

EVIDENCE GIVING MEETING #6

All Party Parliamentary Group on Artificial Intelligence
APPG AI

16 October 2017
5:30 – 7:00 pm
House Of Commons, Committee Room 1

#appgAI
@BigInnovCentre

Main Focus

- How can AI reduce inequality and not be a creator of it?
- Social exclusion and living standards
- Skills
- Education and training
- The future of work

Thought Leaders

- **Professor Margaret Boden** – Research Professor of Cognitive Science (Informatics, Centre for Cognitive Science), University of Sussex
- **Azeem Azhar** – VP, Head of Venture & Foresight; Chief, Exponential View
- **Laura James** – Technical Principal, Doteveryone
- **Shamus Rae** – Partner and Head of Innovation and Investments, KPMG
- **John Hawksowrth** – Chief UK Economist, PwC
- **Calum Chase** – Book Author of ‘The Economic Singularity: Artificial Intelligence and the death of capitalism’
- **Olly Buston** – CEO, Future Advocacy
- **Professor Peter McOwan**- Professor Computer Science, Queen Mary University

Professor Margaret Boden – Research Professor of Cognitive Science (Informatics, Centre for Cognitive Science), University of Sussex

- Margaret A. Boden OBE ScD FBA is Research Professor of Cognitive Science at the University of Sussex, where she helped develop the world's first academic programme in cognitive science. She holds degrees in medical sciences, philosophy, and psychology, and integrates these disciplines with AI in her research. She is a Fellow of the British Academy, and of the Association for the Advancement of Artificial Intelligence (and its British and European equivalents). Her work has been translated into twenty languages. Her books include *The Creative Mind: Myths and Mechanisms* (1990/2004) and *Mind as Machine: A History of Cognitive Science* (2006). (*AI, Its Nature and Future* is in press.).
- Our society will be increasingly reliant on AI, including machine learning (ML) and robotics. Some citizens will choose to make it, many will have to use it, and all will be forced to live with it.
- This will require education/training at all levels, and for all ages. Address algorithmic accountability
- There will be a need for intensive MSc degrees for knowledge transfer, aimed to provide these newly-relevant skills to post-graduates who are not computer scientists, and perhaps not even STEM-educated.
- The challenge is to enable citizens to use AI even if they don't come from a STEM background
- Specialist courses in data-management should be made widely available, too. Preparing data for use in Big Data applications is far from a trivial exercise.
- UK government must ensure AI enters education from primary school and is presented to children in an accessible way

Azeem Azhar – VP, Head of Venture & Foresight; Chief, Exponential View

- Azeem Azhar is a product entrepreneur, investor and curator. He is currently Vice President at Schibsted Media Group, one of the world's largest media and marketplaces companies. In 2010, he founded PeerIndex, a venture-backed start up, which applied machine learning to large-scale social media graphs to make predictions about web users. PeerIndex was acquired by Brandwatch in 2014. He is also an investor in tech start-ups, particularly in the AI. Previously, Azeem held corporate roles at Reuters and the BBC, and had served as an editor at The Economist and The Guardian. He currently curates the Exponential View, a newsletter which covers the impact of Artificial Intelligence, robotics, gene editing, renewables and other technology on society.
- Automation has created a few superstar firms in the previous decades leading to a huge value per employee in superstar firms
- Value today is created faster than ever before
 - In the past, it took companies about 5-10 years to reach \$1bn valuation
 - From 2010, it takes companies about 2 years to reach \$1bn valuation
- Progress in ML & Automation is breaking new boundaries
- Two divergent scenarios when thinking of these changes linked to exponential technologies
 - Scenario 1 – handful of job, if any; mass long term unemployment
 - Scenario 2 – plenty of jobs; new classes of work
- The change process is happening in the next 5-15 years & will be significant & unsettling
- Mitigations
 - Companies cannot repudiate externalities of automation
 - Widen access to key skills; Consider skills that are not just STEM related, but also cognitive
 - Reframing the job automation question
- If automation does grow without mitigation, there is likely going to be social unrest and pitchforks may follow

Laura James – Technical Principal, Doteveryone

- Laura is Technology Principal at Doteveryone, where she spends half her time leading its responsible technology programme, in a flexible portfolio with advisory and experimental activities on the side. Doteveryone exists to help make technology more accountable, diverse, useful, and fair, and to make the internet work for everyone. Laura is also Co-Founder and Engineering Advisor to Field Ready, which aims to ensure that in every humanitarian response, everyone has access to the supplies they need, when and where they need them, with remote rapid manufacturing. She did her PhD and MA in Engineering at the University of Cambridge.
- When drafting policy, it is important to remember that AI doesn't decrease or increase inequality. It is only a tool.
- Inequality is not just about fairness of algorithms and AI, or automation of some job types. It is about whether AI is indeed offering the benefits it promises — whether it is an effective tool.
 - This is especially the case for under-served populations who may suffer disproportionately if promised benefits are not delivered.
- As a society, we should make fuller use of the vast quantity of good-quality data that's publicly held and collected. (ONS's Data Science Campus is a good, but small, example of this already happening.)
 - Access to this data should be granted in ways that ensure public benefit reflecting the future value which can be realised from the unlocking of insights and intelligence, and positive public outcomes.
 - NHS data used appropriately, and with appropriate patient involvement, could develop and advance healthcare.
- If Government and the public sector don't get contract negotiation right, there is great potential for harm to privacy rights, to public trust in data sharing and use, and a great danger that valuable publicly held data assets would be handed to private companies, leading private value to be created from public assets, without appropriate recompense and increasing inequality.
- The long-term economic benefits of building the UK's AI capability — for the shared benefit of the population — make the investment worthwhile.

