April 2021
APPG AI Evidence Meeting

BIG INNOVATION CENTRE

Data Governance in the Post-Brexit Era:
Is the National Data Strategy ambitious enough?
PARLIAMENTARY BRIEF

Data Governance in the Post-Brexit Era: Is the National Data Strategy ambitious enough? *is a* Parliamentary Brief based upon the All-Party Parliamentary Group on Artificial Intelligence (APPG AI) Evidence Meeting held online on the 25th January 2021.

This Evidence Meeting was chaired by **Stephen Metcalfe MP** and **Lord Clement-Jones CBE**.

We would like to express our appreciation to the following people for their oral evidence:

- **Dr Jeni Tennison,** Vice President and Chief Strategy Adviser, **Open Data Institute**
- **Dr Chris Francis,** Director of Government Relations, **SAP**
- **Prof Edgar Whitley,** Associate Professor of Information Systems, Department of Management, **The London School of Economics and Political Science**
- **Del Alibocus,** Group Consulting Head of IoT, **Capita**
- **Dr Adrian Weller,** Independent member of the **Centre for Data Ethics and Innovation** board and Programme Director for AI at the **Alan Turing Institute**

Big Innovation Centre is the appointed Secretariat for APPG AI

- CEO, **Professor Birgitte Andersen**
- Rapporteur: **Dr Désirée Remmert**

The video recording of the Evidence Meeting can be found on our websites.

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PARLIAMENTARY BRIEF

Data Governance in the Post-Brexit Era: Is the National Data Strategy ambitious enough?

All Party Parliamentary Group on
Artificial Intelligence

APPG AI Sponsors

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1. Introduction

In September 2020, the Department for Digital, Culture, Media and Sport released the National Data Strategy (NDS). The document outlines the government's data strategy in several areas which include the creation of data foundations, data skills development, and the trusted use of data. Overall, the NDS aims at facilitating the secure and efficient collection, management, and sharing of data in the public and private sectors. It further proposes the development of shared standards to enable a safe cross-border data exchange.

Overcoming data governance issues is an urgent matter to guarantee the smooth exchange of data between the UK and EU/EEA states after the UK's exit from the EU. In this meeting we discussed if the UK's National Data Strategy is ambitious enough to meet the data challenges that new technologies and political changes will bring in the next years.

Further, in line with the international outlook of the APPG AI, we discussed the UK's approach to data governance in the context of the European data strategy which outlines the creation of a single market that allows for a free flow of data within the EU and across sectors.

The APPG AI Evidence Meeting convened a group of experts in economics, technology, and psychology from academia and business.

- **Jeni Tennison**, Vice President and Chief Strategy Adviser, **Open Data Institute**
- **Dr Chris Francis**, Director of Government Relations, **SAP**
- **Prof Edgar Whitley**, Associate Professor of Information Systems, Department of Management, **The London School of Economics and Political Science**
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This meeting was chaired by **Stephen Metcalfe MP** and **Lord Clement-Jones CBE.**

Parliament has appointed Big Innovation Centre as the **Secretariat of the APPG AI**, led by **Professor Birgitte Andersen (CEO)**. The Project Manager and Rapporteur for the APPG AI is **Dr Désirée Remmert**.

EVIDENCE MEETING

DATA GOVERNANCE IN THE POST-BREXIT ERA:
IS THE NATIONAL DATA STRATEGY AMBITIOUS ENOUGH?

MONDAY 25 JANUARY NOVEMBER 2020 5:30 PM LONDON TIME - GLOBAL WEBINAR

EVIDENCE GIVERS FROM LEFT TO RIGHT

- **Dr Chris Francis**, Director of Government Relations, **SAP**
- **Prof Edgar Whitley**, Associate Professor of Information Systems, Department of Management, **London School of Economics and Political Science (LSE)**
- **Dr Jeni Tennison**, Vice President and Chief Strategy Adviser, **Open Data Institute**
- **Del Alibocus**, Group Consulting Head of IoT, **Capita**
- **Dr Adrian Weller**, Independent Member of the Centre for Data Ethics and Innovation board and Programme Director for AI, **Alan Turing Institute**

Section 1 summarises specific recommendations for policymakers. The **remaining sections** outline key points from the evidence statements presented at the meeting.

