I. DETAILS

- Date: 9 July 2018
- Time: 5:30 – 7:00 pm
- Location: Committee Room 4A, House of Lords
- Participants: 108 registered attendees

II. PURPOSE

The All-Party Parliamentary Group on Artificial Intelligence (APPG AI) was set up by co-chairs Stephen Metcalfe MP and Lord Clement-Jones CBE to explore the impact and implications of Artificial Intelligence.

In 2018, the APPG AI has decided to focus on building a roadmap to understand the practical steps for addressing key AI implications. The group has prioritised six policy areas: data, skills, accountability, innovation & entrepreneurship, infrastructure, and trade. Each meeting will explore one of the six policy areas’ respective economic, social, and ethical implications.

Evidence Meeting 5 concentrated on: Infrastructure.

III. SPEAKERS

- Will Cavendish – Global Head of Digital Services, Arup
- Antony Walker – Deputy CEO, TechUK
- Tomas Romero – Global Consulting Partner, WiPro
- Marko Balabanovic – CTO, Digital Catapult

IV. QUESTIONS FOR INSPIRATION

- What physical and digital infrastructure do we need for a transforming AI society?
- How can we ensure all regions across UK have access to top-notch AI infrastructure?
- How do we make sure our infrastructure is secure against internal and external security threats?

V. BACKGROUND: SETTING THE SCENE

The readiness of the UK to seize AI benefits and ensure they are distributed widely and fairly across society depends very much on the digital (and physical) infrastructure in place.
Having top-notch digital infrastructure - meaning broadband coverage and access to high-speed internet - is a prerequisite for both the development and deployment of AI.

The government, over the last year, has committed to delivering this infrastructure across the UK. Their promise is to reach 95% superfast broadband coverage, invest over £1 billion to develop 5G mobile networks, and extend full fibre broadband to build the next generation digital infrastructure. Recent announcements include the launch of a £190 million Challenge Fund for Local Full Fibre Networks and a further £159 million investment for the 5G Testbeds and Trials programme. Initiatives such as these will ensure AI businesses have access to modern infrastructure nation-wide and, hence, can thrive.

However, an important part of building the digital infrastructure needed for the 21st century largely relies on access to large datasets. Therefore, building the right data infrastructure to sustain the evolving socio-economy is of high-most priority for survivability and thrivability in this modern era.

The government is committed to opening up more data in a way that makes it reusable and easily accessible. The AI Sector Deal states its desire to work with industry towards interoperable and, where possible, open data standards.

Furthermore, Data Trusts are being created across the UK to allow the sharing of data while also protecting individuals’ rights. The vision for Data Trusts is that: “they will allow 2 or more parties in any sector to partner in data sharing agreements, shape the agreements according to their needs and enable multiple organisations to work together to solve a common problem.”

Additionally, as computing power is necessary for most advanced AI systems being created today, the University of Cambridge Research Computing Service is making the UK’s fastest academic supercomputer available to AI technology companies. This new AI supercomputer is a £10 million partnership between the Engineering and Physical Sciences Research Council (EPSRC), the Science and Technology Facilities Council (STFC) and the university.

UKRI has also created the eInfrastructure Advisory Board (eAB) to advise the CEO of UKRI on High Performance Computing (HPC) Research infrastructure, and will be developing an eInfrastructure development roadmap, as well as other HPC related projects.

Moreover, on an organizational level, companies must also rethink and transform their infrastructure to match the changes AI technologies bring with them. Building AI-ready infrastructure for an organisation means necessary data storage capacity, networking and AI data needs, and deliberate and strategic planning.

Lastly, and most importantly, as stakeholders work towards transforming existing infrastructure to prepare society and the economy to reap the benefits of AI, they must also pay close attention to how AI technologies themselves can be applied to improve our infrastructure – making it more sustainable, efficient, and fit for the future.
V. MEETING OVERVIEW

APPG AI met on 9 July 2018 to discuss the infrastructure that needs to be in place for UK to reap the full benefits AI offers, as well as how AI systems can be used to improve our current physical and digital infrastructure across the nation.

The meeting was chaired by Lord Clement-Jones and included a total of 108 registered attendees from government, business, academia, and the wider civic society. Asked to provide oral evidence were Will Cavendish (Arup), Antony Walker (TechUK), Tomas Romero (WiPro), and Marko Balabanovic (Digital Catapult).

