CIVIL SERVICE QUARTERLY

Issue 21 October 2019 THE NATIONAL ARCHIVES PRESERVING OUR SHARED HISTORY
IN THE DIGITAL AGE

STRENGTHENING DEMOCRACY - AND WHY IT'S NO LONGER AN "EASY SELL"

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Civil Service

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Civil Service Quarterly opens up the Civil Service to greater collaboration and challenge, showcases excellence and invites discussion. If the Civil Service is to be truly world-leading, it needs to collaborate more, learn from experts outside the Civil Service, listen more to the public and front-line staff and respond to new challenges with innovation and boldness.

Any civil servant can write for Civil Service Quarterly - contact csq@cabinetoffice.gov.uk

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EDITORIAL



WELCOME TO THE 21ST EDITION OF CIVIL SERVICE QUARTERLY

A rticles in this issue range far and wide, but share a focus on some of the pre-eminent challenges facing 21st-century government, from effective policy-making and use of statistics, to supporting democracy, and measuring and improving productivity in a modern economy.

The National Archives is the home of the UK Government's corporate memory and of our shared history, preserved in an astonishingly varied collection, from parchment to websites. Among the 14 million records in its catalogue are treasures including Domesday, the confessions of Guy Fawkes, and the last telegram sent from the Titanic. John Sheridan, TNA's Digital Director, examines how the archives are tackling the urgent issue of managing the shift to digital records and the risks to preserving them.

From the body responsible for safeguarding the record of the UK's political past and the historic development of its democratic institutions, to a group working to establish and preserve democracy around the world. The Westminster Foundation for Democracy (WFD) is the UK Government's democracy-support agency for developing countries.

WFD CEO Anthony Smith looks at how the foundation is promoting democracy when, as he writes, it is no longer an easy sell in any country, no matter how mature its democratic institutions.

It is nearly a decade since another body set up by the UK Government became the first in the world dedicated to applying behavioural science to public policy issues. Behavioural Insights Team CEO David Halpern identifies the policy 'unicorns' - the successful 'nudges' prompted by behavioural insights, including in health, welfare and education - and suggests the policy areas where the next generation of mythical beasts may show themselves.

As CEO of the Infrastructure and Projects Authority, Nick Smallwood oversees the Government Major Projects Portfolio. All these projects are designed to transform services for citizens, improving government efficiency and implementing new policy. However, such projects are inherently complex, and - as recent history shows - things do, inevitably, go wrong. Although analysis shows that the causes of such failures are different, as Nick writes. there are shared features that it is important to learn from and apply to future projects.

This issue's Spotlight feature trains its beam on progress towards a truly inclusive Civil Service. Thirty years into her career as a civil servant, Permanent Secretary Melanie Dawes says she has seen considerable change for the better. Now, as the organisation's Champion for Diversity and Inclusion, she is aware of the scale of the task that remains to realise the Civil Service's ambition of being the UK's

most inclusive employer. She introduces two civil servants from underrepresented groups who describe their experience, and she pinpoints five ways in which we can all help to turn ambition into reality.

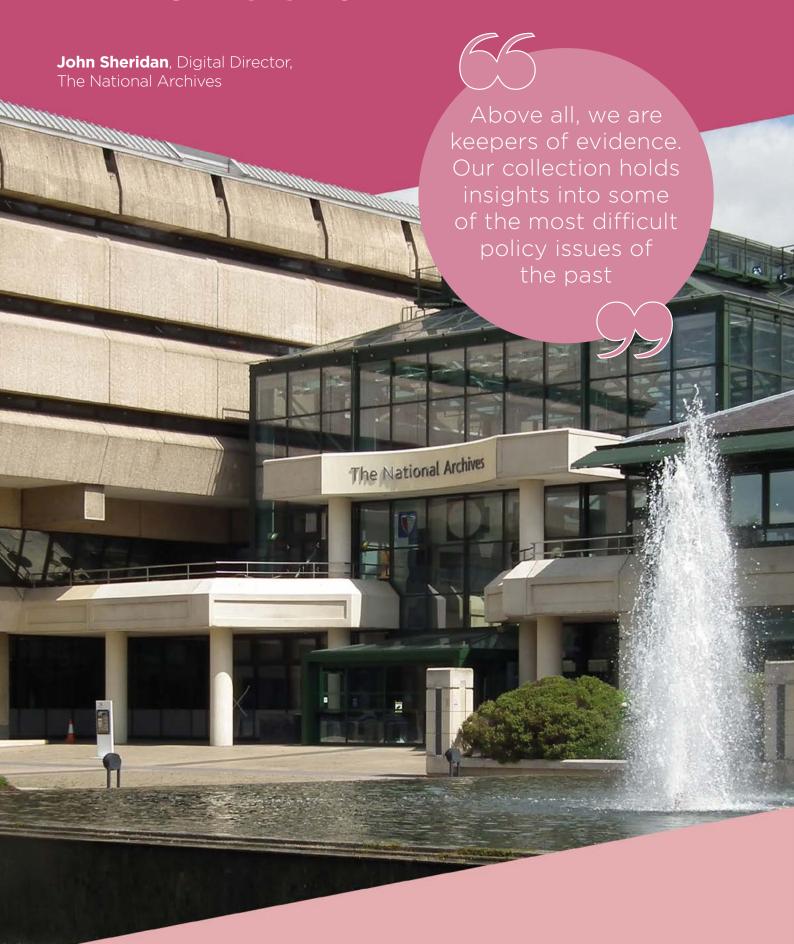
Improving productivity is another major preoccupation of successive governments. An equally abiding question is how to measure it in the first place. In Defence, says Major Dom Prtak, the problem is twofold, involving the hypothetical nature of Defence outputs. when military action is purposely avoided, compounded by the fact that deterrence is itself a key outcome. He explains how the MOD is approaching the problem of measuring effectiveness in an area we all hope will never be tested in earnest.

To close this edition, we interviewed John Pullinger, who retired this year as UK National Statistician. In an age of proliferating data and statistics, he says the statistician's job is at the heart of democracy, helping us to gain insight into how we live and to make sure everyone is able to make good decisions for themselves and wider society. He also gives his views on subjects including fake news, the proper sharing of data, and the level of data literacy in public life.

Sir Chris Wormald, Permanent Secretary, Department of Health and Social Care

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SAFEGUARDING OUR NATION'S STORY





// hat do you think of when someone mentions The National Archives? Possibly, the time-honoured tradition of old government files ceremoniously released to the public between Christmas and New Year. Perhaps, the notion of a storage facility, or an impression of quiet, scholarly research. Given that we have been around in one form or another since 1983, there are lots of possible thoughts. Whatever comes to mind, you should not be surprised to learn that, in the 21st century, we are responsible for so much more.

The National Archives is a non-ministerial department, under the Department for Digital, Culture, Media and Sport, and the official archive and publisher for the UK Government and for England and Wales. Its collection is unique, dating back more than 1,000 years, with records touching on the history of almost every part of the world.

The collection is astonishingly varied, from parchment to websites. Among the 14 million records described in the catalogue are treasures including Domesday, Shakespeare's will, the confessions of Guy Fawkes, and the last telegram sent from the Titanic.

WORKING WITH CIVIL SERVANTS

We lead the archive sector in England and are an Independent Research Organisation in our own right but, above all, we are keepers of evidence. As its archive, we are the home of the UK Government's corporate memory, and our records hold insights into some of the most difficult policy issues of the past. Civil servants who consult the records we hold are learning from the direct experience of their predecessors.

We provide a range of services for Civil Service colleagues wishing to consult the records first-hand, at our reading rooms in Kew or remotely at their place of work. Our searchable online catalogue, Discovery, provides details on our collection, and all publicly available records are available to civil servants. Discovery also includes records we hold that are, under Freedom of Information legislation, exempt from public release. Each department works with us through its named Departmental Records Officer, who can advise applicants on the process for accessing these records should they need them for their work.

As a living archive, our collection continues to grow. Last year, we added more than 55,000 new records from across government. The ongoing transition to the 20-year rule for release of government documents means the records being passed to us are increasingly contemporary. This has changed both the public conversation around the government record and sharpened the challenge for us in preserving it, in whatever format.

REFOCUSING RESOURCES

The format of government records has altered dramatically. In December 2018, we released files that revealed how some members of Sir John Major's government in 1994 did not believe email would 'catch on' as a viable communication tool. Today, the record of government is predominantly digital, and that is a major strategic challenge for the archive.

As part of our response to this challenge, we have refreshed our offer to government departments, refocusing resources to better support departments in managing their information, both digital and the large legacy of paper records.

It is not always obvious what to keep, so we are helping departments by providing more targeted expert advice. We support departments' efforts to maintain compliance with their statutory obligations, and we are leading work to review and update the Code of Practice for record-keeping under Section 46 of the Freedom of Information Act 2000, to reflect the relevance of digital information.

DIGITAL PRESERVATION

Becoming a digital archive has been a game-changer for The National Archives. Effectively, we are now running two archives: one tangible (physical papers in boxes on repository shelves), the other intangible (files held in a digital preservation system).

To be a digital archive is to be an institution comfortable with ambiguity and change, one that can adapt rapidly in response to an ever-evolving technology landscape. We are actively engaged with a wide range of challenges posed by the digital government record, both as it currently exists and as it might develop.

