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Centre Write

Spring 2020

Digital disruption?

Rory Stewart OBE | Catherine Anderson | Matt Warman MP | Damian Collins MP

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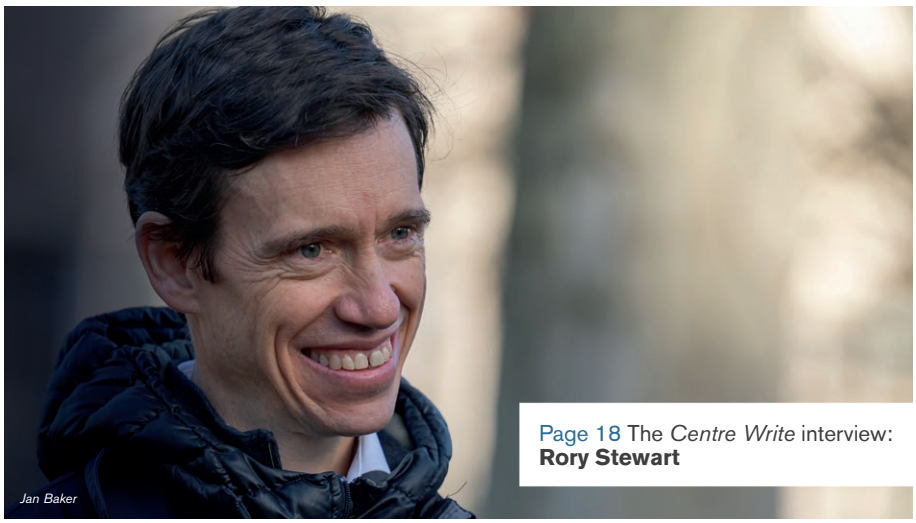

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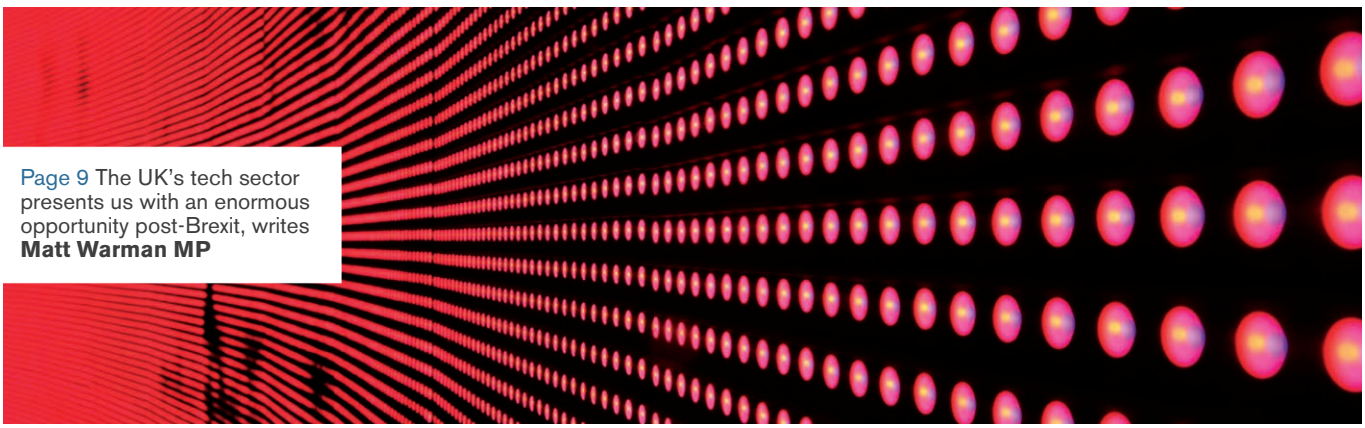

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Editor's letter

Sam Robinson is a Researcher at Bright Blue and Editor of *Centre Write*

Technology has developed at breakneck speed over the last couple of decades, and this shows no sign of stopping. Inventions that once seemed like science fiction, like self-driving cars or thought-controlled machinery, are now on the cusp of commercial viability. By the 2030s, as much as 30% of jobs could be at risk of automation. The sheer amount of available data and the emergence of ever more sophisticated algorithms has fundamental implications for everything from politics to healthcare to marketing.

Much of the debate around technology emphasises the threats new developments pose to our way of life. Social media has, to a significant extent, toxified public debate and intimidated a number of MPs, as **Catherine Anderson** (p.22), CEO of the Jo Cox Foundation, points out. Not only this, but as OneSub founder **Jim Morrison** (p.23) highlights, the very architecture of social media promotes polarising echo chambers. However, the question of how to respond to the rise of social media is a fraught one. There is a balance to be struck between freedom of speech and online safety, as former DCMS Committee Chair **Damian Collins MP** (p.25) notes. But, as the author of *Hooked* and *Indistractable* **Nir Eyal** (p.17) tells us in our Skype session, it is important that in regulating social media we do not ignore the role personal responsibility has to play in social media consumption. In our letter exchange, **Alex Krasodomski-Jones**, Director of the Centre for the Analysis of Social Media at Demos, debates the impact of social media upon democracy with our Researcher **Phoebe Arslanagić-Wakefield** (p.26).

Yet technology also brings plenty of opportunity. Britain has a vibrant and dynamic tech sector which will not only deliver billions in investment but act as an "engine of social mobility", says **Matt Warman MP** (p.9). Chief Executive of the Good Things Foundation **Helen Milner** (p.15) adds that if we can bridge the digital skills gap, the economy is set to be turbocharged by a more productive workforce. Besides delivering more growth, technology can also deliver green growth: facilitating technological innovation will undoubtedly play a central role in achieving the UK's 2050 net zero emissions target, according to the Executive Director of the Aldersgate Group **Nick Molho** (p.10).

In our *Centre Write* interview, London mayoral candidate **Rory Stewart** (p.18) details the pitfalls of social media in politics as well as the enormous potential of London's burgeoning tech sector, as he sits down with us to discuss the future of London, how he will tackle crime and air pollution, and the direction of the Conservative Party.

It is not just the economy that can be positively transformed by technology. CEO of PUBLIC, **Daniel Korski** (p.7), outlines how public services could be revolutionised by ensuring innovative tech startups are more involved in their delivery. Similarly, the Chair of the Technology and Law Policy Commission **Christina Blacklaws** (p.12) sees technology playing a potentially pivotal role in the criminal justice system, although whether this role is beneficial or malicious will depend on how AI and algorithms are implemented. **Rachel Hutchings** (p.13), Researcher at the Nuffield Trust, reviews some of the encouraging developments in healthcare technology as she outlines how the NHS can grasp the opportunities these bring. **Clive Gilbert** (p.14), editor of dispATches, highlights the incredible advances made in assistive technology in recent years and where the UK could improve further.

The way we deploy technological innovations will also shape the kind of country we are on the world stage. Post-Brexit, the migration system is facing its biggest challenge in decades. Technology may help deliver the overhaul it needs, according to **Will Somerville** (p.28), UK Senior Fellow at the Migration Policy Institute. **David Henig** (p.30), Director of the UK Trade Policy Project, suggests that awareness of technology developments is an important basis for effective decisions on trade policy. International aid is another crucial pillar of Britain's 'soft power' but one that has been much maligned in recent years after a string of high-profile scandals. **Dr Jane Thomason** (p.31), CEO of Fintech Worldwide, makes the case for blockchain technology as a means of increasing efficiency and rebuilding confidence in international aid.

As the ferocity of the debate around the Government's decision to allow Huawei access to Britain's 5G network showed, the technological developments of the coming decades are not simply a convenience that will bring faster internet and more Netflix. They will change the landscape of our society in profound ways. With Britain leaving the EU and looking to reshape its economic model, there is a window of opportunity to capitalise on technology in order to drive growth, cut emissions, improve living standards for marginalised groups, and even change the nature of governance itself. I hope that this edition of *Centre Write* offers insight on how these opportunities can best be grasped.

Director's note
Sceptical, but not complacent

Ryan Shorthouse is the Founder and Chief Executive of Bright Blue

Now all the political shenanigans of 2019 are out of the way, with the Conservative Party achieving an unprecedented electoral victory even after a decade in power, Boris and his top team must turn from campaigning to governing.

Good ministers need vision and eloquence, but they also very much need healthy scepticism: a mindset of thinking critically about, and seeking evidence before accepting or rejecting, arguments presented to them. They need good nonsense detectors, basically.

All around them, inside and outside government, are people pushing their pet projects. An intensive media – both traditional and social – demanding rapid responses. Campaigners, desperate to raise their profile, increasingly deploying provocative and exaggerated opinions. Ministers need to think thoroughly before going on to prioritise policy efforts and investments.

A very trendy topic of public debate is the transformative effects of technology, on the way we work, travel and live. We are told that a fourth industrial revolution – led by rambunctious robots – will utterly transform the type and volume of work we do, with widespread worklessness predicted.

Time for some scepticism. Fears of machines taking over and making us redundant is a decades-long obsession in popular culture. And, well, here we are today with record levels of employment. A recent report by PricewaterhouseCoopers found only a small minority – 6% – of all UK jobs in 2013 were of a kind that did not exist in 1990. A recent survey by the Royal Society of Arts found that just 14% of businesses are actively adopting artificial intelligence, or soon plan to. They also found that overall business spending on information and communication technology, machinery and other equipment has barely budged in real terms since the turn of the millennium.

That is not to deny that there will be sometimes profound effects, both positive and negative. Automation will wipe out lots of jobs. Policymakers need to prepare people for – and minimise the pain of – the transition to new job opportunities, especially those with the lowest educational qualifications.

But we should not exaggerate the infiltration and impact of our current technological trends. As the economist Ha-Joon Chang writes in his book *23 things they don't tell you about capitalism*, there is a tendency to overstate the influence of contemporary technology, especially relative to historical innovation. He claims that the internet has certainly changed the way we communicate, but hasn't really made much difference to productivity levels, and previous inventions such as the electric washing machine and iron have been more impactful on our economy, freeing time for women to focus on paid rather than domestic labour. Likewise, the telegram cut the time it previously took to send messages by ships much more substantially than the internet did from fax machines.

Those with a sceptical mindset do have a weakness, however: complacency. In fairness, if you've been bombarded with exaggerated, even erroneous, arguments for so long, it becomes harder to decipher what requires attention, and urgently. It is evidence, and having high expectations around the rigour of such evidence, that is key here. We need to develop our "factfulness", as the late Hans Rosling put it. But scepticism cannot just lead to constant mistrust and inaction – rather, when the evidence is robust and overwhelming, it strengthens the case for action.

There remains some suspicion, encouraged by some right-wing politicians, especially across the Atlantic, of acting to tackle one of the greatest and gravest challenges we now face: climate change. Warnings of extinction, with protestors demanding radical restrictions on our current ways of life, arouse suspicion.

Yes, the prophesising and demands of such activists are unnecessarily and unhelpfully alarmist. Nevertheless, the science on climate change really is solid. As Professor Steven Pinker, famously optimistic about the state of modern capitalist societies, wrote in his recent book *Enlightenment Now:* "Exactly four out of 69,406 authors of peer-reviewed articles in the scientific literature rejected the hypothesis of anthropogenic climate change."

Legislating for net zero emissions by 2050 is welcome, but actually delivering it will be a tremendous task. The deep decarbonisation we need, as the Committee for Climate Change has outlined, relies heavily on more technological innovation – hydrogen heating systems, carbon capture and storage, electrified transport, and much more. Ministers, across different departments, really need to focus on this.

Letters to the editor

Send your letters to phoebe@brightblue.org.uk

Professor Alister Scott's column ('Tightening our green belts', Autumn 2019) perfectly outlines solutions for making our world more sustainable that can be done at a local level. Climate change is a real threat that has many millennials, like myself, concerned for the future of the planet. The debate on how to best tackle this issue is primarily focused on topics such as divesting from fossil fuels or developing renewable energy, yet not much is discussed on what can be done locally. Even though green belts are often seen as "constraints to development and growth," the benefits outweigh the risks. Apart from adding environmental benefits, these areas can also be used for agriculture, helping the local economy, as well as for pleasure, especially in large cities such as London. Therefore, as Professor Scott points out, "We need to change how our green belts are viewed and used in policy and practice and make them more productive spaces."

Anastasia Kourtis *Bright Blue member*

De Zylva ('Greener, wilder, healthier', Autumn 2019) is right to highlight the need for localised support for implementing integrated nature initiatives in urban spaces. I was glad to see a recognition that policy implementation in this area is difficult due to people seeing such plans as "trendy and superficial." Yet, as he points out, London's 'urban forest' is estimated to provide annual benefits of £132 million. As is implied, de-urbanisation of metropolitan spaces could be an opening for significant ecological progress. With society searching for ways to reduce emissions, de-urbanising the city landscape must be an option.

Jack Fulton *Bright Blue member*

Andrew Boff's piece ('A familial place', Autumn 2019) shines a light on the worrying trend of "Manhattanisation" afflicting both London's housing stock and her skyline. It is troubling to see that not only has Sadiq Khan abolished targets for affordable family homes but decreed that 69% of social housing should have just one bedroom. More people, invariably less well-off than average, are being cramped into smaller areas and into inadequate housing. With 360,000 children now living in overcrowded homes, this mayoralty will only aggravate this severe problem.

At the other end of the scale, the proliferation of skyscrapers, with meagre amounts of affordable housing, is warping our skyline and forcibly reforming the intricate web of streets at ground-level. They are constructions that are neither family-friendly nor conducive to active civic life.

As Boff concludes, it would be better if policymakers focused more on "common sense" than bureaucratic "bean-counting".

William Kinsella *Bright Blue member*

Updating Whitehall

New technologies are ready to revolutionise public service delivery if government is willing to take the opportunity, says **Daniel Korski CBE**

Daniel Korski CBE is the co-founder and CEO of PUBLIC

Picture a world where the year 1999 and 2019 exist side by side: where just down the hall from one another, two people do the same job, seek essentially the same outcome and get paid the same salary. Only, one of those people uses a brand new technology to deliver an efficient, high quality service and the other is stabbing keys to input the basics into Windows. This is what government digital services look like today.

"Transparency in supply chain processes, new payment models, rewarding commercial decision-makers when they buy innovation and it pays off; there are so many solutions, many of which are really quite simple, but will require Whitehall to break out of its mould to deliver."

Hyperbole? Sure; but this is a metaphor for a world where one authority uses a startup's technology (Cyan Forensics) to scan for criminal content on a device in just three minutes, while another uses the industry standard – taking a full 20 times longer.

In the last five years, GovTech – technology that will fundamentally alter how citizens interact with public services – has exploded onto the scene, and has become a thriving sector of its own expected to be worth £20 billion by 2025. However, the promise of this technology can only be realised if we have a government-wide strategy that embraces new technologies, supports new entrants to the market, and provides a platform for innovative people, business and ideas to rethink how these services work.

Yet public sector players have been slow to make the wholesale structural changes required to fully realise digital government. There are exceptions, but I would argue that – as a country – we are at risk of failing to deliver on the promise of new technologies, failing to take advantage of opportunities to improve the delivery of core public services and, as a result, failing the millions of us who use such services daily.

A society that makes our lives safer, more fulfilling, and more productive is possible. It will be possible to transform public services, so long as public and private sector players can work together to make that happen. Take artificial intelligence (AI) and 5G: both technologies are fresh, exciting, and filled with the promise of untold possibilities for innovation which companies across the globe of all sizes and sectors are just beginning to explore.