Shamus Rae – Partner and Head of Innovation and Investments, KPMG

- Shamus is Head of Innovation and Investments at KPMG. Shamus has over 23 years' experience in Back Office transformation cross-industry and a broad in-field knowledge of undertaking Operational Strategy work for various global clients, from Investment Banks through to major Leisure companies. In 1993 he disrupted the BPO industry by building the first multi-function, multi-client BPO business. With the emergence of advanced automation Shamus is now leading the Automation Proposition covering everything from advanced robotics all the way through to Cognitive Computing. When drafting policy, it is important to remember that AI doesn't decrease or increase inequality. It is only a tool.
- People seem to spend a lot of time arguing whether there is a utopian or dystopian future. This approach overlooks the pain of disruption that is inevitable over the next 10 to 15 years.
 - With Andy Haldane (BOE) talking about 15 million jobs being potentially rotated over the next 10-15 years we have an issue of transition to the future whether good or bad.
- The common arguments put forward are that it will be the lower skilled jobs that go. This is not true.
- We need to set up for success now and manage towards a utopian future even though it might be difficult to achieve. Don't let the arguments of whether we will have mass job destruction or not get in the way of the very real job of minimising its impact.
- We need to be focused on:
 - raising the number of technically capable people in this country and that must start with education. Not the Computing Science GCSE that is there now
 - Fuzzy Techs as well as pure techs.
 - Create the infrastructure to make this industrial revolution equal across the country
 - Develop IP hubs up and down the country. Creating eco-systems with academia, SME's and larger businesses.
 - We need to create world class data sets that are accessible by start up and not just the big 5 tech houses. Health data in Finland (Kanta Project) shows the way
 - Measuring inequality in capacity and capability

John Hawksworth – Chief UK Economist, PwC

- John Hawksworth is an economist who specialises in global macroeconomics and public policy issues. He is Head of Macroeconomics in PricewaterhouseCoopers' UK firm and editor of its Economic Outlook publications. He is also the author of many other reports and articles on macroeconomic and public policy topics and a regular media commentator on these issues. He has carried out economic consultancy assignments for a wide range of public and private sector organisations both in the UK and overseas over the past 20 years. Clients include several UK government departments, the World Bank, the European Commission, government ministries in Turkey and Ukraine, and many blue chip private sector companies operating in almost all sectors of the economy.
- Optimistic about economic opportunities of AI but the challenge for the UK is to unlock it
 - Based on a recent PwC report, by 2030, the UK economy will witness a 10% economic boost as a result of AI
- AI will also disrupt society
 - 30% of jobs are in risk of being automated
 - This number is based solely on technological feasibility and ignores other factors such as economic implications or regulatory concerns that will likely slow down the automation process
 - Sectors will not be impacted in the same magnitude. Transport and manufacturing will be affected most
 - Social skills and creative skills are less likely to be automated
 - Less educated people are in higher risk of being automated – up to 50% of risk
- Recommendations
 - Vocational training for young people
 - Life-long learning is crucial to retrain those that will be displaced
 - Rethink welfare system and create a stronger safe net.
 - Build evidence now so that we are prepared 10-15 years to take the right path

Calum Chase – Book Author of ‘The Economic Singularity: Artificial Intelligence and the death of capitalism’

- Calum Chase studied philosophy at Oxford University, where he discovered that the science fiction he had been reading since boyhood is actually philosophy in fancy dress. He is a writer and a regular speaker on the promise and peril of artificial intelligence, and runs a blog on the subject at www.pandoras-brain.com. His books include Pandora’s Brain, Surviving AI and The Economic Singularity. Prior to writing Pandora's Brain, Calum had a 30-year career in business, in which he was a marketer, a strategy consultant and a CEO. He is co-author of The Internet Startup Bible, a business best-seller published by Random House in 2000.
- Tech unemployment is a real prospect; machines are going to get smarter through exponential growth which makes it very feasible that they will displace all jobs eventually
 - In 30 years, it is highly likely that 50% of population will be unemployable
- Past performance does not prove future. Just because in the past technology advance didn’t lead to unemployment, it doesn’t mean that this it won’t.
 - Cognitive automation: In the past we couldn’t automate cognitive tasks but machines are getting more and more capable to do so.
- We need institutes to research the possible scenarios and how to prevent the challenge of economic singularity → We need to use this evidence to propose solutions.
- Positive outlook: Humans can do the important things in life if the burden of work is taken away.
- UK government must invest in think tanks to research these risks and opportunities.

