



Department for
Digital, Culture,
Media & Sport

CENTRE FOR DATA ETHICS AND INNOVATION CONSULTATION

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Ministerial Foreword

I am thrilled to launch this consultation on the new Centre for Data Ethics and Innovation.

Advances in how data is used, and the technologies that lie behind it, are transforming the world as we know it. We have already seen some fantastic progress, including how we diagnose illness, deliver public services and tackle social challenges like climate change.

The Centre will make sure our society can keep pace with these dramatic changes and maximise the benefits they bring. From helping us deal with the novel ethical issues raised by rapidly-developing technologies such as artificial intelligence, agreeing best practice around data use to identifying potential new regulations, the Centre will set out the measures needed to build trust and enable innovation in data-driven technologies. Trust underpins a strong economy, and trust in data underpins a strong digital economy.

In the UK we are already seen as world leaders in our ability to navigate the complexities of new technologies. We now have the challenge of doing the same in the digital era, when the stakes and opportunities are greater than ever before.

I know that the launch of the Centre has been eagerly anticipated. This is true both here in the UK but also across the world. There is a real opportunity for the Centre, and the country, to lead the global debate on these vital and far-reaching issues.

Whether you are a consumer of data-derived products or a company at the cutting edge of innovation, I would encourage you to respond to this consultation. This way, we will shape the Centre, and the future, in a way that works for you.

A handwritten signature in blue ink, appearing to read 'Matt Hancock', with a stylized flourish at the end.

Rt Hon Matt Hancock MP
Secretary of State for Digital, Culture, Media and Sport

Executive Summary

- **The use of data and artificial intelligence (AI) is set to enhance our lives in powerful and positive ways.** We want the UK to be at the forefront of global efforts to harness data and artificial intelligence as a force for good.
- **For this, our businesses, citizens and public sector need clear rules and structures that enable safe and ethical innovation in data and AI.** The UK already benefits from well established and robustly enforced personal data laws, as well as wider regulations that guide how data driven activities and sectors can operate.
- **However, advances in the ways we use data are giving rise to new and sometimes unfamiliar economic and ethical issues.** We need to make sure we have the governance in place to address these rapidly evolving issues, otherwise we risk losing confidence amongst the public and holding businesses back from valuable innovation.
- **This is why we are establishing a new Centre for Data Ethics and Innovation.** It will identify the measures needed to strengthen and improve the way data and AI are used and regulated. This will include articulating best practice and advising on how we address potential gaps in regulation. The Centre will not, itself, regulate the use of data and AI - its role will be to help ensure that those who govern and regulate the use of data across sectors do so effectively.
- **The Centre will operate by drawing on evidence and insights from across regulators, academia, the public and business.** It will translate these into recommendations and actions that deliver direct, real world impact on the way that data and AI is used. The Centre will have a unique role in the landscape, acting as the authoritative source of advice to government on the governance of data and AI.
- **Across its work, the Centre will seek to deliver the best possible outcomes for society from the use of data and AI.** This includes supporting *innovative* and *ethical* uses of data and AI. These objectives will be mutually reinforcing: by ensuring data and AI are used ethically, the Centre will promote trust in these technologies, which will in turn help to drive the growth of responsible innovation and strengthen the UK's position as one of the most trusted places in the world for data-driven businesses to invest in.
- **We propose that the Centre acts through:**
 - a. **analysing and anticipating gaps** in the governance landscape

- b. **agreeing and articulating best practice** to guide ethical and innovative uses of data
 - c. advising Government on the need for **specific policy or regulatory action**
- **Understanding the public's views**, and acting on them, will be at the heart of the Centre's work, as well as responding to and seeking to shape the international debate.
- **We recognise that the issues in relation to data use and AI are complex, fast moving and far reaching**, and the Centre itself - as well as the advice it delivers - will need to be highly dynamic and responsive to shifting developments and associated governance implications.
- **To enshrine and strengthen the independent advisory status of the Centre, we will seek to place it on a statutory footing as soon as possible.** This will be critical in building the Centre's long term capacity, independence and authority.
- **This consultation seeks views on the way the Centre will operate and its priority areas of work.** We want to ensure the Centre adds real value and builds confidence and clarity for businesses and citizens. We will therefore engage extensively with all those who have an interest and stake in the way data use and AI are governed and regulated. This includes citizens, businesses, regulators, local and devolved authorities, academia and civil society.

