CIVIL SERVICE QUARTERLY

FEATURE
THE CIVIL SERVICE,
BREXIT AND BEYOND

FROM ASDA TO BELMARSH
– HOW GOVERNMENT IS ATTRACTING
THE BEST PRISON OFFICERS

ROBOTS LEND GOVERNMENT
A HELPING HAND

Civil Service

CONTENTS

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

Civil Service Quarterly 16

Welcome to this 16th edition of Civil Service Quarterly.
In this edition, we cover a wide range of issues: from Brexit preparations to a dynamic new approach to policy development; and from the use of robotics in government to new ways of stimulating innovation in industry and science to support UK economic growth and enhance our defence and security.

All have something to say on how the Civil Service works now and the opportunities to be grasped and challenges met in order to make it the best civil service in the world.

Our lead article is from Cabinet Secretary and Head of the Civil Service Jeremy Heywood. In CSQ12 (October 2016) he wrote about the immediate Civil Service response to the result of the referendum on UK membership of the European Union. Now, as we move ever closer to withdrawal from the EU, he describes the indispensable contribution of civil servants to moving the negotiations forward and preparing the country for a new partnership with our European partners and a new global role for the UK outside the EU.

There is much that an open Civil Service can learn from its counterparts overseas, and much that they can learn from us. In this spirit, and as Head of the Policy Profession in the UK Civil Service, I welcome the article from Andrew Kibblewhite, my equivalent in New Zealand, on their Policy Project for improving capability in policy development and implementation.

The subject of the CSQ Interview, Andrea Siodmok, speaks about an approach to the design and delivery of policy in areas such as homelessness and crime reduction that is based on exploration and experimentation. As Deputy Director of Policy Lab in the Cabinet Office, Andrea leads the ambitious cross-government work to support the 17,000 policy-makers in government with cutting-edge tools and practices.

How to bridge the gap between developing a policy and putting it into practice – the so-called 'Valley of Death' – is the focus for Tony Meggs, Chief Executive of the Infrastructure and Projects Authority.

We are also fortunate to have an article from Andrea Leadsom MP, Leader of the House of Commons. She underlines how vital is the interaction between Parliament and the Civil Service and the importance of civil servants having the skills to support ministers on parliamentary business.

Just over a year after its launch, a campaign to recruit thousands of new prison officers is close to meeting its objectives ahead of time and under budget. Mark Adam from the Ministry of Justice charts the progress of the campaign and what lies behind its success.

The Digital Land Team from of UKGI look at the collaborative work that led to the creation of the Geospatial Commission. This new body will support the exploitation of the huge potential in geospatial data – information about location and place – to fuel new businesses and better public services

James Merrick-Potter and Daniella Chrysochou consider the efficiency benefits that robots and robotics can bring to public services and what is being done to accelerate the take-up of robotic process automation (RPA) across government.

Finally, a pair of articles look at support through the Industrial Strategy Research Fund and the Defence and Security Accelerator (DASA) for creating solutions to some of the big economic and defence challenges of the 21st century.

Chris Wormald

Sir Chris Wormald, Permanent Secretary, Department of Health

THE CIVIL SERVICE, BREXIT AND BEYOND

Jeremy Heywood, Cabinet Secretary
and Head of the Civil Service

One year after the Government triggered Article 50, and a year to go until the UK's departure from the European Union, this is a perfect opportunity to reflect on the progress made by the Civil Service in delivering on the EU referendum result and to look at the challenges ahead.

There are few, if any, peace-time precedents for the scale and complexity of the constitutional and organisational challenge of withdrawing from the EU.

Brexit is therefore a major test of the Civil Service's ability to adapt and change. I believe

we are rising effectively to that challenge and providing critical support to the Government. Since I last wrote in these pages, much has been achieved in supporting the Government to negotiate Brexit and prepare the country for life after we have left.

We have come a long way since Article 50 was triggered on 29 March 2017, and the recent decision by the European Council to welcome the agreement reached with the European Commission on parts of the draft Withdrawal Agreement legal text marks another critical milestone along the way to exit. The deal reached will protect our economic and security cooperation over the coming period and ensure a smooth transition into our future partnership with the EU. Cruicially, it will give businesses and citizens the time they need to prepare for our departure.

EU (WITHDRAWAL) BILL

All of this has required extensive and often rapid work, from providing creative legal and policy advice to support the formal negotiations in Brussels, to reassuring stakeholders in the UK, Europe and beyond about our approach and operational planning on the new customs and immigration systems after we leave.

One concrete example of this high-quality work is the European Union (Withdrawal) Bill, introduced in July last year. One of the most significant pieces of legislation ever proposed to Parliament, its passage will mark the end of the supremacy of EU law in the UK.

At the same time, it is designed to ensure that the UK exits the EU with the maximum certainty and continuity – so that, as far as possible, the same rules and laws will apply on the day after exit as on the day before, unless and until Parliament decides to change them.

This vital Bill is now making its way through Parliament. It is an integral piece in the jigsaw that will ensure that the UK's statute book functions properly after Brexit.

Producing the EU (Withdrawal) Bill is also a great example of the effective cross-departmental collaboration that has characterised the Civil Service's support for the Government on Brexit. Even more people across government will be involved in putting it into practice.

STRONG TRADITION

Assessing how to incorporate over 40 years of European law into domestic law is complicated. The work on this, led by the Department for Exiting the European Union (DExEU), which did not even exist 20 months ago, has delivered objective policy analysis and advice of the highest quality, from both policy-makers and government lawyers.

Second round of Brexit negotiations in progress at the European Commission

> Brexit is a test of
> the Civil Service's
> ability to adapt and
> change — and we
> have risen to the
> challenge.
>
> Jeremy Heywood

Government lawyers have a strong tradition of cross-departmental working. This has been strengthened by the fact that, through the Government Legal Department (GLD), we have brought most government legal teams into a single unified organisation. They are drawing on all their expertise in EU, international, constitutional and administrative law, as well as subject-specific legal expertise (agriculture, trade, immigration, transport, and so on), and on their experience in negotiating international treaties and drafting legislation.

Since June 2016, GLD has recruited over 350 new lawyers, many of whom are working on EU withdrawal issues. In addition, departments have been calling on external lawyers, through panels established by GLD, to assist on particular topics such as financial services, energy and international trade.

'CLEARING THE THICKET'

An important role for civil servants is 'clearing the thicket'. Policy advisers and other specialists are cutting their way through the legal and legislative complexities of Brexit, briefing Ministers so that they can take the required decisions, armed with all the information they need. The various cross-government Functions – Technology, Commercial, Digital, Finance, HR, Legal, and so on – are supporting this work, particularly as negotiated outcomes or plans are turned into deliverable work programmes, procurements and projects.

Within the Cabinet Office, the Europe Unit, led by Olly Robbins, has helped draw together this cross-government work too. Since its creation in October 2017, this small unit has supported both the formal negotiations in Brussels and the process of

coherent and timely decision-making in the UK. It has been a mammoth task, and success has relied on continued seamless collaboration with DExEU and other departments, together with UKRep, our experts in Brussels.

We knew from the outset that exiting the EU would make huge demands on the Civil Service and would require all the accumulated professional capability of civil servants. We haven't hesitated to provide new staff and resources to bolster those parts of the Civil Service facing the greatest pressures. We also recognised that, after four decades, the UK lacked some of the specialist skills for tasks that had been centralised within the EU. Most obviously, the UK was short of the specialist trade negotiators we would need when, as confirmed by the European Council, the UK starts to negotiate and sign trade deals during the Implementation Period.

10 DOWNING STREET
LONDON SW1A 2AA

THE PRIME MINISTER   29 March 2017

Dear President Tusk

On 23 June last year, the people of the United Kingdom voted to leave the European Union. As I have said before, that decision was no rejection of the values we share as fellow Europeans. Nor was it an attempt to do harm to the European Union or any of the remaining member states. On the contrary, the United Kingdom wants the European Union to succeed and prosper. Instead, the referendum was a vote to restore, as we see it, our national self-determination. We are leaving the European Union, but we are not leaving Europe – and we want to remain committed partners and allies to our friends across the continent.

The letter to European Council President Donald Tusk from Prime Minister Theresa May triggering Article 50

BUILDING TRADE CAPABILITY

To meet the immediate challenge of supporting the Government in the exit negotiations, we had to get the best out of the many brilliant current civil servants who do have experience of negotiating in and with Brussels. We did this while supplementing that expertise with specialists from outside where they were most needed (as we have seen in the GLD-appointed panels), and tackling the task of improving our skills for the longer term.

Looking to our future outside the EU, we are now steadily building up the Civil Service's trade capability through a new International Trade Profession that will allow us to make the most of the new opportunities for the UK in having an independent trade policy for the first time in 40 years.

The profession will be launched formally in May, headed by Crawford Falconer, Chief Trade Negotiation Adviser at the Department for International Trade (DIT). It aims to support staff in developing their trade careers and to create a cross-government network of trade experts.

DIT itself now has more than 3,500 staff, with global reach through more than 1,400 colleagues in its international network. Recruitment to the department's Trade Policy Group has specifically included officials with trade and negotiating experience.

The Government is seeking continuity for business, investors and consumers in relation to existing EU free trade agreements and other EU preferential arrangements. During the Implementation Period, the UK's and EU's shared aim is for international agreements - to which the UK is a party by virtue of EU membership - to continue to apply to the UK as now. The EU has stated that the UK is to be treated as a member state for the purposes of international agreements (including EU trade agreements). DIT continues to work with countries to ensure there is no disruption for business and consumers.

COMMON FRAMEWORKS

Just as for the UK Government, Brexit will also have major implications for the devolved administrations of Scotland, Wales and – once it is reestablished – the Northern Ireland Executive. Civil servants in the devolved administrations are working hard to prepare their own statute books, anticipate the return of powers previously held in Brussels, and set out their priorities for the negotiations. This also brings added importance to the relationships between the UK Government and the devolved administrations. Since December, the Joint Ministerial Committee (EU negotiations) (JMC(EN)) has met three times. The Joint Ministerial Committee (Plenary), chaired by the Prime Minister, took place on 14 March, allowing for

discussions on the negotiations and on key issues such as the EU (Withdrawal) Bill. Through these structures, progress is being made on common frameworks for the UK, to make sure we protect our internal market and fulfil our international and trade obligations while respecting the devolution settlements. One of the achievements of JMC(EN) was the agreement on frameworks principles in October 2017, which was underpinned by outstanding working by officials across all administrations.

BEST POSSIBLE RESULT

Now, the next phase of the negotiations, on the terms of our future security and trade and economic relationship with the EU, is about to begin in earnest.

The Civil Service will continue to make it our highest priority to support the Government in achieving the best possible result for the UK from the negotiations and making sure the country is ready for exit.

In all this, we are drawing on traditional Civil Service strengths in policy-making, law and finance. But we have not taken our eyes off what comes after Brexit, and building the new strengths we will need. The work of the cross-government Border Planning Group typifies the detailed, collaborative approach needed to make sure we are ready for withdrawal under all scenarios. This cross-departmental group is planning not only for Day 1 after withdrawal – to ensure continuity of border management, maintaining security, the flow of goods and people, and the collection of revenues – but for the longer term, so that the border functions properly after Brexit. This is no less than the public would expect or demand.

COMPLETE FAITH

Lastly, as a Civil Service, we could hardly fail to be aware of the recent, public, conversation around the reliability of analysis and information produced by parts of the organisation in relation to Brexit. I would only restate that we are constitutionally committed – and culturally conditioned – to give honest, objective, impartial advice, based on the available evidence, regardless of any other factor. I have complete faith in my fellow civil servants and that we will continue to meet this high standard.

THE WORK OF THE BORDER PLANNING GROUP

Making sure the UK's borders continue to work effectively when we leave the EU is a critical responsibility of government. This work has obvious security, safety, health and economic dimensions.

The cross-government Border Planning Group typifies the combined preparatory and long-term planning role of the Civil Service in the lead-up to and looking beyond Brexit, from Day 1 onwards – whatever the eventual circumstances of the UK's withdrawal.

