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The Regulation of the Cloud Market in the UK: Some Preliminary Thoughts and A Cautionary Tale

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The Regulation of the Cloud Market in the UK:

Some Preliminary Thoughts and A Cautionary Tale

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"Perfect is the enemy of good"

Does the CMA risk over intervention in the pursuit of a more perfect cloud services market?

I. Introduction

In an extraordinary decision by the UK government, the head of the politically independent Competition and Markets Authority ("CMA"), Marcus Bokkerink, was sacked in late January 2025.[2] The business secretary Josh Reynolds linked the dismissal with "a plan for change" designed to "supercharg[e] the economy with pro-business decisions that will drive prosperity and growth, putting more money in people's pockets."[3] UK business leaders had directed numerous complaints about the overly interventionist approach the CMA had turned to under Mr. Bokkerink and apparently government ministers had been listening.[4]

A week later the CMA released a report, seemingly contradicting this newfound ethos, recommending the government intervene in the cloud services market with new regulations.[5] Though the findings were provisional, and the recommendations only loosely defined, the conclusions were clear, current market outcomes are suboptimal, and had been for years.[6]

Even though the report was initiated under Bokkerink's watch, the committee undertaking the analysis was independent, and early signals indicate the CMA has every intention with continuing their investigation.

One might wonder, despite Mr. Bokkerink's dismissal, that this means the CMA will continue its interventionist agenda or whether it will ultimately align with the business secretary's more hands-off approach. This piece, however, will not make any conjecture on that matter, it will instead summarize the report's findings and comment on whether any intervention advocated in the report should be taken

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[2] See Jim Pickard & Suzi Ring, Ministers force out chair of UK's competition regulator, FIN. TIMES (Jan. 21, 2025), https://www.ft.com/content/7d1e04fb-3e11-4de5-9a04-6bb4b2070163.

[3] Id.

[4] Id.

[5] See Press Release, Competition and Market Authority, CMA independent inquiry group publishes provisional findings in cloud services market investigation (Jan. 28, 2025), https://www.gov.uk/government/news/cma-independent-inquiry-group-publishes-provisional-findings-in-cloud-services-market-investigation.

[6] Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 85 (Jan. 28, 2025).

and what issues the CMA should consider and prioritize in its subsequent investigation.

II. Summary of Findings

On the 6th of November 2023, the United Kingdom's Office of Communication (commonly referred to as "Ofcom") released a lengthy report on the competitive state of the country's cloud services market.[7] The conclusion was succinct, though consumers are deriving benefits from the market, "competition is not working well."[8]

Ofcom, the UK's independent regulatory and competition authority for the broadcasting, telecommunications, and postal industries, subsequently referred the cloud computing market to the country's principal competition authority, the Competition and Markets Authority ("CMA") to undertake its own assessment.[9]

Just over a year later, the CMA's own provisional report, which spanned twice as many pages as Ofcom's original report, was released on the 28th of January 2025.[10] The authority's conclusion was much the same, though consumers experience both quality and innovation "a more competitive market would have sustained better market outcomes."[11]

In so many words, "competition is not working as well as it could be," and absent certain adverse effects on competition ("AEC"), it could be better. [12] There would likely be lower prices, more

[7] See Statement, Office of Communications, Cloud services market study (final report) (Apr. 5, 2023), https://www.ofcom.org.uk/internet-based-services/cloud-services/cloud-services-market-study.
[8] Id. at 211.
[9] Id. at 246
[10] Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, (Jan. 28, 2025).
[11] Id. at 46.
[12] See Press Release, Competition and Market Authority, CMA independent inquiry group publishes provisional findings in cloud services market investigation (Jan. 28, 2025), https://www.gov.uk/government/news/cma-independent-inquiry-group-publishes-provisional-findings-in-cloud-services-market-investigation.

innovation, higher quality, and greater choice for consumers, organisations, and businesses.[13]

a. Market Definition and Shares

Like many colloquial, broadly defined markets, the cloud services market consists of various substitutive and complementary products that can be further grouped and subdivided into narrower markets.