1. Recommendations for policymakers

Define a tangible outcome of the National Data Strategy:

Effective policy and decision-making across the government, business, and civil society is highly dependent on an **efficiently working data infrastructure**. The creation and maintenance of an **institutional infrastructure** for the collection, storing, and sharing of data is thus **vital for the realisation of the national goals around AI** as laid out in the National Data Strategy. However, several speakers pointed out that as of now, the National Data Strategy still **lacks clarity, specification, and a tangible outcome**. Whereas there are many ways in which the UK could lead in the field of data, it remains **unclear how its National Data Strategy differs from the approaches of the EU, US, and other countries**. Further, due to lack of clarity about how to operationalise the different thematic pillars outlined in the NDS, an evaluation of the UK's success in achieving its ambitions might be difficult.

Provide funding for the creation and maintenance of sustainable data infrastructure:

In order to facilitate the effective sharing and governing of data, our expert speakers recommend to **support public sector data institutions through funding, capacity building, and development of sustainable business models**. Further, it has been recommended that Parliament should **examine the adequacy of public sector bodies in supporting research and innovation with data** and **analyse if their data governance regimes and business models are appropriate**. Moreover, specific problems around data collection and data use within the different public sector areas should be identified in order to **outline tactical steps that enable the overall strategy**.

Unlocking valuable data in organisations

It has been emphasised that organisations that might not traditionally be perceived as data institutions should be encouraged to recognise and **fulfil their role in collecting and sharing data** in their respective communities or sectors. To these count public bodies such as **regulators** (Ofgem or Ofcom) as well as **charities, industry bodies,**

or civil society organisations. Parliament should analyse if these organisations meet their duties of data sharing as well as examine the **incentices offered to organisations that collect, maintain and share data on behalf of others**.

Explore new institutional forms around data governance

In order to prepare for challenges around data governance in the future, **new institutional forms**, such as **data trusts, cooperatives and unions**, should be explored. Further,to **prevent harmful consequences** in using these new methods, Parliamentarians should encourage **investment in research and development of these new data institutions**. Proper attention must be given to the consequences of their introduction and how to **monitor them to ensure there are protections in place** to mitigate against possible harms.

Design a clear and case specific safeguarding guidelines for national and international data sharing

Clarity of the data protection law as well as an **increased awareness for sector specific issues** that might emerge around data governance have been highlighted as pressing concerns by the expert speakers. It has been suggested that the government should **work with relevant regulators to provide clear and case specific guidance**. Furthermore, in order to contextualise the specific issues that might emerge around data governance in each sector, **regulators and industry bodies need to work together with users, stakeholders and wider society** to agree **best practice within their industry** and establish **appropriate regulatory standards**. Additionally, it has been recommended that the government should clearly outline **UK values and principles to minimise uncertainties** that could emerge with the UK's exit from the EU and the Covid-19 pandemic.

In sum, maintaining **a balance between preserving individual privacy and public benefit** - while also looking to context in **the principles set out in the NDS** - would signal to prospective international partners the necessity of **adherence to a level of standards**, which ideally **builds upon the existing GDPR framework.**

2. Evidence statements

Dr Jeni Tennison, Vice President and Chief Strategy Adviser, Open Data Institute

The Open Data Institute (ODI) is a non-profit based in the UK that works with companies and governments to build an open, trustworthy data ecosystem. The Global Partnership for AI (GPAI) is a multi-stakeholder initiative which aims to bridge the gap between theory and practice on artificial intelligence (AI) by supporting cutting-edge research and applied activities on AI-related priorities; the UK joined GPAI as a founding member in June 2020.

Introduction

The UK's institutional infrastructure for collecting data, maintaining it, and sharing it appropriately is vital for supporting our national goals around AI. Having the right institutions in place for data access is essential both to enable data to be used for research and innovation in AI, and to prevent possible harms from new uses of data such as AI.

Data infrastructure and AI

At the ODI, we see data as a new form of infrastructure that both underpins national physical infrastructure (such as transport systems and health systems), and makes possible new kinds of products, services, and activities specific to data – including advanced data analytics and digital technology . Data infrastructure underpins operations, policy, and decision-making across government, businesses, and civil society, and is an integral part of our day-to-day lives.