The BPG involves all the government departments responsible for border-related activity. It consists of around 30 separate departments and agencies, including HMRC, DEFRA/FSA, Home Office/Border Force, DfT, DIT, BEIS, FCO, DCMS and DoH. Its focus is on operational effectiveness, rather than policy, and is planning the readiness and implementation of what is negotiated and agreed.

Supported by a new cross-government Borders Delivery Group, the group's task is to scope and define all the changes needed to ensure that the border operates when we leave the EU, and then that those changes are planned and delivered effectively.

However, making the border work is not just about what government does, but how industry, and much of the transport sector, functions. The Borders Delivery Group also manages engagement with the many organisations that use, operate and support the border, making sure they all understand and plan for the changes that are coming. They include border organisations (like port and airport operators); hauliers, freight forwarders and agents, ferry operators and airlines, and Local and District authorities that carry out compliance functions for ports and airports.

Through this work, we have gained a clear understanding of which border locations EU exit will most affect. For example, the roll-on/roll-off ports (such as Dover) and Eurotunnel, which handle a high percentage of the UK's trade in goods with the EU. Also, we now have an appreciation of which sectors and industries will be most affected by change at the border. As we work more with these industries and locations, we are increasingly engaging with EU counterparts at an operational level, so that we are all working to similar planning assumptions.

CROSSING THE 'VALLEY OF DEATH'

Tony Meggs, Chief Executive of the Infrastructure and Projects Authority (IPA)

BRIDGING THE GAP BETWEEN POLICY CREATION AND DELIVERY

The 'Valley of Death' may sound an overly dramatic description for the gap between developing a policy and putting it into effect. However, if you have had the misfortune of dragging an ailing policy through that valley, under the beady eyes of circling media vultures, then you will understand. As you will if you've been a policy implementer waiting on the other side of the dead zone to try and revive said policy. If you've been in either position, or neither, read on to learn how we can bridge that gap.

As Chief Executive of the Infrastructure and Projects Authority, I oversee support for the efficient and effective delivery of all types of infrastructure and major projects. These range from railways, schools, hospitals and housing, to defence, IT and major transformation programmes. We are also there to improve performance over time.

IMPLEMENTATION

The vast majority of government policies are delivered through the implementation of a project or programme of some description. These projects and programmes span a wide range, from capital intensive infrastructure and military equipment projects, through to IT projects and major transformation programmes such as Universal Credit or Courts Reform. Irrespective of their diversity, they have one thing in common: If the projects are not successfully implemented, then the policy objectives are not delivered.

'VALLEY OF DEATH'

In the world of research and development, it is well understood that turning a successful piece of research, a laboratory discovery, into a usable product or service is difficult. That is why the gap between research and successful commercial development is sometimes known as the 'Valley of Death', so hard can it be to cross from one side to the other. In a similar vein, we can think of the space between policy development and policy delivery as another valley of death because it represents the space in which so many policy initiatives are undermined, sometimes fatally, as they are thrown across the valley from the 'policy' team to the 'delivery' team.

THE SIX SINS OF PROJECT FAILURE

The common causes of failure in major projects are well rehearsed. They are pretty much the same outside of government as within, and across a wide range of project types:

- lack of clarity around project objectives;
- lack of alignment among stakeholders;
- unclear governance and accountability;
- insufficient resources, whether human or financial;
- inexperienced project leadership; and
- over-ambitious cost and schedule.

Well-designed projects address all of these issues, and more, in the vital project initiation phase. Taking time at the beginning to ensure that objectives are crystal clear, stakeholders are aligned, accountabilities are well-defined, and so on, saves enormous pain and heartache later on. Good project initiation maximises the chance of a successful outcome; poor project initiation is a harbinger of failure further down the line.

INITIATION PHASE

It is in this initiation phase that government projects can be at a unique disadvantage. Good project initiation takes time, and time is generally in short supply. The amount available is often determined by the demands of the electoral cycle and the commitment of governments to deliver their agenda within it.

It is entirely appropriate for government to make such commitments and be held to account. For civil servants and policy-makers, these circumstances are a fact of life. If we do the right initiation work, announcements can be made with confidence and promises delivered upon – bridging that yawning gap.

I believe the single most powerful thing that we can do to improve the successful delivery of government priorities is to establish a seamless flow and inter-connectivity between policy conception, policy development, and policy delivery to ensure that we apply best practice from the earliest phase of policy development

What does this mean in practice? Here are my top four suggestions:

1. ALWAYS INVOLVE DELIVERY EXPERTISE IN POLICY DEVELOPMENT

Policy teams should continuously consider implementation issues: how will this policy actually get delivered; how can the policy be adjusted to make it easier to deliver; what will it take in terms of resources; how long will it take; what can we learn from similar developments elsewhere? The most reliable way of ensuring that these issues are addressed up front is by including someone with project or other operational expertise from the very start, as part of the policy development team.
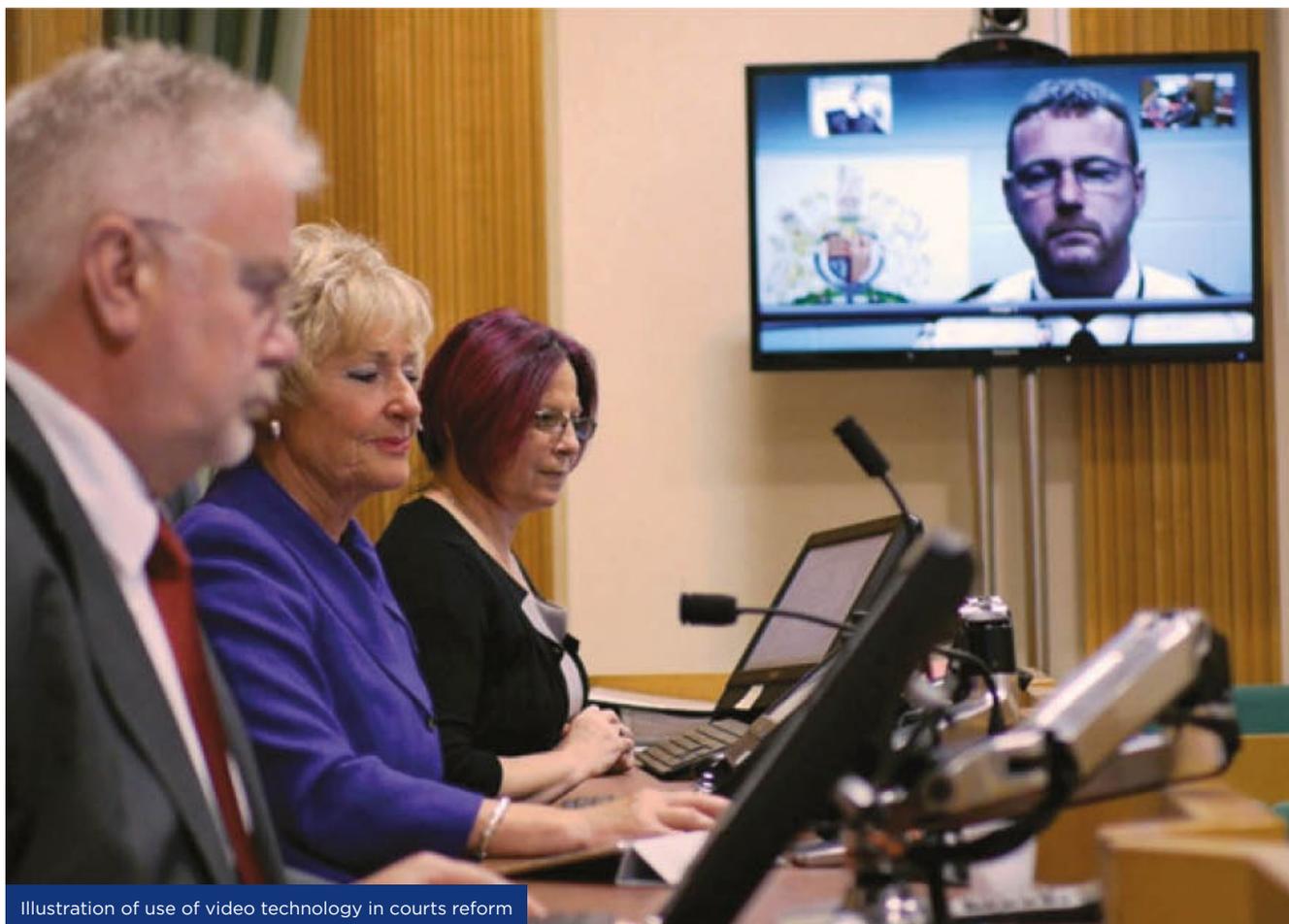
Illustration of use of video technology in courts reform

> "...the single most powerful thing that we can do to improve the successful delivery of government priorities is to establish a seamless flow and inter-connectivity..."

2. GET AN INDEPENDENT ASSESSMENT OF DELIVERABILITY BEFORE ANNOUNCEMENTS AND COMMITMENTS ARE MADE

There is always a need for independent expert assessment of project plans. This is to counter the inevitable optimism bias that affects any project in its early phases. The IPA can help here, as can departmental assurance teams, peer review teams from other departments, or external experts. The important thing is to calibrate each project or programme against real world experience from outside the project.

3. TAILOR ANNOUNCEMENTS ACCORDING TO THE DEGREE OF DELIVERY CONFIDENCE

There is a delicate balance to be struck between giving out something that's newsworthy and over-committing on detail. This will give time and space for proper option analysis as part of initiating the project. As the project moves through the appraisal and option selection process, then more detailed and specific announcements can be made.

4. UNDERSTAND AND EMBRACE UNCERTAINTY

Frequently in government we try to define quite specific outcomes, despite having very uncertain circumstances and highly imperfect information. This, especially when combined with optimism bias, can lead to disappointment all around. Policy initiatives, and their associated implementation programmes, often make very broad assumptions as to how the public will react to a policy when it is implemented, and therefore what benefits will be delivered. Unfortunately, the large uncertainty range associated with those assumptions is frequently forgotten as business cases are written and approved, and the benefits banked in advance.

There is a strong case for understanding uncertainty in a more systematic and quantitative manner and trying to define it. For example, if the level of uncertainty is large enough to jeopardise the project, could a pilot project be undertaken to establish an acceptable level. These suggestions are all in service of one objective: to increase the probability of successful policy implementation by making delivery planning an integral part of the policy-making process.

The more we can do to operate in a seamless and integrated way from the very beginning, the closer we will come to bridging the Valley of Death and improving the probability of successful delivery of government policy.

For more information about the IPA, visit www.gov.uk/ipa, email ipa@ipa.gov.uk or follow us on Twitter @ipagov.

UNIVERSAL CREDIT

Universal Credit – the biggest modernisation of the welfare system in a generation – originally suffered from having delivery timetables and costs committed to and announced before having properly engaged with delivery teams. This resulted in an over-ambitious project that didn't fully recognise what was required to achieve its transformational aims on the scale envisaged.

This led to a reset in 2013 and a rethink of the entire delivery approach to enable a more realistic prospect of successful delivery. The Department for Work & Pensions (DWP) changed its deadline for complete roll-out within two years to a new 'test and learn' approach. This involved rolling out the programme safely and securely in incremental stages, iterating the service as it went, with a multi-disciplinary team in place comprising both Operations and Policy teams embedded in the programme to design and deliver.

This new approach and the introduction of multi-disciplinary teams was a first for the department, but it has now changed the way we approach large-scale projects into delivery.

CURIOSITY, CREATIVITY AND A CAN-DO CULTURE

– THE LAB COLLECTIVE

Interview with Andrea Siodmok, Deputy Director, Policy Lab

WHAT IS THE POLICY LAB? WHY ARE YOU CALLED A ''LAB''?

We are an award-winning start-up in government based in the Cabinet Office, seed-funded by the Policy Profession, with a huge ambition to support 17,000 policy-makers with cutting-edge tools and practices. We work with teams across government on key priorities such as homelessness, employment support and crime reduction – our first project is showing early savings of 180,000 hours of police time and £3.7 million efficiency savings. We don't wear white lab coats, but curiosity and creativity are at the heart of the Policy Lab ethos of exploration and experimentation.

WHAT SORT OF POLICY PROBLEMS DOES THIS APPROACH WORK BEST WITH?

