

AI Adoption Plan: Life Sciences

 [gov.uk/government/publications/ai-champions-ai-adoption-plans/ai-adoption-plan-life-sciences](https://www.gov.uk/government/publications/ai-champions-ai-adoption-plans/ai-adoption-plan-life-sciences)

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A report by Dave Hallett, AI Champion for the Life Sciences sector.

Opening Statement

The window for the UK to be a leading light in the AI-driven life sciences revolution is not closing in 10 years - it is closing right now.

The global race is fierce. The US is pouring hundreds of billions into frontier tech, and European neighbours are rapidly building state-backed compute hubs. The UK cannot rely on the reputation of the “Golden Triangle” or our historic legacy from Turing to Crick and Watson. If we do not accelerate our adoption of AI across drug discovery, clinical trials, and diagnostics, the UK will be relegated from a global powerhouse to a secondary consumer of foreign technology.

The consequences of delayed adoption? Sit back and watch China (and a few other places) eat our lunch. Seriously. Every month we hesitate is a month where global venture capital redirects to Boston or Singapore. Every delay in adopting AI in our laboratories means a patient waiting longer for a life-saving therapy. The West will never compete on cost any time soon. But through continued innovation we can compete in both productivity and real world impact. We have the science, we have the data, and we have the sovereign compute. Now, we need the urgency. Let’s build the future of medicine right here in the UK, and let’s do it today.

Our opportunity

I think it is fair to state that the hype surrounding AI’s transformational potential in modern life sciences is still to be fully realised: for example, the end-to-end delivery of marketed, transformational drugs whose mechanisms were first suggested by AI, whose modality was designed by AI (and whose manufacture and clinical development were optimised using AI) all with minimal use of animals. However, many individual (and transformational) components do exist today and are in routine use by research teams (e.g. AlphaFold). It is our task to improve, integrate and exploit these. But productivity benefits don’t just come from Nobel Prize winning advances in protein structure determination. When prompted well, large language models such as Claude, Gemini etc are fantastic research assistants.

Integrating a Google workspace with the many AI-enabled tools now available and utilising agents to drive orchestration and support decision making truly multiplies and enables humans by removing toil. Real world applications at my company range from routine IT support, to coaching tools to hypothesis generation in drug design. Ignore at your peril. Embrace and see the benefits. The transformational unlocks will follow.

Dave Hallett, Life Sciences AI Champion

AI and the Future of UK Life Sciences: From Opportunity to Transformation

How accelerated AI adoption could transform drug discovery, clinical research, and healthcare delivery

The integration of AI within the Life Science sector is being heavily explored, due to its potential to revolutionise the way in which therapeutic products are developed, manufactured and tested. We are at the precipice of a period of significant change, and it is essential that we are seizing the opportunities that come with this and adapting our Life Science infrastructure and talent pool to meet these opportunities head on.

A number of barriers prevent us from reaching our full potential within this space. This includes:

- limited existence and fragmented access to AI ready- health datasets
- a compute bottleneck, with demand for AI compute resource and storage currently outstripping supply
- an interdisciplinary talent shortage - the UK has world-class biologists and world-class AI engineers but need 'bilingual' researchers who can navigate both worlds

A significant barrier around lack of public trust could also emerge. This has been highlighted by recent events such as the UK Biobank data leak and the ongoing controversy regarding Palantir's contract with the NHS.

However, the rewards from AI use within the Life Sciences could be great. The [AI for Science Strategy](#) outlines the significant opportunities AI use presents for health, from tackling chronic disease, responding to antimicrobial resistance (AMR), and developing breakthroughs in rare and new diseases.

R&D: “Discovery by Design”

The traditional drug discovery process is artisanal, slow, expensive, and the default setting is failure. Accelerated AI adoption will flip this script entirely. Instead of spending years identifying a single disease-causing protein, researchers will use predictive AI models to evaluate millions of cellular targets in minutes. The end of the “trial and error” lab,

Generative AI is designing entirely novel, optimized molecules from scratch - predicting their efficacy and toxicity before they are ever synthesised in a physical lab. The UK (not just the Golden Triangle) will evolve into an automated hub where AI-driven biotech startups spin out with regular cadence, attracting global venture capital.

