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All-Party Parliamentary Group on Artificial Intelligence

Navigating the Global AI Talent Shortage

Developing an Al-Ready Workforce Fit for the Future



21 October 2024 Policy Forum

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INTRODUCTION

This document is a transcript with summary of an APPG AI evidence meeting that took place on 21 October 2024 in the House of Lords Committee Room 4A, UK Parliament. The document exclusively contains crucial discussion elements; not all points are addressed.

DETAILS

- Evidence Session: Navigating the Global AI Talent Shortage: Developing an Al-Ready Workforce Fit for the Future
- Time 5:30 pm 7:00 pm (GMT)
- Date: Monday 21 October 2024
- Venue: Committee Room 4A in the House of Lords.

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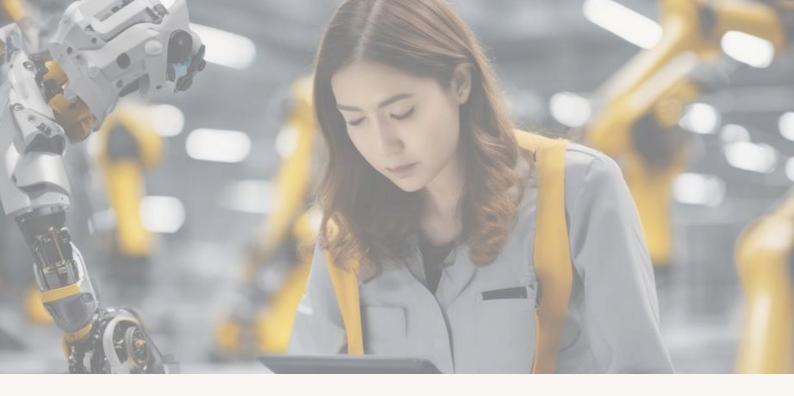
EVIDENCE GIVERS

- Alderman Professor Michael Mainelli -The Lord Mayor of the City of London Corporation.
- Baroness Ruby McGregor-Smith CBE -Chair of the Institute for Apprenticeships and Technical Education
- Yatin Mahandru Vice President & Head, UK Public Sector & Health, Cognizant
- Matthew Bone Head of Talent Acquisition at the British Standards Institution (BSI)

MEETING CHAIRS AND RAPPORTEUR

The Meeting was chaired by **Lord Clement-Jones;** Co-Chair of the All-Party Parliamentary Group on Artificial Intelligence.

Rapporteur for this meeting: **Professor Birgitte Andersen**, CEO Big Innovation Centre



Aim of Session

Navigating the Global Al Talent Shortage: Developing an Al-Ready Workforce Fit for the Future

In this Evidence Meeting we addressed the global AI talent shortage, focusing on UK priorities, homegrown skill development, and talent retention. We explored the roles of education and industry in promoting responsible AI literacy and whether advancements like ChatGPT could help bridge skills gaps by automating technical work.

Questions were raised to inspire the discussion:

- How severe is the global shortage of AI talent? What gaps should the UK prioritise to gain a competitive advantage?
- What incentives are needed to cultivate homegrown AI skills and retain talent domestically? What policy or cultural shifts could help strengthen the talent pipeline?
- How can multidisciplinary literacy around responsible AI development and AI use become standard practice across industries? What roles should schools, universities, and professional development in companies play?
- Could rapid advancements in AI, such as ChatGPT, paradoxically alleviate skills gaps by automating technical work?



Some of the Parliamentarians, Advisory Board, Presenters Participating



FINDINGS

ACTION FIELDS FOR POLICY AND STAKEHOLDER GROUPS

PROACTIVE INDUSTRY FOCUS

The meeting focused on industry initiatives to enhance AI workforce capabilities, moving beyond formal education. It highlighted a proactive industry strategy for building a skilled workforce, with key focus areas on:

Apprenticeships:

• The conversation included a strong endorsement of apprenticeship models as a means to cultivate talent. By integrating apprenticeships into industry practices, organizations can provide hands-on experience to new talent while ensuring that skills taught are directly applicable to the business environment.

Internal Industry Upskilling Programmes:

• Emphasis was placed on developing tailored upskilling programs within organizations or at sector level to address specific skill gaps in Al. These programs enable employees to enhance their knowledge and competencies on the job, facilitating immediate application of skills in real-world scenarios. It also allow sectors to create and enforce more standardised skill requirements in Al.

Collaboration with Local Councils:

• The meeting highlighted the importance of large companies in partnering with local councils to align training initiatives with regional talent development fit for the local industry. By working together, industry and local governments can create programmes that address the unique skill shortages, ensuring a more targeted approach to skill development and local workforce opportunities.

Engagement with Universities:

Collaborating with universities to co-create curricula and training programs was also in focus as
especially relevant for SMEs who don't have the visibility or resources of big tech. This partnership
allow graduates to connect with companies, and vice versa, and enter the workforce with relevant
skills that meet current skill demands.

Overseas Recruitment and Visa Sponsorships:

 While the primary focus was on internal solutions, there was acknowledgment of the need for strategic overseas recruitment as a complementary approach including implementing suitable immigration policies. This involves identifying and attracting talent from other countries, thereby enhancing the pool of skilled professionals available to meet the immediate rising demands of AI skills.

ACTION FIELDS FOR POLICY AND STAKEHOLDER GROUPS

Addressing the talent gaps in Al-related skills has become crucial; this requires a concerted effort from policymakers, regulators, industry leaders, and society to enhance education and skill development, ensuring that the workforce is equipped to meet the challenges of an Al-driven future.

Recommendations for Policymakers, Regulators, Businesses, and Society:

1. Establish Clear Standards and Regulatory Frameworks

- Adopt International Standards: Emphasize the use of established standards such as ISO 42,001 for the management of AI. This approach ensures consistent practices across industries and jurisdictions enabling frameworks for AI education and training.
- Define AI in Regulatory Terms: Work towards a precise regulatory definition of AI that distinguishes generative AI from traditional machine learning and computing to avoid overly broad regulations that can complicate compliance as well as AI skills policy and practice.