Take email, for example snippets of texts in threaded discussions, with different participants, the conversations forking and sometimes re-merging. Compared to the letters and memos of the pre-digital Civil Service, it is far from obvious where the digital record might begin and end. This is a problem both we and the Better Information for Better Government team in the Cabinet Office are looking to address. We are investigating how we might best use artificial intelligence (AI) to select which emails to keep and which to delete.

Computers are now reasonably good at classification problems, such as distinguishing between personal email and business-related email in a work account. However, classifying emails in ways that rely on their context is a much tougher nut to crack, albeit the technology is advancing very quickly.

Email is now a well-established and mature technology. Meanwhile, we are evolving new ways of communicating, of capturing information and of processing it. Every technology presents new challenges for the digital archivist, in terms of selection, context, preservation and access. How do we know which Al-based deep networks to keep and what do we need to do to preserve them?

GUY FAWKES'S CONFESSIONS

Guy Fawkes is the best-known of the men who planned to blow up King James I during the State Opening of Parliament on 5 November 1605 - the Gunpowder Plot.

James I was a Protestant king, and English Catholics despaired of any return to the old religion. A small group decided to blow up both King and Parliament with gunpowder and place James's daughter Elizabeth on the throne. They hoped she would marry a Catholic prince and England would once again be a Catholic country.

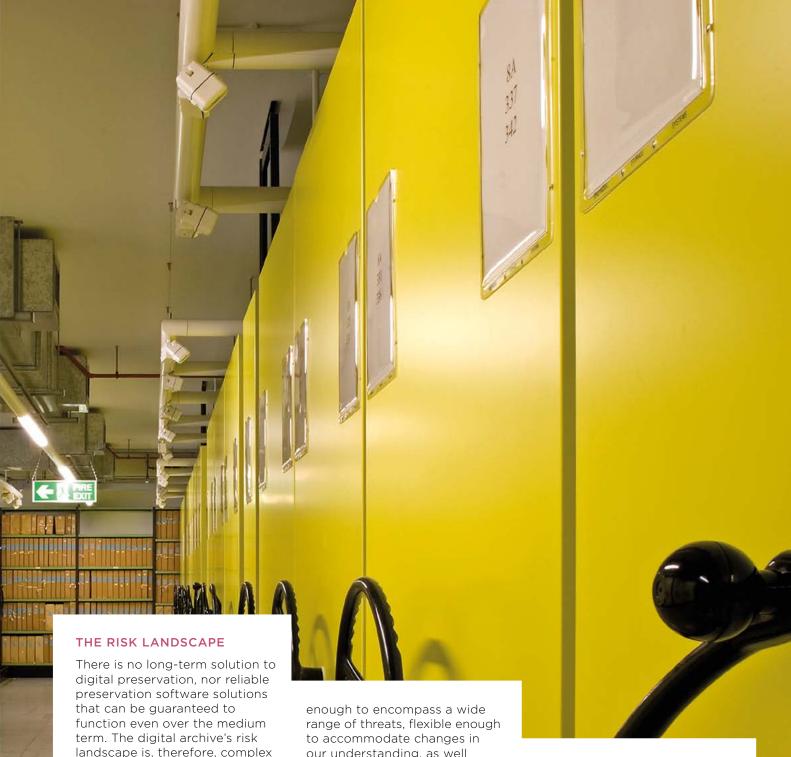
The King's spies discovered the plot. Fawkes was found during the evening of 4 November with 36 barrels of gunpowder Palace of Westminster, where Parliament was due to meet. He confessed to the plot and named the others involved. signing two confessions - one after torture and another eight days later. The contrast is remarkable. His first signature is weak and shaky where 'Guido' can faintly be made out. The second is signed in a steadier hand, 'Guido Fawkes'.

Fawkes and the other plotters were executed on 30 and 31 January 1606. Ever since, every November firework displays and bonfires recall the Gunpowder Plot

We believe that the information we hold is for everyone, because it is about all of us and our shared history







landscape is, therefore, complex and varied. For example, each type of storage medium (hard disc, tape, etc.) has its own age distribution, which the archive needs to understand. Moreover, the impact on the archive of data corruption depends both on the characteristics of the file format of the records and on the information density of what is being stored.

The National Archives is developing new methods for measuring and managing the risks to the digital archive. We need an approach to risk that is grounded in data, broad

our understanding, as well as pragmatic, incremental. explanatory and predictive.

MODELLING THE RISKS

We are currently developing an approach, based on what are known as Dynamic Bayesian Networks, to model digital preservation risks. Such networks (probabilistic ones, of cause and effect) are common in robotics, and show promise for a wide range of data-mining applications. Crucially for the archive, they are also iterative, so we can consider the impact of different preservation actions over time in our model.

As technology continually changes, so does the assessment of the risk landscape. We are trying to blend quantitative data with expert judgement in areas where we lack hard data. To do this, we are exploring expert data collection techniques, such as IDEA (Investigate, Discuss, Estimate, Aggregate), to help fill the gaps in quantitative evidence. This involves framing a specific question for experts, who offer an informed view. After discussion and structured challenge, the process is repeated and judgements aggregated to provide a working estimate for the Bayesian model.

Technology systems become obsolete at an extraordinary pace, making it a highly disrupted and disruptive environment. This makes the role of the archivist even more important in sustaining the archive and securing information. Our work involves intervening at the right time in the right way, to mitigate the risks to the digital records we hold. Through development of Bayesian Networks we are at the forefront, internationally, in the creation of new approaches.

SHAKESPEARE'S WILL

and scientific research into the

Conservators removed a heavy paper backing and earlier using x-ray technology and near infrared light.

manuscript was drafted at a last pages. It also revealed Initial results suggested that Shakespeare was a canny businessman who revisited his will several times to keep it up to date and secure a financial

DIGITAL SERVICES

The National Archives also operates some major digital services, including the government web archive and legislation.gov.uk.

We have created a comprehensive archive of European Union law as part of the UK's preparations for EU Exit. We have also helped to 'domesticate' retained direct EU legislation, by adding legislation originating from the EU to the legislation website. We have been busy capturing data about all the changes made by EU Exit Statutory Instruments, so we can produce the UK-applicable versions of the texts for users of legislation.gov.uk.

ARCHIVES FOR EVERYONE

In this article I've focused on the archive as a resource for government and a partner in tackling the challenge of digital, but as The National Archives we have a wider historic mission We believe that the information we hold, in whatever format. is for everyone, because it is about all of us and our shared histories

- Shakespeare had been ill for some time and had retired to Stratford, where he wrote his will as he lay dying;
- words in his last will and
- he distrusted his daughter Judith and her new husband Thomas Quiney, and changed his will to prevent Quiney from

An archive needs to be used in order to be useful, and staying relevant to our users is vital.

We are committed to becoming an inclusive archive - tearing down barriers to access and actively reaching out to new audiences. This commitment means we are increasingly becoming a place that people visit to experience and enjoy, as well as to learn.

We are transforming our spaces and engaging people who might never otherwise think of coming to an archive. We have an exciting range of events in our 'What's On' programme from family days and creative workshops, to themed evening events. These act as signposts or gateways into more detailed, personal research for many people. And this transformation isn't just at our headquarters in Kew. Our reach online is continuously growing, with 274 million records delivered to online users last year.

A living and growing archive. A global leader in digital thinking. A new kind of cultural and heritage institution - inclusive, entrepreneurial and disruptive, we are redefining what it means to be a 21st-century national archive. And perhaps changing the way people think about archives

to his wife Anne and only left her the 'second-best bed' (not the snub it might a symbol of prosperity, 'second-best bed' mentioned



JOHN MAJOR'S NOTE ON MAASTRICHT BILL COURT ACTION JUDGMENT

The Treaty on European Union, better known as the Maastricht Treaty, was signed on 7 February 1992 by the 12 members of the European Community. It founded the European Union and paved the way to the single European currency, the Common Foreign and Security Policy, and cooperation in the fields of justice and home affairs.

In Britain, the ratification process split the Conservative Party in Parliament and Lord William Rees Mogg went to court against John Major's government.

Lord Rees Mogg, worried that ratification might lead to loss

of national sovereignty, argued that the process was "legally and constitutionally flawed", and that the Government had acted illegally by failing to give Parliament a chance to scrutinise parts of the agreement.

The High Court rejected his arguments, with all three judges supporting the Government's position on the issues. As Rees Mogg was also asked by the High Court to cover the costs of the legal action, John Major awarded himself a "full gloat".

The Maastricht Bill passed through the Commons on 23 July 1993, after John Major won a motion of confidence approving the Government's policy on the Social Chapter.

PRIME MINISTER



MAASTRICHT COURT ACTION

Our lawyers are pleased with the judgement in the Rees Mogg case. All three judges supported us on all three issues. Their judgement has narrowed the areas open to argument, should the case be appealed. The outcome was even better than our lawyers had expected.

Rees Mogg and co have thirteen days in which to file any appeal - i.e. until 12 August. If they have not indicated their intentions by the middle of next week, the Treasury Solicitors propose to ask Rees Mogg's solicitors whether an appeal is to be requested. Depending on when notice is given, we believe that the Appeal Court is standing ready to hear the case from 9 August.

Ratification arrangements

The Foreign Secretary has signed the warrant for ratification. The papers will go to Rome on Monday 2 August. Our Ambassador will then be able to deposit them with the Italian Government as soon as he receives instructions.

Public handling

The Foreign Secretary is exercising restraint in public comment for the time being. He does not wish to provoke the Rees Mogg brigade into a further Quixotic action, if there is a chance that they will now abandon their expensive and ultimately pointless exercise.

