or more of annual GDP on a permanent basis.

35 Jenkins, H et al (2017) Social Mobility and Economic Success: How social mobility boosts the economy. The Sutton Trust.
     Available at: www.suttontrust.com/wp-content/uploads/2020/01/Oxera-report_WEB_FINAL.pdf.
36 Haldane, A (2022 Levelling Up: Sizing the Prize, Seizing the Prize. The RSA.
     Available at: www.thersa.org/reports/levelling-up-sizing-the-prize-seizing-the-prize
37 These estimates are illustrative and indicative, drawing on published sources of data and evidence.

TABLE 1: ANNUAL GAIN IN GDP-EQUIVALENT TERMS FROM PLACE-BASED POTENTIAL BEING UNLOCKED[37]

POTENTIAL UNLOCKED	ANNUAL GAIN IN GDP
Productivity and living standards	~£40 to ~£50bn
Research and development	~£3bn
Transport	~£4bn
Digital	>£1bn
Education	~£5bn to ~£10bn
Skills	~£5bn
Health	~£50bn and rising
Wellbeing	~£50bn to ~£100bn
Housing	~£4bn
Crime	~£3bn

For *planet*, the size of the prize seems likely to be largest of all. In 2019, the IPCC estimated that the mean net present value of the costs of damages from global warming by 1.5 and 2 degrees Celsius to be $54trn and $69trn respectively by the end of the century.[38] This means that keeping to 1.5 degrees warming could result in a saving of $15trn in the run-up to the end of the century. Spread evenly across this period, that global saving would equate to $178bn per year.

Whether for people, place or planet, the size of the prize is huge. But how to deliver these benefits, to move from vicious to virtuous cycling in the world's nested systems, to switch to the mutually-reinforcing blade of the double-edged sword? While there are no easy or quick solutions, we can draw on the lessons from history and from other complex systems (natural, physical, social, economic) to provide guidance. A lot is already known from other domains and disciplines, and from the past, about how to replenish and regenerate complex, nested systems.

38 Hoegh-Guldberg, O, Jacob, D, Taylor, M et al (2018) Impacts of 1.5°C Global Warming on Natural and Human Systems. In: Global Warming of 1.5°C.
    An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways,
    in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty
    [Masson-Delmotte, V, et al (eds.)]. In Press. Available at: www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_Chapter3_Low_Res.pdf

We summarise these 10 lessons for complex connected systems:

1) **Unlocking innovation and creativity.** Einstein said that today's problems cannot be solved with the same level of thinking that created them. History suggests he was right. Solving societal challenges through the centuries – economic, social, environmental – has typically relied on break-through technologies and break-out thinking. It has relied on acts of imagining or re-imagining the world and then making that re-imagined world real. The imagined made real is what we typically refer to as innovation and creativity.

   Innovation and creativity have been the source of all evolutionary improvement in the world's systems over time, the well-spring of economic growth, social stability and environmental flourishing. For economies, growth over the centuries has been fuelled by a sequence of general-purpose technologies, from the steam engine to electrification to the internet.[39] Those technologies have driven four Industrial Revolutions over the past four centuries. It is those technological revolutions that have, in turn, resulted in global living standards rising 15-fold since the 18th century and generational progress becoming a social norm.

   What is true of economic systems is true of social systems. These, too, have experienced secular (if not straight-line) improvement, courtesy of innovation and creativity in the design and development of the world's social infrastructures. That includes the governance and political systems that guide collective democratic decision-making, while preserving personal agency; the social security and healthcare systems that have emerged to insure our personal incomes, health and wellbeing; and educational and training systems that have evolved to develop and nurture skills in children and adults.

   Innovation and creativity will also be needed in meeting environmental challenges in the decades ahead, after centuries of extractive practices. We are already seeing the emergence of new green technologies to meet the environmental demands of the 21st century, from renewable energy to rethinking fashion. Whether people, place or planet, it is a safe bet to assume innovation and creativity will hold the key to future flourishing of the world's systems.

2) **Investing in entrepreneurship and experimentation.** Complex systems are characterised by so-called emergent behaviour. This means these systems exhibit properties that would be difficult, if not impossible, to predict in advance due to the complexity of the interactions among their moving parts. This emergent behaviour means these systems have an intrinsically high degree of uncertainty – 'unknown unknowns', in Donald Rumsfeld terms. Uncertainty differs from risk ('known unknowns') in that it is inherently harder to measure.

   This has important implications for the management of complex systems. Given that intrinsic uncertainty, a high degree of experimentation is needed to arrive at viable solutions to complex system problems. That experimentation requires people to take risks, leaps of faith as well as thinking. That is the essence of entrepreneurship – experimental risk-bearing, leaps of faith, new levels of thinking for new challenges. In this way, entrepreneurs and inventors, commercial and social, are fundamental to societal innovation and improvement.

   Societal improvement has come courtesy of a long line of social entrepreneurs-cum-inventors-cum-reformers. That includes scientists such as Marie Curie and Michael Faraday; engineer inventors such as Richard Arkwright and Isambard Kingdom Brunel; political reformers such as William Wilberforce and Benjamin Franklin; pioneering retailers such as John Lewis and Harry Gordon Selfridge; writers such as Samuel Johnson and Charles Dickens; environmentalists such as David Attenborough; and technologists such as Alexander Graham Bell and Tim Berners-Lee.

   Ex-ante experimentation is only effective, however, if it is accompanied by *ex-post* evaluation. In a world of uncertainty, rigorous evaluation is crucial to determine whether an invention or intervention has had its desired social impact, in determining 'what works'. It is key for deciding whether innovations should be ceased (if they have not worked), adapted (if they have not worked as planned) or scaled-up (if they have worked as planned). Experimental and evaluation techniques are well established best practice in the natural and social sciences, allowing innovation to find full societal fruit.

39 See, for example, Lipsey, RG, Carlaw, KI and Bekar, CT (2005) Economic Transformations: General Purpose Technologies and Long-Term Economic Growth. Oxford: Oxford University Press.

3) **Shifting systems by design.** Fractures of, or failures in, a system are unlikely to be repaired by small tweaks or adaptations to parts of this system. And fundamental innovation and transformation of these systems is extremely unlikely to involve modest adaptations to existing systems. Resilient and flourishing systems are instead likely to require periodic system redesign. This might involve a reconfiguration of their moving parts, the design of completely new parts for the existing system or – for transformative technologies – an entirely new system.

The aim in this design or redesign is to have systems that flourish, are robust and are capable of supporting themselves in response to adverse shocks – systems that are resilient and regenerative. They are systems that do not require outside intervention to prevent them failing. In other words, these systems are robust and resilient by *design*, rather than *by intervention*.

There are many historical examples – economic, social and environmental – of system design to achieve these principles. For economic systems, one of the intellectual attractions of the liberal model of capitalism, first outlined by Adam Smith in the 18th century, was that it was simple and self-organising – hence the 'invisible hand'. It was also believed to be regenerative – hence 'free market'. This transformative system redesign of the economy seeded the Industrial Revolution and, with it, the inflexion point in living standards.

In a very different way, communism (state, rather than market, by design) and, more recently, the circular economy (sustainable, rather than extractive, by design) are also examples of fundamental redesign of economic systems. In both cases, they arose to counter some of the design failures of the free market model. That included the under-provision of public goods (which communism sought to correct) or the over-exploitation of the global commons (which the circular economy seeks to correct).

When it comes to social systems and infrastructures, there are also plenty of historical examples of system redesign in the face of societal challenges. The advent of comprehensive state education, first primary and then secondary, in the 19th and 20th centuries was an example of redesigned social infrastructure to meet the skills needs of the Industrial Revolution. So too was the introduction of the modern welfare state, including universal state healthcare in the UK, after the Second World War. Minimum wage legislation is a more recent example.

