

CMA Publishes Initial Report on AI Foundation Models and Guiding Principles for Firms

September 20, 2023

On September 18, 2023, the UK Competition and Markets Authority (“CMA”) published an [initial report](#) on AI foundation models (“FMs”).

The report comes further to the CMA’s initial review into FMs, launched on May 4.

Following consultation with around 70 stakeholders, the CMA finds that AI has the potential to bring substantial benefits to both people and businesses. But it cautions that *“if competition is weak or [AI] developers fail to heed consumer protection law, people and businesses could be harmed. For example, people could be exposed to significant levels of false and misleading information and AI-enabled fraud. In the longer term, a handful of firms could use FMs to gain or entrench positions of market power and fail to offer the best products and services and/or charge high prices.”*¹

The CMA’s report is not intended to establish firm conclusions. Rather, it presents a spectrum of possible market outcomes—ranging from “positive” to “concerning”—and identifies factors which might contribute to these. In doing so, it focuses on three themes:

- **Competition in the development of FMs**, considering in particular the various important inputs required.
- **The impact of FMs on competition in other markets**, for example the potential of FM-powered products to displace incumbents and disrupt competitive dynamics.
- **Consumer protection**, in particular the potential risks to consumers from FM-powered tools, and potential options to address or mitigate these.

The CMA has also published a set of [principles](#) to aid the ongoing development and use of FMs.

In terms of next steps, the CMA plans to continue its information-gathering and outreach activities, with a view to publishing a further update in “early 2024”.

If you have any questions concerning this memorandum, please reach out to your regular firm contact or the following authors

LONDON

Jackie Holland
+44 207 614 2233
jaholland@cgsh.com

Henry Mostyn
+44 207 614 2241
hmostyn@cgsh.com

Gareth Kristensen
+44 207 614 2381
ekristensen@cgsh.com

Anders Jay
+1 415 671 5778
ajay@cgsh.com

¹ CMA, Press release, [Proposed principles to guide competitive AI markets and protect consumers](#) (September 18, 2023). clearygottlieb.com



Background

In March 2023, the UK Government published its white paper on AI², proposing a “*pro-innovation and proportionate*” approach to AI regulation. This included a set of cross-sectoral regulatory principles:

- **Safety, security and robustness.** AI systems should function in a “*robust, secure and safe way*” and “*risks should be continually identified, assessed and managed*”.³
- **Transparency and explainability.** AI systems should be transparent, making clear “*how, when and for which purposes an AI system is being used*” to users. They should also be explainable, where it is possible to “*access, interpret and understand the decision-making processes of an AI system*”. The degree of transparency and explainability of an AI system should be proportionate to the risks it presents.⁴
- **Fairness.** AI systems should comply with UK law such as the Equality Act 2010 and therefore not “*discriminate unfairly against individuals or create unfair market outcomes*”.⁵
- **Accountability and governance.** There should be appropriate governance in place to ensure “*effective oversight of the supply and use of AI systems, with clear lines of accountability across the AI life cycle*”.⁶
- **Contestability and redress.** Regulators must ensure that people have clear and proportionate routes to contest AI decisions that are “*harmful*” or give rise to “*material risk of harm*”.⁷

Following this, the CMA launched an initial review into the development and use of FMs in May 2023,

through the CMA’s general review function under Section 5 of the Enterprise Act 2002. According to Sarah Cardell, CMA Chief Executive, the CMA’s objective is to “*help this new, rapidly scaling technology develop in ways that ensure open, competitive markets and effective consumer protection*”.⁸

The CMA’s initial report marks a major development in the burgeoning interest in AI technology from UK regulators and the Government (which in June 2023 announced the first global summit on AI, to be held in Autumn 2023⁹). It coincides with ongoing calls from various stakeholders across the world—including other competition agencies, such as the FTC¹⁰—to scrutinize firms’ AI practices and introduce specific regulation.

The Report

The report considers FMs at “*three levels of the value chain*”¹¹, namely: (i) the development of FMs; (ii) how FMs are used in other (downstream) markets and user applications; and (iii) consumers’ experience using AI tools. The report analyzes levels (i) and (ii) from a competition law perspective, setting out a “*spectrum*” of potential competitive outcomes, ranging from “*positive outcomes*” to “*most concerning outcomes*”. It sets out a list of factors that are likely to significantly impact these outcomes and the degree of competitiveness of the market at each level of the value chain. The report considers the third level through a consumer protection lens.

