

Ofcom's submission of evidence

to House of Lords Communications and Digital Committee's inquiry into large language models

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1. Introduction

- 1.1 Across Ofcom’s sectors, we see the use of multiple forms of artificial intelligence (AI), covering image, audio, code and video creation, that go beyond the mere generation of language and text. Where Ofcom has powers or duties that enable us to regulate services or companies that use AI, these do not distinguish between large language models (LLMs), other forms of generative AI (GenAI), or other forms of AI more broadly.
- 1.2 We are clearly at a tipping point with AI in terms of its power and sophistication, in the practical applicability of certain forms such as large language models and wider generative AI, and in its ability to reach consumers at scale. The communications sector has long been at the centre of these developments. With innovation and investment gathering pace, we are seeing a rapid expansion of new uses and applications of AI across the sectors we regulate. These innovations have the potential to offer substantial benefits, with recent estimates suggesting GenAI’s impact on productivity could add trillions of dollars in value to the global economy, delivering an additional \$80-130 billion of value in the media and entertainment industry and \$60-100 billion in telecommunications if their use cases were fully implemented.¹ With these new opportunities and exciting innovations, however, also come new risks.
- 1.3 Ofcom welcomes the opportunity to submit evidence to the House of Lords Communications and Digital Committee’s inquiry into large language models.² We set out our views on the broad implications of AI in the sectors that we regulate, an explanation of how our powers relate to AI technologies, and an update on our work in relation to GenAI which includes LLMs. We provide an update on the technical capabilities we have to perform our duties effectively, ensuring we are well prepared to respond to the impact of AI, including LLMs, across our sectors. For example, early funding for our upcoming online safety responsibilities has allowed us to build on our existing digital and AI skills and technical expertise. We also set out our broad support for the Government’s work on developing a principles-based, non-statutory framework for regulating AI in the UK.
- 1.4 Ofcom is leveraging its national and international partnerships to build knowledge more efficiently and progress our work with an eye on coherence within the UK and internationally. We work with other regulators, particularly through the Digital Regulation Cooperation Forum (DRCF), as well as our international activities in support of these aims.
- 1.5 Once the Online Safety Bill receives Royal Assent and establishes Ofcom as the online safety regulator, we will be consulting on our first set of Guidance and Codes of Practice for the new regime, and an important task for our regulation will be to adapt as GenAI in particular creates new risks and opportunities for mitigating harm online. With much global attention currently focusing on developments in AI and questions around how it can best be governed, we are pleased to submit the following evidence to the Committee.
- 1.6 This document has the following sections:

¹ ‘The economic potential of generative AI: The next productivity frontier’, McKinsey Digital (June 2023): <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-economic-potential-of-generative-ai-the-next-productivity-frontier#introduction>

² ‘Large language models: Inquiry’, House of Lords Communications and Digital Committee (July 2023): <https://committees.parliament.uk/call-for-evidence/3183>

- Communications sectors and AI developments
- How we regulate services that use AI technologies
- An update on our work in relation to GenAI
- Our capabilities for regulating services that use AI
- The Government's AI White Paper
- Our engagement and collaboration on AI

2. Communications sectors and AI developments

- 2.1 **Ofcom interprets its duties to mean that its mission is to make communications work for everyone.** Ofcom is the UK's communications regulator, with functions across – but not limited to – broadcast television and radio, telecoms, post, spectrum, and UK-established on-demand programme services and video-sharing platforms.³ Ofcom has also been designated as the regulator for online safety and will take on new powers once the Online Safety Bill has received Royal Assent. Ofcom has additional duties, including in media literacy, telecoms security and news media plurality.
- 2.2 **AI is being deployed across the communications sectors that we regulate.** AI lies at the heart of the internet and is already core to most modern businesses. AI already powers search, social media and messaging services. In our more traditional communications sectors, we see network operators using AI to enhance network planning and optimise network build, give early warning of network outages, and detect and prevent fraudulent behaviour. Likewise, broadcasters have used AI for several years, including for content generation such as for weather programmes or to power recommendations on their video on demand platforms. However, as well as presenting myriad opportunities, AI can also exacerbate or create new risks. There are longstanding risks which flow from the potential for AI systems to generate biased and unfair outcomes. An example is the use of AI-powered personalised pricing for consumers – a topic Ofcom has considered in the context of the broadband and mobile markets.⁴
- 2.3 **The use of GenAI presents new opportunities and risks in communications sectors.** While technologies such as LLMs have been in development for some time, the past year has been a turning point in their potential, driven by an increase in computing power and research breakthroughs. This means that we are seeing a rapid expansion of new uses and applications across our sectors.⁵ This includes the use of GenAI models in TV production, enhancing the ability of producers to create compelling visual effects. Likewise, in the field of online safety, researchers are examining how GenAI could be used to create new datasets – also known as synthetic training data – to improve the accuracy of safety technologies. GenAI can also flag potential malicious activity by identifying abnormalities on a network, therefore protecting the security of data and online assets. However, alongside new

³ 'Ofcom's Plan of Work 2023–24: Making communications work for everyone', Ofcom (Mar 2023):

https://www.ofcom.org.uk/_data/assets/pdf_file/0024/256038/statement-plan-of-work-2023-24.pdf

⁴ 'Personalised pricing for communications: Discussion paper', Ofcom (Aug 2020):

<https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/personalised-pricing-for-communications>