For ecological systems, we are in the very midst of a systemic redesign of how we live, consume and work, with the aim of moving us from an extractive to a sustainable model of development. Looking ahead, there will be a need to redesign these systems further, moving them from sustainable to genuinely regenerative.[40] This, too, is likely to involve a fundamental rethink and reconfiguration of our economic and social systems, business models and behaviours.

4) **Forging simplicity in the face of complexity.** Einstein also famously said that everything should be made as simple as possible – but no simpler. That KISS (Keep it Simple, Stupid) principle applies with particular force when dealing with complex systems. The attraction of simplicity in design is not just aesthetic. Simple solutions to complex problems tend also to be more robust.[41] The reason is simple: a complex solution to a complex problem risks making a bad situation worse.

We see this in everyday life. Facing complex challenges, people often rely on simple rules-of-thumb, or heuristics, to make robust choices. Catching a ball is a complex problem which most humans and animals solve by using a simple 'gaze' heuristic - maintaining a constant angle of projection to the ball. This is a robust, but simple, decision rule. Facing uncertainty, many of us rely on the 'familiarity' heuristic – making choices on the basis of things or names we recognise or understand. This, too, is a surprisingly robust decision rule given uncertainty.

40 See, for example, Warden, J (2021) Regenerative Futures: From Sustaining to Thriving Together. The RSA.
    Available at: www.thersa.org/globalassets/pdfs/reports/from-sustaining-to-thriving-together-final.pdf
41 Gigerenzer, G (2008) Gut feelings: Short Cuts to Better Decision Making. New York. Penguin Books.

What is true at the level of individuals is true at the level of systems too. The success of the free market model of the economy in spawning the Industrial Revolution derived, in no small measure, from the simplicity of its *laissez-faire* decision rules for individuals. The success of the comprehensive education and healthcare models derives, in part, from their simple design rules: universality, free-at-point-of-use. And the success and longevity of the climate change agenda is being helped by the simplicity and singularity of a net zero target.

5)   **Growing coalitions across institutions.** To be effective, systemic change needs to be long-lasting; it typically requires a generational change in behaviours and processes often not owned or held within a single institution. There is no sure-fire way of securing this long-lived change. But history shows that one of the most effective ways of embedding it is to charge an objective, coalition of institutions - all impacted by the challenges, none directly responsible for them – with the task. Institutions are difficult to uproot or abolish, at least quickly or easily, meaning they add longevity. When acting collectively as a 'third entity', they also embed institutional memory, meaning they are less likely to repeat the mistakes of the past.

Historical evidence suggests these twin benefits are crucial for the stability and flourishing of economies and societies. Indeed, the work of Daron Acemoglu and James Robinson suggests that the absence of, or weakness in, these institutions is the largest single factor explaining why nations fail over the millennia.[42] Institutions – civic, national, international – appear to be crucial foundations for communities, countries and the world's systems, particularly when they work together rather than separately.

That may help explain the ubiquity of institutions, formal and informal. The rule of law and the institutions and practices of the legal system are a fulcrum of the market economy. Constitutions and political institutions are the bedrock of democracies, old and new. Human rights and accompanying international institutions are one of the foundations of a just society. And net zero commitments are increasingly being underpinned by laws and institutions, national and international, to give them longevity.

6)   **Committing to lifelong learning.** System change, at root, is about people. However transformative technology, it will fail if it does not change the skills, cultures and behaviours of people. Innovation and creativity, if they are to thrive, require an investment in people's skills and attributes as well as in machines. These skills and attributes are not just cognitive, such as numeracy and literacy. As, or more, important are non-cognitive skills, such as social skills, problem-solving, resilience and imagination. And these skills will need, in future, to be nurtured lifelong in a world where people are living 100 year lives with 70 or 80 year careers.

For the past 200 years, our education model has largely been built on developing cognitive skills in young people. In many countries, this has seen the emergence of universal primary and secondary education and the increasing take-up of tertiary education. In the UK, this took place during the 19th and 20th centuries. This model has been strikingly successful in building the human capital necessary to grow economies and societies.

Given the new challenges at hand, the 21st century is likely to require a very different education model. This will need to focus on *non-cognitive* skills at least as much as cognitive skills, given the capacity for machines and AI to perform cognitive tasks cheaper and faster than humans.[43] And these skills will need to be developed throughout our working lives, among *old and young*, in a world of multiple changes during a 70-year career (not job). Tackling the challenges of the 21st century will need a new model of skill-building and education, then, especially for those whose skills are most depleted or at risk from the Fourth Industrial Revolution.

42 Acemoglu, D, Robinson, JA and Woren, D (2012) Why nations fail: The origins of power, prosperity and poverty (vol 4) New York: Crown Publishers.
43 Bughin, J et al (2018) Skill shift: Automation and the future of the workforce [PDF] McKinsey Global Institute.
    Available at: www.mckinsey.com/~/media/mckinsey/industries/public%20and%20social%20sector/our%20insights/skill%20shift%20automation%20and%20
    the%20future%20of%20the%20workforce/mgi-skill-shift-automation-and-future-of-the-workforce-may-2018.pdf

7) **Starting from glocal**. In addressing the systemic challenges of the 21st century, there is an inherent tension. On the one hand, there is a compelling case for focusing action on local communities, where local problems are best addressed using local knowledge and local agency. On the other, today's problems are often global in scale and scope, and often common across nation state boundaries. This suggests coordinated global solutions, or at least sharing of experience and solutions. So, is action best focused locally or globally?

The answer is both. Because of their mutual interdependence, systemic problems cannot be solved by individual nation states or communities alone. The commonalities in these problems – from income insecurity to social instability to environmental unsustainability – means solutions are likely to be common. This calls for sharing experience and, in the case of tragedies of the global commons such as climate change, coordinated global action.

When it comes to enacting these policies on the ground, however, a local approach is often needed, tailored to local circumstances and benefitting from local agency. This approach, melding the local and global, has been termed 'glocal'.[44] A glocal approach seems likely to be the one best equipped to meet 21st century challenges.

8) **Cross-sectoral systemic change**. If the world's challenges are systemic, then it is only by changing all parts of the system that these challenges can be met. In practical terms, this means action needs to be taken by all three of the main societal sectors – public (government), private (companies) and civil society (charities and communities). Ideally, this action needs to taken in a coordinated way between and across them as part of a system-wide strategy.

History suggests this cross-sectoral approach to change is key to economic and societal success. The inflexion in economic and social outcomes after the Industrial Revolution would not have been possible without transformative change among companies, governments and civil society. All three came of age in the 19th century, transforming themselves individually and, in partnership, achieving lift-off in living standards. The private sector provided the innovation, the public and civil society sectors the insurance and skill-building, necessary for success.[45]

This same cross-sectoral formula has been repeated during subsequent Industrial Revolutions. Most recently, it was also crucial at the time of the Covid crisis. The transformative success of the vaccine programme came courtesy of the same three sectors – public, private and civic – acting in partnership along the vaccine supply chain from lab to arm. History suggests system-wide change through coordinated action across companies, governments and civic institutions is also likely to be needed for tackling other 21st century challenges.

9) **Working at the intersection between disciplines**. As solutions to today's problems will need to be cross-sectoral, they are also likely to require cross-disciplinary thinking. Historically, there were far fewer sharp disciplinary distinctions between the arts and humanities, the social and natural sciences. Indeed, in earlier centuries knowledge was almost defined by the capacity to straddle and combine the insights from different disciplines. Many of the best examples of transformative thinking and innovation over the centuries arose from cross-disciplinary thinking, importing insights from one domain into another.

More generally, today's challenges are a blend of the economic, social and ecological. That suggests it will only be by combining insights from the natural and social sciences, together with the arts and humanities, that solutions to 21st century challenges are likely to be forged. A cross-disciplinary approach to systemic problem-solving, for centuries a policy priority, is in the 21st century a policy imperative.