1. Introduction

- 1.1** Advances in the way we use and deploy data and AI are revolutionising almost every aspect of our lives. From faster, more accurate diagnosis of illnesses, to smarter and more sophisticated solutions to energy use and security threats - the use of data and AI has the potential to enhance our lives in unprecedented, powerful and positive ways.
- 1.2** We want the UK to be at the forefront of global efforts to harness data and AI as a force for good. Our Industrial Strategy and the AI Sector Deal are part of an ambitious and far-reaching package of measures that will drive the uptake and adoption of AI in the UK. The Deal commits up to £0.95 billion of support for the sector, complementing and leveraging the £1.7 billion that was announced under the cross-sectoral Industrial Strategy Challenge Fund.¹ This investment will support research and development in AI, improve data sharing and access, help attract and retain the best global talent, as well as boost the skills needed to adapt to and benefit from new technologies. More generally, our Digital Strategy is helping to create the best possible environment for digital innovation and enterprise to flourish.
- 1.3** We have also continued to strengthen the rules and structures that guide how data and AI are used. In particular, the Data Protection Act has modernised data protection laws to make them fit-for-purpose for our increasingly digital economy and society. The Digital Economy Act introduced new powers to make the digital delivery of government services more efficient and effective. A number of wider policy initiatives, including on open data and data ethics in government, are also helping to promote responsible and effective use of data.
- 1.4** Nevertheless, the use of data and AI is giving rise to complex, fast moving and far reaching economic and ethical issues. For example:
- sophisticated algorithms can glean powerful insights into our behaviours and emotions. These insights can be deployed in ways that **influence or even manipulate the decisions we make** in unprecedented ways - from the products we buy to the news we read.
 - enhanced decision-making through artificial intelligence can radically improve outcomes for society, including through more effective targeting of public resources and commercial products and services. However, automated decision-making can be opaque and, in certain contexts, may lead to **unfair outcomes or overly restrict the level of control** we have over the decisions

¹ This figure includes government, industry and academic contributions up to £603m in newly allocated funding, and up to £342m from within existing budgets, alongside £250m for Connected and Autonomous Vehicles (AI Sector Deal, p.8).

that shape our lives. For example, job applications may be rejected without clear explanation or automated tools might exacerbate or reproduce inequities within the criminal justice system.

- economic models are emerging, in which a small number of large companies have access to vast amounts of data. This generates significant consumer value, wealth and insight. It also raises concerns about the capacity for **new entrants to compete and innovate**, as well the consequences of just a few businesses having unprecedented power to influence behaviours and shape our society.

- 1.5** We need to be able to respond quickly and effectively to these and other emerging issues. To do this we need a governance regime - a set of norms, rules and structures - that determines how data and AI can and should be used. It should maximise both the ability and incentives for all organisations - commercial and public - to deliver new innovative products and services through data and AI; and should ensure those innovations are developed and deployed responsibly. Ultimately, an effective governance regime will build confidence in, and demand for, new data-driven and AI-based innovations, amongst businesses and citizens.
- 1.6** The Data Protection Act is a major step towards ensuring our laws are fit for the digital age. It introduces new rights and responsibilities that ensure greater accountability, transparency and control in the way data and AI are used and deployed. For example, organisations will now be obliged to notify an individual when an automated decision has been made and individuals will have the right to obtain and reuse their personal data for their own purposes.
- 1.7** Significant regulatory steps have also been taken to strengthen the way data and AI are used within specific sectors or spheres of activity, in recognition that it is often the applications of data-driven and AI-based technologies, not the technologies themselves, that require governance. This includes measures within financial services regulation such as the Markets in Financial Instruments Directives, which introduces new safeguards for the use of algorithms in financial trading.
- 1.8** Measures such as these are already enhancing the way we govern the use of data and AI. But it is important that we create the ongoing capacity and capability to identify and address any gaps in the governance landscape, as and when they emerge. This is why we are establishing the Centre for Data Ethics and Innovation. This follows the Chancellor's commitment to provide funding for the new Centre

in the 2017 Autumn Budget and evolves from a manifesto commitment on data ethics and a number of wider calls for a new data governance or ethics body.²