2. Foster Education and Skill Development

- Enhance STEM Education is combined with multidisciplinary literacy: Prioritize STEM (Science, Technology, Engineering, Mathematics) education at all levels, while promoting multidisciplinary literacy to prepare future generations for Al-related careers.
- Prioritize Soft Skills Development: Highlight the significance of soft skills, including the ability to effectively utilize AI tools and conduct AI analyses, along with critical thinking and creativity. By integrating these competencies with technical knowledge, we can better prepare the workforce for the evolving job roles created by AI advancements.
- Promote Ethical AI Training: Incorporate ethics and responsible AI usage into educational curricula to cultivate a workforce that understands the implications of AI technologies.
- Diverse Training Options: Provide a variety of upskilling and training programs tailored to meet the needs of a multi-generational workforce, ensuring no single approach is enforced.

3. Support Recruitment and Talent Acquisition

- Create Flexible Apprenticeship Models: Reform the Apprentice Levy to allow greater flexibility in fund allocation, enabling companies to invest in AI-specific skills training and initiatives.
- Encourage Collaboration Between Industry and Academia: Foster collaboration between small and medium-sized enterprises (SMEs) and universities to create AI curricula that meet industry needs. This partnership should also focus on developing connections with graduate students to ensure they build relationships with SMEs, especially considering the rising salaries offered by large tech companies that SMEs struggle to match.

4. Address the Talent Shortage

- Global Visa Initiatives: Establish a global Visa program for technology specialists to attract international talent and fill the growing workforce demand in Al and technology sectors.
- Promote Diverse Hiring Practices: Implement strategies to enhance diversity in recruitment, ensuring a wider range of candidates who can contribute different perspectives and solutions to Al challenges.

5. Invest in Employee Well-being and Support Systems

- Introduce Tax Incentives and Subsidies: Create tax incentives for companies that invest in employee training, well-being programs, and mental health support. This can help retain talent and promote job satisfaction.
- Provide Transition Support: Equip employees with the necessary support as they adapt to changes brought about by AI, including resources for skill development and mental health.

6. Encourage Industry Collaboration and Consensus Building

- Develop Global Initiatives: Support agreements like the Walbrook Al Accord for harmonizing Al standards across nations, promoting best practices, and ensuring responsible Al governance globally. (Walbrook Al Accord is a global initiative providing ways in which professionals and firms worldwide can respond to the ethical challenges of Artificial Intelligence)
- Engage in Ongoing Dialogue: Foster a collaborative environment among industry leaders, policymakers, and the educational sector to regularly reassess and update strategies related to Al skills and workforce development.

7. Focus on Adaptability

• Encourage Lifelong Learning: Promote a culture of continuous learning and adaptability among workers to keep pace with rapid advancements in AI technology.

Conclusion

Addressing the challenges and opportunities presented by Al requires a cohesive effort from all stakeholders. By implementing these recommendations, policymakers, regulators, industry leaders, and society can collaboratively build a resilient workforce capable of thriving in an Al-driven economy.



Evidence Giver: Professor Lord Tarassenko



Evidence Giver: Conor Griffin



Evidence Giver: Professor Charlotte Deane



Evidence Giver: Richard Traherne



APPG AI Chair: Allison Gardner MP



APPG AI Chair: Lord Clement-Jones CBE



Secretariat & Rapporteur: Professor Birgitte Andersen

EVIDENCE



Alderman Professor Michael Mainelli FCCA FCSI (Hon) FBCS

Lord Mayor of the City of London 2023-24

Introduction and Background

I got into AI, as we would call it today, in 1978. It was always machine learning to me. I've been around the block. I've probably built just short of 50 systems, about eight or nine of which are still in operation today. Now, the reason I go through that is merely that I would point out that when we discuss, we frequently confuse generative AI with machine learning because of the written nature of the discussion and the similarity. And that will become apparent in a moment.

Skills and Standards

This session is to discuss skills, but intensely related to skills are, of course, standards. There's no point in discussing what type of skill you're trying to achieve unless you can define the standard to which you are trying to achieve. In the course of this, we would look, I think, at three particular areas in most standards: people, product, and process.

One of the things that I've been trying to do this year as Lord Mayor has been to highlight the need for the use of international standards in the management of AI, including the management of AI skills. I would point people to what is called ISO 42,001, the enterprise management of AI. This is, to me, a very important issue because when you look at the cities for centuries, the things that concern us are very much free trade, access to talent and skills, and the rule of law. So we would like to ensure that all three of those areas are covered.



Regulatory Aspects of Al

When it comes to free trade, the current regulatory aspects of AI include those of regulating the skills. Are you qualified to build an AI system? Are you qualified to deploy it? These fall into the standards arena. We've seen in the United States, as of June 2024, when I last looked, 27 states have passed regulations on the use of AI in insurance, healthcare or consumer safety.

And of course, we have the EU AI law. Here is where I make apparent at this point about machine learning versus AI because it is extremely difficult, if not impossible, to define AI in such a way that you can isolate generative AI. Nor might that be actually what you wish for anyway. The current AI laws really regulate all of computing. I would point you to the fact that the EU AI law lists the techniques that are covered, says machine learning statistical techniques. I don't know if you used a computer to average, but I once did that, and we can go on. It includes, by the way, logic programming. That is, by definition, all of computing. We find the same thing in the various U.S. states trying to pass laws.

[NOTE: The challenges of defining "artificial intelligence" (AI) within the context of regulatory frameworks, particularly the EU AI law. Here are the key points and their implications:

- 1. Complexity of Defining AI: The Lord Mayor emphasizes that it is extremely difficult to pinpoint a precise definition of AI that can separately delineate generative AI from other forms of machine learning and computing. This suggests that efforts to regulate AI may face inherent challenges due to the broad and overlapping nature of these technologies.
- 2. Scope of Current AI Laws: The statement points out that current AI regulations, particularly the EU AI law, encompass all of computing by referencing techniques like machine learning and statistics, which are foundational to various computing processes. This implies that the regulations may be too broad or vague, potentially leading to unintended consequences for technologies that extend beyond what is traditionally considered AI.
- 3. Inclusion of Various Techniques: By mentioning that the EU AI law includes techniques such as logic programming and statistical methods, the Lord Mayor indicates that the scope of regulation might inadvertently cover all computing activities. This can raise concerns about how regulations apply to different computing methods and might complicate compliance for businesses and developers.
- 4. Comparative View with U.S. States: The reference to various U.S. states attempting to pass similar laws suggests a broader trend of regulatory efforts that may lack specificity and precision, further complicating the landscape for AI governance in different regions.