I suppose that, with regret, we must avoid telling the Germans that the train is about to leave the station, and that they had better hurry if they are to jump on to it \dots .

Kolove

RODERIC LYNE 30 July 1993 f\treaty.kk

STRENGTHENING DEMOCRACY AROUND THE WORLD



The Westminster Foundation for Democracy (WFD) is the UK government's democracy-support agency for developing countries. Here WFD's CEO, Anthony Smith, a former diplomat with 20 years' experience in DFID and the FCO, looks at how WFD is responding to the main challenges to democracy today.

EARLY YEARS

The 30th anniversary this November of the fall of the Berlin Wall should prompt reflections on the state of democracy around the world. Back then, democracy was an easy sell - the contrasts between rich Western countries and impoverished autocracies in the former Soviet Union and the developing world were stark. Brave reformers in Central and Eastern Europe, Southern Africa and parts of Asia finally saw light at the end of the tunnel and were eager for support.

The UK Government's decision in 1992 to establish the Westminster Foundation for Democracy (WFD) as an arm's-length body of the Foreign and Commonwealth Office (FCO) was a response to cross-party pressure from MPs and a recognition that sharing Britain's democratic experience – good and bad – could help others build their democratic institutions and practices.

In the years that followed, WFD worked in many corners of the globe where support for democracy was needed most. We supported the post-apartheid National Assembly in South Africa, to accompany the historic transition to democracy in that country. As peacekeepers entered Kosovo after the conflict with Serbia, WFD was one of the first organisations to follow to help develop democratic institutions.

We shared lessons from the Northern Ireland peace process to inform reconciliation efforts in Colombia, bringing people from Northern Ireland's churches, women's organisations and government to present their experiences to Colombian counterparts in government and the Revolutionary Armed Forces (FARC).

CONTEXT FOR OUR WORK

These are just a few examples of our work. There have certainly been successes, but the challenges feel bigger than ever. Democracy is no longer an easy sell in any country, no matter how mature its democratic institutions. Three challenges stand out:

- democracy is not anymore a prerequisite for economic growth;
- even dictators are now elected, so the line between democracy and autocracy appears blurred; and
- the combination of digital technologies and post-industrial societies has fractured some traditional pillars of political power, with vacuums being filled by groups with no developed respect for political norms.

It is in this context that WFD works in over 40 countries around the world to promote democratic values and freedoms.

Working primarily with parliaments, political parties, civil society groups and on elections, WFD seeks to make developing countries' political systems more inclusive, fair, accountable and transparent.

Last year, WFD implemented 55 programmes directly through our offices across 33 countries, in addition to four programmes through the UK political parties.

Across our network we organised over 1,200 activities, which engaged nearly 26,000 participants, employing over 600 experts to create tailormade approaches to address local challenges to democratic governance.

The organisation also continued to lead research in the international democracy support sector, including looking at issues such as what donors and practitioners can do better, women's political leadership, and the cost of politics.

Our research partnership with the University of Birmingham enables researchers to access the data, practice, people and beneficiaries of a development agency - WFD - that is working at the heart of politics in emerging and fledgling democracies around the world, providing innovative insights and analysis of trends and patterns across the governance community.

OVERCOMING CHALLENGES TO IMPROVE CITIZENS' LIVES

Our expertise runs both wide and deep, way beyond Westminster itself. We rely on parliamentary clerks in all four UK parliaments and assemblies, political party officials from across the country, local government staff, the Electoral Commission, Select Committee Chairs, civil society organisations and other arm's length bodies to share their experiences with counterparts and overcome the challenges we face.

A delegation from the Parliament of Myanmar visits the National Assembly of South Africa to learn more about post-Apartheid education policy, 26 April 2019 But how do we overcome the challenges to democracy that we see in our work? WFD has two main responses, based on our own experience and on the evidence from the democracy support community, including 'thinking and working politically'.

First, we know that the demand for democracy remains high in every region of the world. A wide range of surveys reflect the immediate demands in a society - for peace and security when there is conflict; for jobs when there is high unemployment and poverty; and for freedom when there is repression. But there is also a strong and consistent desire for the ability to take decisions about our own lives, to prevent the abuse of power by elites, and to have justice systems that treat people fairly and equally.

Those are the building blocks of democracy, and by supporting democracy and good governance we are helping to improve people's lives.

By helping create better laws in Myanmar, we are improving the lives of countless citizens and helping them and their MPs overcome 70 years of military rule.

By supporting the Arab League, in creating the first-ever regional commitment to end gender-based violence, we are providing a legal framework to protect women from violent atrocities.

In the Western Balkans, funded by the Conflict, Stability and Security Fund. we are improving women's representation in politics in Bosnia and Herzegovina through our programme 'More than a quota'. And we are helping organisations in Serbia address the structural factors that contribute to high levels of youth emigration.

This list could continue. But the main point here is that, although governments in democratic countries have a much better track record, we now also know that democracy does not guarantee peace or jobs, and we should not assume that it does or promise that it will. Peace and jobs come as the result of good policy-making, and that is why we help them get their policy-making right.

BUILDING EFFECTIVE INSTITUTIONS

Our other main response is related to the acknowledgement that democracy is always a work in progress. The key ingredients of democracy are effective and accountable institutions, and leadership. We work to support both. Institutions build resilience by embedding norms and standards and bridging periods of weak leadership.

For example, we help to build effective institutions by strengthening the role that parliamentary committees play in holding governments to account by building bridges between UK institutions and our counterparts abroad. An instance of this is when we brought legislators from Armenia to the Scottish and Welsh parliaments for workshops on financial oversight, so they could see how our public spending procedures worked.

Strengthening institutions requires long-term investment and patience, which is why we combine these workshops with ongoing, long-term support.

Although governments in democratic countries have a much better track record, we now also know that democracy does not guarantee peace or jobs

WHY LEADERSHIP?

The second essential ingredient of democracy is effective leadership. However, democratic institutions such as parliaments and political parties can require even more patience, because their leadership can change frequently, and their role and authority can shift during a political cycle.

When momentum for political change builds, whether during an election, conflict, economic crisis or otherwise, institutions can play their part, but only leadership can determine how that momentum will be used. For example, in response to

what is being perceived as the current environmental crisis, our new work on what we call 'environmental democracy' will help build institutions' ability to enact laws to protect the environment that they have already introduced. We have found that many countries need a helping hand in ensuring that they meet the green eco-targets set in international accords such as the Paris Agreement. Helping governments implement this change will have lasting, positive effects on our planet. and is important ahead of the upcoming UN climate change conference, COP25.

Leadership is also critical in addressing what we see as a fundamental objective of democracy, namely inclusion. For too many people in the world, our democratic systems are fine in theory but flawed in practice. In different ways, these people do not have the power to participate in political activities or to influence decisions that affect their lives, whether because they are a woman, not rich, LGBTQ, disabled, young or the 'wrong ethnicity'. Until this changes, democracies will be both flawed and vulnerable.





our work and took centre stage last year when we co-organised the Women MPs of the World conference in the House of Commons. This marked the centenary year of women's suffrage in the UK, bringing together women parliamentarians from 100 countries to discuss how to further empower them to drive change.

PERSONAL REFLECTIONS

Over the five years since I joined WFD we have tripled the number of our staff and widened the scope, depth and number of programmes we implement. However, this comes with considerable obstacles, as the organisation's internal structures must match the rate and scale of external growth. That is why we began an internal change programme to upgrade our systems and processes, better support staff, and increase the trust and confidence of our donors. while investing in better tools to deliver quality programmes.

This period has also been eventful for our domestic politics. However, I have repeatedly heard and seen from partners in other countries that Britain's democratic culture remains an invaluable resource for them as they seek to strengthen their democratic practices. Only last January (2019), the Speaker of the Sri Lankan Parliament told us that during Sri Lanka's constitutional crisis in late 2018 they looked to Westminster's rules of procedure to find a diplomatic solution. It is worth remembering, given the current political climate, that internal divisions can have an impact on how we are viewed overseas. hindering government's ability to strengthen democracy around the world and making the policy approach less cohesive.

We are a diverse country with all too recent experience of internal and external conflict, rapid economic change and significant political challenges. This is not just about EU Exit but also about climate change, counter-terrorism and our complex constitutional and national structures. With that in mind, perhaps above all for WFD, the task of retaining public confidence in our own political institutions is vital.

Whatever some might have thought in November 1989 when the Berlin Wall fell, democracy is not inevitable, and the demand for support to strengthen democratic systems remains high. I believe the UK is uniquely well-placed to respond to this demand through WFD and many other institutions.



CREATING BETTER LAWS IN MYANMAR TO IMPROVE CITIZENS' LIVES

Through WFD's DFID-funded programme, we are helping Myanmar's Parliament (Hluttaw) create better laws, be more representative, support poverty reduction, conflict resolution and economic growth, and hold the Government to account. The goal is to improve the lives of countless citizens and help them and their MPs overcome 70 years of military rule.

WFD's support is in its fourth consecutive year, following the 2015 Myanmar general election and the transition to the government led by the National League for Democracy. The transition has been marked by significant challenges, raising questions about the nature of political change in Myanmar and the direction in which it is heading.

Last year, WFD focused on promoting accountability through expanding its committee mentorship programme, which pairs Hluttaw affairs committees with former committee chairs from the UK and the wider region. Committees on education, health and natural resources and the environment were supported to launch inquiries and conduct oversight of the government in key policy areas.