Competition in FM development

The CMA observes that “*there is already a wide range of FMs available ... developed by a variety of different organisations*”, and they serve a “*vast*”

² See Department for Science, Innovation & Technology, [A pro-innovation approach to AI regulation](#) (“**Government White Paper**”) (March 2023).

³ Government White Paper, p. 27.

⁴ Government White Paper, p. 28.

⁵ Government White Paper, p. 29.

⁶ Government White Paper, pp. 30-31.

⁷ Government White Paper, pp. 31-32.

⁸ CMA, Press release, [CMA launches initial review of artificial intelligence models](#) (May 4, 2023).

⁹ See Prime Minister’s Office, Press release, [UK to host first global summit on artificial intelligence](#) (June 7, 2023).

¹⁰ See The New York Times, [Lina Khan: We Must Regulate A.I. Here’s How](#) (May 3, 2023).

¹¹ CMA, AI Foundation Models Initial Report (“**AI FM Report**”), para 4.1

range of different utilities.¹² But it considers that to realize the full potential of FMs, it is “vital” that there is sustained, effective competition between FM developers. Although the CMA has “not found any systematic information” that would enable it to assess which FMs may be market leaders,¹³ it considers how competition in the development of FMs could be impacted by potential barriers to entry, network effects, and switching barriers. In particular, the report looks at the following key inputs for FMs:

- **Data.** The report observes that developing FMs requires a large volume of data (e.g., to pre-train the model). It comments that although firms can ‘scrape’ public data sources, “proprietary data may become increasingly important for FM development”¹⁴ and that “some firms may have data advantages relating to data from activities in other digital markets” (such as from a web index, or repositories of digital content such as video-sharing sites).¹⁵
- **Computational resources.** The report states that the computing systems required to develop FMs are “expensive to acquire, have limited availability, and face technical limitations”. It adds that only “a few businesses” produce the necessary inputs, and there are high initial manufacturing costs that mean that market leaders “can benefit from economies of scale”.¹⁶
- **Technical expertise.** The report comments that FMs “require a high level of technical expertise to develop and train”, and that large firms “may be able to acquire ... talent more easily”.¹⁷ That said, the CMA has not heard any concerns about non-compete clauses or restrictions on publishing academic papers imposed on employees, which were some of the issues marked for

scrutiny when it launched the initial review.¹⁸

- **Funding.** The report finds the cost of training and deploying FMs is “significant,”¹⁹ and that funding plays a “crucial role” in enabling smaller players to establish a presence.²⁰ But it finds that “currently smaller players are able to secure funding from investors”²¹, observing that several start-ups have been able to secure significant capital investment in a short space of time.

The report concludes that “if access to these key inputs were to be constrained, then FM developers may not be able to compete with larger, more established businesses that have greater resources”, which would risk “a decrease in competition and innovation ... which could ultimately harm consumers.”²² It presents the following spectrum of potential outcomes:

Spectrum of competition outcomes in the development of FMs²³

Positive market outcomes	Multiple independent developers competing with each other to produce a leading FM Innovative firms able to access the inputs needed to expand and compete effectively
Factors influencing the competitive environment	Access to data – specifically proprietary data Requirements for and access to computing power Whether large tech companies and first-movers have a strong advantage The availability of competitive open-source models enabling FM developers to use and improve upon them without needing to build their own models from scratch

¹² AI FM Report, para 2.33.
¹³ AI FM Report, para 2.34.
¹⁴ AI FM Report, para 3.8.
¹⁵ AI FM Report, para 3.9(b).
¹⁶ AI FM Report, para 3.21.
¹⁷ AI FM Report, paras 3.39-3.42.

¹⁸ AI FM Report, para 3.43.
¹⁹ AI FM Report, para 3.44.
²⁰ AI FM Report, para 3.46.
²¹ AI FM Report, para 3.45.
²² AI FM Report, para 3.109.
²³ AI FM Report, para 3.111.

