

APPG AI EVIDENCE MEETING 6 - TRADE

I. DETAILS

- Date: 15 October 2018
- Time: 5:30 – 7:00 pm
- Location: Committee Room 1, House of Lords
- Participants: **104 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 6 concentrated on: **Trade**

III. SPEAKERS

- **Dr Mike Short** – Chief Scientific Advisor, Department of International Trade
- **Matthew Howard** – Director AI & Cognitive Analytics, Deloitte
- **Anna Dingley** – Executive Director, SparkCognition
- **Andrew Burgess** – Author, The Executive Guide of AI

IV. QUESTIONS FOR INSPIRATION

- How has AI changed trade internationally and within national borders?
- How can industries shift their business models to adapt AI?
- How do we shift from e-commerce to ai-commerce?
- What changes have to be made to UK taxing frameworks?

V. BACKGROUND: SETTING THE SCENE

Globally, AI is changing the factors for success across all industries – completely transforming the productivity of organisations in developed, emerging, and frontier markets. Overall, AI can enhance the quantity and quality of available goods and services – and also improve the speeds they are made available.

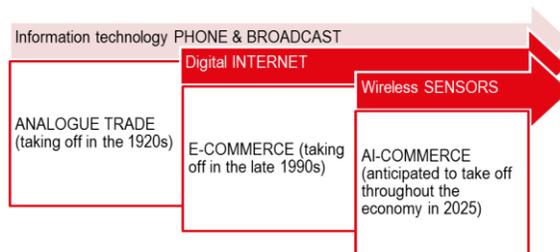
AI technologies have the capability to offer products and services tailored to the personalised preferences and needs of each customer. Also, AI technologies can make products and services accessible to a wider group of individuals - breaking conventional geographic and social boundaries.

For UK to benefit from these two key AI trends, **the nation needs to build an innovative trade ecosystem which encourages the shift from e-commerce to AI-commerce.** We can map a technology trade trajectory from analogue trade (broadcasting and phone orders) to e-commerce where the Internet sparked a revolution for procurement through online catalogues, the shopping trolley, new business models around peer-to-peer auctions, price comparison sites and online

payments. **The current revolution in AI commerce disrupts everything once again – particularly all we know related to supply and demand economics about how markets work.**

Conventionally, markets tend to be classified by their degree of competition or the number of buyers and sellers bargaining a price. The e-commerce revolution enforced this model; however, AI-commerce serves as a completely disruptive force, transforming these specific market structures.

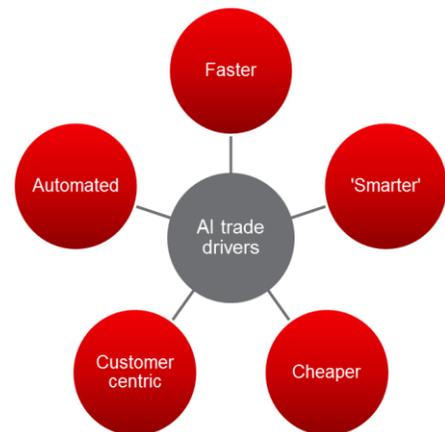
Technological Trade Paradigm



Supply chains are being completely reconfigured and most commercial market transactions underpinned by AI commerce do not take place in competitive market arenas as we now know them. Individuals and businesses are involved in ongoing, more intensive bilateral relationships in which they exchange data and information. The new market institutions in which trade itself is conducted are 'intelligent agents' (such as chatbots and Alexa) interacting directly with consumers and clients, 'Internet of things' organizing the buy-side (e.g. via connected homes and smart grids), 'information exchanges' via online emerging data driven platforms, and the contract itself, which will be processed through a blockchain mechanism and smart contracts.

The drivers of AI commerce are transaction cost efficiency as trade processes increasingly become faster and 'smarter' via connected data. Despite being automated, trade will also become personalized and customer-centric. Most of all, it has the potential to become much cheaper.

Five AI Drivers



This trade transaction is different from the exchanges in traditional markets, as we commonly tend to think of them. Till now, the market offerings of products and services - the conventional source of market competition – were the most important element for organisations. However, now these market offerings have become less significant and other factors are critical to survive and thrive in today's competition. The relational exchanges between buyers and sellers are still competitive but the focus now lies on the first factor, **personal and business data access**. We can think of it as a 'social contract' underpinning the trading contract, as you cannot trade unless you disclose your data in public or privacy commons. The 'social contract' for data exchanges will probably underpin all AI trade contracts in goods and services in the future. A second factor in market competition is the **AI technology capabilities** of the trading organizations, and the ability to build and control unique platforms (the third factor) on which users can connect. We need to ensure that UK invests in the new market institution platform solutions which the public and private sector can subscribe to or adopt in their route to markets. In consequence, organisations regardless of size will be equipped to reap the benefits of AI and to compete in the emerging trade scene.

