

As we seek to recover from

COVID-19, throw off economic recession, and make society resilient against future shocks, we must do four things:

Set out the most important challenges

Define the desired outcomes

An alternative recovery plan



Are the right priorities being set?

Competing priorities and a siloed approach to economic recovery challenge our ability to tackle the long-term issues facing society. An approach employing 'big data' and data science could transform our ability to see where public spending will achieve the greatest good.

The effects of COVID-19 have brought into focus acute social challenges – gaping disparities in wealth, fitness, health and access to employment and services, across racial, regional and postcode lines. At the same time, the economy is contracting and public finances are under exceptional pressure.

Decisions made now have consequences that will stretch out far into the future. For society, as well as the economy, it matters what money is, or is not, spent on. Investment should be targeted where it will have the biggest impact in terms of both social outcomes and economic stimulation.

However, maximising value for money is hampered by poor visibility of the challenges faced, difficulty in seeing and understanding the correlations between those challenges, institutionally siloed thinking, and a propensity to spend in areas that will deliver visible near-term results, or where there is strong precedence – for example, transport projects or repairs to leaking school roofs¹. Although better roads, railways and school buildings can be expected to bring economic and social benefits, are those benefits the greatest possible? Are the right priorities being set?

The long-term strength of the national economy and society – and achievement of the government's levelling-up agenda – require attention to some fundamental societal challenges, including educational disadvantage, mental illness and gender inequality. High value for money can be achieved through interventions to make a positive difference to the life chances of children and adults in our most disadvantaged communities.

See, act, impact

Digitalisation provides the means to overcome the historic difficulty in seeing, understanding and addressing complex social challenges, so as to identify where to focus effort for greatest effect. For example, there are diverse symptoms of adverse childhood experiences – various forms of abuse, neglect and household dysfunction² – that are recorded by schools, doctors, hospitals, dentists and social services.

If this data was combined into a digital model, it would become possible to identify patterns, trends and correlations. Cause and effect relationships could be seen – the effects on different segments of society of a pandemic, a recession, closure of a major employer, or positive government interventions, for example.

While data remains siloed, it is impossible to view the big picture of societal need and understand the detail within it. Bringing it together in an integrated digital model would provide new ways of seeing and producing new and improved information. This, in turn, would provide greater insight into challenges and opportunities, and empower better-targeted action, to achieve a greater impact³.

- 1, The UK's National Infrastructure and Construction Procurement Pipeline, published in June 2020, indicates £32bn of investment to the end of 2021. Nearly two thirds is earmarked for transport. Only 4% is for improvement of the education estate.
- 2. Half of all children in the UK are affected by at least one adverse childhood experience (ACE); 10% are affected by four ACEs or more. ACEs include abuse (physical, emotional, sexual), neglect (physical, emotional) and household dysfunction (mental illness, mother treated violently, divorce, incarcerated relative, substance abuse).
- 3. Our digital platform, Moata, is designed to support the kind of data modelling required to prioritise interventions for greatest societal benefit. Its core functionality includes artificial intelligence, machine learning, data orchestration, data analytics, visualisation, application programming interface integration, data storage and security (including GDPR compliance), user management and user experience.

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Stores of trouble ahead

When we look back on COVID-19, it is likely we will conclude the pandemic was an accelerant in widening gaps and exposing issues that in better times were more easily ignored.

While the focus of action and intervention was initially on protecting public health and is now shifting to economic recovery, we cannot ignore the societal impact of the pandemic. If not addressed, a less cohesive, less equal, less tolerant and less resilient society will be the legacy of COVID-19 – with grave implications for the economy in the longer term.

The breadth of challenges demanding attention is great but, to move forward, let us consider three areas: educational disadvantage, mental health and gender inequality. Before the coronavirus crisis, the solutions for addressing them may have been considered too costly either politically or financially. Post-crisis, perhaps they are practical.

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1. Educational disadvantage

As lockdown began to lift in phases, at the start of July 2020, state schools serving affluent areas were about 20% more likely to be open than those serving disadvantaged communities. Independent schools were twice as likely to be open as state schools serving deprived communities. Fewer than a third of eligible students had returned to school in poorer areas. In contrast, more than half of students had returned to the classroom in affluent areas. Schools in the north-east were more likely to be closed than those in the south⁴.

This means that, among the current generation of students at crucial points in their education, those in disadvantaged areas have fallen further behind their more advantaged peers. This issue alone has set back social mobility more, in a matter of months, than any gains made in the past 20 years.

Funding for adult education provides a critical resource for anyone who failed to achieve their potential at school and is seeking a second chance, those who wish to retrain, or individuals who want to progress in work but do not get the opportunity from their employer. But it has been declining since 2004.

The 2019 Social Mobility Commission adult skills report⁵ found that the poorest adults with the lowest qualifications are the least likely to access training, despite being the group who would benefit from it most. Graduates are more than three times more likely to participate in training than those with no qualifications (30% versus 8% in 2017). The report cited previous research showing that half of adults from the lowest socio-economic groups received no training after leaving school, inhibiting them from improving their skills, progressing in work or retraining as the world of work changes.

of those with no qualifications participate in training, compared to 30% of graduates

^{4.} Teacher Tapp survey results as reported in Schools Week.

