Pushing the boundaries of public sector data

Perspectives from the UKAuthority AI & Data4Good 2023 conference

Contents

Event Partner

1. A high profile issue

Artificial intelligence (AI) is now high on the agenda for the UK public sector with great enthusiasm for the potential benefits on offer.

There has been plenty of speculation about the potential risks, highlighted in early November 2023 when the UK Government staged its AI Safety Summit. But there is also a widespread appreciation of the potential, and examples emerging of AI used for the public good. And there is an eagerness to establish good practice, much of it deriving from earlier lessons from the sector in the more general use of data.

The issues came under the spotlight at UKAuthority's AI & Data4Good virtual conference in October 2023, bringing together a range of specialists, public sector officials and industry representatives to share perspectives and examples of the right balance between managing risks and achieving innovation.

2. The risk factors

It was inevitable that questions around risk would provide one of the big talking points of the event. They were highlighted in the opening presentation by Sam Smith, director of the Socitm Institute, who made the point that AI is a broad term covering a range of models that are continually evolving, which means the risks will also evolve. She pointed to the challenges for AI governance identified in an interim House of Commons report – including bias, privacy, misrepresentation, liability and intellectual property and copyright infringement – and referred to the controversy around the Netherlands' tax authority's use of an algorithm that falsely labelled claims for childcare allowance as fraudulent.

But Smith also identified some of the benefits that public services could obtain from generative AI, such as responding to natural language prompts, producing outputs in text, audio, images and computing code, and understanding different types of data. She also said that there may be too much talk about the future risks rather than focusing on the effect AI is having on work now. This should encourage organisations to begin using the technology, while drawing on the guidance already available – such as Socitm's sample corporate policy for the use of generative AI[1], and the London Office of Technology and Innovation's collection of guidance documents[2] on using the technology.

Risks in the foundation models[3] of AI – general purpose with a wide range of outputs – were addressed by Renate Samson, associate director of the Ada Lovelace Institute, who warned there is a need to be clear about them before procurement and deployment. They include: discriminatory, misleading or false information in the outputs; leaking sensitive information; over-reliance on the technology; using the tech for malicious purposes; and the worries about the impact on jobs.

She laid out key considerations to manage the risks: ensure that staff are properly trained to use the technology; adhere to appropriate guidance and regulations; set up pilots and tests before the full roll out; and ongoing evaluation of its performance. On a national scale, three things are needed to underpin these: ethical standards for procurement; community engagement; and mandated independent third party audits for the use of foundation AI in public services.[4]

During the discussions Samson also emphasised the importance of the Government's Seven Principles of Public Life[5] – otherwise known as the Nolan Principles – as a starting point for dealing with ethical risks. She acknowledged that they may not be easy to apply in regards to AI, notably in the areas of redress and liability if something goes wrong, but said they are a good starting point.

"Most of us accept we live in a world where we have to trust and there is a lot of talk about trustworthy technologies," she said. "Trust can be broken in all sorts of ways and we should always prepare for it being broken or lost. So what sort of redress mechanisms should we have in place and how do we talk about that? How do we prepare for, if something goes wrong, there is someone to talk to, a system in place to handle the problem and for there to be a clear outcome for the people who have been impacted?"

Similarly, the discussion brought out the view that it will probably not be possible to guarantee that the technology is never used to the detriment of the public; but it can be mitigated to a degree with appropriate governance and controls.

Risks around bias could also be mitigated by incorporating as diverse a range of data as possible, especially with generative AI – a point made by Ellen Wilson, manager for industry solutions at AWS. "The more diverse the data with which we train the models the better the outcome," she said. "But we need to be careful about how we train the models and the data we use; and having human oversight is important."

There was also support for the view often expressed by advocates for AI that overall it will not destroy but change the nature of jobs, replacing those that involve a lot of repetitive work or ingesting massive volumes of data, but leaving those roles of oversight and creating new ones that are yet to emerge.

3. Additional Issues

Other significant issues in AI – relevant to data in general – also came under the spotlight. The need for strong governance is important, as highlighted by Ade Bamigboye, chief technology officer at the Royal Borough of Kensington and Chelsea.

