Digital Competition's Submission to the European Commission's Consultation on Generative AI

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1 Introduction

The European Commission is studying Generative AI (GenAI) and seeks to gather stakeholders' input on how competition in GenAI works following similar investigations in the United Kingdom[1], Portugal, Hungary, India, the United States, and France[2]. In this context, we provide comments based on our extensive publications on the topic, including "Antitrust Issues Raised by Answer Engines" (Carugati, 2023a), "Competition in Generative AI Foundation Models" (Carugati, 2023b), "The Competitive Relationship between Cloud Computing and Generative AI" (Carugati, 2023c), and "The Generative AI Challenges for Competition Authorities" (Carugati, 2024). We limit our submission to high-level aspects of European competition policies related to market definition, antitrust, merger control, and regulations and propose policy recommendations. Finally, we look forward to working with the Commission and relevant stakeholders to provide forward-looking desk research and policy recommendations in the context of our GenAI and competition policy Hub.

2 Market Definition

GenAI necessitates developers to have access to three main components within its value chain: computing resources, machine learning models, and data. Subsequently, application developers integrate GenAI into their products and services (Carugati, 2024).

[1] We also submitted comments to the UK consultation on the initial report on foundation models. Christophe Carugati, Comments from Digital Competition to the CMA Initial Report on AI Foundation Models, *Digital Competition*, 4 January 2024 (accessed 6 February 2024). Available at: https://www.digital-competition.com/comment/comments-from-digital-competition-to-the-cma-initial-report-on-ai-foundation-models

[2] We track market studies by competition authorities. *See*, GenAI and Competition Hub, *Digital Competition* (accessed 6 February 2024). Available at: https://www.digital-competition.com/genaiandcompetitionhub

Computing resources are essential for developing and deploying machine learning models. The primary components consist of graphic cards for computation and AI workloads, as well as cloud computing for running and deploying models at scale over the internet. Cloud providers are the preferred choice for most model developers due to their ability to offer computing resources, including graphic cards and servers, without investing in infrastructure. However, in both the graphic cards and cloud computing sectors, only a few market players vigorously compete and innovate, frequently introducing new products and services, such as advanced graphic cards and cloud computing solutions.

New entrants in the graphic cards and cloud computing sectors encounter high entry barriers. These obstacles include substantial investments in research and development, the necessity of achieving economies of scale, and existing partnerships with model developers (Carugati, 2023b).

Machine learning models generate outputs using input data, such as text, images, videos, or music. These models can be categorised as either closed or open-source. Closed-source models are licensed to third parties for commercial use against a fee, typically based on the number of text inputs and generated outputs. Conversely, open-source models are publicly available for free, enabling third parties to modify and use models for commercial and/or research purposes. They generate revenue by offering complementary services, such as developer platforms. While we have yet to delve deeply into the competition dynamics between closed-source and open-source models, evidence suggests that open-source models effectively compete with closed-source ones. Indeed, some open-source models like Meta Llama and Mistral AI have received significant financial support. Moreover, open-source models like the Koala model have demonstrated performance similar to closed-source models. In addition, model developers compete on various factors, including task requirements, language specifications, and model size (Carugati, 2024).

Newcomers entering the models sector, especially in the realm of Large Language Models (LLMs), face high entry barriers. These obstacles include the requirement for substantial financial resources to train and run models, as well as the necessity for human resources to develop models. However, new entrants can overcome these barriers thanks to technological developments, such as the emergence of Small Language Models (SLMs) and the creation of new models derived from existing open-source models. Moreover, the wide availability of online public resources, including community websites, free online courses, and free research repositories, ease entry barriers for new entrants without the need to have significant human resources (Carugati, 2023b).

Data is the indispensable input for generating output. Similar to traditional data-driven markets, the volume (scale), variety (scope), velocity (freshness) and quality of the dataset determine the quality of the generated output (Carugati, 2023b). Model developers typically train their models using publicly available data from the internet or open-source repositories. Additionally, developers also use proprietary datasets obtained from their own first-party or third-party services, such as data brokers, data marketplaces, and publishers. Furthermore, models compete on various dataset factors, including task requirements, language specifications, and domain specificity (Carugati, 2024).