⁵ We use the term GenAI to mean machine learning models that can create new content in response to a user prompt. These tools - which include the likes of ChatGPT and Midjourney – are typically trained on large volumes of data, and can be used to produce text, images, audio, video and code. We view large language models (LLMs) as one form of GenAI. Other forms of GenAI include visual models and 'multi-modal' models, which can produce images and video. We have an interest in all forms of GenAI - not just those that can produce text – and so in this submission we provide views and insights on more than just LLMs and will note where risks and risk mitigations are specific to LLMs.

opportunities, early evidence is emerging that suggests GenAI is leading to new harms or exacerbating existing harms in the sectors that we regulate. For example:

- Fraudsters can use GenAI models to create more convincing and tailored messages and content, allowing for increasingly targeted and effective scam and fraud attacks, such as voice clones created by GenAI tools which could be used to [scam people over the phone](#) by impersonating loved ones.
- When deployed without care, the use of GenAI tools to create code can result in [security vulnerabilities](#) within software.
- GenAI chatbots can enable people to more easily access harmful content, such as instructions for [self-harm](#) or advice on [smuggling illegal substances](#).
- GenAI models can be used to create [‘fake’](#) content, including news and media, which can spread quickly online. This could increase the risk of mis- and dis- information for consumers. It creates issues for copyright and can make it challenging for broadcast journalists to verify the authenticity of content when relying on online sources.
- Reports indicate that bad actors are already using GenAI to [create new child sexual abuse material](#) (CSAM) and [non-consensual deepfake pornography](#), both of which will place increased pressure on online platforms to remove this new content. It may also [undermine law enforcement efforts](#) to find victims and combat abuse.

3. How we regulate services that use AI technologies

- 3.1 **Ofcom is a technology neutral regulator, meaning we do not have a single, cross-cutting power to regulate AI or any other form of technology.** Rather, we regulate services and companies, regardless of what technology they use, which may include their use of GenAI. We pay close attention to particular technologies used in some of our regulated regimes, for instance when a technology's use can ensure regulatory compliance, but we do not regulate the technology itself.
- 3.2 **Telecoms security:** Ofcom has a duty to seek to ensure that providers of public electronic communications networks and services comply with statutory requirements to take appropriate measures to identify, reduce and prepare for security risks. We have an interest in making sure that any use of AI technology to mitigate these risks (e.g. the use of machine learning to scan networks for unusual activity) is effective. Where we suspect that this is not the case, we have relevant information-gathering, inspection and enforcement powers, and would work with telecoms providers, the National Cyber Security Centre and industry more generally to address any such risk.⁶
- 3.3 **News media plurality:** Ofcom has a statutory duty to review the UK's media ownership rules. One of the objectives of these rules is to prevent undue influence over the news we see by any one media owner. After our latest review of media ownership rules in 2021, we launched an ongoing programme of work to explore the role of online intermediaries in the news media ecosystem and their impacts on the distribution, curation, discovery and prioritisation of news.^{7 8} Algorithms and AI-driven recommender systems play a key role in determining the prominence and visibility of news content online and in doing so they can nudge users' choices and shape how news is accessed and consumed. Our ongoing work in this space will inform our regulatory approach to media plurality and any recommendations we may make to the Government for new remedies, for example to provide greater transparency over the design choices intermediaries make.
- 3.4 **Competition and consumer law:** Ofcom has a range of powers which could apply to digital services. These include our sectoral competition powers, powers to set general conditions, as well as competition and consumer powers we hold concurrently with the Competition and Markets Authority. In principle, this means that we have powers to investigate how the use of AI systems affect competition in the communications sector.
- 3.5 **Misuse of telephone numbers and scams:** Our regulatory regime for communications providers allows us to set 'general conditions', which can include rules on the allocation and use of telephone numbers and making provision to protect the interests of end-users of

⁶ Sections 105M to 105V, Communications Act 2003

⁷ 'The future of media plurality in the UK: Ofcom's report to the Secretary of State on the Media Ownership Rules and our next steps on media plurality', Ofcom (Nov 2021): https://www.ofcom.org.uk/data/assets/pdf_file/0019/228124/statement-future-of-media-plurality.pdf

⁸ 'Media plurality and online news', Ofcom (Nov 2022): <https://www.ofcom.org.uk/research-and-data/multi-sector-research/media-plurality>

public electronic communications services.⁹ For example, under our general conditions, where telephone numbers or services have been misused, including to facilitate scams, we can request that providers block access to those numbers or services.¹⁰

- 3.6 **Online safety (forthcoming):** When the Online Safety Bill receives Royal Assent, in-scope services (e.g. online user-to-user services, search engines and services including provider pornographic content) will need to consider if and how their use of algorithms could increase the risk of users encountering illegal and harmful content. This includes their use of AI-driven recommender systems. In-scope services will also need to take proportionate measures to mitigate the risk of users encountering illegal content and children encountering content that is harmful to them as part of their safety duties. Some of these measures may involve the use of AI, for example age estimation technology and content moderation systems that can be based on LLMs.
- 3.7 **Media literacy:** In addition to regulatory powers, Ofcom has the duty to promote media literacy, which we define as the ability to use, understand and create media and communications in a variety of contexts including online. When the Online Safety Bill receives Royal Assent, Ofcom will have expanded duties to heighten the public's awareness and understanding of ways in which they can protect themselves and others when using regulated services and encourage the development and use of technologies and systems for supporting users of regulated services to protect themselves and others. Ofcom can undertake these expanded duties by (a) pursuing media literacy activities and initiatives, (b) commissioning others to pursue activities and initiatives, (c) taking steps designed to encourage others to pursue activities and initiatives, and (d) making arrangements for research to be carried out.