- 1.9** The Centre will advise government on the measures needed to strengthen and improve the way data and AI are used. This will include promoting best practice and advising on how we address potential gaps in our regulatory landscape. The Centre will not, itself, regulate the use of data and AI. This is because we already have a strong network of regulators overseeing the sectors and activities that rely on, or are impacted by, data and AI. In this context it is likely to make sense for any additional formal regulatory levers to lie with existing regulators - sectoral or cross-cutting. The role of the Centre is to advise on how we address any gaps in regulation, rather than to set and enforce any new regulations itself.
- 1.10** To enshrine and strengthen the independent advisory status of the Centre, we will seek to place it on a statutory footing as soon as possible. This will be critical in building the Centre's long-term capacity, independence and authority.
- 1.11** However, this will take time and it is important that we move quickly to address the issues posed by data use and innovation. We are therefore establishing the Centre on an operational footing as soon as possible, before seeking to put it on a statutory footing. We are in the process of appointing the Chair and Board for the Centre who, together, will ensure it has the vision, capacity and capability to address the wide ranging, complex and rapidly evolving economic and ethical issues that are arising in relation to data and AI.
- 1.12** It is important that we get the design of the new Centre right. It must add real value and act with credibility and authority, establishing confidence and clarity for citizens and businesses. This is why we are seeking views through this consultation. We want to engage extensively with all those who have an interest and stake in the way data use and AI are governed and regulated - citizens, business, regulators, public bodies, academia, civil society - and to ensure their views feed into the way the Centre operates and informs what the Centre will deliver during its early phase.
- 1.13** The UK is well placed to establish itself as a world leader in the ethical and innovative use of data and artificial intelligence. We have a strong tradition in data and AI innovation, careful navigation and management of the ethical and

² Chancellor's commitment: Autumn Budget 2017, p. 45. Manifesto commitment: Conservative Party Manifesto 2017, p.79. New data governance or ethics body: British Academy and Royal Society, *Data Management and Use: Governance in the 21st century*, 2017, pp.58-81; Science and Technology Committee, *The big data dilemma*, p.42; Royal Statistical Society, *The Opportunities and Ethics of Big Data*, p.8.

social complexities of new technologies and a proportionate pro-innovation approach to regulation.

- 1.14** We already benefit from a large and growing body of work on data and AI, including on the nature and case for a new organisation to advise on its governance.³ Building on this, and through this consultation, we can ensure that the Centre plays a pioneering role in shaping how we use data and AI, now and in the future, and that data and AI-driven innovations deliver maximum benefits for society.

How data and AI can improve our lives

The use of data and AI has the potential to improve our lives in many different ways.⁴ This includes areas as diverse as:

- **Healthcare:** Improved imaging diagnostics that can achieve higher accuracy than human pathologists in identifying predictive markers and automated x-ray analysis that delivers quicker results
- **Pharmaceuticals:** Increased efficiencies in drug discovery processes which lead to quicker identification of drug candidates and enable predictions of patient responses to different drugs
- **Energy:** Optimising energy infrastructure by designing systems that respond more effectively to peak demands and improving efficiency of power plants
- **Transport:** Creating insights and prediction about traffic flows and transport use that tackle congestion or optimise transport services
- **Manufacturing:** Automating manufacturing processes and optimising supply chains to produce greater efficiencies
- **Public services:** Accurate targeting of public services to those most in need and more effective distribution of public resources

³ See Annex B: Key Reports and Initiatives.

⁴ The following examples are drawn from the Royal Society's 2017 publication, *Machine learning: The Power and Promise of Machines that Learn*, and PWC's 2017 publication, *Sizing the Prize: What's the real value of AI for your business and how can you capitalise?*

2. The Centre's role and objectives

- 2.1** The Centre for Data Ethics and Innovation will have an explicit and unique mandate to advise the government on the measures which are needed to ensure safe and ethical innovation in data and AI. It will convene, connect and build upon the best evidence, insights and practices available and translate these into direct, real-world actions that enhance the way in which data and AI are used.
- 2.2** In particular, the Centre will build on, and enhance, the existing institutional landscape by:
- working closely with **regulators** to identify where the ethical and governance challenges posed by the use of data and AI go beyond current law and practice, and determining how and in what ways those challenges can best be addressed;
 - drawing on the work of our **renowned research institutes, learned societies and think tanks** to understand the implications of data use and AI - technical, ethical and economic - and the range of governance challenges these pose;
 - supporting and building on best practice from the many **leading edge businesses and public bodies** that are thinking about, and embedding, mechanisms for ensuring the data and AI they use are deployed ethically and responsibly;
 - engaging closely with **citizens, consumers and civil society** to understand the broader societal attitudes towards data and AI use and the public values which our governance measures should promote and protect;
 - identifying **global opportunities** to collaborate on cross-jurisdictional questions of data and AI governance and to formulate governance measures that have international traction and credibility.