Ten years ago, AI was science fiction. Now, it's an umbrella term for a game-changing family of technologies that are driving increased productivity and efficiency on a daily basis. The public sector has been relatively quick off the mark in its use of AI; the technology has been deployed to great effect by central government, local government, and others – including the NHS and Serious Fraud Office.

The truth is, we should be moving faster. In just five years, the private sector has embraced UK AI on a massive scale – Google's acquisition of DeepMind for

>> $400 million in 2014 fired the starting gun on a boom that saw a record $1 billion invested in UK AI companies in the first six months of 2019. Investment in UK AI in 2018 topped out at more than the 49 other countries in Europe combined. Startups are a huge part of that. Five of the UK's 16 'unicorns' (startup companies with a valuation over $1 billion US) are in the AI space.

The rollout of 5G across 20 UK cities this year makes it the newest development I've touched on in this article, yet arguably the one with least hype. Don't get me wrong, it's great that I can now order pizza faster than ever before; but it would be naive to think that this is the technology used to its full potential. Across Europe, startups are deploying 5G connectivity in sectors from cybersecurity to smart cities, and we cannot afford to miss out on the opportunities for transformation presented.

5G is already a massive opportunity for partnerships with the private sector. In the West Midlands, the Government is already developing a region-wide 5G testbed exploring use cases and business models in mobility, citizen wellbeing, construction and manufacturing. Trial programmes – conducted in partnership with Bosch – have already realised a 1% improvement in manufacturing productivity – a vital gain in an industry with tight margins – while a partnership with BT explored the possibility of using 5G connected ambulances to more effectively triage A&E patients.

For the UK to guarantee the benefit of advancements touched upon here – as well as many others that could help secure a better-governed world – I have three recommendations.

First, double down on support for the tech sector.

In a recent interview, the CEO of Graphcore – a UK AI chip-maker – spoke of the potential for AI to transform on a grand scale. Medicine, law, finance – there's a potential role for AI in pretty much every sector and any interaction you can imagine citizens having with the services they depend on. Government has gone all-in to promote the technology in 2019, introducing the new AI Sector Deal, guidance for public sector bodies on using AI applications, and the formation of a new AI Advisory Council to "supercharge the Artificial Intelligence sector". These are all fairly recent developments given that Google purchased DeepMind in 2014, but where the public sector has lost time on AI, it has made up for it through ambition. Similarly in the 5G sphere, a new accelerator is testament to the Government's ambition in this area too: a welcome exploration of how startups can exploit the technology in the development of new products and services.

> **"A society that makes our lives safer, more fulfilling, and more productive is possible. It will be possible to transform public services, so long as public and private sector players can work together to make that happen."**

To keep up this momentum after Brexit, the UK is going to have to stay ahead of the competition at every turn. In this regard, we're doing well – UK investment in technology is significantly higher than that of France and Germany (although they are catching up); and the UK Government has strategies and programmes to foster and support innovation across a wide gamut of sectors and technologies. Initiatives such as the Office for AI and the Centre for Data Ethics and Innovation (CDEI) are evidence of the work being done to make digitisation of the UK economy happen.

With all of this in mind, it is disappointing to read reports that a number of London boroughs are not yet 5G ready; a stark reminder that the Government cannot afford to rest on its laurels. At every level, it will be essential to amplify support for and commitment to the digital economy to guarantee that UK tech attracts the skills and investment it will need going forward.

Second, it's time to embrace digital government.

Strategy is nothing without execution. Sector deals, guidance and strategies are not worth the paper they're written on if the people and processes that bring the public and private sectors together kill real innovation before it has even begun.

Casting my eye down the list of startups working out of PUBLIC Hall – PUBLIC's new GovTech hub in Whitehall – what stands out is the extraordinary potential for technology to radically improve core services. Take, just as an example, the health service: whether it's digitally streamlining referrals to specialist services (Cinapsis); rethinking patient consent (Flynotes); or combining behavioural insights and artificial intelligence to increase the quality of life and survival times for cancer patients (the award-winning Vine Health) – the future of technology in the NHS goes far beyond 'axe the fax'; it is start-ups like the ones mentioned here that will be the instigators of that future.

With opportunities for digital transformation staring decision makers in the face, policymakers have been exploring the route to digital government. NHSX launched in early 2019 to "bring the benefits of modern technology to every patient and clinician", and "combine the best talent from government, the NHS and industry"; similar programmes are in motion across Whitehall and further afield, but initiatives with this level of ambition are the exception. To truly harness the value from technology, public buyers need to further explore new ways of working and deliver a new model for public services.

Third, build the platform from which entrepreneurs can engage and transform.

We founded PUBLIC not just so that we could back great ideas; we did it to break down barriers, reconciling the inherent tensions that prevent pioneering public buyers from doing business with groundbreaking entrepreneurs.

>> We've found that what's needed to do this is simple ideas. Ideas like one, single online system for accessing and bidding for public sector contracts or a procurement innovation team to champion new models of procurement and market engagement. I've said before that G-Cloud, the platform for public sector buyers to choose and buy cloud computing services, is not fit for purpose – and is just one of many that startups must grapple with to secure public contracts.

From there, what next? Transparency in supply chain processes, new payment models, rewarding commercial decision-makers when they buy innovation and it pays off; there are so many solutions, many of which are really quite simple, but will require Whitehall to break out of its mould to deliver.

Whether or not you agree that the technologies I've discussed here are set to be game-changers or not, the UK's response to each is already in motion. Make no mistake however, the most important technological development for society right now is GovTech, and the recommendations here will be critical to an effective UK response.

I've said this many times in the past but it bears repeating: a system that promotes the participation of startups in the delivery of public services isn't just going to be the most innovative, it'll be the one that is best protected from exposure. When Carillion failed, the sheer volume of government contracts held drove the knife further and further in. Outsourcing is essential, but it has to deliver the digital transformation that the public deserves, and to do this government must level the playing field.

Levelling up the tech sector

Matt Warman MP is Parliamentary Under Secretary at the Department for Digital, Culture, Media and Sport

There is good reason to be optimistic about the UK tech sector's potential, writes **Matt Warman MP**

From the Bletchley Park codebreakers to Tim Berners-Lee and the invention of the World Wide Web, the UK has a rich heritage of technologies that we should be truly proud of. There is no nation on Earth that could stand on a better platform to make the most out of leaving the EU.

This historic moment is the perfect time to not just look back at the innovative record of our great country, but also a chance to look ahead and think about what we want to achieve over the coming years.

Since the country voted to leave in 2016, our tech sector has gone from strength to strength – despite the naysayers. Investment into UK technology companies has more than doubled since the referendum, hitting a record of £9 billion last year – more than any other European country.

Our tech sector is one of our most creative and pioneering industries, and this Conservative Government is unashamedly pro-tech, because we believe that, harnessed properly, technology is an immense force for good – it is a major driver of productivity and opportunity.

The power of digital is transforming our economy, our public services, how we learn and connect, the entertainment we enjoy, and the communities we live in – and this pace of change will only intensify in the future.

The Health Secretary has recently set out how technology and AI is vital for the NHS, in order to bring it into the 21st century and humanise a difficult and demanding environment by freeing up medical professionals to do more of the work that they love. This is a Government that will seize the opportunities of Brexit by being joined-up in every sense, and not least by building the infrastructure that will mean there is connectivity across our whole country.

The UK is already home to world-leading tech companies. Six UK cities ranked amongst the top 26 cities in the world for raising venture capital in 2019, and we generate more billion-dollar tech businesses than any other country on the continent – this is something to be proud of.

There are more than 2.1 million people working in digital tech jobs and the sector contributes £184 billion to the economy every year. The demand for these roles is growing at pace – almost three times the rate of the financial services sector.

> **"This Conservative Government is unashamedly pro-tech."**

The industry is expanding 2.6 times faster than the rest of the UK economy and this is reflected in job creation: as well as technically focused roles such as software developers and data scientists, tech companies are employing accountants, lawyers and HR managers.

This job growth is not limited to London, and this Government will continue to level up opportunity right across the country. Birmingham, for example, saw 75,000 job openings created in its sector in 2018.

>> Newcastle had 30,000 jobs advertised, Sheffield added 26,000 new job openings. But there is always more that we can do to support the sector. The sector is hungry for talent and government must make sure there is a whole pipeline, from schools to post-doctorates.

"Since the country voted to leave in 2016, our tech sector has gone from strength to strength."

Indeed, our tech sector is an engine of social mobility, and we have a fantastic and growing network of regional tech clusters – from cyber security in Belfast to video games in Dundee. We have tech powerhouses in Leeds, Oxford, Newcastle and Edinburgh – home to the UK's largest technology incubator. We will also soon be announcing the winning projects of our £30 million competition to spark a tech revolution in the countryside and help rural Britain seize the opportunities of 5G.

We are rebooting our training system so that public services, businesses and workers have the skills that they need to thrive. We want to train up hundreds of thousands more highly skilled apprentices, in areas like coding. We are creating opportunities for apprentices in big new infrastructure projects – hospitals, schools, transport projects and our multi-billion pound fibre and 5G programme. This year, we will also introduce an entitlement so adults without basic digital skills will have the opportunity to undertake new digital qualifications free of charge.

As we leave the EU and expand our trading relations around the world, we will be driven by the opportunities provided by technology and they will be at the heart of the Government's trade policy in the years ahead. In the first half of last year alone, the sector attracted $6.7 billion of investment, with more than half of those investments coming from America and Asia. Growing interest from these markets is a cause for optimism about our exciting future, not least as 2019 venture capital investment in the UK leapt by 44%, outstripping the growth in the rate of investment of the two tech superpowers, the US and China.

Post-Brexit opportunities for the tech sector are vast, and we will ensure a thriving economy driven by world-leading technology that benefits everyone. We are clear that we will continue to be unashamedly pro-tech; spreading its benefits more widely; pioneering pro-innovation regulation; protecting safety and security; and preserving a free and open internet. We have much to be optimistic about.

Faster, cleaner, smarter

Nick Molho writes that facilitating technological innovation will be central to achieving net zero

Nick Molho is Executive Director of the Aldersgate Group

Whilst Brexit will undoubtedly remain a dominant theme in 2020, the new Government will need to press on with delivering progress on the climate change and environmental agenda. It is clear that policy decisions in this parliamentary term will determine whether the UK is on a pathway that will credibly allow it to achieve net zero emissions by 2050 and reverse the decline of the natural environment.

When it comes to the net zero emissions target, the UK is not starting from scratch, having cut its emissions by around 44% between 1990 and 2018, with the economy growing by about two thirds in that period. Whilst this is indeed impressive, the bulk of this progress is due to emissions going down in the power sector thanks to the success of policies to grow the share of renewable electricity and move away from coal power.

However, the UK now has a significant challenge ahead if the country is to be on a demonstrable pathway to reach net zero emissions. There are two key aspects to that challenge. The first is that the UK will need to accelerate action in areas where technology solutions to cut emissions are well known, but policy efforts to support investment to date have been wholly inadequate. This includes improving energy efficiency in buildings, switching to zero emission vehicles and vans, and completing the decarbonisation of the power sector.

"Technological innovation doesn't hold all the answers to get to net zero; innovation in new business models is going to be just as important."

The second is that the UK will need to start tackling the decarbonisation of more complex sectors, such as heavy industry, agriculture, heating and long-distance transport (in particular heavy duty

>> vehicles, shipping and aviation). This is where innovation has a key role to play to deliver a significant dent in emissions. For example, carbon capture and storage is essential for cutting emissions from heavy industry; hydrogen could act as a clean fuel for industry and long-distance transport and could possibly also help meet some of the UK's heating needs; direct air capture could help take out carbon dioxide from the atmosphere and deliver much needed 'negative emissions'.

However, for policy to be effective in getting to net zero emissions, it is important to be clear what we mean by innovation. Most of the technologies that are needed to get to net zero emissions already exist in some form. Where innovation is needed is not so much in inventing new technologies but rather in helping existing ones to rapidly gain in maturity and be deployed on a commercial scale.

It is also important to appreciate that technological innovation doesn't hold all the answers to get to net zero; innovation in new business models is going to be just as important. For instance, retailers wanting to be more resource efficient can't just rely on selling more resource efficient products to improve their environmental footprint. They will also need to think about whether their business strategies need to evolve from a model currently based mainly on selling goods to one based increasingly on leasing products to consumers, who then return products back at the end of their useful lives so they can be reconditioned.

As recently argued in a recent report from Vivid Economics and the UK Energy Research Centre, which studied lessons learnt from past examples of rapid innovation, accelerating technological innovation to deliver net zero requires carefully designed complimentary measures. The first one is that the Government must support – and put meaningful funding behind – large scale trials of new technologies. Technology trials won't always go smoothly but they

are an essential part of understanding what does and doesn't work and how best to design policy.

Second, history shows that government-backed institutions have an essential role to play in rolling out complex technologies, especially those that have multiple infrastructure requirements. The UK's transition from town gas to natural gas in the late 1960s and early 1970s, which took only 14 years, is a good example. The Gas Council played an essential role in facilitating the development of bulk gas supplies from the North Sea, co-ordinating the roll-out of a national gas grid and overseeing the installation of gas boilers in people's homes. This included a crucial communications role to help sell the benefits and safety of gas central heating to the public.

Third, government policy should encourage low-carbon innovation to be carefully joined up with digital innovation. The rapid global roll-out of online cash dispensers, which took around 22 years, happened because the development of cash dispensers coincided with that of computerised systems and online algorithms. Looking ahead, digital innovation could help make the take-up of energy efficiency, low-carbon heating and transport technologies a lot more accessible and desirable to the public.

Fourth, as we have seen with renewable energy technologies like offshore wind, a successful innovation policy is one that works hand in hand with market creation measures to grow the demand for new products and technologies. For instance, supporting innovation in carbon capture and storage needs to work hand in hand with policies to grow the market for ultra-low carbon industrial products. This can include incentives to store carbon dioxide, changes to public procurement rules, as well as market standards that drive down the permissible level of embedded carbon in products over time.

"Most of the technologies that are needed to get to net zero emissions already exist in some form. Where innovation is needed is not so much in inventing new technologies but rather in helping existing ones to rapidly gain in maturity."

Technological innovation undoubtedly has a critical role to play to get us to net zero emissions. To be effective, the ambition of the Government's innovation policy must match the scale of the challenge ahead of us. It must also look beyond the research and development stage and must incentivise advances in business models and technologies in equal measure.

Code of ethics?

Christina Blacklaws sees enormous potential for using artificial intelligence in legal processes – but also grave risks

Christina Blacklaws is Chair of the Technology and Law Policy Commission and Immediate Past President of the Law Society of England and Wales

The rapid growth in the use of artificial intelligence and algorithms across all areas of public and private life has prompted plenty of debate and no little amount of concern. The United Kingdom has an opportunity to become a beacon for technology-driven justice, but it must be bold in order to capitalise on this opportunity.

Amidst an often febrile atmosphere, wanting to separate the facts from the fiction, we set up the Technology and Law Policy Commission to examine the use of algorithms in the criminal justice system, and to suggest recommendations for how policy-makers should react to the development of these technologies.

There were three main findings from our research.

First, there is widespread use of algorithms in the criminal justice system, and significant variety in this use. Algorithms are in use by police forces, crime labs, courts, lawyers, parole officers and more. The ways that algorithms are deployed are impressively varied, with current applications including DNA profiling, predictive crime mapping, individual risk assessment, data mining and social media intelligence.

Second, we found a lack of explicit standards and a lawful basis for the use of algorithms in the criminal justice system. This was concerning, as the high stakes in the criminal justice system demand careful assessment of any new systems before deployment. Opaquely designed algorithms deny individuals the ability to assess whether an algorithmic decision is legitimate, justified or legal. This opacity can emerge from secrecy in the development stage, or a desire by private developers to protect their intellectual property, or simply due to the technical complexity of the algorithm.