Much of our work at the ODI has focused on strengthening this data infrastructure for the benefit of society. We do this by working for data access and data availability, facilitated by policies, standards and technologies that support appropriate levels of openness and controls, and by governance frameworks that emphasise the equitable distribution of the benefits of data and ethical consideration of how data collection and use affects people, communities and other stakeholders.

Data access and data availability – through strong data infrastructure – has contributed to the rapid development of the field of AI. The UK needs to continue to strengthen and invest in this data infrastructure as it aims to be ‘one of the very best places in the world to live with, work with and develop AI’ .

Data institutions for AI and the National Data Strategy

Data institutions are essential to data infrastructure. At the ODI, we define data institutions as organisations that steward data on behalf of others, often towards public, educational or charitable aims .

The UK already has some well-known data institutions. For example, in the public sector, the Office of National Statistics, Ordnance Survey and NHS Digital each have responsibilities defined in legislation to collect, maintain, and share data. Data stewarded by public sector data institutions like these is essential to understand the impact of current challenges on our nation’s health, economy, society and environment, and forms the backbone of many data analyses, including in the development of AI. There are other examples of data institutions beyond the public sector. UK Biobank is a large-scale biomedical database that supports the advancement of modern medicine and treatment. OpenStreetMap is a global civil society initiative that started in the UK, and gives open access to standardised geospatial data that enables applications to scale world wide.

The National Data Strategy recognises the critical role of data in the economy and the

fact that the UK is already a leading digital nation. But there are many different ways in which the UK could lead around data, and it is not clear in the National Data Strategy how the UK's approach to data will be distinct from that of, for example, the European Union, the US, Canada or India. We believe that the UK should take advantage of its historic leadership in open data, data ethics, and data institutions to build a vision that recognises data as a public good .

The National Data Strategy references institutions that do work around data, such as the Information Commissioner's Office, Centre for Data Ethics and Innovation, the Alan Turing Institute, and the Open Data Institute. But it says almost nothing about the data institutions that collect, maintain and share data. These data institutions do vital work in ensuring that innovators, experts, and researchers can access data – which is necessary for developing, testing, and implementing AI – in well governed ways that engender trust.

Building strong data institutions for AI

To have a data infrastructure that supports the ambition to make the UK one of the very best places in the world to live with, work with and develop AI, we need three things.

First, our existing public sector data institutions must be supported, through funding, capacity-building, and the development of sustainable business models, to enable and encourage them to share data effectively while demonstrating leadership in good data governance . Parliamentarians should scrutinise how well these public sector bodies are supporting – or inhibiting – research and innovation with data, and the appropriateness of their data governance regimes and business models.

Second, organisations that might not traditionally be perceived as data institutions must recognise and fulfil their role in collecting and sharing data in their respective communities or sectors. These might be public bodies – for example, regulators such as Ofgem or Ofcom. Others might be charities, industry bodies, or civil society organisations. Parliamentarians should examine how the information collecting powers that some organisations have are complemented by data sharing duties placed on them. Parliamentarians should also examine the support and incentives offered to organisations that collect, maintain and share data on behalf of others.

Finally, we need to explore and experiment with new institutional forms, such as data trusts, cooperatives and unions, to meet new challenges around data governance. Countries around the world are beginning to explore new institutional forms to help

govern and steward data, and ways to monitor and regulate these types of data institutions. The European Commission's Data Governance Act highlights 'data altruism organisations' to enable people to donate data for use towards public good purposes. Recent expert recommendations in India around the governance of non-personal data focus on data trust-like models. Japan is experimenting with 'information banks' to help share personal data.

The UK must also explore these new institutional models. In doing so, we must be mindful that they might not work, or that they might even engender unforeseen harmful consequences. Parliamentarians should encourage investment in research and development of these new data institutions. They should also ensure there is proper attention to the consequences of their introduction; examine how new data institutions or institutional models can be registered or monitored; and ensure there are protections in place to mitigate against possible harms.