⁹ Sections 45, 51 and 58, Communications Act 2003

¹⁰ General condition B4.4

4. An update on our work in relation to GenAI

- 4.1 In June 2023, Ofcom published a blog post explaining what GenAI means for our sectors.¹¹ This provided high-level updates on our work on GenAI in relation online safety, broadcast standards and networks and communications. Below we provide further detail on our work in relation to these areas and an update on our cross-cutting futures work and our own use of GenAI.

Online safety

- 4.2 **As the incoming online safety regulator, Ofcom will shortly be regulating services that are at the forefront of AI adoption.** This includes social media, gaming, search and pornography platforms. The emergence and adoption of new GenAI applications has already begun to alter the online services ecosystem. Through tools such as ChatGPT, Snapchat's My AI, Google Bard and OpenAI's Dall-E, millions of users worldwide are being empowered to create new text, image and video content.¹² However, the adoption of GenAI by online services could also increase risks for users, as described in Section 2 above. By making it easier to create sophisticated content, GenAI tools could also lower the barriers to entry for bad actors intent on causing harm, resulting in a greater volume of harmful material being shared online. At present, there is a lack of evidence as to whether this effect is playing out, but this is a risk Ofcom will monitor carefully as we establish the online safety regime.
- 4.3 The Online Safety Bill is designed to be technology neutral, with duties for regulated online services to consider risks and relevant safety measures that apply regardless of how they design their services and how they make use of different technologies. This means that the Online Safety Act will support the mitigation of many of the online safety risks posed by GenAI, to the extent it is used by user-to-user, search and online pornography services. For example, if a user creates content using a GenAI tool and uploads it to a regulated user-to-user service, that content would be regulated under the new regime, and services would have a duty to reduce the likelihood of users encountering it (where it is illegal or harmful to children). Below we set out an overview of steps we are taking in relation to GenAI as we prepare to regulate online safety.
- 4.4 **We are building our understanding of GenAI uses and harms.** We have commissioned research to understand how GenAI is being integrated into popular online services. We are also holding detailed discussions and teach-ins with companies that are developing and integrating GenAI tools which might fall into scope of the Online Safety Bill, to understand how they are assessing the safety risks of their products and how they are protecting users

¹¹ 'What generative AI means for the communications sector', Ofcom (June 2023):

<https://www.ofcom.org.uk/news-centre/2023/what-generative-ai-means-for-communications-sector>

¹² For example, ChatGPT reached 100 million unique users as early as January 2023, only a few months following its launch: <https://www.theguardian.com/technology/2023/feb/02/chatgpt-100-million-users-open-ai-fastest-growing-app>

from potential harms. This work will also help us better understand which services may not be in scope of the legislation as they fall outside of the current definitions.

- 4.5 We have also sought to understand internet users' adoption and attitudes towards GenAI. We recently published a survey, undertaken by YouGov, to understand how UK internet users are interacting with popular GenAI models, as well as their views on how the technology could impact society.¹³ The survey found that 58% of people agreed with the statement, "I am worried about the future impact of Generative AI on society", versus 9% who disagreed. The survey also found that the most popular uses of GenAI are for chatting, finding information or content, and seeking advice, and that 63% of those aged under 25 had used a GenAI tool, as opposed to only 9% of those aged over 55.
- 4.6 The Online Safety Bill includes information gathering powers that will allow us to request information for the purpose of exercising our functions, which helps us understand more about the performance of AI systems, as well as the steps taken by services to ensure their proper use. Along with assisting our extensive supervision of and engagement with the industry, this knowledge will help us to identify new risks and solutions, adapt our Codes of Practice and Guidance in response, and inform whether any enforcement action might be necessary.
- 4.7 **We are building our knowledge on how harms might be mitigated.** Among the mitigations we are exploring are GenAI model audits, 'red team exercises', 'system cards' to enhance transparency for users, and 'machine unlearning' techniques, which involve amending GenAI models to mitigate the influence of certain data points that were included in their original training datasets.¹⁴ ¹⁵ ¹⁶ We are researching methods to identify deepfakes, such as through digital watermarking, and are engaging with standards organisations to understand how global standards are being developed on issues such as watermarking and provenance. Depending on the outcomes of our research, we envisage taking these sorts of mitigations into account when preparing and iterating our Codes of Practice and Guidance for regulated services.
- 4.8 **We are developing our expertise in relation to algorithmic assessments.** We envisage that we will need to conduct assessments of AI systems to support the delivery of our new functions. We have been developing our technical understanding of, and approach to, assessing algorithmic systems, including content moderation systems, recommender systems and age assurance solutions. We also recently carried out an internal pilot which involved road testing a methodology for assessing age estimation models that use facial images.

