**Cabinet Office Areas of Research Interest (ARI) 2017/18**

Background

In response to the [2015 Nurse review of the UK Research Councils](https://www.gov.uk/government/collections/nurse-review-of-research-councils), the government accepted the review’s recommendation to provide documents that set out the most important research questions facing each department. This report is the first Cabinet Office ‘Areas of Research Interest’ (ARI), setting our research priorities for the department’s work in 2017/18.

The aim of this ARI is to accelerate engagement with external research communities working in these areas; strengthen relationships between internal expertise and external expert communities; and, facilitate new research partnerships.

Priorities for research

The Cabinet Office operates at the centre of government leading to its involvement in a broad and diverse portfolio, as reflected in these ARIs, which have been grouped into the following themes:

1. Public services
2. Civil Service
3. Digital innovation
4. Electoral registration and electoral systems
5. UK governance and devolution
6. Measuring and responding to security threats faced by the UK
7. Adapting to a changing security environment
8. The role of multilateral institutions in maintaining the security of the UK
9. Knowledge and information management

These themes align with the Cabinet Office’s strategic objectives:

Strategic Objective 1: Maintain the integrity of the Union, co-ordinate the security of the realm and sustain a flourishing democracy

Strategic Objective 2: Support the design and implementation of HM Government’s policies and the Prime Minister’s priorities

Strategic Objective 3: Ensure the delivery of the finest public services by attracting and developing the best public servants and improving the efficiency of Government

Corporate Objective: Ensure the effective running of the Department and contribute to the Government’s cross-cutting priorities.

Below we provide further information on each theme, setting out some of the questions that we hope will be addressed through research. These questions are not exhaustive but will act as a guide for aligning scientific and research evidence.

**A. Public services**

1. How is demand for public services expected to vary ten, twenty, thirty years from now? What will be the main sources of changing demand? What actions need to be taken now to best prepare?
2. What are likely to be the future delivery models for public services and how can government and society best prepare to capitalise on opportunities presented by these?
3. How can front-line public services adapt to the challenges and opportunities presented by automation?
4. What are the benefits and risks of adopting new technologies to deliver services?
5. How can existing research evidence be made accessible and useful to frontline services? How cost effective are different communication and engagement methods?
6. How can government make best use of its data to identify users with multiple complex needs? How can integrated service provision improve outcomes for these individuals?
7. How can public services contribute to reducing the ethnic disparities identified by the Race Disparity Audit’s website *Efficiency Facts and Figures*?
8. What is the range of productivity performance across public services in the UK? What are the characteristics of highest productivity public services and what needs to happen to raise productivity in lower productivity services?
9. How could existing measures of public sector productivity be further improved?
10. Which countries have the highest productivity in their delivery of public services? What lessons can the UK learn from international best practice?
11. What evidence is there, from the UK and internationally, about how best to manage organisational change in the public sector?
12. How do we develop public services that allow users to collectively create their own solutions?
13. What role can social movement and network theories play in helping to improve public sector services and drive large scale system change?
14. What policy actions can the public sector take to better attract, recruit and retain people from a wider range of social backgrounds than it currently does? What role can the public sector take to help other sectors also attract people from a wider range of social backgrounds?

**B. Civil Service**

1. How can the Civil Service attract and retain people of talent and experience from a range of sectors and all walks of life?
2. How can the Civil Service build career paths that encourage a breadth of experience and depth of expertise?
3. How can the Civil Service stay abreast of, and learn from, new practices in organisational design/operating models across third, private, and the wider public sector? How can information taken from academic research feed into these developments?
4. How can the Civil Service develop world-class leaders at all levels, who are inspiring, confident and empowering?
5. What actions can the UK Civil Service take to be the most inclusive employer in the UK and how should this be assessed and tracked?
6. How can the Civil Service develop cost effective and flexible reward structures that attract, retain and develop the very best talent?
7. What will be the best learning and development methods for the digital skills needed in the future Civil Service? What technologies should government be exploring in order to enable this?
8. How can we best measure staff engagement and capture their views on more complex aspects of systems leadership in the Civil Service, which move away from the simple hierarchical model of leadership down managerial chains?
9. What are the most effective non-financial ways of encouraging departments to work across boundaries, and for the centre to coordinate policy making?
10. What are the implications and opportunities of demographic (e.g. ageing workforce), geographic (e.g. hubs) and technological (automation, robotics and machine learning (cognitive technologies)) change for the ways in which the Civil Service is organised?
11. How can policy makers apply innovative approaches to be more responsive to changing external conditions? How can they be supported in doing so? What capabilities may they require?
12. How can policy makers be supported to collaborate more effectively with external experts and academia?