Conclusion

A strong data infrastructure that supports the desire to make the UK one of the very best places in the world to live with, work with and develop AI, requires strong data institutions. We need to strengthen the ones we have, expand the remit of existing organisations to include data collecting and sharing, and explore new institutional forms that support new uses of data.

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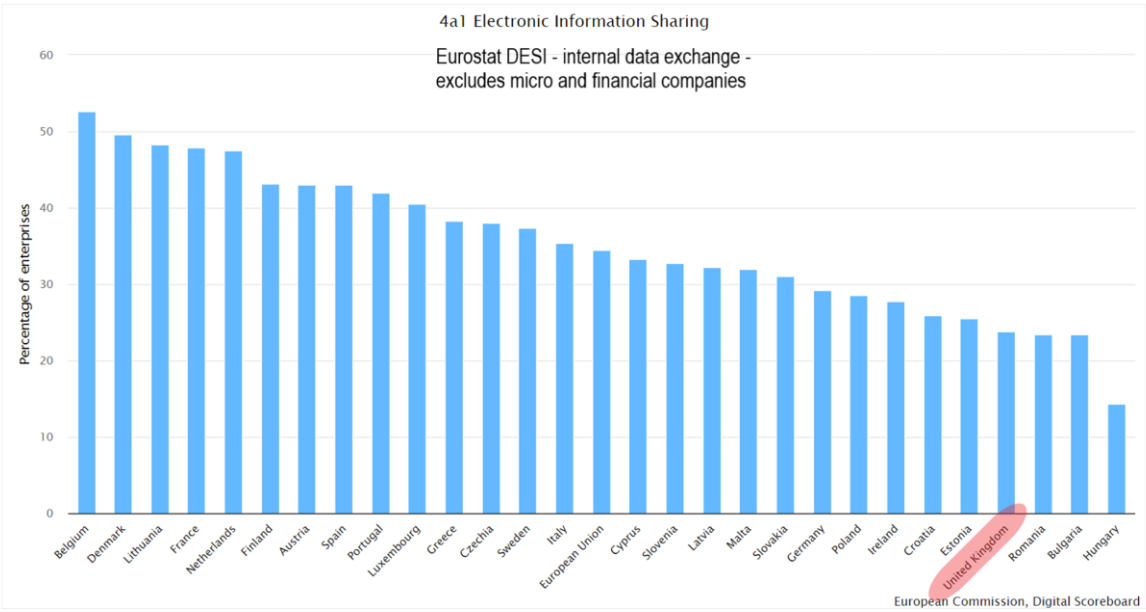
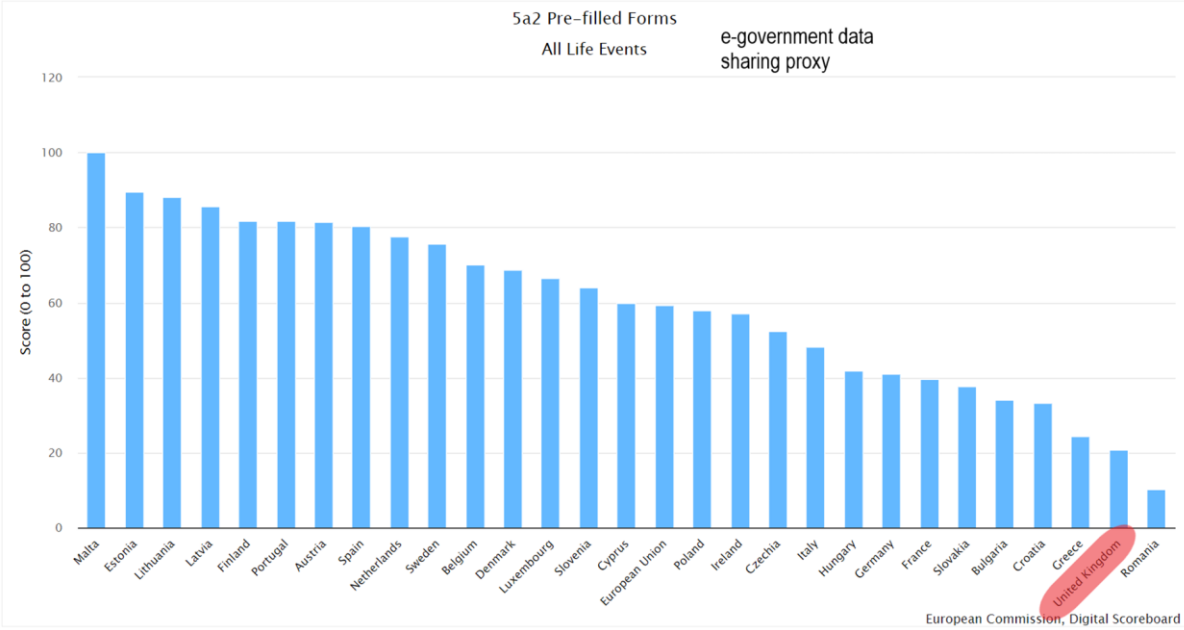
Dr Chris Francis, Director of Government Relations, SAP