Committees started gathering evidence, conducting fact-finding visits and public hearings, and developing committee reports and recommendations. The public hearings of the education committee in March 2019 were the first of their kind in the Hluttaw – a significant move towards opening its work to citizens.

Our programme is supported by partners the House of Commons and the British Council, and a new programme has been agreed with DFID for 2019 to 2021.

HELPING THE ARAB LEAGUE TACKLE VIOLENCE AGAINST WOMEN

WFD supports the Arab League in creating an international agreement that will set out ways to combat violence against women and girls in the Arab world.

The Arab Convention to Combat Violence Against Women is the first-ever regional commitment to end gender-based violence. It was developed with the support of a coalition of women MPs from across the Arab world. WFD's Regional Director for

the Middle East and North Africa region, Dr Dina Melhem, has worked closely with the coalition since it was formed.

The convention is progressing rapidly through the Arab League and is being considered by the league's Women's Committee. It is likely to be adopted soon.

WFD believes legislatures can play a crucial role in establishing a legal environment that protects women from violence.

Jordanian MP Wafaa Bani Mustafa, Chair of the coalition of Women MPs to Combat Violence Against Women in Politics, echoed this belief in an **event** WFD organised in the House of Commons for the All-Party Parliamentary Group on Democracy in the World, saying: "If we want to be remembered by Arab women, we need to protect their rights.

"We all have responsibilities in Parliament towards women in our society. We need to create a fairer, more just environment, not just in Arab countries but around the world."

FINDING THE 'UNICORNS': BEHAVIOURAL SCIENCE IN GOVERNMENT GROWS UP

David Halpern, CEO, Behavioural Insights Team







t is nearly a decade since the UK Government became the first in the world to set up a team dedicated to applying behavioural science to public policy issues. It's not even a teenager yet, but it's been around long enough to gain a sense of impact.

It was in the wake of the 2010 election that David Cameron and Nick Clegg set up the **Behavioural Insights Team** (BIT) in No. 10.

In 2014, BIT was turned into a social purpose company - co-owned by the Cabinet Office, the innovation charity Nesta and employees - to serve a wider range of public sector partners. In recent years, there's also been a flourishing of in-house behavioural insights teams within Whitehall and public sector bodies, and in other countries.

This September, the UK hosted the international Behavioural Exchange conference at the QEII Centre in central London, with more than 1,000 delegates from more than 60 countries. The scale and energy of the event is a good indication of how the UK is seen as a world leader in this field. The event also provided an opportunity to reflect, a decade on, on the impact behavioural science has had.

How is it evolving, and what will it have an impact on next?

THE 'UNICORNS' OF BEHAVIOURAL SCIENCE POLICY IMPACT

To borrow a phrase from business, a policy 'unicorn' is one that has had an impact of more than £1 billion. Of course, most successful policy interventions have many partners. But if we set the test that the intervention was very unlikely to have happened without a major push from behavioural science, then how many unicorns can behavioural science now claim? By this criterion, in under a decade, behavioural science can already lay claim to at least half a dozen.

WHAT IS BEHAVIOURAL SCIENCE?

Covering a range of academic disciplines that include behavioural economics and social psychology, behavioural science's guiding theme is to understand how and why people actually make decisions.

The Behavioural Insights
Team (BIT) uses insights from
behavioural science to inform
policies that encourage, enable
or support people to make
better choices for themselves

and society. BIT places a particular emphasis on testing and trialling interventions in real policy settings through randomised controlled trials (RCTs). These trials show how effective a new intervention is, relative to what would have happened otherwise.

Governments are increasingly using behavioural insights to design, enhance and reassess their policies and services.

Policy	Impact	Detail	
Pensions defaults	In the UK, roughly 10 million more people making additional savings of roughly £20 billion each year.	Switching the default from opt-in to opt-out, starting from 2012 in the UK. Around 90% of eligible workers stick with the default. Derived from the work of Thaler and Benartzi.	
Energy use	Typically, a 2% reduction per home, with a cumulative impact of £2 billion saved on energy bills since 2008.	Giving households feedback on their energy use relative to more efficient neighbours. Derived from the work of Bob Cialdini, and popularised by the company Opower.	
Tax compliance	Initial BIT work brought forward an estimated £200 million in the first two years. Subsequent work in the UK and overseas is thought to have brought forward well over £1 billion.	Large numbers of trials across the world testing clearer 'calls to action' through to social norms. Many designed by BIT, and directly by HMRC (in UK) in recent years.	
Sugar levy	50% of manufacturers have reformulated their drinks, taking 45 million kg of sugar out of drinks every year. This is estimated to give a QALY ¹ gain of over £3 billion.	Sugar consumption is a major contributor to diabetes (costing more than £12 billion per annum alone), obesity, tooth decay, etc. Field trials and modelling from 2014 onwards provided evidence for a policy shift.	

THE NEXT TIER OF WINNERS

In addition to these most famous, high-impact, behaviourally based interventions (see table), there is a vibrant tier of interventions that are converging on the unicorn level. There are hundreds of successful trials and interventions, but for this bracket a suitable criterion is that the behaviourally based intervention has been replicated at least three times over, and ideally across several countries.

HEALTHCARE

Healthcare provides a lot of 'winners' in this category. For example, there have been multiple replications of BIT's early work to show that simple tests and prompts can reduce missed medical appointments, from routine outpatient clinics to cancer screening, by between 10% and 20%. They can also help with medical compliance that is, whether the patient will take their pills when they get home - and encourage people to make lifestyle changes. The latter include making fitbit-style technology more likely to lead to increased exercise (especially among the least fit).

Nudges have proved effective on clinicians, as well as on their patients. The BIT trial, with the help of the Chief Medical Officer, to lower use of antibiotics by high-prescribing GPs (by pointing out their prescription rate relative to other GPs and suggesting other strategies) has now been replicated and extended into other countries, helping in the battle against antimicrobial resistance.

¹ The quality-adjusted life year (QALY) is a generic measure of disease burden, including both the quality and the quantity of life lived. It is used in economic evaluation to assess the value for money of medical interventions. One QALY equates to one year in perfect health.



In under a decade, behavioural science can already lay claim to at least half a dozen policy unicorns

WELFARE

Welfare provides another area where early BIT-led results in the UK have been replicated and spread.

An early collaboration between BIT and DWP led to the finding that jobseekers could be back to work between two and four days faster by making a simple change to what Jobcentre Plus advisers ask. Instead of asking jobseekers what jobs they looked for in the previous week - standard practice for several decades - jobseekers were instead prompted to think about what, when and how they planned to look for a job in the coming week.

The effect of this change was first demonstrated in a randomised control trial in a single Jobcentre in Loughton, Essex, and then replicated in

a regional 'step wedge' trial in the county, before being rolled out across the UK to reach 2.4 million jobseekers a year.

The intervention is particularly helpful to the most 'disorganised' jobseekers. It was also found to boost the wellbeing of the JCP advisers themselves. In the years since, this intervention has been replicated and implemented in Australia, Singapore and, most recently, Moldova in Eastern Europe. The outcome of this latest replication? Jobseekers were about 5% more likely to be off benefits after three months - very similar, if not a little more pronounced, than the effect found in Loughton.

Giving households feedback on their energy use relative to more efficient neighbours helps reduce domestic energy use





EDUCATION

Another exciting application of behavioural science has been in education. The success of BIT interventions to boost the attendance and pass rates of teenagers retaking maths and English exams (noting that UK 16-year-olds who fail these are now required to retake). has attracted considerable international attention. Interventions range from asking young people to nominate two 'study supporters', who then get texts telling them what the young person is studying in college that week (and how they might help them), through to motivational exercises the student can do themselves at the college. These interventions have been found to boost attendance by between 5% and 15%, and pass rates by up to 30%.

WHAT'S A REASONABLE HIT RATE?

The UK's BIT has now conducted several hundred trials. Many are now also being conducted by other behavioural insights teams, and the growing band of What Works Centres and the Whitehall Trial Advisory Panel (TAP) are also pushing up trials. Senior figures in the new No. 10 and Treasury teams are also known to be strong advocates of systematic testing and trialling.

A key point about the testing and trialling that BIT has helped to popularise is that quite often things don't work. This shouldn't be surprising, but it can be quite tough to take. The hit rate can also be obscured by the selective reporting and attention given to things that work compared to those that didn't. As is sometimes said, successes have many parents (who talk about them a lot), while failures are orphaned.

Looking across the whole landscape, and particularly drawing on institutions that publish all of their results, suggests that fewer than 1 in 4 interventions prove statistically successful. For example, the recently launched Youth Endowment Fund (focused on reducing youth crime and violence) expects no more than 20% of its innovative interventions to succeed.

To some, this might seem a shockingly low figure. But the quest here is for policy unicorns.

Imagine that we run 100 tests of new interventions. If we do it right, the cost is low. If just 20 of these give us significant positive results, they pay – many times over – for the 80 that didn't work. And, if they produce even a single billion-pound unicorn, they've paid for every trial and every run.

There's also value in identifying the interventions that didn't work. As Sir Chris Wormald, head of the Civil Service policy profession, has observed, early, robust testing of policy ideas saves us all a fortune by stopping the adoption at larger scale of plausible but ineffective ideas. Testing, in effect, reduces policy and political risk.

WHAT NEXT?