Clinical Trials: Faster, Safer, and More Diverse

The UK should be pioneering a clinical trial revolution, making the evaluation of life saving medicines radically more efficient.

- **Synthetic control arms:** By utilizing historical patient data and advanced machine learning, we can create “digital twins” of patients. This reduces the number of human participants needed for a control group, slashing trial costs and moving therapies to patients faster.
- **Intelligent Recruitment:** AI algorithms can (and will) seamlessly scan NHS databases (with strict privacy and consent frameworks) to instantly match eligible patients with cutting-edge clinical trials, ensuring diverse and representative cohorts.

Proactive Healthcare

Early diagnosis to drive better outcomes. In the NHS of the future, AI acts as the ultimate force multiplier for our world-class healthcare professionals, shifting the focus from treating illness to extending health span. AI-powered diagnostics will become the standard of care. Radiologists and pathologists will be supported by co-pilots that flag anomalies (like early-stage tumours or cardiovascular risks) with near-perfect accuracy years before symptoms appear.

Hyper-Personalized Medicine

The phrase “one size fits all” already belongs to history. A patient’s treatment plan will be uniquely tailored to their genomic profile, lifestyle, and environmental factors, calculated by AI to ensure maximum efficacy and zero side effects.

Curing the Administrative Burden

By automating documentation and clinical coding, AI will give doctors and nurses their most valuable asset back: time to spend with patients.

Economic Growth and Global Leadership

Accelerating AI adoption is an economic engine for the UK. Global pharmaceutical and tech giants will return to the UK as major R&D hubs because our AI-integrated NHS offers the cleanest, most secure, and most actionable health data insights in the world. In addition, the Medicines and Healthcare products Regulatory Agency (MHRA) will be

recognized globally as the smartest, most agile regulator of AI-driven medical devices, setting the benchmarks that the rest of the world copies.

A review of AI Adoption in UK Life Sciences

Adoption is accelerating but remains fragmented across firms, regions, and use cases—highlighting critical barriers in data access, compute, talent, and capability.

Adoption rates – how widely AI is currently used across the sector

AI is revolutionising the Life Sciences sector across research, diagnostics, treatment, and manufacturing, reshaping how we prevent, treat, and manage disease. [ONS data from a December 2025 survey found that 48.4% of sector respondents used AI technologies.](#) [\[footnote 1\]](#)

Patterns of adoption – how this varies by firm size, sub-sector, region, or maturity.

According to the Wellcome [‘Unlocking the potential of AI in drug discovery’](#) report, AI is increasingly used to:

- accelerate drug discovery
- automate genomic analysis
- improve diagnostic accuracy
- streamline production processes in pharmaceutical and biotech environments

Regarding AI use in drug discovery, [research by the Wellcome Trust](#) found that:

- despite the increasing investment and research activity in developing AI tools, research by Wellcome found that adoption lagged, with less than a third of industry survey respondents using AI routinely
- overall, industry drug discovery efforts are more likely to be systematically deploying AI approaches today versus academia where adoption varies widely and is typically focused on open-source tools
- even within industry, there is a wide spectrum with adoption led by ‘AI-first’ biotech who have built their R&D workflow and value proposition around AI tools, and some pharmaceutical companies who are pioneering AI in drug discovery

Barriers to adoption – e.g. data, cost, regulation, procurement, risk, skills, culture etc.