For international trade, the trade models that are likely to be most useful in understanding the impact of AI are those that account for the points of scale, knowledge creation, and the geography of knowledge diffusion. These models suggest that whether AI-focused trade policies are optimal will depend very much on the presence of scale and the absence of rapid international knowledge diffusion.

VI. MEETING OVERVIEW

On 15 October 2018, the APPG AI community – made up of policymakers, industry, academics, and representatives of the wider society - met to discuss AI's impact on trade. Co-chaired by Stephen Metcalfe and Lord Clement Jones, the group aimed to address how AI has changed trade in the UK and internationally - as well as how organisations can use AI to boost trade.

For industry to pick up on AI solutions and thrive in this transforming market arena, the panel and audience pinpointed a few areas government and regulators can assist. First, policymakers can help reduce perceived risk around adopting AI – particularly for small and mid-size companies. One of the largest barriers to AI adoption is the lack of trust in the ecosystem. Government can help build this trust, protecting organisations from some of the existing perceived risks. Second, government must incentivize public and private investment to help UK start ups scale. Third, policymakers must address critical data issues including privacy and explainability. Fourth, policymakers can help increase the understanding of AI technologies across UK sectors, industries, and regions. Only once the civic society understands AI and its use cases will they be able to adopt it successfully in their organisations.

First to speak was **Dr. Mike Short**, the Chief Scientific Advisor for the Department of International Trade. AI is key in today's transactions, Dr. Mike Short argued, and it will be increasingly so in the future as AI will be used more and more in online transactions, automated and driverless

cars, health, finance, and across all industries. The Department of International Trade is therefore making sure they support the adoption of AI domestically and overseas.

For AI to be adopted though, the government must increase access to data. “Organizations need access of data both nationally and internationally” Dr. Mike Short said, recommending that the policymakers address this urgent matter.

Dr. Matthew Howard, Deloitte’s Director of AI and Cognitive Analytics, agreed with Dr. Mike Short that access to data is key for UK businesses to operate and trade in the future. In addition, he added three main areas that UK policymakers must address to help businesses use AI in their day to day operations. First, he asked for a more proactive coordination plan between academia, business and government to bridge the existing skills gap. Second, he called for greater prioritisation of scalable pan-industry solutions for investment. And, lastly, thinking of a post Brexit UK, he urged for government to pass favourable policies for the flow of data, people, ideas and services amongst partners worldwide.

The third to speak was **Andrew Burgess**, AI advisor and author of the *Executive Guide for AI*. As AI has the potential to improve the lives for all and improve organisations across sectors and industries, stakeholders must ensure it is available easily and without restrictions. Andrew called for government to push for democratized AI – where access to create AI is easily available and delivers real value to society. For AI to work, he says: “AI will work best if it is a grassroot movement.”

One of the chief roles for government is to equip individuals with the right skills to reap the benefits of AI, Andrew argues. This means restructuring education systems in classrooms and jobs.

The last speaker was **Anna Dingley**, Executive Director of industrial AI company SparkCognition. Addressing the question of how AI is changing trade nationally and internationally, she noted the transformations AI technologies are bringing for both developed and developing countries. Due to the economic potential of AI, AI can be adopted by *all* to increase efficiency, reach wider markets, and boost productivity.

She called for the UK to build taxing frameworks that can easily adapt to change. Regulation doesn’t have to stifle with innovation and we need consistent messages to be open to business.

Once the four panelists finished their oral evidence, Stephen Metcalfe MP and Lord Clement Jones opened the floor for questions and comments. In whole, the panel and audience agreed regulation can actually help companies adopt AI and ensure the full potential is tapped.

VII. WRITTEN EVIDENCE – ANDREW BURGESS

Short Biography of Speaker

Andrew Burgess, Author, The Executive Guide for AI

A management consultant, author and speaker with over 25 years' experience, Andrew is considered an authority on innovative and disruptive technologies including artificial intelligence and robotic process automation. He is a former CTO who has run sourcing advisory firms and built automation practices, and now advises senior executives on creating value from AI.

Written Evidence

I'm a strategic adviser on Artificial Intelligence, which means that I help organisations and enterprises develop their AI strategies so that they can best exploit these technologies. I am also the author of The Executive Guide to Artificial Intelligence.

AI is a technology that can potentially benefit all. With regard to trade, therefore, it should ideally be available easily and without restrictions. But we know that it is subject to many constraints, including the specialist knowledge required, data flows across borders or the rights to data privacy.

My vision to ease these constraints is for a democratised AI. This is where AI is being used everyday by citizens, consumers and businesses in an open, transparent way. Where access to the knowledge to create AI is easily available, where AI has moved beyond the hype-and-fear bubble, and is focused on delivering real value to society rather than click-throughs on adverts.

I know that it is easier and better to get data scientists from Estonia or Portugal than it is from the UK. I know that 99% of business people I speak to have no real idea what AI is and how it can help their businesses.

I firmly believe that it is a fool's task to try and create global standards for AI, particularly around ethics and trade. There are two huge hurdles to overcome: the diverse nature of AI technology and the different cultural approaches to privacy and ethics across the globe.