Overall, the point being made is that the current approach to defining and regulating AI in laws appears to be both complex and perhaps overly expansive, raising questions about the effectiveness and appropriateness of such regulations in practice.]



In fact, if you look at other jurisdictions around the world, we have a very messy set of definitions, and the scope of these laws are very broad. Conscious that I'm addressing a panel chaired by a lawyer, I'll try and stay out of my domain of ignorance. But what is important is that this ISO 42,001 currently already covers all of this. The standard has existed for some time, and we would propose in the city that we really knuckle down and use the standard that provides us with interoperability with other nations and covers people, product, and processes well.

Achievements in AI Standards

I'm happy to answer further questions on that. I might just touch on what we've achieved in the city this year—three things: (1) AI course and (2) accord and (3) a consensus.

(1) Al Course

We created an AI course with the Lord Mayor's Ethical AI Initiative course, which 6,000 people and 600 firms have taken in over 60 countries. This is offered by four institutes: the Chartered Institute for Securities Investor, the Institute and Faculty of Actuaries, the British Computer Society, and the Association of Chartered Certified Accountants, and it is now being rolled out to other professional bodies and about 85 business schools. The course teaches people the ethics of principles and, of course, about ISO 42,001.

(2) The Walbrook AI Accord

To be fair, the second thing is our accord. Thirty-eight nations, represented by their testing, inspection, and certification sectors—the accreditation and certification bodies—have signed an accord called the The Walbrook AI Accord (A global initiative providing ways in which professionals and firms worldwide can respond to the ethical challenges of Artificial Intelligence). The address is of Mansion House, but actually was signed it in Brussels, and have created a permanent AI quality infrastructure facility currently being constituted in Barcelona. This is basically saying that we would prefer that regulation in this space is done through the existing RSO qualification standards rather than making things up on the hoof.

(3) Building the Coffee House Consensus

The third thing that we've done is a coffee house consensus. I've been building London as the world's coffee house, and the International Corporate Governance Network has created, again, a permanent facility, the Investor Council on Responsible AI (ICRAI), representing about \$32 trillion of the \$77 trillion of assets. They've signed on to a two-page consensus that they would encourage the use of ISO 42,001by their investor companies and the countries in which they invest. All of this is in aid of providing the standards that we need for people, products, and processes.



I now want to make my final remarks.

Lessons from the Past: Navigating the Evolution of AI Skills and Education

We have, in many ways, been here before. I recall similar sessions in the 1980s regarding IT skills, and in fact, at that time, institutions like this highlighted the lack of our ability to do semiconductor processing. Many of us in the field contended that semiconductor processing, whilst extremely important, would become a very narrow skill area and not one amenable to widespread design, and that computing was far more important.

We had a similar thing in 1994 when people claimed that we didn't have computer skills as well, and the only nation that was in the lead was France with its Minitel. Suddenly, once people learned how to make money in 1994 with Netscape, within five years, everyone had trained themselves. One of the things about generative AI is you don't need training to use it, at least in the basic sense of it. But what training do you need? Well, being a scientist, I wouldn't contend that giving technology to anybody is the safe thing to do. I do think we need controls (i.e., training).

We have also been here before. We've had things, for example, Logo, a very popular children's teaching aid in schools, with its very famous turtle some 25 years ago. [NOTE: The LOGO programming language is a user-friendly way for children to develop concepts in both mathematics and in programming. It is actually a Lisp program - a functional programming language]. It's just one that five-year-olds can use. So, it's about getting into that basic STEM (science, technology, engineering, and mathematics) education and not worrying if we have a gap. It's not in the AI field itself; it's in rigorous data analysis, statistics, data analytics, data processing, and data visualization.

Data as the Cornerstone: Understanding Skills Development for the Future of AI

The three elements that have led to this revolution do not include the skills. It's actually been: large quantities of data, connectivity, and processing power. And of those, the first one that the casual user, or the more advanced user, will really be focusing on is the data. For processing those data, the skills are there.

The Imperative of Multidisciplinary Literacy in Bridging the AI Skills Gap

I think the second thing is that multidisciplinary literacy is required. It's giving young children STEM education and multidisciplinary aspects, and I'm afraid there are no quick fixes if we have an AI skills gap at that level. It's one that's going to take us time to fix, and thus we ought to start now, in my opinion.

I would point you to the recent award of the Nobel Prizes, most of which have been multidisciplinary and subject-connected with Al.

So I'll end it there, and I'd like to thank you very much for giving me the opportunity to address you.

Summary of Michael Mainelli's Key Points

Introduction and Background

- Michael Mainelli began working in Al in 1978, focusing on machine learning.
- Highlights the common confusion between generative AI and traditional machine learning in discussions.

Skills and Standards

- Emphasizes the relationship between skills and standards; standards must be defined to assess skills properly.
- Focuses on three areas of standards: people, product, and process.
- Advocates for the use of international standards in Al management, specifically ISO 42,001.

Regulatory Aspects of Al

- Discusses regulatory challenges in defining AI and generative AI separately.
- Observes that current AI regulations may be overly broad, encompassing all of computing.
- Notes that several U.S. states have passed regulations on AI in various industries (insurance, healthcare, consumer safety).

Achievements in Al Standards:

- Highlights three key achievements in promoting AI standards:
- 1. Al Course: An ethical Al course developed by the Lord Mayor's initiative, which has reached 6,000 participants across 60 countries.
- 2. The Walbrook Al Accord: An international accord adopted by 38 nations to emphasize the use of existing standards for Al regulation.
- 3. Building the Coffee House Consensus: An initiative that encourages use of ISO 42,001 among investor companies with significant assets.

Lessons from the Past: Navigating the Evolution of Al Skills and Education

- Reflects on past discussions regarding IT skills and the historical context of semiconductor processing.
- References the rapid self-training that occurred after the rise of the internet in the 1990s.
- Notes that basic training is necessary for responsible use of technology.

Data as the Cornerstone: Understanding Skills Development for the Future of AI

• Identifies three elements that drive AI advancements: data, connectivity, and processing power, emphasizing that data is crucial, and that we do have data processing skills.