- **Data challenges** - science remains hindered by fragmented, 'non-AI-ready' data. High-quality biological data lacks the standardized metadata required for machine learning. Historical data, whilst plentiful is either not fit for model building or requires extensive (and expensive) data wrangling. Health data is also fragmented and hard to access. The Health Data Research Service has been set up to address this but will take considerable time to make a significant impact. Toxicological data (and other data on drug candidate performance) is also held by private entities and constitutes significant intellectual property. As a result, sharing is limited, even within companies. There is also the problem of 'dark data'. The scientific data landscape is characterised by enormous quantities of unpublished experimental results, details of experimental setups, non-machine-readable data or negative experimental results and it is vital that we unlock the potential of this data for machine learning.
- **Public trust** – There are particularly issues around public trust with respect to life sciences and health data. Common themes include the perceived lack of value proofs in drug discovery and overall uncertainty about AI in general, and what rapid advances in AI could mean for science and wider society. UK citizens are also wary of how their health data is used and public engagement is essential in any health data project.
- **Application** – challenges are particularly acute for those applying AI to commercially less attractive therapeutic areas and for LMIC researchers looking to harness AI. Lack for commercial potential can limit data generation and the application of key tools – with the potential for AI to amplify disparities in health research.
- **The Compute Gap** - Despite the launch of Isambard-AI and Dawn, a compute shortage persists. Demand for AI compute resource and storage currently outstrips supply. Frontier AI models require specialized 'AI Supercomputing' (GPUs). The innovator route for compute access is highly competitive, leading to significant waiting times for access amongst researchers and SMEs. In addition, there are more complex questions around the best access models, the best way to utilise compute downtime, and what architecture of compute we need for different types of challenges.
- **The Interdisciplinary Talent Shortage** – the UK has world-class biologists and world-class AI engineers but need 'bilingual' researchers who can navigate both worlds, and there is a missing middle of machine learning engineers and data stewards – people who can build and maintain rather than just design new foundation models.

Capabilities and skills – workforce readiness, skills gaps, management capability etc

- The sector has an urgent need for technical [AI](#) skills in areas such as:
 - computational biology
 - bioinformatics
 - robotic process automation
 - [AI-supported diagnostics](#)
- Alongside these, there is growing demand for non-technical [AI](#) skills, including:
 - the ability to interpret [AI](#) model outputs
 - communicating findings across interdisciplinary teams
 - embedding [AI insights into strategic decisions](#)
- Responsible and ethical [AI](#) skills are becoming increasingly important. These include:
 - transparency in data use
 - understanding algorithmic bias
 - [compliance with regulatory frameworks](#)
- These are particularly important for patient data, clinical trials, and personalised medicine.
- Life Sciences employers face persistent skills mismatches and workforce gaps. Smaller firms, which make up the majority of UK Life Sciences sites, often struggle to access training that is tailored to their specific roles and operational models. Existing provision is often designed around long-form degree qualifications, which are poorly suited to technicians, mid-career professionals, and time-constrained [SMEs](#). This is compounded by barriers such as limited access to specialist [AI](#) trainers and unclear guidance on emerging standards.
- In order to support [AI](#) adoption across the Life Sciences sector, there is a need for more flexible and accessible professional development pathways, while targeting modular training that aligns with evolving job roles. Scalable apprenticeships and short courses covering [AI](#) applications in research, Advanced Manufacturing, and regulatory settings would support both new entrants and existing staff. Industry collaboration, including coordinated efforts between employers, training providers, and public agencies, will be essential to build capacity and promote inclusive growth.

Where adoption is patchy – groups or use cases where uptake is notably low.

- Private funding is skewed towards the most commercially tractable therapeutic areas with ~70% of [AI](#)-related investments in the last five years being made in oncology, neurology, and COVID-19, suggesting that uptake is low amongst less commercially tractable therapeutic areas.
- While large firms and research centres are embedding [AI](#), smaller companies and regional clusters often struggle to access the skills, infrastructure, and training required to benefit.

- [Private sector funding for AI-related drug discovery](#) efforts is almost exclusively flowing to high-income countries (HICs) and China.

Workforce impacts – how AI adoption is affecting workforce size, job roles, skills requirements, productivity, displacement and any implications for future workforce.

Workforce size

- [Wellcome reports](#) that experts believe AI will not replace the role of experienced drug discovery scientists but rather enhance it by allowing scientists to focus on higher-value and more varied tasks – however, this remains hypothetical whilst AI uptake grows and develops. [The OECD estimated](#) that approximately 45% of the tasks in the pharmaceutical sector are exposed in an “expanded capabilities” scenario - the twelfth highest of the 45 sectors estimated. [\[footnote 2\]](#)
- Within this space, there is the need for radical candour: we cannot and should not say that “AI won’t take any jobs.”
- We need to be completely honest about what is disappearing: routine, transactional, and highly repetitive data tasks will fade away. The days of manually cross-referencing massive spreadsheets of clinical trial data, logging routine lab samples, or manually drafting standard regulatory compliance forms are numbered. AI can do this faster and should reduce administrative burden freeing the workforce from the soul-crushing part of their workload
- The reality is that we are facing a workforce shortage in the UK life sciences. The [Life Sciences 2030 Skills Strategy](#) showed the sector needs >100,000 new and replacement workers. AI is not replacing our workforce; it is a pressure valve that will prevent our existing workforce from burning out while scaling up our capacity to save lives.