Strengthening our AI institutional landscape

The Centre for Data Ethics and Innovation is one of three new organisations the government is setting up to provide the structures needed to guide policy, develop opportunities, and harness the potential of AI:

- **The Centre for Data Ethics and Innovation** will help strengthen the existing governance landscape. It will supply government with independent, expert advice on the measures that are needed to enable and ensure safe and ethical innovation in data-driven and AI-based technologies.

- **The AI Council** will bring together leading figures from industry and academia to provide strategic leadership, promote the growth of the sector and ensure delivery of the sector deal commitments.
- **The Office for AI** will be the secretariat for the Council, made up of civil servants, and will drive implementation and lead coordination on AI within government. It will help to deliver the AI Sector Deal and develop the AI Grand Challenge.

The Centre will work closely with the Council for AI and the Office for AI, alongside other organisations already making an important contribution towards our ambition to maximise the potential value and benefit of AI for society. This includes world class regulators, such as the Information Commissioner’s Office (ICO) and Competition and Markets Authority (CMA), and research centres such as the Alan Turing Institute, Oxford Internet Institute and recently announced Ada Lovelace Institute.

The Centre will have a unique role within this landscape, acting as the authoritative source of advice to Government on the governance of data and AI.

- 2.3** Across its work, the Centre will seek to deliver the best possible outcomes for society from the use of data and AI. This includes supporting *innovative* uses of data, ensuring that data and algorithms can be appropriately accessed, used and deployed in ways that deliver valuable products and services; and it includes supporting *ethical* use of data and AI, so that both data and AI are deployed responsibly, in ways that build public confidence and trust.
- 2.4** Ethical and innovative uses of data and AI will often be mutually reinforcing: stronger ethical guidelines will promote trust in data and AI technologies, which in turn will help to drive the growth of responsible innovation. Indeed, a strong and visible ethical approach to the use of data has the potential to set us apart from our competitors, establishing the UK as one of the most attractive locations in the world for data driven businesses to invest in. Similarly, well-functioning markets that promote and incentivise innovation in the use of data will be better positioned to deliver valuable services that are genuinely in the interests of citizens. However, in some cases, the Centre may need to clarify any trade-offs to ensure its recommendations deliver the greatest benefit for our society and economy.
- 2.5** The breadth and diversity of issues within scope - as well as the wide range of contexts in which they play out - will mean that the Centre is likely to advise across a broad range of actions, from soft measures to support and guide

businesses within existing governance frameworks, to identifying where we potentially need to prevent or enforce particular behaviours through legislation and regulation. It is important that actions proposed by the Centre are proportionate to the risks. Over-regulation will stifle innovation and hold back the potential for data and AI to radically improve our lives. Indeed, there is an ethical imperative to ensure that we do not inadvertently constrain innovation in the use of data through regulation.

- 2.6** Finally, the Centre will need to respond to short term issues, particularly where these are causing public anxiety or holding back valuable innovation. But it is also important that it anticipates, and responds to, longer term issues emerging on the horizon, particularly where those long term issues require intervention or action today, to minimise risk and maximise beneficial outcomes further down the line.

Questions

- Q1** Do you agree with the proposed role and objectives for the Centre?
- Q2** How best can the Centre work with other institutions to ensure safe and ethical innovation in the use of data and AI? Which specific organisations or initiatives should it engage with?