44 Wahl, D (2018) Mapping the pieces in the puzzle of local/global (glocal) regeneration [Online].
    Available at: medium.com/nyc-design/mapping-the-pieces-in-the-puzzle-of-local-global-glocal-regeneration-f01fe261cd3e
45 See, for example, Broadberry, S (2021) Britain, the Industrial Revolution, and Modern Economic Growth. In Broadberry, S and Fukao,
    K (eds) The Cambridge Economic History of The Modern World Volume 1 1700 to 1870. Cambridge University Press.

10) **Embracing adaptive intervention**. Complex, connected systems are not static. They evolve dynamically, and often non-linearly, over time in responses to shifts in the environment, natural and physical, and in the behaviour of people. These adaptive webs need a similarly adaptive approach to *solutions* if they are not to risk future instabilities and fragilities.

The economic growth model suitable for the world at the start of the 19th century was built on manufacturing might. This worked well, jet-propelling living standards. But this model of growth was no longer fit for purpose by the start of the 20th century, much less the 21st. The model of healthcare or social security needed in 1945 is not the one needed today, with its rising tide of income insecurity, old-age and mental health problems. And the model of environmental regeneration needed today is already very different to the one needed even at the start of this century, much less the previous one.

4 THE RSA's PLACE IN THE WORLD

Better by design

4. THE RSA's PLACE IN THE WORLD
Better by design

If these are the design templates necessary to fix the world's systemic problems, is the RSA an institution whose history and endowments enable it to make the most of them? Through its history and heritage, its expertise and networks, the RSA embodies many of the features necessary to tackle today's complex, connected challenges facing people, place and planet. As a social change organisation for almost 270 years, the RSA's evolutionary approach to change can be thought to be underpinned by 10 institutional pillars:

1) **Social innovation.** From its coffee house origins, the RSA's has always had innovation for the public good as its north star. Throughout its history, it has brought together people from different backgrounds and professions to create a crucible of creativity. Out of that crucible have been forged wave after wave of inventions and innovations, sometimes encouraged by the RSA's competitions and prizes. In its first century, the RSA's system of 'premiums' was specifically designed to reward inventions that could not have been incentivised by the patent system. Even its rewards for young artists and designers ended up encouraging those from neglected artistic categories and demographics. The principles behind this approach to stimulating and incubating innovation – seed-corn financing and social networking - have since been replicated worldwide. They continue at the RSA, including through the RSA's catalyst funding. Among the RSA's historical social innovations are: its encouragement of a technological replacement for using children as chimney-sweeps, bringing artists and engineers together to tackle bank-note forgery, and giving rewards for lifeboats, improvements to worker safety, and the preservation of trees.

2) **Social entrepreneurship.** Throughout its history, the RSA's Fellows (formerly subscribers or members) have been the key drivers of social innovation – social entrepreneurs before that expression had even been invented. Among many examples, it was members' contributions that made the Great Exhibition of 1851, and the International Exhibition of 1862, possible; that placed the Society at the head of the Victorian movement for improved workers' education; and that, in the 1920s, made possible the preservation of many of England's most beautiful mediaeval and Tudor cottages. All of the historic inventors-cum-entrepreneurs-cum-reformers listed in the previous section – from Isambard Kingdom Brunel to Charles Dickens, from Benjamin Franklin to William Wilberforce – have one thing in common: all were RSA Fellows. Fellows continue to provide the financial and intellectual driving force behind the RSA's social change agenda today, from David Attenborough to Prue Leith.

3) **Social design.** Design is in the DNA of the RSA. The RSA was established on the basis of eliciting 'designs for the public good'. For over 200 years, the RSA has awarded prizes for craftsmen and artists engaged in design. In its early years, it invited ideas for inventions across the fields of manufacturing, agriculture, trade, the 'polite' arts, chemistry and mechanics. Since then, its portfolio of work has diversified, including establishing the Royal Designers for Industry and encouraging design through festivals and exhibitions (such as the 1851 Great Exhibition and the centenary 1951 Festival of Britain). It has also moved progressively in the direction of social design – design aimed at tackling societal challenges while simultaneously building the creativity and capability of designers. The Student Design Awards typify this evolution in the RSA's approach to design.

4) **Experiment and evaluate.** The RSA was never conceived as a thinktank; it has always been a social change organisation or, in the words of the RSA's official historian Anton Howes, a national improvement agency. It has been successful, and distinctive, by combining brains and hands, thinking and doing, analysis and operations. The RSA's work to promote workers' education in the 19th century involved not only calling for a public examination system, but running the examinations itself. Through initiatives like this and many others, the RSA pioneered what would these days be called a 'what works approach to social change' – experimental initiatives, evaluating their social impact and then scaling them (if successful) or ceasing them (if not). Public examinations – at the time experimental – would perhaps be the best example of that approach. Not all experiments succeed, of course. The RSA's pilot for a London-wide system of public conveniences was a disappointment, but having learned its lesson, the RSA moved on.

5) **Cross-disciplinary**. Because of its broad membership, the RSA has been able to draw on the expertise of essentially every profession, including artists, designers, industrialists, inventors, union leaders, charity heads, politicians, scientists and educators. Without them, it could not have organised the country's first exhibitions of contemporary art in the 1760s, nor provided the crucial platform in the 1870s for Maria Grey to pioneer secondary education for girls, nor been able to convene the pioneering conferences in the 1960s that gave rise to modern environmentalism. And its past members typify its ideological, as well as professional, eclecticism. These have included Adam Smith (founding father of liberalism), Karl Marx (founding father of communism) and Edmund Burke (founding father of conservatism).

6) **Cross-sectoral**. A common theme through the RSA's history has been the desire to tackle societal problems with system-wide solutions, addressing the problem at root rather than through piecemeal initiatives. This was perhaps most in evidence during the 19th century when the RSA was dominated by utilitarians. They saw the opportunity to erect new systems in everything from standardising musical pitch to creating limited liability, from universalising education to rationalising intellectual property. From the RSA's beginnings in the 1750s, its very structure and method was designed to align incentives across the public, private and civil society sectors. This cross-sectoral approach was crucial in its historical reform of schools and education, the environment and the arts. It has continued more recently in its work on regenerative futures and good work.

7) **Institution-building**. The RSA has throughout its history been a creator and conceiver of institutions, as a means of providing long-lasting foundations for a societal cause. The list of institutions the RSA has conceived and developed, and then spun-off, include the Royal College of Music, the Royal Academy of Arts, the Blue Plaque scheme, Tomorrow's Company and, most recently, the Food, Farming and Countryside Commission. This fits with the RSA's model of change, described by a former leader thus: "having blazed a needed trail it hands the axe to others to carry on while it looks for another trail and another axe".

8) **Empowerment and agency**. Relative to most other membership-based organisations, the RSA has historically been open and inclusive in its approach to membership and social change, for example, allowing women as members from its earliest days. In its first century, the RSA was wholly controlled by its members, each with an equal vote and a direct say in how the organisation was run – a truly deliberative democracy. This inclusivity has also been embedded in the RSA's approach to change, giving agency and voice to as wide a spectrum of society as possible. Those participatory approaches have been central to the RSA's more recent activities, which has involved convening citizens' and schools' assemblies on key societal issues.

9) **Glocal**. The RSA has always been outward-looking and internationalist in its approach. Starting with a few small events in London, the RSA initiated first a national and then an international exhibition. This quickly became a global phenomenon in the form of the world's fairs. These have had a dramatic effect on international trade and cooperation and in particular international standardisation. Another offshoot of the Great Exhibition was the RSA's attempt to create the first standardised international postage system. It did not last more than a few years because the main driving force behind it, Manuel de Ysasi, died in a shipwreck. But it served as a precursor to the Universal Postal Union of 1874. Through its global affiliates in Oceania and the United States, and its global Fellowship spread across around 90 countries, the RSA's activities remain global in scope, even though many of its interventions are locally-focused – a glocal approach to change. Its recent work on regenerative futures ahead of COP26 is an example of this internationalism in practice.