Skills requirements

- AI adoption is likely to increase demand for interdisciplinary talent that combines life sciences expertise with data, computational, and AI capabilities. This includes computational biologists, bioinformaticians, machine learning engineers, data stewards, and regulatory specialists able to work across scientific and digital disciplines.
- Smaller firms may face particular challenges adapting to these changes due to more limited access to specialist AI skills, training provision, and compute infrastructure.
- As AI adoption grows, there may be increasing demand for modular and mid-career training pathways that enable existing workers to develop AI literacy and applied technical skills alongside domain expertise.

- AI could reduce the reliance on lengthy and expensive experiments and direct experimental efforts to areas with greatest impact (e.g., focusing target validation efforts on predicted disease relevant targets), or in other cases replacing experiments entirely (e.g., virtual compound screening). These approaches can help researchers to “fail faster” and evaluate a broader range of targets or therapeutic compounds before progressing to experimental testing. Additionally, AI could improve the likelihood of discovering a successful therapeutic.
- AI could also adjust the drug discovery workflow. Traditionally, different teams have been responsible for each of the steps across the value chain. AI provides the opportunity to amalgamate these steps into one, streamlined – and potentially fully automated – process, reducing the need for in process decision making.
- Early modelling suggests that AI driven R&D efforts from discovery up to pre-clinical could deliver time and cost savings of at least 25-50%.

Economic potential of AI

[The OECD identified](#) that over the next decade, high levels of AI adoption could lead to total factor productivity gains exceeding 6% in the pharmaceuticals sector. [\[footnote 3\]](#)

The Direction of Travel: How AI Adoption is Evolving

AI is moving beyond basic applications into advanced drug discovery, diagnostics, and automated research, though evidence of widespread clinical impact is still emerging.

[ONS surveys](#) found that, of life science sector respondents that use AI technologies, ‘text generation using large language models’ was highest use (28.4%) followed by ‘data processing using machine learning’ (19.7%). [\[footnote 4\]](#)

Within the life sciences, AI has particularly profound implications within its potential to accelerate drug discovery and the development of medical diagnostics. AI is presenting opportunities to solve challenges at many stages of the drug discovery process, drastically shortening timelines to developing new treatments. These opportunities range from using foundation models to search enormous spaces of drug-like chemicals to identify drug candidates, to performing ‘in silico’ clinical trials that anticipate human responses earlier and compress development timelines.

Novel developments in AI, such as the development of Google’s Alpha-Genome model, offer further hope that genomic medicine will advance as our ability to understand genetic effects on health improves and the data analysis for personalised medicines becomes possible to automate. There are broad ambitions to use AI more widely to advance medical science; for example, the government’s [AI for Science strategy](#) has a target to “Use AI to accelerate drug discovery to develop trial-ready drugs within 100 days by 2030 and

contribute to deploying new treatments faster.” But translating the cutting edge of medical science into routine patient delivery in the NHS remains a challenge.

We are also moving towards what is referred to as ‘closed loop’ discovery, in which heavily automated and integrated laboratories - like those already pioneered in Liverpool - conduct hundreds of experiments autonomously, generating data, learning from each failure in real-time without human intervention.

Although there are significant opportunities, more innovative AI activity is still largely still in early diffusion, but this varies across the sector.

In tandem, simple implementations of “tools” are being utilised to improve employee wellbeing within life science companies. For example, internal corporate processes like employee check-ins and reviews can be streamlined and improved using AI products such as Slack and Nadia, providing employees with more time to carry out key tasks rather than administrative processes.

Frontier use cases

The life sciences sector is large, so it is difficult to identify the highest impact use cases reliably. However, there is significant interest in using AI combined with genomics and healthcare data to identify potential druggable targets causally related to disease. In addition, AI toxicology models could significantly reduce the use of animals and minimise wastage in the drug development pathway by eliminating toxic molecules early. In both cases, this reduces the costs and time for drug development, driving growth and, in principle, reducing healthcare costs to the NHS.