¹³ 'Generative artificial intelligence poll: data tables', Generative artificial intelligence, Online safety open data, Ofcom (July 2023): <https://www.ofcom.org.uk/research-and-data/data/opendata>

¹⁴ Red-teaming refers to a simulated adversarial attempt to test/compromise a system/process to assess its effectiveness or resilience. Both OpenAI and Anthropic have conducted red-teaming exercises on their LLMs to help identify, measure and then reduce harms. See: <https://www.anthropic.com/index/red-teaming-language-models-to-reduce-harms-methods-scaling-behaviors-and-lessons-learned>

¹⁵ System cards typically explain how AI systems operate and why they produce the outputs they do. They can also flag how systems should be used and maintained, as well as identify any risks associated with their use. An example is the system card produced by OpenAI for its GPT-4 system. See: <https://cdn.openai.com/papers/gpt-4-system-card.pdf>

¹⁶ In June 2023 Google announced a Machine Unlearning Challenge to identify effective methods in this field. See: <https://ai.googleblog.com/2023/06/announcing-first-machine-unlearning.html>

- 4.9 Our work on algorithmic assessments and auditing is strengthened by our close collaboration with our DRCF partners, and a multi-year programme of work on these topics (for further details see Section 7 below).

Broadcast standards

- 4.10 Ofcom’s broadcast standards and content policy work seeks to ensure that audiences across TV, radio and on-demand services are protected and well-served by the UK broadcasting sector. This includes enjoying a broad range of broadcast and online content across a range of providers.
- 4.11 **Synthetic media raises questions around maintaining standards compliance.** Ofcom has provided information for our regulated broadcasting sectors on what GenAI might mean for them and their responsibilities to their customers and users, in the form of a ‘Note to Broadcasters’ on GenAI.¹⁷ This included advice on how the use of synthetic media is subject to the Rules set out in the Broadcasting Code. We also advised our licensees to consider carefully whether their compliance processes need to be adapted or developed to account for the potential risks involved in the use of synthetic media to create broadcast content.
- 4.12 **We are engaging with broadcasters to develop a snapshot of the current GenAI landscape.** There have been widely publicised concerns around the impact of LLMs on intellectual property in the production sector globally.¹⁸ We are engaging with public service broadcasters and other major broadcasters to understand how they, production companies, and platform partners are using GenAI, and the opportunities and challenges that GenAI developments might pose for the broadcasting sector. As part of this, we are listening to views about how Ofcom can respond to support the sector. One area of concern for broadcasters is in relation to intellectual property and copyright, and Ofcom is engaging with the Intellectual Property Office as it develops its code of practice on GenAI.

Communications services and networks

- 4.13 Ofcom’s role in the regulation of networks and communications regime requires us to protect consumers from harm, to promote and protect competition, and to ensure that communications networks are secure and resilient. GenAI is relevant to our work on cloud markets, scam calls and texts, and network security and resilience.
- 4.14 **The development of GenAI products is closely linked commercially to cloud services and cloud compute markets.** GenAI products generally rely on cloud infrastructure services, particularly for data storage and compute, meaning cloud providers may become the main channels through which businesses can access AI products. Ofcom is already undertaking a market study into cloud infrastructure services to explore whether competition in these markets is working well and whether any regulatory action is required. Recent developments in GenAI only serve to underscore the importance of cloud to many sectors of the economy today and to future innovations. While Ofcom’s market study is not directly considering links to the GenAI market, Ofcom has been engaging with the Competition and Markets Authority

¹⁷ ‘Note to Broadcasters: Synthetic media (including deepfakes) in broadcast programming’, Ofcom (April 2023): https://www.ofcom.org.uk/data/assets/pdf_file/0028/256339/Note-to-Broadcasters-Synthetic-media-including-deepfakes-.pdf

¹⁸ ‘Hollywood writers fear losing work to AI’, BBC (July 2023): <https://www.bbc.co.uk/news/business-66289583>

as it conducts a separate initial review into foundation models, due to be published in September.¹⁹ Our cloud market study will be completed by 5 October 2023 and will include our decision on whether to refer the market for a Market Investigation which the CMA would take forward, and which could, for example, impose remedies. In our interim report in March 2023, we consulted on a proposal to refer the market for an Investigation and have been working closely with the CMA in the intervening months to ensure they are well placed to take any action as required.

- 4.15 **The use of GenAI in scam calls and texts is a recent development**, and these technologies have the potential to increase the sophistication of criminal activities, for example by increasing the ease with which personalised smishing messages can be created and shared, and by allowing for voice cloning to mimic the voices of people known to victims.²⁰ However, AI could also offer opportunities for scam messages and calls to be more accurately identified and blocked.
- 4.16 Ofcom has been working for several years to reduce unwanted calls. However, this is very challenging work; the nature of the problem is changing, and new responses are constantly required. There has been a shift away from nuisance calls, with scam calls and scam texts being more prevalent now. In February 2022, we set out our approach which involves: disrupting scams through technical interventions; collaborating and sharing information more widely; and helping consumers avoid scams by raising awareness.²¹ We are currently considering how Calling Line Identification authentication may be used to detect and block spoofed numbers more comprehensively than is currently the case, following our consultation on the subject in April 2023.²²
- 4.17 **GenAI tools have the capacity to serve as cross-cutting enablers for online fraud**, resulting in harms likely to fall within the remit of the incoming online safety regime. GenAI offers online scammers the facility to create a broad range of seemingly authentic and credible content at lower cost and on a previously unprecedented scale.²³ This content could be delivered as scam messages, internet voice calls, video calls, user-generated content posts, boosted user-generated content posts (where the poster pays to algorithmically promote the visibility of their content) and paid-for adverts. Furthermore, GenAI can enable scammers to create networks of human-like chatbots, which after being trained on extensive datasets of human conversations, can effectively imitate real individuals and trusted entities like customer service representatives or bank employees.²⁴ ²⁵ There is also

¹⁹ 'AI Foundation Models: initial review', CMA (May 2023): <https://www.gov.uk/cma-cases/ai-foundation-models-initial-review>

²⁰ Smishing is a social engineering attack that uses fake text messages to trick the recipient into downloading malware, sharing sensitive information or transferring money.