UK Digital Adoption

- Consumer adoption, social media and B2C uptake largely hides significant challenges in the use of data and data driven processes inside business
- During COVID 65% report having used digital tech to create new forms of communication, however just 18% have used it to find new ways of selling and only 16% have used it to produce new types of goods and services
- Eurostat Business and B2B indicators show UK as bottom quadrant
- Strongly correlating to the UK's productivity challenge





Implications for AI

AI will break into:

- Procured ‘pretrained’ AI – speech recognition, guided assistance, translation etc
- Use of AI tools internally – in the widest sense from rules based, adaptive algorithms, machine learning through to deep networks – that depends on the ability to collect data, train systems and have the use of such systems embedded in process automation

Both are important – effective use of AI just like use of ICT is not a given but the latter clearly has a higher impact on competitive advantage and therefore productivity

So AI, as with many other 4IR technologies depends on the ‘digital foundation’ – including the curation of data, data infrastructure and the workforce skills

Put simply , if we do not use today’s technologies we do not have the foundation to adopt tomorrows – risking a further increase in the productivity gap

Prof Edgar Whitley, Associate Professor of Information Systems, Department of Management, The London School of Economics and Political Science

I am an academic at the LSE teaching courses on information systems and data governance. I am also co–chair of the Privacy and Consumer Advisory Group (PCAG) to the Government Digital Service and GOV.UK and am involved with a number of projects run by the Ada Lovelace Institute. I am writing in a personal capacity.

This submission is based on my response to the consultation on the UK National Data Strategy and focuses on the question of the meeting's focus on whether the UK's strategy is ambitious enough.

Ambition or competence?

There is an inherent tension in the UK national data strategy that both talks about wanting the UK to be at the leading edge of the use of data whilst at the same time highlighting many areas where current practice and coverage falls well below that needed for use of data to be maximised. For example, the strategy notes that "data remains undervalued and underexploited", "we must expand work to treat data as a strategic asset". Indeed, the recent NAO report on the use of data in government notes that there is a culture of tolerating and working around poor–quality data in government and I suspect that this is not restricted to data use in the public sector.

There is a real danger, therefore, that the UK's ambitions in relation to AI will be hampered by limitations in basic data competencies in all sectors and it is unclear

how these limitations can be successfully overcome. It is also unclear how support for these basic (and advanced) competencies will change now that we have left the EU and have tightened up the visa requirements for non–UK nationals to enter and work in the country.

Appropriate oversight?

A key factor around acceptance of the use of personal data for AI relates to appropriate oversight of the use of the data. For example, in relation to Open Banking / financial data some recent research showed that many of the participants in our study acted with the assumption that there was appropriate oversight of how their financial data was used. In relation to AI, however, the national data strategy repeatedly implies that the Centre for Data Ethics and Innovation (CDEI), the Alan Turing Institute and the Open Data Institute will play leading oversight roles.

All these organisations are, arguably, advocates for unrestricted use of data: CDEI sees its role as being "to develop the right governance regime for data-driven technologies" ; ATI says "We believe data science and artificial intelligence will change the world" "; and ODI was created "to advocate for the innovative use of open data to affect positive change across the globe" emphasis added in each case. In contrast, the Ada Lovelace Institute has "a mission to ensure data and AI work for people and society" but is only mentioned once and then, in passing and in relation to algorithmic transparency.