Our policy problems usually cross existing departmental silos as well as involving change outside the traditional levers of government. We have worked successfully on subjects as diverse as social housing and cybersecurity as well as cross-government challenges such as the PM's Anti-Corruption Strategy and the Industrial Strategy Grand Challenges.

Our comfort zone is working with complex, intractable, highly uncertain policy areas, but in reality we can work with any policy team to support them to work in new ways. Everything we do is bespoke, so the team takes care to spend time with policy leads to understand what constraints are fixed and where there is an appetite to push the boundaries.

WHAT MAKES THE LAB DIFFERENT IN ITS APPROACH TO DEVELOPING POLICY?

The most notable difference to more traditional approaches is that much of our work is in the field – literally getting our feet dirty – discovering insights, co-designing and testing policies with a range of people across the country. Central to this is the spirit of open policy-making, acknowledging that policy-makers don't have a monopoly

on wisdom and that good ideas can come from many places – from citizens, frontline workers, academic experts, as well as private sector entrepreneurs and innovators.

HOW DO YOU SEE YOUR ROLE?

Fundamentally we are here to support the design and implementation of new policies. We see our role to listen, to inspire and to enable. In practice, this means every project is different, sometimes we form joint teams, where we wrap around a policy-team and work 'hand in glove'. In other projects we help teams navigate a range of world-class policy tools from data science to design. It's always a joint effort playing to the strengths of the team.

DO YOU WORK WITH EXTRA-GOVERNMENT BODIES ON PROJECTS?

Yes, we nearly always work with external organisations and experts on projects. Sometimes a project is instigated by an extra-governmental body, such as our work on social care with SCIE (Social Care Institute for Excellence), and on the role of arts in civic society with the Calouste Gulbenkian Foundation. More commonly we work with a range of organisations to use co-design to ensure a policy is workable and evidence-based, such as our recent collaborations with the What Works Centres and the Government Office for Science.

WHAT ARE THE SKILLS AND BACKGROUNDS OF THE PEOPLE WHO WORK IN THE LAB?

We are a small team of around ten people including specialist ethnographers, researchers and designers. All our projects are led by senior policy advisors who are seconded into the team from other government departments. We also provide paid student placements and research fellowships, with recent partnerships with Cambridge University, The Royal College of Art, Northumbria University, University of the Arts London, as well as the Royal Society of Arts.

ARE YOU A TROUBLESHOOTER FOR FAILING POLICY?

Not really. We see our value in helping teams bridge strategy and delivery by testing and learning early in the policy development process. There is no doubt that un-tested policies are more risky, which on occasions can lead to catastrophic failure. Our approach reduces this likelihood by building prototypes and testing them when there is still time to adapt and to learn from mistaken assumptions. James Dyson created over 5,000 prototypes for his first vacuum cleaner – how many of us can honestly say we have tested and iterated policy even a fraction? Clearly, a national policy is not a household product, but our belief is that there are parallels and that testing and prototyping policies is important before they get too big to fail.

Mapping out the policy landscape

Policy Lab uses visualisation techniques to get to the heart of policy problems

> ...good ideas can come from many places – from citizens, frontline workers, academic experts as well as private sector entrepreneurs and innovators.

HOW MANY POLICY PEOPLE HAVE YOU WORKED WITH?

We intensively work with around 500 policy-makers a year and share our practical tools with a further 5,000 civil servants. Our visitors come from around the world, and we have met with over 50 countries to share best practice. Our Twitter account @policylabUK, open policy-making blog, toolkit and Slideshare also add thousands of views to our content. We've also done a couple of TEDx talks, most recently for the Welsh Government. Where possible we like to share our evidence and assumptions to demystify policy-making and improve government transparency.

WHAT NEW TOOL OR TECHNIQUE ARE YOU REALLY EXCITED ABOUT?

One that immediately comes to mind is something called 'speculative design'. This has sprung from the work of researchers at the Royal College of Art that uses visualisation techniques. We are adapting these to tackling policy issues. For example, we worked with the Government Office for Science on the Future of Rail and the Future of Ageing using this approach. The result was that the sessions we hosted got to the heart of the policy problem more quickly than if the evidence had been presented in another way.

WHAT IS THE FUTURE FOR POLICY LAB?

We aim to deliver ten large projects each year, so we have to make tough choices as demand for our services grows. Looking to the future, as part of a Brilliant Civil Service, we have to scale up our ambition and encourage others to take up the gauntlet, acting as a hub to share best practice. Some departments are already setting up their own Labs, notably HMRC and DWP. But we also see our role to ensure the UK is world-class, so we actively share our experience with an international network of innovation labs. We are members of Nesta's new 'States of Change' faculty and regularly host international visitors. We are also collaborating with LSE and Oxford SAID to deliver world-class training to a number of other governments as well as our own Senior Leaders and Fast Stream talent schemes.

DO YOU HAVE A MESSAGE FOR POLICY PROFESSIONALS WHO MAY NOT HAVE COME ACROSS YOU BEFORE?

Our door is always open, so please contact us with your questions and we will be happy to help. You can reach us by emailing policylab@cabinetoffice.gov.uk and find out more by following us on Twitter @PolicyLabUK. We are also presenting at all the Civil Service Live events across the country this year, so come and find us and meet the team. We look forward to hearing from you.

THE NEW ZEALAND POLICY PROJECT

Andrew Kibblewhite, Head of Policy Profession, New Zealand Government

REFLECTIONS ON THE FIRST THREE YEARS

The Policy Project

Responsive today,
shaping tomorrow

During my recent trip to the UK, Chris Wormald, Head of the UK Civil Service Policy Profession, asked me to share my perspectives, as his New Zealand counterpart, on lifting policy capability and quality.

NEW ZEALAND'S POLICY CONTEXT

Before the Policy Project began in 2014, there were numerous attempts to improve policy capability and performance in New Zealand. Despite these, the Policy Project reached a similar diagnosis of the 'policy problem' in the Policy Project Narrative:

- policy is of variable quality;
- a shortage of skilled senior policy advisors (equivalent to UK Grade 7);
- policy advice sometimes lacks evidence, evaluation of effectiveness, and feedback on the needs of users;
- we meet the immediate demands of ministers but don't invest in policy capability for the future; and
- weak cross-government systems for collaboration, alignment and prioritisation.

POLICY PROJECT – INITIAL PHASE

To tackle these issues, we adopted a 'collective impact operating model' – based on Stanford University's model of social innovation – hoping this would ensure changes were more substantial and enduring.

During the first two years, the Policy Project concentrated on:

- establishing the Head of Policy Profession role;
- connecting conversations across the policy community to identify challenges to policy capability and performance;
- building the relationship capital we need to enable change; and
- using design-thinking techniques with policy leaders, managers and analysts to co-design three foundational frameworks for policy improvement.

PM LAUNCHES POLICY FRAMEWORKS

In August 2016, Prime Minister John Key launched the three frameworks for policy improvement that spearhead

Diagram 1: Collective impact operating model

QUALITY ENABLERS

Individual pieces of work or policy projects are commissioned, planned and managed well

We seek out diverse perspectives to add rigour to our analysis and advice

We are agile and responsive while we are doing the work

We understand our story and what works

QUALITY ADVICE

Engages the decision maker and tells the full story

Is informed by evidence and insights and is analytically sound

Our conversation with decision makers is ongoing, and aims for increased certainty

Work programming and resourcing is deliberately managed

Balances what is desirable, can be delivered and is cost effective

Is put in context, links to the desired future state and exposes risks, opportunities and implications

We generate and draw on relationship capital

Quality assurance is habitual and supported by culture, systems and processes

Diagram 2: Quality characteristics, enablers and acid tests of the Policy Quality Framework

the Policy Project's approach. They focused on: skills; capability; and quality.

The Policy Quality Framework describes the key characteristics of quality policy advice, as well as identifying the enablers of great advice. This framework and its accompanying tools are being used by many agencies as they develop papers and perform agency-wide reviews of the quality of advice.

The Policy Skills Framework sets out the knowledge, applied skills and behaviour that public policy professionals need to deliver quality policy advice. It comes with tools to enable individuals and teams to identify where development is needed. It can also add value in areas like recruitment, performance assessment and remuneration decisions.

The Policy Capability Framework sets out the key questions that agencies need to answer to assess their policy skills. It is now used by many agencies to test their capability and identify improvements for producing quality policy advice.

All of this was overseen by a new Policy Profession Board comprising chief executives (similar to UK Permanent

Secretaries) and deputy chief executives chosen for their potential to be system-level champions. This reflects lessons from the UK, without going as far having formal departmental heads of policy profession.

In early 2017, the project was strengthened by two important developments that have given it a much firmer base of financial and stakeholder support for

improving policy capability and performance in 2017-2020:
1. Establishment of a Policy Capability Leads Network of policy practitioners and managers who already take a lead role in improving their agencies' policy capability.
2. Policy Profession Board agreement to seek three-year club funding commitments from larger agencies.

Knowledge (what I know)

Applied Skills (what I can do)

Behaviour (how I am/act)

Domain knowledge

Evidence, Insights and Evaluation

Strategic Thinking

Improvement and Innovation

Government systems and processes

Analysis

Feedback and Coaching

Agility

Design for Implementation

Communication

Political Context and Priorities

Plan and Manage Work

Political Savvy

Advise and Influence

Engagement and Collaboration

Public Service Foundations

Core State Sector Legislation | Leadership Success Profile | Code of Conduct | Treaty of Waitangi | Machinery of Government

Diagram 3: Policy Skills Framework: knowledge, applied skills and behaviours

CURRENT DELIVERY FOCUS

Progress since the second half of 2017 has included:

- devising of an online Policy Methods Toolbox, emphasising methods like design thinking, behavioural insights and a 'Start Right' commissioning tool;
- a policy workforce analysis to identify issues and assess the appetite for collective action.

We are also:

- helping the Policy Profession Board expand its role to include developing and deploying senior policy leaders (as one of three public-service-wide Career Boards); and
- developing guidance and support for agencies to foster a culture of Free and Frank Advice and Policy Stewardship (now published with supporting Frequently Asked Questions).

WHAT HAS WORKED SO FAR?

In the first three years of the Policy Project, the four approaches below have made an important contribution.

1. **Do with, not to** – we have generated a lot of goodwill and ensured relevance by involving policy leaders, managers and practitioners in

| Stewardship | Policy Quality Systems |
| How well do we focus on policy outcomes and builld capability for the future? | How well do we enable and support the delivery of quality policy advice? |

POLICY CAPABILITY

| Engagement Customer-Centric | People Capability |
| How well do we meet the expectations of ministers, customers and other stakeholders? | How well do we ensure we have the right skills in the right place at the right time? |

Diagram 4: The four dimensions of the Policy Capability Framework

developing a common change agenda and solutions.

2. **Steal with pride** – we have avoided 'reinventing wheels' by taking what has been successful elsewhere and working it into our frameworks.

3. **Outside-in legitimacy** – domestic recognition of our approach and common frameworks was assisted by receiving some international recognition, including from Australia (e.g. on people-centred policy and free and frank advice) and the OECD (skills for a high-performing civil service).

4. **Influencing the people who make decisions** – we have

hosted executive roundtables with international and domestic subject matter experts, and published 'conversation trackers' from these events to help stimulate demand for more innovative policy methods.

I look forward to the next three years of the Policy Project, as we build on our progress and work with the policy community to design and implement innovative solutions for these challenges. I hope the tradition of exchanging knowledge and wisdom between New Zealand and the UK continues to benefit us both in the coming years.

ONGOING CHALLENGES

The Policy Project faces a number of challenges as we work to improve the quality of policy advice, so that government decisions more consistently improve the wellbeing of New Zealanders. I am sure these will ring true to UK policy developers:

- **Complex system level barriers** – we are working over the long term to reduce barriers to agency change. These include accountability requirements, resource constraints, and fragmented governance arrangements. We need to address whether we have the right institutions and mechanisms for better policy collaboration, prioritisation and stewardship.
- **Role and goal clarity** – the Policy Project focuses on building policy capability rather than actual policy development. Even so, it is vital to identify the right objectives and the right sequencing of interventions to achieve them.
- **Behaviour change** – we are ensuring all our activities are easy to use and hard to avoid. We are particularly focused on supporting agencies to adopt our frameworks.
- **The management cohort** – the pressure to deliver according to the status quo weighs most heavily on policy managers. They have less of a mandate than senior policy leaders to drive systemic reforms, and more incentives to prioritise delivery over change.
- **Measuring impact** – the Policy Project monitors its webpage traffic, framework uptake, event attendance, and policy quality impact. The challenge now is to show how this has resulted in real changes to policy quality.