Will Cavendish, Global Head of Digital Services at Arup, was first to address the APPG AI Officers, Advisory Board, and wider audience. Will draws together the very best in technology, design and engineering to redefine the built environment with Arup’s clients. Previously he was Strategy Lead, Applied at DeeMind, responsible for understanding the ground-breaking developments taking place in AI, and working with key partners to apply them for public good in areas such as health and energy. Prior to this, he was the Director General for Innovation, Growth and Technology at the Department of Health; Director General, International Energy and Climate Change at DECC, and Head of the Prime Minister’s Implementation Unit, working directly with David Cameron and Nick Clegg.

His evidence focused on the significant role AI can have in transforming infrastructure. Obstacles, however, including the limited amount of data sets currently out there are stopping us from realizing these benefits. He urged government to open up data for UK businesses to utilize. Furthermore, Will asked the group to think in ‘better infrastructure’ rather than ‘smart infrastructure’ and consider innovative ways to improve current business models within energy, water, and transport infrastructure systems.

Will suggests: “the agenda should focus not on AI per se, but rather the benefits that it can bring to the UK in terms of better services and a more prosperous economy; and the need to ensure this is done in a way which is ethical, safe and fair.”

TechUK’s Deputy CEO, Antony Walker, spoke next, looking at infrastructure through a broader lense. In the senior leadership team of the UK’s leading digital technology trade association and previously chief executive of the Broadband Stakeholder Group (BSG), the UK’s independent advisory group on broadband policy, Antony is closely involved in the development of broadband policy development in the UK.

Antony identified six components underpinning the relationship of AI and infrastructure:

- Connectivity
- Data infrastructure
- Access to high performance computing
There are steps taken in regards to each of these components to ensure infrastructure is upgraded to fit the evolving economy and society. Antony urged that more has to be done in the area of coordination to ensure different policies, initiatives, and groups are brought together. The AI Council, he argues, is well placed to take on such a role.

He suggests this is a critical time to get the infrastructure right as potential returns are getting much greater because AI acts as a multiplier.

Tomas Romero, WiPro’s Global Consulting Partner and Sector Leader for Energy, Utilities, Natural Resources and Construction, was the third panelist. Agreeing with Antony on his definition of infrastructure, Tomas asked the group to add one additional component: education. Having had significant experience in other countries such as Australia, Tomas suggested that other governments are investing a lot of their attention in educating their citizens to be prepared for the changes of the modern world filled with AI.

Tomas thinks the talent of a nation is a key part of its infrastructure. Further investments into schools are necessary to train teachers and students for these transformations. Furthermore, education has to be restructured to promote lifelong learning.

Last to provide oral evidence was Marko Balabanovic, the CTO of the Digital Catapult. Marko is a creative technology leader with over 20 years’ experience developing innovations in academia, corporations and startups in both the UK and US.

He spoke on behalf of the Digital Catapult’s mission to accelerate infrastructure in the UK. AI, Marko states, has the potential to improve productivity and raise growth. However, limited access to large data sets and advanced computation make many UK companies disadvantaged when applying the latest AI techniques such as deep learning.

In fact, the Digital Catapult’s research showed that 60% of UK companies stated that access to and expertise around computation is holding them back from innovation.

Marko asked the UK to invest more to provide access to the latest AI computation systems for growing UK companies, building on programmes showing early success such as Digital Catapult’s Machine Intelligence Garage. This programme has already helped 19 start-ups since launching six months ago, and even in that short time four are gaining investment or being acquired.

Lord Clement-Jones thanked the four panelists and asked the Officers, Advisory Board, and wider audience to ask any questions and/or pose any comments they had on the topic of AI and Infrastructure.
A full recording of Evidence Meeting 5 is available at the APPG AI website: http://www.appg-ai.org/evidence/.

VIII. ACKNOWLEDGMENTS

Our supporters - Accenture, Barclays, BP, British Standards Institution, CMS Cameron McKenna Nabarro Olswang, Deloitte, EDF Energy, Ernst and Young, KPMG, Microsoft, Oxford University Computer Science, and PwC – enable us to raise the ambition of what we can achieve. The APPG AI Secretariat is Big Innovation Centre.