The CMA report focuses on two of these narrower definitions: the public commercial cloud service markets for Infrastructure as a Service ("IaaS") and Platform as a Service ("PaaS").[14]

Together with Software as a Service ("SaaS"), the three products *can* combine to form a vertical "cloud stack," each a "layer" notionally built on top of the other and working in conjunction.[15] However, many consumers and enterprises are not required to and often do not contract for the entire "stack."[16]

IaaS, as the name suggests, is the underlying hardware infrastructure that provides access to raw compute power and data storage.[17] Of the three layers it provides customers with the highest degree of customization and control over operating systems, applications, and data.[18] Unlike PaaS it does not include any prebuilt, managed, or maintained operating systems, middleware, or similar applications.[19]

PaaS often includes IaaS as part of its offering and affords customers less control over their virtual environment. Rather than simply consisting of the hardware, PaaS is instead a prebuilt digital

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[13] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 18 (Jan. 28, 2025); Press Release, Competition and Market Authority, CMA independent inquiry group publishes provisional findings in cloud services market investigation (Jan. 28, 2025), https://www.gov.uk/government/news/cma-independent-inquiry-group-publishes-provisional-findings-in-cloud-services-market-investigation.

[14] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 20 (Jan. 28, 2025.

[15] Id. at 20.

[16] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 20 n.18 (Jan. 28, 2025.

[17] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 21 (Jan. 28, 2025.

[18] Id.

[19] Id.

platform that allows customers to build, test, and deploy fully realized software applications with without having to maintain or manage the operating system and related tools.[20]

The report presented evidence that both markets, separately and combined, are highly concentrated, with that concentration stable over time, and both dominated by Amazon Web Services and Microsoft Azure, while Google Cloud remains a small but not insignificant third player.[21]

The CMA also determined that traditional onsite IT infrastructure, as well as private and hybrid cloud solutions, were not adequate substitutes for either product market.[22] It also cleaved IaaS based on *accelerated* compute, the IaaS required for artificial intelligence and large language model processing, from IaaS based on *standard* compute and did not include it in the assessment.[23]

Table 3.1: UK shares of supply for IaaS, 2020 – 2023

%

	2020	*2021*	*2022*	*2023*
AWS	[40-50]%	[40-50]%	[40-50]%	[40-50]%
Microsoft	[30-40]%	[30-40]%	[30-40]%	[30-40]%
Google	[5-10]%	[5-10]%	[5-10]%	[5-10]%
IBM	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Oracle	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Other	[10-20]%	[10-20]%	[10-20]%	[5-10]%

Source: CMA analysis of first-party revenue data and IDC and Synergy data. Shares may not sum to 100 due to rounding. 'Other' category includes the other firms included in the IDC and Synergy data sets (see paragraph 3.140).

[20] Id.
[21] Id. at 46.
[22] Id.
[23] Id.

Table 3.2: UK shares of supply for PaaS, 2020 – 2023

%

	2020	2021	2022	2023
AWS	[20-30]%	[20-30]%	[20-30]%	[20-30]%
Microsoft	[20-30]%	[20-30]%	[20-30]%	[20-30]%
Google	[5-10]%	[5-10]%	[5-10]%	[5-10]%
Oracle	[0-5]%	[0-5]%	[0-5]%	[0-5]%
IBM	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Other	[40-50]%	[40-50]%	[30-40]%	[30-40]%

Source: CMA analysis of first-party revenue data and IDC and Synergy data. Shares may not sum to 100 due to rounding. 'Other' category includes the other firms included in the IDC and Synergy data sets (see paragraph 3.140).

Table 3.3: UK shares of supply for IaaS and PaaS combined, 2020 – 2023

%

	2020	2021	2022	2023
AWS	[30-40]%	[30-40]%	[30-40]%	[30-40]%
Microsoft	[20-30]%	[20-30]%	[30-40]%	[30-40]%
Google	[5-10]%	[5-10]%	[5-10]%	[5-10]%
IBM	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Oracle	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Other	[20-30]%	[20-30]%	[20-30]%	[20-30]%

Source: CMA analysis of first-party revenue data and IDC and Synergy data. Shares may not sum to 100 due to rounding. 'Other' category includes the other firms included in the IDC and Synergy data sets (see paragraph 3.140).

b. Market Outcomes and Adverse Effects on Competition

In its assessment, the CMA determined that Amazon and Microsoft's cloud services have been generating sustained returns above their cost of capital for numerous years.[24] Meaning both companies' cloud services have been creating economic value above that which would be expected in a perfectly competitive or mature market.

To the CMA, these returns are due to numerous factors, many of which it would describe as "Adverse Effects on Competition" or

[24] Id. at 482.