PARLIAMENT AND THE CIVIL SERVICE

Rt Hon. Andrea Leadsom MP, Lord President of the Council and Leader of the House of Commons

Parliament is the centre of our democracy. Civil servants are always very interested in what goes on there and how it works – because Parliament is very interested in them. In what is a historic time for Westminster, I want to encourage all officials, wherever you are in the UK, to remember that Parliament matters.

Every week I read out the forthcoming business for the House, after which MPs have an opportunity to ask for a debate or statement on any issue. If you are a civil servant, the chances are that from time to time MPs will ask to scrutinise something related to your work. Hence, Parliament matters. As a government, we should champion its work by engaging with it as positively as we possibly can.

ADVOCATES AND CRITICS

MPs and peers scrutinise every aspect of the work of HM Government and the public services it delivers. If you work for the DVLA in Swansea, the Commons' Transport Select Committee will be paying close attention to your performance. If you are in a far-flung embassy, the All-Party Parliamentary Group for the country you're working in will be keen to learn more about your work. All those working in public services are guaranteed to have passionate advocates fighting their corner, as well as strong critics about how the delivery of those public services should be improved, on the green and red benches.

Some may feel daunted by such intense scrutiny. The Commons chamber does not always feel like the most comfortable of environments for government ministers (and nor should it). Yet ministers always listen carefully to what MPs and peers have to say.

PLUGGED IN

While the Palace of Westminster is a uniquely distinctive building sitting on its own beside the Thames, it houses a Parliament that is connected to our public life in myriad different ways. From e-petitions and select committee inquiries, to the 'surgeries' MPs hold to hear the problems faced by their constituents, Parliament is plugged into the

> All those working in public services are guaranteed to have passionate advocates fighting their corner.

Andrea Leadsom, Leader of the House of Commons

WHY POLICYMAKERS SHOULD CARE ABOUT PARLIAMENT

- Be aware that select committees take a great interest in your work. MPs run inquiries which investigate topical issues and their evidence sessions regularly produce news stories.
- Your first instinct might be to legislate, but it is not always the best option. In this busy, historic session of Parliament, it may be that you can achieve the same result without having to push forward with a bill.
- Ministers are expected to notify an MP if they visit their constituency in an official capacity. Failure to do so results in complaints on the floor of the House.
- The principle that all policy announcements should be made to Parliament first is taken very seriously by the Commons – and Mr Speaker is more likely to allow Urgent Questions whenever he feels this principle is not upheld.
- Secondary legislation is receiving more scrutiny in this Parliament, making it more important than ever that statutory instruments are well-drafted.

work of every civil servant in the country. So when MPs raise issues they care about, we should all recognise that they aim to do so in an informed, considered way.

This, after all, is the essence of our democracy. Parliament acts as a funnel: if something is going wrong in your department, or if something could be done better, sooner or later that message will find its way to MPs and peers. When it does, we shouldn't expect them to keep quiet about it: politicians know the value of campaigning hard until they achieve a change. So they make their case to ministers, and the Government, which is committed to sustaining a flourishing democracy, responds striving to be as responsive and consultative as possible.

UNDERSTANDING PARLIAMENT

Because we can all help with this process, civil servants need to understand how Parliament works. Civil Service Learning offers courses on Parliament that will help you appreciate – among other things – how your work is scrutinised; how the stakeholders you are dealing with feed their views into Parliament; how Parliament makes laws – and the many ways in which Parliament can put your minister on the spot.

I feel I have something to offer here, too. As Leader of the House of Commons I am responsible, along with the Chief Whips of both Houses and the Leader of the House of Lords, for overseeing the Government's

legislative agenda. I chair Cabinet's Parliamentary Business and Legislation Committee, which is something akin to a 'Dragon's Den' for Bill proposals. We demand high standards precisely because Parliament is so effective at scrutinising our proposed policy changes.

CHAMPIONS

As part of this, and broader efforts to improve parliamentary capability, each department now has a designated Parliamentary Champion. Their role is to promote the importance of Parliament and an awareness of how it works, and to make sure that departments take Parliament's requirements into account when making decisions. They are also there to make sure that civil servants have the skills needed to support ministers on parliamentary business, including Bills and statutory instruments.

If you want to know more about Parliament, and how to gain the skills and experience you will need when dealing with it; or if you have any ideas about how to improve your department's relationship with Parliament – your departmental Parliamentary Champion is the person to approach. Whatever your role in the Civil Service, I hope you will think about the interest Parliament takes in your work.

FROM ASDA TO BELMARSH

Mark Adam, Prison Officer Recruitment Programme Director, Ministry of Justice

HOW GOVERNMENT IS ATTRACTING THE BEST PRISON OFFICERS

Prison officers are an essential part of the justice system. But between 2010 and 2016, prison officer numbers dropped by nearly 25%, while the numbers of offenders in custody increased.

The Ministry of Justice (MoJ) and the department's executive agency Her Majesty's Prison and Probation Service (HMPPS) set up a small, multi-disciplinary team to recruit thousands of new prison officers to meet targets set out in a November 2016 White Paper. Just over a year later, it is close to meeting its objectives ahead of time and under budget.

A CHALLENGING BACKDROP

A key commitment in the White Paper, 'Prison Safety and Reform', was to gain a net increase the prison officer workforce by 2,500 by December 2018. The circumstances were hardly auspicious. The launch of the White Paper coincided with a number of prison disturbances. The pressure to recruit additional prison officers to keep prisons safe and reduce re-offending rates was acute.

> 66 With over 80,000 offenders in custody across over 100 prisons, the prison service is a big operation and attracts a lot of media. The White Paper commitments meant that the reputation of the department and its agency HMPPS were at stake. 99

Emily Tofield, Group Director, Communications and Information.

BUILDING THE TEAM

> "It was vital we did this [compiling the database] at pace, to inform investment and geographical media targeting decisions. It was also crucial for our operations teams to identify and deal with the bottlenecks in the application process.
>
> Will Rose, MoJ Deputy Director for Data and Insight for Human Resources (HR)."

In February 2017, MoJ set up a recruitment team based on three main principles.

1. **To be multi-disciplinary**
   It brought together HR and marketing specialists, analytics professionals, project managers and operational staff in a 30-strong team. This arrangement contributed to a sense of shared purpose and responsibility, and a focus on outcomes. In purely practical terms, working together in the same location made it possible to work more quickly, with instant responses and less email traffic.
   The team reported to the MoJ executive committee every fortnight. Weekly feedback to stakeholders used a specially created, comprehensive activity dashboard, with infographics to make the data easier to understand.

2. **To have the right leadership and governance**
   The leadership team prioritised rapid learning and improvement; the gathering and use of data to solve problems; managing suppliers by bringing them into the team; motivating the team; and building assurance.
   The governance structure allowed rapid decision-making and built trust. For example, the team had a small management board

that regularly reviewed progress, and meetings with ministers at least once a week. They also had direct lines of communication with the Director-General of Prison Reform and the Chief Executive of the Prison and Probation Service.

3. **To prioritise problem-solving using data analytics and insight**
   The team monitored the recruitment programme prison by prison, tracking each candidate's progress through the application, and identifying bottlenecks through the data produced by the process. Operational intelligence and applicant insight was used to support the data analysis. Candidate diversity was another aspect informed by data. As Adrian Scott, Director, Prison Reform Portfolio, adds: "Analytics was vital to reveal where in the recruitment process we were losing candidates from different ethnic groups."

QUALITY DATA

As this third priority suggests, the delivery of high-quality, timely evidence by the Data and Insight team has been fundamental to the programme's success. As well as ensuring that the key decisions were data-driven, it was

vital to winning the confidence of ministers, the MoJ executive committee and senior HMPPS leaders.

The data that supports the programme spans over a hundred prisons, thousands of prison officer posts and vacancies across the system, and thousands of applicants entering the multi-step application process.

MARKETING INSIGHT AND ACCURACY

Discussions with recent applicants and recruits from a previous campaign were revealing. While they were aware of frequent negative news coverage about prisons and the stark challenges facing prison officers, they said they didn't hear many positive messages. Learning from this, the campaign showcased professionals at work in prisons and emphasised the positive aspects of the role. These included the variety, professionalism and teamwork; the opportunities for training and career progression; the benefits of Civil Service employment; the pride and satisfaction in a socially valuable job; and the opportunity to turn offenders' lives around.

Postcode analysis of recent recruits also revealed that prison officer recruits are likely to come from social groups classified under the Mosaic system as: Aspiring Homemakers, Family Basics, and Transient Renters.

Campaign targeting proved a challenge. No professional qualifications are needed to be a prison officer. However, the less tangible qualities of judgement, integrity, resilience and strength of character are essential, as are good people skills. People with these qualities, not surprisingly, can be found in many different jobs. From a campaign targeting point of view, applicants join the prison service from a disconcertingly diverse range of organisations, sectors and disciplines – from ASDA to local sports clubs, from pubs to retail, call centres to the NHS, and from the British Army to Pizza Express.

Alongside the paid-for activity came a renewed emphasis on low-cost and no-cost PR. The team did not have budget of TV campaign proportions,

WORK LIFE

A ONE-DAY DIARY FROM MORNING LATTE TO LIGHTS OUT

12 9 3 6

Idaya Oseni, Prison Officer

Idaya Oseni, 27, is a prison officer at HM Prison Swaleside. She lives in Kent

MY ALARM GOES OFF…
At 6am. I'll eat toast, egg and beans. I iron my uniform – a shirt and trousers – and polish my boots the night before to save me time. We can wear make-up, but I tend to keep it light. I'll leave at 7am.

I'M RESPONSIBLE FOR…
The safety and security of category B male prisoners – those who've committed crimes that earn four years or more, such as robbery. I'd say 90% of this job is talking and providing a positive outlook when people feel low. I teach them ways to deal with problems, although you have to be professional and not become friends. A lot of prisoners have turned to crime as they feel there's no other option; I show them it doesn't have to be that way when they come out.

I GOT MY JOB…
After working as a retail supervisor – I'd studied TV journalism at university. I wasn't making an impact on people's lives, just dealing with complaints, so I applied for this job. I did 12 weeks of training and qualified in November 2016.

MY TYPICAL DAY…
Begins by checking into the prison

IDAYA OSENI LEFT HER JOB IN RETAIL TO RETRAIN AS A PRISON OFFICER

A RADIO IS VITAL FOR COMMUNICATING WITH COLLEAGUES

IDAYA HELPS INMATES MAKE POSITIVE PLANS FOR LIFE ON THE OUTSIDE

at 7.25am. I scan my fingerprint, collect my keys and radio, and sign in. Then I attend a briefing from the governor who tells us what aspects of work we need to improve. We disperse into our individual wings and meet with six other officers. We get assignments for that day, anything from being search officer – checking cells for prohibited items such as phones – to the movements officer, who has to know where every prisoner on the wing is at any time. Each wing has around 120 prisoners. After people leave for education and other activities, we do roll call and unlock cells so prisoners can come and speak to us. We discuss TV or politics – the prisoners keep up with news. At 12.15pm there's a lock-up period where they return to their cells – I'll grab nachos from the canteen in the visiting area for lunch. In the afternoon we re-open cells, and inmates will exercise as we follow up on questions from the morning – most of my job is finding solutions for prisoners or showing them options if they have a dispute. If an argument gets physical and I'm on my own, I'll press the alarm for support. I don't get scared; it's about being patient – prisoners tend to be more polite to female officers, although sometimes you need to use authority to get your point across. People can feel low at this time of year, but the prison serves Christmas dinner, which can help. At 6.30pm, I pass over to a support officer, hand in my belt, keys and radio and sign out.