10) **Education for all**. Skill-building and education has always been at the centre of the RSA's work. Its activities in the mid-19th century focused on putting in place the first examinations for technical and commercial subjects. Towards the end of that century, it initiated work on improving girls' education (including helping establish the Girls' Public Day Schools Trust) and in a National Training School for Music (subsumed subsequently into the Royal College of Music). This focus on practical skills and subjects, non-cognitive skills and projects rather than examination-based approaches to education was carried forward, most recently, through the establishment of the RSA Academies from 2008 onwards, with their focus on arts, culture, creativity, wellbeing and mental health. The RSA recently ceased its involvement with academies, to be replaced by a broader Education Network.

These characteristics of the RSA's route to social change over the centuries have come together to shape its overall approach – the *Living Change Approach*. Developed incrementally and organically over the years, the *Living Change Approach* aims to equip communities and organisations with a flexible framework for tackling complex challenges and forging rebalanced, resilient and regenerative futures. It seeks to move them from existing *best* practice to emerging *next* practice.

The *Living Change Approach* embodies three elements: a distinctive *process*, a set of provocative *perspectives*, and a constellation of cross-disciplinary *practices*. The *Living Change process* is the journey we take through change and challenge. It includes six elements that can be flexibly applied for each challenge. In the context of a complex and interconnected world, no change methodology or process can be linear or the same by default. Figure 3 summarises those elements. This process is experimental, evaluative and evolutionary in its approach.

FIGURE 3: THE LIVING CHANGE PROCESS
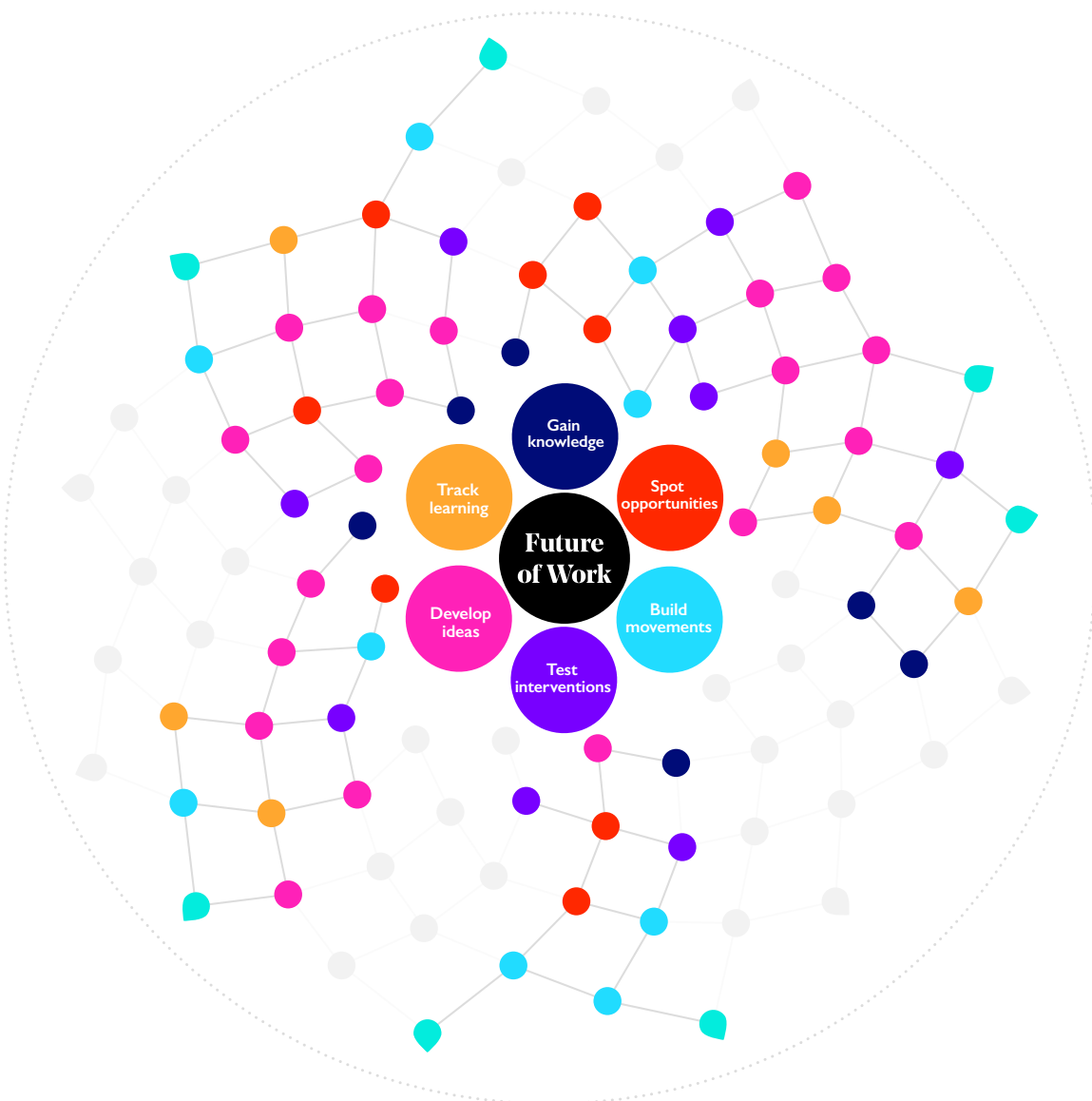
The *Living Change perspectives* are the way we think about challenge and change, drawing on the design opportunities we have proposed, and the institutional pillars we have surfaced. The perspectives act as lenses to better design for people, place and planet. We frame these as *perspectives* as opposed to *principles* to create space for diversity of thinking and ongoing evolution as our understanding of how change happens continues to grow. Figure 4 summarises these perspectives.

FIGURE 4: LIVING CHANGE PERSPECTIVES

LIVING CHANGE PERSPECTIVES
The way we *think* about challenge and change

Systemic
We see and change systems in nested and interconnected ways.

Imaginative
We draw on our capacity for imagination to create hopeful alternatives to the reality that we know.

Adaptive
We recognise that change is living as we design, test and iterate to improve ways forward.

Collective
We bring the power and wisdom of the collective to lead change, with the welfare of all of people, place and planet at the heart, in equal measure.

Long-term
We hold a long-term view of success and consequence beyond this generation.

Local to global
We start with place and context to impact (bio)regionally and globally.

The RSA's *Living Change practices* bring together a range of tools and techniques drawn from a range of disciplines. A single area of practice is insufficient to grapple with the interconnection of complex challenges that face our world.[46] The practices draw from disciplines across design and innovation, research and evaluation, and participation and convening to ensure systemic and long-lasting impact. Christopher Smith and Ottoline Leyser speak strongly of the misconception that innovation is at the end of a stream that flows in one direction: 'Upstream is the pure water of research, downstream is the muddy but fertile silt of business... The system is far more interconnected, and we need to recognise that research and innovation are synergetic and frequently blended'.[47]

FIGURE 5: LIVING CHANGE PRACTICES

LIVING CHANGE PRACTICES
The way we *act* on challenge and change

Research + evaluate

We robustly interrogate challenges and trends from a hyperlocal to a global scale through qualitative and quantitative research. We apply systems thinking to interrogate current challenge and we evaluate the outcomes of our work to understand where impact has been achieved for people, place and planet.