3. The Centre's activities and outputs

- 3.1** We recognise that the issues in relation to data use and AI are complex, fast moving and far reaching. The Centre itself - as well as the advice it delivers - will need to be highly dynamic and responsive to shifting uses of data, AI, and associated governance implications. This section seeks views on the Centre's *early* functions and outputs. We explicitly recognise that the outcomes of the Centre's initial phase of work can and should inform the Centre's longer term focus, role and approach.
- 3.2** To deliver a strong, trusted and dynamic governance regime, there will need to be a number of aspects to the Centre's work. This, in part, reflects the breadth and diversity of issues and sectors within scope and a recognition that the appropriate governance response is likely to depend largely on the nature of the issue and the context in which it plays out.
- 3.3** We think the Centre will need to:
- **ANALYSE AND ANTICIPATE**
Within each area of work the Centre will draw upon the most up-to-date research and evidence to identify any gaps in governance and regulation that could impede the ethical and innovative deployment of data and AI. It will engage closely with existing governance regimes to identify the most urgent areas for action.
 - **AGREE AND ARTICULATE BEST PRACTICE**
The Centre will support principles or standards that guide ethical and innovative uses of data and AI. This could include:
 - i. supporting regulators or other bodies to publish and promote **guidelines or codes of practice**, as well as devising accreditation schemes to identify and encourage best practice.
 - ii. identifying measures to **build capacity amongst data users** to adhere to those standards, for example through training or internal governance within business and organisations.
 - iii. working in partnership with organisations across the public sector and the private sector to explore **technological approaches to problems** such as different models of data ownership or monitoring the impact of automated decision making
 - **ADVISE ON THE NEED FOR ACTION**
The Centre will identify specific policy or regulatory actions required to

address or prevent barriers to innovative and ethical uses of data. The Centre will publish clear, evidence based recommendations to government.

3.4 The table below sets out some of the specific activities the Centre might deliver across each aspect of its role.

Role	Proposed activities
a) Analyse and anticipate	<ul style="list-style-type: none"> ● Commission and bring together research and analysis into the ethical and economic uses of data and AI; ● review the existing regulatory framework and identify gaps in response to the uses of data and AI; ● engage industry, civil society, regulators and the public on specific issues around the uses of data and AI; and ● horizon-scan new and emerging data-driven technologies and their associated governance implications.
b) Agree and articulate best practice	<ul style="list-style-type: none"> ● catalyse and coordinate work across industry and other stakeholders to develop standards in the uses of data and AI; ● develop or promote voluntary codes of conduct and ethical principles for effective and ethical uses of data and AI; ● work with stakeholders to develop frameworks for effective and ethical uses of data and AI; ● consider measures to build capacity amongst data users, through training or organisational governance; and ● respond to, and seek to shape, the international debate on standards.
c) Advise on the need for action	<ul style="list-style-type: none"> ● identify steps to ensure that law, regulation and guidance keep pace with developments in data-driven and AI-based technologies; ● publish recommendations to Government on how it can support safe and ethical innovation in data and AI; and ● provide expert advice and support to regulators on the implications of the uses of data and AI and areas of potential harm.

3.5 There are a number of high level themes emerging around the ethical and innovative uses of data and AI. Many of these are not inherently new or unique, but are being amplified through the use of data-driven and AI-based technologies. As an initial working framework, we have identified six possible areas in which the

Centre could undertake projects to strengthen the governance of data and AI uses. We expect these to evolve and new areas to be identified.

3.6 The proposed areas are:

- **Targeting.** Data and artificial intelligence can produce powerful insights about our behaviour and emotions. This can be used to create better and more efficient public and commercial services, for example by ensuring that individuals receive recommendations for products and services that they value. But it may also restrict the information and choices available to us or even be used to influence, manipulate or control our behaviour in harmful ways.
- **Fairness.** Algorithms make use of data about past behaviour, which means biases embedded in the data can be reinforced and strengthened over time. However, there is also an opportunity to use new technologies to identify and minimise unconscious biases as well as ensure that data is used to promote fair and equitable outcomes.
- **Transparency.** Data technologies have the potential to significantly augment human cognition. However, the decisions and recommendations they offer may not be easily interpretable or explainable. This raises questions about the extent to which we need to be able to explain decisions in different contexts and, ultimately, when and to what extent we should retain human control over decision-making.
- **Liability.** The use of autonomous systems challenges traditional notions of accountability and of who should be responsible when things go wrong. The development of new models of liability will play an important role in shaping how risks and benefits are distributed across the private sector, public sector and the individual.
- **Data access.** Data is at the core of the UK government's ambition to build the world's leading digital economy and government. This will require the right incentives and structures for the creation, collection and analysis of data. It will also need to encourage data to be created, shared and traded efficiently across markets, including those of public or national interest. This will require establishing novel data sharing frameworks, such as the data trusts proposed by the recent Hall-Pesenti review of AI, as well as work to enhance

interoperability across data networks.⁵

- **Intellectual Property and ownership.** Intellectual property rights protect - and therefore reward - innovation and creativity. It is important that our intellectual property regime keeps up with the evolving ways in which data use generates new innovations. This means assigning ownership along the value chain, from datasets, training data, source code, or other aspects of the data use processes. It also includes clarity around ownership, where AI generates innovations without human input. Finally, there are potentially fundamental questions around the ownership or control of personal data, that could heavily shape the way data-driven markets operate.

