Qualcomm Incorporated

5775 Morehouse Drive, San Diego, CA 92121

www.qualcomm.com

Qualcomm Incorporated's Comment to the Department of Justice's Workshop on Promoting Competition in Artificial Intelligence

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Qualcomm appreciates the opportunity to provide information regarding competition in the artificial intelligence ("AI") sector. For more than 15 years, Qualcomm has been investing in AI research and development, especially the AI stack at the edge, from hardware to domain-specific foundation model enablement. Our heritage in low power processing (heterogeneous computing, system solutions, latest process node, etc.) and connectivity (3G, 4G, 5G, Wi-Fi, etc.) is essential for AI. We take a systems approach to advance AI and make it more power efficient through full-stack AI optimizations across specialized hardware, algorithms, networks, and software. As a result of these multi-year efforts, in 2023, Qualcomm was the first company in the market to run a Stable Diffusion model on a smartphone. Since then, Qualcomm has made significant progress, such as running Stabe Diffusion on a phone in less than one second, running Llama 2-7B up to 20 tokens per second on a phone, and running Llama 2-13B up to 30 tokens per second on a laptop.[1]

Our submission covers the following issues: (1) the need for AI development to be consistent with ecosystem openness; and (2) the importance of access to data that is open and consistent with all applicable laws.

I. AI Development and Implementation Should Be Consistent with Open Ecosystems

AI development and implementation should be consistent with open ecosystems. For example, AI development should not make it more difficult for developers and users to switch from one mobile ecosystem to another and vice versa. Conversely, agencies should be vigilant against the risk of AI being developed into closed ecosystems, including through the leveraging of positions in other segments.

At this early stage of generative AI development and implementation, it is not possible to foresee all the ways in which AI may make it harder to switch between ecosystems or enter into one. However, even when market participants do not engage in anticompetitive conduct, a market susceptible to tipping may still eventually lose competitiveness and become a winner-takes-all market.[2] Depending

[1] 7B denotes 7 billion parameters. 13B denotes 13 billion parameters.

[2] See, e.g. European Commission, *Impact Assessment Report Accompanying Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act)*, SWD(2020) 363, ¶ 120 (Dec. 15, 2020) ("Second, market failures associated to tipping markets cannot be tackled on the basis of the existing competition rules, notably where market tipping is triggered primarily by the market structure, and not (or only to a lesser extent) by any specific conduct.").

on how AI continues to be developed and deployed, it may turn out to be one such market.[3] Therefore, to prevent a possibly irreversible walling off of ecosystems in the future, agencies should begin to examine the development and deployment of AI and its potential effects on competition.

II. Open Access to Data for AI Developers is Critical to a Robust and Open AI Ecosystem

Data is a necessary resource for the development of AI models and applications,[4] and it is important that AI developers have access to data, in a manner consistent with all applicable laws. Qualcomm fully supports the protection of privacy, data security, and transparency in the development and implementation of AI. We believe our initiatives in developing AI at the edge are consistent with and promote these values. At the same time, the ecosystem needs access to data to train, fine-tune, and apply AI models. The possession of large amounts of data is not unlawful in itself, but restricting access to data may inhibit the development of the entire ecosystem.[5] Again, it is too early to tell how the companies currently collecting vast amounts of data through various sources will address the question of AI developers' access to data. However, given the importance of data throughout the AI development and deployment process, delayed or denied access to data may stunt innovation in this segment in the long term.

Accordingly, we encourage the Department to begin investigating mechanisms to maintain open access to data for AI development in a manner consistent with privacy and transparency.

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We thank the Department for the opportunity to comment and stand ready to provide additional information or assistance as needed.

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[3] *See, e.g.*, U.S. Federal Trade Commission Staff in the Bureau of Competition & Office of Technology, *Generative AI Raises Competition Concerns*, Technology Blog (Jun 28, 2023) ("FTC Gen AI Blog Post"), https://www.ftc.gov/policy/advocacy-research/tech-at-ftc/2023/06/generative-ai-raises-competition-concerns ("Firms in generative AI markets could take advantage of network effects to maintain a dominant position or concentrate market power . . . Absent legal or policy intervention, network effects can supercharge a company's ability and incentive to engage in unfair methods of competition.").

[4] *See* Benoît Coeuré, President of the French Competition Authority, Artificial intelligence: making sure it's not a walled garden, Keynote address at the Bank for International Settlements – Financial Stability Institute policy implementation meeting on big techs in insurance (Mar. 19, 2024) https://content.mlex.com/Attachments/2024-03-19_P2ISG35N2MYY4QW4%2f20240319-BIS-Speech.pdf ("Access to massive amounts of data is key to train and fine-tune generative AI."); FTC Gen AI Blog Post ("Developing generative AI typically requires exceptionally large datasets, especially in the pre-training step.").

[5] *See id.* ("[E]ven with responsible data collection practices in place, companies' control over data may also create barriers to entry or expansion that prevent fair competition from fully flourishing.").