AECs, including substantial barriers to entry and expansion, switching clouds and "multi-clouding," and licensing practices undertaken by Microsoft, that have allowed Amazon and Microsoft to maintain relatively high and stable market shares.[25]

Particularly in IaaS, entry and expansion in the cloud services market requires significant fixed cost investments on assets that are largely irrecoverable on exit.[26] This dynamic is coupled with economies of scale that grants larger providers lower ongoing operating costs compared to similarly situated albeit smaller providers.[27] Combined, this state of affairs disincentivizes would be competitors to enter and hinders existing competitors efforts to expand.[28] And given both Amazon and Microsoft's plans to continue investing, the levels of capital required for potential and existing competitors is seemingly only going to grow.[29] Additionally, the large companies benefit from preexisting product portfolios and associated reputations that further stifles smaller competitors.[30]

Switching and multi-clouding are related but distinct issues the CMA identified. Switching simply refers to the ability of a customer to change cloud service providers (i.e. transfer data and workload from AWS to Google), while multi-clouding refers to the practice of using multiple cloud service providers at once.[31] The CMA found substantial barriers, technical and commercial, to both practices.[32]

Switching requires that customers expend significant resources and opportunity costs.[33] Since each distinct cloud service is technically differentiated in features, interfaces, and methodologies customers cannot readily switch services without significant recoding and adaptation to the new service.[34] For customers surveyed, the perceived costs of switching services outweighs the perceived benefits.[35]

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[25] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 479 (Jan. 28, 2025).
[26] Id. at 482.
[27] Id. at 483.
[28] Id. at 484.
[29] Id.
[30] Id. at 482.
[31] Id. at 38.
[32] Id. at 206.
[33] Id. at 218.
[34] Id. at 218-19.
[35] Id.

Multi-clouding suffers from the same customer perceptions as switching.[36] In addition to the technical variance in cloud services that require personnel to be familiar with multiple systems and methodologies, customers raised concerns about cybersecurity, scalability, corporate governance, and audits.[37] And, on average, integrating multiple clouds increased overhead and latency, further disincentivizing the practice.[38] Again, the perceived benefits are outweighed by the perceived benefits.[39]

Egress Fees, payments levied on customers when they migrate data between clouds, another identified AEC, provide a similar non-technical barrier to switching.[40]

Special attention was given to Microsoft for its ability and incentive to partially foreclose its cloud service rivals via market power in its complementary software products.[41] Through licensing practices, Microsoft restricts AWS and Googles ability to host some of its products, or alternatively makes the process complex, difficult, or more expensive.[42] For many large customers surveyed, Microsoft's licensing practices were a determinative factor in their choice of provider.[43]

c. Proposed Remedies

The report evaluates multiple potential remedies and, for the most part, finds that under the CMA's current market investigation order making powers, each remedy either carries an undue risk of adverse consequences, imposes excessive administrative burdens, or fails to effectively address the AEC at issue.[44] The report instead advocates that the CMA open an investigation under the Digital Markets, Competition and Consumers Act ("DMCC") to determine whether

[36] Id.
[37] Id.
[38] Id.
[39] Id. at 221.
[40] Id. at 270.
[41] Id at 321.
[42] Id. at 402.
[43] Id. at 430.
[44] Id. at 488.

Amazon and Microsoft's cloud services should be designated with strategic market status ("SMS").[45]

An SMS designation under the DMCC would allow for a more targeted, flexible, and responsive regulatory regime that would be implemented in an iterative way.[46] Additionally, SMS designation can only be given to those firms with substantial and entrenched market power, as well as a strategic position in a given digital market.[47] In short, the report advocates for a dynamic regulatory regime targeted at only Amazon and Microsoft as opposed to a one-off intervention given the evolving nature of the cloud services industry.[48]

Along with this recommendation, the report recommends that, if an SMS designation is warranted, the CMA should pursue only a subset of those potential remedies it explored relating to reducing or eliminating technical barriers, egress fees, and Microsoft's licensing practices.[49] The report did not recommend pursuing actions such as structural remedies and utility like regulation.[50]

The proposals relating to eliminating or reducing technical barriers would invariably involve the adoption of common standards in IaaS, PaaS, interfaces, or one of the cloud services related ancillaries.[51] Technical changes would putatively increase interoperability allowing customers to switch providers and undertake multi-clouding.[52] Eliminating egress fees would also seemingly eliminate another of the disincentivizes related to switching providers. While addressing Microsoft's licensing practices would "unbundled" Microsoft's software from its Azure service allowing customers to choose the cloud provider of their choice without having to consider the monetary or operational difficulties related to using Microsoft's software on a competitor's cloud service.[53]

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[45] Id.
[46] Id. at 17.
[47] Id. at 495.
[48] Id. at 506.
[49] Id.
[50] Id.
[51] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 2 app. W (Jan. 28, 2025).
[52] Id. at 7.
[53] Id. at 48.