Finally, algorithms are not being critically assessed. This lack of scrutiny is generating significant risks. This is because algorithmic systems encode assumptions and systematic patterns which can result in discriminatory outputs. The way input data is labelled, measured and classified is subjective and can embed bias.

The process of training data itself is almost certain to be biased. There is no way to truly measure crimes committed in society; only proxies such as convictions or, more problematically, individuals arrested or charged. If, as is commonly accepted, the justice system under-serves certain populations or over-polices others, these biases will be reflected in the data.

Algorithms also rely on data identifying shared characteristics and patterns to reveal insights. In so doing, an algorithm will naturally categorise individuals into groups, without personal consideration. This presents a potential threat to human rights if not handled carefully. Against this backdrop, concerns abound about the possibility of dehumanised justice, and that in time human decision-makers may lack the confidence and knowledge to question or override an algorithmic recommendation.

In response, the Commission has made ambitious and comprehensive recommendations. There is a need for a range of new mechanisms and institutional arrangements to improve the oversight of algorithms used in the justice system. This should be done through the creation of a statutory code of practice for algorithms in the justice system under the Data Protection Act; by enhancing the capacity and role of the Information Commissioner's Office; by giving the Centre for Data Ethics and Innovation a statutory footing; and by creating a national register of algorithms in use in the justice system.

> **"The United Kingdom has an opportunity to become a beacon for technology-driven justice."**

The protections relating to algorithms should be clarified and strengthened. This should include provisions for ensuring meaningful human intervention in algorithmic decision-making and mandating the publication of data protection impact assessments.

Consideration must also be given to the procurement of algorithmic systems to ensure that, at all stages, they are subject to appropriate control, and that due consideration is given to human rights concerns. This should include a statutory procurement code for algorithms in the criminal justice system with an enforceable duty on relevant actors to adhere to it; a review into policy options

>> for mandating human rights considerations in technological design with different sectors; and, explanation facilities for algorithms in the criminal justice system designed to allow individuals to understand how a decision has been reached and assess whether they should seek a remedy through the courts.

Finally, significant investment is needed to allow public bodies to develop the in-house capabilities necessary to understand, scrutinise and coordinate the appropriate use of algorithms.

> **"Concerns abound about the possibility of dehumanised justice."**

These recommendations are as ambitious as they are comprehensive. We are confident that they map out the basis of a framework for the ethical and proportionate use of algorithms in the criminal justice system which would allow the public to reap their benefits, while preventing some of the greatest dangers.

The UK has a window of opportunity to develop a justice system that is trusted to use technology well, with a social licence to operate, and in line with the values and human rights underpinning criminal justice. It must take proactive steps to seize that opportunity now.

A digital NHS: is it all good news?

Rachel Hutchings is a Researcher at the Nuffield Trust

More technology will only improve the health service if it is intelligently implemented, suggests **Rachel Hutchings**

Creating a digital NHS is a national policy priority. The NHS Long Term Plan emphasised this commitment by promising fully digital secondary care services by 2024, and a new organisation called NHSX was established last July to lead on digital, data and technology within the health service. It is an area where the NHS has traditionally lagged behind other sectors such as banking and retail, with slow and unreliable technology often frustrating staff and patients.

Yet with the digital agenda now front and centre of NHS policy, and with technology evolving at a rapid pace, what might the opportunities and risks of this approach be?

Evidence shows that when implemented appropriately, technology can save time, improve the quality of care and improve communication between staff and patients. Genomics and precision medicine, artificial intelligence and patient-facing apps all offer opportunities to positively transform how healthcare is delivered. Making more effective use of data can help to design services around the needs of patients and ensure they are robustly evaluated, while digitising traditional paper-based systems, such as patient notes, can improve record-keeping.

We know too that the public are increasingly engaging with healthcare services in a digital way. In 2019, 63% of people said they had used the internet for health-related information in the previous three months, and over a third looked online for information before booking their last GP appointment.

Technology also allows people to take a more active role in their own healthcare, such as using an app or having control of their medical records, and by April 2021 all patients will have a right to an online or video consultation. It can improve access between patients and clinicians or services, opening up new avenues for consultation and reducing demand elsewhere. Studies also show the potential for artificial intelligence to improve the detection of conditions such as cancer – potentially leading to earlier diagnosis and treatment.

Despite that potential, it's important that new innovations remain grounded in the needs and priorities of staff and patients. Even with their enthusiasm for better technology, we know that staff are still frequently hampered by systems that are not fit for purpose. Vital workers like district nurses, for example, need technology that must work well in the community, yet unreliable equipment and poor connectivity often means they are frustrated when actually using it.

> **"Digital transformation is as much about people and changing culture as it is about the technology itself."**

Equally important is having a long-term strategy. Implementing new technology takes time and can mean changes to existing staff roles and routines, whether that's in adjusting to a different online system or in using a new piece of digital

>> equipment. And with technology constantly developing, NHS organisations must also have the capacity to react to anything new that comes along. Welcome short-term funding injections will be less effective if not backed up with an approach recognising the need for ongoing funding to sustain these digital developments. As we highlighted in a recent report, if this doesn't happen, the NHS will not get what it should out of technology.

Digital transformation is as much about people and changing culture as it is about the technology itself. Clinical staff like doctors and nurses must be supported with the skills and resources they need to make the best use of the technology on offer. Non-clinical staff like data analysts and project managers also play a significant role, but recruiting and retaining such people is a challenge for the health service, with Agenda for Change pay restrictions meaning the NHS can lose them to more lucrative offers from the private sector. Digital roles in the NHS have historically also had fewer learning and development opportunities than other jobs, but programmes such as Building a Digital Ready Workforce are working hard to rectify this.

Although internet use increases year on year, those likely to continue to have low digital access are people over 75, carers, those over 55 in lower social grades, and people with dementia, stroke and learning disabilities. Extending digital services could exacerbate inequalities, and different initiatives are likely to be needed to ensure these groups are not further disadvantaged. This includes ways to improve digital skills, such as the Widening Digital Participation programme that looks to ensure services are as inclusive as possible.

In such a rapidly evolving environment, it is important to be realistic about what needs to be done first when it comes to a digital NHS and the time it might take. This means a comprehensive and long-term approach – ensuring that the health service not only makes the best use of digital now, but is also prepared for the future.

Assistive policy for assistive technology

Clive Gilbert is the Editor of dispATches

Impressive advances have been made in assistive technology. It is now up to politicians to ensure it reaches those who need it, argues **Clive Gilbert**

Better standards of living and advances in medical science mean that 22% of British people now have some form of disability. As the population ages and more disabled children with complex health conditions live longer, this percentage is only likely to grow in the coming decades. Ensuring people with impairments are able to lead full and rich lives will be one of the key public policy challenges of the 21st century. Technology designed to assist disabled people with everyday tasks will be central to meeting this goal.

Assistive technology can come in many guises. Wheelchairs, walking sticks and hearing aids are now the tip of an iceberg that extends to almost every daily activity and routine, from easy grip cutlery for people with arthritis, communication aids that restore the voices of people with unclear speech to predictive text software designed to reduce the number of keystrokes required to write a message. The dramatic increases in computer processing power and the corresponding decline in the cost of technology over the last 20 years have heralded a period of unprecedented innovation.

> **"Many disabled people live on low incomes and find it difficult to afford equipment."**

Consider the cornucopia of sensors, cameras and other widgets found on most standard smartphones and tablet devices. The presence of this Swiss Army knife of gadgets in our pockets has provided endless opportunities for software developers to create apps to help disabled people in a wide variety of contexts. Examples include smart canes that allow blind and visually impaired people to navigate their way around town, real-time transcription software that translates the spoken word for people with hearing impairments, and a food preparation assistant designed to help people with learning disabilities live more independently by instructing them on how to cook up a meal on their own.

The growth of robotics, artificial intelligence and other powerful new technologies are fuelling further innovation

>> for disabled people. Learning disability charity Mencap has been working with virtual reality technology to ease anxieties people might have about going to the polling station to exercise their democratic right to vote by simulating the experience. Last year French engineers working with a young man living with paralysis built the first robotic exoskeleton capable of manipulating all four limbs via the user's thoughts alone.

Despite such breakthroughs, assistive technology does not always reach those who need it. Many disabled people live on low incomes and find it difficult to afford equipment. There is also a significant lack of awareness of the range of assistive products that are available, partly because many devices can only be purchased from little-known specialist retailers. Even professionals who support disabled people every day such as special educational needs teachers, social workers and occupational therapists often struggle to keep up with the latest developments in technology due to a lack of training and the sheer complexity and diversity of this ever-growing sector.

This means society is failing to fully harness the opportunities that advances in technology could yield for disabled people. Government tends to support certain eligible groups to access technology through a patchwork of public services operating across the NHS, education providers, employment programmes and social services. The downside of such piecemeal initiatives is that they make it difficult to account for the way in which the benefits of technology often cuts across different domains by assessing and supporting people too narrowly. For example, technology that helps someone to use a computer at work is likely to be just as useful to them at home. Similarly, enabling a disabled child to keep up with the rapid technological progression of their peers will help them to have fun and make friends while also supporting their academic progress. There are many cracks between services through which people frequently fall.

A more holistic approach from government and other public agencies is required to ensure that those whose lives could be most dramatically transformed by assistive technology are able to access it as early as possible. For example, creating inter-agency funding streams across localities and regions would break down silos and allow the money to go where it's most needed. Better training for teachers, social workers and other health and social care professionals would allow people's technology needs to be identified and provided for more quickly.

"A more holistic approach from government and other public agencies is required to ensure that those whose lives could be most dramatically transformed by assistive technology are able to access it."

There are signs that Whitehall is starting to understand the huge benefits technology could bring as the UK's demographics shift. Last year's EdTech Strategy published by the Department for Education included commitments to improve access to inclusive technologies in schools and colleges, and the 2018 Industrial Strategy aimed to support the creation of new technologies and services fit for an ageing society. The Government's promised new National Strategy for Disabled People, due to be published by the end of 2020, is an important opportunity for policymakers to take a rounded approach to technology. Let's hope ministers grasp it.

Mind the digital skills gap

Helen Milner is Chief Executive of the Good Things Foundation

Helen Milner sets out the benefits of bridging the digital divide

As we enter the fourth industrial revolution, there is plenty to be optimistic about. The 2020s are without doubt going to be a decade where our lives will change because of technology. Today, technology can help us find work and grow our businesses, manage our health, and connect with friends and family around the world. The Government's pledge of £5 billion to roll out gigabit-capable broadband across the country by 2025 will certainly help the UK to become a global digital leader.

But that's not enough. The UK's significant digital skills gap places us at risk of falling behind and failing to capitalise on the full benefits that digital transformation can bring. You can build broadband infrastructure, but not everyone will be able to use it. What we need alongside this is a commitment to invest so that everyone has the digital skills they need to use, and benefit from, the internet.

It's no secret that the world of work is

>> changing, and it's changing fast. In 20 years' time, 90% of all jobs are going to require digital skills. With the anticipated overhaul of the UK's immigration policy following Brexit, as well as an ageing population, three million jobs will be left unfilled by 2030. The labour market is transforming and we need to prepare ourselves for the future.

> "In a world where finding a job is near impossible without internet skills, banking and other services are moving online, and even access to our NHS is becoming increasingly digital, too many people are being left behind."

As it stands, there are 11.9 million people in the UK who lack essential digital skills – including 4.1 million who have never been online. That isn't just older people, or out-of-work people looking for their next job – it's also people who are in the workplace. There are millions of people in our country who do not know how to email their colleagues or search the internet for solutions to problems they encounter at work.

> "By upskilling the nation, we will begin to accrue economic benefits through improved employment rates, increased earnings for individuals, more transactions shifting successfully online, savings to the NHS."

In a world where finding a job is near impossible without internet skills, banking and other services are moving online, and even access to our NHS is becoming increasingly digital, too many people are being left behind.

Perhaps it's the lifelong factory worker, laid off after 30 years on the job,

and distressed because they have no experience of using the internet to find employment. Or maybe it's the local butcher, worried about supermarkets undercutting trade because no-one is making the case for a new online business model that could reach customers who would be proud to support local retailers.

It's clear that we're experiencing a digital skills crisis – and the UK is worse off as a result. Research by the Centre for Economics and Business Research has shown that investing in closing the digital divide will lead to a net present value of £21.9 billion to the UK, with a benefit of almost £15 for every £1 invested in basic digital skills. By upskilling the nation, we will begin to accrue economic benefits through improved employment rates, increased earnings for individuals, more transactions shifting successfully online, savings to the NHS, and much more.

The economic argument speaks for itself, but there is so much more to bridging the digital divide than simply strengthening our economy. We know that there is a strong correlation between social exclusion and digital exclusion. The Oxford Internet Survey's recent report showed that 40% of respondents with the lowest income were digitally excluded.

Becoming part of a digital society brings with it a new set of choices and opportunities. Digital skills for all are essential if we are to ensure that all individuals, no matter their background, have the same opportunities to thrive in our digital world.

At Good Things Foundation, our mission is to bridge the digital divide. As the UK's leading digital and social inclusion charity, we have supported over three million people to benefit from digital – and we are ambitious to help millions more, so they too can realise the positive outcomes digital can provide.

We can fix this skills and inclusion gap. Our blueprint calls on the Government and other partners to commit to a 100% digitally included nation, by promoting the benefits of the internet, and building skills through free essential digital skills support for anyone who needs it.

Our network of thousands of hyper-local organisations – as diverse as charities, libraries, community groups, and social housing providers – know their communities well, reaching some of the most excluded adults in society. Our network partners help local people improve their digital skills and gain the confidence they need to improve their financial capability, health and wellbeing.

Digital equality is the key to strengthening our economy and achieving social justice. We urgently need the Government, businesses and civil society organisations to work together to bridge the digital divide. This is possible if we are bold and ambitious. We can close the digital skills and inclusion gap and reap the benefits for all citizens and for a stronger, fairer nation.

Skype session with… Nir Eyal

Nir Eyal is the author of *Hooked* and *Indistractable*

Phoebe Arslanagić-Wakefield speaks to Nir Eyal about habit forming technology, social media addiction and personal responsibility

PA It's commonplace to talk about the 'attention economy' as a defining feature of our age, although competition for the attention of consumers is not a new phenomenon. However, the tools now available to innovators to build habit forming products are much more powerful. What are the implications for political and public discourse?

NE There are some thorny questions we need to wrestle with. I am optimistic, I think we will solve many of the challenges technology presents us with; the first generation of a technology always has problems, and we then fix and improve upon that generation. When you invent the ship, you invent the shipwreck.

PA Doesn't that argument work on the assumption that what is good for the consumer is also good for the commercial company making the product? But that may not be the case; a technological improvement that sees profits increase may not be an improvement for the consumer, psychologically speaking for example.

NE People aren't stupid. If something harms them, they will stop using it, with some exceptions such as children and people who are pathologically addicted. If you're not a pathological addict or a child, for the most part, people are pretty good at figuring out what harms them. Every generation has its moral panic. For my generation it was television and cable news that was rotting everyone's brain. Over the course of time, the same two things happen; human beings adapt and adopt new technology.

PA TV democratised news and has had a huge impact on public discourse. Now we have people getting their news from apps like Facebook, which have habit forming technology embedded within them. Will that change the way people relate to news and current affairs?