3.7 Our new data protection laws, brought in with the Data Protection Act, will address some of the immediate questions and challenges that are being raised across these areas, particularly around automated decision-making and profiling. However, these laws might need to be tested and supplemented as technology, business models and societal views on data and AI continue to change. The Centre will seek to understand what, if any, further governance provisions might be needed and what form they will take.

3.8 Data and AI use as well as their governance will interact with many segments of our economy and society, and the issues identified above will play out differently in different contexts. Throughout the Centre's work, it is important to test explicitly whether and how the appropriate governance required varies across different sectors, as well as identify the lessons and good practice that can be shared across sectors.

3.9 It is important that the Centre's programme of work delivers well defined, concrete projects that offer real world practical benefits. We have already committed the Centre to developing data sharing frameworks as part of its initial work programme. The Centre will play a key role in overseeing the development of such frameworks to ensure data can be shared in a safe, secure and equitable way to drive innovation.

3.10 The Centre, in dialogue with government, will need to carefully prioritise and scope the specific projects within its work programme. This should include an assessment of the **value** generated by the project, in terms of impact on innovation and public trust in the ethical use of data and AI, the **rationale** for the Centre doing the work (relative to other organisations, inside or outside

⁵ *Growing the Artificial Intelligence Industry in the UK*, pp. 46-48.

Government) and **urgency** of the work, for example in terms of current concerns amongst the public or business.

Questions

- Q3** **What activities should the Centre undertake?** Do you agree with the types of activities proposed?
- Q4** **Do you agree with the proposed areas and themes for the Centre to focus on?** Within these or additional areas, where can the Centre add the most value?
- Q5** **What priority projects should the Centre aim to deliver in its first two years, according to the criteria set out above?**

4. How the Centre will operate

- 4.1** The Centre must operate in a way that secures credibility and trust in its work from the outset. It needs to be independent and have the explicit authority to advise government. Its work must be informed and evidence-based, driven by a clearly defined rationale, and it must be accountable and transparent in making recommendations to government.
- 4.2** To enshrine and strengthen the independent advisory status of the Centre, we will seek to place it on a statutory footing as soon as possible. This statutory body could take a number of forms, including an ‘arm’s length body’, for which a separate government approval process would be needed. A statutory footing will be critical in building the Centre’s long-term capacity, independence and authority.
- 4.3** As the Centre progresses its work, it may become apparent that specific statutory powers are needed to enable it to deliver its mandate effectively. This could include the power to request information needed to provide an evidence base for the Centre’s recommendations, whether from businesses, regulators, public bodies or government departments. Where the addition of these powers represents a significant shift or expansion of the Centre’s remit, they would need to be established through further primary or secondary legislation and would be likely to require further consultation on the role of the Centre.
- 4.4** It is important that the Centre can begin its work as soon as possible - and ahead of securing a statutory status. We will therefore establish it on a provisional, non-statutory footing as soon as the Chair and Board are in place. This initial phase of activity will enable the Centre to deliver early outputs on priority issues, while at the same time offering an opportunity to identify and refine the specific functions and issues it will focus on going forward.
- 4.5** We are in the process of appointing the Chair and Board through fair and open competition. Together, they will bring the breadth of expertise needed to identify the key issues posed by the use of data - technical, ethical and economic - and the range of governance solutions needed to address them. This will include relevant expertise in data science, ethics, law, economics, regulation, public communication, as well as moral or religious thinkers.
- 4.6** We are also beginning to recruit dedicated staff who will develop the work of the Centre. We are seeking to recruit across a diverse pool of skills, including people working at the forefront of AI development, who have a thorough understanding

of the current and emerging capabilities and challenges of data and AI technologies. The Centre staff will report directly to the board and develop the Centre's work.