III. Analysis Evaluation Recommendation

Despite its finding that competition in the cloud services market "is not working as well as it could be," the report also recognizes that the market is defined by high levels of investment.[54] Customers also reported that the current competitive landscape offers them both quality and innovation.[55] The pace of innovation and investment has even increased with the advent of breakthroughs in artificial intelligence technologies.[56]

The contention that that competition is not working well as it could be, *and* that state intervention is the solution is a proposition that should be carefully scrutinized. The cloud services market, as the CMA's report rightfully characterizes it, is an increasingly important input for the United Kingdom's economy.[57] Annual spending on cloud services reached £9 billion in 2023 and revenues have grown at an annual rate roughly equaling 33 percent.[58] Microsoft considers itself in a capex spending race and does not consider the industry to be in a steady-state as of now.[59] The explosion of deep learning and large language models reliance and incorporation into cloud services only bolsters that claim.

Eliminating, reducing, or capping egress fees, absent a showing by providers that they provide procompetitive functions, is a relatively uncontroversial remedy. It is a nontechnical barrier that could be easily eliminated, monitored, and would go towards incentivizing customers to switch. And since this remedy would apply only to

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[54] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 181 (Jan. 28, 2025); see also Christian Schoeberl and Jack Corrigan, Funding the AI Cloud — Amazon, Alphabet, and Microsoft's Cloud Computing Investments, Part 1: If You Build Cloud, They Will Come, CTR. FOR SEC. EMERGING TECH. (Oct. 30, 2024), https://cset.georgetown.edu/publication/funding-the-ai-cloud-computing-investments-part-1.

[55] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 13 (Jan. 28, 2025).

[56] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 145 (Jan. 28, 2025).See also Jeffrey Erickson, The Role and Benefits of AI in Cloud Computing, ORACLE (June 21, 2024), https://www.oracle.com/artificial-intelligence/ai-cloud-computing/.

[57] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 12 (Jan. 28, 2025).

[58] Id.

[59] Id. at 106.

Amazon and Microsoft, the largest providers and services that benefit most from economies of scale, smaller existing and would-be competitors would be unaffected.

However, technical remedies mandating standardization and addressing Microsoft's licensing practices are less clear cut.

The effects of the relationships between standardization and innovation are mixed. While facilitating interoperability there is a strong possibility that any industry wide standard could inhibit innovation in an area Microsoft rightfully describes as still developing. Relatedly, there is the possibility that not only innovation is affected but quality as well. In competition's tripartite concerns of price, quality, and innovation, standardization could potentially how an overall deleterious effect.

Special attention should be paid to the differences in IaaS and PaaS regarding standardization as well. The two markets, though interrelated, provide different services, are in different stages of their evolution, and likely present different arguments for implementing any such regime. Though the report recognizes this, it should be weighed heavily in the subsequent investigation.[60]

And even if IaaS or PaaS presents a stronger argument for standardization, the omnipresent specter of AI hanging over the entire UK economy should be given greater weight than the provisional report paid it.[61] The report committee decided to omit any consideration of AI and its associated accelerated cloud compute due to uncertainty on its future effect on customer behavior and choice.[62] Though the artificial intelligence revolution may or may not be imminent, tradeoffs that might hinder cloud providers from deploying new AI related tools and features or even deter AI companies and startups from establishing operations in the UK should be identified and weighed.

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[60] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 10 app. W (Jan. 28, 2025).
[61] See Competition and Markets Authority, CLOUD INFRASTRUCTURE SERVICES Provisional decision report, 481 (Jan. 28, 2025).
[62] Id.

Finally, licensing practices can be incredibly complex, with *FTC v. Qualcomm* in the United States being a notable and recent example.[63]

The UK government's provisional findings on the cloud services market, as presented in its recent guidance, offer a detailed examination of competition dynamics within this rapidly evolving sector. In assessing the role of major providers such as Microsoft, it is worth considering the broader implications of regulatory intervention, particularly in the context of global competition for cloud computing leadership.

Microsoft has made substantial investments in cloud infrastructure and services, notably through its Azure platform, which supports a wide range of users, from large enterprises to smaller organizations. These contributions have helped establish benchmarks in reliability and scalability that benefit the wider industry. While the UK's investigation highlights concern about market concentration, it may also be useful to view Microsoft's position as a reflection of its ability to meet customer demand effectively, rather than solely as an indicator of competitive imbalance.