Newcomers entering the models sector encounter high entry barriers. These include the requirement to access a large volume and variety of data, sometimes in real time. Nevertheless, new entrants can overcome these barriers thanks to technological developments, such as the wide availability of open-source data, the practice of fine-tuning pre-trained models using proprietary and/or open-source data, and the practice of deploying models on fresh, real-time data (Carugati, 2023b). Additionally, concerns have been raised regarding the potential competitive data advantage for models provided by large online platforms with access to vast proprietary datasets[3]. However, we have not found substantive evidence supporting this claim within model markets. Indeed, there is currently no evidence suggesting that data confers market power or that large online platforms benefit from data advantages. Furthermore, empirical research on the significance of data-driven network effects on model performance remains scarce (Carugati, 2024).

Finally, models enable the development of applications for intended tasks, such as text generation. Model developers either develop their own first-party AI-powered applications, such as OpenAI ChatGPT or enable third-party ones, like Hervey AI. Subsequently, some applications enable both first-party and third-party add-ins that enhance the functionality of the application. For instance, OpenAI ChatGPT allows the development of customised GPTs devoted to a specific task, which can then be available on an app store (Carugati, 2024).

Newcomers entering the applications sector encounter low entry barriers because they can develop commercial applications either internally with a developer or through a third-party provider, such as OpenAI GPTs, Microsoft Copilot Studio or Nuclia. Moreover, the availability of low-code or no-code solutions further simplifies the development process. However, applications might face entry barriers due to potential antitrust issues at downstream and upstream levels that deserve in-depth scrutiny (Carugati, 2024).

[3] Georg Riekeles and Max von Thun, AI Won't be Safe Until We Rein in Big Tech, *European Policy Centre*, 22 November 2023 (accessed 29 January 2024). Available at: https://www.epc.eu/en/publications/AI-wont-be-safe-until-we-rein-in-BigTech~55e63c

Overall, the main drivers of competition are access to suitable computing resources, models, and data. The specificity of the intended task further shapes competition among model developers. For instance, a monolingual text-to-text model sometimes performs better than a multilingual one (Carugati, 2024).

3 Antitrust

At the cloud computing level, the main antitrust issues revolve around potential discrimination in the supply of IT equipment by dominant IT providers, interoperability obstacles to switching, use of business-user data, self-preferencing of cloud services over third parties, tying and pure bundling (Carugati, 2023c).

At the model level, a dominant firm might leverage its market dominance in a particular market to promote its GenAI offerings. Such firms might enjoy a competitive advantage over others by leveraging their existing user base and brand to direct users towards their own GenAI products and services. However, the ability to leverage might not necessarily mean that users will use the proprietary GenAI solutions. Indeed, it will depend on how users use GenAI for specific tasks. For instance, a legal professional might prefer using a third-party model tailored to generate legal analyses rather than a proprietary model focused on generating general answers. Additionally, a dominant application provider might also refuse a third-party application developer from accessing its model to prevent the development of competing products or services. Lastly, developers might develop models facilitating anticompetitive agreements (Carugati, 2023b).

At the data level, antitrust issues might arise when a dominant firm engages in data scraping from websites or refuses access to data relevant to competition (Carugati, 2023b).

Moreover, these concerns have been addressed by the Commission and the Court of Justice in antitrust cases involving large online platforms, such as in the *Google Search (Shopping)* case (Carugati, 2023b). Lastly, at present, there is no evidence indicating the necessity to adapt European antitrust law due to enforcement gaps in GenAI.

4 Merger Control

Partnerships between large cloud providers and model developers could potentially raise merger concerns. Firstly, they might not meet the criteria of control under the European

Merger Control Regulation (EUMR). Indeed, in many cases, these partnerships consist of exchanging access to models for access to cloud computing resources. While the cloud partner might exert a competitive influence over the model partner, the former reportedly lacks controlling rights over the latter. In such instances, the partnership is likely to fall outside the scope of the EUMR. Secondly, these partnerships come in various forms. Some are exclusive, like the partnership between Microsoft and OpenAI, while others are non-exclusive, like the partnership between Amazon and Anthropic. While these collaborations might encourage competition and investment, they could also give rise to problematic practices such as tying (Carugati, 2023c).