Design + innovate

We bring together diverse creative practices to take us from now to next. Futures thinking, systems innovation, regenerative, enterprise and learning design, are all critical to challenge, re-imagine and realise the future of products, services, places, organisations, relationships, systems and narratives.

Participate + convene

We work with, and bring together a diversity of people, viewpoints, organisations and sectors to build movements with inclusive commitment for the long term and collective action in the now. This area of practice includes participatory and deliberative decision-making, policy convening and influencing, and content development and publishing to change public narratives.

Each practice brings strengths but also has limitations when acting alone. Some of these practices are well established, some are emergent. Some are often placed in confrontation or even in competition with one another. But all add valuable nuance and have the potential to be woven together to transform the craft of social change into a whole that is greater than the sum of its parts. This constellation of practices can be flexed to the specific circumstances of a problem, community or organisation. The RSA has used it in diverse settings from NHS trusts to commercial organisations, from cities and communities to charities and social enterprises.

46 Meadows, D (1988) Problems are Interconnected – And so are Solutions. Academy for Systems Change.
    Available at: www.donellameadows.org/archives/problems-are-interconnected-and-so-are-solutions/
47 Smith, C (2022) The humanity at the heart of science. UK Research and Innovation.
    Available at: www.ukri.org/blog/the-humanity-at-the-heart-of-science/

5 THE RSA's FUTURE CHANGE PROGRAMME

Design for Life

5. THE RSA's FUTURE CHANGE PROGRAMME
Design for Life

Having set out comprehensively the complex connected world's problems, what is needed by way of solutions, and what characteristics of the RSA make it well-equipped to provide them? What is the practical programme that would best deliver the change necessary? As a social change organisation, rich in history and experience, what distinctive interventions can the RSA implement to deliver the three R's: re*silience, rebalancing and regeneration* – across people, place and planet?

We set out a new overarching mission for the RSA, together with an accompanying practical programme of change, to deliver on this objective. At its core, this mission seeks to regenerate people (human capital), place (social capital) and planet (natural capital). It seeks to do so by unlocking social opportunity through innovative actions to support people through their lives, as well as groups of people in companies and communities. These actions take the form of seven pathways, though the pathways are themselves connected.

This new mission and programme for change, *Design for Life*, has the following features:

1) **Social opportunity.** Unlocking social opportunity, and enhancing social mobility, is the golden thread running through all seven pathways. This objective speaks directly to the signature challenges of our time – the stalling of global growth in economic and social capital and constrained opportunities for progress among growing cohorts of people and places. The *Design for Life* programme seeks to tackle those barriers to progress, focusing on those people and places whose potential is currently most constrained and the social impact of interventions, hence, likely to be largest. In this way, this programme should help to repair the breach in the social contract, re-establishing generational improvement as a social norm.

2) **Social innovation.** Nurturing creative and innovation skills, at all stages of the life cycle, is a second golden thread through the *Design for Life* programme. Innovation is a necessary ingredient for tackling the new challenges – economic, social, environmental – facing the world. The programme also focuses on the non-cognitive skills likely to be most needed in the future world of work – leadership, creativity, agency, empathy – on a lifelong basis. It seeks to define *next* practice, not *best* practice, for individuals, communities and organisations. This experimental approach is an essential ingredient of system-wide change.

(3) **Social impact.** The success of these pathways will be judged on their social impact. That is why rigorous evaluation of the social impact of each pathway is hard-wired into the *Living Change* methodology. It is by learning from experience, and adapting, that the programme's intervention can be improved and scaled over time, from the local to the national to the international. Social impact will also be increased over time by connecting together the pathways – for example, turning them into lifelong learning journeys for people, or social change leadership programmes for companies or communities, or creating a knowledge commons for social change more widely.

4) **People, place, planet.** Lasting system change needs to reshape behaviour right across society, from the individual to the organisation to the community to the nation state to the global. The *Design for Life* programme embeds this principle, with the seven pathways combining interventions from the individual through to the community and organisation. All the pathways speak to all three of the 'Holy Trinity' of people, place and planet, rather than shaping them separately. This gives the programme a simplicity essential to counter the complexity and connectivity of the challenges being faced.

5) **Glocal.** Each of the pathways is intended to be designed and implemented at the local level – the person, school, company or community. This is essential in ensuring these interventions are tailored to local needs and circumstances and embed local agency and learning. These pathways are also designed to be flexible enough to tailor to the specific needs of any region or nation state, making the programme an essential plank of the RSA's global strategy. This is important for tackling challenges which are everywhere, either common across nation states or are genuinely tragedies of the global commons.

6) **Fellowship-led**. Effective social innovation is rooted in expertise, experience and entrepreneurship. Through its Fellowship network, the RSA has that in abundance and at a global level. Energising and mobilising that rich resource of Fellows is key to the RSA having social impact. That is why the *Design for Life* programme designs in the deep engagement and involvement of Fellows in each of the pathways, at the design and delivery stage. This involvement is sometimes at the individual level (such as mentoring entrepreneurs) and sometimes at the network level (such as place-based development programmes).

7) **Inclusive**. System-change, to be lasting and effective, needs to embrace all sectors and segments of society in both its design and delivery. The RSA's methods and approaches embed those principles and so too do each of the pathways in its *Design for Life* programme. That includes the use of participatory methods, such as establishing social action movements, citizens' assemblies or communities of interest and activity, to take forward each of the pathways. Empowering those whose opportunities are most constrained, and whose voice is least heard, is another of the golden threads of the programme.

Among the seven pathways in the *Design for Life* programme, some build on the best of existing RSA practices and programmes, while others are genuinely new and, to a degree, experimental. In every case, the metric for success will be social impact, delivered at the local level and effective at a regional, national and international scale. The seven pathways to social impact are shown in Table 2, together with an overview of their aims and illustrative examples of the form they might take.

While these pathways are distinct and standalone, they should be thought of as an integrated change programme through the life cycle of a person, particularly those whose potential is currently most constrained. For example, the first four pathways can be seen as sequential skill-building stepping-stones, from early years through to adult, building creativity and entrepreneurialism.

For many, we hope these pathways could become a single educational-cum-entrepreneurial journey. In time, we could structure the pathways to facilitate that through a *Social Design Awards Scheme*, similar in spirit to the Duke of Edinburgh scheme. This would take young people on a single pathway from early years (bronze) to pupil (silver) to student (gold) to entrepreneur (platinum). This would be a 21st century incarnation of the RSA's traditional non-cognitive approach to skill-building, with a focus on creativity, innovation and social action.

There is a natural symbiosis, too, between the pathways for companies and communities. Very often, success in place will come from combining the efforts of local business leaders and local community leaders. For example, the RSA's *Cities of Learning* lifelong skill-building programme operates with people in communities, but companies in those places are natural partners as contributors and beneficiaries. There is also a synergy between the entrepreneur and the business for change programmes, in developing social innovation and leadership skills, which might in time combine into a *Social Change Leadership Academy*.