"We want to make much more use of AI, because we understand it can help improve our services and make us more efficient and effective," he said. "But we recognise that we're operating in a very complex space with a lot of stakeholders and they want different things and have different views on AI."

He outlined the council's AI governance framework, which provides guidance across six areas: policies, risk management, environments such as regulatory and technical, operational governance, project readiness and overarching governance. The latter describes the roles and responsibilities required to ensure the framework is used as intended. These include: deciders for strategic planning and policy development; advisers for compliance oversight, ethical assessment and risk assessment; recommenders to provide technical expertise and implementation strategies; and executive stakeholders for project implementation, continuous improvement and stakeholder engagement.

Standards and interoperability

The issue of data standards and interoperability – often raised as a key factor in the roll out of AI – has been identified as one for focus by the Government's Central Digital and Data Office (CDDO).

Its chief data officer, Sue Bateman, told the conference this is reflected in its setting up of a Government Data Marketplace, designed to bring together information on data assets in one place and bring down the barriers to its discovery, access and re-use. It will enable discovery of the data through a catalogue, and to support best practice through guidance and policy frameworks[6] to ensure data is re-used in an ethical manner. It will initially draw on sources in central government but later from

the wider public sector, and efforts are also being made to help organisations identify key data and metadata.

This is building on earlier initiatives by the CDDO, including the development of data communities the Data Maturity Assessment for Government[7] and the Algorithmic Transparency Recording Standard.[8]

Added Bateman, "We really need to focus on data quality, data standards, data availability."

Location data

The importance of location data was highlighted by Nick Chapallaz, managing director of **GeoPlace**. He described how unique property reference numbers and unique street reference numbers – identifiers for every addressable location and street in Great Britain – are providing links to help understand issues such as energy performance in different areas, the re-use of the register of high rise buildings, and the provision of DataMap Wales as a source of data from the Welsh Government.

He said there is the potential to do a lot more but it needs work to overcome the challenges. These include working with system vendors so they ensure UPRNs and USRNs[9] can be included in datasets, intervening in procurement[10] to ensure the standards for location data are met, and raising awareness of its value through the surge of interest in AI.

Security

An original perspective was provided by Major George McCrea, military liaison for the **Defence Digital Foundry** in the Ministry of Defence, speaking of a need to understand and "treat data as a VIP". This involves giving it a high level of protection – which he compared with that for the US president – so no-one can get near it. "That means your data is secure, no-one can get near it, there's not going to be a data breach," he said. "The problem with this is that no-one can use it, you can't get actionable insights. So you have to understand this as a graduated process; it's not binary."

He said there is a sliding scale of the potential uses of data and acceptable levels of risk.

"Once you understand that you can understand where on this data VIP matrix you sit, what controls and what freedoms and constraints you place on the data you are working with. And when you have a multitude of data sources coming in, that's when you start thinking about whether you need to put more control measures in."

4. Data & AI exemplars

An impressive selection of programmes and projects were presented at the event, reflecting the diversity and increasing ambition in public bodies' applications of data and AI.

Swindon

Sarah Peña, head of emerging technology and business improvement at Swindon Borough Council, described its development – in less than two months from the initial concept conversation to launch – of a machine translation[11] application to support multicultural communities in the borough and reduce the cost of translations. Running in the council's private cloud, it can provide translations into 75 different languages, simply by uploading the document and ticking those required. It can do it in parallel for different languages, produce the document in whatever form it was uploaded, and not translate words that are better left in English.

A key achievement is that it has been rated at 98% accuracy – on a part with most human translators – and 100% of recipients said the materials were up to the quality reliability standard they needed. Other benefits have been a sharp reduction in the times and costs needed for translations, and a staggering return on investment of 6.3 million per cent. The solution has now been made available as open source on GitHub.

Hertfordshire

Hertfordshire County Council has developed an AI system for exploring the details of traffic surveys. Data scientist Josh Wahnon said it created a solution architecture, involving a front end app developed on the AWS Amplify platform, which collects video footage from using roadside cameras over 12-hour slots and sends them to a

video bucket. They then go into the AWS Fargate compute engine, where the details are identified through AWS Rekognition image and video analysis tool. The results of this are then fed into the database. It is accompanied by a website – in testing at the time of his presentation – enabling users to click on an uploaded video and view results on the numbers and types of vehicles going through a point over different periods.