The Imperative of Multidisciplinary Literacy in Bridging the AI Skills Gap

- Stresses the importance of STEM education and multidisciplinary literacy in addressing AI skills gaps and that to develop those fundamental skills we have to start early.
- Highlights that resolving the Al skills gap will require time and effort.

Baroness Ruby McGregor-Smith CBE

Chair of the Institute for Apprenticeships and Technical Education (IfATE)

Introduction

My name is Ruby McGregor-Smith. I was a former FTSE CEO and I sit on a number of global boards, two of whom are very large global employers. Al is evolving rapidly, with significant advancements occurring almost weekly. The continuous level of change and innovation in this field is very exciting.

Role of Institute for Apprenticeships and Technical Education (IfATE) and Impact of AI

I am speaking to you today in my capacity as the Chair of IfATE, which is the government's armslength body that has transformed skills training by following guidance from thousands of employers to match it to the skills they need. So, all my comments today are going to be very much around what the Institute for Apprenticeships and Education feel that they have to offer.

Al is here in everything we do already. The technological advances are absolutely incredible for business. I think businesses look increasingly to Al to help raise productivity, to drive innovation, to automate tasks, thank goodness, to generate content, and also gain some really big insights from what big data can tell us. But my reflections are really going to focus on what training I think we certainly will need in the UK going forward.





The Skills Gap and Training Needs

If we take a look at the 2024 Work Trend Index Annual report, which was published by Microsoft and LinkedIn, it showed what a big impact AI is having on recruitment, with 66% of business leaders surveyed saying they wouldn't hire somebody without AI skills. It would be interesting to know, what that definition of AI skills would be. Further research published by PwC this year said that 69% of CEOs across the globe expect their workforces to need many new skills in the area of AI. However, in the UK, we've seen employer investment in training has actually fallen significantly by a quarter since 2005 (20 years ago), and it's much lower than our European competitors. This is really going to have to change, and I look forward to seeing how the new government will support the growth of training initiatives in this area of AI.

Developing Relevant Apprenticeships

Now, I've focused on raising standards and technical education and higher technical education.

The new government is proposing to create Skills England, which will take this agenda forward next year. But there's never been a more critical time to do this, and I want to give you some examples of some of the apprenticeships that we are already developing with employers here.

Al is a natural fit, as you can imagine, for digital and data analysis learning-schemes. A good example of this is the Al data specialist apprenticeship, which trains people to maximize the positive impact of artificial intelligence on their company, making it more efficient and capable of boosting profits.

It doesn't really end there because every single area of the economy is going to need AI skills. It's already threaded into apprenticeships for manufacturing, for training robotic engineers, in retail, in training buyers and merchandise, and healthcare, and training for geographical insights in treating cancer. So, it's across many of our apprenticeships in the UK today, and that's simply going to continue at a big pace.

Embracing Change and Future Opportunities

I think that drawing from a large variety of labour sources around the UK to show what jobs actually exist will help track emerging skills as they start to be needed. I think it's absolutely fantastic, particularly in the centre of government, so they can start to look at future skills needs in the UK.

There's also, if I think about the workforce, lots of evidence of the benefits of AI for employers. For example, research published this year by AWS found that four out of five firms already using generative AI use ChatGPT or Co-Pilot, and that very much is becoming prevalent. I mean, we hadn't even heard of ChatGPT two or three years ago, so it's fantastic it's taken off in such a way. And of course, there is going to be concern about job losses and efficiency and what people are going to do.

But I think it's going to also be really liberating for employers and employees to really think about what they can do, particularly around how they can start to analyse data and use critical thinking skills, which I think are going to be much more exciting than just straightforward processing. I think it will be a real benefit, and I am certainly not concerned about jobs. I think by reskilling and having jobs, but we can't even actually say what some of these jobs are going to be in three years' time, it is changing so quickly. So, regulators absolutely will have an important part to play. Everyone's going to have to keep reskilling, regardless of whatever age. I certainly believe we're all going to have to reskill. We're going to be continually skilling and reskilling all the time.

I think when I was growing up, no one talked in the workplace about how you have to reskill almost every year. With AI, more and more people are going to have to really think about that. I think that reskilling provides a real opportunity for people as well.

Closure: Embracing AI Responsibly

So, to draw things to a close, I clearly think it's an exciting time to be using AI. I mean, we all remember, I certainly remember in my career, joining organizations when Blackberries were still around, and nobody wanted to put their data on the cloud, and no one thought the iPhone was going to do that much. Now look at where we are today.

I remember when Amazon launched their data services, and everyone was like, "Oh my goodness, see, what's that?" Well, it's here. So, I think we should very much embrace it and be excited about it, particularly for our young people and for kids at school today. I think it's very much built into the way they learn already.

So, AI is here, and we need to use it responsibly. I hope the future governments legislate more about how that can really be done, but I don't think we should be scared of AI.

Summary of Ruby McGregor-Smith's Key Points

- Introduction
 - Name: Ruby McGregor-Smith, former FTSE CEO.
 - Current role: Chair of the Institute for Apprenticeships and Technical Education (IfATE).
 - Observations on rapid advancements in Al technology.
- Role of IfATE
 - IfATE transforms skills training based on employer feedback.
 - Focus on aligning skills training with current and future business needs related to Al.
- Impact of Al in Business
 - Al enhances productivity, innovation, automation, content generation, and data insights.
 - Importance of training in Al skills highlighted by the Work Trend Index Annual report (66% of business leaders prioritize Al skills).
- Skills Gap and Investment
 - PwC survey shows 69% of CEOs anticipate a need for new AI skills in the workforce.
 - Decline in employer investment in training in the UK compared to European counterparts.
- Developing Relevant Apprenticeships
 - Emphasis on raising standards in technical education.
 - Introduction of Skills England to promote skills training.
 - Al-related apprenticeships being developed (e.g., Al data specialist).
 - Al skills integrated across various sectors, including manufacturing and healthcare.
- Future Workforce and Opportunities
 - Importance of tracking emerging skills from diverse labor sources.
 - Positive impacts of AI, such as increased adoption of generative AI tools (e.g., ChatGPT).
 - Emphasis on reskilling as a necessity for all workers, regardless of age.
 - Anticipation of new job roles emerging due to ongoing changes in Al technology.
- Conclusion: Embracing AI Responsibly
 - Reflection on past technological transitions and the current role of Al.
 - Encouragement to embrace Al positively for current and future generations.
 - Call for responsible use and regulation of AI technology to maximize benefits without fear.