Finally, the systems for change pathway cross-cuts all of the other six. It provides the roadmap and methodology through which all seven pathways are designed, delivered, evaluated and scaled. In time, we intend to develop this into an open source knowledge commons for social change, an *Open Living Change Playbook*, setting out both methods and case studies of social change. This would be available to all as a public good, overseen, developed and curated by RSA staff and Fellows.
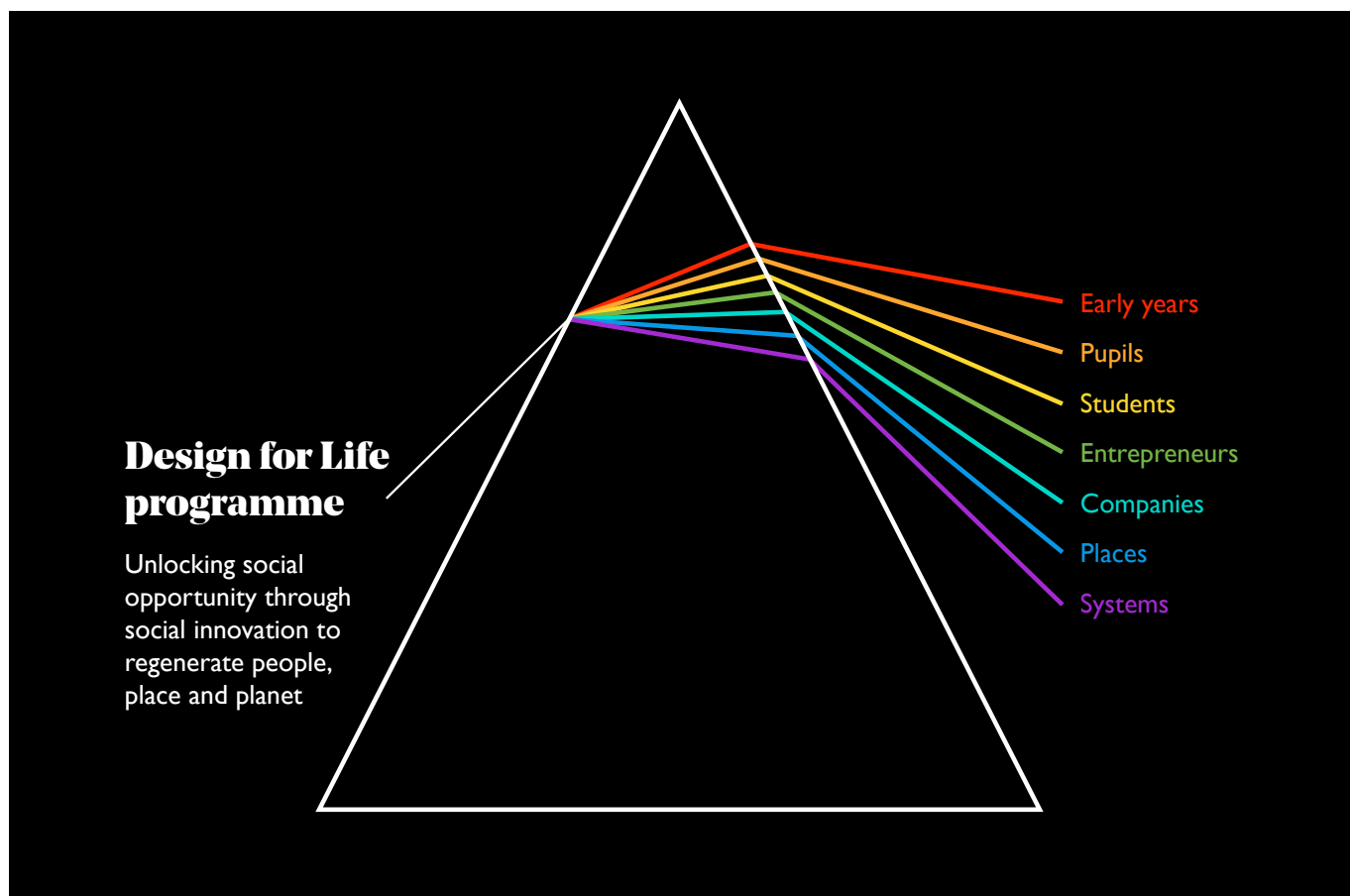
FIGURE 6: DESIGN FOR LIFE PROGRAMME

Design for Life programme

Unlocking social opportunity through social innovation to regenerate people, place and planet

Early years
Pupils
Students
Entrepreneurs
Companies
Places
Systems

TABLE 2: THE RSA'S SEVEN PATHWAYS TO SOCIAL IMPACT

NO.	LIFE CYCLE PATHWAYS	WHY AND WHAT?
1	Early years for change	There is compelling evidence that the early years of a child's development are absolutely critical for acquiring and nurturing the skills necessary for success in later life. This is true of both physical and mental development and both cognitive and non-cognitive skills. The beginning of a changemaker's journey begins very early in life, putting everyone on very different life pathways depending on their access to education and experiences, differences that are then very difficult to close in later life. Early years is also the stage in life when people's creative skills are the ripest. Indeed, some believe people's creative peak comes before they reach double figures. And as Ken Robinson said 20 years ago in the most watched TED talk of all time, too many educational practices currently are designed to teach creativity *out* of children, rather than *into* them. These deficits in creative opportunity from cradle to early years are particularly acute problems for children from less-advantaged backgrounds. This includes children growing up in poorer households or places or with access to fewer high-quality

NO.	LIFE CYCLE PATHWAYS	WHY AND WHAT?
		educational resources, whether in school or outside of it. Research suggests that three quarters of children spend less time outside than prison inmates. It is among these cohorts that early years needs, and social impact, is likely to be greatest. And it is a need that is likely to grow over time, with the demand for creative and other non-cognitive skills, such as resilience and interpersonal skills, set to rise in future. Through the RSA's early years for change pathway, we aim to provide a set of interventions that designs creativity into education from the outset. It would build on the RSA's historical successes in the areas of creative social design, including its Pupil and Student Design Awards (discussed further below). This programme will seek to reach those children and schools where the social opportunity from the programme is greatest, the attainment gap largest. We can support all children to grow and flourish as creative contributors to the regeneration of the places they live and the wider ecosystem. In his report on the global biodiversity crisis, Partha Dasgupta highlighted education and schooling, especially in early years, as a crucial missing link if this crisis is to be tackled effectively and cross-generationally. The RSA's early years for change pathway would seek to forge that link, with a practical place and project-based approach, fusing together learnings from the natural sciences, social sciences and the arts and humanities in the best traditions of the RSA. One particular avenue we think worth exploring is to create a set of nature-based projects in early years settings. These might take inspiration from the enormous success of the Eden Project in Cornwall, the planned Eden Project North in Morecambe, as well as the New Edens in different parts of the world. It would enable children to co-create places and spaces that nurture their creativity and connection to community and natural ecosystems. This pathway could potentially run in any country or region of the world, drawing on the deep educational expertise of the RSA's global Fellows.
2	Pupils for change	For the past eight years, the RSA has run the Pupil Design Awards, sponsored by the Comino Foundation. This has engaged over 8,750 pupils across a number of schools in practical social design projects, helping nurture their creativity, confidence, and knowledge of the signature social and ecological challenges facing our world. Our work in place, in partnership with pupils and school communities, has shown that many schools face significant barriers including a cross-disciplinary offer for their pupils. The PDAs provide a creative and interdisciplinary route, supporting children as change practitioners, and as an innovation accelerator for schools. They help build critical skills for pupils, in terms of their sense of agency to create change. Building in evaluation as a core component in 2021/22 is enabling us to learn more about the impact of the PDAs, opening-up the opportunity to expand their scale and scope looking ahead.