MY MOST MEMORABLE WORK MOMENT…
Was my first shift as movements officer three weeks after I started. If you mess up, the entire prison regime is delayed. I did it correctly and it gave me so much confidence – my supervising officer gave me a piece of cake.

THE WORST PART OF MY JOB…
In some ways is similar to retail – still mostly dealing with complaints.

THE BEST PART OF MY JOB…
Is when someone tells me I've changed their life. A former prisoner came to visit the other day and he said I'd helped him make different decisions on the outside.

AFTER WORK…
I'll be home at 7.10pm and call my family in Essex. I'll make something like lasagne and eat chocolate while watching *Suits* on Netflix. I'll be in bed at 10.30pm.

WORDS MOYA LOTHIAN-McLEAN PHOTOGRAPHY GEMMA DAY

My Plan B: Probation Officer
I have a natural sense of duty of care – I'm the oldest of my siblings and grew up learning to look after people. Civil Service jobs really fit me, so I don't think I'd break away from them completely. I'd like to work with ex-convicts on the outside and help them through life.

Day in the life of a prison officer, from Stylist magazine

HMP HIGH DOWN – INTENSIVE RECRUITMENT INITIATIVE, 9 JUNE TO 2 JULY 2017

An intensive, dedicated recruitment project has resulted in over 100 new prison officers recruited to work at the prison. Main features and results:

- short-term need for an intensive campaign to meet shortages at a priority prison;
- the team worked with prison governor and staff to develop an onsite recruitment process
- they found ways to improve time-to-hire and conversion rates;
- over a six-week period, the campaign attracted over 1,000 applications, with 104 prison officers successfully recruited;
- Louise Spencer. Governor, HMP High Down: "The results more than speak from themselves and show just what can be achieved when people with the right skills and focus come together."

HMP High Down

but they needed to raise the profile of the prison service, change misconceptions about the prison officer role, and put it on a level of esteem with that of a police officer.

The MoJ campaigns team gathered human interest stories and identified a raft of media opportunities to showcase the good work prison officers do and build pride as well as attract applications. A feature placed in Stylist, for example, used public media to challenge perceptions of the role.

GEO-TARGETING

In partnership with prison governors, the marketing team ran high-intensity local recruitment pilots. These were, targeted at specific prisons with pressing operational needs, like High Down, Belmarsh, Isis and, imminently, prisons in the Thames Valley, also in response to operational requirements.

This 'geo-targeting', supported by pinpoint evaluation, was designed to help prioritise activity accurately and ensure that investment in media promotion was as cost-effective as possible.

Regular monitoring and evaluation of how the campaign was performing was essential to this agile approach and to making the marketing more accurate. The team monitored everything from web hits to application completions and online test passes. And vacancy, retention and pipeline 'demand' data was used to inform the supply of applicants on a week-by-week, prison-by-prison basis. As soon as the campaign met the required applicant numbers for a particular prison, it could switch spend to where it was needed more.

OUTCOMES

By the end of December 2017 the team could report a net gain of almost 2,000 additional prison officers. It is on track to meet the target of 2,500 significantly ahead of schedule.

Approximately 40% of applicants responding to the campaign are female and 30% are of ethnic minority background. These results show

that the campaign is appealing to a diverse group, moving away from the stereotypical idea of a prison officer.

The marketing budget, approved by the Cabinet Office in December 2016, will be under-spent by around £1 million.

WHAT DID THE TEAM LEARN?

The team is candid about what it got right and what needed fixing.

The use of data was invaluable for marketing and resourcing. It also helped the team get a grip of strategic issues such as recruiting a more diverse workforce and understanding retention challenges.

Because every prison faces a different recruiting challenge, and vacancy rates vary significantly across the estate, this recruitment campaign did not lend itself to simple solutions. The importance of working closely with operational staff in prisons to tease out the answers became a key priority. Team members built good working relationships with HMPPS that helped them understand the local issues and use relevant data to find solutions.

As well as professionals from different specialisms working well together, the team collaborated with HMPPS to provide a better experience for job candidates. This extended from running prison tours, to ensuring a thorough familiarisation process for new joiners, from uniform, pay and security passes, to practical things like introduction to IT systems and 'who do I ask for'. A local network of prison recruitment advisers was essential to making this work.

Campaign success in generating applications for prison officers roles can create its own problems, given the procedural requirements, including the need to vet new staff. Reducing the time it actually takes to hire people has preoccupied the programme team at a time when application numbers are growing and vetting times lengthening. This can be achieved by careful monitoring and use of data, tight contract management and juggling priorities.

Lastly, the focus on locally targeted promotion, maximising

> **We wouldn't have been able to generate that level of interest in being a prison officer, nor run such successful recruitment [for HMP Belmarsh] if it hadn't been for the work we did with the MoJ team.**
>
> Emily Thomas, Governor, HMP Belmarsh.

low-cost and no-cost media and intensive PR alongside the paid for targeted media, was fundamental to the campaign's efficiency and effectiveness. This approach is relevant to other major government recruitment campaigns.

THE JOB IS NEVER DONE

Looking ahead, it's worth noting that, despite the net gain in prison officer numbers achieved by the campaign, gross recruitment figures are significantly higher. Current retention rates mean that around 2,000 new officers are required every year just to maintain numbers as well as to fill existing vacancies.

MoJ and HMPPS also need enough officers to deliver a new offender management model. Retention and diversity need to be improved. The challenge the team has now is to adapt the successful campaign, make the approach business as usual, and to apply the learnings to the wider MoJ group recruitment and retention.
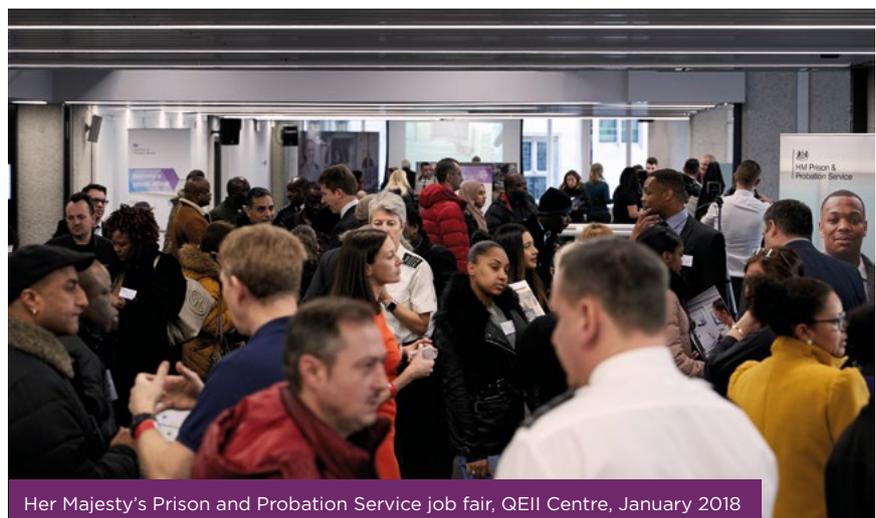
Her Majesty's Prison and Probation Service job fair, QEII Centre, January 2018
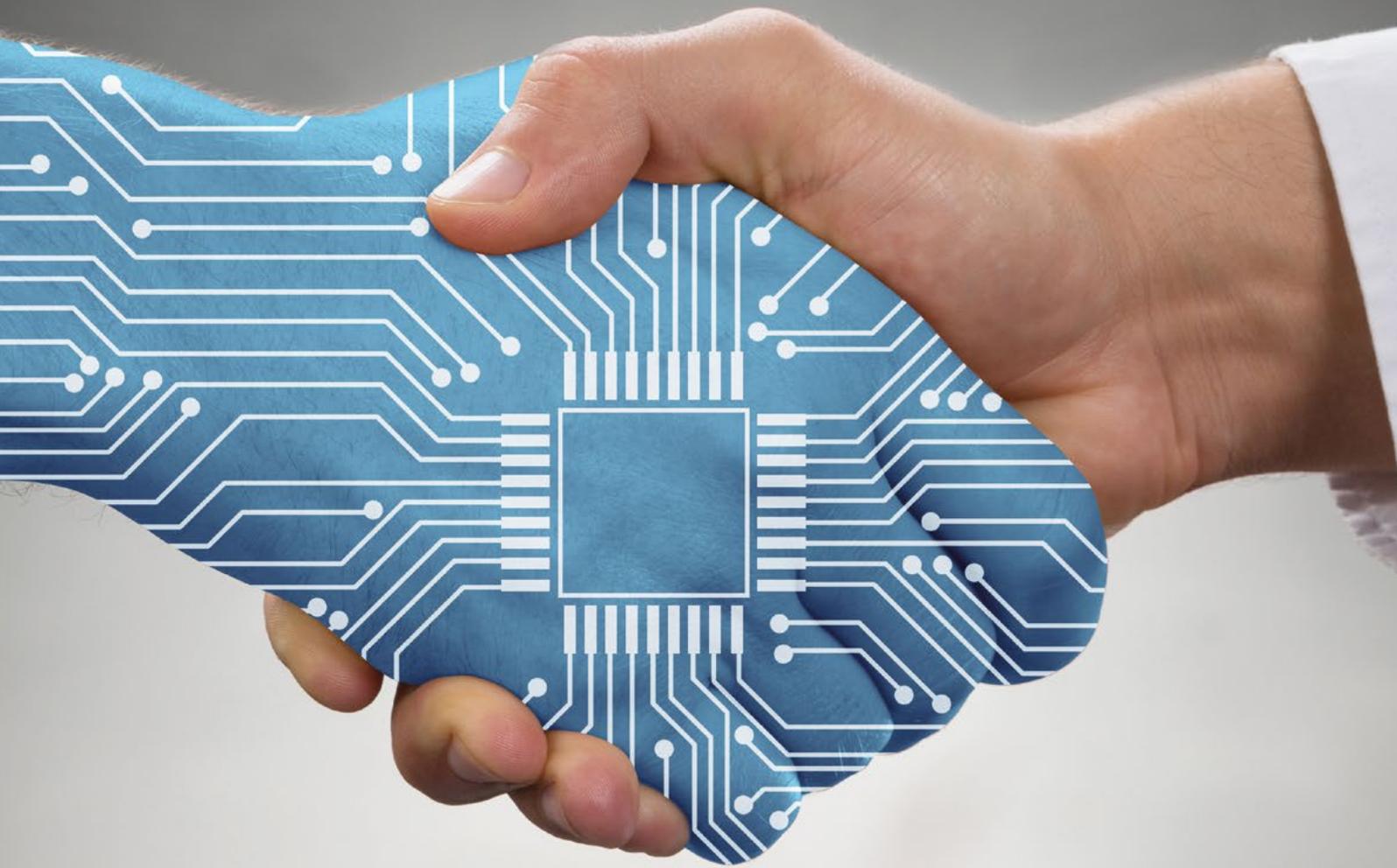
ROBOTS LEND GOVERNMENT A HELPING HAND

James Merrick-Potter, Cabinet Office Robotic Automation Unit, and Daniella Chrysochou, Robotic Process Automation (RPA) Centre of Excellence

Popular culture typically takes futuristic ideas to an extreme. The depiction of robots and robotics is no exception. Robots have been staples of science fiction for decades. Frequently, they are shown as warnings of a dystopian future where human beings are either relegated to the status of decadent, passive consumers, or ultimately become slaves to the very machines they've created to serve them.

This fiction is, of course, far from the reality. The truth is that robots and robotics are with us now – and have been for some time, revolutionising the way we work, by bringing speed, accuracy and efficiency to certain mass, repetitive tasks.

Robots and robotics could significantly change the way the Civil Service operates, too, and help us serve the public better.

BUILDING 'A BRILLIANT CIVIL SERVICE"

John Manzoni, Chief Executive of the Civil Service, summed up the challenge and the opportunity in a speech in January on Civil Service transformation. He said: "We aim to be the best Civil Service in the world. A brilliant Civil Service producing 21st-century solutions that make a real difference to the lives of the people we serve."

He has specifically highlighted the part robotics and robot technology can play in creating this brilliant Civil Service, saying: "Many of our [government] services will begin to benefit from the huge potential of robotics – or, more accurately, robotic process automation (RPA)." Adding: "In speed and accuracy of response, RPA could transform the experience of citizens registering for services, or applying for grants or benefits."