The BX2019 event provided a peek into the range of areas where behavioural science is now being applied. These include: boosting productivity and economic growth; increasing social cohesion; combating fake news; lifting social mobility; and saving the planet.

Speakers included Nobel Laureate Bob Shiller on 'narrative economics' - how what we say and believe changes the course of the economy; Betsy Paluck on prejudice, conflict and what to do about it; favourites such as Cass Sunstein, the original co-author of *Nudge* (and my opposite number in the White House), Katy Milkman and Dan Ariely; rising stars such as Seth Stephens-Davidowitz (author of Everybody Lies); Mitesh Patel on health; and Sarah Heller on crime. Of course, we had many of our own leading figures too, from Cabinet Secretary Sir Mark Sedwill to Government Chief Scientific Adviser Sir Patrick Vallance, as well as colleagues from behavioural insights teams across Whitehall.

If you missed it, don't worry. You can watch presentations and events online. They give a great sense of the vibrancy and excitement in the field, and of the huge range of areas that behavioural scientists are now focusing on.

The fact is, human behaviour lies at the heart of almost every policy challenge. Whether you are a young civil servant, academic or practitioner, behavioural science and experimentation is opening up new tools and approaches to increase your impact on the world for good. Be a part of it!

ADAPTING OUR APPROACH
TO DELIVERING MAJOR





It is probable that over the next few years the Government Major Projects Portfolio (GMPP) will grow in size, with upcoming priorities such as (carbon) NetZero 2050, a new Spending Review reflecting government priorities and EU Exit.

We are doing a lot and we are ambitious with these projects, often delivering ground-breaking technologies. At the same time we are aware of the challenges facing us on some of the biggest projects, so this is an opportune moment to pause. We must develop strategies to address these challenges and to be ever more successful in delivering better outcomes.

To improve delivery, with plans that are stretching but also realistic, we need to make sure we learn lessons from projects that have gone before and that we apply those lessons to future projects.

From our position at the centre of government, the IPA has been working closely with some of the biggest and most timely portfolios, doing exactly this.

CROSS-GOVERNMENT TRANSFORMATION PORTFOLIO

The sheer scope, scale and complexity of this portfolio is extraordinary. All these projects are designed to transform services for citizens, improving government efficiency and implementing new policy.

While the portfolio spend may be less than that on infrastructure, the benefits of transformation can be huge, and delivering these projects incredibly challenging. By their very nature, complex transformations usually involve significant organisational and cultural change, introducing new ways of working and experimenting with new and innovative technology.

The IPA has been working with the wider centre on this type of programme, specifically to support departments in maximising the delivery of these benefits.

One important lesson we have learned is that programmes do not always give sufficient thought to the effort and time required for changing behaviours. The IPA has been supporting programmes to improve the likelihood of successful delivery by encouraging a real focus on people and behaviour change from the outset.

It is also important to highlight that transformation programmes are often iterative in nature. They provide value throughout their lifecycle and typically last longer than a single Spending Review period.

This means the IPA encourages programmes to consider how they can deliver benefits throughout the duration of the project, rather than in a single 'Big Bang' event. Embedding this principle gives space for programmes to iterate and learn from their own lessons and to improve each stage of delivery.

We need to grow our capability in programme delivery and recognise the differences between delivery of a single entity and the complexity of programme and portfolio management.

INFRASTRUCTURE AND CONSTRUCTION PORTFOLIO

In the infrastructure space, there is no doubt that the construction industry is in a fairly febrile state, with the demise of Carillion casting a long shadow over the market's ability to deliver.

Learning Legacy websites have been set up for a number of government's major infrastructure projects, including London 2012, Crossrail and the Thameslink programme. For example, a review of the delivery model used on Crossrail identified a number of lessons learned or recommendations for future major infrastructure projects, including that:

- adequate time be provided to think through a detailed execution strategy before a robust plan or programme is developed:
- client objectives must be clearly cascaded down the entire supply chain to align effort;
- the use of effective competition in the supply chain will result in improvements in overall performance; and
- planning for the testing, commissioning and handover of complex projects should be accomplished as early as possible.

While these lessons cannot be applied universally, there were shared features that it is important to learn from and apply.

But you cannot simply flick a switch and fix some of these issues. It will require a change in behaviour and culture from all parties, both public and private.

This resonates with some recent analysis we have undertaken with the Department for Transport on learning lessons from major projects. I would highlight three of the lessons we have learned:

- 1. Behaviours and culture are just as important as process. You can have a perfectly designed governance structure, but the management of a project comes down to the people working in it.
- 2. We need to 'get real' with optimism bias, paying closer attention when things are going well. It's easy to forget to apply the same care and attention to detail as we do when we worry about a project.
- 3. We need to put greater focus on systems integration. as complex technology is playing an increasing role in our big infrastructure projects. To be frank, the industry needs to develop the right skills, as it's an industry that's been associated with just diggers and concrete for too long. Productivity can and must improve.



7 LENSES OF MATURITY

The IPA and GDS supported the Home Office to create the 7 Lenses of Maturity Matrix. This is a practical tool to help teams reflect on their transformation, focus discussions and identify which The Defence Learning and Management Capability Programme at the Ministry of Defence (MOD) is one such team. Using the matrix, the programme found that by having representatives from each of the armed forces in the room, alongside the

transformation team and other key corporate groups, they were able to hold more focused discussions. By applying the 7 Lenses and understanding their maturity against it, MOD was able to identify the areas that needed the most attention and highlight those where they could learn lessons.

Picking out these lessons is the easy part. Applying them in practice is more difficult. If we are to deliver the next generation of infrastructure projects well, and sustain our £600 billion National Infrastructure and Construction Pipeline of investment, we need to get this right.

We are clear that there's no silver bullet for delivering major infrastructure projects to time and budget. Much of what we want to achieve is about driving a culture change across government and the industry over the long term, sticking to clear principles that align with successful outcomes.

EU EXIT

Despite our successes and improvements we now need to apply our focus - we still have a way to go. The IPA is committed to continually improving project delivery in government and, in the last year alone, just under a third of all GMPP projects have improved their delivery confidence.

We are already starting to see positive changes to our ways of working, particularly with the delivery of EU Exit. There is no doubt that from a delivery point of view, the legacy will be profound.

IPA support and assurance for EU Exit has focused on the most critical programmes. We have, as always, looked at the programme's ability to deliver on its scope. This independent assessment continues to provide programmes with the recommendations they need to progress towards successful and timely delivery.

However, I want to stress that programmes do not exist in a vacuum, and we recognise the hard work across all government departments.

We must keep in mind the wider project delivery system and the readiness of stakeholders to interact with what the programmes deliver. Consequently, the focus has been on overall readiness, not only programme delivery.

Building on that approach, the IPA has explored critical issues that cut across several programmes and departments to support government's efforts to ensure joined-up delivery. In doing so, the IPA has highlighted critical dependencies and improved deliverability across the operational landscape by actively encouraging and supporting joined-up delivery.



Summary of the 2018-19 GMPP

	Government Major Projects Portfolio	133 projects	£442 bn Whole Life Cost		
This comprises					
	Transformation and Service Delivery	43 projects	£84 bn Whole Life Cost		
	Information and Communications Technology (ICT)	27 projects	£10 bn Whole Life Cost		
0	Infrastructure and Construction	32 projects	£210 bn Whole Life Cost		
	Military Capability	31 projects	£138 bn Whole Life Cost		



SPOTLIGHT: NEXT STEPS AND CHALLENGES FOR CIVIL SERVICE DIVERSITY AND INCLUSION



Recently, I marked 30 years in the Civil Service, and it's fair to say that a lot has changed since I started. The workplace of 1989 was much more formal; the use of surnames and titles was routine, there were few open-plan offices and it was rare to see women in senior positions. That was obvious to me in every meeting I attended, and for many years I felt that I was noticed as a woman first, and for my skills and expertise second.

We've come a long way since then and there's no doubt in my mind that the Civil Service has changed for the better. We are much more open to ideas from outside, and to diversity of thought and experience. There is much greater equality for women, across all grades, and diversity is improving on other measures too.

But for all our progress, we've got much more to do to meet our ambition to be the UK's most inclusive employer. I'm continually struck by the genuine commitment and energy of colleagues across the Civil Service – you will not allow us to become complacent. Among the permanent secretaries, there is clear support and agreement for our vision and priorities.

Since becoming Civil Service Diversity and Inclusion Champion in May, I have been working with colleagues to re-energise our efforts. We've agreed we need to hold each other to account with a clearer set of standards for how we run our departments. We need to make better use of the data, so we can compare performance. We need to improve our understanding of cultures. And we must stand by our commitment to listen to those groups for whom the traditional diversity and inclusion agenda hasn't yet done enough.

If you attended the Great Place to Work plenary sessions this year at Civil Service Live, you 55

Better diversity and representation alone doesn't make an inclusive workplace. We must pay just as much attention to how people feel about the culture and environment where they work

will have heard senior leaders talking about their personal experiences. I've invited two more colleagues to share their stories here (see below).

WHY INCLUSION MATTERS TO ME

For a number of years now, our aim has been to become the UK's most inclusive employer. There's no doubt that the scale of this ambition is huge, and progress can only be driven by the hard work of thousands of civil servants passionate about making a difference.

I'm proud that we have increased representation of women in senior roles over the course of my career. What's maybe less well-known is where we've been leaders in other areas, for example introducing name-blank recruitment, gender-balanced interview panels and pioneering work to measure socio-economic background. It's thanks to these innovations and many more that we generally benchmark well against similar private and public sector organisations.