Yatin Mahandru

VP and Head of Public Sector and NHS, UK & Ireland at Cognizant

Introduction

I'm Yatin Mahandru. I head our public sector for Cognizant in the UK. Just a bit of background: we have 350,000 people strong, 9,000 in the UK, and we're a digital and tech provider. For us, AI is a big bet going forward. Most of our work is in the US, so we're familiar with Tesla and Mr. Musk and all the rest of it. But essentially, the UK is critical for us.

Industry Needs and AI Skills

I'm going to focus on what we see from the industry that we need to thrive in the UK in terms of what we can call AI. Just as background, I started my engineering career over 40 years ago with a soldering iron, so I've seen a few things over time. I genuinely think this will be a game changer for us.

In terms of skills, we see demand for data scientists and data engineers because without the data piping, without the actual data infrastructure—as Min Tang, head of NHS said—garbage in, garbage out still applies. So before you can recruit people for deep learning for the models, there is a piece around data engineering and analysis that still needs to be done.

Evolving Roles in Al

We are keen on people who have natural language processing skills as well, and there are four or five categories that the market is still very hot on in terms of the recruitment challenges we face. We can see businesses and government departments getting benefits from AI already; major insurance companies are gaining significant productivity from using Gen AI in conjunction with working with the FCA (Financial Conduct Authority) so that compliance is also catered for.



We would argue there's a strong case for seeing an evolution in terms of skills. This is not just AI in Cognizant; we have a category people have caught on to called "prompt engineering." For us, what that means is you are not necessarily the person building the LLM or the person building the Python stack. You are the domain expert. You could be a humanities graduate. Your art in critical thinking and your ability to interrogate the machine is actually your skill and productivity.

Investment in AI and Skills Development

In the real-time, today's world, what we find is it's a mixture of both (AI builders and AI domain experts). Somebody who knows Python as well as the domain is best, but we can see that evolving very rapidly in the next 12 to 18 months. We will invest a billion dollars in AI over the next three years, and that's one of our big bets. We could be wrong, but we're hoping we're right—that's how skills will develop, and I think that's what opens a new opportunity.

There is less displacement than first thought from AI because your domain expertise is what will make the difference. We reckon, from the research, Forbes says there are 50,000 AI professionals in the UK - there is a lot of scope to grow.

Educational Pathways and Immigration Solutions

So, what do we need? Firstly, we think primary education for school kids is essential. They are already using AI on their phones, You may have noticed they're getting familiar with what it means to ask the phone questions. There is an opportunity to educate them about ethics, challenges, and opportunities of AI at a very young age.

The second part is the university system. The previous government had a funding mechanism for a number of universities that established curriculums, like Imperial, which creates a labour pool for us.

The Apprentice Levy is another important aspect (The Apprentice Levy is a tax on large employers in the UK, used to fund apprenticeship training). Currently, a company with our kind of turnover in the UK is limited to how much we can use in our model—a limit of 25% to smaller companies. Our view is that if that were more flexible, you could tailor that investment towards AI. We are not complaining about the Apprentice Levy; what we're saying is how could we use it better to create that same community and create those skills around us. Flexibility in the Apprentice Levy would be helpful.

[Note: large companies are limited to using 25% of their Apprentice Levy contributions to support smaller companies. This means that while they contribute a certain amount to the levy based on their turnover, they can only allocate a quarter of that amount to help smaller businesses with their apprenticeship costs. In essence, the statement highlights the restrictions some large companies face regarding the allocation of their levy funds, emphasizing their obligation to contribute while also being limited in how broadly they can distribute those funds for apprenticeships.]

Now, the last part can be a bit more contentious. If you go to the point in the agenda that discusses navigating the current shortage, there's something we experience worth a look at: the visa system. I would suggest creating a global visa for technology specialists or profiles who could perhaps be role models for a wider community. The number of tech specialists has dropped 11% from last year to around 226,000.

From our perspective, as well, we should look globally. If we want to maintain the UK as a central hub—right now, we are positioned as the third—let's hold on to that. Bringing global talent into play would be very useful. As an employer and a provider of solutions that encompass AI in its most generic sense, including data engineering, that is where we would come from as an organization.

[Note: Yatin Mahandru is addressing the challenges related to the shortage of technology specialists in the workforce, specifically focusing on the visa system that regulates the entry of skilled professionals into the country. Here's a breakdown of the key points:

- Current Shortage: Yatin highlights a significant shortage of tech specialists, noting a decrease of 11% in their numbers over the past year, which has brought the total down to approximately 226,000.
- Purpose: We know the visa system as the regulatory framework that governs how foreign individuals can enter, work, and reside in a country. For skilled professionals, like tech specialists, this often involves specific types of work visas that require employers to 'sponsor' the applicants.
- Proposal for Change: Yatin suggests the idea of creating a "global visa" specifically for technology specialists. This would allow skilled professionals from around the world to work in the country, potentially addressing the shortage of tech talent.
- Role Models: Yatin's mentioning of these professionals as "role models for a wider community" indicates a vision where attracting skilled individuals not only fills immediate skill gaps but also helps cultivate a tech-savvy environment and inspires future generations in the field.

Overall, Yatin is advocating for reforms in the visa system to facilitate the entry of skilled technology professionals, thereby helping to mitigate the shortage of tech specialists in the workforce.]

Recruitment Pipeline and Outreach Efforts

There is a very clear pipeline too. We advertise regularly. We don't necessarily use recruiters; we have our own recruitment engine. We also conduct a number of outreach activities, like holding prompt engineering workshops in universities and schools. For example, we're very active in Newham Borough of London, where we ran a few data workshops for Roxana Fiaz, the Mayor of Newham, last year. So that is part of our philosophy of outreach and recruitment.