WHAT IS ROBOTIC PROCESS AUTOMATION?

RPA uses special software to automate routine clerical work, such as data entry into a system.

In RPA, a software 'robot' reproduces the actions of a person interacting with the user interface of a computer system. It mimics a human and interacts with applications in the same way

that a human would.

RPA is now considered to be sufficiently developed, resilient, scalable and reliable to be used in large organisations.

TANGIBLE BENEFITS

At the moment, government is behind other clerically intensive industries that have already adopted RPA. But this means we can learn from their experience and from the example of early adopters in government, principally HM Revenue & Customs.

Modernising our IT estate is a long-term Civil Service aim, but RPA can bring business benefits in a single financial year.

The benefits come because government is a heavy user of older, legacy, IT systems. Some of these systems are 40 years' old and likely to stay in use for a little longer yet. While most departments have plans to replace or are already replacing or re-engineering these systems, for some it is unviable – the need for the systems will disappear before any investment could be recovered. Many other systems

will still be in use well into the next Parliament.

Government also has a large clerical workforce. Many of them work routinely with these legacy systems. Sometimes they might have to use several systems to complete a task. And some tasks require 're-keying', that is, reading information on one system and typing it into another.

RPA gives the opportunity to either reduce the time taken on individual tasks or, in some cases, to automate the tasks altogether. As an example, a survey by HMRC found 130 different tasks with high potential to benefit from automation.

IMPROVING THE WAY WE WORK

At a time when Civil Service headcount is under pressure, automation gives us the potential to reduce the need for agency and other temporary staff to handle peak workloads. It also means we could divert staff to other tasks with higher 'value add', like direct contact with customers. Further, it means we could automate some customer contacts altogether and

RPA IN ACTION IN HMRC SERVICES

1. Dashboards for contact centre advisers

Dashboards give information and guidance straight to advisers' computer screens. They use robotics to open files automatically from a number of different systems, so advisers can answer customer questions quickly and accurately. This can cut customer call times by up to 2 minutes.

For one of the dashboards, advisers previously had to use 66 mouse-clicks to navigate different systems for relevant information. They can now do this in 10 clicks. Making this process easier allows advisers to focus on other things, such as quickly identifying customer details, in order to provide the correct guidance.

2. Employer registration – end-to-end processing

Robotics is used in the employer registration process to validate data from online applications and provide a unique reference number to new employers, so they can start employing staff for the first time.

If problems with the application are detected, robotics assigns cases to an 'exceptions handling' team. Around 85% of applications are processed automatically, and employers who register with HMRC to start paying staff receive confirmation three times faster than before. Automated services like employer registration reduce processing costs by around 80%.
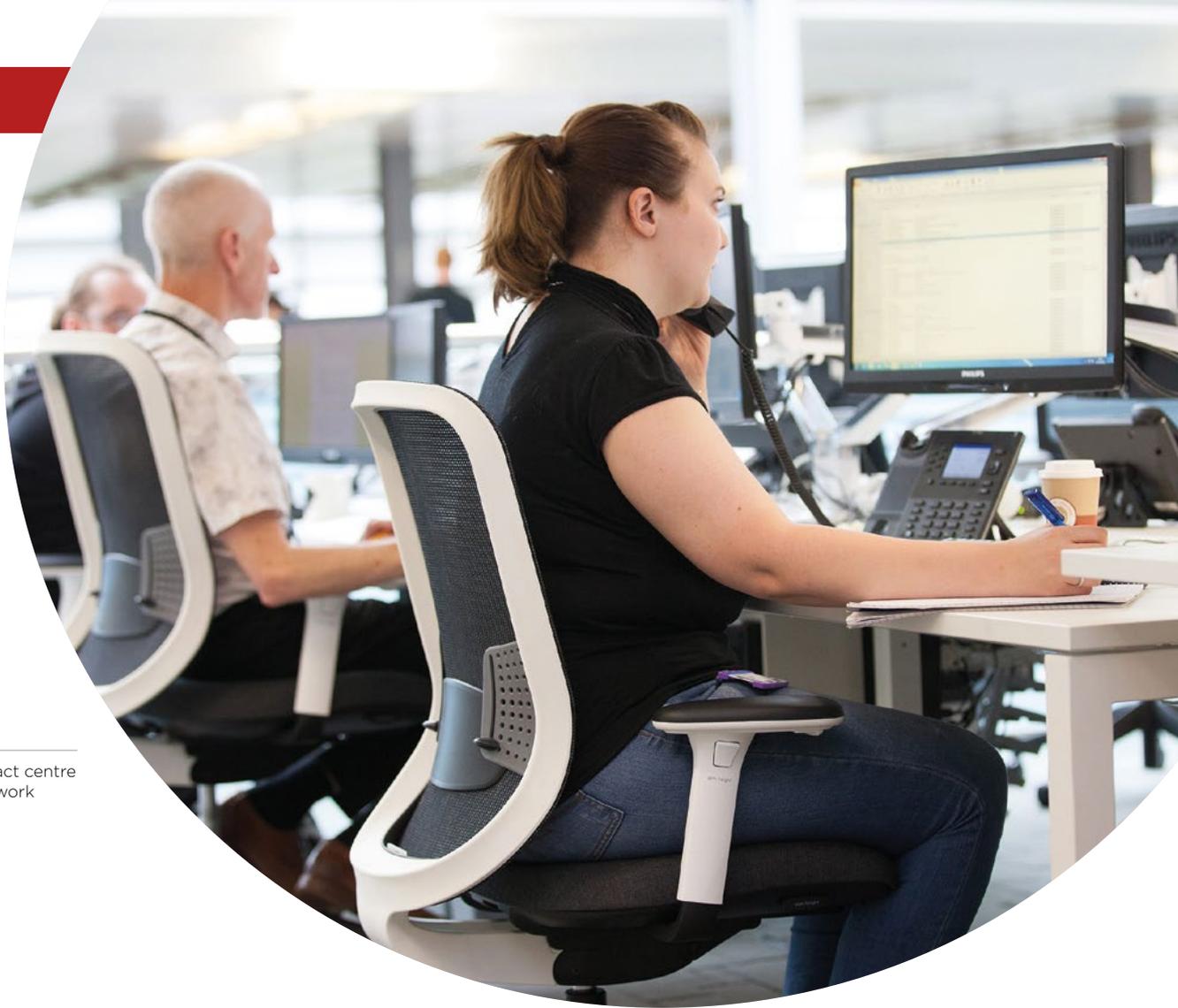
HMRC contact centre advisers at work

reduce training times and error rates in other tasks.

Additionally RPA has the potential to improve the way civil servants work. It can create more time to spend on customer-facing work, enhancing jobs by making it easier to find relevant information and to complete tasks. RPA will replace roles but it shouldn't necessarily replace jobs.

GOVERNMENT'S EARLY ADOPTERS

RPA is already being used in government, with HMRC at the forefront of the automation revolution. The department has been working with robotics for a number of years and has deployed over 11,500 robots across nearly 60 processes, including its system for registering new employers.

Building on HMRC's successes, and drawing on their expertise, the Cabinet Office recently set up a Centre of Excellence (CoE) to accelerate the take-up of RPA across government. The CoE has been established in partnership with Capgemini, with the aim of educating civil servants about RPA and helping departments take their first steps in developing an RPA capability.

If you are interested in learning more about the RPA Centre of Excellence can contact us at RPACoE@cabinetoffice.gov.uk.

NO SILVER BULLET

As well as delivering tangible results in the short term, RPA plays a role in building the digital government of the future. RPA tools are already beginning to bridge into other technologies like optical character recognition or chatbots (programs capable of interacting with people – in a 'conversation' – in text or audio form). Used correctly, these can help Government optimise services and processes.

However, we must bear in mind that while robotics specifically, and artificial intelligence in general, can be an incredibly powerful technology, it is not a silver bullet. It will not solve problems in a fundamentally inefficient or flawed process. It is one of many available tools and needs to be the right one for the job. The correct alternative may be to redesign or even scrap the process.

We should be open to new, smarter ways of working, but if we develop digital technology in the wrong way, or try to use it in the wrong place, it will not deliver the expected advantages and value.

In terms of benefits, the key consideration is that while RPA may allow business areas to make a process more efficient (i.e. require less effort), it is up to the business what to do with the resulting 'benefit'. This could include redeploying people to more value-added work. RPA won't save money on its own.

However, by using technologies such as RPA in the right places and in the right way, we can continue to make sure that civil servants are working efficiently and effectively and in rewarding roles. And we can build a brilliant Civil Service of the future

WHY INNOVATION IS THE KEY TO GROWING THE UK ECONOMY

Mike Biddle, Programme Director, Innovate UK

Crashing cars in the desert might not sound like something that can help scale the grand challenges we face as a country, but researchers and businesses are learning from a range of innovations to develop ways of creating new and well-paid jobs to boost the economy.

The Industrial Strategy Challenge Fund (ISCF) is part of the Government's Industrial Strategy, and will play a key role in increasing the amount spent on research and development in the UK to create a big impact on economic growth. It is being developed and delivered by Innovate UK and the Research Councils – which will merge to form UK Research and Innovation in April 2018, a new organisation to maintain the UK's world-leading position in research and innovation and create the best environment for them to flourish.

At the heart of the ISCF is a simple aim: to transform existing industries and create new ones. However, this doesn't mean it's going to be easy.

FIRST PRIORITY

When we started a little over a year ago, our first priority was to pinpoint exactly the biggest challenges facing industry. So, we asked them. We ran a two-week UK tour that included nine workshops, eight cities and 618 attendees from the UK's innovation ecosystem. This helped to identify the first challenges to be tackled through the fund.

Next, we developed a clear and compelling statement summing up these challenges – to experts and the public – so everyone knows what we are trying to do, by when, and why.

Understanding the challenges we face in the 21st century and how these can be turned into opportunities to grow the UK economy is not straightforward. We must ensure that our scientific and innovation excellence isn't merely theoretical but has real-world impact. You can see examples of how this has

worked in past projects we've funded: for example, 2D-Tech, a University of Manchester spin-out, which takes part in commercial ventures involving graphene, an ultra-light, atom-thin carbon-based material of the future, which was discovered at the university.

SINGLE VOICE

If we are going to accelerate commercialisation of the most exciting research and innovation that the UK has to offer, then we need to be honest about where we are truly world-class. It's only then that we'll have the big impact the Government is striving for. This is where UK Research and Innovation will really come into its own, bringing together Innovate UK and the seven research councils to act as a single voice for UK research and innovation.

The industry-led challenges can really only be addressed through multi-disciplinary research and collaboration between business and academia. We're working this way because we need a joined-up approach to produce the science that businesses both want and need.

21ST-CENTURY CHALLENGES

All of the established challenges align with the four 'Grand Challenges' set out in the Industrial Strategy White Paper:

- **artificial intelligence and the data economy** – putting the UK at the forefront of the artificial and data revolution;
- **clean growth** – maximising the advantages for UK industry from the global shift to clean growth;
- **the future of mobility** – becoming the world leader in the way people, goods and services move; and
- **an ageing society** – harnessing the power of innovation to help meet the needs of an ageing society

The ISCF borrows from the US Defence Advanced Research Projects Agency (DARPA) model by placing the responsibility for delivering a challenge in the hands of a challenge director.

Challenge directors are area experts and will coordinate different delivery organisations to rise to the challenge.

And, also like the DARPA Challenges model, the ISCF strategy supports taking risks and pursuing high-return opportunities.

One of DARPA's challenges involved a 'race' with a $1-million prize fund for the developer of the fastest self-driving car to travel 142 miles through the Mojave Desert in the US South West. In the first year of the challenge, every vehicle crashed, failed or caught fire. But the success lay in galvanising a community of problem-solvers. So much so that, when the challenge programme ended last year, it had made significant strides and created some of the leaders in the self-driving industry.

FIRST WINNERS

While challenge projects may not achieve a 100% success rate because of technological and market uncertainties, it's important to explore new and promising ideas.

The first set of UK projects are starting to come through. The Government announced £1 billion in the 2017 Budget for the first wave of challenges in batteries, space, robotics and the manufacture of medicines – the first competition winners were announced in November 2017.