NE Yes, there will be differences, but we don't know yet whether they are good or bad. In many ways the change is good and bad. People learn to discriminate their information sources. We've seen that people can inform others in the moment in a way that wasn't possible before, citizen journalism is possible in a way it never was before. On the whole, there are more benefits than problems.

PA Do you think there is an element of paternalism to the expressions of concern and condemnation of big tech companies like Facebook that we see from commentators and columnists? Particularly in regards to arguments around uneducated, credulous consumers being taken in by fake news and manipulated by algorithms?

NE I'll go a level further. I think its blatant competition that scares the traditional media. They are in the same exact business as these social media companies. They're after consumers' attention too. The business model of these tech behemoths threatens journalists; it's in their interest to criticise these companies and not in their interest to tell you about the good these products do. No-one wants to read an article that says things are fine and getting better. They have every incentive in the world to paint these new technologies as scary and generate moral panic.

PA In recent years, we have seen pleas directed at the tech industry to make technology less all-consuming and addictive. What are your thoughts on regulation, should the Government step forward and regulate habit-forming technology?

NE Certainly, but I think we need to get very specific about what that regulation should be, it's easy to talk in platitudes. I've advocated for over four years that every company of significant size using tech that may addict people should have a 'use and abuse policy' to identify the people who use the product to excess. If someone uses the product more than 'X' number of hours a week, then the company should reach out to the consumer with a message suggesting that they could be struggling with an addiction and stating how they can help. Gaming companies and social networks know how much we use their products, they have the data; if they wanted to help, they could. People who are pathologically addicted need extra assistance, but for the rest of us? Come on, it's a personal responsibility issue.

PA Where do you think the line is between corporate and personal responsibility? Is it at the point of harm, as with pathological addiction?

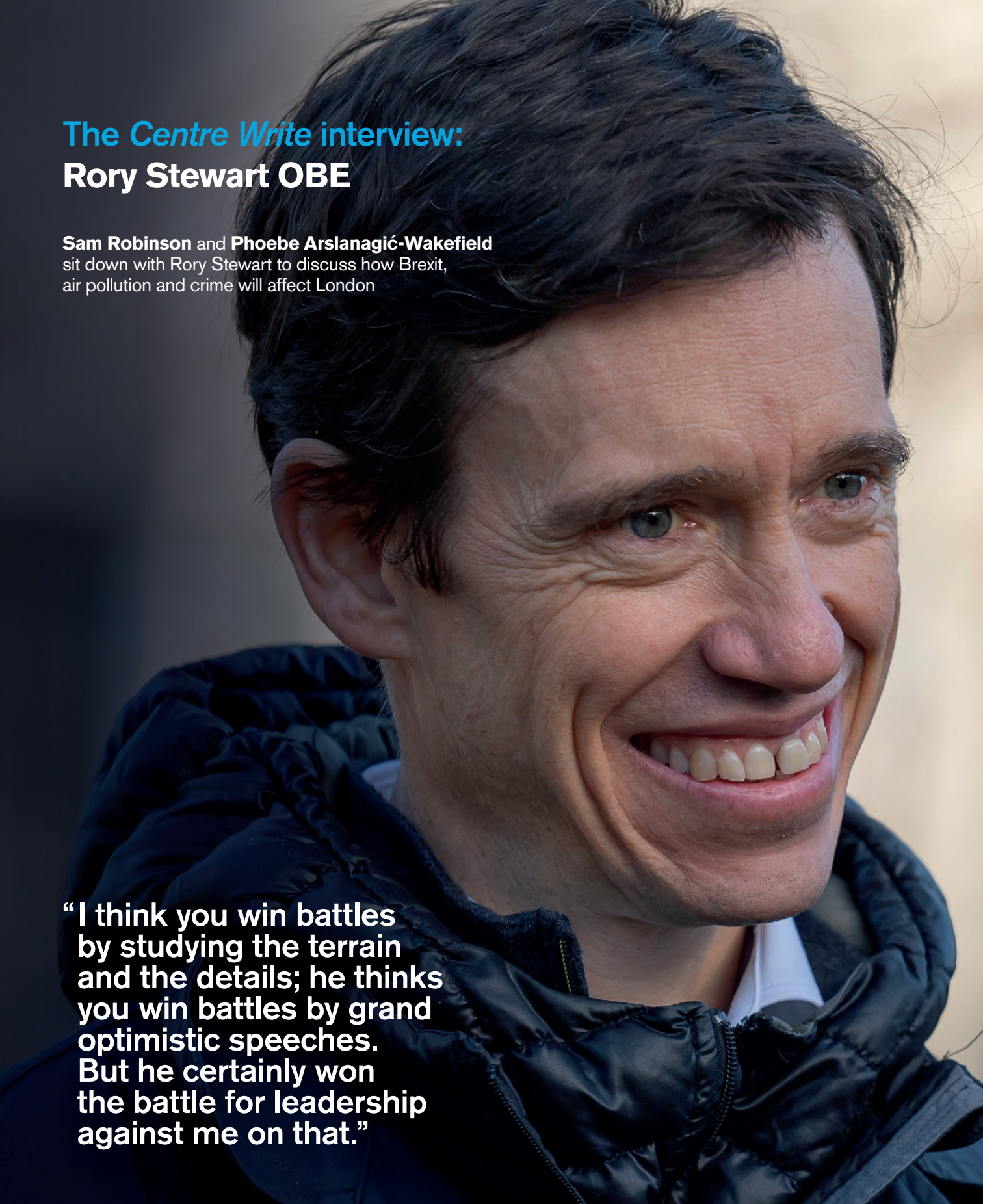
NE The line is at the point where there is both harm and the inability to protect oneself from that harm. If a product harms the user, there's not necessarily a market failure. If you don't like Netflix or YouTube, you can stop watching. Unless you are a child or a pathological addict, moderating one's behaviour takes effort but is possible.

PA Can tech help us to disseminate complicated political information better throughout the electorate?

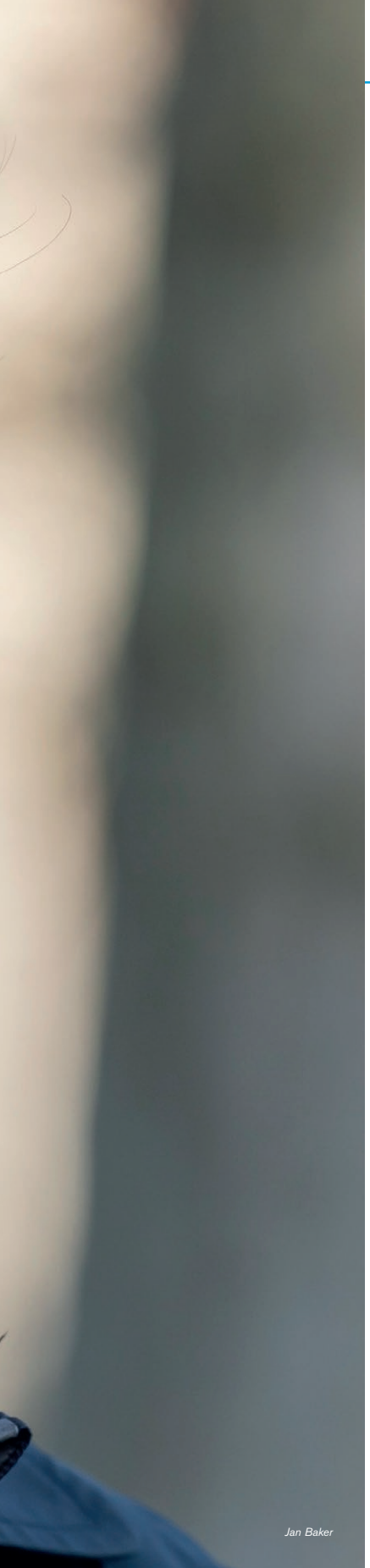
NE Yes, because technology challenges surface level engagement. Someone who grows up in a very conservative, religious community can now have interactions via technology that challenge the ideas that surround them. People get very concerned about Cambridge Analytica, but there is a silver lining. Political adverts can be customised, it used to be one-size-fits-all. With proper disclosure in terms of funding sources, there is nothing necessarily wrong with customising a message to hit with a particular part of the population; it allows politicians to test the popularity of new ideas.

The *Centre Write* interview:
Rory Stewart OBE

Sam Robinson and **Phoebe Arslanagić-Wakefield** sit down with Rory Stewart to discuss how Brexit, air pollution and crime will affect London



"I think you win battles by studying the terrain and the details; he thinks you win battles by grand optimistic speeches. But he certainly won the battle for leadership against me on that."



Jan Baker

A lot of people are saying that politicians should get out of London more, but you've gone the other way – from Cumbria to London. Why is that?

If you're looking for ways of helping people, engaging people, London is the most intense, exciting place – both in terms of the opportunities, but also sadly in terms of the need on poverty and crime.

During my last ten years I've seen shocking things in the north of England. But although it feels unfashionable to say it, I think if you step back and look objectively at where the need and opportunity is in Britain, London is the first. Some communities who I've been spending time with in the last couple of weeks, often young men who are on the edge of gangs, suffer challenges and are involved in social issues more intense than almost anywhere in the country.

> **"The Left will say crime is caused by poverty, while the Right will say the solution is to lock everybody up. Those ways of looking at the world create a sense of helplessness."**

There have been a lot of calls for London to develop into a 'Singapore-on-Thames' post-Brexit. Do you think this is feasible or even desirable?

It's neither feasible nor desirable. I lived in Kuala Lumpur, in Jakarta, in Hong Kong, Singapore and Dubai. The more time you spend in these cities the clearer it is that it has absolutely nothing to do with London.

The scale of London is immeasurably larger. London has a great strength, but also a challenge in its age. This tube station behind you is over 150 years old. We are a far more diverse society than the society in Singapore. But most importantly, we are the capital of the United Kingdom. The capital of a place with 70 million people in it, with the responsibilities that brings.

So if by Singapore-on-Thames you mean energy, entrepreneurialism, a sense of excellence – absolutely. But I wouldn't want to live in Singapore. I love this city, I love all the things that make it much more complicated. And perhaps in the long run, these things may give it strengths that cities like Singapore may not have. There's a deep resilience in the time depth of a two thousand-year old city.

More than a third of Europe's fastest-growing tech companies are based in Britain, predominantly in London. Does Brexit endanger London's position as a leading tech hub, and how would you protect this culture?

Brexit needs to be approached with the utmost practicality. We went too far in thinking about Brexit in terms of grand values, and not enough in terms of details. I blew up my political career on this issue. I found myself trying to make pragmatic proposals for a soft Brexit, when everybody else was making values-based arguments. Arguments for freedom on one side, for

>> diversity and international co-operation on the other. I'm saddened that even now, people try to frame it purely in terms of values rather than sweating the details.

Practically speaking, there are four overwhelming issues that we need to look at. The first is the immigration system. London, more than anywhere, is incredibly reliant on European Union citizens. In the tech sector, this is very extreme. An astonishing number of people in the tech industry are experts from European cities. Secondly, getting the financial services relationship with Europe right will be vital for investment in these services. Thirdly, the broader story of London services connected to UK manufacturing is going to be crucial. Finally, you can struggle as an economist to put a number on the question of confidence, but in the end a huge amount of what happens in any economy is simply to do with people's sense of "do I think this is the place for my future? If we get that right, fantastic. If we get that wrong, people will begin to make small marginal calculations: 'maybe I will move back to Paris'; 'maybe I will set up my business somewhere in Germany'."

You're a politician who's used social media to tremendous effect; we all recognise #RoryWalks. Do you think that social media is a force for good in politics?

I think social media is a dangerous force. I'm trying to use this machine to make moderate arguments and to prove that it can be used to go beyond the three-word slogan. But it's not easy. Social media was not set up as a political tool; it was set up as a lifestyle tool. And that means that politics is drawn in a very strange direction. Twitter, yes you can try – but only in a very few characters – to make a policy argument. By the time you're onto Instagram, you're really trying to compete for Instagram followers. The people who dominate that medium do so through imagery and stories which are not well-suited to talking about how to fix the signalling on the Piccadilly line or restructure neighbourhood policing in London. It makes politics ever more broad-brush, generic, emotive. It's the final development of the removal of the word 'how' from politics; everything is about the 'what'.

In 2009, you famously set off on a 260-mile walk around your Penrith constituency, and last year you began walking through all of London's boroughs and said you would continue to do so if you became Mayor. What is it that you've gained from all these walks?

Democracy is about finding ways of representing people and speaking for them. But the business of government often puts pressure on politicians to sit behind desks, and it's extraordinary how quickly the human mind loses touch with the ground reality and people. It's particularly true with think tanks; you can very quickly start producing abstract jargon.

If I think back to when I was in Brixton, talking to a man in the market, I realised that he cares about quite straightforward things. He wants to know that you are trying to make the area better and in particular promote opportunities for people. He wants to know he can trust you to actually deliver. If you can learn to really listen, and allow these conversations to challenge you, and take the time to really think, "Is he right to trust me? What is this person saying that I wasn't expecting?", it's incredibly powerful.

A vision for the city as Mayor needs to be rooted in real streets, real places. That's why I resist the idea of a 'Singapore-on-Thames'. London is puddles on pavements, a tree that's been vandalised, a woman who's a cleaner walking to work, big shiny cars charging past, shops opening and closing. If you don't get that, you're not working with your city.

Bright Blue research has shown that the UK region with the highest level of concern about the impact of air pollution is London. How could technology be used to improve air quality in London?

Clearly, vehicles are a major component in this, in particular older diesel vehicles. The ULEZ is a very smart move, but it's not enough. There is a lot of pollution coming out of construction machinery and domestic boilers which isn't being properly addressed and constitutes as much of a quarter of air pollution in London. We're not planting enough trees and green walls to absorb pollution. The Mayor has "not tackled the very difficult issue of air pollution on the Underground". If you spend a lot of time on the tube, it's the equivalent of smoking two or three cigarettes. It's not good for you. That's very important, because we want people on the tube – it's part of the way you get people out of polluting vehicles. But to be a really great city, we need to make sure we make that experience as clean as it can be.

You've said that you would resign as Mayor if you failed to lower knife crime. What would be your distinctive approach to tackling violent crime in London?

It would be an approach which began from my experience as Prisons Minister, which taught me that traditional approaches from Left and Right don't work. The Left will say crime is caused by poverty, while the Right will say the solution is to lock everybody up. Those ways of looking at the world create a sense of helplessness – they're not good guides for how you work with a police force or a society to reduce crime.

>> It's most straightforward with the idea that it's all a result of poverty. Although there's a lot of truth in that, the danger is that it makes you feel like there's nothing you could do in 20 years because you'd have to address all the root causes of poverty. But the truth is there are many things you could do to reduce violence in one or two years. On the Right, they imagine that you can jail your way out of the problem. But you can't practically do that, and generally what happens is that people who are in prison come out again and if you haven't dealt with what led them to offend in the first place, they reoffend and that endangers the public even more.

"A vision for the city as Mayor needs to be rooted in real streets, real places. That's why I resist the idea of a 'Singapore-on-Thames'. London is puddles on pavements, a tree that's been vandalised, a woman who's a cleaner walking to work, big shiny cars charging past, shops opening and closing. If you don't get that, you're not working with your city."

A good approach to knife crime has to get the right balance between the long and the short term. In the short term, a good approach begins with neighbourhood community policing. It allows you to have information about individuals in a particular community, and identify who is at most risk. It provides the foundation for linking up to other services, to youth workers, health workers, schools. And what isn't happening in London is that we haven't developed the structures to enable a proper policing public health approach to work. What we have is a lot of strategy papers, but what you haven't got is a focus on getting the basic building blocks right. In the end there is no theoretical answer. It is all about energy, grit and delivery, and from my point of view doing in London some of what I did on violence in prisons– which is about a sense of urgency, grip, and detail.