MEASURING INCLUSION

In recent years we've worked to create a cross-Civil Service data pack that reflects the makeup of our workforce and has provided accountability for senior leaders on progress. I'm pleased that we're starting to open this up more widely – to departmental boards, functions and employee networks. The first step is for everyone to know how they compare with their peers.

But better diversity and representation alone don't make an inclusive workplace. To become the UK's most inclusive employer we must pay just as much attention to how people feel about the culture and environment where they work.

The Civil Service HR Diversity and Inclusion Team is leading some truly innovative work to improve our understanding of this. In partnership with the Behavioural Insights Team and the Chartered Institute for Personnel Development, the team has developed an industry-first diagnostic tool to measure how inclusive a working environment really is.

This will give us an insight into how it feels to sit in different parts of the Civil Service - so that civil servants, managers and leaders everywhere can take the actions they need to improve their own working environments.

Recently, over 75,000 colleagues from across the Civil Service have taken part in the first stage of this work, completing a survey on workplace culture. This information is now being compiled with other data sources, including reports of bullying, harassment and discrimination, turnover and retention rates. We'll be sharing the results early in the new year.

PROGRESS ON DIVERSITY AND INCLUSION

- Senior Civil Service (SCS) flow targets are having the desired impact: ethnic minority SCS representation is at 6.0%, up from 4.7% when the targets were set in 2017, and disabled SCS representation is at 5.2%, up from 3.4%.
- Representation is on an upward trend across the Civil Service, with representation of ethnic minority, declared disabled and LGBO (Lesbian. Gav. Bisexual or Other (non-heterosexual)) civil servants at record highs (at 6.0%, 5.2% and 4.9% respectively).
- Representation of ethnic minority civil servants and civil servants who have declared a disability has

- also increased within each grade, with the largest increases since 2018 at HEO/ SEO (+1.0pp) and Grades 6/7 (+1.0pp) for ethnic minorities, and at AA/AO (+2.0pp) and HEO/SEO (+1.9pp) grades for those declared disabled.
- The Civil Service median gender pay gap, for full-time equivalent staff, has been on a downward trend since 2008, falling from 18.2% to 11.1% in 2019. The SCS is now 45.0% female.
- At every grade, leavers are less likely to be from ethnic minorities than entrants. This ranges from EO grade, where 20.1% of entrants and 13.6% of leavers are from an ethnic minority, to 15.9% of entrants to Grades 6/7 and 9.4% of leavers.



ALISON ISMAIL, DIRECTOR OF AGRI-FOOD CHAIN, **DEPARTMENT FOR THE ENVIRONMENT, FOOD AND RURAL AFFAIRS**

I've always been able to 'pass'. More or less. I'm the child of a Bangladeshi father and a White British mother. Whereas my twin brother looks exactly like my dad as a younger man, with relatively dark skin and hair, I happen to resemble our mother, with brown eyes, hair more brown than black, and a much lighter skin tone.

It doesn't occur to most people that I might be BAME, or dualheritage, or mixed White-Asian, it. And until recently I haven't

spoken much about my South Asian background at work - I've found it a bit hard to talk about for a few reasons. While I'm hugely supportive of BAME networks in the workplace and initiatives like Project Race, I can't imagine putting myself forward for a leading role in them, for some good - and some less good -

I remember a former line manager turning down the Accelerate scheme on my behalf, assuring HR that I wasn't BAME. He apologised when I explained, but there was still a lingering question of 'what problem was I trying to solve?', being someone who doesn't necessarily look noticeably background. I also sometimes worry that by telling people



Unless we talk those with protected won't understand how to make institutions like the Civil Service more inclusive



I'm not white, I risk stealing the voice of those who are from wholly BAME backgrounds.

But I'm also a big believer that unless we talk about - and count - those with protected really understand how to make institutions like the Civil Service will mean we have to struggle to some degree with questions of self-definition. And yet, the more we can explore the diversity within diversity, deeper and more meaningful conversations will take place.



IAIN BELL, DEPUTY NATIONAL STATISTICIAN, OFFICE FOR NATIONAL **STATISTICS**

For a long time, I disassociated my work life and being gay, and kept my mental health problems fairly private.

My views on diversity and inclusion have shifted over the years. The biggest change was my mindset. I felt I had to fight to get where I am and it didn't make for great leadership.

should be welcoming them in.

The first step I took on this the Department for Education. My opening statement was: "I am Iain. I live in Abergavenny with my partner Steve and dog Ben." It made a difference. Voices who were previously quiet came forward. It enriched By opening up, I helped senior management realise that not every characteristic is visible.

And that's when I started to talk about my mental health. Blogging about my depression prompted a phenomenal response. I learned that being open about mental health really matters.



I learned that being open about mental health really matters



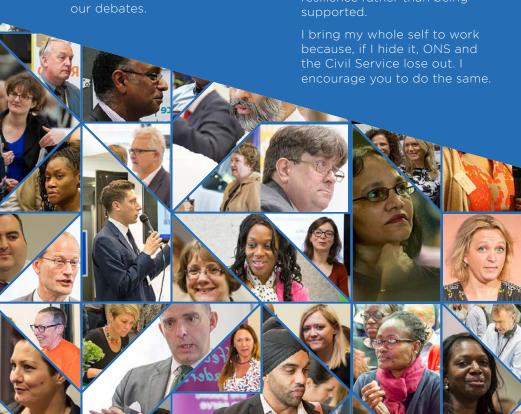
For me to really understand, engage, and help others as a senior leader, I need to hear the full story, raw. I can deal with raw. I have spent my life being quite raw. It's how many of us feel, whether it's when the invite says "wives and children welcome", hiding our partner's gender, or being told we lack resilience rather than being

FIVE STEPS YOU CAN TAKE TO HELP US BECOME THE **UK'S MOST INCLUSIVE EMPLOYER**

The progress we've made to date on diversity and inclusion has been the result of consistent action by passionate individuals and groups across the Civil Service, over many years.

Here are five ways you can help on each of our priorities:

- 1. Making use of data: Remember to fill in your diversity data on staff systems so that we can understand the true picture. Ask your senior leaders for data on how your department compares with others and get curious about what it's telling you!
- 2. Consistently high standards: These can be reinforced through simple actions such as asking about panel diversity when you're asked to speak at an event, or giving candidates an insight into your background when sitting on a recruitment panel. If you're chairing a panel, make sure you are following best practice.
- 3. Improving cultures: Help create an open culture by taking a leaf out of lain and Alison's book - share your inclusion experiences with your colleagues, and encourage others to do the same.
- 4. Fostering inclusion: Remember to ask people what helps them feel included; everyone is different and everyone matters.
- **5.** Listening to specific groups: Take a look at active listening techniques and make a conscious effort to understand what people are really saying. Ask questions and be prepared to hear something new, even if makes you a bit uncomfortable.



MEASURING DEFENCE PRODUCTIVITY: A FIRST STEP

Major Dom Prtak, Finance & Military Capability, Ministry of Defence



INTRODUCTION

Productivity growth is essential. It is the only sustainable way to raise living standards over the long term. Efforts to boost it across the whole economy must include the public sector. Measuring it for government agencies and services, however, is not straightforward. This article considers the measurement of Defence productivity, and outlines how some recent work might be applied more widely.

The central obstacle to measuring productivity in Defence is that we deliberately - and entirely understandably avoid armed conflict other than as a last resort. Furthermore, we would ideally like to fulfil the Chinese philosopher Sun Tzu's maxim that "the supreme art of war is to subdue the enemy without fighting".1 Deterring aggression by visible military strength is preferable to war. However, we want to ensure that the significant resources² devoted to maintaining military capabilities are spent effectively and deliver value for money.

Recent work by the Ministry of Defence (MOD) has used a variant of the Public Sector Efficiency Group³ (PSEG) conceptual model to benchmark British capabilities against international peers.

MEASURING PRODUCTIVITY IN THE PUBLIC SECTOR

Most attempts to evaluate productivity involve some sort of measurement difficulty, even for a profit-making private enterprise with a simple business model. Quantifying actual - as opposed to contracted - hours worked, and translating data on turnover, purchases, pay and profits into an output measure, means assumptions must be made. Nevertheless, it is generally possible to compute mainstream productivity benchmarks, such as value added per worker.

The most obvious productivity measurement problem for the public sector is that the goods and services that it provides are not sold at market values. Rather, they are often distributed via non-market administrative mechanisms, or implemented directly without payment by users or beneficiaries. This deprives analysts of the output valuation that selling an end product provides. Substitutes, such as willingness-to-pay assessments, are usually inferior to 'hard' sales-based data as a basis for value estimation.

Second, the social problems that government aims to tackle are generally more complex than the operations of a profitseeking business. Providing public services and national infrastructure, or conducting military operations, are longterm engagements. Results may not be apparent for years. even decades, and will then be hard to evaluate against shifting goals and changes in society. The relationship between the delivery of individual outputs and the achievement of desired outcomes is often less clear.

A third factor is that, for many government agencies, including the MOD, the effects they seek depend upon large-scale coordination and integration of disparate activities and systems to produce a combined effect or output that exceeds the sum of its inputs. In a military context, this is known as 'combined arms integration'. The meshing of specialist ground troops, armoured vehicles, fixedand rotary-wing air power, artillery, engineer mobility and countermobility assistance, and supporting medical, logistical and communication arrangements, is required to defeat a sophisticated adversary.