NO.	LIFE CYCLE PATHWAYS	WHY AND WHAT?
		Having established proof of concept, the RSA's pupils for change programme aims to build on the PDA programme's success. That includes seeking to scale the PDAs, giving them a genuinely national, possibly international, footprint. The aim is not only to cover more schools and pupils, but to work with those pupils and schools least able otherwise to gain access to these sorts of opportunity. We intend using this greater scale and scope to develop an RSA Education Network, ideally nationally and potentially internationally. PDAs would be an embedded part of this network's USP. The network would also provide a way to share learnings, influence and advocate together for systems change, building on the RSA's existing work on developing schools citizen assemblies. This network and programme would benefit from the active involvement of RSA Fellows, with their deep expertise in education, or as parents with lived experience of supporting children through the education system who face additional barriers, possibly serving in a mentoring capacity.
3	Students for change	For almost 100 years, the RSA has run the Student Design Awards. These awards are rooted in the design challenges that were at the heart of the founding of the RSA. Take the Scandiscope, the winning design to a challenge launched in 1802 by the RSA. This dramatically reduced child mortality rates, instantly improved the health and wellbeing of thousands of working-class children and saw a revolution in childhood education. The Student Design Awards have been the centrepiece of the RSA's social design offering to university students, contributing to the creative development and social agency of many thousands and many generations of students including internationally acclaimed fashion designer Betty Jackson, a winner in 1970; designer of the iPhone and iMac Jony Ive, a double winner in 1988 and 1989; and co-founder of IDEO and designer of the first laptop Bill Moggridge, a winner in 1968. The SDAs have evolved over time into having a broad-based social remit, melding a wide range of disciplines from the natural and social sciences, the arts and humanities, befitting the RSA's best traditions. For example, for the latest round of SDAs the topics spanned creating circular business models for pharmaceutical products to building community capacity for collective imagination. In developing the SDA briefs, we have also drawn on a wide range of business partners, in the latest round including Lego and Philips. The SDAs, as a long-standing RSA initiative with proven social impact, will lie at the heart of the RSA's new students for change pathway. Looking ahead, however, we are looking to expand both the scale and the scope of the SDAs to be discipline-agnostic and to include students in any courses or programmes across tertiary education settings (not just colleges or universities). This would open up opportunities to a wider number of young people, including from less-advantaged backgrounds. We also wish to explore developing mentorship and apprenticeship schemes with students and sponsoring companies, piloting opportunities with corporate partners to use students' winning ideas to support longer term impact.

NO.	LIFE CYCLE PATHWAYS	WHY AND WHAT?
4	Entrepreneurs for change	Economic and social progress is fuelled by innovation. Innovation also holds the key to meeting the challenge of replenishing social capital and tackling the climate crisis. Entrepreneurs are where people and innovation intersect. Nurturing entrepreneurs is thus crucial if innovation is to rise to the global challenges facing people, place and planet.

Yet the playing field is far from even, and the barriers are far from uniform, when it comes to becoming an entrepreneur or inventor. Young people from poorer or disadvantaged backgrounds have to risk far more than their wealthier peers to pursue this path. Many decide not to pursue this path at all. This lost Einstein/Curie, or excluded entrepreneur problem, represents a significant constraint on social opportunity. And relaxing that constraint could potentially unlock huge amounts of innovation, entrepreneurship and agency, transforming the life course of people otherwise furthest from the innovation frontier.

Through its entrepreneurs for change programme, the RSA will aim to do so. This pathway will build on the history of the RSA as a catalyst for innovation and entrepreneurship including, most recently, through its Catalyst programme. The focus will be on incubating otherwise excluded young entrepreneurs to get started. It will do this by providing necessary support, funding and mentorship seldom found within their own networks: seed-corn financing, provided through a Curie Catalyst Fund (Curie herself being an RSA Albert Medal winner); a mentoring relationship with experienced business leaders, matched from within the RSA Fellows network; learning journeys to build innovation capabilities; and access to a network of like-minded entrepreneurs, old and new, to exchange ideas, knowledge and problems with, provided from within the network of RSA Fellows.

The mission here is to rediscover some of the Curies and Einsteins otherwise at risk of being lost. This would not only put excluded entrepreneurs on a potentially higher elevation branch of the life tree. It would also potentially have a wider economic and social impact through their activities and employment in their communities. In time, this could be given an institutional imprint through the development of a *Social Change Leadership Academy*, in line with the RSA's institution-building historical credentials. |
| 5 | Companies for change | At root, businesses are groups of people organised in a particular fashion, just like communities. As such, they are a key change-agent, economically, societally and environmentally. The key, for companies themselves and for societies in general, is to ensure that businesses are change agents for good.

Companies, profit or not-for-profit, commercial or social, have over the centuries often acknowledged and actively contributed to a broader societal role, from the Victorian capitalist-philanthropists to today's B Corporations. Awareness of, and action on, that wider societal role has regrown over recent decades. Many more companies are now pursuing broader 'purpose' objectives. And we have seen the rapid emergence of environmental, social and governance practices among businesses. |

NO.	LIFE CYCLE PATHWAYS	WHY AND WHAT?
		While progress, these practices remain, in many areas and among many companies, under-developed. Looking ahead, ESG considerations are going to need to assume ever-larger prominence in business decision-making if companies are to contribute towards tackling the world's large and rising challenges. Through its companies for change pathway, the RSA seeks to partner with companies to enable and expedite this change, with a focus on supporting the (too often silent) S in ESG. This is the least advanced part of the ESG agenda so far and one ripe for acceleration. Our mission is for the RSA to become the home of next practice when it comes to how companies make good on their own social mission. As one illustration, and building on the entrepreneurs for change pathway, we are exploring an intrepreneurs for change programme. This would help in developing in-house skills in social innovation and entrepreneurship to support businesses in their ESG activities. This could draw on external mentoring and networking support from RSA Fellows. In time, it could develop into a *Social Change Leadership Academy*, combining the entrepreneur/intrepreneur elements of two of the pathways. A second example, again building on past RSA experience, would be the development of 'innovation directories'. These bring together evidence on emerging next practice for businesses, drawing on experience from around the world. What has already been done for good work practices at the global level could in future be extended to other areas of social innovation – for example, the development of green skills and regenerative practices in businesses.
6	**Places for change**	Many of the world's problems and inequalities, while significant at the national level, are acute at the sub-national (and in many cases sub-regional) level. The powerful forces of globalisation and agglomeration of resources (finance, people, business, culture) have amplified these spatial differences between places over time. They will most likely continue to do so, as the wave of the Fourth Industrial Revolution breaks. This will further constrain the opportunities, and inhibit the potential, of people in those places not benefitting from those powerful forces – the left-behind cities, towns and villages in every country. These problems are both very local and global. They are local – and often hyper-local – in their roots and origins. Solutions to them need similarly to start from local circumstances and cultures. But these place-based problems typically also have commonalities too. This means solutions, while locally-initiated, can take a glocal approach to sharing and spreading to grow learning about effective place-based change. Through its places for change pathway, the RSA aims to contribute to a closing of wide and widening spatial gaps. One core element will be to work with a range of cities and regions to understand and audit their current areas of local strength and weakness – economic, social, environmental, financial and non-financial. This will

NO.	LIFE CYCLE PATHWAYS	WHY AND WHAT?
		draw on the 12-mission framework outlined in the UK government's recent White Paper on Levelling Up, though the framework itself is generic and globally-applicable. The next step is then to help design a plan to meet these local missions and to evaluate in adaptive cycles what impact these evolving plans have had over time. As history and international experience demonstrates, the key to success will be the join-up across sectors (public, private, civil society) and across local anchor institutions. These are areas where the RSA's *Living Change Approach* give it distinctive strengths. So too does its regional and global network of Fellows, whose expertise could contribute to the local design and delivery of local plans. Together, this place-based and place-led work across a wide network of UK cities and regions could combine into an *Urban Futures Commission*. The lessons from this Commission, including the model of design, delivery and evaluation, may then potentially be relevant to a wider array of cities, regions and nations, each on their own place-based change journey, turning a multitude of different local responses into global action. A specific example of this general approach is provided by the RSA's *Cities of Learning* programme. This has helped local leaders to recognise and connect non-formal learning with skills and employability opportunities for adults and young people. *Cities of Learning* operates in half a dozen places across the UK, working with local partners in the local government, corporate, cultural and learning provider sectors. The aim is both to scale this programme to give it national, perhaps global, reach. But it is also to widen this programme, beyond skills, to other of the mission-critical dimensions of local success – business and innovation, physical and social infrastructure, housing and communities. This system-wide approach to design, delivery and evaluation in adaptive cycles would give the RSA a distinctive place-based mission.
7	Systems for change	As some of the world's most complex problems are systemic, so too will need to be solutions to them. Yet affecting that systemic change, through a sufficiently rigorous yet inclusive methodology, is far from straightforward. Sometimes, well-meaning initiatives lack the scale, longevity, join-up and buy-in to be effective in tackling these challenges. But all too often, the wider structural conditions in the system create an immune response that stands in the way of these initiatives succeeding. Changing and manipulating these conditions is the key to systemic change at the deepest level. Historical approaches to tackling signature challenges – from the housing crisis to the mental health crisis, from economic insecurity to climate change – have too often been sub-scale, short-term, piecemeal and non-inclusive. Through its work over many decades, the RSA has developed a distinctive approach to tackling these system-wide problems, the *Living Change Approach*. This draws on a plural set of practices and methods, ranging from the analytical and quantitative through to the speculative and qualitative. In tackling today's challenges, this interdisciplinary cross-pollination of methods defines, we believe, next practice.

