

Data regulation in the age of AI and other data-intensive technologies: a call for evidence by the Department for Science, Innovation and Technology

About the IET

The IET is a trusted adviser of independent, impartial, evidence-based engineering and technology expertise. We are a registered charity and one of the world's leading professional societies for the engineering and technology community with over 156,000 members worldwide in 147 countries. Our strength is in working collaboratively with government, industry, and academia to engineer solutions for our greatest societal challenges. We believe that professional guidance, especially in highly technological areas, is critical to good policy making.

Executive Summary

AI spans many different sectors and industries, bringing both benefits and risks, so it is imperative that regulation is harmonised. AI is influencing how businesses, industries and technologies operate now and in the future. It is important that regulation and legal parameters work in practice, in harmony with industry and innovation. IET research shows that 6 in 10 engineering employers are using AI across sectors, with 61% of those saying that in the next 5 years it will support productivity and 40% say it will increase profitability. It is going to be increasingly important to ensure AI is safe, effective and fit for purpose. ([UK Engineering and Technology skills survey](#); IET, 2025).

Although the onus is on developers to prove that the product is fit for purpose and mitigates 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. There are already standards that provide a good basis for the deployment of AI, including the EU AI act, as well as the professional standards published by the ISO, and GDPR which should be consulted and applied where appropriate. 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.

Further, it is important that organisations have a robust, continually maintained and evolved data strategy, which accounts for the evolving and differential nature of AI. There needs to be a differentiation between data and information, as well as clearly defined roles and ownership within organisations.

Recommendations

Standards and transparency: The EU AI act, along with the professional standards published by the ISO, and GDPR provide a good basis for the deployment of AI, these should be consulted and applied where appropriate. Suitable legal and regulatory structures should be in place, and under constant review, to allow AI's development without stifling innovation. The UK can be a leader in AI safety by developing a better, broader definition of safety and risks of an AI tool. Furthermore, to improve transparency and understanding, the UK should champion the use of the Responsible Handover of AI Framework. The UK should be continually striving to improve standards in this area.

Harmonisation: Standards should be harmonised across sectors and reviewed regularly as there is significant overlap between remits of regulators. This would be supportive of innovation rather than restrictive, with coordinated oversight to ensure consistency.

Regulation: The government should establish firm rules on which data can and cannot be used to train AI systems – and ensure this is unbiased as part of the new data centres outlined in the manifesto pledges.

Data Strategy: Organisations must have a robust, continually maintained and evolved data strategy, which accounts for the evolving and differential nature of AI. There must be a differentiation between data and information, as well as clearly defined roles and ownership within organisations.

Theme 1 - Accessing and using data

There is concern over the lack of broader understanding and information surrounding AI, the data used to train the models and broader ethical considerations. There is no one single model that ensures appropriate accountability and oversight, it must be context specific. Although, there are key themes that should be considered, for example, a constantly evolving data strategy within businesses and clearly defined roles and accountability. AI has created a discussion around the ownership of data needed to train algorithms, as well as the impact of bias and fundamental data quality in the information they produce, which can also be applicable across non-AI based systems. The National Data Library plays an important role in ensuring access to high quality data for training purposes, it should be supported and expanded particularly to support innovation in AI.

As AI spans every sector, it is imperative that regulation is coordinated, so there is consistency and clarity, particularly regarding data and AI training. Existing frameworks, including the EU AI act, ISO professional standards, and GDPR provide valuable guidance for AI implementation and should be applied where appropriate.

Regulatory and legislative measures should evolve alongside technological developments to enable innovation while maintaining necessary safeguards.

Theme 2 – Data quality, accuracy and downstream impacts

The development, deployment and impact of AI cuts across traditional regulatory boundaries, creating an interconnected landscape where decisions taken by one regulator can have significant implications for others. Issues, such as safety, cybersecurity and data governance, arising from systems that span multiple sectors. A systems thinking approach will assess interdependence between sectors, for example, via a systems analysis exercise which will highlight and mitigate unforeseen impacts. Coordinated oversight is therefore essential, as inconsistencies in guidance risks creating uncertainty for industry and undermining public trust.