- 4.7** It is essential that the board engages fully with the views of different stakeholders in the course of its deliberations. There are many organisations and initiatives already thinking deeply about the issues posed by data innovation, from the companies and data scientists developing and deploying data technologies, to research centres, public bodies, charitable foundations and representatives of civil society.
- 4.8** The Centre will draw on the insights and perspectives of all these organisations to ensure its recommendations take full advantage of the work that has already been done. It will deploy a range of mechanisms to engage with a wider spectrum of stakeholders and experts. This includes expert panels, roundtable discussions, consultations and commissioned research. The Centre will encourage and support engagement led by others, such as sector regulators, where issues arise in their area. Where appropriate and mutually beneficial, the Centre will also draw up memoranda of understanding with organisations whose work is likely to intersect closely with that of the Centre.
- 4.9** In formulating its advice, the Centre will also seek to understand and take into consideration the plurality of views held by the public about the way in which data and AI should be governed. Where these views diverge, as is often the case with any new technology, the Centre will not be able to make recommendations that will satisfy everyone. Instead, it will be guided by the need to take ethically justified positions mindful of public opinion and respecting dissenting views. As part of this process it will seek to clearly articulate the complexities and trade offs involved in any recommendation.
- 4.10** The Centre will utilise different ways of engaging with and understanding wider public views and attitudes - for example, through deliberative mechanisms such as citizen juries and regular polling of options. The Centre will also seek to reflect and represent a breadth of views and perspectives through the makeup of its Board and staff, which will be inclusive and diverse. It will make sure that its recommendations are communicated clearly and effectively to the widest possible audience.
- 4.11** The Chair will set the strategic direction for the Centre, but will work in dialogue with the Secretary of State for Digital to ensure that the work and outputs of the Centre take into consideration the priorities and views of the government. The Centre will be sponsored by the Department for Digital, Culture, Media and Sport

and the Chair will be accountable to the Secretary of State for Digital for the performance of the Centre.

- 4.12** The Centre must build confidence by operating in a way that is transparent and open. We therefore propose that its reports and recommendations are, by default, published at the point they are delivered to government, accepting that, where those recommendations have a bearing on issues of national security, exceptions may need to be made. We also propose that, once firmly established, the Centre should consider making some or all of its board meetings open to the public.
- 4.13** The government will undertake to publish a response to these recommendations on an annual basis, indicating whether they endorse those recommendations and the steps they will take to implement them. Where relevant, the UK government will need to work in partnership with the devolved administrations in Scotland, Wales and Northern Ireland to explore the implications of the Centre's recommendations.
- 4.14** In addition, we propose that the Centre publishes a report presenting its overall assessment of the governance landscape for data and AI once a parliament. This should include any recommended actions to address barriers to effective and ethical uses of data and AI and the steps which the government has taken to implement those recommendations. The government will have the option of responding formally to this assessment, clarifying its position and outlining what further measures, if any, it will be taking to carry forward the recommendations it has endorsed.
- 4.15** The mechanisms outlined above relate to the way the Centre will operate during its early phase. We propose that they should also form the starting point for how the Centre operates once it is placed on a statutory footing. However, we recognise that the role of the Centre may evolve over time, in response to its early findings as well as any shifts in the uses of data and AI and associated governance implications. It is therefore important that we continue to review and refine this model, to ensure the Centre remains effective and fit for purpose.

Questions

- Q6** Do you agree the Centre should be placed on a statutory footing? What statutory powers does the Centre need?
- Q7** In what ways can the Centre most effectively engage stakeholders, experts

and the public? What specific mechanisms and tools should it use to maximise the breadth of input it secures in formulating its actions and advice?

Q8 **How should the Centre deliver its recommendations to government?** Should the Centre make its activities and recommendations public?

Annex A

Centre for Data Ethics and Innovation: Draft Terms of Reference

The Centre for Data Ethics and Innovation will maximise the exceptional benefits of data and AI for our society and economy. The Centre will:

1. Analyse and Anticipate

The Centre will identify the barriers to and opportunities for ethical and innovative uses of data and AI by:

- a. commissioning and bringing together **research and analysis** into the ethical and economic implications of uses of data and AI;
- b. **reviewing the existing regulatory framework** and identifying gaps in response to the uses of data and AI and barriers to ethical innovation;
- c. **engaging industry, civil society, regulators and the public** in consultation and dialogue on specific issues around data and AI uses;
- d. **horizon-scanning** new and emerging data-driven and AI-based technologies and associated governance implications.