²¹ 'Tackling scam calls and texts: Ofcom's role and approach', Ofcom (Feb 2023): https://www.ofcom.org.uk/_data/assets/pdf_file/0018/232074/statement-tackling-scam-calls-and-texts.pdf

²² 'Consultation: Calling Line Identification (CLI) authentication – a potential approach to detecting and blocking spoofed numbers', Ofcom (April 2023): <https://www.ofcom.org.uk/consultations-and-statements/category-2/cli-authentication>

²³ 'On high alert: The darker side of generative AI', Deloitte (summer 2023): <https://www2.deloitte.com/xe/en/pages/about-deloitte/articles/swift-moves/on-high-alert-the-darker-side-of-generative-ai.html>

²⁴ 'The Double-Sided Arrow of Generative AI in Digital Frauds', ASLIRI (July 2023): <https://asliri.id/blog/the-double-sided-arrow-of-generative-ai-in-digital-frauds/>

²⁵ 'Fighting fraud in the age of AI and automation', Q2 2023 Digital Trust & Safety Index, Sift (July 2023): [Q2 2023 Digital Trust & Safety Index: Fighting fraud in the age of AI \(sift.com\)](https://www.sift.com/2023-Digital-Trust-&Safety-Index-Fighting-fraud-in-the-age-of-AI)

scope for scammers to use LLMs to create highly targeted and tailored content (e.g. a professionally worded and detailed message from a financial adviser citing your personal circumstances and suggesting a bespoke investment offer) using publicly available information ingested from social media profiles.²⁶ Fraudsters could also use Generative Adversarial Network/machine learning techniques to produce impersonation scams by appropriating the identity and likeness of high profile individuals, for example a deepfake Martin Lewis investment video ad that was identified on Facebook in July 2023.^{27 28}

- 4.18 **AI can be used across the network security space but could also present security risks.** AI could have beneficial applications across network security, from improving energy efficiency by managing power supplies to networks, to helping to detect malware attacks.^{29 30} However, there are also concerns that GenAI could be used to develop better malware or provide instructions on how to breach network security. Poorly developed GenAI models could also contribute to the risk of system outages, for example where source code for a GenAI model is inefficient in its use of energy or bandwidth, and widespread use of the code by applications leads to an overall resource shortage. Similarly, where GenAI is used to write code by copying available examples of code, any failures or inaccuracies could be reproduced into other systems and models.
- 4.19 We are tracking developments in how GenAI could be used to develop malicious tools and are exploring the implications for software. To support our understanding, we are engaging with regulated companies on how they are integrating GenAI into their systems. We are also involved in relevant standards bodies like the European Telecommunications Standards Institute (ETSI) and the International Organisation for Standardisation (ISO) who are developing standards on GenAI that might have relevance across Ofcom's remit.

Cross-cutting Futures research

- 4.20 As part of Ofcom's cross cutting strategic work, we are exploring potential unexpected disruptions and developments that will fundamentally transform communications in the next ten years. Within this work, we are exploring how technologies like AI (including rules-based systems, machine learning, GenAI and potential autonomous agents) could have an impact on alternative business models, consumers and Ofcom's sectors. The outcomes of this work will also shape and inform the organisation's medium to long term planning, including our corporate strategy and horizon scanning agenda. We are also undertaking joint horizon scanning work with other regulators through the DRCF's 'Horizon Scanning and

²⁶ 'Apple Co-Founder says AI may make scams harder to spot', BBC (May 2023):

<https://www.bbc.co.uk/news/technology-65496150>

²⁷ GANs are a form of deep learning that works by pitting two neural networks against one another: the first to generate an image, and the second to judge whether that output is realistic:

<https://www.gov.uk/government/publications/cdei-publishes-its-first-series-of-three-snapshot-papers-ethical-issues-in-ai/snapshot-paper-deepfakes-and-audiovisual-disinformation>

²⁸ 'Martin Lewis felt 'sick' seeing deepfake scam ad on Facebook', BBC (July 2023):

<https://www.bbc.co.uk/news/uk-66130785>

²⁹ 'Controlling energy use: the role of AI-based solutions', Analysys Mason (Mar 2023):

<https://www.analysysmason.com/research/content/perspectives/energy-saving-ai-rdns0/>

³⁰ 'UB-SMART: UNIBERG's solution for Mobile Cell Energy Management', UNIBERG: [Flyer UB-SMART UNIBERG FINAL-2023.pdf](#)

Emerging Tech' workstream, which remains an important part of the DRCF's programme of work.³¹

- 4.21 **We are exploring how we might use GenAI to support how we work.** We could make use of GenAI capabilities to help enhance our productivity. Deployed responsibly, GenAI tools could, for example, be used for the analysis and summarisation of large sets of documents, for signposting members of the public or regulated firms to the right guidance, or for answering specific public queries more promptly. Each of these options requires careful consideration, however it is important that regulators such as Ofcom are alive to the possibilities of innovating with GenAI. As we explore these possibilities, we will continue to work closely through the DRCF to exchange learning and build best practice.