I have real concerns about the likely oversight of the UK's ambitious AI programme being delegated to institutions that have a clear incentive to encourage the use of data for AI purposes and wonder how well they would be able to deal with scenarios that involve restrictions on the use of data for AI purposes, particular personal data.

Pragmatic oversight?

The national data strategy also talks about "pragmatism of our regulatory institutions". This seems to involve the intention to "lift compliance burdens where possible" and ensure that "our data protection laws remain fit for purpose" and provide "regulatory certainty and high data protection standards". I am struggling to reconcile these points.

Similarly, the strategy talks about removing obstacles to international data transfers to support growth and innovation. However, it is unclear what these obstacles are and how they can be removed without undermining the previous points about regulatory certainty and high data protection standards.

Evaluating ambitions?

A final element that needs careful consideration is to understand how and why AI proposals might fail. The national data strategy identifies four pillars of effective data use (for AI and other purposes): Foundations, Skills, Availability and Responsibility. Whilst intuitively appealing, their application is often unclear.

If we consider the issues with A–level mark recalibration, did this arise because of poor quality (meta)data? Because of inappropriate skills amongst the data scientists doing the analysis? Or because of their lack of responsibility / reflexivity? – if the patterns look the same as previous years, everything is fine even though there are significant patterns (easily recognisable with hindsight) that are likely to have distorted the analysis.

Similarly, what best explains the issues with importing COVID-19 test results and the apparent decision to use an old Excel format . Again, was this an issue with foundations, skills, availability or responsibility?

Without being able to operationalise these pillars, it will be difficult to evaluate how well the UK is achieving its ambitions in relation to the AI.

In summary, whilst I can understand the appeal behind trying to make the UK the best place in the world for AI research and practice, there are a number of important steps that need to be addressed, steps which I fear are being overlooked in the rush to enthusiastically adopt AI technologies.

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Del Alibocus, Group Consulting Head of IoT, Capita

While it is appreciated that the government acknowledges the urgency for designing a national strategy that would allow for more efficient use of data, improved delivery of public services, and more reliable measuring of the impact of policies and programmes, we are concerned about the document's lack of clarity concerning its desired outcomes.

I would recommend to focus on identifying specific problems within the public sector areas (Social care, Education, Policing, NHS etc.) and designing a strategy on how the efficient use of data could contribute to the solution, detailing clear tactical steps that enables the overall strategy.

Given the size, and rate of growth of data, and its profound impact on all market sectors. It is further suggested that there be a dedicated Ministry of Data, that will regulate the use of data within the public, private sectors, oversee potential programs such as the National Data Exchange program and policies.

Another issue to be addressed in the context of the government's use of data is the current lack of access to data for researchers and developers. Whereas data is generated, aggregated, and stored in most public entities, a coherent method to access these resources is missing. Despite there being a number of open innovation schemes that enable the sharing of data, there appears to be a lack of motivation to participate in these schemes in the public and private sector. We, therefore, recommend designing strategies to make the sharing of data more attractive, possibly by introducing the monetisation of data, i.e. a data currency, as a significant step forward.

One way to address the above would be to create a *Government Data Exchange Service*, focused on two key groups of users, data providers and users:

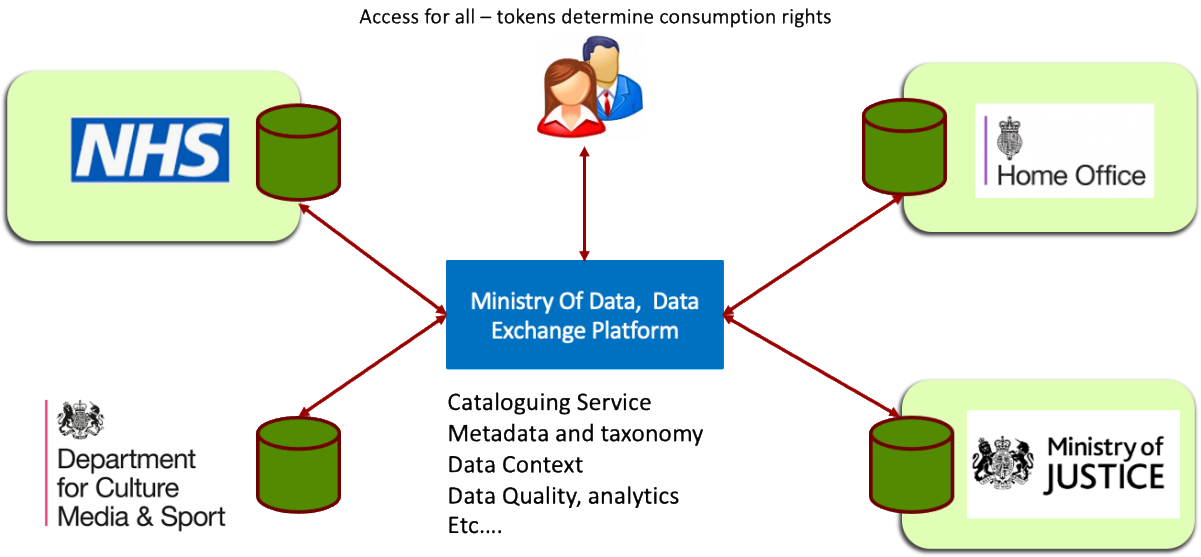
Data provider's interface

- Describe the data
- Set of access controls (2FA, or decentralisation)
- File-based or API

Data acquirer's interface

- Search the market or set alerts
- Required pricing model or as is

  Below is a quick representation of how such a data exchange service would enable the main functions of *governance* and *discovery*.



Several essential elements need to be incorporated into the model described above:

Data cataloguing service

- Data context
- Access tokens
- Data quality and analytics
- Glossary of data

More elements can be introduced over time, including the use of Blockchain infrastructure. Once the above structure is in place, the government can include third-party data sets as required and with controlled access.

In summary, the National Data Strategy (NDS) lacks a clear tangible outcome, much of what has been written is obvious to most within the field of data.

However, the positive outcome of the NDS, is that it has drawn much needed focused on an essential element of what should be considered as critical national infrastructure, or we risk the private sector addressing this opportunity themselves, which may already be inevitable.

As mentioned, it is possible to deploy a National Data Exchange Service, and perhaps reuse existing Government infrastructure, however the largest challenge to delivering a successful outcome based Data Strategy, is the fragmented nature and long timescales, that the Government operate to.

Dr Adrian Weller, Independent member of the Centre for Data Ethics and Innovation board and Programme Director for AI at the Alan Turing Institute

The rapid changes brought about by the COVID-19 crisis underscore the importance of the government's National Data Strategy (NDS) as the UK seeks to move out of the pandemic and rebuild the economy. With the publication of the NDS, the government has set out an ambition to enable data to be used and shared more effectively for the benefit of society, particularly the data it holds. I believe that there are great opportunities to use data and related data-driven technologies to drive social as well as economic benefits, but we will only be able to do this sustainably if we ensure trustworthy best practices.

The opportunity to use data to tackle societal problems

Recent events have underscored the significant opportunity that exists to use data more effectively to shine a light on, and help tackle, entrenched social problems. For example, data often enables us to see where bias is occurring and measure whether our efforts to combat it are effective. If an organisation has hard data about differences in how it treats people, it can build insight into what is driving those differences, and seek to address them.

The Centre for Data Ethics and Innovation (CDEI) recently published its review into bias in algorithmic decision-making, which highlighted the critical need for organisations to collect, rather than omit, data on protected characteristics, in order to identify and mitigate bias, as well as monitor outcomes. The CDEI recommended

that the government should work with relevant regulators to provide clear guidance on the collection and use of protected characteristics data. This guidance should address the misconception that data protection law prevents the collection or usage of data for monitoring or addressing discrimination. They should then encourage organisations to use this data to reduce unwanted biases and inequality in our society. However, this guidance -- as with the NDS more broadly -- should not take a one size fits all approach. Context matters -- regulators and industry bodies need to work together with users, stakeholders and wider society to agree best practice within their industry and establish appropriate regulatory standards. Inappropriate bias and discrimination are harmful in any context. But the specific forms they take, and the precise mechanisms needed to root them out, can vary greatly between contexts. There are some overarching principles, of course, but the details of these standards need to be determined within each sector and use case.