In the modern world, this means not just collecting data but analysing that data, which allows you to identify where the hotspots are and put your resources into that hotspot. In London, we collect a lot of data but we don't have the resources to analyse it properly and link these bits of data together.

Both you and Boris are seen as clever, outspoken, eccentric Etonians. How are you different to Boris?

I felt when I worked with him in the Foreign Office the difference between us, and at times this made quite a good combination. He was good at sunny optimism, I'm much better at sweating the details. But I'm suspicious of rhetoric. I'm all about trying to get to reality. Perhaps the clearest illustration of difference between us was in terms of diplomatic telegrams. I told all the ambassadors that I didn't want to receive any more telegrams from Africa which were saying "another win for Global Britain". He called me in and said "stop telling them to do that". I was saying be as realistic as you can – where our weaknesses are, tell me what the Chinese are doing, what the Americans are doing. He said, "no Rory, this is like captaining a rugby team. You have to just tell people they're great". My answer to that is that this isn't like a rugby match. This is a great institution of government that's lasted for hundreds of years. It's a personality difference. I think you win battles by studying the terrain and the details; he thinks you win battles by grand optimistic speeches. But he certainly won the battle for leadership against me on that.

Boris has managed to get the Withdrawal Agreement through Parliament and win a substantial majority in the general election. Has your opinion on Boris changed in the last few months?

What he did was in his own terms remarkable. That was an unexpected victory, he ran a campaign which in substance was very similar to what Theresa May was trying to do and got a completely different result. A huge amount of that must be down to the appeal of his personality. I think the challenge now for a Conservative or a Labour candidate in London is that these parties have produced manifestos that have turned against London. If you read the Conservative manifesto, it mentions closed train stations in the north of England, but there's no mention of Crossrail 2. The other candidates will have to go into this election tied to manifestos, leaders and policies which are all about prioritising northern England. The reason I'm proud to be running as an Independent is that I can speak for London; I don't need to buy into all of that stuff.

Detoxifying public life

Catherine Anderson
is CEO of the Jo Cox Foundation

Catherine Anderson reflects on the rise of online abuse and its impacts on our politics

In this period of exponential digital evolution we are living through, we are both the architects and beneficiaries of progress. Technology has undeniably, if not universally, benefitted the world: overall we are better educated, healthier, live longer, have unprecedented access to knowledge, travel further, and feel more connected.

> **"If the public space becomes so toxic that it not only deters whole future pipelines of public servants, but turns voters off politics even more, we are looking at a political culture that lacks vibrancy, diversity and innovation."**

Yet with progress comes pain, for we are also victims of technology. While we reap the rewards, we suffer increasingly in a complex ecosystem of online harms, mass data abuses, and the dissemination of misinformation. Legislation has failed to keep up with these impacts – impacts that, at their most negative, have the potential to damage individuals, organisations, and entire societies and social structures beyond current recognition.

Sir Tim Berners-Lee, in his 2019 Dimbleby Lecture, spoke of what we all know to be the "ghastly" nature of content available online, and confirmed what many of us now acknowledge: that artificial intelligence is no match for our peculiarly human ability to harm each other in the most toxic ways.

The end of the last decade was marred by increasing levels of abuse and intimidation against people in public life in the UK. It has become clear that online harms affect not just individuals, but our national security, our shared rights and responsibilities, opportunities to foster integration, and access to political participation. Yet it is the cumulative impact of these factors on our democracy that is the most disturbing of all.

Much recent research by various academic bodies and organisations shows that the abuse of public figures, particularly politicians, is increasing. The majority of this abuse occurs online. The University of Sheffield, for example, analysed more than one million tweets between elections in 2015 and 2017 and found that the number of abusive tweets about politicians more than doubled. The Committee on Standards in Public Life's *Intimidation in Public Life* review remains one of the most compelling documents, compiling the results of eleven quantitative submissions and the anecdotal evidence of dozens of MPs. Maria Caulfield MP is quoted in the review: "I now have video entry to my constituency office. I have panic alarms. I only post on social media after I have attended events. I no longer hold open surgeries."

Abuse is no longer confined to electoral periods. MPs have warned for years that the levels of abuse they were receiving were out of control, with female MPs disproportionately targeted. Perhaps most illustrative of the trend was the number of MPs – particularly female MPs – who cited abuse and intimidation as a direct factor in their decision not to stand again in the December 2019 election. Fear of abuse is changing the way we, especially women, campaign. Female activists now openly speak of operating in an environment where they legitimately fear for their physical safety.

Just as we can no longer consider the cumulative impact of individual cases of abuse and intimidation in isolation, so too must we stop suggesting that the online space is a self-contained landscape. The online space is the public space. It is the space in which we work, learn, play, interact and, increasingly, govern. If the public space becomes so toxic that it not only deters whole future pipelines of public servants, but turns voters off politics even more, we are looking at a political culture that lacks vibrancy, diversity and innovation. We will all suffer as a result.

Correlation does not imply causation, but the links between online and offline harms cannot be denied. The sheer volume of abuse online, and the increasingly normalised language and tone, has legitimised violent behaviour in real life, with potentially calamitous effects. We know this only too well through the tragedy of the murder of Jo Cox MP and the recent prevention of the plot to kill Rosie Cooper MP. Stoking grievances and prejudice through inflammatory language perpetuates a wider atmosphere of fear and intimidation.

The long-term impacts on our politics will continue to play out. But we can, and must, intervene now. Across Whitehall, within the machinery of Westminster, and among the institutions and layers of national and local government, there is a

>> contagious desire to tackle this issue. In July 2019 Government announced the Cabinet Office-led *Defending Democracy* programme of work, designed to protect and secure democratic processes; strengthen election integrity; encourage respect for free, fair and safe democratic participation; and promote fact-based and open discourse, including online. Government also committed in 2019 to publishing a consultation on electoral integrity, including looking at measures to improve voters' confidence in our democracy. The publication of the *Online Harms White Paper* in April 2019 was a major milestone in the road to a regulatory framework online. Legislative change around electoral law is improving the safety of candidates.

However, it will only be through a collaborative and concerted multi-sector effort that we can stem the tide of abuse and intimidation, and strengthen the future of our precious democracy.

> **"The sheer volume of abuse online, and the increasingly normalised language and tone, has legitimised violent behaviour in real life"**

As Cabinet Office Minister Oliver Dowden said in a written statement in November 2019, "Left unchecked, abuse and intimidation will change our democracy and mean that the way Members interact with constituents will need to change. Increasing levels of threats directed at those in public life is a worrying trend that will require a coordinated and thorough response from government, the relevant authorities, businesses and the public themselves."

Government is stepping up; the private sector, and civil society, must too. One vital step will be behaviour change, and the empowering of active bystanders. Society must be enabled to call out abusive behaviour wherever and whenever we find it – and to understand the clearly detrimental impacts. Westminster must lead by example, but holistic societal change will be required to shift perceptions around behaviours that have become common in a frighteningly short timeframe. For that, government, social media companies, and each and every one of us has a duty to act. The wholesale rejection of an abusive culture in our public life must be our end goal. Only when this happens can our democracy flourish again.

Our thoughts are not our own

Jim Morrison is founder of OneSub and owner of Deep Blue Sky

Social media doesn't only change your vote by controlling what you know. It controls who you know as well, notes **Jim Morrison**

Most of us live our lives in cultural and political echo chambers. It's nothing new and it's completely natural. But over the past 15 years something has changed. As more research delves into the effects of social media on political behaviour, it is increasingly apparent that these changes are a much more subtle and pernicious risk to democracy than even the Cambridge Analytica episode suggests.

Neil Kinnock's defeat in 1992 exemplified the power our media once wielded to disseminate policy and persuade the electorate. It may have been the Sun "wot won it" back then but make no mistake, that time has passed. Parties' policies and the media's role in advocating them are no longer the driving force behind our elections. The data-scientists have inherited the earth.

If our social environment has always played a major role in determining our vote what is really different today? We've always lived with a partisan media and it's natural to surround ourselves with people who believe what we believe. Surely nothing has fundamentally changed.

The real difference is that digital social networks are unlike anything society has seen in the past. They are different in architecture, they are incredibly fluid and they are routinely manipulated by outside forces.

> **"The outcome of the 2024 election is already in the hands of the geeks who play the platforms' algorithms."**

Today, the average Briton spends over two hours a day on their smartphone, much of that using social media. Within that social media they will have, on average, over 150 social connections. So in order to maximise your engagement, the social media platforms shape which of your connections you see and interact with,

>> creating an artificial perception of what is happening around you.

Today, around 80% of our electorate is spending over two hours per day in an artificial environment, constantly reshaped by an artificial intelligence specifically designed to maintain our engagement. This carries three significant risks: it shapes our cultural and political perception; it is being competitively manipulated by marketeers, digital socialites and others; and it can be used, more directly, to influence your vote.

In 2019 scientists at Houston, MIT, UPenn and Oxford, led by Alexander J Stewart, began looking into the patterns of behavioural change that could be achieved by manipulating subjects' social networks. Alarmingly, their discovery shows that votes can be manipulated without the need to change people's cultural or political perception. They call this technique 'information gerrymandering'.

It turns out that knowing how others around you will vote is a key influence over your own vote – irrespective of your personal beliefs.

Having a sense of how your friends and colleagues are likely to vote is nothing new. But the tests showed that over 10% of the vote could be skewed simply by changing the shape of a subject's network of friends to artificially inflate the number of friends voting for the other side. It suggests that the more we are surrounded by people of a particular persuasion, the more easily we are able to rationalise changing our own vote.

In the context of social networks like Facebook and Twitter it is important to understand that the process of manipulating your network is intentionally left wide open to outside influence. The algorithms that define each individual's echo chamber are designed to crave that individual's attention, and work towards monopolising it. By producing apolitical, entertaining and shareable content, I can train the algorithms to show my own content, gerrymandering the information you see.

What Stewart et al. shows is that when the time is right, there doesn't need to be a contextual shift in politics in order to swing your vote – you can be swung simply by how others in your field of view intend to vote.

It has been 15 years since the now familiar 'personal timelines' of Twitter and Facebook came to our screens. In that time legislation has moved forward across Europe to begin to protect our personal privacy in the form of GDPR, PECR and forthcoming ePrivacy rules. However, nothing has been done to regulate the degree to which our perception of the world around us is being artificially manipulated by social platforms with their own commercial agendas.

From an engineering standpoint, where legislation has been introduced it has often failed to curb the dark practices of technology companies.

> **"Votes can be manipulated without the need to change people's cultural or political perception."**

In the case of something as simple as third-party cookie tracking we have simply shifted responsibility to the consumer who typically has neither the skill, understanding nor patience to protect themselves. To access, for instance, Delia's marmalade recipe you will be asked to accept tracking from 513 separate companies.

Refusing consent is always harder

>> than agreeing to it. We are all asked so incessantly that in this game of attrition most people simply give in. Ultimately the consent is meaningless. In 2024 this country will go back to the polls. But our vote is arguably no longer determined by the state of the economy, by party political messages or by our personal beliefs. The outcome of the 2024 election is already in the hands of the geeks who play the platforms' algorithms to shape our social circles.

Until we regulate the artificial construction of social echo chambers nothing will change. And for as long as the shape of my echo chamber can be manipulated, what you say and how you say it has no impact on my vote. Until then, all of your policies are just fake news.

Rethinking media regulation

Damian Collins MP was Chair of the Digital, Culture, Media and Sport Committee

Damian Collins MP calls for a fundamental overhaul of the way we regulate social media

The most popular media for some of the most vulnerable people in society, our children, is the least regulated. For most social media accounts, you are required to be 13 to register to use the service, however there are no effective age verification tools when someone creates an account on Facebook, Instagram and Snapchat. They rely entirely on self-certification, which means it is as easy for a ten year old girl to pretend she is 18 as it is for a 50 year old man to claim he is 15. Whilst there exists a 'YouTube kids' service, according to the media regulator Ofcom, for children over the age of five, the main YouTube platform is their favourite video streaming service. Young adults aged between 18 and 34 watch more YouTube on average each day than they do all of the traditional free to air broadcast channels combined, and even for all adults YouTube is the third most popular service, only sitting behind BBC 1 and ITV 1.

Over the years we have developed codes of practice for broadcasters to ensure good standards are met and introduced the 9pm watershed to try and keep younger audiences away from harmful content. For most people today, these rules are about as relevant as the Corn Laws. Yet why should we accept that even though media habits are changing, our oversight and regulation of the content that people consume everyday should stay the same? This has led to a world where a small community radio station with a few thousand listeners requires a license from the media regulator Ofcom, but a social media channel with millions of individual subscribers does not.

> **"Freedom of speech is not the same as freedom of reach. People have the right to express their opinions, but I don't believe that means they have the same unchecked right to use the tools of social media to proactively broadcast those views to millions of people."**

That's why I want us to act now to make the big tech companies more responsible, in law, for the content that is served to users on their platform. They should have a legal duty of care overseen by a regulator that has the power to investigate and act against those companies when things go wrong.

In response to our Digital, Culture, Media and Sport Select Committee inquiry on disinformation and fake news, the Government published an Online Harms White Paper last April and has released its response to the subsequent public consultation. In our Conservative manifesto, the Prime Minister Boris Johnson committed to "make the UK the safest place in the world to be online", protecting children and the most vulnerable in our society from abuse, whilst also going after terrorist content. We will always need to balance the need for regulation with the imperative of freedom of speech, which is a pillar of our democracy. But freedom of speech is not the same as freedom of reach. People have the right to express their opinions, but I don't believe that means they have the same unchecked right to use the tools of social media to proactively broadcast those views to millions of people, multiple times a day at the click of a button.

Boris Johnson rightly says that we can make the UK the safest place in the world to be on the internet. Sensible principles striking the balance between protection of users and freedom of speech, determined and overseen by an independent regulator such as Ofcom, could allow us to do just that.

Is social media bad for democracy?

Alex Krasodomski-Jones and **Phoebe Arslanagić-Wakefield** debate

Alex Krasodomski-Jones is Director of the Centre for the Analysis of Social Media at Demos

Phoebe Arslanagić-Wakefield is a Researcher at Bright Blue and Editor of *Centre Write*

Dear Phoebe,

The medium is the metaphor, not the message. Social media is a democratic aberration, an Upside Down clinging to liberal democratic societies. At its most dangerous, Big Tech presents its facsimiles as new, viable alternatives: the new 'living room', the new 'public square', a new 'media'. But its homunculi are hollow and rotten, and the precedents they set for public life are authoritarian parodies built to grow fat on advertising dollars. The ruthless impulses of Silicon Valley and Chinese ambition that are the driving forces behind the development of the web as we know it are not the friends of liberal democracy.

Take the way these spaces are policed.

Every word, photo and video you upload is picked over by dozens of inscrutable algorithms that determine who should see you, or if anyone should see you at all. Are you, dear citizen, algorithmically optimised?

Worse still are the legions of stool pigeons: that's you and me. Big Tech hopes that if they are unable or unwilling to shape our public forums, we might step up and police these spaces for them. But as users we have no power to shape these spaces and no incentive to consider it. All we have is the Holy Trinity: report, mute and block – which is to say, cover our eyes or report what we see to 'the authorities', the so-called 'temps, vendors and contractors' – halogen-lit warehouse workers in Bangalore or the Philippines who hold the final say over your participation in this or that online community without any kind of scrutiny.