2. Agree and Articulate Best Practice

The Centre will identify best practice for the responsible use of data and AI. This might include:

- a. engaging with industry and other stakeholders to **coordinate world-leading standards and codes of conduct** in data and AI uses;
- b. setting **high-level ethical principles** for the deployment of data and AI;
- c. responding to, and seeking to shape, the **international debate** on standards;
- d. working with stakeholders to develop **legal frameworks** for effective and ethical uses of data and AI;
- e. considering measures to **build capacity** amongst data users, through

training or organisational governance;

- f. working with the public and the private sector to explore **technological approaches** to key challenges.

3. Advise on the Need for Action

The Centre will support the government to enable safe and ethical innovation in the use of data and AI by:

- a. identifying **steps to ensure that the law, regulation and guidance keep pace** with developments in data-driven and AI-based technologies;
- b. publishing **recommendations** to government on how it can support safe and ethical innovation in data and AI;
- c. providing **expert advice and support** to regulators (including for example the Information Commissioner's Office, Competition and Markets Authority and sector regulators) on the implications of data and AI uses and areas of potential harm.

In carrying out the above functions, the government expects the Centre to:

- appropriately balance objectives for ethical and innovative uses of data and AI to ensure they deliver the greatest benefit for society and the economy
- take into account the economic implications of its advice, including the UK's attractiveness as a place to invest in the development of data-driven technologies
- provide advice that is independent, impartial, proportionate and evidence-based
- work closely with existing regulators and other governance institutions to ensure clarity and consistency of guidance
- report regularly to Parliament on the adequacy of the regulatory landscape governing AI and data use and AI

Annex B: Key reports and initiatives

Our proposition for the Centre for Data Ethics and Innovation does not exist in, or come from, a vacuum of thought. Extensive and valuable work has helped shape the case for the Centre, what it should do and how it should operate. We are especially grateful for the following reports and initiatives that have provided an important foundation for the design of the Centre and its future work.

2018

- **House of Lords Select Committee on Artificial Intelligence**, *AI in the UK: ready, willing and able* (April 2018, Report of Session 2017-19).
- **Department for Business, Energy and Industrial Strategy and Department for Digital, Culture, Media and Sport**, *AI Sector Deal* (April 2018).

2017

- **Institute for Public Policy Research (IPPR)**, Mathew Lawrence, Carys Roberts & Loren King, *Managing Automation: Employment, inequality and ethics in the digital age* (December 2017).
- **Department for Business, Innovation and Industrial Strategy**, *Building a Britain fit for the future* (November 2017).
- **Dame Wendy Hall & Dr Jerome Pesenti**, *Growing the artificial intelligence industry in the UK* (October 2017).
- **Royal Society of Arts**, Benedict Dellot & Fabian Wallace-Stephens, *The Age of Automation: Artificial Intelligence, robotics and low skilled work* (September 2017)
- **Information Commissioner's Office (ICO)**, *Big Data, AI, Machine Learning, and Data Protection* (September 2017)
- **British Academy and Royal Society**, *Data Management and Use: Governance in the 21st century* (June 2017).
- **Royal Society**, *Machine learning: the power and promise of computers that learn by example* (April 2017).
- **Science and Technology Committee**, *Robotics and artificial intelligence* (Fifth Report, Session 2016-17. HC 145).

2016

- **Science and Technology Committee**, *The big data dilemma* (Fourth Report, Session 2016-17, HC 468).
- **Government Office for Science**, *Artificial Intelligence: opportunities and implications for the future of decision making* (November 2016).
- **Royal Statistical Society**, *The Opportunities and Ethics of Big Data* (February 2016).
- **NESTA**, *A machine intelligence commission for the UK* (February 2016).

Annex C: Summary of Questions for Consultation

- Q1** Do you agree with the proposed role and objectives for the Centre?
- Q2** How best can the Centre work with other institutions to ensure safe and ethical innovation in the use of data and AI? Which specific organisations or initiatives should it engage with?
- Q3** What activities should the Centre undertake? Do you agree with the types of activities proposed?
- Q4** Do you agree with the proposed areas and themes for the Centre to focus on? Within these or additional areas, where can the Centre add the most value?
- Q5** What priority projects should the Centre aim to deliver in its first two years, according to the criteria set out above?
- Q6** Do you agree the Centre should be placed on a statutory footing? What statutory powers does the Centre need?
- Q7** In what ways can the Centre most effectively engage stakeholders, experts and the public? What specific mechanisms and tools should it use to maximise the breadth of input it secures in formulating its actions and advice?
- Q8** How should the Centre deliver its recommendations to government? Should the Centre make its activities and recommendations public?