**C: Digital innovation**

1. How can new and emerging technologies support behaviour and culture change in complex organisations?
2. How should the Civil Service best enable transfer of digital innovations from the private sector into government? How can it identify and collaborate with business leaders in other sectors of the economy who face similar technology challenges?
3. How can government increase its capacity to adapt to the next curve of innovation in digital, data and technology?
4. How should government make best use of alternative web interfaces such as voice assistants and augmented reality for supporting government services? To what extent do these technologies enable accessible digital government?
5. How should government make best use of biometrics and other technologies for government service users to prove their identities? What are the most useful applications of homomorphic encryption for digital government?
6. How should government make best use of high-performance computing resources and emerging quantum computing technology?
7. How should the government best enable its transformation work to be ‘cloud native’ through scalable and secure digital services?
8. How should government encourage open data publication while minimising re-identification risks (the Mosiac Effect)?
9. How should government balance intellectual property with reproducible research in order to enable efficient digital innovation?
10. How should government maintain trust and accountability in using AI and machine learning? What is the public appetite for government making use of these in decision making?
11. How should government make use of data for public good and to enable government transformation?
12. How far can data analytics software help make sense of digital information at scale?

**D. Electoral registration and electoral systems**

1. What are the different models for encouraging wider participation, citizen empowerment, and personal and community resilience? What are the relative merits of these models?
2. Which actions by communities, civil society groups, and local and central government, would most effectively and efficiently improve the completeness and accuracy of electoral registers for all people?
3. What information, data and tools are required to support effective actions?
4. How can we ensure a streamlined registration process that is accessible to all, maximises digital opportunities, and is resilient to future change?
5. How can we build public understanding of UK democracy and governance in a way which increases participation?
6. How can we ensure a stable electoral system and a democracy that works for all, that is trusted and secure, and with minimal potential for fraud?

**E. UK governance and devolution**

1. What structures and constitutional mechanisms can support relationships between devolved administrations and central government?
2. How can we ensure devolution settlements are stable and sustainable over time and in a changing environment? What structures can facilitate this?
3. How can the interests and economies of Scotland, Wales and Northern Ireland best be supported by the UK government?
4. How can we best understand and measure the relationships citizens have with different layers of UK governance?

**F: Measuring and responding to security threats faced by the UK**

1. How might we measure readiness for high-impact low-probability risks?
2. How do we apply Cost Benefit Analysis to improve capability development?
3. How do we measure performance / capability development for a risk before it materialises?
4. How might we gain assurances about the effectiveness of capabilities linked to low-frequency high-impact events?
5. How do we make risk-reduction real at the local level?
6. How might we compare the impacts of acute and chronic disaster risks?
7. How can we conduct probabilistic analysis of the likelihood of man-made risks?

**G: Adapting to a changing security environment**

1. How do you incentivise collective efforts to improve resilience capabilities locally (and in a context of scarce resources)?
2. How can we best apply automation across government’s cyber security practises? What are the risks and opportunities? What are the dependencies on other technology?
3. How can we exploit opportunities from new and emerging technologies in policy-making across government; and can we capture their risks and security vulnerabilities including to government?
4. How to develop an open source tool set for Internet Cyber Security?
5. What pressures will there be on global natural resources - especially energy, food, water and critical elements - in the short, medium and long term?
6. How can the UK manage the impact of additional demand for critical elements and materials, and potential price spikes?
7. How can technological change reduce pressures on natural resources?
8. How to use technologies for communicating disaster risks to the population (covering early warning, risk information, stimulating risk reduction behaviour)?
9. How to test laboratory interconnection?
10. How to ensure effective supply chain security management?
11. How to address interactions between safety and security?
12. How to understand the interdependencies between systems?

**H: The role of multilateral institutions in maintaining the security of the UK**

1. Under what conditions have multilateral institutions had most effect and what lessons can we learn?
2. Where are the gaps in multilateral cooperation on global governance?
3. Is there a sustained change in the balance of power in multilateral institutions? If “yes” what would be the implications for the UK?
4. What is the approach of global powers to multilateral institutions?

**I: Knowledge and information management**

1. How can we best ensure that digital information remains accessible over time? For example, how can new technology assist with the migration of data between proprietary platforms at scale over an indefinite time period?
2. How can the economic, financial and social benefits of digital collaboration, knowledge-sharing platforms and information management be quantified?
3. How will trends in digital information impact disciplines e.g. history, archival research and recordkeeping? How will future historians looking back at our era and use archives of digital information?
4. How can we combine available and emergent information technologies (such as text analytics, natural language processing, sentiment analysis and semantic markup) to improve knowledge and information sharing in a public sector context?

In addition to the themes above, we draw your attention to Project X (detailed at <https://www.bettergovprojects.com/>) which sets out areas of research interest for project and programme management.

Getting in touch

Should you have questions relating to this ARI please contact **co\_aris@cabinetoffice.gov.uk**. If your query relates to a specific question please state the letter and number in your email.