While it's too early to measure impact, the potential is exciting. For example, automation business Perceptual Robotics is leading a £1.3-million project with Autonomous Surface Vehicles, University of Bristol and VulcanUAV to use autonomous drones to inspect offshore wind farms. This could save money and avoid the need to send people into potentially dangerous seas.

LONG-TERM APPROACH TO INNOVATION

This is a long-term approach that will provide certainty by setting a strategic direction for our economy. With this in mind, it is important to put the right evaluation and reporting structures in place. The Industrial

Strategy Council will be responsible for independent evaluation of progress and will be tasked with taking a long-term view. Government's commitment to raising the amount that the public and private sector spend on research and development to 2.4% of GDP is bold and ambitious. The ISCF will play a central role in reaching this target.

GET INVOLVED

We're looking for the next round of proposals for challenges that are industry-led, meet a major industrial and societal need, and lead to tangible benefits in productivity and economic growth.

Proposals must:

- be compelling, focused, understandable and have a real benefit if solved;
- be industry-led and in an area of existing strength;
- take advantage of the depth and expertise of UK research;
- offer a clear opportunity for sustainable growth, including global markets;
- evidence that government support is necessary and of strategic importance; and
- increase productivity.

Find 'Industrial Strategy Challenge Fund: tell us what to support' on GOV.UK.

CENTRES FOR ADVANCED THERAPIES

£21 million of ISCF funding – as part of the medicines manufacturing challenge – will help set up a network of advanced therapies treatment centres. These will be alliances between existing facilities in the north of England, Scotland, the Midlands, Wales and a final site in Manchester.

This is a joint collaboration between hospitals, therapeutics development businesses and the supply chain.

LOCATION, LOCATION, LOCATION

UKGI Digital Land Team

TAPPING THE ECONOMIC POTENTIAL OF GEOSPATIAL DATA

OS Data visualisation of Britain's road network (source: Ordnance Survey)

One of the favourite sayings of the Ordnance Survey is that everything happens somewhere. Combine this with the digital sector – based on digital computing technologies – and you can see the vast potential of geospatial data as a new, general-purpose technology that can unlock significant value across the economy.

This data, about location or place, is becoming an increasingly critical element of a successful economy. Whether it's using your mobile device to find the nearest restaurant, or using geographical analysis to manage an emergency response to flood location, geospatial data matters. The Government recognised this in its manifesto commitment to bring together the data held by five core bodies: Ordnance Survey, HM Land Registry, UK Hydrographic Office, British Geological Society and Valuation Office Agency.

This article sets out the work that turned this commitment into the Budget announcement of a new Geospatial Commission.

THREE KEY POINTS

A multi-department team (including: Business, Energy & Industrial Strategy; Digital, Culture, Media & Sport; Housing, Communities & Local Government; Environment, Food & Rural Affairs; and the Government Digital Service) and UKGI (UK Government Investments) (with additional consultancy input) undertook initial research that highlighted three key points:

- we have world-class capability in geospatial data;
- previous attempts to coordinate data policy have struggled; and,
- while, there were lots of ideas for using data better, we needed to evaluate properly the opportunities in the public and private sectors.

WE HAVE SOME OF THE BEST GEOSPATIAL CAPABILITY IN THE WORLD

In 2017 the UK ranked 2nd out of 50 countries in the Geospatial Readiness Index produced by the Global Geospatial Industry Outlook.

Ordnance Survey

Provides some of the most detailed and frequently updated topographic maps in the world.

United Kingdom Hydrographic Office

Data is found on over 90% of the world's ships trading internationally.

Digital Built Britain

Our world-leading Building Information Management programme is replicated in countries like Australia.

The team's combination of officials and consultants brought different approaches and lenses to bear on wide-ranging possibilities for exploiting geospatial data in the public and private sectors. We also had extensive engagement with the core partner bodies – government's geospatial experts – themselves.

We divided our work across a number of strands:

- **Confirming the scope of geospatial data.** This involved developing definitions to differentiate between those who created the core reference data and those who then provided additional analysis or content. This led to many discussions on the nature of data created by public bodies like the Met Office, the Environment Agency and local authorities. This, in turn, resulted in the inclusion of the Coal Authority as a sixth core body, but also in advice that the Commission should engage across a wide range of public sector bodies.
- **Exploring the lessons to be learnt from previous attempts to better coordinate data policy** (e.g. the Public Data Group, UK Location Council and Transparency Board). From this we identified that to stand the best possible chance of succeeding, a new body would need a combination of budget, a clear purpose and remit, and ministerial support.
- **International comparisons.** These showed that, while we had expertise in different individual bodies, the UK differed from every country we would consider a competitor in not having

a body that thinks about our geospatial strategy and economic opportunities.
- **Governance and geographical scope.** The bodies named in the manifesto were not consistent in their geographical scope. For example, Ordnance Survey covers Great Britain, whereas the Land Registry covers England and Wales. Nor were they uniform in their structure, with trading funds, government companies and non-ministerial departments all in the organisational mix. We also understood that much of the valuable data, particularly for issues around housing, were held by local authorities. This all needed to be worked through.
- **A bottom-up economic analysis of the opportunities in the public and private sectors.** There were many suggestions for how geospatial could be used more effectively, but it was critical to keep the approach grounded in evidence and analysis. Through extensive user engagement and case studies, we developed an economic case for reform that suggested a £6 billion to £11 billion per annum opportunity in the private sector alone. This valuation was done according to the Green Book, HM Treasury's guidance on policy, project and programme appraisal and evaluation, and was signed off by HMT. The economic case also allowed us to develop a number of actions for 'unlocking' this value, creating a potential plan of work for the new body. This then fed into our understanding of what capabilities would be needed.

Geospatial data is already driving innovation and creating new businesses. Geovation is Ordnance Survey's incubator for new business and its members include new businesses such as:

- **FLOCK**, an end-to-end safety and insurance solution for piloted and autonomous drone flights providing real-time quantified risk analysis, for easier pay-as-you-fly insurance.
- **GEOSPOCK**, is a real-time database for storing and managing location data include weather modelling, facial recognition, voice recognition and DNA sequencing for healthcare.
- **LANDINSIGHT** makes it easier and clearer to find off-market leads for development land and property. It gives instant access to ownership details, planning history, environmental constraints, and other details.
- **SHIPAMAX**, a data-driven platform in development for bulk shipping – replacing the thousands of unnecessary emails, siloed Excel files and instant messages between players required for each booking.
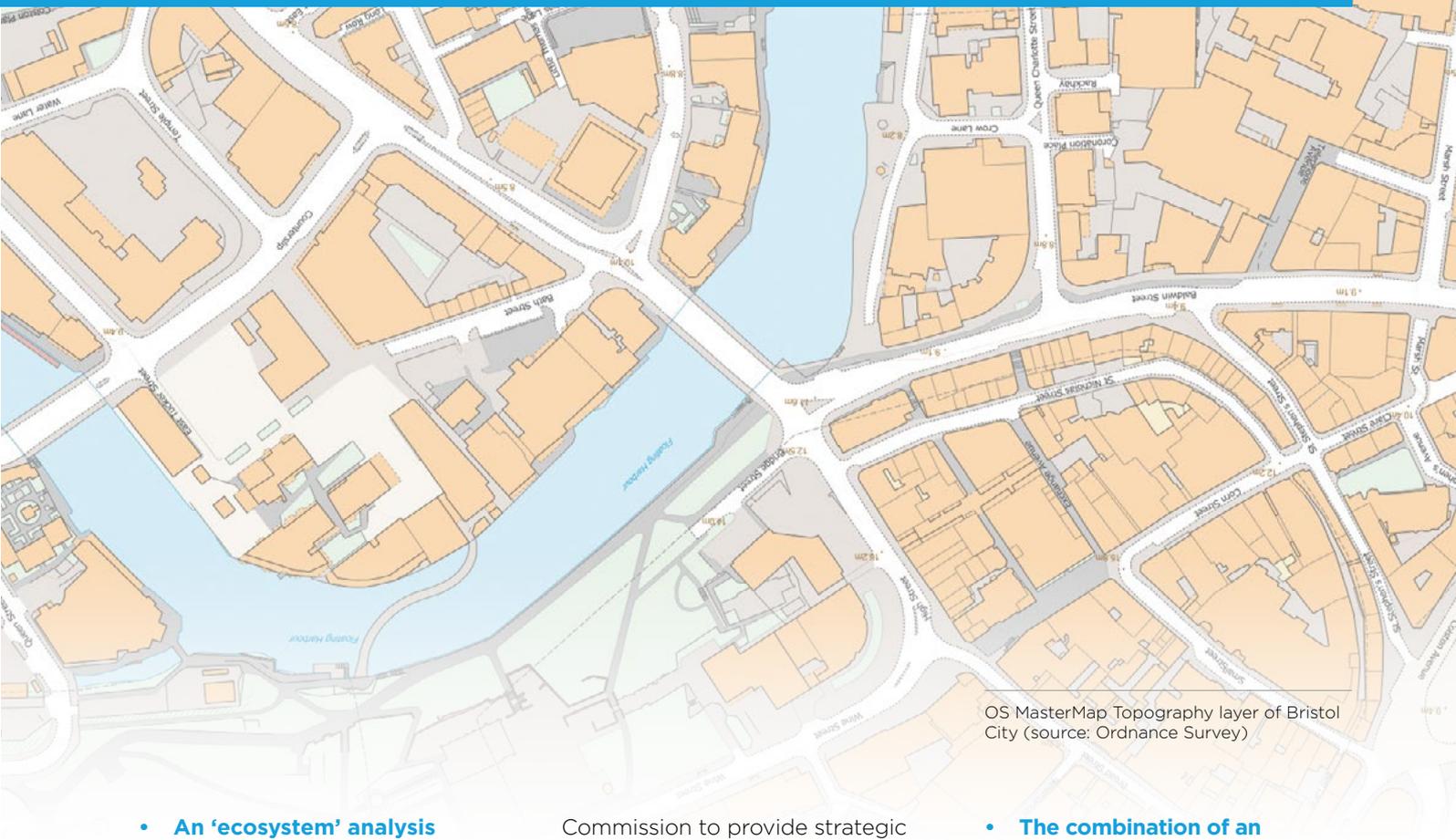
OS MasterMap Topography layer of Bristol City (source: Ordnance Survey)

- **An 'ecosystem' analysis to look at the wider opportunities.** This work looked at the geospatial data as a system – how it is generated and how it interconnects. It also considered new potential use cases, including the role of open data in building a robust ecosystem.

We also asked academics and the private sector for their views, which helped to challenge our assumptions and keep us focused on solving real problems rather than imagined ones.

This extensive work concluded with the recommendation that we establish a Geospatial Commission to set the geospatial strategy for the UK, with individual bodies remaining responsible for delivering data and solutions in their own areas. The Chancellor announced the creation of the Commission at the 2017 Autumn Budget: "The UK has some of the best geospatial data in the world, and much of it is held by public bodies. The potential economic value of this data is huge. To maximise the growth of the digital economy and consolidate the UK's position as the best place to start and grow a digital business, the Government will establish a new Geospatial Commission to provide strategic oversight to the various public bodies who hold this data. To further boost the digital economy, the Government will work with the Ordnance Survey (OS) and the new Commission, by May 2018, to establish how to open up freely the OS MasterMap data to UK-based small businesses in particular, under an Open Government Licence or through an alternative mechanism, while maintaining the OS's strategic strengths. The Budget provides £40 million a year over the next two years to support this work."

LESSONS LEARNED

In terms of lessons learned, five things stand out:

- **The use of a blended team of cross-government officials and strategy consultants** helped in cutting through departmental silos and challenging long-held policy assumptions. The consultants also brought a different way of thinking that challenged our own assumptions and encouraged new ideas. One particularly valuable approach was the framing of intangible benefits around what you would need to believe in order to deliver that outcome.