Media literacy

- 4.22 Ofcom's media literacy work aims to equip the media literacy sector to be more effective in supporting users to use, understand and create media and communications in a variety of online contexts. It also seeks to encourage online platforms to do more to support media literacy on-platform and we will be publishing our draft principles for media literacy by design later this year. We also look to encourage the funding of more 'off-platform interventions' such as Ofcom's commissioned media literacy initiatives that are delivered in person.³²
- 4.23 As part of that media literacy work, we are developing our understanding of the media literacy implications of future technology, enabling those working on media literacy and in industry to prepare for future opportunities and risks that may arise. The first in our discussion series has been published.³³ The next piece will focus on the media literacy implications of GenAI, exploring the skills users will need to critically engage with content created through GenAI. A discussion paper documenting our findings will be published in late 2023.

³¹ 'DRCF 2023/24 Workplan', DRCF (April 2023):

https://www.drcf.org.uk/_data/assets/pdf_file/0018/260712/DRCF-Workplan-2023-24.pdf

³² 'Initiating pilot trials and campaigns', Ofcom: <https://www.ofcom.org.uk/research-and-data/media-literacy-research/approach/initiate>

³³ 'Media literacy discussion papers', Ofcom (June 2023): <https://www.ofcom.org.uk/research-and-data/media-literacy-research/discussion-papers>

5. Our capabilities for regulating services that use AI

- 5.1 Ofcom has expanded its in-house technical and data science expertise to address the challenges posed by novel technologies, including AI. Below we set out more details about how we are developing our capabilities to regulate services that use GenAI and LLMs.
- 5.2 **We have established dedicated technical teams** made up of data science and engineering experts to inform our policymaking. Our experts specialise in technology issues associated with our regulatory regimes, including cyber security, satellite technology, telecoms infrastructure, TV and broadcast innovations, and online safety technology, such as content moderation and age verification systems. We have also recently recruited experts with direct experience of developing GenAI tools and wide-ranging experience relevant to GenAI and LLMs drawn from previous roles in academia and industry. This includes individuals with experience of:
- Creating and using generative models to produce age-progressed images of missing individuals to aid re-identification.
 - Developing AI technologies including facial age estimation and fraud detection.
 - Evaluating and auditing machine learning solutions, including assessing performance, bias, explainability and robustness.
 - Developing generative models for expressive speech synthesis and to understand voice cloning.
- 5.3 **We have always needed technical expertise to exercise our functions and perform our duties effectively**, including in spectrum technologies, security and telecoms infrastructure. We are now augmenting our existing technical expertise with additional expertise that will be required to support our new security duties, our forthcoming online safety duties, and more generally advise across Ofcom’s policy areas as our sectors increasingly become digital and converged.
- 5.4 **We currently employ approximately 50 data science and machine learning experts in our data and technology teams**, including experts with previous experience in a range of technology firms and sectors. Our overall headcount of technology experts now exceeds 100, and we are in the process of further recruitment to continue to strengthen our technology expertise, including in relation to AI.
- 5.5 **Our technical teams conduct technical research to support our knowledge and expertise.** Our Trust and Safety Technology team (which focuses on online safety issues) has published technical reports on several subjects, including hashing and automated content classifiers for live streaming.^{34 35} This team has also developed prototypes of watermarking tools to demonstrate the different ways that synthetic media could be detected. Ofcom also recently commissioned Pattn.AI to investigate best practice methods for evaluating the impact of

³⁴ ‘Overview of perceptual hashing technology’, Ofcom (Nov 2022): <https://www.ofcom.org.uk/research-and-data/online-research/overview-of-perceptual-hashing-technology>

³⁵ ‘Automated content classification systems’, Ofcom (Jan 2023): <https://www.ofcom.org.uk/research-and-data/online-research/automated-content-classification-systems>

recommender systems.³⁶ They have also built machine learning models that help us to understand and interrogate the inner workings of different technologies. This work means that our in-house expertise is robust and remains relevant to external developments.

- 5.6 **We are also building strategic partnerships with academic institutions.** We proactively reach out to academic research groups and projects to engage in discussions on topics relevant to our regulatory functions, including on GenAI and machine learning. These engagements help academics better understand and address specific challenges identified by our in-house experts. We also partner with relevant academic research projects, such as the National Research Centre on Privacy, Harm Reduction and Adversarial Influence Online (REPHRAIN).³⁷ We benefit from these activities through the immediate knowledge exchange with world-leading scholars and in influencing their future research activities.
- 5.7 **We are developing analytical tools to help us fulfil our statutory functions.** We use technology for many things like transcribing broadcast content or analysing complaints and we are developing tools for parsing consultation documents. We also use AI and data science to support research projects, for example helping us to identify the critical factors that affect broadband speeds. We are also exploring ways that we might use AI to help us regulate internet services under our expected online safety functions.
- 5.8 **Our Data Strategy will develop data skills across Ofcom.** By developing a Data Culture and a Data Literacy programme, we will increase knowledge and understanding of AI across Ofcom, including both the opportunities and risks that AI technology present. For members of our Data Profession, which includes data scientists, machine learning experts and AI developers, our career development programme looks to support colleagues throughout every step of their Ofcom career journey with targeted learning and development that links to their specialism. Ofcom's Data Profession also has a regular communications and engagement programme to enable our data specialists to share best practice, develop skills through hackathons and arrange secondments and cross-team placements to assist knowledge sharing.