Evidence gaps and priorities

Drugs developed through AI approaches are only now entering the clinic – this will be a critical test of whether these drugs can improve on standards of care. In addition, it will also indicate whether these drugs have a higher probability of clinical success – it is this improvement that will deliver the biggest impact and step change in the economics of R&D.

Existing policies

This section highlights current initiatives enabling AI adoption across the life sciences sector.

Genomics

- AI is already accelerating the interpretation of genomic data and revealing insights otherwise impossible through manual analysis, in areas such as variant interpretation and identifying patterns in complex datasets. The high quality, well governed datasets established through Genomics England, Our Future Health and UK Biobank provide a strong basis for exploring these tools responsibly.
- The National Genomic Research Library (NGRL), run by Genomics England, already supports work with advanced analytical tools and AI-driven pipelines as part of ongoing cancer and rare condition research. For example, Google DeepMind developed **AlphaMissense**, an AI tool that predicts whether specific genetic variations are likely to cause disease, and Genomics England tested and validated these predictions against variants with known disease classifications, confirming that it offers a powerful new way to interpret genomic data for NHS patients. The model provides clinical scientists with an additional layer of evidence, to interpret clinically relevant genetic variants and will enable faster, more accurate diagnosis and treatment insights within the health service.
- Genomics England have also established a collaboration combining the NGRL with InstaDeep's AI models and bringing together multi-disciplinary experts to explore high-impact applications. This includes using AI to help identify what type of cancer an individual has where its original location is unknown, as well as assessing treatment responses through multimodal approaches by integrating genomic sequences with histopathology.
- **UK Biobank** is the largest biomedical database and research resource of its kind in the world, containing anonymised genomic and health information from 500,000 participants. It is accessible to researchers around the world, supporting research into common and life-threatening diseases. It is increasingly being used to develop innovative AI methods, such as Moorfields Eye Hospital using AI applied to eye measures to detect early signs of systemic diseases like Parkinson's, Alzheimer's and heart disease.

Life Sciences Sector Plan

The Life Sciences Sector Plan (LSSP) recognises the value of AI within the Life Sciences sector and commits to support Techbio companies across its three core pillars.

- **Enabling World Class R&D** – significant R&D investment across UKRI and NIHR in AI and related areas, while the HDRS will make the UK's health data safely and securely available at unprecedented scale.
- **Making the UK an Outstanding Place in which to Start, Grow, Scale, and Invest** – the Government will invest in bespoke Life Sciences AI skills programmes and explore opportunities for strategic partnerships with TechBio firms.

- **Driving Health Innovation and NHS Reform in England** – extensive work to [improve the regulatory environment and speed of uptake of TechBio](#), including MHRA capitalising on its thought leadership and reputation in AI and Software as a Medical Device to be the fastest, safest, and quickest place to regulate AI and Software.

[AI for Science Strategy](#)

Mission 1 within the strategy focuses on accelerating drug discovery to develop trial-ready drugs within 100 days by 2030 and contribute to deploying new treatments faster. Actions as part of this Mission:

- The Regulatory Innovation Office is working with the MHRA to ensure that regulators have the capabilities to safely evaluate proposals to use AI-derived evidence of drug interactions with the body within the regulatory pathway.
- Make binding affinity far more predictable, to help scientists choose and design drugs that work better with fewer off target effects. [DSIT has invested £8 million in the 'OpenBind' consortium, based at Diamond Light Source](#), that is using breakthrough experimental technology to generate the world's largest collection of metadata-rich data on how drugs interact with proteins.
- Explore ways to improve models of developability, including immunogenicity and ADMET (absorption, distribution, metabolism, excretion and toxicity), to accelerate lead optimisation and preclinical testing - including a £30 million investment in a new preclinical translational research hub to bring together data, cell engineering, genomic technology, and expertise to develop new in vitro and in vivo models.
- Look to provide scientific teams with funding and largescale compute access via AIRR to conduct AI R&D across these opportunities. This will seek opportunities to close critical data gaps that will enable breakthrough progress in these opportunity spaces.
- The new Health Data Research Service (HDRS) will support these interventions and other mission-critical advancements in drug discovery. Backed by up to £600m of investment from HMG and The Wellcome Trust, HDRS will provide a single access point to large-scale health data assets from multiple sources. It is for the newly appointed HDRS leadership to define the exact scope and direction of HDRS, however as per the Life Sciences Sector Plan, HDRS should aim to unite genomic, diagnostic, and clinical data at population scale - turning the NHS and wider healthcare data into a magnet for global trials and AI investment.