- **The combination of an evidence-based use-case approach and a wider ecosystem view** enabled us to stay grounded in terms of what was needed practically to have an impact, while keeping an eye on future opportunities for geospatial data.
- **Senior sponsorship, through a steering group of Permanent Secretaries and Director Generals, chaired by John Manzoni**, was important for building consensus across government, and allowed us to rapidly focus on the main issues.
- **Be wary of simplistic ideas and solutions**. We had to resist the temptation of simple solutions, like seeing open data as a panacea, or feeling that the rest of the world was better at geospatial. Neither is true – case studies and evidence were vital in challenging them.
- Finally, the most important thing we learnt was that **there are amazing people working across government** excited to be involved in the opportunities of geospatial data, and a cross government-team is a great way to bring them together.
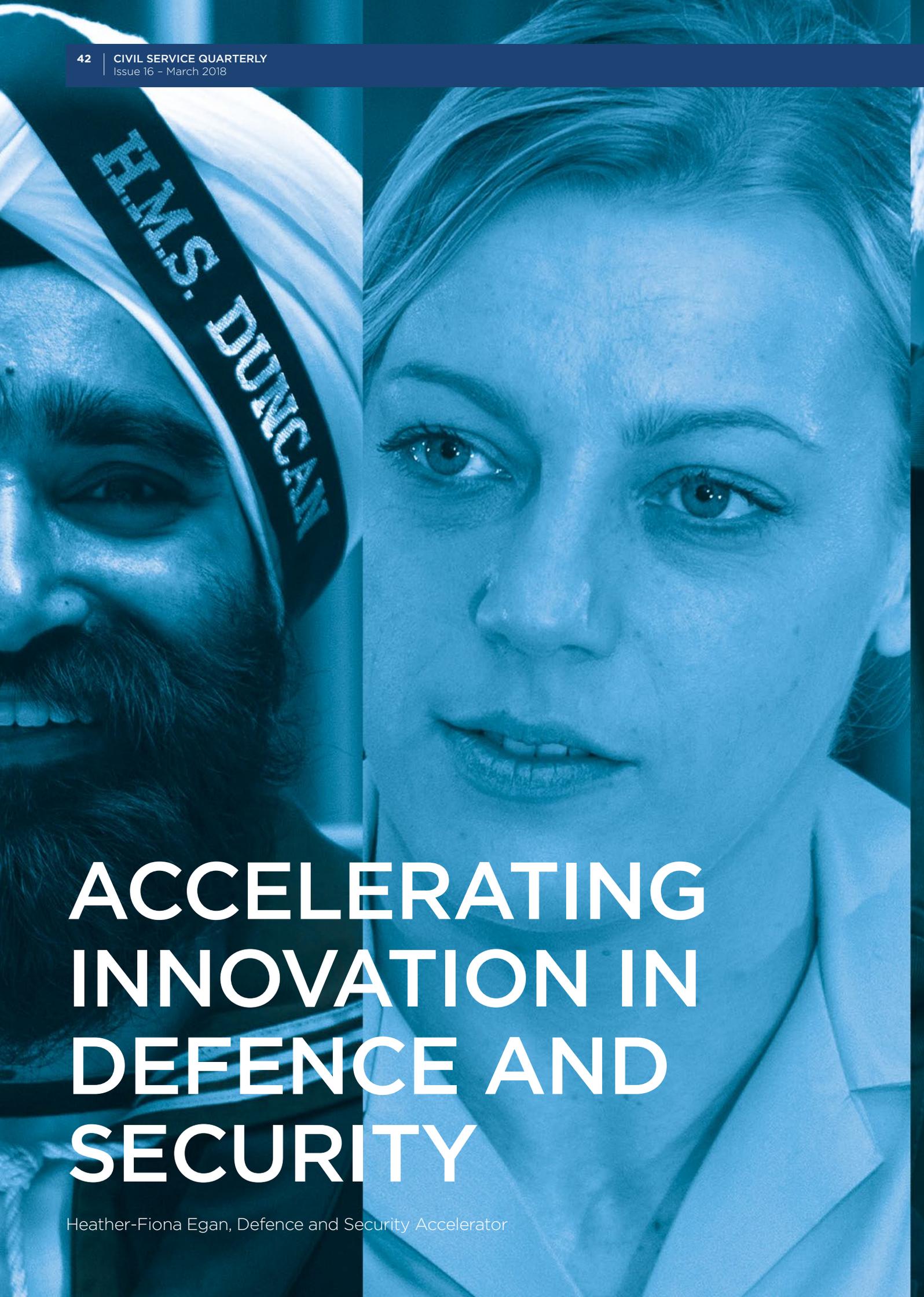
ACCELERATING INNOVATION IN DEFENCE AND SECURITY

Heather-Fiona Egan, Defence and Security Accelerator

The Defence and Security Accelerator (DASA) does things differently to find and fund exploitable, innovative ideas to overcome defence and security challenges across government.

Launched in December 2016, it is a cross-government organisation, created by the Ministry of Defence (MOD), and supported by a number of other departments, including the Home Office and the Department for Transport.

DASA delivers funding competitions and events to find the very best innovative solutions to turn into usable technologies and services.

In July 2017, DASA responded quickly to the terrorist attacks in Manchester and London. Within 3 weeks of the attacks it had scoped, consulted on, secured £1 million in funding for, and launched the Improving Crowd Resilience competition.

Seven out of 40 suppliers were successful in the Home Office-funded competition and are developing solutions for demonstration in May and November this year.

UNEARTHING SOLUTIONS

By reaching out beyond traditional defence and security suppliers, DASA unearths the brightest opportunities and brings together talented, like-minded people.

Last year, 40% of the 155 contracts awarded went to new suppliers. Industry, academia and small and medium-sized enterprises (SMEs) shared £19.2 million in research and development funding ideas on paper to ready-to-use products.

Overall, 58% of funding was awarded to SMEs, supporting UK economic growth by investing in innovation throughout the country.

EASY ACCESS

For the private sector and academia, DASA offers a clear route into government defence and security, access to people with knowledge and skills, and potential funding to develop an idea. All the intellectual property remains with the supplier, and they do not usually require co-investment or match funding, making it easier for suppliers of all sizes to enter competitions.

DASA helps businesses grow, not just through funding, but by offering business support, access to end-users, technical expertise, and help in building links between business need and innovations being developed. Additionally, with suppliers' agreement, they share their proposals with partners and allies, potentially opening up new markets, including exports. This is good for suppliers, customers and UK plc.

NATIONAL REACH

In just one year, by collaborating and forging partnerships, DASA has become part of a thriving innovation community. It is fast becoming the go-to body for policy-makers in government, and end-users in the military, police and security services, for new solutions to defence and security needs.

To help defence and security professionals, DASA is making itself visible and accessible. It is reaching out across the UK, embedding itself in the private sector, with start-ups and spin-outs, at innovation hubs and science parks, seeking out the best ideas, products or services, wherever they are to be found. It now has regional Innovation Partners and plans to open a London hub.

DASA organises competitions and events, including hackathons, 'sandpits' and pitch panels, to explore and develop ideas. Efficient commercial processes mean that it can place contracts within three weeks of the decision to fund.

The Open Call for Innovation offers a way for anyone with a good idea that falls outside the scope of one of the themed competitions to pitch for funding to defence and security decision-makers.

DASA is still young. However, by prospecting for new ideas, piloting new ways of doing things, and learning as it goes, it has the potential to make a real difference to frontline defence and security services.

A REVOLUTIONARY COMPETITION

DASA's first themed competition, **Revolutionise the human information relationship for Defence**, was launched in January 2017. Sponsored by Joint Forces Command and funded by the Defence Innovation Initiative, this £6-million competition aimed to find new technologies, processes and ways of operating to improve defence staff's ability to analyse and exploit data to inform decision-making.

This competition:

- offered a standard track and a fast track; these follow matching processes, but the fast track has a compressed timescale, allowing proposals to mature rapidly;
- required that a vision for how the idea or solution could be exploited be included in submissions; and
- piloted DASA's now standard short form contract, which makes complex contracting more accessible to SMEs and universities as well as prime contractors.

Seven organisations were awarded Phase 1 fast-track contracts. Two suppliers received Phase 2 funding to continue development (see case studies below).

FORESIGHT, INSIGHT, HINDSIGHT: HELPING THE MOD MAKE BETTER DECISIONS

London-based decisionLab uses progressive data science, analytical modelling and operational research to build business tools to improve decision-making. Through DASA's first themed competition, this small consultancy has received both Phase 1 and Phase 2 funding for its unified asset health model and risk forecasting tool 'neural network'.

It's estimated that this DASA-funded innovation could save the public purse a significant amount for an investment to date of just over £500,000.

decisionLab's Phase 1 proposal was designed to improve safety in defence aviation by forecasting the risk of faults. They could see that, with some research and development, their neural network would allow aircraft engineers and maintenance personnel to view the status of systems and their predicted health a day, a week, or even a fortnight in advance.

As well as improving safety, this would offer cost and efficiency savings in maintenance scheduling and keep aircraft airborne for longer.

This repurposing of technology from the civilian to the military market was an excellent opportunity for diversification and growth. Strong exploitation opportunities were clear, as decisionLab had previously partnered with Rolls-Royce, and was moving ahead with prototype deployments in both civil and defence systems. Rolls-Royce offered data, expertise and deployment opportunities.

NAVAL APPLICATIONS

After a successful Phase 1 project and demonstration, it was apparent to stakeholders that decisionLab's Phase 2 proposal had naval as well as aviation applications.

Seeing this opportunity, the Royal Navy invested £150,000 in the development of the neural network for use on board a Type 45 destroyer.

A Royal Navy ship is incredibly complex, and the Type 45's systems can record 10 million data points a day. With such a huge and complex dataset, the type of machine learning offered by the neural network will likely have a significant impact on maintenance schedules and support, improving capability, saving money and delivering efficiency.

As part of the Phase 2 project, decisionLab is training its neural network on 1.8 billion lines of Type 45 Platform Management System data. Each day the system gets smarter and more capable. The plan is to install it on HMS Diamond for a trial this summer.

It's estimated that this DASA-funded innovation could save the public purse a significant amount for an investment to date of just over £500,000.

HMS Diamond Type 45 destroyer
(Crown copyright 2014)

DASA COMPETITIONS

DASA has funded 155 projects worth £19.2 million to date. It is currently managing 13 competitions at different stages. Among these are:

MOD Defence People Challenge – a people-based competition with five sub-challenges focused on rehabilitation, skills, retention, recruitment, and motivation. It is looking for innovative ideas on how best to manage people, in both military and civilian contexts.

Future of Aviation Security (two competitions) –
1. A joint Home Office and Department for Transport competition funded research into new technology to bolster airport security and speed up passenger screening.
2. To find explosives hidden in electrical items in hand luggage.

Improving Crowd Resilience – a Home Office competition to reduce the threat from terrorist or malicious use of explosives and weapons in public places, using the crowd as a sensor.

Synthetic biology for transparent materials – competition to identify materials that are thinner, lighter and offer ballistic protection to produce transparent armour.

Beyond battery power – competition to identify technology that will reliably extend the battery life and power of portable and robotic autonomous systems such as mobile phones.

'Last mile' resupply at the front line – A British Army challenge to design pioneering technology to get vital supplies to soldiers on the front line; 25 projects were funded in Phase 1, to develop projects including: autonomous hover-bikes, unmanned air and ground vehicles, novel means of autonomously loading and unloading; navigating and delivery ordering, management and control using app-based technologies.

ADVANCE WARNING

Under the fast track of DASA's first competition, independent research technology company Montvieux was awarded funding to develop its '**predictive cognitive control system**' in partnership with the Centre of Intelligence Innovation.

The system aims to alert intelligence analysts to activity in potential areas of interest or anomalies, before an incident occurs. It automatically analyses data from multiple streams simultaneously and operates all day, every day. If successful, this system will be able to perform at a scale and speed way beyond human analysts with access to all available intelligence sources.

As part of Phase 2, the system is being tested on the operational network at RAF Wyton and is showing new capabilities to Defence Intelligence analysts on a daily basis.

DEFENCE VALUE

The project is a great example of collaboration between DASA, thefficompetition sponsors, Joint Forces Command, and the front lines working to turn technology into true capability.

Joint Forces Command's adoption of this technology will allow real users to test the technology, while demonstrating the real defence value of the technology.

It's anticipated that this kind of system could be applied to any problem where all-source text analysis is being used to predict an incident or outcome.

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