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Department for Science, Innovation and Technology  
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## Written Evidence Submission on the AI Opportunities Action Plan

On behalf of the [Center for Data Innovation](#), we are pleased to submit this response to the Department for Science, Innovation and Technology (DSIT)'s new artificial intelligence (AI) Opportunities Action Plan ('the Action Plan').<sup>1</sup>

The Center for Data Innovation studies the intersection of data, technology, and public policy. Its mission is to formulate and promote pragmatic public policies designed to maximize the benefits of data-driven innovation in the public and private sectors. It educates policymakers and the public about the opportunities and challenges associated with data, as well as technology trends such as open data, artificial intelligence, and the Internet of Things. The Center is part of the [Information Technology and Innovation Foundation](#) (ITIF), a nonprofit, nonpartisan think tank.

### EXECUTIVE SUMMARY

AI presents a wealth of opportunity for the UK, not only as an economy boosting mechanism, but also as a tool for improving the lives of UK citizens. In this submission, we argue that AI adoption is key to the Action Plan, and that the government should take actions that can simultaneously support AI sector growth and AI adoption. Specifically, we make the following points:

1. DSIT should encourage businesses to use lightweight models that are less resource-intensive but can provide quicker, more widespread returns;
2. The UK government should invest in partnerships between industry and academia that facilitate technology transfer to commercialise AI R&D; and
3. The UK government should establish sector centres for AI adoption dedicated to supporting AI uptake within each sector.

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<sup>1</sup> Artificial Intelligence (AI) Opportunities Action Plan: terms of reference

## **DSIT SHOULD ENCOURAGE BUSINESSES TO USE LIGHTWEIGHT MODELS THAT ARE LESS RESOURCE-INTENSIVE BUT CAN PROVIDE QUICKER, MORE WIDESPREAD RETURNS**

First, the government should encourage businesses to use lightweight models that are less-resource intensive but can provide quicker, more widespread returns. The first goal of the Action Plan is to build an AI sector that can scale and compete globally. The biggest barrier for businesses scaling in the AI sector is infrastructure cost: model training and scaling is labour intensive, costly, and consumes significant amounts of energy. Indeed, one study predicts that by 2028, more than 50 percent of enterprises that have built their own large language models (LLMs) from scratch will abandon their efforts due to costs, complexity, and technical debt.<sup>2</sup> This would represent a huge loss in AI opportunity. To avoid this scenario and facilitate business AI adoption that is conducive to sustainable sector growth, the government should encourage businesses to make use of pre-existing, lightweight models.

To be clear, in terms of performance, state-of-the-art models should be the preferred choice for businesses. But for the purposes of increasing widespread AI uptake, lightweight models reduce the barriers to entry for a large proportion of businesses. Lightweight models are ideal for scaling and growth across sectors, as they offer significant benefits to a broad range of stakeholders. For a business to adopt AI, it needs access to performant models. As models improve in capability, they are becoming more expensive to train and run. One positive from this improvement is that companies don't need to use the latest model to reap the benefits, nor does a company need its own model to perform a company specific task. In fact, lightweight models can deliver impressive results for most tasks at a fraction of the upfront cost, and this approach benefits all stakeholders. It creates a lower barrier to entry for startups and smaller businesses looking to leverage AI with minimal resources. It allows more established businesses to focus their efforts on fine-tuning the pre-prepared model to fit their needs. And it leverages the research and development of general-purpose AI development companies who have the resources to build powerful, less compute-intensive models. Lightweight models are also more likely run on legacy infrastructure given that they take up less memory, which would support the third goal of the Action Plan to use AI in the delivery of public services.

Moreover, lightweight models are less affected by the “enablers of AI adoption” alluded to in the Action Plan (data, infrastructure, public procurement and regulatory reforms). They require less data, cost less to operate, and are already available under open-source principles, offering an immediate entry point that also allows for customisation.

In terms of broader growth, it is better to have a larger number of "good enough" AI-driven systems rather than a limited number of state-of-the-art AI systems. Therefore, if the UK wants to

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<sup>2</sup> Gartner, “Gartner Predicts Defensive Spend to Derisk IP Loss and Copyright Infringement Will Slow GenAI Adoption and Diminish Return”, March 13 2024.



democratise AI, it should look at the single key enabler tying together sector growth with AI adoption—lightweight models.