Six interventions to support AI adoption within the Life Sciences

Intervention 1: Potentially significant reductions in the use of animals in preclinical toxicology within 5 years

Background: There are many efforts to expedite pre-clinical drug discovery, for example Mission 1 of the AI for Science Strategy: we will accelerate drug discovery to develop trial-ready drugs within 100 days by 2030 and contribute to deploying new treatments faster. If we achieve this, we will create a bottleneck as we drive into the wall of necessary regulatory testing which today requires extensive use of rodent and non-rodent species to assess safety before human testing. Human-focused non-animal methods (including AI and machine learning approaches) offer exciting opportunities to replace animal tests with more-physiologically relevant approaches making pre-clinical development more effective and efficient. These methods need to be scientifically validated and robust and then accepted by regulators.

This work should be aligned and complimentary to the [‘Replacing animals in science strategy’](#)

Recommended policies:

- Launch a competition to lead formation of a new research programme committed to delivering on the first AI for Science Mission. The successful team will be supported by substantial DSIT funding and compute access via the AI Research Resource. Successful applicants will also be expected to attract additional investment from industry or the third sector.
- Further leveraging the Translational Medical Research Hub (commitment in the Life Sciences Sector Plan) and the UK Centre for the Validation of Alternative Methods (commitment in Replacing animals in science strategy) to establish a “Human-Centric Research Hub”
- Unite the top-tier scientific institutes (e.g. The Francis Crick Institute, the Wellcome Sanger Institute, and the Ellison Institute of Technology) under a single mandate. Create a national consortium that pools data from Organ-on-a Chip (OOC) technologies, induced pluripotent stem cells (iPSCs), and complex 3D organoids. The Alan Turing Institute would lead the “Virtual Human” project—using AI to integrate data from these physical human models into a predictive digital twin for drug testing.
- Arrive at a point where the MHRA officially accepts human-centric data as a stand-alone justification for Phase I clinical trials, removing the requirement for “two species” testing (noting that this currently descends from international regulations).
- Financial Re-Engineering – consider the financial levers to drive testing away from animal methods and towards alternative methods.

Intervention 2: Ensure delivery of NHS “Data-to-Discovery” Trusted Research Environments (TREs).

- **Background:** Health and omics data is increasingly fundamental to the development of new medicines, medical technologies, and diagnostics. The UK is uniquely positioned in its health data assets (tens of millions of detailed records from an ethnically diverse population) and national whole genome sequencing service unique in scale. The recent government decision to enable consented cohorts (such as GEL, OFH and UK Biobank) access to GP records is a breakthrough, but we need to industrialize this for the broader sector.
- **Proposal:** Deploying a national network of Federated AI TREs would allow researchers to run models on NHS data without the data ever leaving the secure environment. This could unlock the UK’s unique longitudinal health records—the “holy grail” for AI drug discovery—while maintaining the highest level of patient trust. It would allow for the creation of Digital Twins for clinical trials at a national scale, potentially cutting Phase II trial durations by 30%.

Health Data Research Service – commitment in the Life Sciences Sector Plan

- The above proposal should be aligned with the Health Data Research Service (HDRS), which will build on the NHS Research Secure Data Environment Network, enabling safe and secure access to health and care data for research. HDRS will act as a single point of access to health data from multiple sources.
- There has been a wide programme of engagement with health data stakeholders to inform the development and delivery of HDRS, this has utilised existing Government led Public and Patient Involvement and Engagement (PPIE), and sector specific fora and engagement with partners from across the devolved administrations.
- It is for the newly appointed HDRS leadership to define the exact scope and direction of HDRS, however as per the Life Sciences Sector Plan, HDRS should aim to unite genomic, diagnostic, and clinical data at population scale - turning the NHS and wider healthcare data into a magnet for global trials and AI investment

Intervention 3: Ensure the Sovereign Compute infrastructure delivers.

