

The Institution of Engineering and Technology's position statement on AI

Al is influencing how businesses, industries and technologies operate now and in the future. However, evaluating the final product to ensure it is safe, effective and fit for purpose remains a key challenge preventing the progress of Al. There are standards recommending how products should be developed and how they should be handed over to the end user, but there is little standardisation that documents an assessment of the efficacy and safety of the product. This presents an opportunity for the UK to take a global lead in this area, if funding for Al was redirected to develop further standards for safety evaluation, as opposed to investing in other areas of Al that are less profitable and productive, such as Large Language Models (LLMs), that require a high input with little return.

Although the onus is on developers to prove that the product is fit for purpose and has no unintended consequences, further guidelines and standards around how this should be reported would support a regulatory environment that is pro-innovation and provides safeguards against harm. Furthermore, AI safety and the assessment of risk must go beyond the physical, to look at financial, societal, reputational and risks to mental health, amongst other harms.

There is concern over the lack of broader understanding and information surrounding AI, the data used to train the models and ethical considerations. AI has created a discussion around the ownership of data needed to train these algorithms, as well as the impact of bias and fundamental data quality in the information they produce. As AI spans every sector, it is imperative that regulation is coordinated, so there is consistency and clarity.

A survey taken on the use of AI highlighted that 29% of those surveyed had concerns on the lack of information around AI and lack of skills and confidence to use the technology, with over a quarter of people saying they wished there was more information about how it works and how to use it. (Source: Artificial Intelligence behind 3 times more daily tasks than we think)

The importance of AI stems further afield that the UK, countries across the globe are increasing their use of AI. The use of AI appears in the top three most selected changes made in Germany, India, China, Australia and the USA. (Source: International Green Skills Survey 2023)

Recommendations:

- 1. **Strategic investment in AI:** We need to assess where the UK is best suited to invest in AI technologies. LLMs and frontier models may no longer provide a good return on investment, we should begin to look at other strands of the AI cycle, such as: safety and risk management to support better regulation, our current AI technologies, and the next generation of AI technologies.
- 2. Al safety: The UK can be a leader in Al safety by developing a better, broader definition of safety and risks of an Al tool. There should also be tools and techniques that are available to Al developers that can help them prove they are safe and fit for purpose to regulators. We need to build on the standards of Al so they also cover how Al safety should be assessed and evidenced.
- 3. **International position:** There is potential for the UK to become a key international voice and should aim to position itself as the middle ground between the EU and

USA. The UK's most valuable position on the international AI spectrum would be to offer increased safety measures that also support innovation, which could then be followed by other global AI developers.

- 4. **Regulation**: It is critical that the appropriate legal and regulatory structures are in place to allow Al's safe development and use but also do not stifle innovation. It needs greater transparency around the training and operation of Al systems. This is especially relevant for publicly accessible large language models, like ChatGPT, which trains its models in part on user data. The government should establish firm rules on which data can and cannot be used to train Al systems and ensure this is unbiased as part of the new data centres outlined in the manifesto pledges.
- 5. **Harmonisation**: Practical solutions for safe AI should include a statutory duty on regulators to oversee AI use in their industries. AI spans so many different sectors and industries, it's imperative that regulation is harmonised. We recommend a regulatory oversight body is set up to co-ordinate guidance on good practice and deliver sanctions where misuse has occurred. This is necessary to ensure AI is used safely and to help prevent incidents from occurring, and it is fundamental to maintaining public trust, which underpins the economic and social benefits AI can bring.
- Cybersecurity and software vulnerabilities: These can occur accidentally due to a lack of awareness of what software code is doing. Cyber security needs to be (a) built into the curriculum for relevant disciplines and (b) needs to be reviewed as part of every board decision.
- 7. Skills: Lack of skills in AI is not only a safety concern but is hindering productivity and the ability to deliver contracts. As among employers that expect AI to be important for them, 50% say they don't have the necessary skills, 32% of employers reported an AI skills gap at technician level and 46% say that senior management do not understand AI (Source: Skills for a digital future summary). Therefore, proper training and skills means safer AI. Employers are telling us that there is a lack of skills in industry to take advantage of AI (Source: Skills for a Digital Future Survey 2023). To maximise the potential of AI, we need to see a suite of agile training programmes, such as short courses. While progress has been made with some government initiatives (funded AI PhDs, skills bootcamps), these do not go far enough to addressing the skills gaps that are starting to appear at the chartered / technician levels.
- 8. **Benefits**: Al has significant potential to support healthy ageing, the drive to net-zero and drug discovery amongst other things, but it must be properly regulated and supported. We recommend that the government set up a National Institute for AI and Ageing / AI and Drug Discovery to support R&D and collaboration across sectors. The COVID-19 pandemic highlighted how impactful collaboration across sectors, and countries, can be beneficial through the international collaboration over drug and vaccine development and delivery (Source: Artificial Intelligence for drug discovery)
- 9. Digitalisation: Compared to other countries surveyed, fewer UK firms have introduced new technologies in the past 3 years such as automation (18%), AI (17%), and high-performance materials (16%) to reduce carbon emissions. Employers are missing an opportunity on digitalisation and net zero. The government should make funding available for these courses to increase their reach, allowing employees to upskill / reskill in AI more easily.