The global cloud market is characterized by intense competition, with key players in regions such as the United States and China actively expanding their influence. The UK, as an emerging hub for technology and innovation, stands to benefit from fostering an environment that attracts investment from companies like Microsoft. Regulatory measures that impose stringent requirements—whether on pricing, interoperability, or market structure—could, in theory, affect the incentives for such firms to maintain or grow their presence in the UK. This, in turn, might shift advantages to jurisdictions with lighter regulatory frameworks, potentially impacting the UK's long-term competitiveness in the sector.

Rather than focusing exclusively on constraining established providers, an alternative approach could involve policies that encourage innovation and entry by new competitors. The cloud market remains dynamic, with technological advancements and emerging players continually reshaping its landscape. Microsoft's

[63] FTC v. Qualcomm Inc., 935 F.3d 752 (9th Cir. 2019).

prominence, while significant, operates within this broader context of change, suggesting that competition may evolve organically without extensive regulatory correction.

In considering its next steps, the UK might weigh the benefits of supporting a flexible, innovation-driven cloud ecosystem against the risks of overregulation. This balance could position the country favorably in the global race for cloud computing advancement, while preserving the contributions of firms like Microsoft to economic and technological development.

Protecting intellectual property rights is crucial for fostering innovation, a driving force behind the cloud services market's rapid evolution. The CMA's provisional findings suggest that competition in this market is not functioning as effectively as it could, potentially limiting competitive prices, quality improvements, and innovation. However, Microsoft's response challenges this view, asserting that the cloud computing market is highly competitive and dynamic, delivering substantial benefits to UK businesses and government through significant investment, declining prices, and relentless innovation, particularly in artificial intelligence. Evidence of this competitiveness is clear in the market's transformation from a single-provider landscape in 2006 to one with dozens of global players today—including Microsoft Azure, AWS, Google Cloud Platform, and others—each vying for customers with unique offerings and advancements.

The CMA highlights concern such as barriers to switching, multi-clouding challenges, and Microsoft's licensing practices, which it claims partially foreclose competitors like AWS and Google Cloud. Microsoft counters that these practices are a competitive strategy designed to attract customers, not stifle rivalry. For instance, discounting virtual machines with Windows Server on Azure for customers with existing on-premises licenses exemplifies competition in action. Restricting such practices, as Microsoft argues, could weaken its ability to challenge AWS and Google, potentially leading to higher prices and reduced innovation—outcomes contrary to the CMA's aim of enhancing consumer welfare.

The rise of AI has further reshaped the cloud market since Ofcom's initial referral nearly three years ago, a factor Microsoft emphasizes as transformative. The CMA's exclusion of AI-driven accelerated compute from its analysis overlooks a critical shift: AI has spurred massive investments and accelerated growth, with incumbents and new entrants alike—such as Oracle, Nvidia, and AI startups—pivoting to meet evolving customer demands. This dynamism undermines the relevance of the CMA's focus on legacy products and historical concerns, suggesting that the market has outpaced the inquiry's original framing.

Moreover, Google's significant growth and advantages in the AI-driven cloud landscape, including its market capitalization, proprietary AI chips, global datacenter network, and vast data resources from consumer services. Google's increasing cloud revenue and market share reflect a competitive market where innovation, not licensing costs, drives success. This challenges the CMA's portrayal of Microsoft's practices as a dominant barrier to competition, indicating a more balanced and contested market than suggested.

The CMA's provisional recommendation to investigate AWS and Microsoft under the Digital Markets, Competition and Consumers Act (DMCC) for potential Strategic Market Status (SMS) designation raises concerns about over-intervention. Such actions could threaten the UK's competitive edge in the global digital economy, potentially pushing businesses to relocate digital activities to less regulated markets. The cloud services industry's global nature amplifies these risks, as heavy-handed regulation might deter investment and innovation at a time when the UK seeks to capitalize on AI advancements.

A cautious, evidence-based approach to regulation is warranted. Targeted measures, such as reducing egress fees to ease switching, could address specific barriers without disrupting the market's vitality. Broader interventions, however, like altering licensing practices or mandating standardization, risk unintended consequences given the market's current benefits—deflationary pricing, AI-driven innovation, and expanding provider options. The CMA itself acknowledges the "material risks" of using its remedy-making powers, reinforcing the need for precision over expansive action.

Ultimately, while the CMA's concerns merit consideration, the cloud services market's competitive dynamics are delivering tangible advantages to UK consumers and businesses. A thriving ecosystem has evolved significantly since the inquiry began, driven by competition and technological progress. Regulatory efforts should prioritize preserving these strengths, focusing only on well-substantiated barriers, to ensure the UK remains a leader in the global digital economy.