Concerning market outcomes	<p>Restricted access to inputs resulting in only a handful of firms creating and maintaining the leading models</p> <p>Firms with market power providing models on a closed-source basis only and/or imposing unfair prices and terms</p> <p>Lesser competition resulting in reduced incentives to innovate</p>
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Impact of FMs on competition in other markets

The report observes that FMs are deployed in a variety of applications across a wide range of industries, both to improve existing products and services (e.g., AI-powered virtual assistants, or assistive technology in word processing software) as well as create new products and services (e.g., standalone chatbots such as Anthropic's Claude).²⁴ The report considers how:

- FMs could drive competition and disrupt incumbent firms.** The report finds that “many [AI] start-ups are trying to compete effectively with incumbent firms”, and “even if new entrants are ultimately unsuccessful, the threat of entry and disruption in contestable markets could provide competitive discipline to incumbent firms”.²⁵ It specifically identifies online search and productivity software as potential segments where disruptors could have an impact on market dynamics. But it also comments that “FMs [could] reinforce existing incumbent firms’ market positions”.²⁶
- Vertical integration and partnerships could provide scope for exclusionary conduct.** The report observes that several firms operate in multiple parts of the FM value chain (finding that certain firms are able to “supply their own computing power, develop their own FM using their own AI development tools, and deploy their FM into their own products and services”²⁷) and/or

have entered into partnerships with firms at different levels of the value chain (e.g., Microsoft’s agreement to be OpenAI’s exclusive cloud provider). On the other hand, it notes arrangements where different parts of the value chain can be fulfilled by a different firm (see CMA graphic below).



Figure 2 - A fully integrated value chain where the Cloud Service Provider provides all services.



Figure 3 - A non-integrated value chain where each service is provided by a different firm.

Source: CMA AI FM Report – Figures 6 and 7

The report recognizes that vertical integration “can be efficiency-enhancing”.²⁸ That said, without reaching any conclusions or conducting any examination of practices, the report raises the theoretical concern that firms active in upstream or adjacent markets to FM services could take advantage of potential structural features in the downstream market (e.g., economies of scope, switching costs, and indirect network effects) to engage in exclusionary conduct. For example, firms could restrict access to inputs, tie AI tools with their other products,²⁹ or engage in self-preferencing.³⁰ It does not discuss, though, whether such practices are occurring, or the expected impact of such conduct.

The report also outlines a concern that firms could restrict switching between different AI models – both for firms utilizing those FMs in their products and services, and end consumers. In particular, the report comments that choice for AI developers and consumers may be restricted if ecosystems are not interoperable and/or if data cannot be easily transmitted from one FM provider to another.³¹

²⁴ AI FM Report, para 4.5.

²⁵ AI FM Report, paras 416-417.

²⁶ AI FM Report, para 3.18.

²⁷ AI FM Report, para 4.26.

²⁸ AI FM Report, para 4.27.

²⁹ *Ibid.*

³⁰ AI FM Report, para 4.62.

³¹ AI FM Report, para 4.63.

The report identifies the following potential outcomes:

Spectrum of competition outcomes in use of FMs in other markets and user applications³²

Positive market outcomes	<p>Downstream firms have access to a range of FMs and can switch easily</p> <p>Firms and customers can make active and informed choices about the best FM for their needs</p> <p>Competition to develop downstream FM services is not unduly constrained through anti-competitive conduct by vertically integrated firms with market power</p>
Factors influencing the competitive environment	<p>Effective choice and the ability to switch – if different ecosystems are interoperable</p> <p>Customer preferences – specifically, whether consumers will prefer FM services offered within integrated systems, thereby advantaging vertically integrated firms</p> <p>Whether vertically integrated firms and those with partnership relations will have the incentive and ability to foreclose upstream and downstream competitors</p> <p>The degree of significance of data feedback effects</p>
Concerning market outcomes	<p>Lack of competition to develop FMs and/or downstream FM products creating a lack of choice for downstream consumers; e.g., because firms with market power are able to restrict competition</p> <p>Downstream customers have difficulty switching between FMs because they are locked into specific ecosystems</p> <p>Firms with market power in downstream or adjacent markets leverage that power through anticompetitive tying to unfairly disadvantage rivals</p>

Consumer protection

The report notes that FMs are being used for a range of consumer-facing applications. Although it explains that FM products and services could provide consumers with “*considerable benefits*,” such as improving productivity and efficiency, it voices concerns that they may also be used by bad actors. For example, the report comments that FMs could allow firms to engage in fraud or to provide false or misleading information, and may exacerbate existing consumer harms (e.g., by facilitating these at greater scale).