A regulatory oversight body could support this by providing co-ordinated guidance on good practice, including where human oversight is necessary, and delivering sanctions where misuse has occurred. A more integrated approach, grounded in shared principles, clear communication and cross-sector collaboration, will be essential to ensure that regulation remains coherent, proportionate and capable of keeping pace with the systemic nature of AI innovation.

Theme 3 – Governing data use across organisations

There must be clearly defined roles and responsibilities with real ownership by those working with an organisation's data, specified for the scope of each of the organisation's operations, for example Division, Programme, Department, Project, Team, etc. Furthermore, within an organisation's data strategy there needs to be a clear differentiation between data and information.

It is important that alongside financial and cyber risks, organisations consider risks to their business posed by AI as part of ongoing risk assessment cycles. To do this, risk committees and directors should ensure they continue to upskill and reskill to ensure they are aware of the latest technological opportunities and challenges, for example but not limited to, AI.

When considering where future technological developments may create new governance challenges particular consideration needs to be given to the realisation and implementation of regulations, laws, policies, and standards, particularly in the case of AI code architecture.

Taking into consideration, in theory, where autonomous AI systems or agents act with delegated authority, it is important to start by identifying their components, for example, an autonomous AI agent could have a clear identity, such as an ID code or number, that differentiates it from all other autonomous objects within the scope of the data landscape or environment. The AI agent (prompts, code, procedures, processes, etc.) could include scoping information so that it is constrained and

clarified for transparency. As such, standards and policy can be clearly applied to the AI agent. In addition, an impact analysis will need to be undertaken as part of the governance of the software development lifecycle. This means a standard will not simply exist to be read and remembered by an individual, but encoded in the source code, or code base, or prompts of the agent/s concerned, with greater enforceability.

Theme 4 - Transparency and rights in complex data environments

Traditional systems design and development guidance usually requires capturing requirements, producing a specification, design, implementation, testing, and verification and validation (V&V). Alongside these, security considerations must be addressed, and for systems relating to safety, hazard analysis and risk assessment activities are required ([The Application of Artificial Intelligence in Functional Safety](#); IET, 2024).

Previously, to ensure safety there would be a reliance on the fact that the system is going to be predictable. When systems use AI, traditional systems and practices cannot fully account for additional challenges it faces. Moreover, the methods and techniques used to implement an AI algorithm are very different to those recommended under conventional safety standards. Hence, there is a 'gap' in being able to demonstrate that AI complies with conventional good practice and this gap will need to be addressed through alternative safety arguments.

AI requires additional steps at design, implementation, testing and V&V stages and in particular the responsibilities of the system's owners and users – need to be clearly articulated and understood.

It is critical that the system is only used in a way that is safe, and that it is only used for environments and contexts in which it has been validated. The IET's paper takes a safety-related view and considers the risks, challenges and potential solutions for using AI in safety-related systems. It introduces 10 key 'pillars of assurance' to underpin an assurance case for AI.

The IET supports the widespread use of the Responsible Handover of AI guidance ([Responsible Handover of AI](#); Sense about Science, 2024) which increases transparency between developers and users to improve understanding of how and why a model has reached a conclusion and enable users to challenge misinformation more effectively.

Conclusion

AI and other data-intensive technologies offer significant opportunities for innovation, productivity and economic growth, but that these benefits will only be realised if supported by effective regulation, robust data governance and proportionate oversight. As AI continues to be deployed across sectors and regulatory boundaries,

a coordinated approach will be essential to ensure consistency, reduce uncertainty and maintain public trust. Existing frameworks, including the EU AI Act, ISO standards, GDPR and the Responsible Handover of AI guidance, provide a strong foundation for the responsible development and deployment of AI and should be applied where appropriate.

Central to this is the need for organisations to maintain coherent and continuously evolving data strategies, with clearly defined roles, responsibilities and ownership. Greater emphasis should also be placed on transparency, assurance and accountability, ensuring that AI systems are safe, effective and deployed only within the contexts for which they have been validated. By promoting harmonised standards, coordinated oversight and strong data stewardship, the UK has an opportunity to support innovation while strengthening public confidence and establishing itself as a leader in the safe and responsible use of AI.

Contact details

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