The council has seen benefits including quick processing of the video records, cost savings and high levels of accuracy in the counting.

ODI

A different type of project was presented by Lisa Allen as the then director of data and tech services at the Open Data Institute, focused on using data standards to help the private sector encourage people into more active lifestyles. It helps organisations and individuals publish, access, share and use data[12] on where physical activities are taking place, reaching into a wide community through a range of apps and services. This involves the use of key data properties such as locations, times, prices, availability, description, age ranges, descriptions, difficulty levels and any gender restrictions.

Allen said that so far it has prompted a significant increase in participation and is now being scaled up, showing how making data openly available can support a policy objective.

NHS England

An official of NHS England reported on substantial benefits in supporting hospitals and patients from the early use of two data systems that are now being rolled out nationally. Ayub Bhayat, the organisation's director of data services and deputy chief data and analytics officer, described the achievements of the Care Coordination Solution and Optica application.

The system Care Coordination Solution had been deployed at 35 hospital trusts, with more to come and 26 reporting benefits from its use. A number of quantitative benefits had been reported, including that 13.3% of patients on waiting lists were flagged as priorities for investigation, and operating theatre utilisation increased by

an average of 6.3% across 22 trusts. In addition, significant numbers of patients on waiting lists had been flagged for investigation or requested for removal as no longer needing to be seen.

The Optica application has been developed on the Foundry platform by the NECS team in NHS England with North Tees and Hartlepool Foundation Trust to track admitted patients and tasks related to their discharge. Bhayat said the application was in use at 12 trusts and the results have included 50% fewer patients than the national average occupying a hospital bed for 21 days or more, a 36% reduction in the average number of delay days, and a 25% reduction in long length of stay patients.

Birmingham

The work of Birmingham City Council's insight, policy and strategy division was described by its lead official Richard Smith. He showed how it has supported an earlier intervention and prevention approach to possible social problems in the city, helping to identify risk and protective factors in areas such as: homes and money; employment and lifelong learning; participation and wellbeing; and safety and communities. This has involved the use of a research framework to analyse service data and proactively identify at-risk citizens, using qualitative and quantitative methods.

Among the projects to which it has been applied has been a pilot to help vulnerable people access any financial support to which they are entitled. Over the space of six weeks 33% of citizens responded positively to contact from the service.

The team was also developing information governance practices to ensure the correct legal gateways are used when joining up data.

DLUHC

Tom Smith, chief data officer of the Department for Levelling Up, Housing and Communities (DLUHC), described the work of its Spatial Data Unit, highlighting three streams. One is its work with the Office of National Statistics on improving data at a local level, addressing gaps and creating new sources. This can cover issues such as local economies and transport connectivity.

The second is on building its own skills, infrastructure, tools and strategy to be a data leaders across government, both central and local. Part of this could be in making more central government data available to local government. Thirdly, it is supporting the rest of DLUHC in generating spatial insights to support its focus on place based working. This has included providing data packs that combine internal information, open data and analytics as a basis for discussions and negotiations.

AWS incubator

It is notable that there are technology industry efforts to support the sharing of best practice. Ellen Wilson outlined the role of the **AWS Solutions Incubator** in supporting a range of open source digital business solutions developed by customer organisations in government, decoupled from their original environments and packaged for easy adoption by others. It then hands them back for storing in the organisation's GitHub repository and helps in promoting them.

The incubator also makes it possible for an organisation to take some components from a solution and use them for its own.

5. Need for leadership

The prevailing impression from the event is that public service organisations are generally confident in initiatives using more established practices with data, but still uncertain in how to approach AI. They are on a steep learning curve in which many of parameters of best practice and firm guidance are yet to be established. They need to learn what they can from each other, and the sector needs people and organisations to take a high profile in guiding others through the uncertainty.

Sam Smith from Socitm summed it up as a need for leadership.

"We also need to invest in leadership skills," she said. "There's a lot going on, it's a very challenging environment, and we need leadership that can understand the issues and help us navigate through them."