³⁶ 'Evaluating recommender systems in relation to illegal and harmful content', Ofcom (July 2023): <https://www.ofcom.org.uk/research-and-data/online-research/evaluating-recommender-systems-in-relation-to-the-dissemination-of-illegal-and-harmful-content-in-the-uk>

³⁷ National Research Centre on Privacy, Harm Reduction and Adversarial Influence Online: <https://www.rephrain.ac.uk/>

6. Our views on proposals set out by the Government in its AI White Paper

- 6.1 **We support the Government’s principles-based approach to regulating AI**, as set out in its AI White Paper in March.³⁸ A non-statutory framework will allow scope for innovation and iteration, something that is clearly essential given the speed of change and huge opportunities that AI can bring to UK consumers and to innovation and investment. Rather than regulating the technology itself, we agree that the focus should be on considering specific use cases and desired outcomes and risks, where necessary on a sector-specific basis.
- 6.2 In our view, Ofcom is at the cutting edge in preparing to regulate one of the main use cases of AI and GenAI – namely social media, search, gaming and porn services. Once the Online Safety Bill achieves Royal Assent, we will start to consult on our first Codes within weeks. An important task for our regulation will be to adapt as GenAI, in particular, creates new risks and opportunities for mitigating harm online. The online safety regime is globally-leading and gives the UK the opportunity to set the agenda in how services are regulated in a way that continues to foster innovation.
- 6.3 The Government’s proposed non-statutory approach also provides flexibility, and should therefore help avoid risk of overlap, duplication, and conflict with existing statutory regulatory regimes, which could lead to confusion among our regulated services over which rules take precedence. The emergence of GenAI underscores the importance of the Government’s proposals. Once fully established, the non-statutory framework and its associated central functions of risk monitoring and horizon scanning would enable regulators and government to work together in responding to other innovations of similar significance.
- 6.4 In addition to our work on online safety, we have begun to develop a blueprint for the implementation of the proposed principles within Ofcom. Our plan is still in development but, among other activities, we expect it to encompass: upskilling colleagues in the AI principles; establishing a standardised procedure for monitoring AI risks and opportunities in our sectors; and conducting standalone research and policy activity on AI applications that have implications across Ofcom’s regimes (e.g. on GenAI). Ensuring we have access to robust data and information will be key to building our understanding of the risks and opportunities of AI, and we hope to work with services and Government to enable this. We look forward to developing these plans further once the Government has provided a response to its White Paper consultation.
- 6.5 **In such a fast-moving field we firmly believe that a government-led central function is necessary to support the continued development and adaptation of AI policy**, as well as to monitor cross-sectoral risks, undertake horizon scanning, and maintain and manage global

³⁸ ‘AI regulation: a pro-innovation approach’, Office for AI (Mar 2023): <https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach>

political and security partnerships. Some of the most pressing societal concerns may need new policy responses that are beyond existing regulatory remits – for example new international agreements, security or defence cooperation, public expenditure or new legislation. We also welcome the Government’s commitment not to duplicate regulators’ existing work, and we look forward to working closely with the Government as it develops its approach, including for example, sharing research on risks.

- 6.6 **Implementing the framework will require strong cooperation between regulators and government, and also amongst regulators**, including through the DRCF, across the wider UK regulatory landscape and internationally. Such cooperation can also ensure we respond quickly to emerging issues. The DRCF has a key role to play in continuing to drive cross-cutting regulatory work and solutions (for further details see Section 7 below). Some examples include developing best practice in auditing and procuring AI systems, joining up and sharing horizon scanning research, and exploring how to deploy AI to make regulators more efficient.
- 6.7 **The DRCF member regulators have an important role to play in supporting AI innovation**, including by exploring cross-regulatory advisory services to help innovators develop safe and trustworthy new AI products and services. There are a range of different approaches to advice services already in existence across UK regulators, such as sandboxes. Through the DRCF’s ‘Enabling Innovation’ workstream, the DRCF is carrying out research into how a multi-agency advice service, which would enable interaction with multiple regulators on a single issue, could best be designed to suit the needs of digital innovators. This project, made possible by a grant from the Regulators’ Pioneer Fund launched by the former Department for Business, Energy and Industrial Strategy, concluded at the end of August 2023.³⁹ The DRCF is currently working closely with the Government to consider next steps, in the light of the recommendations in the Vallance Review and the Government’s AI White Paper on proposals for a cross-regulatory AI sandbox.
- 6.8 **The DRCF members jointly support the Government’s AI White Paper**. In a public response to the Government’s consultation on its AI White Paper, the DRCF member regulators set out their joint support for the AI White Paper, and in particular agreed with the Government regarding the need for close coordination between regulators as the member regulators consider the AI principles, build capabilities and technical knowledge, and identify cross-cutting issues across the AI framework.⁴⁰

³⁹ ‘Enabling innovation – piloting a multi-agency advice service for digital innovators’, Projects selected for the Regulators’ Pioneer Fund (2022). Department for Business, Energy & Industrial Strategy (Nov 2022): <https://www.gov.uk/government/publications/projects-selected-for-the-regulators-pioneer-fund/projects-selected-for-the-regulators-pioneer-fund-2022>

⁴⁰ ‘Digital Regulation Cooperation Forum (DRCF) - Response to the Government’s White Paper - ‘A Pro-Innovation Approach to AI Regulation’, DRCF (July 2023): https://www.drcf.org.uk/_data/assets/pdf_file/0023/263534/Digital-Regulation-Cooperation-Forum-AI-White-Paper-Submission-.pdf