If historical precedent is anything to go by, informer societies undermine any kind of democratic solidarity. I feel sure that solidarity is not a common feature of social media platforms.

Were this ruthless authoritarianism effective, I might feel some sympathy. Who needs democracy when you can have a white-washed digital Singapore, where the streets are clean and nobody chews gum? Liberal democracies are a mess of interwoven accountabilities, communities, laws, rights and expectations – it's both their greatest strength and their most crippling weakness. But we don't want this online. We want good, sterile ruthlessness.

It would be laughable if it wasn't so sad: monopolise the digital commons, monetise invective and attention-grabbing bullshit, disempower your users, cloak them in factless smog, then pit them against one another, begging them to report each other to some nameless, semi-automated authority. This is democratic anathema: layers and layers of unknowable authoritarianism painted in A/B-tested blue. It should be one of the greatest policy disappointments of our time that our politicians fight over who should control the levers of this authoritarianism, rather than questioning its principles entirely.

Best, Alex

Dear Alex,

Your article is a compelling attack on the business model of social media companies, from the algorithms they use to the way they police their spaces. However, less clear is how the structures and processes you identify negatively impact democracy.

You claim that social media spaces are created to function as 'informer societies', forcing users to police one another. Whether or not that is the case, you do not demonstrate that wider society has thus been turned into a dystopian 'informer-state' as a result. It is far from clear based on the evidence you provide that social media is the enemy of democracy, or a threat to it at all.

Indeed, the very opposite has been shown to be the case. In Hong Kong, social media is a vital tool of pro-democracy activists, who pit themselves against an authoritarian state. In June 2019, when the most recent bout of pro-democracy protests broke out, the authorities had already imprisoned the city's most well-known democracy activist. But social media enabled a decentralised, formless protest movement that did not need ringleaders who would inevitably be targeted by the state. Eight months later, the protestors continue to challenge the authorities, and that challenge is organised and sustained through social media.

Not only has social media proved a powerful weapon in mobilising democracy's allies the world over, but its power as an instrument of accountability is also apparent. #MeToo first went viral on Twitter in 2017. Over 20 million tweets later, the movement has held powerful people, including politicians, to account. #MeToo would never have had the global effect it has, and continues to have, without social media. Social media gives citizens the power to hold politicians publicly to account – it gives all citizens a voice in the 'town square'.

>> It is not right to describe social media users as disempowered. Far from it, consumers are empowered by social media to participate in democratic society in ways that were not possible before.

Best, Phoebe

Dear Phoebe,

I am surprised you cannot see the connection between the form and function of communications and the politics that results.

Pro-democracy movements empowered by social media are bugs, not features; they tend to be short-lived and easily crushed. The honeymoon period, where social media were seen as the vanguard of liberal democratic change in the Middle East and elsewhere, is over. The Arab Spring failed.

These movements, packed with brave, digitally-savvy activists often risking their lives in the pursuit of democracy do – occasionally – catch a regime by surprise. These movements tend to get crushed. Their shelf life is extended in spite of digital machinery, not because of it. The sight of Hong Kong protestors tearing down facial recognition cameras and Wi-Fi tracking masts should be proof enough.

We must not be duped into repackaging the impossible efforts of pro-democracy activists as functions of social media platforms. It does them a massive disservice: it is the willingness of young people to fight and choke and die in the pursuit of democracy that keeps these movements alive.

Sometimes, as I say, a government might be caught unawares. But normal service will soon be resumed. Normality is thousands of government-paid operatives in Saudi Arabia, Russia and China tasked with spreading pro-government messaging on platforms. It is Rodrigo Duterte's 'patriotic trolling' of opposition and journalists. It is Brad Parscale's Trump 2020 campaign, a multi-million dollar exercise in weaponising the world's biggest social network. It is Jair Bolsonaro's WhatsApp 'Bolsominions', the human infrastructure through which disinformation thrives in Brazil. It is micro-profiling. It is facial recognition databases. It's the millions of Uyghurs in internment in China, Rohingyas dead in Myanmar, Kashmiris denied internet access, or activists around the world for whom a false step online leads to a knock on the door in the night.

Hashtags like #MeToo or #NotInMyName signal cultural shifts that are hard-won and long overdue. We should celebrate and learn from them. But I'm not sure we have any laurels to rest on. Ask any female, minority politician or journalist what their experience of social media is like and I imagine you'll get similar answers. Social media in its current form remains a hostile environment to many, a pay-to-play environment that favours those with the resources to exploit it. When we parrot lines about 'digital town squares' we are being played by those looking to remodel our communications environment for power and profit. Participation and accountability are illusory. These online 'public spaces' are not the friends of democracy.

Best, Alex

Dear Alex,

By blaming social media for the world's ills, you give it too much credit. You point to facial recognition, micro-profiling, and other practices of repressive regimes. But repressive practices do not exist because of social media. The knock on the door feared by activists the world over is the same that sounded for die Weiße Rose in 1943, decades before social media. I do not argue, though you say I do, that pro-democracy movements are a function of social media. Rather, they are a tool of such movements. The repressive and genocidal Government of Myanmar would be so with or without social media. Otherwise, where does your argument end? One may as well posit that the telephone is a tool of repressive regimes.

Social media can be a weapon in the arsenal of repressive regimes. But it is also a weapon of freedom fighters. It is largely because of social media that Alexei Navalny has emerged as a serious challenger to Putin in Russia. Even in China, hashtags critical of the Communist Party's handling of the Coronavirus outbreak have swiftly gained traction and reached many before censors could stymie them. Social media has allowed voices counter to the Government narrative to break through. It may not have made these states democratic. But it has brought them closer to democracy.

I agree that the social media environment remains hostile to many. Accountability for our most popular fora has often been elusive. But things are changing. In 2018, Mark Zuckerberg testified before the US Congress – on the right to privacy, Cambridge Analytica and data sharing – in a gruelling five hour hearing. Forced to justify himself before elected lawmakers, Zuckerberg's testimony signalled a new era of social media. An era of accountability.

Facebook has lost 15 million users in the US alone in the past two years. Users are asking difficult questions of the companies whose platforms they populate and are voting with their feet. We are learning that there is a hidden price to our use of sites like Twitter, Facebook and Instagram. With this knowledge, we gain a new appetite for accountability and regulation.

This is not to say we should rest on our laurels. Social media must be tamed through the democratic process. That means careful consultation, followed by careful regulation. That means accountability and transparency. Yes, social media has its dangers, but ultimately it is a positive tool for democracy and has great potential. Its problems are being addressed. Social media will be dragged kicking and screaming into the era of accountability, but dragged it will be.

Best, Phoebe

Digital borders?

Will Somerville asks whether technological solutions can improve the UK's migration system

Will Somerville is UK Senior Fellow at the Migration Policy Institute and a Visiting Professor at the University of Sheffield

The UK's exit from the European Union has fired the starting gun on new immigration system reform. But very little consideration has been given to what will be major reforms, and virtually none to the large-scale plans for technological change that underpin Government plans which range from online-only systems with automated decisions to predictive analysis to assess security risks.

The foundation stone of the modern immigration system is the 1971 Immigration Act. Many pieces of legislation have been passed since, but the Act established – uniquely among other developed countries – substantial powers for ministers and Home Office officials to decide who can enter and settle in the UK. Most changes to entry and exit can be made through the 'Immigration Rules' under secondary legislation and the last time Parliament prevented secondary legislation becoming law was in 1979. The Home Office thus combines delivering on a huge volume of casework with making and enforcing the rules on which decisions are based.

The Home Office faces a major challenge in the years ahead. We can expect around 330 million people to enter the UK in 2020, from over 270 recognised crossing points (mostly as tourists or in transit). The Home Office will make a decision related to a visa on around 17 million applications. We can also expect around 600,000 people to enter with the intention of remaining and settling. A small minority of that estimated 600,000 will be vulnerable people who arrive spontaneously, seeking humanitarian protection.

The challenge is growing, and Brexit is about to make the Home Office's job even harder. Most modelling suggests the number of border entries is likely to rise. Crucially, European nationals will no longer be exempted from controls (unless migration becomes part of a Brexit trade deal). Given that around half of the inflow to the UK comes from Europe, visa applications will more than double. Meanwhile, European nationals here in the UK must be registered to retain their current rights through the 'Settled Status' scheme -another huge challenge as it involves an estimated 3.6 million people. In short, Brexit will bring about the largest structural changes in the migration system in decades.

The Government's focus on using technology to meet these challenges is essential. Rising citizen and business expectations of a user-friendly service, the reduction of cost associated with each application, and the ability to use data to reduce security risks are critical. For example, the new Settled Status scheme for European citizens is premised on data-sharing between the Home Office, HMRC and the Department for Work and Pensions, which allows an automatic determination of residency history without the need for submitting documentation.

Most international comparisons show the UK immigration system works well for business applicants. However, the carving out of high risk groups may lead to government headaches, including increased irregularity, and simpler approaches remain available.

The 2018 White Paper devotes a whole chapter to the application of digital technology to build on such successes. Visa applications will move online and be "user and business friendly" while technology will also be used to "prevent those who would seek to abuse the system".

What does this mean in practice? The system for applying for a visa will move online completely. Underlying this will be a digital architecture that checks against around 20 other systems to avoid abuse and ensure security. Visas will be digital. The decision to award a visa will be fully or partly automated, especially for tourism or short-term business trips, seeking simply to establish identity and check for security risks. Going forward, Europeans seeking longer-term residence for work will require a work permit with biometric details (in place since 2008 for non-Europeans) as well as meeting the criteria for entry (such as having a certain minimum salary).

Technology will also be applied to detecting abuse. This applies in three areas: profiling nationalities to increase or decrease restrictions for those who seek to come to the UK by predicting whether there is a security or other risk such as overstaying a visa; at the physical border crossing point; and management of those already in the UK, such as creating user-friendly systems for both individuals and

>> employers/services providers to check whether someone can legally work or access a service.

Some context is useful as 2020 is not year zero for applying digital solutions to immigration. Machine-readable passports were developed in the 1980s; legal powers to share data between departments were established in the mid 2000s under Labour; e-borders and its successor programmes have been in place since 2003 and have aimed to ensure information on who was coming to the UK and for what purpose was made in advance rather than on arrival.

However, the level of automation in decision-making and the targeting via data of abuse represents a step change in the application of technology in recent years. The vision of the e-borders programme set out in 2003 is close to realisation after an investment of more than £1 billion. The Settled Status scheme, a heavily automated app-based system, shows that new systems can be implemented at speed and scale; officials see it as a prototype for the future system. Other countries are developing at a similar rate and innovating in different areas, from chatbots in Finland, to blockchain in Germany for sensitive refugee data, to Canada's digital system. The pace of policy change is fast, and likely irreversible.

There are two areas of concern. First, can digital solutions be successfully implemented? In the past, a lack of capacity, shifts in policy goals and aspirations exceeding technological solutions have all caused problems.

Second, and by far the biggest concern for civil society, is whether automation and digital solutions will lead to discrimination, bias and/or punitive treatment of vulnerable individuals through the creation of 'high risk' categories.

The Home Office has an appalling record of digital implementation failures. These include the failure in 1996 of digital case management recording, the 1999 Passport Office failure, the failure of casework integration in 1999-2000, and frequent failures in the e-borders programme (2003-2015, especially 2007-2010). The National Audit Office continue to worry about reliance on a complex web of legacy IT systems, and most independent audits have pointed to capacity failures in the Home Office.

But it is not just capacity. Policy goals change, with the original technology solution no longer being fit for purpose. If we consider Brexit, 26 of the 57 border systems relied on by HMRC are due to be amended. Similarly, it remains unclear whether the UK will remain part of the systems in the EU on which the UK currently participates–for example EURODAC (related to claims for refugee status). Another example is that no one in Government has considered how the Settled Status scheme should link to citizenship and naturalisation. Aspirations may also exceed solutions. E-borders remains the best example–the aim was to ensure identity information in advance in order to track participants' travel patterns to reduce irregularity. The Home Office predicted 95% coverage of entries by 2010, and by 2015 had reached just 86%.

The second concern lies in how technological solutions are applied to vulnerable groups. The Windrush scandal is not erroneous but systemic in how the Home Office operates. The (mis)application of technology was the accelerant–the Home Office denied British citizens services and even deported some citizens after data sharing protocols threw up questions of residency–but of course the Home Office was responsible for not keeping records that would have resolved the problem.

The Home Office is making decisions that preference certain individuals over others, including Europeans. Placing certain groups as high risk in the customer journey may lead not only to additional scrutiny but also to bias, privacy concerns and even punitive sanctions. This is a live risk. The Settled Status scheme may contain similar seeds for a future Windrush scandal. Critics point out how the scheme impacts certain groups. There is no chance for full coverage within the Government's deadline and automation may lead to many European nationals prevented from accessing services and questioning their residence in years to come. Only strategic litigation (not Home Office openness) has revealed some of the criteria behind algorithmic decision-making.

> **"The Home Office has an appalling record of digital implementation failures."**

We know some of the answers to these questions. Improving implementation comes from seeking value-for-money assessments and ensuring capacity continues to be taken in-house. Addressing the risks for vulnerable individuals must start with publishing a transparent account of how the data is used and for what purpose. However, the thread that connects the two main areas of concern lies in the original sin of the 1971 Act: a lack of accountability and scrutiny for the Home Office. If fundamental immigration questions will increasingly be decided by bureaucratic decisions and the algorithms developed on such frameworks, there will need to be strong accountability mechanisms and understanding of how digital systems work. The concerns of civil society lie as much in the development of policy decisions than in the technology itself. Scrutiny–via Parliament and proper assessment of the public interest–would provide much of the answer.

Defying the gravity effect?

Technology is no panacea for UK trade policy, argues **David Henig**

David Henig is Director of the UK Trade Policy Project at the European Centre for International Political Economy

Debates on technology and trade in the UK over the last three years have been dominated at micro level by whether technology can render a border invisible, and at macro level as to whether the gravity effects of trade, that countries trade more with neighbours, are in the process of weakening. Brexit may soon be banned as a word in government, but these Brexit related issues will continue to be important in the future, not least in thinking about the barriers we may face in UK-EU trade, and whether any negative trading impact from these can be offset by global trade.

> **"Much trade remains local for the simple reasons of culture and familiarity, the greater knowledge of a market close by because of regular contact, shared tastes, common regulations, or lower costs of sale and maintenance related to travel costs."**

To realistically consider the impact of technology on the UK's trade performance after EU departure we need to understand our current trading position, and the main trends in technology we are considering. In both cases we find a picture more complex than that held by common wisdom, suggesting there are unlikely to be easy answers for the UK.

It is well known that nearly 50% of the UK's exports are in services, where the UK has been described as "frighteningly competitive". The largest single element of this is financial services, but we're good at a diverse range of business and professional services, information technology, education, branding, retail and much besides. That leaves 50% of goods exports, of which only a small percentage is the result of the commonly understood process of producing a good and selling it overseas (Scotch whisky being the classic example). More often, the UK is part of a sophisticated chain of imports and exports making up a final product, with cars and aviation being classic examples of such sectors, and where there may be some embedded services, such as after-sales service contracts and in-car systems. In these sectors much of the international trade occurs within the same company, think perhaps Airbus or Ford.

The technology developments that affect this trade are thus as diverse as the trade itself. Much of the talk in recent years has been around blockchain, a form of shared record trusted by all parties to a transaction, which should be able to assist with customs checks and trade finance among other things. That would suggest a reduction in the cost of global trade and reduction in the gravity effect, but other trends towards greater automation and 3D printing are conversely encouraging manufacturers to locate closer to major markets, and away from low cost locations. Trade in the automotive sector, huge in global trade terms, stands to be radically affected by the change to electric vehicles, with less parts, and probably less complex supply chains.