^{5.} https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/774085/Adult_skills_report_2019.pdf

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2. Mental health

In a report published by The Childhood Trust at the end of June⁶, Dr Maria Loades, a clinical psychologist from the University of Bath, says that lockdown measures are "likely to increase the risk of depression and probable anxiety, as well as possible post-traumatic stress".

During a time of rising need, community centres and support groups have had to move their services online, making them inaccessible to those who need them the most: families without internet access, and those who are homeless and living in temporary accommodation, or in overcrowded housing without broadband.

The Childhood Trust points to a 21% rise in alcohol sales during the lockdown period. There are 2.6M children living with a parent drinking hazardously and 705,000 living with a dependent drinker. Life for these children has without doubt worsened.

What happens now will have a lasting impact on young people's mental health, for years to come – whether that is because of traumatic experiences at home, the pressures of isolation, or a "breakdown in the support that gives them hope"⁷.

3. Gender inequality

With schools closed and people obliged to work from home, women are juggling the demands of their jobs (performed remotely) with the responsibilities of parenting and household chores.

Researchers at the University of Sussex⁸ found 72% of mothers described themselves as the 'default' parent for all or most of the time during lockdown, while 67% of women with work commitments also described themselves as such. In addition, 70% of women reported being completely or mostly responsible for home schooling.

Prior to the COVID-19 crisis, women already faced critical obstacles to entering and participating equally in a tech-driven world. Between 40M and 160M women must transition into other occupations by 2030 to remain relevant in a technology-driven job market, according to research published in June 2019 by consultant McKinsey⁹. Worldwide, the pandemic has forced the pace of digitalisation, for work and retail. Over recent decades, information and communication technologies (ICTs) have expanded rapidly, but women across the world still have 10% less access to computers, cell phones and the internet than men.

Connected thinking, joined-up solutions

So, what is the most effective and efficient way to tackle such challenges? We need to think in a joined-up way. The £32bn of committed capital expenditure in the UK's National Infrastructure and Construction Procurement Pipeline is enough to make a difference, but should be considered in the context of social as well as fiscal multiplier effects.

We need to think beyond near-term GDP growth and address the possibility for reducing costs to society, by addressing future impacts that are being seeded and incubated now.

The following pages consider three ideas that could form part of a solution.

Children in lockdown: the consequences of the coronavirus crisis for children living in poverty, June 2020, The Childhood Trust.

7. Young Minds: 'Beyond tomorrow' campaign.

8. www.sussex.ac.uk/broadcast/read/52267

The future of women at work, JuneMcKinsey Global Institute.

Focusing investment on social outcomes

What do we want to achieve? Investment decision-making should consider the 'ultimate goals' of education and be channelled accordingly.

We must address the challenge of reopening overcrowded, poorly ventilated schools – an issue as relevant for the next pandemic as for this one. Capital investment is required to reduce infection risk in the school estate, by applying the principles of infrastructure epidemiology¹⁰. Investment is also required to make up a shortfall in social care provision that has developed in the last decade, due to the near halt in investment in children's centres, libraries and youth facilities.

Education infrastructure

In the early 2000s, the UK government made an ambitious attempt through the Building Schools for the Future programme to combine the fiscal imperative to maintain and replenish the crumbling school estate with a desire to prioritise investment in those areas of most profound disadvantage.

The programme itself was dogged with problems and was flawed in its ability to deliver cost-effectively. However, the underlying principles of trying to maximise the use of infrastructure investment to improve social outcomes was universally supported at the time and remains valid now.

10. We have combined our buildings and infrastructure capabilities with the expertise of our International Health team, which has delivered infectious disease control programmes for more than 20 years, and is currently operating in over 30 countries. Understanding the role buildings and infrastructure play as vectors for the spread of diseases such as COVID-19 enables us to advise on and plan interventions to reduce transmission. It's a unique insight and discipline we call 'infrastructure epidemiology'. Find out more.

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Spending to make the biggest difference

If a targeted programme of capital investment in education and community infrastructure was brought forward, it should prioritise those communities with the highest level of deprivation. Funding allocation should take account of:

- · the percentage of workforce from local area
- integration of community facilities such as childcare and family support services
- resilience of operation during pandemic control measures
- speed from funding approval to the realisation of intended benefits

There is a current programme of capital investment targeted at the parts of the estate most in need of repair (around £1.4bn). While this is important, it does not begin to address the endemic and systemic barriers to the inclusion, development, wellbeing and life chances of many children and their parents – particularly their mothers. Could greater value be extracted from each pound by reprioritising where it is spent, and spending more? Enabling children to attend school and learn well, and providing their parents with the opportunity to learn and develop skills, should improve communities' ability to work and provide them with long-lasting resilience to future pandemics.

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of households earning £6000-10,000 are connected to the internet, compared with 99% of households with an income of more than £40,000



The UK fell well short of other nations in using digital solutions to help citizens access services during the pandemic. COVID-19 has revealed where public and private sector services have overly focused on operational needs and underinvested in digital adaptation, to the detriment of their operational resilience when many activities have been forced online. The crisis has seen many services suspended. It is evident that clearing backlogs will take many months, because IT systems are poor.