- **Background:** This focuses on growing access to high-performance computing (HPC) and treating HPC like we would a public utility. While the 2026 upgrades to the DAWN supercomputer are a start, SMEs still struggle with the “compute tax” that stifles innovation.

- **Proposal:** Complete the creation a dedicated AI infrastructure specifically optimized for biological large language models (bLLMs). By providing subsidised, “ready-to-code” compute environments for UK-based startups, we ensure that the next Isomorphic Labs or Exscientia stays and scales in the UK rather than migrating to US-based hyperscalers. It turns the “AI for Science” strategy into a tangible competitive advantage.

Intervention 4: Protect and support the workforce

- **Background:** there is widespread and understandable concern regarding the protection of jobs in the face of AI development and adoption. Unions are rightly concerned by “algorithmic management” - systems that monitor, judge, or terminate workers without human intervention. We need to ensure that the workforce is protected through frameworks and educated sufficiently to engage with and benefit from the adoption of AI within their workplace.
- **Proposal:**
 - Worker protections: we should champion frameworks - like those proposed in the TUC’s AI initiative – to ensure that no workers face automated redundancy or disciplinary action derived solely from a “black-box” algorithm.
 - The “Human-in-the-Loop”: We need a pro-workforce plan that establishes a national “Human-in-the-Loop” Framework for UK life sciences. Whether it’s selecting a drug candidate, flagging a quality control issue in manufacturing, or evaluating worker performance, the final accountability, ethical judgment, and execution will always rest with a human professional.
- More radically, we could actively encourage all life sciences employers - from major pharma to NHS linked research labs - to sign formal Workplace Technology Agreements with their unions before scaling AI systems. Such an agreement could include the following:
 - **Early Consultation:** Unions must be brought to the table during the pilot phase of an AI tool, not after it’s bought and deployed.
 - **Algorithmic Transparency:** Employers must explicitly disclose what data the AI is using, how it monitors workflows, and ensure it complies fully with UK GDPR and human rights standards.
 - **Redeployment Over Redundancy:** If an AI tool reduces the need for manual data entry by a percentage, that employee’s remaining time must be structurally allocated to higher value research, patient care, or internal upskilling - not redundancy.
- This should shift the sector view to see AI as a tool. We need to work together to ensure AI handles the grunt work, while AI-multiplied humans handle the science, the ethics, and the care.

Intervention 5: Lead a national 'Upskills' pact

- **Background:** The UK has an excellent talent pool in both bio-medical sciences and AI sciences – however, these 2 areas of studies are often siloed, despite the need for interdisciplinary talent as AI use in the Life Sciences grows. Instead of companies laying off workers and hiring expensive external data scientists, we should invest in our people. We already have the domain expertise. If we teach a lab technician how to prompt and manage an AI-driven robot, they become an amplified researcher.
- **Proposal:** We could (should) establish 3 tiers of funded, union-approved training:
 - AI Literacy. For all staff to understand what AI tools are doing in their workspace
 - Intermediate Deployment. For workers directly collaborating with AI platforms in clinical trials or manufacturing.
 - Advanced Oversight. For workers transitioning into governance, compliance, and data-auditing roles.
- In tandem, we should build awareness across universities, industry, and skills bodies to encourage the integration of AI skills into Life Science degrees and training pathways. Industry leaders could support through internships, and collaborative training programs providing students with the exposure to AI use in drug development and professional development.
- This proposal would support development of the interdisciplinary “hybrid” workforce increasingly required across the Life Sciences sector and aligns with Jobs Plans being developed across each of the JS&S sectors and construction, where AI adoption, workforce transition, and future skills requirements are being explored as important themes.

Intervention 6: Encourage the implementation of simple AI tools with Life Science companies, with the intention of improving day-to-day working

- **Background:** Like every industry, Life Science companies can benefit not just from innovative AI use, but also from the implementation of simple workplace tools. For example, tools like Slack and Glean can auto-generate employee quarterly check-ins and search and summarise what is internally known about a topic, boosting productivity and providing employees with more time to focus on their tasks.
- **Proposal:** Continue to keep these simple tools in conversations with Life Science sector companies, highlighting their role in increasing productivity and streamlining processes alongside the more innovative models that (fairly) take up a lot of the conversation.