Summary of Yatin Mahandru's Key Points

- Introduction
 - Name: Yatin Mahandru, head of public sector for Cognizant in the UK.
 - Cognizant employs 350,000 people globally, with 9,000 in the UK.
 - Emphasizes the importance of Al for future growth.
- Industry Needs and AI Skills
 - Recognition of a need for data scientists and data engineers to build necessary data infrastructure.
 - Natural language processing skills are in high demand.
 - Al provides efficiency benefits for various sectors, including insurance and compliance.
- Evolving Roles in Al
 - Importance of "prompt engineering," which involves domain expertise rather than technical construction of AI models.
 - Combination of AI builders and domain experts is essential for success.
 - Foresees the evolution of skills and potential job roles in the Al landscape over the next 12 to 18 months.
- Investment in AI and Skills Development
 - Cognizant plans to invest \$1 billion in Al over the next three years.
 - The need for domain expertise noted to reduce fears of job displacement by Al.
 - Estimated 50,000 Al professionals currently in the UK, indicating potential for growth.
- Educational Pathways and Immigration Solutions
 - Emphasizes the necessity of introducing AI concepts and ethics in primary education.
 - Supports university programs that foster a skilled labor pool, highlighting previous successful funding mechanisms.
 - Advocates for flexibility in the Apprentice Levy to better align with Al skill development needs.
- Visa System and Global Talent
 - Suggests the creation of a global visa for technology specialists to address talent shortages.
 - Notes an 11% decrease in technology specialists in the UK, down to around 226,000.
 - Argues that attracting global talent is crucial for maintaining the UK's position as a technology hub.
- Recruitment Pipeline and Outreach Efforts
 - Cognizant runs its own recruitment engine and conducts outreach initiatives.
 - Engages in activities such as prompt engineering workshops in universities and schools, including collaborations in Newham with Mayor Roxana Fiaz.
 - Emphasizes a philosophy of outreach as part of the recruitment strategy.



Matthew Bone

Head of Talent Acquisition at the British Standards Institution (BSI)

Introduction

My name is Matthew Bone. I'm the Global Head of Talent Acquisition at BSI (The British Standards Institution). The insight I give today is not as an AI expert or a governance expert, even though I represent BSI today, but from a recruitment point of view and a talent point of view.

Response to AI Governance Needs

As an organization, we've been responding to the need for AI governance for about two and a half years, and we've built a team of 65 professionals within talent acquisition during that time. What those great people have come in and done is design a suite of services for organizations, everything from the ISO 42,001 piece of work that has been spoken about to training and everything alongside it.

The APPG AI members would be familiar with Scott Stedman. He sends his apologies; he can't be here today, but he's hosting the IC up in Edinburgh this week. This is the first time this has been done in the UK for 35 years, and the ISO 2001 is again being discussed.

Trends in AI Job Market

From a talent point of view, I want to highlight a few things. A recent PwC workforce report said that postings for AI jobs are growing 3.5 times faster than all other jobs. For every AI job posts in 2012, there are now seven job posts. Jobs that require AI skills carry a 25% wage premium in some sectors. Furthermore, the skills sought by employers are changing at a 25% higher rate in occupations most exposed to AI.

From a talent perspective, everything workforce-related shows the usual thing—that employees are driven by compensation (their pay-package), which usually tops the list. Recently, however, work-life balance and flexible working have become increasingly important. When we've spoken to a lot of professionals in the market, we found that AI professionals are motivated by a distinct set of incentives compared to others. They tend to prioritize mission and purpose, engaging and challenging work, opportunities for professional development, and work flexibility.

Challenges in Recruitment and Talent Development

Al presents a completely new challenge to businesses. When we first entered the market and started recruiting for Al professionals, we generally expected it to be harder than it was. We actually found hiring the workforce we did in the timeframe to not be that challenging. This was largely driven by what we were offering as an organization.

We're a bit different. We're not just working on different pieces of innovation or different pieces of technology; we pride ourselves on the point of ethical AI and AI as a force for good. We found that the safe implementation of AI alongside innovation is one of the most pressing issues in the field.

When we started off as an organization, just like everyone else over the last few years, it's hard to think about wanting to hire or recruit within AI without understanding where your business stands. We have a workforce of just short of 6,000 people, but how do we know what AI skills are in that organization?

Strategies for Upskilling and Diversity

We recruited for years from different professionalisms and skills, and now, all of a sudden, AI is popping up, and we can't define exactly what AI skills are required. So how do we look at our own workforce and decide what we need? It's a real challenge for us. I think every organization is looking at that now, thinking about how to truly identify what skills they need in AI to bring in and how to empower recruiters to find that talent.

A good strategy for us was looking at similar sectors since we have a lot of cybersecurity and IT experts within our business. We've offered training programs to upskill that workforce to say, "Well, we don't quite have AI, but we could upskill in those areas." We've had real success there. We've also gone into the external marketplace, which, considering the points we've raised, was quite a challenge especially because we typically do not pay the highest salaries. The mission and purpose only go so far when big tech companies are offering large salaries, making it difficult to stay competitive.

To address this, we've launched an early career program. We need to grow that talent and engage with it while potential future employees are at universities. We've partnered with the University of Edinburgh and their Edinburgh Futures Institute, one of the leading institutions in AI, and we've received positive responses from students through internships focused on data ethics.

Focus on Diversity and Future Workforce

We've also tried to enhance diversity within our recruitment process. While it might slightly slow down hiring, we have implemented a staged approach to ensure that the job of my team of recruiters is to provide a diverse shortlist at every stage, giving hiring managers a diverse pool of candidates to choose from.

It's all about the right candidate. As long as diversity is present and we support our managers with unconscious bias training and empower them to make the right hiring decisions, we're confident that we will continue to build a high-performing team with diverse backgrounds, which is key in AI and having a good understanding of the ethical aspects involved.

I think something we've spoken about a lot is the training of people. I believe we're in a unique position with a multigenerational workforce. I generally don't believe there is a onesize-fits-all approach for how we train that workforce. We have people in the later stages of their careers who could very well become great AI experts if trained the right way.

When we think about training and upskilling, there is no single method that fits everyone. We need to consider offering diverse training options across the entire workforce. As an organization, we recently published a paper titled "Evolving together: Flourishing in the AI Workforce" and a key takeaway for policymakers, which I thought I'd share today, is that we need (I) tax incentives for employee well-being, (II) tax incentives for investment in training, (IV) subsidies for employing workers of various ages, and (V) investment in mental health support.