The Commission can only review a partnership under the EUMR if it involves a change in control. Consequently, a potential enforcement gap exists if the partnership does not result in a change in control. To address this, the Commission could contemplate revising the EUMR to capture partnerships by modifying the definition of control, shifting from the requirement for a change in control to a requirement for a competitive influence like in the German merger control law. However, such a modification might result in reviewing a potentially higher number of mergers that do not pose competition concerns. Given the relatively low number of potentially anticompetitive partnerships and the increased administrative costs for the Commission, this change might not be cost-effective. Therefore, at present, the Commission should rely on antitrust laws to tackle potential anticompetitive risks arising from the partnerships when necessary and justified (Carugati, 2023c).

5 Regulations

European regulations, such as the Digital Markets Act (DMA) and the Data Act, can tackle some of the abovementioned antitrust issues (Carugati, 2023b, 2023c).

However, there are voices advocating for designing gatekeepers in relation to cloud services and GenAI under the DMA to tackle alleged market concentration and potentially anticompetitive practices before they occur[4]. However, at present, substantive evidence supporting this claim is currently lacking.

Indeed, most potential alleged anticompetitive concerns in the cloud sector can be addressed under the Data Act, while those in the GenAI sector can be tackled through existing antitrust

[4] Max von Thun, EU Does Not Need to Wait for the AI Act To Act, *Euractiv*, 30 January 2024 (accessed 6 February 2024). Available at: https://www.euractiv.com/section/artificial-intelligence/opinion/eu-does-not-need-to-wait-for-the-ai-act-to-act/

laws and certain provisions of the DMA, such as the ban on self-preferencing if a designated search provider wants to promote its own GenAI solution in its search engine.

Additionally, we did not observe market conditions or potentially anticompetitive practices justifying the inclusion of GenAI in the list of core platform services under the DMA. Furthermore, the broad definition of GenAI is likely to lead to untargeted interventions under the DMA, which might likely result in legal uncertainties for economic actors developing GenAI. Some may propose resolving this definition issue by linking GenAI under the DMA to the definition of General Purpose Artificial Intelligence (GPAI) models with systemic risk under the forthcoming AI Act. However, there is no correlation between the concept of GPAI models with systemic risk under the AI Act and the concept of market power and anticompetitive practices underpinning the DMA. Therefore, until proven otherwise, such a reference to the AI Act under the DMA lacks evidence-based support and should be disregarded.

Lastly, various legal frameworks impact competition in GenAI, including intellectual property rights, data protection, AI governance, and competition laws (Carugati, 2024).

6 Policy Recommendations

Based on our observations, we propose the following policy recommendations:

Firstly, the Commission should cooperate in an international forum to ensure coherence. It should ideally do joint studies in a forum like the European Competition Network (ECN) or International Competition Network (ICN). Given the borderless nature of the issues posed by GenAI, this collaborative approach would foster experience-sharing without resource duplication.

Secondly, the Commission should collaborate with relevant competent authorities to assess the impact of various legal frameworks on competition. It should seek inputs from these authorities in the context of the High-Level Group for the DMA.

Lastly, given the rapid market and regulatory developments, the Commission should adopt an outcome-based approach like the one of the UK Competition and Markets Authority in its initial report on foundation models. Based on its findings, the Commission should then develop principles to guide economic actors in developing their GenAI products and services that promote positive competitive outcomes.

About

Digital Competition

Digital Competition (digital-competition.com) is a research and advisory firm. Our mission is to advance open digital and competition policies for better innovation. We inform our members and clients on emerging and global digital and competition issues through impartial, forward-looking analyses, shaping policies that foster innovation for all. This comment did not receive any funding.

This paper is part of our GenAI and Competition Hub (https://www.digital-competition.com/genaiandcompetitionhub), which strives for responsible GenAI development, ensuring favourable market conditions that benefit all. Our Hub helps stakeholders and decisionmakers navigate complex and rapid GenAI market and regulatory development. We also nurture the discussion in designing competition policies that deliver favourable market conditions in the context of intense monitoring of GenAI by competition authorities worldwide and the forthcoming 2024 G7 Italian presidency.

We provide research and market studies and invite stakeholders to contribute with relevant input. We also offer consultations, training sessions, and conferences on GenAI and competition. Contact us to join the Hub as a member and/or for consultation/press inquiries.

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Dr. Christophe Carugati (christophe.carugati@digital-competition.com) is the founder of Digital Competition. He is a renowned and passionate expert on digital and competition issues with a strong reputation for doing impartial, high-quality research. After his PhD in law and economics on Big Data and Competition Law, he is an ex-affiliate fellow at the economic think-tank Bruegel and a lecturer in competition law and economics at Lille University.