The relationship between trustworthy data practice and adoption

As the government develops its thinking on the NDS, it is critical to consider the importance of trustworthy practice in driving the wider adoption of data-driven technologies. A lack of clarity around the use of data, by both the public and private sectors, is likely to create hurdles for earning public trust. In its response to the NDS, the Alan Turing Institute commented that the public perception of big data advancements is already centred around “data extraction and exploitation to personalise advertisements over business models that earn revenue from delivering a product or a service of value, at the expense of individual and community wellbeing”. We need to ensure that citizens have appropriate transparency and control. As one path forward, the government committed in the NDS to exploring the role of privacy enhancing technologies (PETs) in enhancing consumer control and confidence. Leading institutions such as the CDEI and Alan Turing Institute are already conducting work in this space.

The CDEI’s report on public sector data sharing also brings the relationship between trust and adoption into sharp focus. The case studies analysed in the report highlight how inconsistent approaches to resolving the technical, legal and cultural barriers faced by data sharing, can create a complex environment that hinders transparency and accountability. Moreover, the CDEI found that the projects they analysed existed in a high risk environment of “tenuous trust”, in which citizens are not aware of how data about them is used and shared.

Uncertainty about the acceptability of data use risks preventing beneficial initiatives that could otherwise spur innovation. To address this, the CDEI’s report sets out an initial framework to support the trustworthy use of data, which details key questions

that need to be addressed in a data sharing project, centered around five key themes: value; security; transparency; accountability; and control.

Analysing data sharing during the COVID-19 response, Neil Lawrence has written for the Royal Society about the need to develop new governance mechanisms to enable industry and the public sector quickly to draw upon the technical and domain expertise found in academia and industry - to ensure that data can be rapidly shared in a way that is effective and protects data rights.

The critical need for the NDS in the wake of the pandemic

The CDEI hosted a forum in 2020 that brought together data leads from several local authorities to share their experiences of using data during the pandemic. The discussion highlighted that the outbreak of COVID-19 has led to substantial positive developments in the use of data by local government, with a range of data-driven interventions launched or repurposed during the pandemic. Participants in the forum were confident that their data use practices had changed for the better since the start of the crisis, noting that it had altered attitudes at different levels of the organisation. However, there was some nervousness that the momentum generated over the last year could easily be lost, and that data use behaviours could revert to the pre-pandemic status quo. It is promising that many organisations have stepped up to support local authorities. The list includes the Ministry of Housing, Communities and Local Government (MHCLG), which launched a COVID-19 Challenge Fund for digital and data projects that help with the pandemic response and recovery. Such interventions are narrowly focused, and on their own are unlikely to move the needle in how local authorities use data. Yet they give an indication of the type of support that could be made more available. They also signal a growing conviction both inside and outside of government that data can transform the way public services are delivered, and that data capabilities are worth investing in.

The NDS is in keeping with this sentiment, presenting a number of commitments that will support local authority data teams in the coming years (commitments for example to strengthen skills, improve data standards and bring clarity to regulation). For its part, the CDEI will continue to explore ways of helping local authorities to maximise data for the benefit of citizens. It is particularly keen to help local authorities that are less mature in their use of data, including rural and district councils, which tend to be overlooked.

Recommendations

The Alan Turing Institute published a response to the NDS, which included recommendations to government. I'll highlight one suggestion when considering

international flows of data: the government should set out a clear mandate for UK values and principles so as to acknowledge and minimise issues of uncertainty in a post-EU-exit and COVID-19 pandemic world. Such legislative and governance clarity would determine what potential safeguards are needed, as well as what enabling data flows might entail in a crisis, such as a public health emergency or terrorist attack. The principles set out in the NDS need to strike a balance between preserving individual privacy and public benefit, and look to context. Such a balance would ideally signal to prospective international partners the necessity of adherence to a level of standards, which should build upon the existing GDPR framework. Additionally, the government should engage with existing standards bodies, and experts who have experience in international data governance, legal frameworks relating to data, IP, and trade rules, and explore the development of appropriate criteria and corresponding certification processes when organisations meet the standards set .

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