Addressing Workforce Concerns about AI

I think the last point is crucial. Many in the workforce will be concerned about how AI will affect their roles. If AI comes in and performs well, it might take over mundane tasks, leaving employees to handle the more complex parts of their jobs. This shift could make their day-to-day work more challenging. Thus, it's essential for employers to offer support to ease these transitions, ensuring that employees feel secure and valued.

As I mentioned earlier, we struggled to navigate some of these challenges, but I firmly believe that investing in the right education and training is vital. There is a growing demand for AI-related jobs, and we have opportunities ranging from apprenticeships to university degrees. However, we must not overlook the importance of soft skills as well.

Conclusion and Final Thoughts

We've seen many employers shifting their focus away from the necessity of traditional degrees, recognizing that some of the most innovative AI work is being done informally, without any formal education. Skill, creativity, and ingenuity can come from unexpected places, and we cannot undervalue that.

To sum up, we need a multifaceted approach to training and recruitment, one that focuses on ethical considerations, diversity, and skill development across all levels of the workforce. I look forward to continuing this conversation and exploring how we, as an industry, can tackle these challenges together.

Thank you very much for your attention.



Summary of Matthew Bone's Key Points

- Introduction
 - Matthew Bone, global head of talent acquisition at BSI (British Standards Institution).
 - Presents insights from a recruitment and talent perspective, not as an AI or governance expert.
- Response to Al Governance Needs
 - BSI has been addressing Al governance needs for two and a half years with a dedicated team of 65 professionals within talent acquisition.
 - Developed a suite of services including ISO 42,001 and training for organizations.
- Trends in Al Job Market
 - Al job postings are growing 3.5 times faster than all other job postings.
 - Jobs requiring AI skills offer a 25% wage premium in some sectors.
 - Skills sought by employers are changing at a rate 25% higher in Al-exposed occupations.
 - Al professionals value mission include purpose, work-life balance, and professional development – not only compensation through their pay package.
- Challenges in Recruitment and Talent Development
 - Initially found it easier to recruit AI professionals than expected due to BSI's unique offerings and focus on ethical AI.
 - Importance of identifying what AI skills exist within the current workforce of 6,000 employees.
- Strategies for Upskilling and Diversity
 - Addressed the challenge of defining required AI skills by looking at BSI's existing skill sets, such as cybersecurity and IT.
 - Launched training programs to upskill current employees in Alrelated areas.
 - Initiated an early career programme in partnership with the University of Edinburgh to engage potential future employees.
 - Collaboration with universities for companies like BSI is essential for future recruitment of graduates, particularly in light of rising salaries offered by technology industry which can be hard to match.

- Focus on Diversity and Future Workforce
 - Implemented a staged recruitment process to ensure diverse candidate shortlists.
 - Focus on providing unconscious bias training for hiring managers.
 - Advocates for tailored training methods for a multi-generational workforce.
- Takeaways from "Evolving Together: Flourishing in the Al Workforce"
 - Tax Incentives: Propose incentives for employee well-being and investment in training.
 - Subsidies: Suggest subsidies for employing workers of various ages to encourage a diverse workforce.
 - Mental Health Support: Emphasize the importance of investing in mental health support for employees.
- Addressing Workforce Concerns about AI
 - Recognizes potential concerns about AI displacing jobs; emphasizes the importance of employer support through transitions.
 - Highlights the need for a balance between Al-related job opportunities and soft skills training.
- Conclusion and Final Thoughts
 - Calls for a multifaceted approach to recruitment and training, emphasizing ethical considerations, diversity, and skill development.
 - Advocates for recognizing non-traditional pathways to skill development in the Al field.

BIOs of Evidence Givers



Alderman Professor Michael Mainelli FCCA FCSI(Hon) FBCS

Lord Mayor of the City of London 2023-24

Michael Mainelli was elected Lord Mayor of the City of London on 29 September 2023 and assumed office on 10 November 2023.

He previously served as Sheriff of the City of London from 2019 to 2021, making history by holding the role for an extraordinary second year during the Covid-19 pandemic, the first such occurrence since 1228. Educated at Harvard University and Trinity College Dublin, Michael earned his PhD from the London School of Economics, where he was also a Visiting Professor. He began his career as a research scientist in aerospace and digital mapping, creating the first commercial digital maps of the world. Michael joined the City of London in 1984, becoming a partner at BDO Binder Hamlyn and later Director of Ministry of Defence research in 1995.

In his career, he co-founded Z/Yen, the City's leading think-tank, which focuses on advancing society through finance and technology. Z/Yen is known for significant contributions such as the Global Financial Centres Index and the Global Green Finance Index. His extensive involvement in public service includes his role as Alderman for Broad Street, Trustee for the Lord Mayor's Appeal, and Professor & Life Fellow at Gresham College.

Michael's non-executive directorships include positions with an AIM-listed mining firm and the UK Accreditation Service. He has previously served in advisory and trustee roles for organizations such as Christ's Hospital, the Taoiseach of Ireland, and the International Fund for Animal Welfare. Deeply committed to the City's Livery, he has served as Past Master of the World Traders and is involved in numerous other Livery companies.

Michael is dedicated to maintaining the City of London's leadership in global finance and services, championing commerce, community, and charity.



Baroness Ruby McGregor-Smith CBE

Chair of the Institute for Apprenticeships and Technical Education (IfATE)

Baroness Ruby McGregor-Smith is Chair of the Institute for Apprenticeships and Technical Education (IfATE).

She was a non-executive board member of the Department for Education between December 2015 and January 2022.

Baroness Ruby McGregor-Smith was formerly the Chief Executive of the Mitie Group, a strategic outsourcing company, and was the first Asian woman to be appointed to such a role in the FTSE 250 or FTSE 100. Ruby has also been the chair of the Women's Business Council and a non-executive board member at the Department for Culture, Media and Sport.

She received a CBE for services to business and diversity in business in 2012 and was a created a life peer in 2015.