NO.	LIFE CYCLE PATHWAYS	WHY AND WHAT?
		Looking ahead, the systems for change pathway is a thread that runs through all the other pathways to support lasting systemic change; it is the enabling pathway. But the pathway can have impact too, in its own right. The innovation across all pathways is informed by evidence – through RSA insight, foresight and beyond – and is iterative in building learning, influencing policy and growing movements of change. These could be embodied in a *Social Change Impact Observatory*. Another key development could be an *Open Living Change Playbook*. This would grow from the existing *Living Change Approach* to a genuine knowledge commons, with tools, techniques and impact stories crowd-sourced from pathways, as well as from Fellows' and partners' own work. It would be the most up-to-date and largest-scale repository of best and next practice in changemaking, available as a public good for all.

6 NEXT STEPS
Partners for change

6. NEXT STEPS
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The RSA's approach to change historically has been founded on collaboration across disciplines and professions, communities and countries. Success with the RSA's ambitious *Design for Life* programme will also be rooted in that collaborative approach, drawing in and drawing on a wide cross-section of change agents. To reshape the system, the RSA will need to partner with the public, private and civil society sectors. That will include companies (profit and not-for-profit), charities and community groups, trusts and foundations, government bodies (local and central), universities and research institutes, schools and colleges.
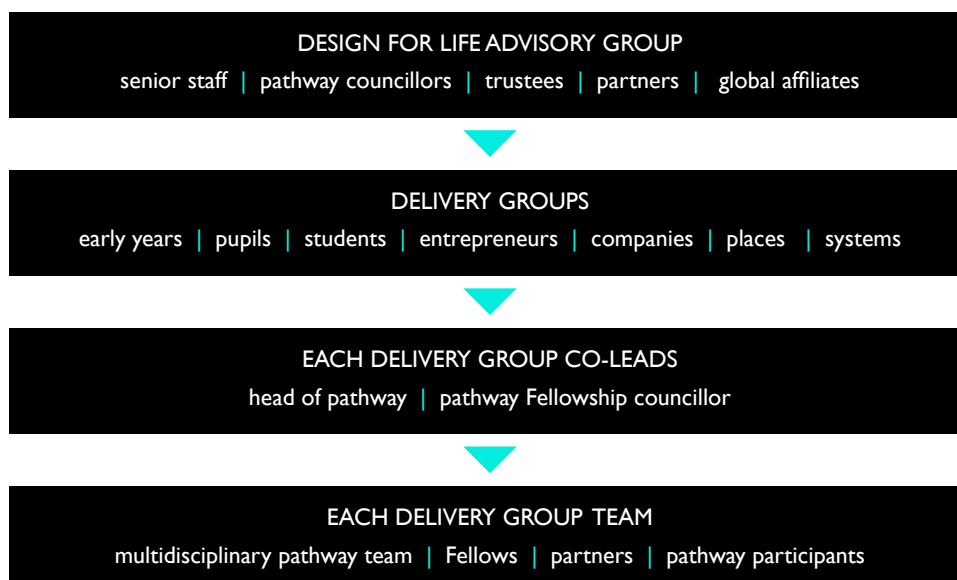
At the centre of the RSA's *Design for Life* programme will be the RSA's Fellows, as in the past. By design, the programme's pathways will enable Fellows to actively collaborate and contribute to the creation and delivery of the programme of change. That extends to the design of these pathways, with much of that work to follow after publication of this paper, involving Fellows, RSA staff and external partners.

The same applies to the RSA's affiliates, locally and globally. By design, the *Design for Life* pathways could be tailored to any community or country, suitably adapted to local or national circumstances and reflecting differences in local culture and history, custom and practice. The aim is to create a genuinely global – or, more accurately, glocal – coalition and programme for change, reflecting the global nature of the 21st century challenges (economic, social, environmental) facing the world, and how they are experienced radically differently between local places.

To hardwire in this collaborative, participatory approach, we are setting up a governance structure to make it a practical reality. The *Design for Life* programme will be overseen by a programme strategy board, co-led by the RSA chief executive and the chair of the Fellowship council, with senior representatives from RSA staff, RSA Fellows, RSA trustees and RSA partners, regionally and globally. The strategy board will have overall responsibility for the programme and an assessment of its social impact. It will meet roughly quarterly.

Reporting into this strategy board will be the seven pathways. These will be overseen by seven pathway delivery groups, co-led by a senior member of RSA staff and a senior RSA Fellow from the Fellowship council. These will draw for their membership on RSA staff, Fellows and partners, regionally and globally. These delivery groups will have responsibility for the practical design, implementation and evaluation of each of the pathways and will meet regularly to do so. Figure 7 sets out this governance structure schematically.

FIGURE 7: GOVERNANCE STRUCTURE OF DESIGN FOR LIFE PROGRAMME

DESIGN FOR LIFE ADVISORY GROUP
senior staff | pathway councillors | trustees | partners | global affiliates

DELIVERY GROUPS
early years | pupils | students | entrepreneurs | companies | places | systems

EACH DELIVERY GROUP CO-LEADS
head of pathway | pathway Fellowship councillor

EACH DELIVERY GROUP TEAM
multidisciplinary pathway team | Fellows | partners | pathway participants

To support this governance structure, and the ongoing co-design between RSA staff, Fellows and partners, we will be making use of the RSA's new digital platform. This is being rolled-out for the first time (in beta form) at the Fellows Festival. For each of the seven programme pathways, a closed network is being set up to enable contributions and collaborations from a sub-set of staff, Fellows and partners, after the Festival.

Alongside these formal structures, we would welcome feedback and ideas from Fellows and partners on the programme of change outlined here. A page is being made available on the RSA's website for those comments and expressions of interest in getting involved. Among the issues on which we would welcome comments are:

- **How does our diagnosis of the problems facing the world's nested systems, economically, socially, environmentally resonate with your experience?**

- **How clear and compelling is our focus on economic, social and environmental impact through enhanced social opportunity, and enabled by lifelong learning and innovation?**

- **How feasible, viable and desirable is the DESIGN FOR LIFE programme proposal for stimulating economic, social and environmental innovation and driving systemic change?**

- **How should we best design and deliver the seven pathways in the programme to have the largest and longest-lasting economic, social and environmental impact?**

- **How best should we involve Fellows, partners and (local and global) affiliates in this programme of change?**

We are the RSA. The royal society for arts, manufactures and commerce. We're committed to a future that works for everyone. A future where we can all participate in its creation.

The RSA has been at the forefront of significant social impact for over 260 years. Our proven change process, rigorous research, innovative ideas platforms and diverse global community of over 30,000 problem solvers, deliver solutions for lasting change.

We invite you to be part of this change. Join our community. Together, we'll unite people and ideas to resolve the challenges of our time.

Find out more at thersa.org

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