The productivity of any entity that contributes to a larger whole is inherently hard to assess, unless sub-outputs can be accurately isolated and valued. Although there are limited parallels with advanced manufacturing processes, or large businesses operating across multiple industry sectors, the public sector is relatively more exposed to this measurement issue.

MEASURING DEFENCE PRODUCTIVITY

Turning to productivity measurement problems specific to Defence, the first major challenge revolves around the contingent nature of its outputs. Defence assets, including manned ships and aircraft, and land forces held at readiness to deploy, are designed to perform their core roles in situations that very rarely occur and which the authorities purposefully avoid. This creates management issues far bigger than just productivity measurement, around motivating employees, appraising performance, and providing continuous, rigorous and realistic training. However, with large parts of the armed forces untested in battle for decades, there is inevitably the unknowable element of how they would have performed in a hypothetical conflict, and consequently of how productive Defence expenditure really is.4

¹The Art of War, Sun Tzu.

²The MOD budget is currently around £39 billion per year, representing some 5% of total government expenditure, and 2% of gross domestic product (GDP)

³The cross-government group of analysts created by HM Treasury in 2014 to develop an evidence-based understanding of public sector

⁴The MOD makes extensive use of conflict-orientated modelling and simulation, known as 'wargaming to derive best guesses of how British forces might fare in various scenarios. Significant uncertainty remains, nevertheless, especially for the largest and most serious potential crises.

The second measurement problem for Defence is that deterrence of hostile actors and potential enemies is a key outcome. This makes matters worse. Not only does the MOD have the difficulty of assessing its operational effectiveness in a range of possible scenarios, but there is a further unknowable. How do potential adversaries perceive and react to our known military strength, and how would those perceptions and reactions have changed if we had invested in other force structures or weapon systems, or showcased our armed forces' capabilities differently?

Defence is not alone in facing these productivity measurement challenges, but it is perhaps uniquely affected by the severity and combination of both. The fire service also trains for catastrophic events, which are infrequent. However, it does not seek a deterrent effect in the way that Defence does. The police aim to deter crime, but can practise their skills, and demonstrate the results of their work, on a day-to-day basis.

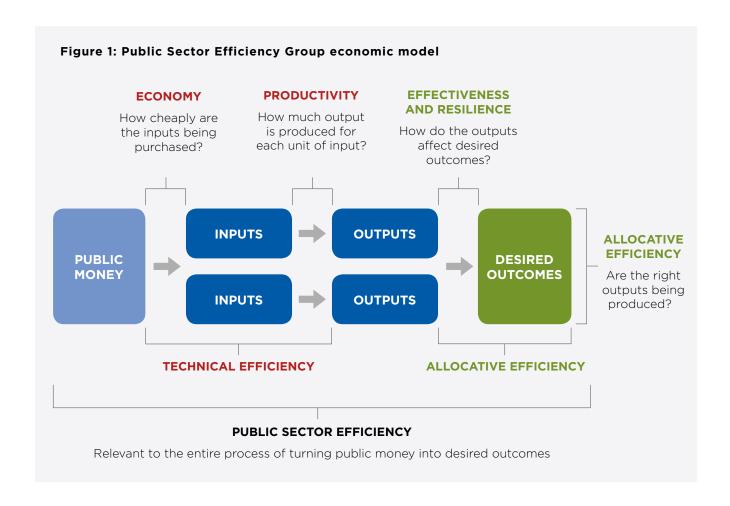
INTERNATIONAL BENCHMARKING VIA THE PSEG FRAMEWORK

There is a formidable array of barriers to the objective measurement of Defence productivity. However, the statistical default procedure of equating outputs with inputs⁵ is unsatisfactory. This rates military forces by their cost or number of people employed,

regardless of their operational effectiveness or ability to inhibit hostile action.

The MOD's initiative to develop its own productivity assessment methodology has moved forward in stages. The first step was to identify the PSEG conceptual framework, shown in Figure 1, as a suitable starting point.

This model was selected because it defines productivity clearly and in a way compatible with military capability data. It also recognises explicitly the important difference between outputs and outcomes.



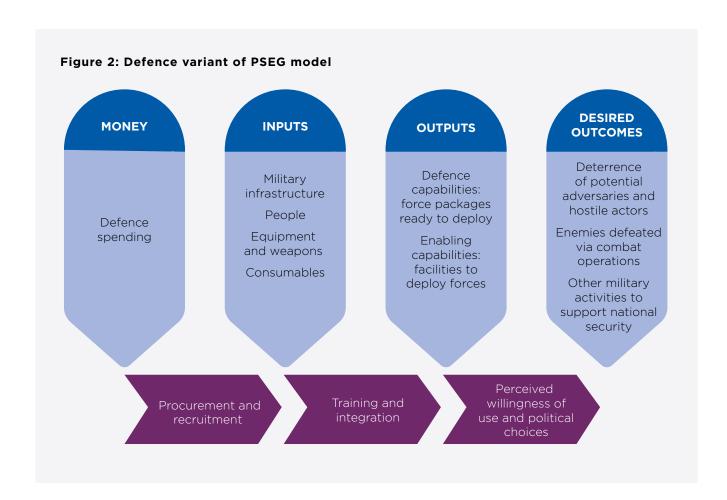
⁵The Office for National Statistics (ONS) uses the volume of inputs as a proxy for output (known as the output = input convention) for government departments and public bodies, including the MOD, whose outputs are not susceptible to direct measurement. This precludes assessment of productivity change.

Third, we incorporated the measurement issues discussed above. This suggested the sort of analysis that would not work:

- 'The combination of the 'contingent output' and 'deterrence' problems makes it difficult to assess the conversion of Defence outputs into outcomes. Attempting to do so would be highly subjective and amount to second-guessing political choices around deployment of the armed forces.
- Assigning costs to inputs and outputs is ruled out. Although some inputs can be accurately costed, measurement issues increase from left to right across the diagram.
- A single Defence-wide productivity metric is impractical, because of the 'combined arms integration' issue and difficulty weighting component parts of Defence outputs.

It does, however, offer a way forward:

• It should be feasible to compute meaningful output:input ratios for individual capabilities over a selection of key input and output items. This would have the critical advantage of enabling international comparisons, given that many countries generate and operate major equipment platforms in similar ways.



The final step to apply the Defence productivity model to an individual capability was to identify the main inputs and outputs involved. Figure 3 shows this for a specific military aircraft.

The key ratios calculated, and compared to data from three other air forces that operate it, showed that the UK was relatively productive. The RAF achieved significantly higher flying hours per aircraft, with a lower maintenance burden and more efficient use of infrastructure.

CONCLUSION

Military deterrence is inherently difficult - trying to persuade potential enemies of our forces' potency, while denying them opportunities to observe those forces in action. Measuring Defence productivity is correspondingly hard. However, focusing on a carefully chosen set of key output:input ratios for individual assets or capabilities can be the basis for a broader productivity narrative.

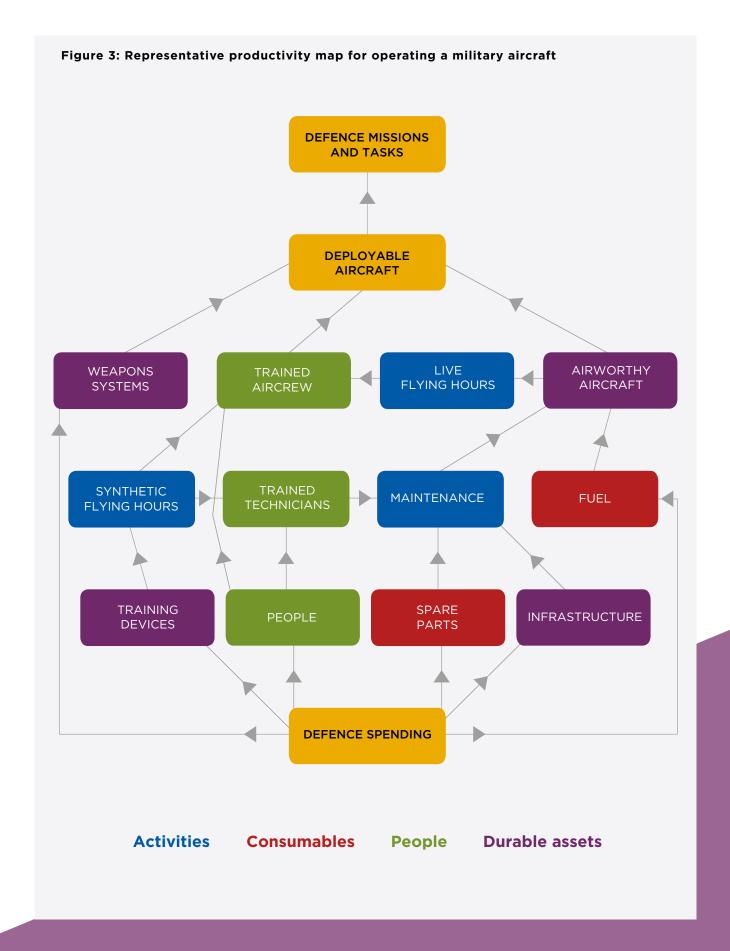
The methodology described here helps us to understand productivity trends, and testing

the results against international or civilian benchmarks gives an indication of how productive the armed forces are. The MOD started to roll it out last year, prioritising expensive capabilities for which detailed output and input data are readily available.