So we need to look for answers at the metaphorical coal face. AI will work best if it is a grass-roots movement: it will find its champions, advocates and sponsors in everyday business and everyday lives.

AI will succeed as a business tool only where it can be used easily and effectively. For the UK to become a go-to source of AI capability, and a central hub of trade in AI, then we really need to focus on the people, both the users and the creators of the technology.

We need business people who understand the capabilities and value of AI, and we need data scientists and developers that can build it. But fundamentally we need to make AI less sexy and less scary for people. Once AI can be seen as a tool - once it has been democratised - then we will see the real value flow.

A democratised AI economy will rely much more on self-regulation and domestic ethical codes. We need to give the small firms the voice and the breathing space to flourish in this environment.

So, this leaves the government's chief role in boosting trade in AI to supporting the necessary education and skills for our people, whether this is delivered on the job or much earlier on in the formal education process.

As everyone is aware, transforming education is not an overnight change. But, as Napoleon is reputed to have said, the best time to plant a tree is 25 years ago. The second best time is now.

VIII. WRITTEN EVIDENCE – DR MATTHEW HOWARD

Short Biography of Speaker

Matthew Howard, Director Artificial Intelligence and Cognitive Analytics, Deloitte

Matthew leads Artificial Intelligence projects at Deloitte - spanning strategy, proof of concept, pilot, implementation and integration. He works with a broad range of data science technologies including Google, Amazon and IBM Watson, and focuses on internal transformation as well as client services.

Matthew has over 15 years' professional experience, spanning big 4 & boutique consultancy, Corporate, Start-up and academic research environments.

Written Evidence

AI has a significant role to play in transforming how UK businesses operate and trade, both nationally and internationally. From powering autonomous vehicles to reviewing legal contracts, improving translation accuracy and optimising negotiation and growth strategies, AI is impacting every aspect of traditional commerce models.

However, AI is not reaching its potential in delivering the productivity gains British businesses urgently need. While AI and advanced technology is pervasive in consumers' everyday lives, from smartphones to computer games, it is nowhere near as widely used in businesses' day-to-day operations.

At Deloitte, much of our AI work concentrates on helping organisations make the best use of their data and resources. Whether that be through automating low-value tasks, deriving intelligent insights or enabling higher quality engagement with customers – the focus is to improve operational efficiency and help make them more competitive in the immediate and long-term future. In other words – we often focus on automating the more ‘boring’ tasks to free up valuable time and improve productivity.

As an example, one of our recent projects was to automate customer contact handling using AI powered natural language processing, deep learning techniques and Robotic Process Automation. This was for a major UK retailer who receives over half a million queries a year, with a significant amount of time being spent in the front office reading emails only to re-assign them to back office teams. To make this process more efficient we developed an automation solution to identify the category of customer emails, and whether or not they needed to be sent directly to the back office. This freed up staff from the repetitive process of reading and reassigning emails to specialist teams, whilst also boosting the response turnaround time for customers. The techniques we have used here are highly cross-sector – for example, we have already taken the same set of technologies and AI frameworks to explore how to help NHS Trusts automate referral triage, with already highly promising results.

We welcome the AI Sector Deal and the creation of the AI Council – especially the ambition to boost national R&D spend, improve critical infrastructure, open up more public interoperable data and foster new talent in the field. As has been discussed in previous APPG sessions, having a long-term strategic plan will be crucial to our success. However, in terms of the here and now, we think there is a pressing need to address three issues:

1. Bridging the technical and commercial knowledge gap: According to our research, less than half of executives believe their organisation’s leadership has a clear understanding of AI. At the same time, only 12% of leaders believe UK school leavers and graduates have the necessary digital skills. Bridging this gap will require much more proactive coordination between academia, business and government. Canada, for example, is a leader in the area, with universities running robust business incubation programmes and launching flexible AI management courses targeting business executives. A large part of this will also be removing the barriers to working in AI and making the field more inclusive. For example, there is a perception you need a PhD to work in AI – you don’t. Clearly we need great academics, but we also need strong, business focused data scientists working at the commercial sharp-end of ‘business AI’
2. Greater prioritisation of scalable pan-industry solutions for investment: Matched funding vehicles are highly effective, but many programmes are industry-selective rather than focusing on cross-sector opportunities with the most widespread impact. In the examples I gave, we were able to repurpose a Natural Language Processing model that reads and triages incoming customer emails for retail into one that reads GP referral letters and assigns patients

onto appropriate pathways. At Deloitte we consciously created a cross-sector AI team to address these overlaps and we believe research funding programmes should reflect this trend.

3. Post-Brexit, the UK must continue to be a favourable business environment: The UK must be internationally-recognised as a great place to build businesses at the centre of European and world technology and trade. Critical to AI advancement in particular will be the flow of data, people, ideas and services amongst our partners in Europe and worldwide.

IX. AWKNOWLEDGMENTS

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.