Services trade is similarly going to be affected by greater automation, which may for example reduce the trade in the provision of call centres (some of whose functions are plausibly replaced by virtual agents) but increase outsourcing in other areas, such as legal services research. This could even move into more complex fields such as advanced manufacturing or surgery, where robots in one country are controlled by skilled staff in another.

> **"Even if the cost of long distance trade is falling, it is not falling by enough to change the fundamentals."**

There is little suggestion from academic literature that the cumulative effect of all of these changes will dramatically alter the gravity effects of trade. Much trade remains local for the simple reasons of culture and familiarity, the greater knowledge of a market close by because of regular contact, shared tastes, common regulations, or lower costs of sale and maintenance related to travel costs. Even if the cost of long distance trade is falling, it is not falling by enough to change the fundamentals.

This doesn't mean that the current pattern of UK trade is the one that will be maintained; that will depend on the choices we have yet to make. Already the UK is an outlier in our services trade, with larger than expected trade with a number of countries including the US and in the Middle East. For the US the huge levels of investment between the two countries may be a particular factor, while for the Middle East the UK's successful defence manufacturing sector is clearly a factor.

>> The likely effect of greater barriers to trade with the EU compared to the current position is a reduction in our place in various manufacturing supply chains such as in automotive, which is not offset by any other trade agreements. Technology could reduce the cost of border barriers, but in a low margin sector these costs could still be a significant deterrent to UK manufacturing. This would increase pressure on the sectors where trade agreements make less of a difference, which includes much of the aforementioned services sector, along with defence and other high margin engineering. This suggests though that we may be better not going down the traditional trade agreement route, but instead creating new bilateral agreements in areas such as FinTech, data, regulations, and the movement of people. This though would not be easy given sensitivities among likely trading partners.

Our trade choices will of course have a strong relationship with those made for the domestic economy. A government seeking to increase manufacturing exports would probably want to create a close relationship with our neighbouring markets, joining up with local innovation and skills efforts. Focusing on services and niche manufacturing would potentially exacerbate divisions between those areas with university and research clusters, and other towns, unless other measures were taken. Trade policy, it should be noted, always involves government picking winners and losers. Technological developments can't affect that, but awareness of them will allow for informed decisions.

Blockchain to the rescue?

Dr Jane Thomason is CEO of Fintech Worldwide

Dr Jane Thomason outlines the potential for blockchain to make international aid both more transparent and more efficient

The international aid industry had an annus horribilis in 2019, with scandals and plummeting public confidence. Human Rights Watch has accused donors of poor transparency around the approximately $177.6 billion given by donors in developing countries. Donors distribute their funds through systems that are costly and cumbersome, utilising multiple intermediaries. Private contractors, the UN and NGOs can reap between ten and 30% in overheads and margins. The UN suggests that there is an additional 30% loss due to fraud and corruption.

DFID has also come under fire with spending through private sector contractors doubling over the past five years, to £1.4 billion in 2016. Their suppliers have been criticised for profiteering, unscrupulous practices and corruption. NGOs are not immune to scandal with the Oxfam scandal in Haiti.

When it comes down to it, international aid programs are about moving money; to contractors; NGOs; UN agencies; suppliers; and beneficiaries. The ultimate goals are about impact for sure, but money needs to move to achieve that. Can blockchains, with their features of transparency, auditability, immutability and security, help? Banks think so – 200 banks and over 40 central banks are testing blockchain technology for financial efficiency, data management and information-sharing.

> **"Blockchain can mean more money more quickly to vulnerable populations that desperately need it."**

With blockchain, donors can use smart contracts to ensure that donor funds reach intended recipients such as healthcare providers without middlemen and leakage along the way. They can track aid delivery by showing the location in the supply chain and ultimate delivery. A smart contract could unlock a delivery payment to a healthcare provider when the provider notes in an existing national health data base or electronic medical record that it has delivered the service, and the patient confirms receipt of the service.

Blockchain-enabled smart contracts reduce reliance on third parties, reducing costs associated with professional services and requirement for trust. The process of validating the ledger ensures network participants can trust the integrity of the transactions. Smart contracts can automatically check delinquency rates and compile monthly surveillance reporting, reducing the associated costs of staffing. Based on evidence from banking, blockchain technology could cut costs by 70% on central financial reporting; 50% on business and central operations; 50% on compliance; and more than 30% across middle and back office costs.

Smart contracts can pledge future cash

>> payments in exchange for reduced interest, or, in the case that debt repayments cannot be managed, make smaller, more frequent repayments against the balance. For example, nations could borrow money for Infrastructure Development Bonds and instead of borrowing the gross amount, the net amount could be borrowed with digitally registered assets and smart contracts used to match expected tax receipts from citizens to construction expenses.

"Blockchain technology provides a digital solution that enables participants to validate transactions without traditional intermediaries."

Save The Children have been investigating a humanitarian passport, the Red Cross piloted Blockchain in early 2018 to test the traceability and transparency of Islamic Social Finance, and the World Food Programme's Building Blocks programme was one of the first of its kind to facilitate cash transfers to refugees on the Blockchain.

Blockchain can also help ensure transparency in supply chains. For example, supply chains can be made more secure by using a blockchain-recorded tag to each product showing its provenance. These tamper-proof tags ensures the traceability of flows and goods by recording all transactions. Safer, more efficient supply chains are important, creating continuous supplies of vital products such as medicine.

Blockchain technology also provides a digital solution that enables participants to validate transactions without traditional intermediaries. Participants rely instead on sophisticated algorithms to create unbreakable codes and consensus rules for a distributed ledger. Costs for this process are low. By some estimates, organizations could see a cost reduction that exceeds 30% of overhead administrative tasks. Donors can reduce verification costs if they can authenticate transactions without a full-blown audit or paying an intermediary to verify transactions.

A *Forbes* article reports that "total corporate and government spending on blockchain should hit $2.9 billion in 2019, an increase of 89% over the previous year, and reach $12.4 billion by 2022." Key enterprise applications already include payments and remittances, supply chain, health care, agriculture, identity, land registry – all domains of international aid programs. If donors get in on the ground floor, they can piggyback on these innovations with little upfront investment and shape technology to add value to their programs. If savings in verification and networking costs came to just 10%, that would mean an additional $15 billion that donors can spend on services–and the figure likely will be far larger. Combined with the increased speed of disbursements, blockchain can mean more money more quickly to vulnerable populations that desperately need it.

Latest report

Global green giant? A policy story
Patrick Hall and William Nicolle

The world is beginning to wake up to the fact that biodiversity is declining. Urgent global attention and action is required now. Climate change, overfishing, changes in land and sea use, and invasive alien species are all contributors to this. In the UK, we are witnessing the decline of species and their habitats.

The UK is a global leader on climate change, but now there is a need and opportunity to do the same for biodiversity – to become a global green giant on conservation. After many months of exploration, of consultation, and of thinking, this policy story provides a comprehensive set of recommendations to be used by the Government to bolster its agenda in making the UK a conservation nation.

Why I'm a Bright Blue MP

David Simmonds CBE MP is the MP for Ruislip, Northwood and Pinner

The Conservative Party needs fresh thinking to reach out to truly win voters' trust, writes **David Simmonds CBE MP**

Like most people in politics, experience has caused me to change my views on many issues over the years. Having never departed from the principle that the Conservative Party must be a party of sound finance, or it is nothing, the question of what this means in practice as we set about preparing politically and administratively for at least a decade of government is on my mind and that of many colleagues.

There are lessons to be learnt from a number of places across the country where local government Conservatives have turned places that demographically speaking are not favourable, into solid Conservative-voting areas. Applying these lessons at a national level gives us some useful insights into how we might show the British people that the Conservative Party needs to become the default option for government. The input of ideas from think tanks like Bright Blue is invaluable in shaping policies that have widespread voter appeal.

> "Voters need to see that politicians are focussed on value for money... local government shows that voters are less concerned with tax rates per se, than about the value they get."

How we define ourselves in parliament – 'One Nation', 'Liberal Conservative', 'Red Tory' and all the rest – means little to most voters and sends a clear message that we are more interested in our own tribe than in voters. Probably the single most important lesson from success in local

government is that the voters need to see that the politicians are on their side. This might sound obvious, but my MP postbag is already full or correspondence from voters who feel that the system of government puts 'other people' first.

> "The input of ideas from think tanks like Bright Blue is invaluable in shaping policies that have widespread voter appeal."

Demonstrating from first principles that politicians are thinking first and foremost about the interests of the people is critical. There is no question that the Brexit debate was often fuelled by a sense that politicians engaging with the EU put others' interests ahead of the British peoples'. Regardless of the rights and wrongs of the Brexit situation, a powerful message has been sent to our party that we must demonstrate that focus on making a positive difference that voters can see and feel around them.

A key part of how we do this comes from how we make spending decisions. Politicians have tended to spend time debating comparative rates of public sector spending as a proportion of GDP, where the UK currently sits between the US and EU. Conservatives are often caught between advocating more spending on specific areas, but less in overall, which as a governing party becomes impossible to square as the Treasury presents its spending plans.

The key lesson from this conundrum is that voters need to see that politicians are focussed on value for money. Again this may sound obvious, but local government shows that voters are less concerned with tax rates per se, than about the value they get. Labour's huge injection of funds into the NHS when in government is a good example – 100% more funding yielding 2% more productivity, so most voters saw no benefit. As a Conservative, I would argue that this was because Labour's priority was pay rises for the unionised part of the NHS workforce, rather than investment in technology and professional services that would have increased the quality of the service for patients. In government we must not fall into this trap when making spending decisions, instead asking the question, how, and by when, will voters see the benefit of this expenditure?

Research update

Phoebe Arslanagić-Wakefield is a Researcher at Bright Blue and Editor of *Centre Write*

Phoebe Arslanagić-Wakefield updates us on Bright Blue's research programme

The UK has finally left the EU and is formally in a transition period until the end of 2020, leaving the UK less than a year to negotiate its new relationship with the EU. Brexit has delayed key policies and legislation, but with resolution in sight, attention must turn back to domestic policy-making. Throughout the final stages of Britain's exit from the EU, Bright Blue has continued to produce influential research.

The world is beginning to wake up to the fact that biodiversity is declining. Urgent global attention and action is required, now. Climate change, overfishing, changes in land and sea use, and invasive alien species all contribute to this dire situation, as in the UK, we witness the decline of species and their habitats.

> **"The end of Brexit's chokehold upon British politics is within sight, making the need for thinking about other issues, from conservation to social security, keener."**

The UK is a global leader on climate change. But now there is both need and opportunity for Britain to step forward and become a global green giant on conservation. After many months of exploration, consultation, and thought, Bright Blue's energy and environment team has released *Global green giant? A policy story*. This report provides a comprehensive set of recommendations pertaining to land management, agriculture, marine, waste, illegal wildlife trade and green global Britain. This can be used by the current Government to bolster its agenda in making the UK a conservation nation.

Bright Blue kicked off 2020 by publishing its polling over 2000 UK adults immediately after the general election. The polling, conducted in partnership with Opinium, provides a snapshot of the immediate public expectations of, priorities for, and perceptions of the new Conservative Government. It shows that the public are still sceptical that Conservative Government will deliver for those on modest incomes. The public are similarly sceptical of high profile Conservative commitments to end rough sleeping and complete fibre broadband rollout.

In January, we released the report, *Framing the future – A new pensions commission*. Conducted in partnership with centre-left think tank the Fabian Society, the report sets out a detailed blueprint for an effective pensions commission, making the case for an independent pensions commission and how it would operate in practice. The report interviews experts including Guy Opperman MP, Lord Adair Turner and Jill Rutter. In the report, based on this expert consultation, Bright Blue and the Fabian Society recommend that ministers establish a one-off review of pensions policy modelled on the Turner Commission, and subsequently develop plans for the commission to become a permanent scrutinising body in the mold of the Office for Budget Responsibility.

In late February, we released *High and dry: preventing tomorrow's 'flood ghettos'*, a new piece of analysis by our associate fellow Helen Jackson which has found that 70,000 English homes in areas prone to flooding are at risk of having no insurance.

> **"The UK is a global leader on climate change. But now there is both need and opportunity for Britain to step forward and become a global green giant on conservation."**

Bright Blue's events programme is also off to a very strong start this year. In January we hosted brilliant psephologist Professor Sir John Curtice, for what was one of our most popular drink tank events ever. We are looking forward to the rest of our sterling events program, with guest speakers including The Rt Hon Jeremy Hunt MP Nimco Ali OBE and Professor David Nutt.

Looking ahead, Bright Blue Scotland will soon publish groundbreaking and original polling and analysis on attitudes to social security and social security reform in Scotland, which will inform future policies north of the border.

The end of Brexit's chokehold upon British politics is within sight, making the need for thinking about other issues, from conservation to social security, keener. Bright Blue will continue to contribute high-quality research and innovative and evidence-based policy recommendations to the political world.

ARTS & BOOKS

The AI Economy: Work, Wealth and Welfare in the Robot Age
by Roger Bootle

Diane Banks is a Non-executive Director of Bright Blue and CEO of Northbank Talent Management

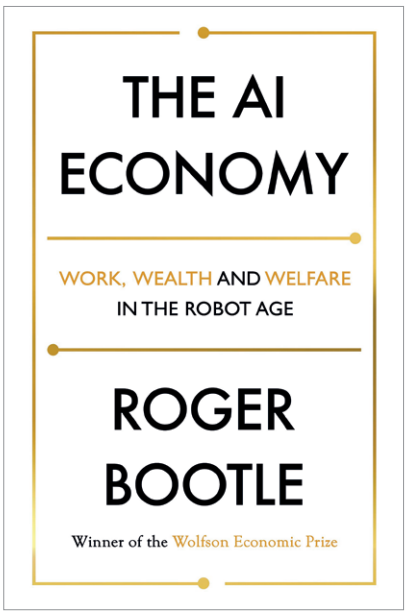
This book offers a refreshing sanity check amidst the plethora of doom-mongering around the 'robot revolution', authored as it is by a respected economist capable of applying a much-needed dose of pragmatism to the debate. As Bootle says early on, the industrial revolution was not just about innovation in industry: it was also about innovation in finance, economics and policy which created the right environment to enable the revolution. Equally, the financial crisis was caused by weaknesses in human nature, institutions and public policy. Ergo, the robots will not flourish in isolation: other factors need to be considered if we are to make accurate predictions about this latest revolution.

Bootle's key contention is that AI will lead to rising productivity and a fall in prices, meaning greater demand not just for the product in question but for other products, which will in turn lead to employment in other industries. Robots and AI should be regarded as capital investment, not a labour substitute, which I found helpful in reframing the argument away from robots 'coming for our jobs'. Despite his stance as a strongly pro-market economist, Bootle is a fan of Keynes and absolutely sees a place for government to ease any transition, but emphasises that "there is no macro reason why everyone who wants to work cannot do so." He suggests that economists have frequently missed the sense of purpose which human beings gain from work, positing that full-time work may in fact be endemic to the human condition. Underestimating the value of human beings and assuming that the future will be a continuum of the past are perennial mistakes made by commentators.

The idea that AI will increase the value of human capital attracts me to Bootle's thinking. Working in the media as I do, it's clear that human beings are more interested in other people's actions and opinions than anything else. Neither the cult of personality nor the value of personalised service have ever been higher, and the automation of basic tasks will only increase this value. As Bootle puts it, "how you interact with human beings will be more important than how you interact with robots." AI will create some new jobs and enhance other jobs, such as in healthcare and education, enabling professionals in those areas to spend more time interacting with their patients or students, and more people to be employed in those sectors. The cost of services will reduce, and increased output will lead to a rise in corporation and consumer taxes, aiding equality. In short, "the AI economy will lead to the full discovery of the human realm."