From left: Markus Anderljung (Head of Policy, Centre for the Governance of Al), Lord Taylor of Warwick, Prof. Ashley Braganza (Dean, Brunel Business School), Sarah Reynolds (Partner, EY Law), Tamara Quinn (Director - Data, Al & IP Knowledge, Osborne Clarke), Aled Owen (Global Policy Director, Onfido), Lord Ranger of Northwood, Viscount Camrose, Lord Clement-Jones, Yatin Mahandru (Head of Public Sector & Health, Cognizant), Matthew Bone (British Standards Institution - BSI), Professor Birgitte Andersen (CEO Big Innovation Centre), Lord Cromwell, Crossbench, Peter Fortune MP, Lord Craig of Radley, Ben Johnson (Co-Founder and CTO, Uptitude), Sulabh Soral (Chief Al Officer, Deloitte), Lawrence Turner (Founder, AMI Limited) and Daniel Wilson (Policy and Public Affairs Director, BT Group).

Yatin Mahandru (Center photo)

VP and Head of Public Sector and NHS, UK & Ireland Cognizant

Yatin Mahandru is Head of Public Sector and Health for Cognizant UK.

He leads a fast-growing business with a highly skilled team focused on digital transformation. His team collaborates across Government sectors, including health and defence, to deliver strategic, high-profile projects in data, AI, user experience, and cloud engineering. Since 2016, Yatin Mahandru has grown the business from the ground up, successfully implementing complex digital programmes for Health, Defence, and Central Government. He finds delivering for Government a continuously rewarding challenge, as does the dedicated Cognizant team that supports their clients.

Yatin Mahandru is committed to helping individuals from all backgrounds reach their full potential. Within Cognizant, this commitment is reflected in his advocacy for diversity and inclusion, where he focuses on building diverse, high-performance teams, expanding public sector talent pools, and increasing access for underrepresented groups. Beyond Cognizant, Yatin leverages his extensive leadership experience, gained through international roles, to mentor, coach, and advise both public and private sector organisations at the board level on growth strategies and technological innovation.





Matthew Bone

Head of Talent Acquisition at the British Standards Institution (BSI)

Matthew Bone is the Global Head of Talent Acquisition at BSI, where he leads the company's global AI talent strategy.

With over 13 years of recruitment experience, Matthew has a proven track record in industries such as Artificial Intelligence, Life Sciences and Oil and Gas. He has been instrumental in driving BSI's strategic hiring initiatives for the last three years, ensuring the organization attracts top-tier talent to meet its evolving needs.

Matthew is deeply committed to fostering a diverse Al talent community as part of BSI's purpose 'Impact for a fair society and sustainable world". He has recently launched BSI's "AI Talent Academy," an early years talent strategy developed in partnership with a prestigious university and a charity focused on providing higher education opportunities for from socio-economically students challenged This backgrounds. initiative showcases his dedication to help educate and equip tomorrow's talent; and influence the existence of a more diverse, inclusive, and equitable AI community.

Matthew's expertise enables him to identify and engage with high-calibre candidates, helping BSI maintain its competitive edge in the rapidly advancing technological field. His passion for nurturing diverse talent ensures that the pathways to success are accessible to all, and underscores his commitment to building a strong, innovative workforce.

ABOUT APPG AI



ABOUT:

APPGs are informal cross-party groups in the UK Parliament. They are run by and for Members of the Commons and Lords. The All-Party Parliamentary Group on Artificial Intelligence (APPG AI) functions as the permanent, authoritative voice within the UK Parliament (House of Commons and House of Lords) on all Al-related matters, and it has also become a recognisable forum in the Al policy ecosystem both in the UK and internationally.

Parliamentary APPG AI Members: House of Commons

- Allison Gardner MP Labour (APPG Al Co-Chair)
- Alison GRIFFITHS MP Conservative
- Andrew Pakes MP Labour
- Daniel Aldridge MP Labour
- David Reed MP Conservative
- Dawn Butler MP Labour (APPG AI Vice-Chair)
- Esther McVey MP Conservative
- George Freeman MP Conservative
- Gordon McKee MP Labour
- Graham Leadbitter MP SNP
- Liam Byrne MP Labour
- Mike Martin MP Liberal Democrat
- Martin Wrigley MP Liberal Democrat
- Peter Fortune MP Conservative
- Samantha Niblett MP Labour
- Tom Collins MP Labour
- Tony Vaughan MP Labour
- Sir Mark Hendrick MP Labour
- Zöe Franklin MP Liberal Democrat
- Dr Zubir Ahmed Labour

Parliamentary APPG AI Members: House of Lords

- Lord Clement-Jones (Tim Clement-Jones) Liberal Democrat (APPG AI Co-Chair)
- Viscount Camrose (Jonathan Camrose) Conservative
- Viscount Colville Of Culross (Charles Mark Townshend Colville) Crossbench
- Lord Craig of Radley (David Brownrigg Craig) Crossbench
- Lord Cromwell (Godfrey Cromwell) Crossbench
- The Earl of Erroll (Merlin Hay) Crossbench
- Lord Fairfax of Cameron (Nicholas Fairfax) Conservative
- Lord Freyberg (Valerian Bernard Freyberg) Crossbench
- Lord Strathcarron (Ian David Patrick Macpherson)
 Conservative
- Lord Janvrin (Robin Berry Janvrin) Crossbench
- Baroness Kramer (Susan Veronica Kramer) Liberal
 Democrat
- Baroness McGregor-Smith (Ruby McGregor-Smith) Nonaffiliated
- Lord Ranger of Northwood (Kulveer Ranger) Conservative (APPG AI Vice-Chair)
- The Lord Bishop of Oxford Stephen Croft Bishops
- Viscount Stansgate (Stephen Stansgate) Labour
- Professor Lord Tarassenko (Lionel Tarassenko) Crossbench
- Lord Taylor of Warwick (John David Beckett Taylor) Nonaffiliated (APPG AI honorary Vice-Chair)
- Baroness Uddin (Manzila Pola Uddin) Non-affiliated



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At least 6 Round Table Evidence Sessions. 4 Advisory Board Meetings. Special Policy Briefings.

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All events are held in the UK Parliament and chaired by the APPG AI Co-Chairs and the Parliamentarians.

Resources

Reports, transcripts, videos, and photo albums.



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Secretariat:

Big Innovation Centre is appointed as the Group's Secretariat.

The Secretariat is responsible for delivering the programme for the APPG AI, organising the outputs, advocacy and outreach, and managing stakeholder relationships and partnerships.

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HOLDING

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SECRETARIAT

Big Innovation Centre is appointed by the UK Parliament as the Group's Secretariat.



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