Digital investment

Before lockdown, children and adults without digital access at home were able to get online at school and adult learning centres, in public libraries, internet cafes and elsewhere.

The Cambridge Centre for Housing and Planning Research reported¹¹ that "the coronavirus lockdown risks turning the problem of digital exclusion into a catastrophe of lost education and opportunity for the UK's poorest and most vulnerable". During lockdown, education and work has moved online. Restricted home connectivity and access of IT infrastructure has effectively excluded children from schooling and adults from training and work.

Access to the internet at home increases with income: only 51% of households earning £6000-10,000 are connected, compared with 99% of households with an income of more than £40,000. Even if the internet is available, household members may not have devices. In Switzerland, Norway, Austria and the USA, more than 95% of 15-year-olds from higher income households have a computer to use for their schoolwork, compared to only 75% from disadvantaged backgrounds¹².

For adults, digital exclusion makes it more difficult to put together a CV, apply for jobs, manage and keep track of money, access medical and mental health services, and apply for income support such as Universal Credit.

www.cam.ac.uk/stories/digitaldivide
OECD.

It can no longer be considered acceptable that a large section of the population is cut off from services and opportunities that are increasingly available online – and for people in some locations or situations, only online.

Doing better

During the UK's 2020 general election campaign, the Labour Party pledged to equip all households with broadband. The policy was ridiculed, but merits attention in the light of COVID-19. We should be going further and providing cost-effective, capable computers that will allow every household to use the internet. Broadband access and IT equipment should be considered as basics of welfare support.

Funding in education for disadvantaged pupils has been focused on reduction in pupil-to-teacher ratios and funding face-to-face engagement. For schools with good IT infrastructure and students who are digitally enabled, COVID-19 has shown that 'school is not a building but a community'. The most digitally adept schools have provided a good quality of education throughout lockdown. Equipping all schools and students to participate in digital learning, from home, will enable functioning learning communities for all. This is necessary not just in preparation for the next pandemic, but because learning is increasingly extending beyond the classroom.

The government's Universal Service Obligation for broadband came into force in March 2020. It is intended as a 'safety net' to deliver broadband to premises that do not have a decent and affordable service, providing a legal right to request connection, up to a cost threshold of £3400. While welcome, connection should not be based on request and nor should the cost be capped. Subsidised schemes already operate but have not achieved the coverage

needed. Service should be provided proactively where it is needed most, at no cost to the beneficiary: for those living challenging lives, spending up to £46.10 per month¹³ on another bill is a low priority.

A national programme of investment, in partnership with the private sector, to equip all households with decent broadband and devices is needed. In tandem, investment is required in adult learning so that adults become digitally capable. This is necessary not just so that parents can help their children, but so that adults can lead economically active lives in an increasingly digitalised labour market.

As investment is made in improving the education estate, we must also invest in community facilities where adult education and early years childcare can be provided side by side. In doing this, we should develop teaching and training partnerships between government and business, to provide the skills it needs in its workforce. Government would provide the location and incentivisation, with industry providing the expertise and human resources for delivery.

Comprehensive digital inclusion, consisting of access to broadband, equipment and skills, is fundamental to getting people into better, more fulfilling and sustainable work.

13. Under the Universal Service Obligation for broadband, the affordability threshold is currently set at £46.10 per month.

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Valuing social outcomes

In a recession, governments classically invest in infrastructure to drive economic recovery and growth. However, the large volume of redundancies and economic paralysis in other sectors will not easily be reversed. Unemployed workers from the hospitality sector, for example, will not be able to simply migrate into construction. Although seemingly conventional investment decisions are already being made, we should be clear on the nature of the challenge we are trying to solve.

We should start by asking what social outcomes we are seeking to achieve and invest accordingly. Pre-COVID, more rapid and efficient transport was a national obsession. with the aim of levelling up the UK economy, increasing productivity, and driving job creation in struggling sectors or locations. But during lockdown other priorities have emerged – access to healthcare, the resilience of our education system, community cohesion, and the effectiveness of local services.

It is politically challenging to set a social objective as the headline of an investment programme. When providing 30 hours' free childcare entitlement to help women return to work, the government played it quietly, but made noise about uptake of childcare places - a clear, measurable outcome of its policy. On rail projects, the talk is of speed and capacity, not of connecting deprived communities to work opportunities, so they can thrive. Tangible measures can be celebrated in the timelines of our political cycle. Real societal change takes longer, is difficult to measure and even harder to take the credit for.

But now is the time to be brave and set new goals, centred on better social outcomes.

Outcomes, objectives, solutions

As we seek to recover from COVID-19, throw off economic recession, and make society resilient against future shocks – pandemic or other – we must do four things: set out the challenges we want to address in our society; decide what a good outcome looks like; set clear objectives; and then implement with urgency solutions that stand the greatest chance of achieving them.







Opening opportunities with connected thinking.

Contact

kate.hackwell@mottmac.com andrew.guest@mottmac.com

mottmac.com