Tax and regulation, education and redistribution are the three areas we need to work on, with education the most important. As a vocal proponent of a creative education, Bootle's exploration of this area was of particular interest. He correctly points out that rote learning belongs in an age where information was difficult to access; and that since nobody ever required us to learn the ins and outs of our car engine, a narrow focus on STEM subjects may be misguided. Instead, young people need to know how to weigh evidence, work in teams, empathise and innovate. For this, "radical reform" is needed in the education system, which will also become more personalised.

Bootle concludes that "What this revolution will do is to release human beings from many of the dross jobs that have taxed their spirit … it will leave them free to be more truly human" – the utopia to which the likes of Karl Marx and William Morris aspired. Unlike the latter, however, he suggests that "the only way to find out what its effects will be is to let people and businesses make free choices", with which anyone who deals with the world the way it is as opposed to the way they would like it to be would heartily agree.



The AI economy: work, wealth & welfare in the robot age,
Nicholas Brealey;
Nicholas Brealey Publishing;
224 pages (Paperback).
Published 10 September 2019.

Inadequate Equilibria by Eliezer Yudkowsky

Sam Dumitriu is Research Director at The Entrepreneurs Network

"Somehow, someone is going to horribly misuse all the advice that is contained within this book", writes Eliezer Yudkowsky in the conclusion of *Inadequate Equilibria: How Civilisations Get Stuck*. If you recognise his name, it's likely to be in relation to Dominic Cummings' unconventional job advertisement; his ideas run throughout the post.

Yudkowsky is the founder of Machine Intelligence Research Institute and creator of the popular blog LessWrong. He is part of the rationalist movement, a group dedicated to improving reasoning and decision making.

Inadequate Equilibria is worth reading for two reasons. Primarily as a guide to what Cummings' ambitious plans for reforming government might entail. But also because it refines thinking at the core of small 'c' conservatism.

The rationalist movement and conservatism may not seem obviously connected. But, as the writer Tom Chivers notes, rationalists take Chesterton's Fence – the imperative that reformers ought to understand why a fence was erected before tearing it down – seriously.

Inadequate Equilibria is an attempt to outline when you should try to tear down the fence. Should we be confident, as Cummings is, that we can radically improve the effectiveness of our government? Are there, as Cummings puts it, "trillion dollar bills lying on the street"?

Yudkowsky starts with the idea of efficient markets. If there's one place you won't find a trillion dollar bill it's in a stock exchange. You should be doubtful of your ability to spot even the smallest inaccuracy in the pricing of, say, Microsoft stock. As Yudkowsky points out, "there are thousands of diverse intelligent actors who are all individually allowed to spot errors, correct them, and be rewarded, with no central veto." It is in his words "the peak of all human power of estimation". If you think you can beat the market, you're probably a crank.

But sometimes, there are trillion dollar bills lying around. Yudkowsky cites the example of a third of babies with short bowel syndrome dying in the US because the FDA approved IV fluid they're given contains the wrong mix of fats. Inadequate Equilibria is about how to tell the latter example from the former.

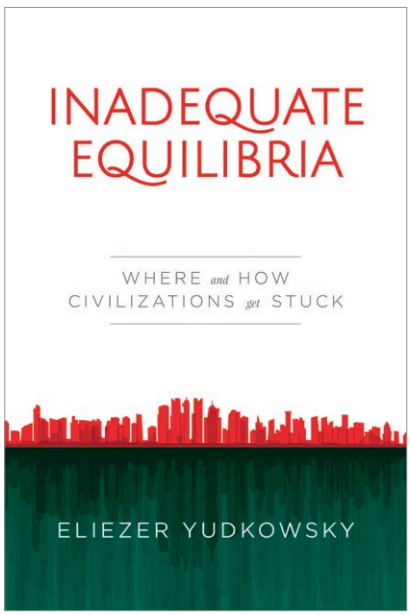
Inadequate equilibria have at least one of the three following features. First, the policy equivalents of 'trillion dollar bills' tend to be more common where decision makers receive no benefit from picking them up. Rachel Wolf's reference to the civil service merry-go-round, where anyone in the same role for more than 18 months is seen to have stalled, is a good example.

Second, lots of people scream that they've identified the one trick that can save the world. Most of them are kooks who pitch think tanks diagrams explaining their perpetual motion machines. When you identify a problem, there's no guarantee that you'll be listened to.

Third, there are situations where no single individual can improve the situation. Think of the classic Prisoner's Dilemma scenario where everyone would be better off if only they could coordinate.

What are the implications for governing? One might be to use prediction markets to aid the delivery of key pledges. If the Government's retention plan is insufficient to add 50,000 nurses to the NHS, civil servants should be able to bet against delivery and provide valuable information to ministers.

We still don't know whether talk of Whitehall reform will be more bluster and symbolism than reality. But it's hard not to be excited by the fact that people in government are thinking deeply about thinking.



Inadequate Equilibria,
Eliezer Yudkowsky;
Machine Intelligence Research Institute;
167 pages (Paperback).
Published 16 November 2017.

Bagehot: The Life and Times of the Greatest Victorian
By James Grant

Keith Tomlinson is founder of Tomlinson Research Limited

James Grant's insightful look at the 19th century financial journalist Walter Bagehot helpfully starts with the correct pronunciation of Bagehot (Badge-it). This timely biography reminds us why Bagehot's work is still relevant today, including practical matters like how to deal with a run on a bank, but also how he viewed behaviour and motives in the financial world.

Grant is known for his witty financial writing. He once described the risks facing bond investors in a low interest rate world thus: "The 'risk-free return' could turn out to be a 'return-free risk'".

Bagehot was also highly regarded for his writing, including his principal works *Lombard Street and The English Constitution* as well as editor of *The Economist*. Indeed, it was Bagehot's 1857 meeting with *Economist* founder James Wilson, also an MP and financial secretary in Lord Palmerston's Government, that transformed Bagehot's life.

We are not the only ones who needed help with Bagehot's name. On Bagehot meeting his future wife, James Wilson's daughter Eliza Wilson, Grant writes: "At dinner, the eldest, Eliza, twenty-four, insisted on hearing his unpronounceable name spelled out so that she wouldn't forget it."

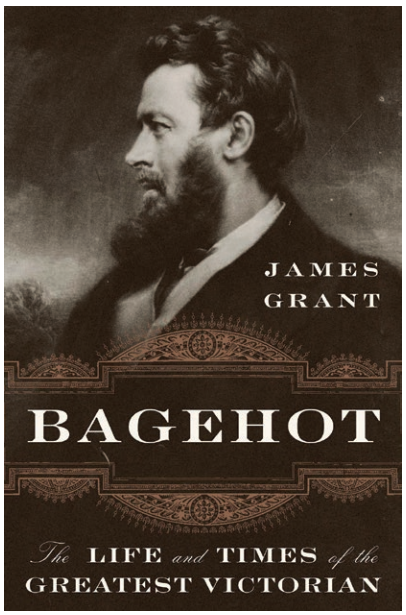
The "woman scorning bachelor", as Grant describes Bagehot, falls for Eliza Wilson and describes their relationship: "When he was apart from her, he read, reread, and kissed her letters, 'til I begin to get wild.'" If a Victorian courtship resembled a pair of simmering kettles, Bagehot's had come to a boil.'

Bagehot's run for Parliament is an entertaining look at how messy elections once were. Grant makes clear why Bagehot did not have a taste for it: "Sometimes election agents rounded up amenable voters, herded them into a party-affiliated public house, turned on the liquor, and locked the door." Plying with alcohol was only one form of bribery, though it seemed effective enough: "At length, the drunks would be led to the polling place where, under supervision, they would cast the appropriate ballot."

Bagehot's best-known work is *Lombard Street*, describing the time-tested method of dealing with a banking crisis – to lend freely – that is used by modern bankers on a global scale. My favourite idea from Grant's book is the paradox that Bagehot reveals in *Lombard Street*: "The briefest and truest way of describing Lombard Street is ... it is by far the greatest combination of economical power and economic delicacy that the world has ever seen."

Grant shows us how financial writers of different eras develop their predecessor's ideas, noting that John Kenneth Galbraith's 'bezzle' concept – how long it takes for the embezzlement victim to notice their loss – builds on Bagehot's observation that investors are most believing when they are most happy. This turns out to be a key insight to financial fraud.

In a review of an earlier look at Bagehot's life, *The Works of Bagehot*, John Maynard Keynes notes that Bagehot's work is more a psychological look at economics than theoretical. To anyone who lived through the Great Financial Crisis of 2008 and the knock-on Eurozone crisis that followed, these works remind us how little the human operators of complex financial machinery have changed. Grant is the ideal writer to show us why this behavioural aspect is still so important.



Bagehot: The life and times of the greatest Victorian,
James Grant;
WW Norton & Company Limited;
368 pages (Hardback).
Published 23 July 2019.

Superintelligence: Paths, Dangers, Strategies
By Nick Bostrom

Anne le Roux is a Bright Blue member

Over the last few years, artificial intelligence (AI) has become an area of rapidly increasing interest. Machine learning algorithms are becoming more powerful, and it is becoming important to consider, not just when human intelligence will be surpassed, but what will happen after this point. Nick Bostrom's *Superintelligence: Paths, Dangers, Strategies* sets out to make predictions about the landscape of human and artificial intelligence research within the next few centuries.

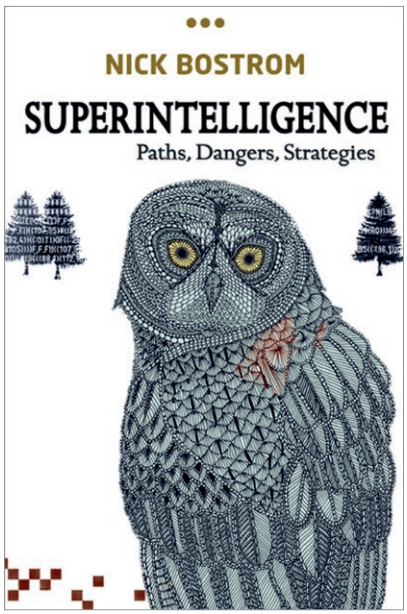
> "Bostrom outlines some potential strategies for ensuring that these technologies are developed safely and ethically."

As Bostrom acknowledges, this is no easy task and there are many large sources of uncertainty when making predictions stretching this far into the future. For the most part, the book aims to consider paths to developing an 'intelligence' that outperforms humans in every significant way, and the consequences of these different paths, rather than making predictions about the timescale of these events. A likely path to this superintelligence is via the development of artificial intelligence and machine learning algorithms, but other scenarios, including whole brain emulation and cognitive enhancement, are considered throughout the book.

The book does not provide a decisive answer as to when these events are likely to unfold. Rather, Bostrom embraces this uncertainty and takes the opportunity to consider multiple possibilities, and what they might mean for society. The result is a tour through a myriad of potential futures, some much less appealing than others. As well as offering insights into the future of intelligence research, Bostrom outlines some potential strategies for ensuring that these technologies are developed safely and ethically. These range from technical recommendations on algorithm development, to suggestions for improving ethical research norms and building institutions that prioritise safety over fast development. In particular, Bostrom addresses the problems with setting objectives for future intelligent systems, and ensuring that these are in line with humanity's interests.

> "Machine learning algorithms are becoming more powerful, and it is becoming important to consider, not just when human intelligence will be surpassed, but what will happen after this point."

Superintelligence is well structured, although the writing is often technical, with a large section of the book dedicated to notes on calculations, estimates, and assumptions. Because of this, the book is likely to be particularly useful as a reference text for those interested in developing policy in this area, or as an overview for those considering further research. Having said this, the content is clearly structured, the concepts are accessible to readers of any background, and it is a fascinating insight into the world of intelligence research. For those looking for a less technical overview of the topics, Stuart Russell's *Human Compatible*, released in 2019, considers similar issues, with a particular focus on artificial intelligence as a path to superintelligence.



Superintelligence: Paths, Dangers, Strategies,
Nick Bostrom;
Oxford University Press;
328 pages (Hardback).
Published 3 July 2014.

Film: *1917*
Directed by Sam Mendes

Joseph Silke is a Research and Communications Assistant at Bright Blue

1917 is a sweeping spectacle of horror. Director Sam Mendes has brought the terror of trench warfare to the big screen like nobody before. It is unflinching, like iconic classics such as *Saving Private Ryan* (1998), and by the time the credits roll one feels like one has been through a hellish ordeal. It is an intensely aesthetic film, with masterful cinematography skills to match its ambition. While there are bugbears that hold it back from the status of an unblemished masterpiece, it is not one to miss.

"There are some films which ought to be seen on the big screen to be fully appreciated and *1917* is one such flick."

The slightly implausible plot may annoy some, but that hardly matters because the film is rooted in the experience of the journey rather than the destination. Our heroes, played by George MacKay and Dean-Charles Chapman, must make it from point A to point B to prevent their comrades from succumbing to a German trap. The enemy has cut off communication channels, so the two protagonists must venture out alone to reach the front line in time to call off the attack.

The two leads do a fantastic job as your bog-standard Tommy. MacKay will be familiar to those with a penchant for First World War dramas, having starred in the film adaptation of Sir Michael Morpurgo's *Private Peaceful* (2012) and the BBC's television adaptation of *Birdsong* (2012). Fans of the hit-series *Game of Thrones* (2011-19) might recognise a grown-up Chapman, who played the Henry VI-inspired boy King Tommen. The characters and their relationship are the focus of the film, and the two have quality chemistry on-screen.

Neither lead is ostentatious, nor labouring in their performance, and this gives credence to the presentation of the two as simple, ordinary young men caught in the crossfire of Armageddon. They feel relatable, unlike the superhuman terminators often depicted in war films.

While the enemy has about the same marksmanship ability as a stormtrooper, the cost of war is nonetheless laid bare by the cost of the expedition for our characters. One could argue that some of the set pieces feel contrived, and could undermine the grittiness that comes from a more realistic depiction of the experience of war, but this can be forgiven if you allow yourself to suspend disbelief in aid of appreciating the overall cinematic experience, which hits home regardless.

Mendes, who based the sequences on the stories of his veteran grandfather, opted to give the viewer the illusion of a continuous camera shot throughout the film. The idea built upon the acclaimed Day of the Dead opening scene in his second Bond film, *Spectre* (2015). What it means for the viewer is a profound feeling of intimacy with the action as the central characters navigate the treacherous obstacles of the Western Front. It is a shame that there are points when this is interrupted, but nonetheless the illusion succeeds in building tension throughout the two-hour running time.

The most detrimental part of the film is probably the roll call of cameos. Famous faces from Colin Firth to Benedict Cumberbatch and others pop up throughout the two hours in a way which cannot help but break the immersion that Mendes goes to such lengths to create. It is difficult not to be taken out of the action with such distractions; it feels forced and rather pointless. Is it really important that the cantankerous colonel is a household name when they are only in the film for a handful of minutes? This issue is most jarring at the end of the film, which ought to be the emotional crux, but instead is yet another cameo.

"What it means for the viewer is a profound feeling of intimacy with the action as the central characters navigate the treacherous obstacles of the Western Front."

There are some films which ought to be seen on the big screen to be fully appreciated and *1917* is one such flick. It is not perfect, but it is certainly an experience and a marvel of cinematography. If you get the chance to see it before it leaves cinemas: do it.


bright blue