6. AI & Data4Good

Session One - Wednesday 18th October 2023
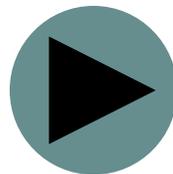
Watch now

02:55: Artificial Intelligence (and Cyber Security) - Sam Smith, Director of Institute, Socitm: Socitm have developed (through research and collaboration) practical resources to help navigate the complex area that is Artificial Intelligence. Sam talks through these as well as the challenges, opportunities and risks (including Cyber Security) of these fast moving technologies. (Download slides)

17:30: Foundation Model AI in the public sector - Renate Samson, Associate Director (Society, justice & public services), Ada Lovelace Institute: The rapid development of new models of AI – including generative AI such as ChatGPT – creates a wealth of opportunities for the technology's use in central and local government. The Ada Lovelace Institute has explored what these uses might be and what considerations need to be given to ensure the opportunities aren't undermined by the risks. (Download slides)

29:51: Serving Society: Innovation, Tech, and Local Government - Sarah Pena, Head of Emerging Technology and Business Improvement, Swindon Borough Council: Here we explore leveraging technology to support innovative creative reimagination of services, open-sourcing solutions for wider societal benefit, and the vital principles of being technology agnostic while ensuring interoperability. We delve into the strategy of dreaming big, starting small, and moving fast, showcasing how these concepts are redefining the way our communities are served. (Download slides)

40:35: Using computer vision to automate traffic surveys - Josh Wahnon, Data Scientist, Hertfordshire County Council: Hertfordshire has a programme of traffic counting that takes place over the year, with 200 automatic counting sites, 60 manual sites and ad-hoc surveys. Hear how they have devised an innovative way to capture the data which is more accurate, saves time and money. Experiment with your ideas is the key takeaway! (Download slides)

55:28: AWS Solutions Incubator for Local Government - Ellen Wilson, EMEA Public Sector Industry Solutions, Amazon Web Services: In this session, Ellen shares practical examples of how you can use OpenSource solutions to start innovating. (Download slides)

1:03:51: Q&A and panel discussion - all speakers

Sam Smith
Director of Institute
Socitm

Renate Samson
Associate Director
(Society, justice & public services),
Ada Lovelace Institute

Sarah Pena
Head of Emerging Technology &
Business Improvement
Swindon Borough Council

Josh Wahnon
Data Scientist
Hertfordshire County Council

Ellen Wilson
EMEA Public Sector Industry Solutions
AWS

Session Two - Thursday 19th October 2023
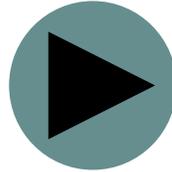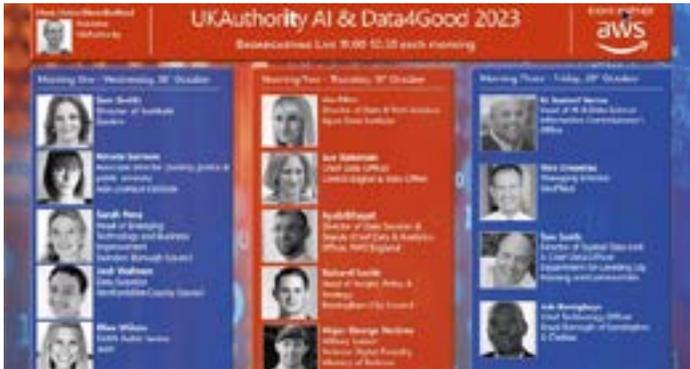
02:37: OpenActive: Harnessing government data standards to help the private sector to get the nation moving- Lisa Allen, Director of Data and Tech Services, Open Data Institute: Research has revealed that in 2022, there were around 12 million inactive adults in the UK. One obstacle to increasing nationwide activity levels is the absence of open data concerning sports and physical activities. What responsibilities does the government hold in this context, and how can the private sector contribute? We delve into OpenActive and the pivotal role of data standards play in enabling data sharing from the private sector as part of the solution. (Download slides)

13:06: Transforming for a Digital Future: Setting out the roadmap for data and ethics - Sue Bateman, Chief Data Officer, Central Digital and Data Office (CDDO): An update about the work of the CDDO – particularly on the data ethics / building trust with the public front. (Download slides)