### **THE UK GOVERNMENT SHOULD INVEST IN PARTNERSHIPS BETWEEN INDUSTRY AND ACADEMIA THAT FACILITATE TECHNOLOGY TRANSFER TO COMMERCIALISE AI R&D**

Second, the UK should invest more heavily in partnerships that facilitate technology transfer to commercialise AI R&D. These partnerships create collaborative frameworks where research institutions and businesses work together to move innovations from the lab to the marketplace. Such a technique has already proven successful in the Midlands with [Midlands Innovation](#), a collective of eight regional research-intensive universities that pools resources and partners with businesses to bring innovation from R&D to the marketplace. The initiative supported the development of lab research into a commercially viable solution that now has more than £2.5 million in funding and employs 11 full time staff.<sup>3</sup>

Fostering such relationships within AI can accelerate the development and deployment of AI as R&D improves algorithmic performance, compute efficiencies, model architectures as well as novel AI applications. This ensures that cutting-edge research translates to the real-world. For example, the University of Surrey hosts the [Surrey Institute for People-Centred AI](#) and is number one in the UK for computer vision. Some of the Institute’s work includes building models to predict a patient’s risk of developing symptoms during chemotherapy, developing deep neural networks to enable cross-modal searches of video crime scene footage i.e., translating language into video, and fusing blockchain with AI to support content-provenance techniques.<sup>4</sup> Such research would greatly benefit from commercialisation which would be unlocked by partnerships with industry and regional businesses.

The government should incentivise the creation of these partnerships specifically for R&D of AI, such as by offering tax incentives to businesses who partner with research institutions, or by facilitating networking opportunities across the UK to bring industry and academia together. By leveraging the strengths of both sectors—public institutions’ expertise in research, and private companies’ capabilities to commercialise and scale—these partnerships can address pressing societal challenges while boosting the UK’s competitive edge in the global tech landscape.

Moreover, the UK government should prioritise research projects that demonstrate a level of commercial viability. Research institutions could achieve this by partnering with industry, demonstrating a clear IP strategy, or road-mapping a proof of concept for how this research may be applied in real-world applications. This approach not only promotes accountability but also ensures that public investments are directed towards projects with clear pathways to market. The

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<sup>3</sup> Midlands Innovation, “University spin-outs solving real-world problems; Interface Polymers”, March 25, 2023.

<sup>4</sup> University of Surrey, “AI for Health and Wellbeing”; “AI for Education, Information and Entertainment”; “AI for Society”



UK would benefit from incentivising researchers to consider the commercial implications of their work from the outset, thereby aligning academic pursuits with industry needs.

### **THE UK GOVERNMENT SHOULD ESTABLISH SECTOR CENTRES FOR AI ADOPTION DEDICATED TO SUPPORTING AI UPTAKE WITHIN EACH SECTOR**

Finally, the UK government should establish sector centres for AI adoption. The establishment of sector centres for AI adoption in the UK is crucial for driving innovation and enhancing competitiveness across various industries. These centres would serve as dedicated hubs for businesses, providing tailored support to overcome specific barriers to AI integration, and working with sector regulators to overcome regulatory hurdles.

For instance, a centre focused on healthcare could collaborate with stakeholders from the National Health Service and the private healthcare sector to identify challenges such as inadequate digital infrastructure and funding gaps. By addressing these issues head-on, the centre would facilitate a smoother transition to AI technologies, ultimately improving patient outcomes and operational efficiencies. In the financial sector, a dedicated AI adoption centre would play a pivotal role in navigating the complex regulatory landscape. This targeted support is essential, as it not only fosters a culture of innovation but also ensures that organisations remain compliant with evolving regulations. Additionally, in the manufacturing sector, a centre for AI adoption would address significant barriers to AI-driven automation by supporting technical skills initiatives for businesses.<sup>5</sup> By fostering a skilled workforce capable of implementing and managing AI technologies, these centres would enhance productivity and operational efficiency.

Each sector centre would champion the adoption of AI for its respective industry, advocating for tailored solutions that meet specific needs. This focused approach will not only encourage more widespread AI adoption but also ensure that businesses have the targeted support necessary to thrive in an increasingly digital landscape. As businesses gain confidence in their ability to implement AI, they are more likely to invest in transformative technologies that drive growth, and sectoral centres can be the focal point to build this confidence.

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<sup>5</sup> MAKE UK, "Industry Risks Falling Behind on AI and Automation as Competitors Steal a March", October 30, 2023.