Olly Buston – CEO, Future Advocacy

- Olly Buston is the CEO and Founder of Future Advocacy. He was a key architect of the Make Poverty History Campaign and was Europe Director of 'ONE' for 7 years. Buston has also worked as Director of the Walk Free anti-slavery movement, and as Senior Advocacy Officer for Oxfam International in Washington, DC. He has studies in Social and Political Sciences, Development Economics and International Development from the University of Cambridge and the London School of Economics and Political Science.
- There is debate on how many jobs will be lost and created, but all agree that the scale and scope of disruption in job markets is unprecedented
- In report launched tomorrow, Future Advocacy focuses on the regional impact in the UK
 - The report illustrates the impact of automation in individual parliamentary constituencies
 - Building on PwC work, it focuses on the tasks rather than jobs
 - Results show that a range of 20-40% of jobs are in risk of automation
 - The highest levels of future automation are predicted in Britain's former industrial heartlands in the Midlands and the North of England, as well as the industrial centres of Scotland
 - 2/3 of the constituencies in the top 50 are in the midlands
 - Shadow Chancellor John McDonnell's constituency of Hayes and Harlington is predicted to see the highest rates of automation
 - Sectors like manufacturing and transport/storage will be most impacted
- Even though job loss is a real threat, a YouGov poll shows that only 2% of the population are worried about losing their jobs
- Recommendations
 - Commission and support further research to identify groups of society most at risk
 - Need a targeted approach that looks to provide solutions for those groups and/or regions most vulnerable
 - Help make people more resilient
- AI offers huge economic opportunity for the UK and should be a pillar of the industrial strategy

Professor Peter McOwan- Professor Computer Science, Queen Mary University

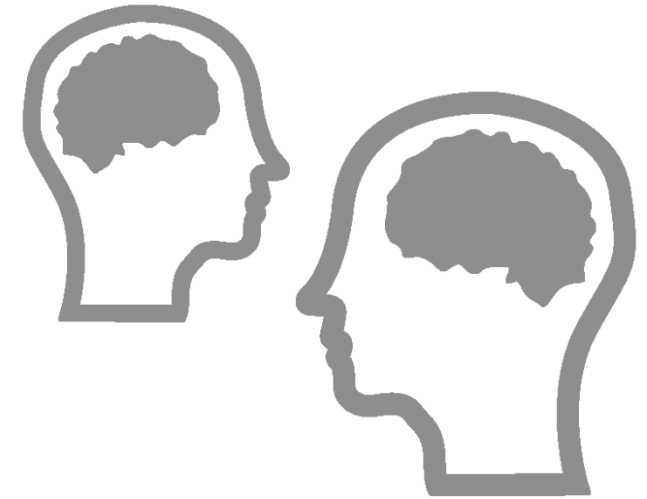
- Peter McOwan is Vice Principal for Public Engagement and Student Enterprise and Professor of Computer Science in the School of Electronic Engineering and Computer Science at Queen Mary, University of London. His research interests are in visual perception, mathematical models for visual processing, in particular motion, cognitive science and biologically inspired hardware and software. He has authored more than 100 papers in these areas. He recently served on the Program Committee for ACII2009, CVPR 2009 and IEEE Artificial Life and is a member of the AI is increasingly being used to make decisions across the world.
- AI will have implications across the board and in all sectors
- 2 areas of focus in regards to education reform
 - There is a need to demystify AI
 - It needs to become more accessible to all
 - Put AI in the curriculum of schools, from lower to higher education
 - Encourage informal dialogue in society
 - There is a need to train teachers to empower students for the Fourth Industrial Revolution.
 - Children need to be trained with the skills to be able to compete in the future
 - Career teachers need to understand what the demand is in the job market and direct students in that direction
- Academics should participate in public engagement in order for research to be disseminated
- Public awareness is key for people to understand both the opportunities and risks of AI

Questions and Answers

- 1. Is AI just a hype?
 - There is a chance we might be overestimating, but we have to prepare in case we are not.
- 2. What is the wider public doing to contemplate about these implications?
 - The education process should be reform, to train our youth and retrain our older generations to be adaptable, creative, and problem-solvers.
- 3. Is there a map to see where job opportunities will be?
 - Job opportunities are likely to not be in the same places/sectors where jobs will be lost.
- 4. How do we communicate these issues to the public?
 - The issues have to be presented in a way that is easy to relate to.

Key Takeaways

- AI has many opportunities, but policy makers have to ensure its benefits are distributed amongst all social groups and regions
- Certain sectors, genders, and/or regions will be impacted by automation more than others. Ultimately, the tech advance is expected to impact all categories.
- Education is key to ensure citizens are equipped with the skills to compete in the future.
- The UK government needs to create a vision of what we want our political economy to look like in an AI-filled world.
 - Should we restructure the life model of the average citizen?
 - We need to think of not only redistributing wealth but also redistributing purpose.





BIG INNOVATION CENTRE

Secretariat

All Party Parliamentary Group on Artificial Intelligence (APPG AI)

Big Innovation Centre

appg@biginnovationcentre.com

Ergon House, Horseferry Road
Westminster, London SW1P 2AL

www.appg-ai.org

www.biginnovationcentre.com