27:17: Using data to deliver better health and care - Ayub Bhayat, Director of Data Services and Deputy Chief Data and Analytics Office, NHS England: How NHS England is using data to deliver better health and care – particularly around the use of data to increase theatre utilisation / work with patient lists etc and themes around predictive analytics successes. (Download slides)

43:08: The Birmingham City Observatory: One Year on - Richard Smith, Head of Insight, Policy and Strategy, Birmingham City Council: The session reflects on the challenges we faced in developing a new observatory and the lessons we have learned. It then focuses on what is next, and what we have learned works best when producing insight to influences decision makers. (Download slides)

55:21: Spatial data in the military: collaboration for competitive advantage - Major George McCrea, Military Liaison, Defence Digital Foundry, Ministry of Defence: Know your data (what can you share), who do you need to collaborate with (Internal and external) examples of this collaboration to deliver effect on the international stage. (Download slides)

1:08:00: Q&A and panel discussion - all speakers

Lisa Allen
Director of Data and Tech Services
Open Data Institute

Sue Bateman
Chief Data Officer
Central Digital and Data Office

Ayub Bhayat
Director of Data Services and Deputy Chief Data & Analytics Officer
NHS England

Richard Smith
Head of Insight, Policy and Strategy
Birmingham City Council

**Major George McCrea**
Military Liaison
Defence Digital Foundry
Ministry of Defence

Session Three - Friday 20th October 2023
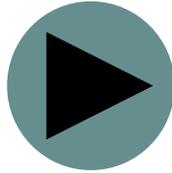
Watch now

01:05: Integrated, standardised, linked data- Nick Chapallaz, Managing Director, GeoPlace: Government has thousands of different databases – UK wide – but they still don't talk to each other. Fixing this is fundamental to the delivery of the government's efficiency programme. Database management is crucial to modern government, and presents a severe limitation when datasets cannot be integrated. Location data connects people, places, systems, and processes. Including UPRNs from the point of data capture brings surety, enhances interoperability and enables organisations to embrace the opportunities offered by artificial intelligence. Nick discusses how effective use enables the government to mobilise in times of national crisis, to identify and support households in fuel poverty; to identify social housing that needs reparations; to better understand energy use and consumption. (Download slides)

14:30: Spatial data to support local delivery - Tom Smith, Director of Spatial Data Unit and Chief Data Officer, Department for Levelling Up, Housing and Communities: The Department for Levelling Up, Housing and Communities set up its Spatial Data Unit to harness data in the delivery place-based insights to support its levelling up mission. (Download slides)

27:40: What AI Governance Means to Us- Ade Bamigboye, Chief Technology Officer, Royal Borough of Kensington and Chelsea: Local government agencies work in collaboration with several agencies to deliver a wide range of services to residents, businesses and visitors. The need for automation as way of "delivering more for less" is becoming more important and increasingly the general assumption is that AI plays a significant role in this. In reality there is much to do to assure a wide range of stakeholders that AI deployments are safe, fair and do enhance service delivery. An AI Governance Framework, that is easily accessible and transparent is key to this. In the session we look at the Governance Framework we have developed to support our AI ambitions. (Download slides)

49:09:Q&A and panel discussion - all speakers

Nick Chapallaz
Managing Director
GeoPlace

Tom Smith
Director of Spatial Data Unit
and Chief Data Officer
Department for Levelling Up, Housing and Communities

Ade Bamigboye
Chief Technology Officer
Royal Borough of Kensington and Chelsea

Helen Olsen Bedford, Publisher, UKAuthority

More than 300 delegates took part in this three day online event on how to unlock the power of data and AI across the health and public sector for the public good.

Public sector leaders shared examples of what can be achieved and took part in lively discussions and Q&A sessions with delegate participation too. Discussions were hosted by Helen Olsen Bedford and all sessions can be viewed in full at www.ukauthority.com.