The report specifically identifies potential consumer harms arising out of AI FM-generated fake reviews, phishing, hidden advertising, and misinformation from so-called ‘hallucinations’³³ and ‘deep fakes’.³⁴ It also flags concerns that consumers may not understand how FMs work, and/or whether content has been generated by an AI tool. The report discusses measures that could be used to address possible consumer harms, such as testing, technical measures to mitigate hallucinations (e.g., through ‘grounding’), disclosure requirements (i.e., to make clear to users when they are interacting with an AI system, and/or the limitations of that system) and adopting standards or benchmarks to measure the quality and/or reliability of FM-generated output.

Guiding Principles for Firms

The report sets out a list of “*overarching principles*” for firms using AI, intended to ensure competitive outcomes (note that the principles of “Choice”, “Fair Dealing”, and “Transparency” correspond with the objectives for conduct requirements for SMS firms to be set by the DMU in the proposed UK digital regime³⁵).

The principles are:

- **Access.** Firms should ensure ongoing ready access to key inputs (e.g. data, compute, expertise and capital) without undue restrictions.

³² AI FM Report, para 4.63.

³³ AI FM Report, para 5.7.

³⁴ AI FM Report, para 5.24.

³⁵ See Digital Markets, Competition and Consumers Bill, section 19(5).

- **Diversity.** There should be sustained diversity of business models, including both open and closed source models.
- **Choice.** There should be sufficient choice for businesses so they can decide how to use FMs. For example, firms should be able to choose from a range of deployment options, such as in-house FM development, partnerships, APIs, or plug-ins.
- **Flexibility.** Firms should have flexibility to switch or use multiple FMs according to need (e.g., through interoperability to support firms mixing and matching or deploying multiple FMs, and consumers should be able to switch and/or use multiple services easily.
- **Fair dealing.** Firms should not engage in anti-competitive conduct, such as self-preferencing, tying, or bundling.
- **Transparency.** Consumers and businesses should be given information about the risks and limitations of FM-generated content so they can make informed choices.³⁶

Next Steps

The CMA has not (yet) launched formal action into FMs under its markets, competition, or consumer powers. Rather, it has indicated that it intends to commence a “*significant programme of engagement*”³⁷ with stakeholders, seeking views on the report and principles. Following this, it will publish an update in “*early 2024*”.³⁸

That said, the CMA states that it will be “*vigilant*” of competition and consumer concerns raised by AI, and “*will not hesitate to use its powers where appropriate*”.³⁹ It specifically identifies mergers involving AI (which it “*strongly encourage[s]*” firms to notify to the CMA) and potentially anti-competitive conduct (in particular exclusionary practices by large firms, restrictions on switching between FM providers and consumers receiving

false and misleading content from FM services) as areas that businesses “*should be particularly mindful of*”.⁴⁰

AI-related practices by firms designated as having “strategic market status” (“SMS”) may also be scrutinized by the CMA’s Digital Markets Unit (“DMU”) if and when the proposed Digital Markets, Competition, and Consumers Bill becomes law (expected 2024/2025). The report comments that “*FMs and their deployment will be relevant to the CMA’s selection of SMS candidates, particularly where FMs are deployed in connection with other, more established activities.*”⁴¹

Finally, the CMA notes that “*there will be an important role for regulation as AI develops further*”. But it stops short of recommending legislation, and comments that “*overly burdensome regulation may make it more difficult for competition and innovation to flourish, and at worst may lead to concentration and become a significant barrier to entry in its own right*”.⁴² This marks a different approach from other competition agencies, such as the European Commission, which has pressed ahead with introducing AI-specific legislation (the AI Act) on the basis that the technology is “*too important not to regulate*”.⁴³

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³⁶ AI FM Report, p. 120 – Figure 21.

³⁷ AI FM Report, para 8.2.

³⁸ AI FM Report, para 8.4.

³⁹ AI FM Report, para 6.5.

⁴⁰ AI FM Report, para 6.6.

⁴¹ AI FM Report, para 6.14.

⁴² AI FM Report, para 6.50.

⁴³ See Margrethe Vestager, European Commissioner, [Closing statements on Artificial Intelligence Act](#) (June 13, 2023).