7. Our engagement and collaboration on AI

- 7.1 **Ofcom’s strong partnerships and engagement, both nationally and internationally, are helping us build expertise and enable effective, coherent approaches to regulating AI.** Ofcom is a member of the Digital Regulation Cooperation Forum (DRCF). First established in June 2020, the DRCF brings together four UK regulators tasked with regulating digital services to collectively drive greater regulatory cooperation and deliver coherent approaches to digital regulation. Its members are Ofcom, the Competition and Markets Authority (CMA), the Information Commissioner’s Office (ICO) and the Financial Conduct Authority (FCA). As previously highlighted, the DRCF has multi-year programmes of work on algorithmic processing, audits and AI governance, as well as a more recent focus on GenAI. We also provide an update on our work on AI through international engagement and partnerships.
- 7.2 **The DRCF has worked on algorithmic processing, audits and AI governance since 2021.** Understanding how to support the use of algorithmic processing in a way that promotes their benefits and mitigates their risks is a common aim for all DRCF members. Since 2021, the DRCF has joined up thinking on algorithms and AI across its members. Highlights include: papers published during 2022 on the benefits and harms posed by algorithmic systems and on the merits and limitations of algorithmic auditing techniques; and a report looking at best practice in the procurement of algorithmic systems, which was published in 2023.^{41 42 43}
- 7.3 This year, the DRCF has committed to continuing this work. Among other activities, the DRCF members will examine the key tenets of fairness in algorithmic decision-making; examine the nature and make-up of the market of third-party auditing firms; and collaborate in the implementation of the Government’s AI framework, ensuring coherence in how we apply the new principles.
- 7.4 **This year the DRCF has also committed to examine the implications of GenAI for our sectors and regulatory regimes.** In June, the DRCF held a workshop on GenAI attended by colleagues across the four member regulators, which was an opportunity to identify common concerns, as well as solutions and interventions where we have a shared interest. The findings of this workshop were set out in a GenAI blog post published in July.⁴⁴ The DRCF is exploring further research on GenAI in the coming months.
- 7.5 **The DRCF is engaging with the Government on its AI White Paper** and submitted a response to its consultation, as set out in Section 6 above.

⁴¹ ‘The benefits and harms of algorithms: a shared perspective from the four digital regulators’, DRCF (Apr 2022): https://www.drcf.org.uk/_data/assets/pdf_file/0022/260644/The-benefits-and-harms-of-algorithms-a-shared-perspective-from-the-four-digital-regulators.pdf

⁴² ‘Auditing algorithms: the existing landscape, role of regulators and future outlook’, DRCF (Apr 2022): https://www.drcf.org.uk/_data/assets/pdf_file/0022/260680/Auditing-algorithms-the-existing-landscape-role-of-regulators-and-future-outlook.pdf

⁴³ Details in Box B, p.12 of the ‘DRCF 2022/23 Annual Report’ (Apr 2023): https://www.drcf.org.uk/_data/assets/pdf_file/0017/260702/DRCF-Annual-Report-2022-23.pdf

⁴⁴ ‘Maximising the benefits of Generative AI for the digital economy’, DRCF (July 2023): <https://www.drcf.org.uk/publications/blogs/maximising-the-benefits-of-generative-ai-for-the-digital-economy>

- 7.6 **As well as working with other regulators via the DRCF, Ofcom is closely monitoring international developments in AI**, including with regards to how nascent AI governance regimes approach GenAI. Through our monitoring and engagement, we gain a greater understanding of how the UK's approach to AI regulation may be influenced by other emerging regulatory regimes and 'de facto' standards that are being established across the globe.
- 7.7 Our International Team represents Ofcom at a number of international fora, regulator networks, and expert groups where discussions are increasingly centring on GenAI. We set out an overview of our engagement below, noting links to GenAI where relevant:
- Frequent engagements with international stakeholders and regulatory counterparts within the context of Online Safety focused on GenAI. This has included bilateral engagements with regulators, civil society and policymakers from Australia, New Zealand, the US, Canada, Europe and Singapore. We have also engaged in multilateral spaces like the Organisation for Economic Co-operation and Development (OECD) and the United Nations (UN) on GenAI. Both our bilateral and multilateral engagements on GenAI have demonstrated the critical need for Ofcom to be cooperating and collaborating where possible with international stakeholders on issues of policy, technology and the possibilities for alignment.
 - Ofcom is a founding member of the Global Online Safety Regulators Network (GOSRN), launched in November 2022. This Network brings together regulators from Australia, Ireland, Fiji, South Africa and South Korea, as well as observers from Canada, New Zealand and Germany, to share insights and experience on online safety issues. We plan to engage with GOSRN on GenAI over the coming year, collaborating to understand the shared risks and opportunities of GenAI to our work as online safety regulators and to leverage technical expertise across the GOSRN members.
 - We are a member of the European Platform of Regulatory Authorities (EPRA) AI Roundtable, where we regularly engage with audio-visual regulators from the wider European region on the use of AI tools in broadcasting regulation, as well as the impact that AI technologies, including GenAI, are having on the broadcasting sector.
 - We have representation on a Council of Europe expert committee that is currently developing best practice guidelines for the use of AI in journalism, where a particular focus is being paid to GenAI.
 - We engage in frequent dialogue with our counterparts in UK Government, including the UK Office for AI, DSIT and FCDO, sharing information on the latest international GenAI developments and how they affect the sectors that Ofcom regulates.