7. Event Partner

Amazon Web Services

Launched in 2006, Amazon Web Services (AWS) began exposing key infrastructure services to businesses in the form of web services -- now widely known as cloud computing. The ultimate benefit of cloud computing, and AWS, is the ability to leverage a new business model and turn capital infrastructure expenses into variable costs. Businesses no longer need to plan and procure servers and other IT resources weeks or months in advance. Using AWS, businesses can take advantage of Amazon's expertise and economies of scale to access resources when their business needs them, delivering results faster and at a lower cost.

Today, Amazon Web Services provides a highly reliable, scalable, low-cost infrastructure platform in the cloud that powers hundreds of thousands of businesses in 190 countries around the world. With data center locations in the U.S., Europe, Singapore, and Japan, customers across all industries are taking advantage of our low cost, elastic, open and flexible, secure platform.

Find out more about Amazon Web Services here

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UKAuthority

This briefing note has been researched, written and published by Mark Say & Helen Olsen Bedford, UKAuthority. UKAuthority champions the use of digital, data and technology (DDaT) by central and local government, police, fire, health and housing, to improve services for the citizens they serve.

8. References

1. https://socitm.net/resource-hub/socitm-research/sample-corporate-policy-for-use-of-generative-artificial-intelligence/

2. https://loti.london/resources/loti-guidance-on-generative-ai/

3. https://www.adalovelaceinstitute.org/resource/foundation-models-explainer/

4. https://www.adalovelaceinstitute.org/evidence-review/foundation-models-public-sector/

5. https://www.gov.uk/government/publications/the-7-principles-of-public-life/the-7-principles-of-public-life--2

6. https://www.gov.uk/government/publications/roadmap-for-digital-and-data-2022-to-2025

7. https://www.gov.uk/government/collections/data-maturity-assessment-for-government

8. https://www.gov.uk/government/collections/algorithmic-transparency-recording-standard-hub

9. https://www.geoplace.co.uk/blog/harness-the-possibilities-of-connecting-with-uprns-and-usrns

10. https://www.geoplace.co.uk/local-authority-resources/guidance-for-custodians/how-to/generate-procurement-criteria

11. https://www.youtube.com/watch?v=c_cQCT6cOL0

12. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/974532/Frontier-access_to_data_report-26-03-2021.pdf

Additional Resources

https://www.adalovelaceinstitute.org/report/healthcare-access-denied/

https://aws.amazon.com/solutions/case-studies/swindon-borough-council-case-study/

https://www.cityobservatory.birmingham.gov.uk/

https://www.geoplace.co.uk/case-studies/deriving-multiple-savings-by-integrating-uprns-into-council-systems

9. UKAuthority 2024 Virtual Events

Powering Digital Public Services

Wednesday 6 to Friday 8 March 2024 (11:00-12:30) : As budgets tighten ever further and demand for services rises, can we continue to innovate and deliver at pace to power the digital public services of tomorrow?

Resilience & Cyber4Good

Wednesday 18 to Friday 20 September (11:00-12:30): With the threat of a cyber attack ever present and ever changing, we'll look at how we can build cyber defences and resilience to ensure continuity of service delivery.
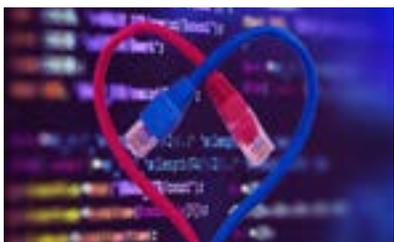
Integrating Digital Health & Care

Wednesday 15 to Friday 17 May (11:00-12:30): Focusing on innovation and the complex challenge of integrating health and social care data to improve the patient journey from hospital to home.

AI & Data4Good

Wednesday 16 to Friday 18 October (11:00-12:30): How do we best unlock the power of data to gain valuable, actionable, insights on people, places and organisations and build a foundation for trustworthy AI?

Smart Places & Smart Communities

Wednesday 19 to Friday 21 June (11:00-12:30): Exploring a smart future and how best to harness the right technology and data in a secure way to improve the lives of citizens whilst making sure no one is left behind.

AI, Automation & Bots4Good

Wednesday 27 to Friday 29 November (11:00-12:30): Can AI-powered automation tools and bots deliver a step change in efficiency whilst empowering health and public sector workers?

Would you like to see more expert speakers and take part in more insightful discussions on how technology, digital and data is being used for the public good?
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by clicking here.