Defence activity will continue to be stated in the National Accounts, using the output = input convention for the foreseeable future. The approach above is a first step towards addressing the unusual combination of productivity measurement problems that occur in a Defence context. It may be of interest to other public agencies who undertake contingency planning, or for evaluating influencing activity versus direct intervention.

The second
measurement problem
for Defence is that
deterrence of hostile
actors and potential
enemies is a
key outcome





AN INTERVIEW WITH JOHN PULLINGER, FORMER NATIONAL STATISTICIAN



WHAT WOULD BE YOUR 'ELEVATOR PITCH' FOR THE ROLE AND **VALUE OF STATISTICS** AND STATISTICIANS IN **PUBLIC LIFE?**

Statistics are a pillar of our society, supporting the decisions we make at home and at work, as individuals and collectively. They are part of the lifeblood of democratic debate. Good statistics and clear insight are a vital public good. They are our way of gaining insight into our society and can be used to ensure everyone is able to make good decisions in their lives.

For that reason we have to understand that statisticians are not just calculators. Rather, the statistician's job is at the heart of democracy.

COULD YOU SAY MORE ABOUT WHY STATISTICS MATTER?

Statistics matter across the policy landscape, whether it be taxes, benefits, interest rates, rail fares or student loans linked to inflation statistics, decisions on the budget linked to following fiscal rules based around GDP or GNI (Gross National Income) data, or resource allocation for schools, hospitals and local authorities using population data.

Sometimes, new data changes the perception of an issue, such as on calorie consumption impacting our understanding of obesity, or data on suicides helping to target resources at the most vulnerable groups.

New data sources turn things on their head, starting from the particular question, then thinking, 'what are the data sources that can answer that question?', rather than, 'here's a survey, what can it tell you about the world?'

These new sources have the potential to give us up-to-the-minute information about the health of our country's economy and society that can help policymakers make decisions that have real impact.

COULD YOU SHARE ANOTHER EXAMPLE OF HOW STATISTICS HAVE HELPED TO SHAPE UNDERSTANDING OF A PROBLEM?

The recent example I often use is about loneliness. We worked with officials across government to build a better understanding of loneliness across different groups. The results were surprising at first, but made sense when you thought about them.

We found that younger adults reported feeling lonely more often than older age groups. We found that people with limiting conditions, and those with limited sense of belonging to their area, were also more likely to feel lonely.

Prior to our analysis, the understanding of loneliness was largely as an issue that mainly affected older people.

WHAT ARE THE BIGGEST **CHANGES YOU'VE** SEEN IN THE USE OF DATA/STATISTICS IN **GOVERNMENT?**

The digital revolution we've all experienced has changed so much in life and my world. The world of statistics in government is no exception.

It's simply that more data, in richer and more complex forms, is now available than ever before. This offers a huge opportunity, and we are committed to constantly innovate to better understand our society, our economy and our own lives.

As recently as 2016, the Office for National Statistics (ONS) was publishing around 1,000 data series for trade statistics. We have now increased this to over 100,000 to help people make better-informed decisions.

But we could do so much more. Using real-time information already held by government we could understand complex changes to the economy and society faster than ever before. This data could be safely put to use by official statisticians for the public good in ways that protect confidential personal information



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This richer data would offer opportunities to improve how we as a country make decisions. But important responsibilities This richer data would offer opportunities to improve how we as a country make decisions. But important responsibilities also come with accessing new data.

As a result, I have been proud that we have been able to establish the National Statistician's Data Ethics public benefits of projects using sensitive data can be rigorously tested out in the open, in a transparent and publicly accountable way.

HOW IS ONS LEADING THE WAY?

The ONS is uniquely placed to harness the potential of big data and new data sources to most important questions in

We are already delivering new insights into the economy, about how lives differ across generations, and about our relationships with other nations.

We are building expertise in the innovative application of data science through our Data data sources and provides about links between ethnicity and low pay, and even how the affects the price of your home.

With this new data come new responsibilities. Recent developments in technology and statistical techniques also mean we are able to better integrate and analyse large and complex administrative datasets.

information. It is essential that this is handled securely and with the respect it deserves.

ONS has a track record for this and only using such data for statistics. It has been responsible for the personal data recorded in every Census since its inception.



The trick for the analyst is to put yourself in the position of the user: what do they need to know?



One key reason why we hold personal data is to join multiple records together from different sources to produce statistics beyond what is possible using the sources in isolation. Again, of linking data, for example the Longitudinal Study has been running since the 1970s.

Harnessing this new data is our communities. Crucially, only through effective communication of it can we enable government bodies, public services and the public to be equipped to understand the data that affects all of us.

HOW ARE WE TACKLING THE CHALLENGE OF **USING STATISTICS** ACROSS DEPARTMENTS **EFFECTIVELY?**

The Government Statistical Service works across departments, and there are increasingly good examples of bringing data together to paint a picture of an issue, drawing on all relevant sources. Crime, migration and some aspects of health are good examples, as is the Ethnicity Facts and Figures service on GOV.UK.

We still have a long way to go, and often the user has to work out how to get different data sources and then how to join them together. The trick for the analyst is to put yourself in the position of the user: what do they need to know?

ARE THERE ANY NEW EXPERIMENTAL USES OF STATS THAT EXCITE YOU?

Experimental uses of statistics are becoming exciting opportunities to help

Experimental superfast GDP estimates are giving us new ideas about how we can speed up our knowledge of changes in helping us understand changes such as assessing the results of a consultation on UK trade.

score matching, or predictive analytics, are giving new of policies such as academy schools, or operational activities such as tax gathering or border control. Often now, experiments are being rapidly scaled and adopted for wider application.

WHAT CAN WE LEARN FROM **OTHER COUNTRIES?**

There are countries who are more advanced than the UK in accessing new data sources and sharing information with their national statistics institutes.

The Digital Economy Act in 2017 helped to create the legal basis to do much more of that here. We now have a robust legal framework for taking in valuable new data sets from elsewhere in government and the private

Trustworthiness, quality and value are the pillars of the Code of Practice for statisticians introduced two years ago, and will be key to a thriving statistical system.

WHAT IS NECESSARY TO **CEMENT DATA/STATISTICS AT** THE HEART OF GOVERNMENT **POLICY?**

Communicating evidence effectively is as important as the quantity and quality of evidence itself. I was happy to welcome Parliament, an initiative of the charity Sense about Science, which works to promote the use of science and evidence.

Over the week we brought together parliamentarians and experts to talk about why evidence matters. MPs, peers and researchers heard from more than 20 different organisations, on everything from children's mental health and the quality of the air we talking about plans for the 2021 Census.

In our society, it should not be acceptable to squander the opportunity of taking any data already collected and using it to produce the best available evidence for the public good.

HOW DO YOU COUNTER FAKE NEWS AND THE MISREPRESENTATION OF FACTS AND STATISTICS?

The first point is that the analyst has to take responsibility for communicating the best evidence well, so that it is harder for it to be misrepresented. This means clarity about findings (and their limitations), great visualisation, and strong use of narrative as well as numbers.

When misrepresentation does occur, it needs to be challenged have the Office for Statistics Regulation, as well as other organisations like Full Fact, who are fearless in doing this in ways that make many of numbers think twice.



WHAT IS THE STATE OF STATISTICAL LITERACY IN **PUBLIC LIFE?**

I chaired the Royal Statistical Society's Getstats campaign for statistical literacy for three years, and we have a widespread problem in the UK.

In our data-rich world you cannot be an effective member of society without a good level of statistical literacy to help you deal with your finances, understand risk or be sceptical about claims made by politicians and advertisers.

I have been involved with some great programmes for journalists, MPs and members of the Civil Service policy profession designed to support them in becoming better at this - and their jobs. These programmes are always appreciated. Given this appetite to learn, there is scope for every statistician to be a helpful teacher to those who could use numbers better.

WHAT ARE YOU MOST PROUD OF DURING YOUR TIME AT ONS?

I am most proud of progress we have made on diversity and inclusion in our workforce.

There have been some inspirational initiatives on understanding mental health, helping people in the office to feel included. It's the people around you that make work a great place to be. ONS and the Civil Service has been that.



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WHAT HAVE BEEN THE HIGHS IN YOUR PUBLIC SERVICE LIFE?

Public service is a real privilege. The high points have been where people are recognised for the brilliant work they have done. In my last month in this job, we had the ONS Excellence Awards, where colleagues nominate each other.

This year's leadership award went to Tina Thomas. In just 12 months, she transformed the International Passenger Survey. In the first six of those, bullying and harassment fell from 22% to 17%, and discrimination from 18% to 14%. Most importantly, Tina's actions have brought about a feeling of inclusivity among our IPS interviewers. The change in mood is best evidenced by an unsolicited testimonial I received from one of them, who said Tina was "inspirational", "a role

model as an inclusive leader". concluding, "Leaders tend to have followers not subordinates. and I for one will follow her lead."

Statements like that are what make everything worthwhile.

AND THE LIGHTER MOMENTS...?

My career has been full of 'did that just happen' moments. Such as the time I was called to brief a minister at short notice and, bending down to get some papers from a drawer, I split my trousers from seam to seam. Quick work with a stapler made me decent until I got to the minister's office and sat down. Ping, ping, ping! Straight face, straight back, regular discussion with the minister. Then, a bit of an airy feeling as I made my way out of the room, carefully keeping close to the wall. Back to my desk and out with the stapler again!





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